telestream

Vantage

VANTAGE MAN PAGES

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Vantage Man Pages

Man pages in Vantage Workflow Designer provide online help for the task you are focusing on. Man pages provide details about the panel you are viewing or about the selected object in the panel. For configuration panels, man pages provide details about how to configure the panel to meet your requirements.

To access a man page in Workflow Designer, click on the M icon in the title bar of the window. The man page that displays is the page that is associated with the selected item on the window, or the window itself, if no objects have been selected.

For example, if you are viewing a Watch action inspector window, the man page for the Watch action displays. If you have selected an item on the window—for example, the Email option in the Message action inspector—then the Email man page displays.

Man pages are grouped by category for convenient access.

Actions

An action is a discrete unit of work to be performed by a Vantage service, in the context of a Vantage workflow job. Each action is configured to perform a useful task, according to your Vantage domain and media processing requirements, using the action inspector. Actions are generally named by the task they are designed to perform: copy a file (Copy action), or decode and re-encode media (Flip64 action), for example. They are organized in Workflow Designer by category. Typically, a single Vantage service executes all actions in a given category.

Actions have limited interdependency with other actions, and so, are very flexible. You may impose limits on an action. For example, you might require action B to depend on action A in a Vantage workflow, by requiring a specific file in action B that is generated by action A, or requiring a variable to be set in action A that is needed by action B. You can configure each action in a workflow to perform its designated task in a specific manner that suits your requirements.

Some actions are optional, licensed features that are only enabled when the license is present in the domain.

Actions

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DIVA Restore Action

DPP Validate Action

DRM Action

Dublist Action

emotion Action

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Exist Action

Extract Action

Faspex Delivery Action

FileCatalyst Action

Flip Action

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Frame.io Action

Gather Action

Grid Action

iconik Action

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IPTV Flip Action

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MediaInfo Action

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Push Action

Qualify Action

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Register Action

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Report Action

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Signiant Delivery Action

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Split Action

Stanza Action

Stitch Action

SubClip Action

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Syndication Forward Action

Tape Action

Tempo Action

Timed Text Conform Action

Timed Text Flip Action

Transform Action

Utility Action (Cloud)

Utilization Action

VidChecker Action

Watch Action

Workorder Action

AAF Action

The AAF action ingests an AAF file and performs various operations on the media in the MXF folder referenced in the AAF, as configured by you. Avid Media Composer utilizes Persistent Media Record (PMR) files for information about the online status of file Media Object information (MOB). Each PMR file provides an index in a form that an editor can quickly load all the file MOBs and their associated media files in the media directory in which the PMR file resides.

You can also perform a Matte/Key effect on ingested files to use in Avid Media Composer, where you apply a Matte/Key effect on selected media using the clips.

In order to perform Open Workflow, Frame Chase (Edit While Capture) processing of Media Creation outputs, you must bind the AAF Path variable (created in an upstream Media Creation action) to the Input Source File Name field.

For a practical guide to using the AAF in Avid workflows, please see the Avid Integration Guide on the Telestream web site.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input

Select. Select AAF and specify input source by file name or file nickname.

Output Media File Settings

Output Media File Nickname. Specifies the nickname for the output file for use in downstream actions.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the filename. You can use the following tokens:

- Base Name. The name of the file, without the extension.

- Variable. You select the variable to use. The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value 12H4JA678, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- Date. The current date that the file is written from the perspective of the server running the Avid Service. Change the date format via the menu.

- Time. The current time that the file is written from the perspective of the server running the Avid Service. Change the time format via the menu.

AI Speech Action

The AI Speech action is part of the AI group and is executed by the Vantage AI Service. The AI Speech action is Open mode capable.

The AI Speech action uses a Machine Learning (ML) model to generate metadata from the audio content of media (including open, growing files), such as dialogue timeline markers, dialogue content summaries, and profanity indicators.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Using ML Models in AI Speech Actions

The AI Speech action requires access to the AI Speech ML models to execute. By default, the location of the model files is transparent to users.

The Vantage Management Console's Global Model Location (in the Settings & Options > Local AI tab) may be specified to identify the path where the models should be stored for access by multiple servers in a Vantage array, whether they are automatically or manually downloaded.

In the case of a single server, ideally they are stored locally for performance reasons and you should not specify a location. In an array, you may choose to store them locally on each server, or in a share - in which case you should specify a location.

For single-server Vantage domains connected to the Internet, when the Vantage AI Service executes an AI Speech action and discovers that the model being utilized is missing, it downloads it silently to the location specified. In the case of a Vantage array using a share, any AI Service to execute an AI Speech action and discover that the model is missing also downloads it.

For Vantage domain server(s) not connected to the Internet, you should manually download the models from the Telestream web site and store them on the local server - or in the case of an array - in a common, shared location - and specify that location in the Global Model Location for use by all AI Services executing AI Speech actions.

Speech to Text Models

telestream.net/download-files/ggml/ggml-tiny.bin

telestream.net/download-files/ggml/ggml-base.bin

telestream.net/download-files/ggml/ggml-small.bin

telestream.net/download-files/ggml/ggml-medium.bin

telestream.net/download-files/ggml/ggml-large.bin

telestream.net/download-files/ggml/ggml-largev2.bin

telestream.net/download-files/ggml/ggml-largev3.bin

Summarization Models

telestream.net/download-files/ggml/ggml-llama3.1.bin

telestream.net/download-files/ggml/ggml-llama3.2.bin

Built with Llama

Llama V3.1 is licensed under the Llama 3.1 Community License. Llama V3.2 is licensed under the Llama 3.2 Community License. Copyright © Meta Platforms, Inc. All Rights Reserved. See https://llama.com/llama3_1/license/ and https://llama.com/llama3_2/license/.

Inspector Wizard

Specify Inputs

Media Input File (required). Specifies the media file that you want processed.

Profanity Source. When checked, specify the nickname of the attachment file - a comma-separated CSV file (ingested by an upstream action) - which contains literal phrases and/or words, or regular expressions (regex), that you consider profanity, to filter them out of the speech-to-text results. Regular expressions (regex) improve pattern matching flexibility.

Multi-line CSV files are not supported.

If a regex expression is invalid, the action fails and reports an error. For example: Error: Invalid regex in profanity list: /(/ (Invalid pattern '(' at offset 1. Not enough)'s.).

Regex Example with Two Expressions

/(?i)\b(dang|darn|crap)\b/, /(?i)\b(file|fil(ing|ed)\b/

Note: Literal phrases and words may be intermixed with regex expressions; each regular expression must start and end with / (forward slash) character.

Specify Output Files to Generate

Check the control for each format output file you want the AI Speech action to generate:

Text | JSON | CSV | XML | Incremental Summary | Final Summary

For each selected output file, specify a nickname, output location, and optionally, edit the filename pattern.

Next. Click Next to continue.

Audio Settings

AI Speech starts counting both tracks and channels from 0.

If you do not check either Track Number or Selected Channels, AI Speech performs a mixdown based on the audio layout in the file:

- For files with multiple tracks of PCM mono (for example, MXF with 8 mono PCM tracks), AI Speech performs a mix down of all audio tracks.

- For all other audio layouts, AI Speech performs a mixdown of all channels from the first audio track in the file (track 0).

- If you specify Audio Tracks and do not check Selected Channels, AI Speech performs a mix down of all channels from the specified Audio Tracks track number.

- If you check both Audio Tracks and Selected Channels, AI Speech performs a mixdown of the specified channels from Audio Track N.

Audio Tracks. When checked, specify the track number of the audio track that should be processed.

Selected Channels. When checked, specify the selected channel or channels from the specified audio track that should be processed. Channels should be separate by commas. For example: 0,1.

Transcription Language. When checked, specifies the ISO 639-1 two-letter language code for the transcription language. When unchecked, Auto is the default.

Model. Wen checked, specify the model size, where smaller models are faster but less accurate. Large V2 is recommended as the optimal model size for the highest degree of accuracy in most languages. When unchecked, *Base* is the default speech model.

Translate. When checked, AI Speech translates all dialog into English text. By default, when Translate is unchecked, the dialogue is transcribed in its native language. (For example, French spoken words are transcribed as French.)

Refine Timing. When checked, increases machine learning processing to increase timing results accuracy. Limited to these languages: EN | ES | PT | FR | DE.

Use GPU. When checked, specifies that ML should be executed on the GPU, if one is present on the server where the Vantage AI Service is executing this action.

Prompt. When checked, specifies the words and phrases used to train the ML model. Prompt content may be separated by commas or spaces, or be on individual lines with no effect on the outcome.

Chunk Duration. When checked, specifies the duration of audio stream in seconds to process in each iteration. Shorter durations decreases latency, but also reduces accuracy. When unchecked, the default 30 second duration is used.

Read Timeout. In Open mode, this control must be checked to limit the amount of time to wait when the file is still being written. When the time limit expires without changes, the file is assumed to be complete. Not used when the action is not operating in Open mode.

Remove Non-Verbal Results. When checked, all non-verbal audio - sound effects and music such s music, door slams, and gun shots - is removed.

Summarization Settings

Summarization Model. When checked, specifies the ML model to use for summary generation, generally controlling the amount of memory allocated for the model.

Summary Length. When checked, specifies the relative length of the summary text.

Desired Summary Duration. When checked, specifies the target duration of the summary, in seconds.

Model Location

Model Location. Select Use *AI Speech Global Default* | *Specify Model Path*.

- *Use AI Speech Global Default*: When selected, uses the default downloaded location for the ML models or the location specified in the Vantage Management Console > Settings & Options > Local AI > Global Model Location.

- *Specify Model Path*: When selected, specify the ML model location for jobs executed by this workflow. You should only select this option when you have a requirement to utilize a set of model files that is in a location different from the default location or specified in the Global Model location.

Next. Click Next to continue.

Generate Variables

Profanity Detected. When a profanity word is detected in the speech to text, the value of this variable is set to true.

Listen Action

The Listen action is part of the Monitor group and is used to watch a cloud-based message queue and generate jobs from received messages. The Listen action uses a plugin model for various cloud endpoints such as Amazon Simple Queue Service (SQS).

The content of these messages could be very simple and contain a single value such as a file path or some sort of identifier to be used, or they could be more complex such as a blob of json/xml to be processed by a downstream action such as Extract.

The Listen action automatically deletes messages from the queue as it processes them. Any messages that are present in the queue when the Listen action starts up will be processed

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Note: When configuring queues Telestream recommends using a FIFO (first-in-first-out queues) model to avoid message duplication.

Inspector Wizard

Open the Inspector Wizard to configure the action.

Select the Queue Type

Choose a supported type from the list. Amazon SQS is currently supported.

Click Next to continue.

Alchemist File Action

The Alchemist File action is an optional, licensed feature.

The Alchemist File action allows Vantage to interact with an installation of the Grass Valley Alchemist software.

For configuration and set up details, see the Alchemist File app note available on the Telestream website.

Inspector Wizard

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Select Plug-In

Specifies the plug in to use for the Alchemist job. Option is Alchemist Job.

Input Media and Attachments

Media Input File. Specifies the media file to use, by nickname, for the Alchemist job.

Settings

Address. Name or IP address of the Alchemist server. Default is 127.0.0.1.

Port. Port that the Alchemist server is listening on. Default is 35,061.

Profile Name. Specifies Alchemist job profile to utilize. Default is 1080i59_mpg.1.xml

Profile Type. Specifies the profile type to use. Options are Default profile (system) or User Profile (customer).

Priority. Specifies the priority of jobs sent to an Alchemist server.

Note: Profile Name and Type are configured on the Alchemist server.

Output Media and Attachments

Alchemist Output. Specifies the media file to output, by nickname, from Alchemist.

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are

going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the package to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click the green Browse button to select a variable which supplies the fully-qualified path dynamically.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the filename.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Analyze Action

The Analyze action is part of the Analysis group and is executed by the Vantage Analysis Service. The Analyze action enables you to perform analysis on media using a variety of analysis filters, and generate variables with the result of the analysis, for use in downstream actions.

A variety of filters are provided in the Analyze action. In each filter, you can generate variables to publish the results of specified analysis for use in downstream actions. Some filters additionally create result files and reports.

Using This Action in Cloud Mode

This action is Cloud capable. Actions placed into Cloud mode are executed remotely in Vantage Cloud. For additional details, refer to the Vantage Cloud User Guide on the Telestream web site.

Inspector Wizard

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Specifying Analysis Filters

Analysis (left panel). Specifies one or more analysis filters to utilize.

To add filters, click the Plus icon and select the filter. To configure it for use in this action, select it. The configuration panel for the selected filter displays on the right side of the window, below the Analyze Settings panel.

To delete a filter, click the X icon.

Specifying Input Media Files

Input Media File Nickname. Specifies the media file to analyze, by nickname.

Reference Media File Nickname (for use in SSIM, PSNR, and VMAF Filters Only). When utilizing the SSIM, PSNR, or VMAF analyzers, specifies the optional reference file to compare the input against, by nickname.

Analyze Settings

Under Analyze Settings, when Start of Active Segment Start and Duration of Active Segment are enabled and values are specified, a constrained range is made available

for analysis. This can be used independently or in conjunction with Active Segment settings in individual filters.

Force Flip Decoder. When checked, specifies that decoding should be performed by the 32-bit Flip action transcoder, rather than the 64-bit Telestream Media Framework transcoder implemented in all other Vantage transcoding actions.

Pad Video. For input media with video and audio that start at different times, when unchecked, the container reader skips audio samples to align the video and audio. When checked, the container reader adds black frames to the video to align the streams.

Enable Open TIFO File Reading. When checked enables reading of growing TIFO files. Unchecked by default.

Note: Open Workflow Mode must be enabled for the action in order to use the Enable Open TIFO File Reading option.

Normalize Reference. When checked, input video is normalized to match the reference video before comparing. Unchecked by default.

Timecode Generation. Specifies Source | Drop Frame | Non-Drop Frame timecode.

Start of Active Segment. Specifies when analysis begins. If only Start of Active Segment is checked, the portion of media processed is from the configured time to the end of the file.

Duration of Active Segment. Specifies analysis duration. If only Duration is checked, the portion of media processed is from the beginning of the file to the configured duration.

If both the Start and Duration controls are unchecked, the entire media file is processed. This is the default setting.

Active Region for PAL 608x720 | NTSC 512x720 | NTSC 486x720. Specifies VBI lines to ignore, thus setting the active region for the video frame.

Generate Analysis Result Attachment. This control applies to the following filters:

- Black Detection

- Color Levels Analysis

- Scene Change Analysis

- Slate/Spot Analysis

- Telecine Cadence Analysis (passed to the Custom Cadence filter in supported transcode actions)

Check to generate the XML file containing the results of analysis and supply a nickname or fully-qualified filename.

File Nickname. Select File nickname to identify the file by nickname.

When used with the Telecine Cadence Analysis filter, if you supply a nickname instead of a filename, you should add a File Properties filter to this action and enable a File Path so that you can transfer the file path to the Custom Cadence filter in supported transcode actions as a variable, because it does not use nicknames.

File Name. Manually enter or browse and select the fully-qualified path to the XML analysis file.

Archive Action

The Archive action is part of the Staging group, and repackages the selected file (as referenced by its nickname) in the specified format as required in preparation for deployment/distribution.

Archive actions are executed by the Vantage Staging Service.

Before the Archive action can execute, it must be configured using the inspector.

Inspector Wizard

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Archiver. Specifies the format (Tar | Zip) you want to use to archive media into a compressed file of the selected type (default: Tar, with extension .tar).

Edit Filename Pattern. Displays the Filename Pattern Editor. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the archive you choose.
- *Date:* Select the format to use by clicking on the token in the pattern field.
- *Time:* Select the format to use by clicking on the token in the pattern field.
- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Input File Nickname. Specifies the input file(s) to process, by nickname.

Output Attachment Nickname. Specifies the nickname to assign the output file.

Output Location. Specifies where to store the file(s).

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Enable Path Preservation. Preserves the sub-folder structure of an input file provided by a Watch, Associate, Flip, Gather, Copy or Move action when writing the output file to the destination directory.

For example, if a Watch action monitors a hot folder share \\VantageIn\ with Look in Subfolders enabled, and a job is submitted by the Watch from \\VantageIn\Subfolder1\Subfolder2\Clip.mpg, then the output file will be written into the specified directory path plus Subfolder1\Subfolder2\, thus preserving the sub-folder structure in the destination location.

Generate Variables. Check those variables which you want to publish for use in downstream actions. When checked, select the variable (or create a new one) to use.

Associate Action

Associate actions are designed to make additional files accessible to the workflow after the job has been started by an origin action. The Associate action is part of the Monitor group, and is executed by the Monitor Service. The Associate action is not an origin action - it cannot be the first action in a workflow and is not designed to submit jobs.

The Associate action is designed to ingest files associated with a job. After the job has started (with a Watch action, manual or SDK submission, for example), it blocks the job from continuing execution until it has identified the media or other type of file (as specified by file selection options you set). It ingests the file and assigns the nickname you specify so the file can be utilized by downstream actions, and then passes control to the next action in the workflow.

Note: The Accept Pattern field is a required field. You must supply a valid filename filtering value in the Accept Pattern field located on the Configure Settings panel of the inspector.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Details

Attachment Files is a licensed option. If Attachment Files is unavailable, it is not licensed in this domain. Some media systems are also licensed options. Media systems that are unavailable are not licensed in this domain.

Inspector Wizard

Associate. Select Media Files or Attachments:

Associate Media Files. Choose Media Files when you want to use the file in some encode or analysis action. Next, select a specific type of media server/system. Click Next and follow the steps to configure the action appropriately. When a new media file is detected, the file is attached to the workflow, and assigned the specified nickname.

Associate Attachments. Choose Attachments when you are utilizing the file for reasons other than encoding or analysis. When selected, select Attachment Files. Click Next and follow the steps to configure the action appropriately. When a new file is detected, the file is attached to the workflow, and assigned the specified nickname.

Note: Do not use the Attachments option when you need to ingest media files that you want to encode or analyze - use the Media Files option instead. Flip and Analyze

actions cannot process files that have been attached to the workflow as an attachment. This does not prevent you from ingesting a media file as an attachment for other purposes; it just can't be encoded or analyzed.

Next. Displays the next inspector panel.

Select a Vantage Folder

On the File System selector page, you can optionally choose a Vantage address folder location rather than a File System. Select an existing folder from the drop down or create/delete/edit another one by clicking on the Create/Edit/Delete Vantage Folders button.

AudioTools Action

The AudioTools action enables Vantage workflows to utilize and interact with various AudioTools products from Minnetonka Audio Software. The Vantage AudioTools Connector is a licensed Vantage option. Each instance can process up to four actions simultaneously.

The Vantage AudioTools Service should be executed on the server running Minnetonka AudioTools Server. If Vantage does not detect the AudioTools software on the server where the Vantage AudioTools Service is running, the Vantage AudioTools Service starts in the maintenance state.

Before the AudioTools action can execute, it must be configured using the inspector.

The AudioTools Custom Workflow invokes the Generic Agent. This Agent operates without a user interface; the user simply chooses the custom, pre-defined AudioTools Server workflow specified. This allows for every possible profile on AudioTools Server to be used in a Vantage workflow.

Note: No custom workflows are installed by default. Custom workflows can be obtained separately through Minnetonka or an authorized Minnetonka dealer/reseller. An AudioTools Server consultant can assist broadcasters to translate requirements into custom workflows.

AudioTools Loudness Control invokes the Loudness Agent. This allows for the most typical loudness processes which include hitting multiple target parameters using an iterative processing pass from a simple user interface. Users select Loudness Adjustment Types and enter target requirements for various loudness parameters. These parameters are used to configure a predefined master workflow profile using the Loudness Measurement and Loudness Adjustment modules on the AudioTools Server.

Select Plug-in. Select one of the AudioTools products to run in this workflow, and configure it as required - see topics below.

AudioTools Custom Workflow

When AudioTools Custom Workflow is selected, configure the following settings:

Input Media and Attachments

Media Input File. Supply a nickname for the input media file to process.

Settings

Custom Workflow. Supply the name of the custom workflow on the AudioTools server that should be executed.

Temporary Storage Location. Specify a server and directory path to use for temporary storage; typically a UNC path.

Output Media and Attachments

Output Media File. Select or enter a nickname for the output file. You can operate on the file using in other actions downstream, by referencing the file with its nickname.

Output Location. Specifies where to store the file.

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Edit Filename. Specifies a pattern for the output filename. Enter the complete filename or a portion of the filename, and use the drop-down menu on right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- Base Name (the name of the file, excluding the extension)

- Date

- Time

- Variable (you select the variable to use)

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if the Variable token House ID is given the value *12H4JA678*, wherever the token appears in the pattern it is replaced with *12H4JA678*.

AudioTools Loudness Control

When AudioTools Loudness Control is selected, configure the following settings:

Input Media and Attachments

Media Input File. Specifies the nickname for the input media file to process.

Settings

Loudness Settings

Program Configuration. Specifies the Audio Program Configuration (Channel Configuration) of the source audio.

Enable Program Loudness Normalization. Specifies that program loudness normalization is enabled.

Program Loudness Normalization. Specifies program loudness normalization in LUFS.

Anchor. Specifies that Program Loudness Normalization is anchored based on Program Loudness or Dialog.

Enable Maximum Short Term Limiting. Specifies that maximum short term limiting is enabled.

Maximum Short Term Limiting. Specifies the maximum short term value in LUFS

Speed. Specifies limiting based on ITU 1770-3 (Standard) or faster limiting (Fast).

Enable Maximum Momentary Limiting. Specifies that maximum momentary limiting is enabled.

Maximum Momentary Limiting. Specifies the maximum momentary limiting value in LUFS.

Speed. Specifies limiting based on ITU 1770-3 (Standard) or faster limiting (Fast).

Enable Loudness Range. Specifies that a loudness range is enabled.

Loudness Range. Specifies the Loudness Range in Loudness Units.

Enable True Peak Limiting. Specifies that True Peak Limiting is enabled.

True Peak Limiting. Specifies the true peak limit in decibels.

Enable Measurement. Specifies that Final Measurement is enabled.

Logfile Destination. Specifies the fully-qualified path to the logfile destination directory. Enter manually or click Browse to navigate to and select the directory. Default: C:\ProgramData\Minnetonka Audio Software\AudioTools Vantage Agent\Logs\.

Temporary Storage Location. Specifies the fully-qualified path to the temporary storage location directory. Enter manually or click Browse to navigate to and select the directory. Default: C:\ProgramData\Minnetonka Audio Software\AudioTools Vantage Agent\Temp\.

Output Media and Attachments

Media Output File and Media Results File. Select or enter a nickname for each of the output files. You can operate on the files in other actions downstream, by referencing the file with its nickname.

Output Location. Specifies where to store the file.

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Edit Filename. Specifies a pattern for the output filename. Enter the complete filename or a portion of the filename, and use the drop-down menu on right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- Base Name (the name of the file, excluding the extension)

- Date

- Time

- Variable (you select the variable to use)

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if the Variable token House ID is given the value *12H4JA678*, wherever the token appears in the pattern it is replaced with *12H4JA678*.

Aurora Action

The Aurora action enables Vantage workflows to utilize and interact with various QC tests provided by Tektronix.

The tests provide the ability to determine (by inspecting returned values in variables) whether a particular input media (specified by nickname) passes or fails a particular QC check. Each test also generates a report file in PDF format that may be utilized during later stages of the workflow or reviewed by an operator.

The Aurora software must be licensed and installed on the same server as the Vantage Aurora Service. If Vantage does not detect the Aurora software on the server where the Vantage Aurora Service is running, the Vantage Aurora Service starts in the maintenance state.

Before the Aurora action can execute, it must be configured using the inspector.

Select Plug-in. Select the Aurora template to run in this workflow.

Note: In order for Vantage to update new or changed templates (which display in the menu), you must restart the Vantage Aurora Service (via the Vantage Management Console or in Windows in the Services control panel). Then, restart Vantage Workflow Designer.

Input Media and Attachments. Supply a nickname for the input media file to process by Aurora.

Settings. This section is unused.

Generate Variables. Check those variables which you want returned for analysis in downstream actions. When checked, select the variable (or create a new one) to use.

Output Media and Attachments. Select or enter a nickname for the analysis report generated. You can operate on the report using transport actions (Copy, Move, etc.) downstream, by referencing the file using its nickname. For example, if the Aurora test fails, you can branch to a quarantine branch with actions which place the output file and the analysis report PDF file (which you can specifically name when saving it) in a quarantine folder for review by an operator.

Automate Action

The Automate action is part of the Communicate group, and is similar to the Notify action. It displays a variety of automation system connectors which are relevant to TrafficManager workflows, enabling you to save job or other metadata to a file and interface/integrate with external automation systems.

In TrafficManager applications, this action is useful to notify automation systems that a commercial has been processed and is available for air. For example, an Automate action can create text or CSV dublists and provide them to automation systems that are capable of processing dublists in that format.

Each connector has specific features which are detailed in the manual page for the system.

Inspector Wizard

Select the Automation Type. Specifies the type of automation system you want to integrate.

Next. Displays the next inspector panel.

Baton Action

The Baton action enables Vantage workflows to utilize and interact with various content verification/QC tests provided by Baton software.

The tests provide the ability to determine (by inspecting returned values in variables) whether a particular input media (specified by nickname) passes or fails a particular test. Each test also generates reports that may be utilized during later stages of the workflow or reviewed by an operator.

Camera Ingest Action

The Camera Ingest action is part of the Monitor group. A Camera Ingest action is used as the first action in a workflow to start new jobs when new camera shots are detected. Camera Ingest actions start when the workflow is activated and run continually during the active time frame, if specified. Camera Ingest actions are executed by the Monitor Service.

A Camera Ingest action continually monitors the target device or directory for new shot files, for supported cameras and formats. A Camera Ingest action initiates a job each time a complete shot is discovered, and passes control to the next action in the workflow.

Camera Ingest actions enable workflows to control whether each shot is processed alone or whether multiple shots are stitched together in a single job. In the context of the Camera Ingest action, a *shot* (sometimes referred to as a clip) is the media which is created by a recording action on a camera between a start and stop event, stored in one or more files created as necessary, under control of the camera's file system.

Note: Each Camera Ingest action is configured to detect new shots in a specific file format. For example, MXF or XML. If the target contains shot files of multiple formats, use two Camera Ingest actions - each configured to ingest and process a specific file format.

Camera File Processing

Because each type of camera has a specific file structure, you choose the appropriate camera type when configuring the Camera Ingest action, to enable Vantage to process camera files automatically, regardless of the underlying file structure.

The Camera Ingest action supports spanned and split files, self-contained single and multi-shot files, and referenced (XML) single and multi-shot files. For multi-file camera files, Vantage waits until the directory is stable and all multi-shot media files are present before submitting a job. For split and spanned files, Vantage also waits until all files are present before submitting a job (for example, inserting cards in a card reader).

Single File Clips

A single-file or self-contained clip is a shot where the video is entirely captured in a single media file. The key aspect of a single-file clip is that the media does not need to be stitched together from multiple files (although audio and data tracks may be stored in separate files).

Single File Example: SHOT001.mxf contains both audio and video

Multiple File Example: SHOT001v.mxf and SHOT001a.mxf contain video in one file and audio in another file. This is considered a single or self-contained file because the shot will always be contained in a single location and the video is entirely in one file.

Split Clips

A split clip is a shot where the media is split temporally, across multiple files within the same directory or on the same storage medium (card). For example: SHOT001.mxf and SHOT002.mxf, stitched together, form a single shot.

Spanned Clips

A spanned clip is a shot where the video is split across multiple files, across multiple locations. Files may physically be on different cards (in a camera card reader) or in different directories (if copied to a computer). Generally speaking, you do not need to know how the underlying files are structured; Vantage automatically detects this for you and composes the shot for all of the cases.

Inspector Wizard

Select What You Want to Watch. Specifies the type of camera clips you want the action to detect and process.

Call and Return Actions

Call and Return actions are part of the Common group and are implemented in all Vantage services. Call and Return actions simplify the design process of complex media processing workflows, by enabling you to create isolated, specific-task workflows that automatically pass relevant data, perform their task and return to the caller with the processed data.

A called workflow essentially acts as a subroutine in a larger media processing context, as if the actions in the called workflow were functionally part of the calling workflow. A calling workflow may have multiple Call actions, but called workflows can not call other workflows - you can only nest called workflows one level deep. The called workflow must end with a Return action - in a multi-path workflow, use a synchronize action to reconnect the paths and follow it with one Return as the terminating action.

Call Action

The Call action starts a job with another workflow to perform its tasks and return with relevant data, that may be operated on or otherwise utilized.

Note: Before the Call action can execute, it must be configured - and you must first create the called workflow - which must start with a Receive action and end with a Return action - so that you can select it as the target in the calling workflow.

Media and attachment nicknames, and metadata labels may be passed to the called workflow, along with the session state variables.

The calling workflow should be configured with expected media/attachment nicknames and labels to be returned from the called workflow. Nicknames in the called workflow should not conflict with inbound nicknames from the calling workflow, but Labels are capable of overriding the inbound configuration.

Nickname collisions may occur if the Return action provides an unexpected nickname that is also generated downstream from the Call action in the calling workflow.

Variables utilized in this workflow have scope in the next workflow - that is, they can be utilized by actions in the receiving workflow and maintain the values assigned in this workflow.

Return Action

The Return action in the called workflow terminates the job and returns media and attachment nicknames, labels and variables generated, even if the calling workflow's Call action is not configured to expect such nicknames.

One (and only one) Return action is required in a called workflow (which must begin with a Receive action), and a called workflow may not contain a Call action - you can not nest the Call more than one workflow deep.

Use Case Example

You have a common set of ingest locations, each of which uses a common set of audio processing actions that are part of a large decision tree for handling a wide range of media configurations. It is inefficient to include this action set in each workflow due to the size of the decision tree, as well as the complexity of making changes across multiple workflows when updates are required.

One method to improve the process is to create a series of Forward/Receive workflows that enable a common workflow to perform the common audio processing portion of the process. However, this may create problems for systems submitting jobs to track the status of submitted job as they are often limited to only the first job ID returned.

By providing a Call-based high-level workflow, it can ingest media, call sub-workflows to perform specialized actions as required, and be monitored to provide a single source of information about what was submitted and the status of each job. Call actions clearly show if there is an error in a specific sub-workflow and enable easier tracking of where a job has encountered issues.

A single, high-level workflow also makes it easier for third-party systems and system integrators to take advantage of complex workflows, by providing a single entry/exit point with single status, while still proving support for more complex and modular workflow design.

Inspector Wizard

Select the Target Workflow. Specifies the called workflow to execute; listed workflows are those in this domain which have Return actions in them.

Specify the Nicknames generated by the Target Workflow. Specifies the nicknames and labels generated by the called workflow, which are intended for use in the calling workflow upon return.

Media Files. Specifies one or more media files you expect to receive in this workflow, by checking each nickname in the list.

Labels. Specifies one or more labels you expect to receive in this workflow, by checking each label in the list.

Attachments. Specifies one or more attachment files you expect to receive in this workflow, by checking each nickname in the list.

Next. Click to continue.

Finish. Click to save the workflow and close the inspector.

Capture Action

The Telestream Live Service and the Capture action are Vantage features enabled in a Vantage domain to support Live Capture and appropriately licensed. The Capture action is intended for use in conjunction with Live Capture, for the purpose of ingesting live and live-linear media directly into production, post production, and broadcast workflows and serializing it into a file for further, file-based video processing.

You use the Live Capture web application to capture selected live video streams being ingested by a Capture workflow executing in Vantage and encode and serialize the media into files.

You can also ingest live video streams and stream them back out on an IP network via SRT, for output monitoring and capture with external solutions.

Note: For SRT output, you are required to specify a file-based output location in the configuration.
After starting a capture that generates SRT output, for the SRT stream to successfully connect, the SRT receiver must be active within 15 seconds (the default timeout) of starting the capture. If the SRT output fails to connect, you must restart the capture.

You can use the Live Capture API to create custom programs to control Vantage capture workflows. Additionally, you can schedule and automate capture events using the Live Schedule Pro web app.

Live Capture ingests 3G and 12G SDI, plus RTMP, Transport Stream, SRT, NDI, and ST 2110 IP sources via the Telestream Live Service. The Capture action decodes the source to digital baseband in real-time for encoding and serialization. Sources are defined using the Live Source Manager web app.

Caution: Workflows containing more than one Capture action are not supported. When you attempt to add a second Capture action, Workflow Designer displays the error: A workflow may contain only one Capture action.

As an origin action, the Capture action can only be used to begin a workflow. It may optionally be the only action in the workflow. A capture workflow can also include additional actions to meet processing requirements, such as a Populate action or other transcoding (using a Flip action, for example). Or, it may contain Move or Copy actions, to replicate the captured file to other locations.

Note: Most MXF files, and QuickTime Open files are created in such a way that they can be opened for editing/playing while they are still growing during capture. Check with your edit/player application guide for details about supported formats.

The Capture action can operate in normal mode or Open mode. In Open mode, successive actions in the workflow execute concurrently as soon as the media is presented to it, dramatically speeding workflow execution. In workflows where actions execute normally (serially), the Capture action serializes the input stream and, when

recording stops, passes it to the next action (if any) in the workflow, an so on through all the actions in the workflow.

A Vantage domain licensed for Live Capture has an Open Workflows license by default. Thus, you can execute the Capture action (and other Open-capable actions) in open workflow mode, significantly speeding media processing. Of course, in a workflow with a single Capture action, the use of Open mode does not change the functionality of the workflow, because there are no downstream actions to utilize the file in the context of the workflow.

To enable Open mode on an action, right-click the action and select Workflow Mode > Open. (Open workflows must also be enabled in the workflow and in the Vantage Management Console). See user guides in Workflow Designer and the Domain Console for details.

The container and codec selected in the Capture action specify the encoding and format of the output file. The encoded media is captured to a primary file stored locally or copied to external SAN/NAS storage, also based on the Capture action configuration. At the same time, a secondary proxy file may also be configured and produced.

Note: Controls with a green Browse button may be bound to an input variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuring Program Settings

Use the Program panel to configure the Capture action to meet your requirements.

The Program panel displays the source selection, variables to generate, and controls.

Source. Specifies the input to use. For more information on Sources, refer to Live Capture User Guide > Previewing Sources and Finding Workflows.

Channel Group. Specifies the name of the channel group this workflow is associated with. You can assign multiple workflows to each channel group (nexus) you create, and then use channel groups in your Capture web apps to filter workflow selections, narrowing your view of workflows to those that are relevant to your focus. Channel groups are managed in the Vantage Management Console, where they are referred to as Nexus definitions, in the Workflow Design Items > Nexus Definitions tab.

Generate Variables. Open this panel to specify which variables to generate for use in downstream actions:

> **Avid Master Mob ID 1 and 2 | Avid Source Mob ID 1 and 2**. Check to update and publish the selected text variables to provide 1 or 2 sets of Master Mob ID and/or

Source Mob ID for use in a downstream Media Creation action, for Interplay check-in of assets.

Workflow Name. Check to update and publish the selected text variable to provide the name of this workflow.

Primary | Secondary File Path. Check to update and publish the selected text variable to the full paths for the primary and secondary container output.

Primary | Secondary Folder Path. Check to update and publish the selected text variable to provide the folder path for the primary and secondary container output.

Primary | Secondary Filename. Check to update and publish the selected text variable to provide the file name for the primary and secondary container output.

Start Timecode. Check to update and publish the selected variable to provide the starting timecode of the media.

Low Latency Mode. (Default: Disabled) If your application of this Capture workflow requires very low latency and ganged crash recordings with accurate start timecode, enable Low Latency mode.

Workflows with Low Latency mode enabled launch a Capture process upon activation instead of upon receipt of a Start Record command, reducing the time required to start recording significantly.

Typical use cases are ganged, multi-camera recordings such as studio productions, where recordings are designed to start within one second from a manual record action or an API trigger, and preview is ideally no more than a few seconds behind real time. The Stop command for ganged records is also designed to stop recording in under one second.

Start timecode for the first frame of file is identical across all channels when ganged.

In Low Latency mode, you can make any changes that are required before activating the workflow. After you activate a workflow, these limits apply:

- You can not edit sources - change file names - that are utilized by active workflows since they are in use.

- You can't modify variables - bound variables can only provide values that are present when the workflow is activated, to container and format components. If the value changes after activation, the new value is ignored.

Note: You should wait for a minute or two after channels stop before starting a new recording, so that the new process (or processes) associated with the workflow(s) are spun up again for continued Low Latency Mode utilization. Don't serially create clips of extremely short duration - a few seconds, for example. Attempting to create multiple short clips in rapid succession, or performing repeated, rapid Record button pressing (*button mashing*) consumes significant CPU resources, preventing low latency from functioning as designed.

Time-Shift. When enabled, allows ganged crash records to start all jobs on the same frame if time shift is applied, for manual trigger workflows only. This does not apply to recurring segment workflows, which have staggered start times. In a Capture workflow

with Time-Shift enabled, the source input media frames are stored in a FIFO RAM buffer. This allows Live Capture to reach back in time and access media processed in the past, based on the value of the Time-Shift field. Since Live Captures Time-Shift is always processing a source input's media frames, when recording is initiated, each frame stored in the Time-Shift buffer is available to be added to the captured file.

The number of seconds set for Time-Shift in Capture actions associated with this source should be less than or equal to the Max Time-Shift set in the Live Capture Source Manager web app. See *Managing and Configuring Sources* in the *Live Capture User Guide* for more information on setting Max Time-Shift.

Generally, for HD up to 30fps, the total for all source Time-Shift buffers combined should not exceed 80 seconds. At rates above 30 fps, the total should not exceed 60 seconds. For UHD, the maximum should not exceed 10 seconds.

Timecode Override Enable. Check to enable override of the Input timecode with the one you enter in the Timecode Override control. When enabled, Timecode Override will override the Input timecode during a capture with the one specified and put this timecode at the beginning of the output file.

> **Timecode Override**. When Timecode Override Enable is checked, specifies the timecode value. Enter the timecode to put at the beginning of the output file.

Ignore Lost Frames. When enabled, this option suppresses all errors related to incoming video. It allows capture to continue recording if a Loss of Signal | FIFO overrun/overflow | Loss of RS422 condition is encountered or if video format changes are encountered. If disabled, the capture stops when it encounters these conditions. Enabling Ignore Lost Frames should not be necessary in most cases. For LOS details, see*Loss of Signal Behavior* in the *Live Capture User Guide*.

Delete files on failure. When enabled, the output files are deleted when a job fails or the workflow is deactivated while capturing. When not enabled, output files from failed jobs are retained. Depending on the cause of the failure and type of file being captured, the output files from failed jobs may be usable to the point where capture stopped.

Enforce Required Labels to Record. When checked, when recording is started in the Capture web app, recording starts only if all label fields marked as required are not empty. If recording is prevented, an error displays indicating that the required label fields are empty. Update the fields in the label and retry. This feature is applicable to recordings started manually from the Live Capture web app only.

Update Workflow. Enable this control to allow operators to trigger update workflows during a Capture job. This starts a new workflow at the conclusion of this workflow, where the workflow name is entered in the text field. The workflow is often used in the case of post-Capture actions in the workflow failing or to update metadata and notify external systems, such as Avid Media Central. The target workflow must start with a Receive action and it must be active.

Create 708 Caption Data. (Default: enabled) When checked, 608 data is up-converted to 708 caption data. When unchecked, 608 data is not converted. The primary use case to disable this option is for SD broadcast formats that generally should not include 708 captions.

When creating QuickTime/QuickTime Open media using the 608 caption track in a QuickTime container, Create 708 Caption Data should be disabled.

Process Stagger Duration. (Default: disabled) When several jobs are submitted to Live Capture at the same time - particularly immediate (aka crash) recordings - the surge in resource requirements may cause one or more recordings to fail. Supply a unique value greater than zero for each Capture workflow to cause jobs that are submitted to the other workflows during the stagger duration period to have a delayed initialization.

For crash recordings, non-zero Process Stagger Durations are intended to delay the start time of some jobs, when multiple jobs are submitted simultaneously.

For example, crash recording jobs are submitted to three workflows in rapid succession:

- Workflow 1, with a Process Stagger Duration value of 3 seconds
- Workflow 2, with a Process Stagger Duration value of 5 seconds
- Workflow 3, with a Process Stagger Duration value of 0 seconds.

In this example, workflow 1 will initialize upon submission. Workflow 2 initialization is delayed by 3 seconds after workflow 1, because of the Process Stagger Duration value entered for workflow 1. Workflow 3 initialization is delayed by 5 seconds after workflow 2, because of the Process Stagger Duration value entered for workflow 2.

The Process Stagger Duration delays the initialization of the capture process, but not necessarily the start time of a timed job. Assuming a timed recording is submitted with an adequate buffer for initialization for all Capture Record processes to complete (approx. 30 seconds to one minute), the recording will be frame accurate with respect to the starting time code.

Hide Secondary Outputs (Default: disabled). This applies to all output formats. When this control is enabled, paths to secondary outputs are not added to the Vantage binder for the job. In HLS, the manifest files (*.m3u8) are an exception, and are still added to the binder, but the *.ts fragments are not.

Restricting Input - Frame Type and Frame Rate

When enabled, the Capture workflow is restricted to a specific combination of frame type and frame rate. This setting applies only to the Manual trigger or any trigger that has Allow Manual Control enabled.

Select Frame Type. Specifies the frame type/size to use for the restriction.

Frame Rate. Specifies the frame rate to use with the selected frame type.

The following are the available combinations of frame type and frame rate:

- 2160p-4K: 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- 2160p-UHD: 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- 1080i: 25, 29.97, 30
- 1080p: 23.98, 24, 25, 29.97, 30, 50, 59.94, 60

- 720p: 50, 59.94, 60

- 625i-PAL: 25

- 525i-NTSC: 29.97.

Warning Only. Check when you want to start and stop manual recordings in the Live Capture web app with settings that do not match the selected restrictions. The warning message Format Mismatch displays on the channel card in the Live Capture web app, but recording continues.

Operation When Restrict Input is Enabled

When Restrict Input is enabled AND Warning Only is NOT enabled, the Record button and Gang Record icon are disabled when settings do not match. No recording can be started via the Capture web app. This restriction applies to the Manual trigger and any trigger that has the Allow Manual Control option enabled.

When Restrict Input is enabled AND Warning Only is IS enabled, manual recordings can be started and completed with settings that do not match the selected restrictions. The warning message Format Mismatch is displayed on the channel thumbnail card in the Capture web app, but recording will continue.

Automatic Triggers Record When Restrict Input is Enabled

Automatic triggers, such as Web Service, DAI Trigger, and CalDAV Calendar will record even when Restrict Input is enabled and settings do not match UNLESS they have the *Allow Manual Control* option enabled. See Operation When Restrict Input is Enabled above for behavior when the Allow Manual Control option is enabled.

Expected Labels

Enable Labels to enable operators to update label values in the Live Capture web application and process them in the Capture action or downstream in the workflow. Labels can be used in downstream Vantage actions, typically to update or add properties in MAMs and NLEs, or transformed into text or XML for out-of-band delivery.

Labels that are enabled can be configured in the Live Capture web app Channel Options > Configure Labels dialog. Label creation and design is performed in the Vantage Management Console.

For more information on creating labels, search the *Live Capture User Guide* for *Create Labels and Variables for the Tape and Capture Actions*. To update Labels in the Live Capture web application, search for *Channel Options*.

Note: If label parameters are changed or modified in the Vantage Management Console, the changes need to be applied to Capture actions that use them, so that they display correctly in the Live Capture web app.
To apply label updates to a Capture action, you must:

1. Put the workflow into edit mode and display the Capture action inspector.

2. In Expected Labels, disable the target label(s); then re-enable them.
3. Save the action and re-activate the workflow.

Now, the updated label(s) will display correctly in the Live Capture web app.

Configuring Trigger Settings

Use the Trigger panel to select the method you want to use to control live video input, and to configure trigger settings.

You can implement the following triggers: DAI |Manual | Recurring Segment | CalDAV Calendar | Web Service. Proceed to the appropriate topic for configuration details, following.

Note: When you use Live Schedule Pro to schedule recordings, only Web Service, Manual, or Recurring Segment triggers are supported.

Select. Choose DAI |Manual | Recurring Segment | CalDAV Calendar | Web Service. Proceed to the appropriate topic for configuration details, following.

DAI Triggers

The DAI (Dynamic Ad Insertion) Trigger enables automatic recording to start and stop based on incoming SCTE-104 markers contained in the VANC data stream of the workflow's SDI input. Recording begins when a Start Program marker is detected and stops when an associated Stop Program marker with an Event ID that matches the Start Program's ID is detected. See details below.

You can not use DAI triggers with events created in Live Schedule Pro. You can only implement DAI triggers directly in the Capture action.

Single, unique files are created for each Capture event.

Note: A Time-Shift buffer of 10 seconds is required when using the DAI Trigger.

Start Preroll. Enable to set the number of frames to pre-roll the start trigger.

Stop Preroll. Enable to set the number of frames to pre-roll the stop trigger.

Default Start Behaviors for DAI Trigger

A recording is started by the Capture action when one of the following is seen attached to a sample on the source:

- SCTE splice insert data with Splice_Insert_Type = 3.

- SCTE time signal data with a segmentation type ID of 0x10 indicating Program Start.

Default Stop Behaviors for DAI Trigger

A recording is stopped by the Capture action when one of the following is seen attached to a sample on the source with the corresponding Event ID:

- SCTE splice insert data with Splice_Insert_Type = 1.

- SCTE time signal data with a segmentation type ID of 0x11 indicating Program End.

Select Rules File. Browse to select the XML rules file used to enable automatic recording to start and stop based on SCTE-104 markers.

Allow Manual Stop. When enabled, DAI jobs can be manually stopped via the Live Capture web application.

Note: SCTE-104 rules files can be complex. Best practice is to contact a Telestream Sales Engineer for details on configuring them correctly.

Manual Triggers

Select *Manual* to trigger video capture manually, using the Record button in the Live Capture web application.

Note: If you are using the Live Capture web application to control capturing, you must set the Trigger option to *Manual* so the web app can control the recording of input channels.
You can also use manual triggers when creating events in Live Schedule Pro.

Recurring Segment Triggers

The Recurring Segment trigger enables you to capture files of the time duration specified, from 5 minutes to 8 hours, and it repeats indefinitely. You control when to start recording and when to stop recording directly in the Live Capture web app, unless *Begin recording on workflow activation* is selected, in which case, recording starts as soon as you activate the workflow.

You can also use Recurring Segment triggers when creating events in Live Schedule Pro to automate your start and stop times.

Repeating segments are created based on your specified segment duration calculation method and the specified duration. The first and last segments captured may be a shorter time than the specified duration, depending on when the recording start and stop commands are initiated.

Port. Specify a port number (default: 19000) for the web service input that will trigger Live Capture. When activating multiple Capture workflows simultaneously, you must use unique ports. The program interacting with each workflow must be configured to use the same port number for execution of Capture operations.

Segment Duration. Specifies the time duration of recurring segments: 5 min. | 10 min. | 15 min. | 20 min. | 30 min. | 1 hr. | 2 hr. | 3 hr. | 4 hr. | 6 hr. | 8 hr. The default is 5 minutes.

Note: When you set the Primary Output of your workflow to use a QuickTime Open container, you should also set the Default Duration in the QuickTime Open general configuration to the same duration as the segment duration.

Duration Calculation Method. Specifies the method used to determine start and end points per segment: Midnight | Timecode | Duration.

Midnight - Segments are created on evenly-divided time boundaries starting at midnight, based on the duration selected. For example, if you specify a 15 minute segment, there are 96 divisions. The first segment stops at the next 15 minute boundary, and all repeating segments start and stop at 00:00, 00:15, 00:30, and 00:45. If you specify a 2 hour segment, there are 12 divisions, and the first segment stops at the next 2 hour boundary, and all repeating segments start and stop at 02:00, 04:00, 06:00, etc.

When capturing a recurring segment, Capture attempts to start new segments at the exact start of a minute, and the job name reflects this in the naming convention: record-HH:MM:SS:00. If the start time is only an estimate, the name reflects the estimated start time of the segment, and the delineation for seconds is omitted from the name: [base name]-~HH:MM. If the service fails to retrieve a time code but the source is not in a LOS state, the name is [base name]-initial.

1 hour example:

Recurring Segment duration=1 hour

Segment 1 start=current timecode

Segment 1 end= xx:00:00:00 (where xx is the next hour, mark out point exclusive)

Segment 2 start=xx:00:00:00 (where xx is the next hour, mark in point inclusive)

The result is that all segments are the selected duration based on timecode, except the first segment and the last segment, if it is ended arbitrarily.

Timecode - use when you want the start time code of the first segment to be the current timecode, and then advance the timecode by the segment duration you specified to determine the segment end point.

For example:

Recurring Segment duration=1 hour

Current Timecode = 08:00:03;22

Segment 1 start = 08:00:03;22

Segment 1 end = 09:00:03;22 (exclusive out point)

The result is that the duration of all segments are determined by timecode, except the last one if it is ended arbitrarily.

Duration - use when you want the duration of each segment to be measured in frames, rounded to the nearest whole frame (an integer value). It is calculated using the

specified segment duration at the video frame rate, taking into account drop frame or non-drop frame. This ensures that all segments have the same frame count. For example, a 5 minute duration segment at 29.97 is 8991 frames.

Begin Recording on Workflow Activation. When checked, a job starts and begins recording immediately upon workflow activation.

Enable File Count Naming Pattern. When checked, a numeric string is added after the base filename string, based on the number of digits you specify. The string starts at 1 and increments for each segment recorded.

Number of digits in file name. Specifies the number of digits in the incrementing file count string being applied to the current segment filename. For example, if you set it to 4, files are specified as `basefilename.0003.mxf`.

CalDAV Calendar Triggers

The CalDAV Calendar Trigger enables you to record based on events on a CalDAV-compatible calendar. For detailed instructions, see *Using the CalDAV Trigger* below.

You can not use CalDAV Calendar triggers when creating events in Live Schedule Pro.

Note: When using the CalDAV Calendar Trigger you must set your TimeCode Source in the *Vantage Management Console* to either *Computer Clock* or *Source*. When using *Source*, you must have time-of-day timecode in your source that matches the time set in your Live Capture server.

Calendar. Enter the URL to the CalDAV calendar you want to use.

Username. Enter the email address you use for your CalDAV calendar.

Password. Enter the password you use to sign in to your CalDAV calendar.

Send Calendar Status Notification Emails. Check this option if you want to have an email sent when Capture is able to successfully connect to the CalDAV calendar upon workflow activation, or when connection to the URL goes online, and when the calendar goes offline. The email goes to the address configured in the Vantage Management Console for the *Administrator Email Address*. If you have not received a notification email, check your spam folder, and then check your Vantage configuration.

Note: The email address for notifications must be properly configured in the *Vantage Management Console* > *Settings & Options* > *Email* tab. See the *Vantage Domain Management Guide* for detailed instructions.

Allow Manual Control. (*Use caution when enabling the Manual Trigger control.*) When enabled, manual control via the Live Capture web application is allowed. Jobs can be immediately started using the manual controls in the same way as with the Manual Trigger.

In addition, scheduled jobs that have been added to the schedule record queue can be stopped and removed from the job queue. When a manual stop is issued, all scheduled

jobs that are currently queued or are in the process of being recorded will be removed from the schedule queue. Jobs currently recording will be stopped and removed from the queue. New events added to the calendar will be added to the queue if they are within the 1-hour queue window.

If a CalDAV Calendar Trigger workflow is deactivated then reactivated, any scheduled events on the calendar that are within the 1-hour schedule queue window will be added to the scheduled capture queue regardless of any previous manual control.

Web Service Triggers

Select Web Service to trigger live video capture in a custom program, using commands from the Live Capture API. You can queue up a maximum of 16 Web Service trigger jobs per Live Capture server at any one time.

You can also use Web Service triggers when creating events in Live Schedule Pro.

Port. Specify a port number for the web service input that will trigger Live Capture or leave the default, which is 17000. When running multiple Capture workflows simultaneously, you must use unique ports. The program interacting with each workflow must be configured to use the same port number for execution of Capture operations.

Note: Do not use port numbers 8083, 8084, 8089, 8090, 15000, or 18000 for the Web Service input port. An error message does not appear when activating a workflow set to these ports, but the Web Service Trigger will not function.

Create Metadata Log. When enabled, metadata log files are created that include frame numbers, the timecode value of each frame, and RS422 status (when RS422 is enabled). The log file is written to the output location along with the primary output.

Allow Manual Control. (*Use caution when enabling the Web Service manual control.*) When enabled, manual control via the Live Capture web application is allowed, in addition to capture via the Live Capture API. Jobs can be immediately started using the manual controls in the same way as with the Manual Trigger.

In addition, web service jobs that have been added to the web service record queue can be stopped and removed from the job queue. When a manual stop is issued all web service jobs that are currently queued or are in the process of being recorded will be stopped and removed from the web service queue.

Using the CalDAV Calendar Trigger

The CalDAV Calendar Trigger enables you to capture video based on events in a CalDAV calendar. When using CalDAV Calendar Trigger:

- Each event must be at least 15 minutes in duration, or greater.

- Event durations are restricted to a maximum of 9 hours. Events that are longer will stop recording automatically at 9 hours duration.

- Event names cannot contain an accent grave character or any of the following characters: * | \ : ; " ' < > ? /

You can not use CalDAV Calendar triggers when creating events in Live Schedule Pro.

Note: You must use a calendar that is dedicated to *only* contain events that are used for Live Capture. All events in the calendar are used for Live Capture, no matter what name they are given or other purpose they are intended for.

What Happens When a Queued Event is Deleted

If an event on the calendar has been added to the Capture queue (events are queued up when they are within 1 hour of their start time) and is subsequently deleted from the CalDAV calendar, its job status is reported as Complete in the *Workflow Designer* and the *Job Status Views* application.

- In the case where the deleted event had not yet started capturing, a 0K (zero K) sized file associated with the job will remain in the workflow's output folder location.

- In the case where the deleted event was in a capturing state when it was deleted, a playable file associated with the job will remain in the file's output folder location.

See *Using the Job Status Views* in the *Live Capture User Guide* for more information on using this application.

Configuring Primary and Secondary Outputs

When you select SRT streaming output, specify the server, mode, and password in the details panel.

Note: AVC and HEVC uses the NVIDIA GPU which is not available on CPU-only systems. Interlaced output is not supported for GPU encoding, but if interlaced source is used, you can apply the de-interlace filter to produce progressive, GPU-encoded output from an interlaced source.

When you select an output file format, specify the output location, file name and nickname settings. Select the output location where the captured file should be written, optionally edit the file name using tokens or variables, and specify the output nickname for use by downstream actions operating on the file.

Output Location. Click Output Location and select from these choices.

- *Vantage Store*: Write the output to a Live Store. Select a Live Store from the menu.

At least one Live Store and one File Store per Capture server is required in Vantage, for use as the output location for Capture operations. See Live Capture User Guide > Using Live Stores for Capturing Files for details.

- *Path*: Write the output to a specific Windows file system. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse

to navigate and select the location. Or, click the green Browse button and select a variable which supplies the fully-qualified path.

Caution: In rare instances, two capture processes writing to the same path location folder may result in one file overwriting the other. To prevent this, the best practice is to use a unique folder location for each workflow, or append a Time token (set to mmm) to the file name in a workflow (configured in Edit Filename), which returns the current millisecond, thus altering the file name.

Edit Filename. Displays the Filename Pattern Editor and specifies the pattern for the file you are creating. Default: Workflow Name - Source Name. Use the menu on the right to select one or more tokens to insert to create the exact filename pattern you require.

Available tokens:

- Base Name: Customizes the output file name with a name you enter in the Live Capture web application, or when passing a name token from the Live Capture API or CalDAV Calendar trigger.

- *Workflow Name*: Adds the name of the workflow as part of the file name.

- *Source Name*: Adds the name of the live source as part of the file name.

- *Variable*: Choose and add a variable to the file name.

- *Date*: Adds the date as part of the file name.

- *Time*: Add the time as part of the file name.

Note: The time applied to the Time token represents the time that the output file is created. Files are initialize at different times based on the Trigger type being used.

The variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token named *ISCI* is given the value `12H4JA678`, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Select the nickname (or enter it manually) for this package file.

Add. Create a new Configuration Template, by first choosing the template's output container format from the Add menu. Specify a container type, enter a unique name in the container's Config Name field and configure container details in the panel on the right. Now, click on the video and audio streams on the left and configure them as well, in the panel on the right. Add all of the output configurations that you want to have available in the Live Capture web app.

After logging clips, click the Capture button in the Live Capture web app to select the primary output container format you want to use for the capture operation.

Delete. Click the X icon on the right to delete the output from this action.

Catch Action

The Catch action is an optional, licensed feature enabled with the TrafficManager license.

Catch is an origin action, which runs outside the context of a job. Thus, Catch actions can only be used as the first action in a workflow. Catch actions run when the workflow is activated and during the active time frame, if specified.

Typically, you start a TrafficManager media processing workflow with a Catch action, and configure it to identify media files and (optionally) metadata files (based upon your workflow requirements). A Catch action continually monitors the target Traffic directory on the specified file system for new files. The Catch action will monitor for media files and associated files that contain metadata for the media. (Metadata files must be present before the media can be submitted for processing with this workflow.)

A Catch action initiates a job each time a new media file is discovered and passes control to the next action in the workflow.

Independent of the Catch action configuration, you can also submit all media from its watch folder for processing in the workflow. With the workflow activated, in the Monitor status tabs, right-click on the origin action of the workflow and select Process Existing Files.

Before the Catch action in this workflow can perform its monitoring task, it must be configured using the inspector.

Inspector Wizard

Select a specific catch server resource from the list and configure the action appropriately. When a new media file is detected, the file is associated with the specified nickname, and a new job is submitted for TrafficManager processing.

Select a Vantage Folder

On the File System selector page, you can optionally choose a Vantage address folder location rather than a File System. Select an existing folder from the drop down or create/delete/edit another one by clicking on the Create/Edit/Delete Vantage Folders button.

Cerify Action

The Cerify action enables Vantage to interact with the Tektronix Cerify suite of QC components.

Chronicle Action

The Chronicle action is part of the Edit group, which is executed by the Edit service. The actions in the Edit group are all optional, licensed Post Producer features of Vantage.

The Chronicle action ingests a post-rendered Composition XML file generated by the Conform or the Tempo action, when the Generate Composition Chronicle option is checked.

You can configure the Chronicle action to convert the Composition file to:

- Add DAI events to an ADI file

- Generate a Break List report

- Generate a Canoe/BlackArrow CSV file which is used in conjunction with the EDL Composer in an ad insertion workflow.

- Generate a SCTE-35 file for ad insertion in Manzanita systems.

For controls that display a green Variable button, click it to select a variable whose run-time value has been updated in a previous action.

Configure the action and click Save to update the action and close the inspector.

Inspector Wizard

Input File Nickname. Specifies the nickname of the input post-rendered Composition XML file you want to convert.

Output File Nickname. Enter or select a nickname to use for the output file, so it can be accessed by downstream actions, as appropriate.

Edit Filename Pattern. Displays the Filename Pattern Editor and specifies the pattern for the media file you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the composer you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Output Location

Specifies where to store the file(s).

Open the Output Location panel and select one from these choices:

Available Vantage Store. Write the file(s) to any Vantage store, dynamically selected at run-time.

Vantage Store/Folder. Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

Path. Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Chroniclers

Details Arrow. Expands or hides the Components details.

Plus Icon. Select the type of file you want to update or generate: ADI DAI Marker | Break List Report | Canoe CSV | SCTE-35.

Chroniclers. Select the Chronicler you have added, and configure it as appropriate.

Save. Saves the action and closes the inspector.

Cloud Qualify Action

The Cloud Qualify action is part of the Cloud group, which is executed by the Telestream Cloud Service.

The Cloud Qualify action is supported in Vantage Cloud hosted workflows. For details on using hosted workflows, consult the Vantage Cloud User Guide on the Telestream web site. Media may also be analyzed in an on-prem Vantage domain, using the Qualify action.

Qualify uses templates you configure to detect errors in your video, audio, and metadata files. This advanced file-based QC solution automates mission-critical QC processes for content ingest and production workflows, ensuring the highest video quality while reducing content delivery times.

Qualify for Vantage seamlessly integrates with Vantage workflows to:

- Automatically check compliance with industry standards
- Flag non-compliant content files
- Scale to process large volumes of files

The Cloud Qualify action processes a media file (identified by nickname) in a Qualify project in your account based on a template you configure and specify, and returns a report and the result - a string variable with the results of the test.

To use the Cloud Qualify action you must have a Telestream Cloud account. To create an account on the Telestream Cloud web site, go to https://cloud.telestream.net/ and set one up. In your account, you should create one or more Quality Control projects and templates that can be executed by Cloud Qualify workflows or Qualify workflows in your on-prem Vantage domain.

When you create your Telestream Cloud account, it provides an API key. Use this key in the Vantage Management Console when creating a new Telestream Cloud account record to use for Vantage Cloud workflows. See the online documentation, tooltips, and live chat feature if you need help.

Inspector Wizard

Note: Your Vantage domain must have connectivity to your Telestream Cloud account in order to configure this action.

Select Account

Telestream Cloud Account. Specifies the Telestream Cloud account where you want the media file processed.

Telestream Cloud accounts are created and managed in the Vantage Management Console (Settings & Options > Cloud).

Click Next to log into the account and display the Settings panel.

Settings

Select the Input Media File Nickname. Specifies the nickname of the input media file you want to process.

Select the Qualify Template. Specifies the Qualify template you want to use, from the list of templates you have created and configured in Vantage Cloud.

Select the Qualify Project. Specifies the Qualify project you want to process the input media file, from the list of projects you have created and configured in Vantage Cloud.

Edit Projects. Click to display the Vantage Cloud Quality Control panel in a web browser for managing QC projects. If you're not logged in, supply your credentials to log in and proceed to the Quality Control panel.

If you add or modify a project, return to the inspector, click Previous and then Next to refresh the project list.

Generate Variables

JSON Result | Job Status | Number of Alerts. When checked, specify the variable you want to hold the returned value in JSON format, for use in downstream actions or in external systems:

JSON Result. The action returns a string variable which specifies the results of the test.

Job Status. The action returns a string variable which holds the execution status keyword:

Passed - all tests passed with no exceptions.

Warning - Certain criteria were not met, but the tests were configured such that these criteria were not critical/required.

Reject - A criteria was not met and the test was configured to *Reject* if the criteria was not met (you must configure the Cloud Qualify project to specifically enable *Reject* a specific criteria of the test in order to generate this state).

Fail - the Cloud Qualify service was unable to process the material (for example, due to an unsupported codec).

Number of Alerts. The action returns an integer variable representing the number of alerts generated. The alerts are detailed in the report.

Qualify Reports

PDF Report. Check Enable - the Cloud Qualify action generates the report in PDF format, and stores the file with the file name you specify, in the output location you specify. Specify the nickname you want to assign this report file, for use in downstream actions.

JSON Report. Check Enable - the Cloud Qualify action generates the report in JSON format, and stores the file with the file name you specify, in the output location you

specify. Specify the nickname you want to assign this report file, for use in downstream actions.

Output Location. Specifies where to store the report file.

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Displays the Filename Pattern Editor and specifies the pattern for the media file you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the Output file type you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Cloud Speech Action

The Cloud Speech action is part of the Cloud group, which is executed by the Telestream Cloud Service.

The Cloud Speech action is supported in Vantage Cloud hosted workflows. For details on using hosted workflows, consult the Vantage Cloud User Guide on the Telestream web site.

The Cloud Speech action passes the file (which may be an audio-only file or a file with both video and audio) to the Cloud Timed Text Speech service, which uses speech-to-text technology to produce transcription files in various formats, along with runtime variables to assess the success of the process.

To use the Cloud Speech action you must have a Telestream Cloud account. To create an account on the Telestream Cloud web site, go to https://cloud.telestream.net/ and set one up. In your account, you should create one or more Timed Text Speech projects that can be executed by Cloud Speech workflows in Vantage.

When you create your Telestream Cloud account, it provides an API key. Use this key in the Vantage Management Console when creating a new Telestream Cloud account record to use for Vantage Cloud-related workflows. See the online documentation, tooltips, and live chat feature if you need help.

Inspector Wizard

Note: Your Vantage domain must have connectivity to your Telestream Cloud account in order to configure this action.

Telestream Cloud Account

Telestream Cloud Account. Specifies the Telestream Cloud account where you want the media file processed.

Telestream Cloud accounts are created and managed in the Vantage Management Console (Settings & Options > Cloud).

Click Next to log into the account and display the Settings panel.

Settings

Input Media File Nickname. Specifies the nickname of the input media file you want to process.

Telestream Cloud Project. Specifies the name of the Telestream Cloud project you want to process the file.

Edit Projects. Click to display the Timed Text Speech panel for managing these projects. If you're not logged in, supply your credentials to log in and proceed to the Timed Text Speech panel.

If you add or modify a project while this panel is displayed, click Previous and then Next to refresh the project list.

Use Custom Vocabulary Input

When checked, the Cloud Speech action can use the text in the referenced raw text file to improve the spelling in the transcript it generates.

Note: In order to use this feature, in your project (Project Settings > General Settings), you must check the Enable Custom Vocabularies Per Job. If this control is not checked, the Use Custom Vocabulary Input control is disabled here in the Inspector.

Providing a file with a set of vocabulary for a job may improve speech to text translation. For example, the name of a person - Bob Spaghetti - is spoken during the audio of the media file. Without a vocabulary input, the speech to text engine may incorrectly interpret this name as Bob Spagedi. Proving a vocabulary input that contains the words Bob Spaghetti assists the speech to text engine to generate a more accurate transcript.

When Custom Vocabulary Input is enabled, reference the file by nickname or path:

File Nickname. Enable to specify the file by nickname. The file must have been ingested by an upstream action and assigned a nickname. Use this option when the file changes for each job.

File Name. Enable to manually enter or browse and select the fully-qualified path to the file. The service that executes this action must have access to the file location. You can use this option when you want to assign a static file, which is used for every job. If you assign a variable, the variable must be assigned the fully-qualified path and file name in an upstream action so that you can change the file for each job.

Outputs

Check each type of output file that you want generated. For each checked file type, specify the Output Location and the Filename settings.

Text Output. When checked, the Cloud Speech action generates output in text format.

CSV Output. When checked, the Cloud Speech action generates output in comma-separated value file format.

JSON Output. When checked, the Cloud Speech action generates output in JSON format.

SRT Output. When checked, the Cloud Speech action generates output in SRT format.

Output Location

Specifies where to store the report file.

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern

Displays the Filename Pattern Editor and specifies the pattern for the media file you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the Output file type you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

TTS Result. When checked, publishes the specified True/False variable, indicating that the processing succeeded or failed, for use in downstream actions.

TTS Confidence. When checked, publishes the specified Integer variable, indicating (with a value from 1 to 100) the confidence rating of the correctness of processing, for use in downstream actions.

Colocate Action

The Colocate action is part of the Edit group, which is executed by the Edit service. All of the actions in the Edit group are optional, licensed Post Producer features of Vantage.

The purpose of the Colocate action is to ingest CML files with remote file references to source media, localize the files as necessary and then convert the file references into paths to Windows file paths in a copy of the CML.

Colocate operates on non-Windows local paths, S3 (Amazon) server paths, and HTTP server paths. For files on S3 and HTTP servers, you supply credentials in the Colocator as appropriate, and the files are copied to the specified Vantage-accessible location. For local non-Windows files (those on a Mac OS X platform), the path is translated into a Windows path without relocating the file.

After the files have been localized as appropriate and the CML has been converted, it can be submitted to the Conform or Tempo action to compose the media. You could create one workflow with both a Colocate and a Conform or Tempo action, or you could create two workflows—one to localize the media and convert the file (Colocate), and the second with a Conform or Tempo action, to conform and transcode it.

Add one or more components as required (for Local Path | S3 | HTTP files) and configure them with your server credentials.

Note: HTTPS URLs are not supported.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings.

Inspector Wizard

Input File Nickname. Specifies the nickname of the input CML file you want to process.

Output File Nickname. Specifies the nickname of the output CML file that is generated.

Output Location. Specifies where to store the file(s).

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Settings

Reference Movie Extension. Specifies the extension of movies to examine for reference media. Enable this option to indicate to Colocate that the source referenced in the CML with the specified suffix, should be scanned for references to external media, which will also be copied (in addition to the reference movie itself) to the Vantage store.

Colocators

Details Arrow. Expands or hides the Colocators added to this action.

Plus Icon. Select one or more Colocators that are needed to process file references to files located on non-Windows local files, S3 Amazon servers, or HTTP servers.

Save. Saves the action and closes the inspector.

Compare Action

The Compare action is part of the Analysis group and is executed by the Vantage Analysis Service. It enables you to select a specific analyzer (PSNR, for example), generate variables, set workflow state, and pass the variables and state to downstream actions for use as appropriate.

Before the Compare action can execute, it must be configured using the inspector.

Details

Typically, Compare actions are employed to utilize analysis filters to analyze input files, and based on the results, generate appropriate variables and workflow states. Variables are generated for use by a wide variety of downstream actions; workflow states are used by Decide actions which follow the Compare to control execution of downstream action branches.

For details about using the selected analyzer, and click the Manual Viewer button (M at top right).

Inspector Wizard

Analyzer. Specifies the type of analysis you plan to perform.

Input Media File. Specifies the input file to analyze, by nickname.

Reference Media File Nickname. When utilizing the PSNR analyzer, specifies the optional reference file to compare the input against, by nickname. If you specify a reference media and don't include a PSNR analyzer, no action is taken. If you enable the PSNR analyzer, it will report the PSNR of the input media and the reference media.

Settings. Depending on the analysis, configure to perform according to your requirements.

Normalization & Filtering. Configure according to your requirements.

Publish Metadata. Publishes appropriate metadata labels, based on the specified analyzer.

Generate Variables. Publishes appropriate values in the specified variable, based on the specified analyzer.

Set Workflow State. Publishes the resulting state, based on the specified analyzer. The state is passed to downstream actions so they can determine whether or not to execute. For details on matters of state, see the Vantage User's Guide > Creating Workflows > Action Details > Action States.

Save. Saves the action and closes the inspector.

Compose Action

The Compose action is part of the Edit group, which is executed by the Edit service. All of the actions in the Edit group are optional, licensed Post Producer features of Vantage.

The Compose action enables you to convert certain media descriptor files into Post Producer Composition XML files, for processing by Vantage using the Conform action.

The Compose action creates compositions in Composition Markup Language automatically, from industry standard formats including Telestream Edit Decision List (TSEDL) files.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings.

Inspector Wizard

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input File Nickname. Specifies the nickname of the input file you want to convert to a Composition XML file.

When the Composer is a Trigger, and the Trigger Source is Ancillary Timecode, this file is an MXF file with proprietary triggers. When the Trigger Source is SCTE Triggers, this file is a DAI Analysis Trigger XML file, created from the Analysis action Dynamic Ad Insertion Analysis component.

In both cases, the file must have been ingested in or created by an upstream action to provide it a nickname, so you can select it here.

Output File Nickname. Specifies the nickname of the Composition XML output file.

Edit Filename Pattern. Displays the Filename Pattern Editor and specifies the pattern for the media file you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the Composer you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Output Location

Specifies where to store the file(s).

Open the Output Location panel and select from these choices:

Available Vantage Store. Write the file(s) to any Vantage store, dynamically selected at run-time.

Vantage Store/Folder. Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

Path. Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Composers

Details Arrow. Expands or hides the Component details.

Plus Icon. Select the format of the file you want to convert to CML (Composition Markup Language XML) format file.

Composers. Select the format of the input file being converted to a CML (Composition Markup Language XML) file, and configure it as appropriate.

Save. Saves the action and closes the inspector.

Compute Action

The Compute action is part of the Common group, which can be executed by any Vantage service. The Compute action enables you to perform math computations and string operations on values and variables, and publish the result as a variable of a given type for processing downstream in this workflow or downstream in another function in the same action.

The Compute action provides a variety of different functions, in the areas of arithmetic, value comparison, string manipulation, and type conversion. Each function requires specific configuration.

You can implement one or more functions in the same Compute action. Multiple functions execute serially in a Compute action. Each function operates autonomously, using each assigned variable with the value present at the start of the function (not the start of the action). When a function completes, the resulting variable is updated with the new value and is available to other functions in the same action. Thus, although functions are empirically independent of each other, you can chain functions together by using a variable published by a previous function in a following function.

Use the Test button to verify that you have configured the Compute action function correctly. Workflow Designer executes the function, and displays a dialog informing you of any errors or the value of the result variable. For controls that are bound to a variable, the default value of that variable is used in the operation.

Before the action can execute, it must be configured using the inspector.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings. All input variables must be available before the action will run.

For details about each function, see Functions, below the example.

Note: Operation values such as function, value type, and variables can be copied and pasted between operations in the same action or between multiple Compute actions.

Example

For example, you may want to create an output file name that contains the name of the input file, appended with the modification date to use when the file is copied or deployed.

To produce this file name, you need a new variable: File Modified Date Text - a text variable that will hold the file Modified date as text.

Follow these steps:

1. In the Watch action inspector, on the configuration panel > Generate Variables, check File Modified Date and assign the File Modified Date variable.

Notice that the File Modified Date is a date variable, not a text variable - which can't be concatenated to a string, because they are different types.

2. Add a Compute action to your workflow and connect it to the Watch action.

3.Open the Compute action inspector, select the Convert function from the Select Function menu.

4. Under Select a Value Type, make sure Date is selected.

5. For Conversion Source, click the Browse button to display the Select Variable dialog and select File Modified Date.

6. In Result, click the menu and select Create New Variable.

7. In Name, enter File Modified Date Text and in Value Type, select Text.

8. Click OK to save the new variable and select it.

9. Click Save to close the Compute inspector.

10. In the Flip inspector, click the green Browse button and select File Modified Date Text to bind it to Append to Filename.

Inspector Wizard

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. Click Browse to select a variable or create a new one to use. The variable must have a value when the action executes. You can assign the value in a previous action or use the variable's default value.

Reporting Variables and Their Values

There are situations where you need to determine the value of one or more variables in a workflow—for debugging or extracting for use externally, for example.

To extract and save a variable and its value in a file, add a Notify action to your workflow and use the Variable Report component to save the values current value in a text file. The file is updated for each job you run—modify the filename pattern to uniquify it if you don’t want the report overwritten each time.

Parameter Values (vary by function). Enter static parameter values manually (and will never change) or click the green Browse button to select a variable to supply a dynamically-assigned value at runtime.

Result. When the function executes, it assigns the calculated value to the variable and when the action is complete, it passes the variable to downstream actions for use later in the workflow.

Save. Saves the action and closes the inspector.

Functions

Add Function

Add each value (select value type: Integer Number | Size | Decimal Number | TimeCode) in the list (which may be manually entered as a constant, or it may be another variable with a runtime value dynamically supplied).

Publish the sum in the same type variable, selected by you in the Result field.

Subtract Function

Subtracts one value (select value type: Integer Number | Size | Decimal Number | Date | TimeCode) from another in the list (which may be entered as a constant or as a runtime value dynamically supplied).

Publish the result in the same type variable (except in the case of Date, where the result is a decimal representing the difference in seconds) selected by you in the Result field.

Multiply Function

Multiplies each value (select value type: Integer Number | Size | Decimal Number) in the list (which may be entered as a constant or a variable with a runtime value dynamically supplied).

Publish the result in the same type variable, selected by you in the Result field.

Divide Function

Divides one value (select value type: Integer Number | Size | Decimal Number | Time Code) by the other in the list (which may be entered as a constant or as a variable with a runtime value dynamically supplied). Publish the result in the same type variable, selected by you in the Result field.

Note: You can divide a time code by an integer and create a timecode result. This is handy for example, when you want to capture a set interval of screen shots via the Key Frame encoder based on percentages of the source duration. Using this technique, you can grab a keyframe every 20 percent, for example.

Minimum Function

Compares all values (select value type: Integer Number | Size | Decimal Number | TimeCode) provided in the list (which may be entered as a constant or as a variable with a runtime value dynamically supplied), and selects one value as the lowest value.

Publish the result in the same type variable, selected by you in the Result field.

Maximum Function

Compares all values (select value type: Integer Number | Size | Decimal Number | TimeCode), provided in the list (which may be entered as a constant or as a variable with a runtime value dynamically supplied), and selects one value as the lowest value.

Publish the result in the same type variable, selected by you in the Result field.

Concatenate Function

Produces a single text string from all text values provided in the list (which may be entered as a constant or as a variable with a runtime value dynamically supplied).

Publish the result in a text variable, selected by you in the Result field.

Convert Function

Converts a value (which may be entered as a constant or as a variable with a runtime value supplied from an upstream action) of one type which you select from the Select Value Type menu, into another type of variable, which you specify by choosing a variable of the desired type in the Result. (Only variables of a rational type are presented. For example, you can't convert a Mail Address to an Integer.)

Publish the result in a variable of the type you've chosen, selected by you in the Result field.

TimeCode to Integer (number of frames) / Integer (number of frames) to TimeCode Conversion: The Convert function can be used to change a timecode value to a frame count, expressed as an integer; or to convert a frame count to a timecode value. To convert a timecode value to a frame count, select TimeCode in Value Type and select a TimeCode variable as the Conversion source. Then select an Integer variable as the Result. To convert a frame count value to a timecode, select Integer in Value type and select an Integer variable as the Conversion source. Then select a TimeCode variable as the Result.

To specify a Non-Drop Frame timecode (default), press the colon key when any value in the Conversion Source is selected. The control displays a colon between the seconds and milliseconds values to indicate an NDF timecode. To specify a Drop Frame timecode, press the semicolon key. The control displays a semicolon, indicating Drop Frame.

For example, given an input timecode value of 00:00:03:00 at 30 fps, conversion to an integer results in a value of 90 (the frame count for 30 seconds).

Time Code Rate Conversion: The Convert function can also be used to change a timecode value from one frame rate to the equivalent value at another frame rate. The source timecode value and frame rate is specified in the Conversion Source field. The output frame rate is determined by the default value of the fps field in the selected Result TimeCode variable.

The Convert function converts timecode rates based on time as opposed to frames. When the frame rate of a timecode value is converted, the resultant value will have the same amount of time, but may not have the same amount of frames.

Date Conversion: The Convert function can also be used to convert date values to UTC Date format or to create formatted strings as specified by Microsoft .NET DateTime format strings capability for ISO 8601 compliant dates.

Conversion Source - Specify conversion source.

Format - Specify a preconfigured or customized string pattern. See tooltip for details. If format field is left blank, the current (default) behavior will be used.

Convert to UTC - Enable Convert to UTC to convert to UTC.

To create a formatted string, choose String as variable result and select or configure a string pattern under Format. This can be used in conjunction with the Convert To UTC option.

To convert to UTC only, enable Convert to UTC and select Date as variable result.

Timecode Convert Function

Converts a timecode (in the Conversion Source field) from one base (frame rate) to another, which may be entered as a constant or as a variable with a runtime value supplied from an upstream action), generating a new timecode value.

Two methods of conversion are provided: The timespan method and the timebase method. Telestream recommends always using the timespan method to recalculate the timecode unless backward compatibility (the legacy computation) is required to maintain compatibility. For example, observing the results of a well-known transformation and comparing it to the transformation used by other systems in your facility.

You can also convert DF timecode to NDF timecode and vice-versa.

To specify a Non-Drop Frame timecode (default), press the colon key when any value in the Conversion Source is selected. The control displays a colon between the seconds and milliseconds values to indicate an NDF timecode. To specify a Drop Frame timecode, press the semicolon key. The control displays a semicolon, indicating Drop Frame.

In the Result variable, use the same procedure to specify DF or NDF timecode result.

Publish the result in a timecode variable you've chosen, selected by you in the Result field.

Using the Timespan Conversion Method: Use the Timespan conversion method to convert the source timecode to an intermediate clock-time (duration) value using the exact input frame rate, and then convert this time value to a new timecode, based on the fps value specified in the timecode variable selected for the result.

For example, you want to convert a 29.97 fps timecode into the corresponding timecode value at 25 fps for use in a transcoding operation converting NTSC video to

PAL video. To configure the Timecode Convert function to perform this calculation, select the TimeCode Conversion Source variable that contains the timecode value (from an upstream action) that you want to convert. Next, in the Result control, select (or create) a TimeCode variable and set the default fps value to 25 (the timecode value is irrelevant here). When the conversion is complete, the Result variable now contains the equivalent timecode value at 25 fps as the Conversion Source value at 29.97 fps.

Using the Timebase Conversion Method: When using the legacy timebase conversion method, the internal timebase for the source and output are used to perform the calculation. The timebase corresponds to the framerate value that takes into account drop frames in certain time bases (for example, NTSC DF).

For example, when the source is NTSC DF, the translation to wall clock time is calculated by using this timebase value (30) in lieu of 29.97. In this case, the total number of frames in the source is divided by the timebase (30) to obtain the intermediate time value (in real world seconds) before computing the new timecode value.

Substring By Position Function

Generates the substring of a text string you supply (which may be entered as a constant or as a variable with a runtime value dynamically supplied), which begins at a specific position using index 0 and proceeds right or using index 1, proceeds left for a fixed length. Negative numbers are not allowed.

For example, given the string "Hello World", the function Substring by Position ("Hello World", 6, 5); returns the string "World" (World begins at position 6 from index 0 - meaning the first character is at position 0, and is 5 characters in length).

Note: Check Starting position from Right (which uses index 1) when you want to select a string of text by counting back from the end of the string, rather than the start of the string.

For example, given the string "Starfish.mov", you can check Starting Position from Right, then specify 3,3. This positions the index at the 3rd character from the end of the string using index 1, and counts 3 to the right - obtaining "mov".

Publish the result in a text variable, selected by you in the Result field.

Substring By Character Function

Generates the substring of a text string (which may be entered as a constant or as a variable with a runtime value dynamically supplied), using the Index Character you supply. You can use the Substring by String function to perform the same task as Substring by Character. It remains in the action for compatibility.

Enter the text you want to use in the String field, or click the green Browse button and bind this field to a variable.

Enter the character you want to search for, in the Index Character field.

Check Return Everything from Left of Index to return the string to the left of the Index Character rather than the string to the right. Or click the green Browse button and bind this field to a True/False variable.

Check Scan from Left to search from the beginning of the string instead of the end, and search to the right until the first instance of the Index Character position is found. Or click the green Browse button and bind this field to a True/False variable.

Publish the result in a text variable, selected by you in the Result field.

Substring By String Function

Generates the substring of a text string (which may be entered as a constant or as a variable with a runtime value dynamically supplied), using the Index String you supply. This function is a super-set of the Substring by Character function. You can supply a single character, or a multi-character string.

Enter the text you want to use in the String field, or click the green Browse button and bind this field to a variable.

Enter the string you want to search for, in the Index String field.

Check Return Everything from Left of Index to return the string to the left of the Index String rather than the string to the right. Or click the green Browse button and bind this field to a True/False variable.

Check Scan from Left to search from the beginning of the string instead of the end, and search to the right until the first instance of the Index String position is found. Or click the green Browse button and bind this field to a True/False variable.

Publish the result in a text variable, selected by you in the Result field.

Replace Substring Function

Searches for each occurrence of the Search For string in the String text provided. When found, it replaces it with the string in the Replace With field or nothing, if Replace With is empty. Select which occurrences to replace using the Replace menu options. Each of these values may be manually entered as a constant, or it may be another variable with a runtime value dynamically supplied).

Publish the result in a text variable, selected by you in the Result field.

Replace Substring (Regex) Function

In the specified String text, replaces all strings that match the specified regular expression in Search For with a specified replacement string in Replace With. The result is a new string that is identical to the input string, except that the replacement string takes the place of each matched string. If pattern is not matched in the input string, returns the input string unchanged. Each of these values may be manually entered as a constant, or it may be another variable with a runtime value dynamically supplied).

Publish the result in a text variable, selected by you in the Result field.

Example:

ab\d+ matches a string that has ab followed by one or more digits.

Refer to the Microsoft document Regular Expression Language - Quick Reference for more information about Regular Expressions.

String Length Function

Generates an integer, whose value is the total number of characters in the text, specified in Result. Select a type of string, then specify the value: text, path, or email address. You can browse to a path, enter static text, or bind the string to a variable.

String Contains Function

Compares two strings of various text-based types (select value type: Text | Path | Mail Address) to determine if one string exists in the other string. Each of these values may be manually entered as a constant, or it may be another variable with a runtime value dynamically supplied).

You can optionally ignore case (making the search case-insensitive) or use wild cards in the Search For string (by entering an asterisk for each insignificant character as needed. For example, entering t**t would locate instances of text, tart, tact, etc.

Publish the result in a True/False variable, selected by you in the Result field. If the Search For string exists in the Text string, True is published, otherwise False is published.

Change Case Function

Changes the case of characters in the String text provided to upper or lower, as specified in Mode. Specify the input string value type (Text | Path). The text may be entered as a constant or as a variable with a runtime value dynamically supplied.

Publish the result in a text variable, selected by you in the Result field.

Extract FileName Function

Returns the name of the file minus the first encountered extension. For example, 'C:\myfolder\myfile.1.2.mpg' returns 'myfile.1.2' with no first extension. Specify the input string value type (Text | Path). The text may be entered as a constant or as a variable with a runtime value dynamically supplied.

Extract BaseName Function

Returns the base name of the file with no extensions. For example, 'C:\myfolder\myfile.1.2.mpg' returns 'myfile' with no extensions. Specify the input string value type (Text | Path). The text may be entered as a constant or as a variable with a runtime value dynamically supplied.

Equality Function

Compares two values of the same type (select value type: True/False | Integer Number | Size | Decimal Number | Date | Text | TimeCode) the value on the left with the value on the right. Each of these values may be manually entered as a constant, or it may be another variable with a runtime value dynamically supplied). If the two values are equal, True is published, otherwise False is published.

Publish the result in a Boolean variable, selected by you in the Result field.

Less Than Function

Compares two values of the same type (select value type: Integer Number | Size | Decimal Number | Date | Text | TimeCode) the value on the left with the value on the right. Each of these values may be entered as a constant or a variable with a runtime value dynamically supplied).

Publish the result in a True/False variable, selected by you in the Result field. If the left value is less than the right value, True is published, otherwise False is published.

Greater Than Function

Compares two values of the same type (select value type: Integer Number | Size | Decimal Number | Date | Text | TimeCode) the value on the left with the value on the right. Each of these values may be entered as a constant or a variable with a runtime value dynamically supplied).

Publish the result in a True/False variable, selected by you in the Result field. If the left value is greater than the right value, True is published, otherwise False is published.

Conform Action

The Conform action is part of the Edit group, which is executed by the Edit service. All of the actions in the Edit group are optional, licensed Post Producer features of Vantage.

The Conform action renders multi-layer video compositions (as defined in a Composition XML file which it is passed) with transition and image effects and graphic overlays and conformed audio, applying option filters as appropriate, encoding the output video in the specified format.

Note: The audio and video input formats that are supported and output formats that Conform can generate may be viewed on the Post Producer data sheet, available on the Web site.

The output video (limited to output formats listed on data sheet as well) may be ready for distribution, or you may produce a mezzanine file and send it to a Flip or Flip64 action for final transcoding, or to Multiscreen or IPTV VOD actions for final transcoding and packaging prior to distribution.

Conform also supports closed captioning, content advisory, Active Format Description, and copy generation management (CGMS-A), and time code processing.

Conform Action Operation

The Conform action operates in the following manner: The Transcoder component converts (transcodes) the input media file or files defined in the input CML from one format to another and supplies the streams to the Output component. You can supply one video track and up to 16 audio tracks.

The Conform action includes several video and audio codecs, which represent those utilized in the vast majority of distribution formats. During audio transformation a variety of processing may be applied. Audio may be re-sampled, or channels may be remapped in order to provide a specific configuration to the codec.

The Output component implements the types of media files that can be generated by the Conform action, enabling you to insert video and audio streams as required, and allows you to specify the location where the output is to be saved.

The Processors component enables you to extend file processing on a file-by file basis. You create, name, and configure a processor, and then, add a Processor element to the Source file in the composition. For example, you can apply pre-processing filters on media as it is being transcoded or apply advanced title processing.

Note: Processor templates are NOT applied unless a Processor element is specifically added to the Source element of a given file by name in the composition XML file being processed by this action.

Before the action can execute, you must select the video and audio transcoders, and the output format, and configure each component using the inspector.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings.

Using This Action in Cloud Mode

This action is Cloud capable. Actions placed into Cloud mode are executed remotely in Vantage Cloud. For additional details, refer to the Vantage Cloud User Guide.

Settings

Input File Nickname. Specifies the nickname of the input Composition XML file used to define the composition of the output file. This file must have been ingested by a previous action (for example, a Watch) in the workflow.

Conform Settings

Allow Direct Convert. Enables the video stream to be direct-converted, when no filters are applied which requires decoding to digital baseband and re-encoding.

Direct Convert passes unchanged frames to the output without decoding, if the process is being used to simply re-wrap containers. This only applies to inter-frame compressed (I-Frame only) sources and outputs. Absolutely no changes are applied to the media (output format, resolution, inserted graphics, etc). This feature can be applied for simple re-wrapping of entire files or to add or remove frames and wrap into a container format. All frames are rendered if the box is unchecked.

Progressive Compositing. When Progressive Compositing is enabled, the Compositing Engine executes in progressive mode, at twice the output frame rate and may achieve better results. The double output frame rate causes the entire transaction to run more slowly. This option should only be used if the output is interlaced and the quality of moving text or images is such that it requires that this option be invoked.

Allow Invalid Durations. When checked, allows sources to be specified in the CML with timecode range that is not present in the source media file itself. Black frames and silent audio are created for the missing duration. If unchecked, the Conform action will fail if the time range specified in the CML is not present in the media.

Limit the number of layers. Select the number of composition layers allowed for processing as either Multi-Layer or Two-Layer as defined in a CML. Default is Multi-Layer Mode and allows for complex video compositions of more than two layers. The Two-Layer Mode option limits the potential complexity of video composition outputs to a maximum of two layers. When Conform is operating in Cloud Mode, use of Two-Layer mode reduces the price per output minute when creating simple compositions.

Note: A validation check is performed on CML files to determine the number of layers present. If Two-Layer mode is selected and the number of layers exceeds 2, jobs will fail.

Processor. Select which video processor to use for transcoding.

Retry on GPU Error. When checked, the action is automatically re-executed, using the specified alternate CPU-based video processor, when the job fails using the Lightspeed Video Processor due to a GPU memory error. During re-try execution, the job is not running in Open Workflow mode.

Advanced Settings. When advanced settings are required, specifies the fully-qualified path to the settings file (UNC paths are the most reliable). Settings files should only be used with support from Vantage Customer Service.

Generate Composition Chronicle

When checked, the action produces a post-rendered composition file specifically for the media rendered by this job. The new composition will contain actual timecodes where ambiguous timecodes were specified, and will contain current values where Vantage variables were specified. These as-run compositions can be processed by the Chronicle action to produce reports for use in ad insertion workflows.

Transcoders

Select the types of video and audio streams you want to create using the Add (Plus sign) icon at the right side of the Transcoders panel. Select one track for video, and up to 16 tracks for audio. Select each codec and configure it as appropriate.

Transcoder Panel. Select the codec panel to highlight it, and display its details panel on the right side of the inspector window. Use the details panel to enable and configure filters.

Output

Select the format/container type you are producing (1 permitted) using the Select menu at the right side of the Output panel.

Output Panel. Select the output panel to highlight it, and display its details panel on the right side of the inspector window. Use the details panel to configure the file extension.

Processors

Optionally, select the processors to implement using the Plus icon at the right side of the Processors panel.

Processor Panel. Select the processor panel to highlight it, and display its details panel on the right side of the inspector window. Use the details panel to configure each processor as appropriate.

Construct Action

The Construct action is part of the Common group, and can be executed by any Vantage service. The Construct action enables you to compose paths, strings, multi-line strings, and mathematical expressions, and publish the result as a variable for use downstream in a workflow.

Before the Construct action can execute, it must be configured using the inspector.

This action is Open Workflow-capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings. All input variables must be available before the action will run.

Copying and pasting within the format field is limited to the text between tokens, and the Variable token when performed by right-clicking and selecting copy/paste. Use the Copy and Paste icons in the toolbar to copy and paste entire items.

Inspector Wizard

Note: Variables that you use (for operands or results) are NOT passed to the next item in the same action. Each item executes autonomously, using each variable with the value present at the start of execution. In order to pass the updated value in a variable to another Construct action, you must publish the variable and chain Construct actions together.

Select the Operation. Specifies the operation to perform.

The inspector displays the controls for the selected operation. Hover over each control to display tooltips regarding their purpose and usage.

Path | String | Multi-line String | Expression. Use this text field to construct the operation to perform. See Operation Details, following.

Result. Publishes the result of the function in the selected variable. When the function executes, it assigns the calculated value to the variable and passes the variable to downstream actions for utilization.

Operation Details

Note: When you change the operation type from String to Multi-line String, Workflow Designer retains the variables and tokens embedded in the string. Then, you can insert return characters to improve readability in the new multi-line string. When you change from Multi-line String to String, return characters are simply removed.
When you convert between any other operations, the format field is automatically cleared.

Path. Generates a fully-qualified (absolute) file path from variables, text, and date and time tokens entered into the format field.

The path may or may not include a file. Vantage produces a URI from this path.

Note: When using the Construct action to create a path, the syntax associated with the path is critical. Specifically, if you are creating a path to a folder, you MUST end the path with a \ character. If you are creating a path to a file, it must NOT end with a \. The presence of a \ character at the end of a path indicates that you are creating a path to a folder, even if a file name is present. The file name in this case will be considered the name of the last folder.

Publish the path in a path variable, selected by you in the Result field.

String. Generates a string from variables, text, and various tokens entered into the format field. These strings can't contain return characters.

Publish the string in a text variable, selected by you in the Result field.

Multi-line String. Generates a multi-line string - strings separated by return characters to enhance readability - from variables, text, and various tokens entered into the format field. You may also copy/paste JSON content directly into the field.

Publish the multi-line string in a text variable, selected by you in the Result field.

Expression. Specifies the expression used to generate the value. Insert keyword text and numbers, and variables to construct the expression.

When forming the expression, you may use spaces. For example: 10 - (2*8) / (20 +1).

Floating point numbers are supported, and decimal points and commas are permitted for use as the decimal separator (regardless of language/region settings on the platform). Example: 3.65 * 2 / (1-0,1). Do not use commas as thousands indicators (for example, 576,000) - they will be interpreted as decimal points.

You can use the following operators: + - * / %(modulus) ^(power).

You can use braces { }, brackets [ ] , or parentheses ( ) to control precedence. For example: 2+3* [7-1] / {10%2} - (6-2).

You can evaluate the mathematical constants pi and e (natural logarithm). For example: 3 + [cos(pi*2)]+ e.

You can evaluate the following functions: *abs* | *acos* | *asin* | *atan* | *ceil* | *cos* | *exp* | *floor* | *ln* | *log10* | *rand(max)* | *round* | *sin* | *sqrt* | *tan*. For example:
`1+[sin(4*([sqrt(9)]+[abs(-2)]))]+[Exp(7)].`

Note: For the *rand(max)* function, the max value is exclusive. For example, if you want a random value between 1 and 999, you would specify your expression as *rand(1000)*. If a range with a minimum value other than 1 is desired, add an offset to the result. For example, if a value in the range 1000 to 1999 is desired use *[rand(1000)] + 1000*.

Note: When using any function in a larger expression, such as the example *[rand(1000)] + 1000,* brackets are required for correct results.

To calculate an expression successfully, the expression itself must be valid. Otherwise, the action will fail due to an exception. Also, certain operations generate errors. For example, sqrt (-1) does not generate i. The action will fail.

Note: You can create variables in the Vantage management console or directly in Workflow Designer. To create a variable in Workflow Designer, click the menu and select Create New Variable.

Publish the expression in a decimal, integer or size variable, selected by you in the Result field.

Note: Operation values such as operation type, expression, and variables can be copied and pasted between operations in the same action or between multiple Construct actions.

Save. Save the action and close the inspector.

Copy Action

The Copy action is part of the Transport group, which enables you to perform file operations on specified files, identified by nickname. All transport actions are executed by the Vantage Transport Service.

The Copy action is supported in Vantage Cloud hosted workflows. For details on using hosted workflows, consult the Vantage Cloud User Guide available on the Telestream website.

The Copy action duplicates the specified source file to another location, leaving the source file in place.

Copy actions are limited to systems that support standard file copy operations - for example, Windows, FTP, etc. If you need to copy files to complex systems including Avid, etc., you should use a Deploy action.

You can use the Copy action when you need to copy a file from one server to another. For example, you have a workflow that is monitoring an FTP site for incoming media - but opening and reading a file directly from an FTP server by the Flip64 action for example, is not permitted.

To solve this problem, directly after the Watch action, add a Copy action before the Flip action. Configure the Copy action to copy the file from the FTP site to a Windows server location - typically, locally on the Transcode Service host for file access efficiency.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings.

Inspector Wizard

Select the Nickname of the File to Copy. Specifies the input file to copy, by existing nickname. Optionally, a new nickname of either media or attachment type can be created.

Nickname for the Copy. Specifies the existing nickname to assign the copied file. Optionally, a new nickname of either media or attachment type can be created.

Note: By specifying different input and output nickname types, conversions can easily be performed between media and attachment nicknames. This is useful in transfer of files for Vantage Web Portal and Vantage Cloud when a specific nickname type is required.

Destination

Output Location. Specifies where to store the file(s).

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Enable Path Preservation. Preserves the sub-folder structure of an input file provided by a Watch, Associate, Flip, Gather, Copy or Move action when writing the output file to the destination directory.

For example, if a Watch action monitors a hot folder share \\VantageIn\ with Look in Subfolders enabled, and a job is submitted by the Watch from \\VantageIn\Subfolder1\Subfolder2\Clip.mpg, then the output file will be written into the specified directory path plus Subfolder1\Subfolder2\, thus preserving the sub-folder structure in the destination location.

Destination Filename Pattern. Displays the Filename Pattern Editor. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, including the extension for file operation actions.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Note: Because the Base Name token includes the file extension, tokens added after Base Name are appended after the extension - thus, changing the extension. If you want to separate the base name from the extension, you can generate a file name variable in any Monitor or Identify action, and use a Compute action (with Substring by Character) to create a variable with the base file name and another variable with

the extension of the source. Substitute the Base Name token with your own file name and extension variables.

Save. Saves the action and closes the inspector.

Decide | Multi-Decide Action

The Decide and Multi-Decide actions are part of the Common group, and can be executed by any Vantage service. Decide actions enable you to specify one or more variables, and test their values to determine what state to set. The state to set is determined by the evaluation mode you specify: All Conditions | At Least One Condition. The state that is set affects downstream actions in this workflow.

Typically, actions only execute when the previous actions sets a Pass state. To determine which state is the execution state, right-click on the action and select Perform On to display the action list - the checked state is the state that triggers execution. The action immediately following a Decide action should be set to execute based on the state passed to it by the Decide action state.

Note: When an action executes, its results determine what state is passed to the next action downstream.

The Multi-Decide action processes variables in the same manner as the Decide action, but enables you to specify multiple Groups of condition variables to implement more sophisticated and complex decision-making processes without adding several Decide actions.

To create a group that is similar to another group you already created, select the group you want to duplicate and click the Duplicate icon in the Group toolbar. Next, edit the new group to test the new set of conditions.

In a Multi-Decide action, each Group sets a Result variable based on the specified Condition variables in that group. If all Conditions in the Group are true, the result variable is set to True, otherwise it is set to False. The Result variable for a given Group may be used as an input Condition for a later Group in the same Multi-Decide action, allowing you to "chain" Groups together, similar to the way results from Compute and Construct action items can be used as input for later items in the same Compute/Construct action.

The Multi-Decide action Group Result variables can be used to control your workflow. For example, you can add a Decide action after a Multi-Decide action and evaluate all of the Multi-Decide Result variables just emitted and set the action state accordingly.

Decide Action Example

For example, you have a workflow with three Monitor actions, each monitoring a different input location for media of low, medium, and high processing priority. Files from each location can be processed by the same encoder.

As jobs are submitted, the action that picked up the new file sets the Priority variable to either 40, 500, or 1000. The Priority variable is passed successively to all downstream actions in the workflow.

The Flip action in each job is executed by priority: 40, 500, or 1000, comparing each action to other Flip actions simultaneously executing or waiting execution.

On completion, the results are passed to three parallel Decide actions, which effectively control which downstream actions execute by setting the state: One is set to test Priority = 1000. If True, it sets state to Pass. Another tests Priority = 500, and if True, sets the state to Pass. The third Decide action tests Priority = 40 and if true, sets the state to Pass. If any Decide test fails, the state is set to Ignore.

Each Decide action is its own branch, containing a Move action. Move actions only execute on success (Pass), so for each job only one branch executes - the first Move action copies the file to the High Windows share; the second copies to Medium, and the third copies to Low.

Inspector Wizard

Multi-Decide Toolbar (Multi-Decide action only).

Duplicate. Select a group to duplicate and click Duplicate to replicate the selected group. Next, edit the new group to test the new set of conditions. This is an easy way to make a new decision group that is similar to another group you already created.

Decision Group Toolbar.

Displays icons for creating and deleting variables in the Conditions table.

New. Click the New icon (far left) to select and add a variable to the Conditions table and configure it using the controls below the table. When more than one variable is tested, they are ANDed together - all tests must pass for the result to be true.

Delete. Select a variable and click the Delete icon (red X, above the table) to remove the variable from the Conditions table.

Conditions Table.

Specifies the variables that should be analyzed.

Operator and Value. Specifies the variable, operator, and value to test for comparison. For example, Priority = 1000, or priority < 50. Only operators that make sense for a given variable type are displayed. For example, you can't use the Greater Than operator on a True/False variable.

Use Wildcards. Displays when appropriate, based on the variable type and operator you've chosen. Use Wildcards (* and ?) enhances your search value. The * indicates a wildcard string of any length (zero or more) characters. The ? indicates a single wildcard character, and may be repeated to specify a string of a certain length.

For example, *.* selects any file with a period in its name. *.mxf only selects files with a suffix of .mxf. Clip????.XML only selects XML files beginning with Clip and having exactly 4 characters following the phrase Clip.

Ignore Case. Displays when appropriate, based on the variable type and operator you've chosen. Ignore Case uses both upper and lower case letters when performing the operation.

Value. Specifies the value used by the operator during evaluation.

Evaluation Mode. Specifies All Conditions Must Be Met | At Least One Condition Must Be Met to emit the specified state.

State to Emit when Conditions Met (True Comparison State). (Decide only) Specifies the state (Pass | Fail | Ignore) that this action should pass to downstream actions if all condition tests are true.

Otherwise Set State (False Comparison State). (Decide only) Specifies the state (Pass | Fail | Ignore) that this action should pass to downstream actions if one or more condition tests fail (are false).

Delay Action

The Delay action is part of the Common group, and can be executed by any Vantage service. The Delay action causes the workflow to halt action processing for a period of time at a specific step in the workflow.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Inspector Wizard

Delay. Specifies the length of the delay in seconds (default: 30).

Delete Action

The Delete action is part of the Transport group, whose actions are executed by the Vantage Transport Service and enable you to perform file operations on specified files, identified by nickname.

The Delete action removes the specified file (or asset file set) identified by nickname from its location. The file must have been ingested or created by an upstream action in the workflow.

Delete actions can only operate on file systems that support standard file operations, such as Windows, FTP, etc.

Before the Delete action can execute, it must be configured using the inspector.

Details

In most cases, workflows perform the expected utilitarian file operations automatically - deleting temporary files, saving them when you register them, or saving them in a store.

If you want to explicitly delete a file, use the Delete action. For example, you may have ingested an XML file, and want to delete it from the original location each time the job runs.

Inspector Wizard

Select the File to Delete. Specifies the file to delete, by nickname.

Deploy Action

The Deploy action is part of the Transport group, which enables you to perform file operations on specified files, which are identified by nickname. The Deploy action exports the specified file or file sets including metadata to a system outside of the Vantage domain, including publishing video to social media sites.

All transport actions are executed by the Vantage Transport Service.

Unlike Copy and Move actions, Deploy actions are typically used when Vantage cannot or should not track the file and the media file is deleted after successful delivery.

Before the Deploy action can execute, it must be configured using the inspector.

Details

Typically, you add a Deploy action to a workflow when you need to copy a file to a location outside the bounds of the Vantage domain, to media systems such as Avid Transfer Engine or social media sites, or to perform multiple file copies to another file system.

Inspector Wizard

Select the deployment type. Specifies the type of deployment to employ in this action.

To continue, click Next and follow the steps in the inspector to configure your Deploy action for the selected system.

Next. Displays the next inspector panel.

DIVA Archive Action

The DIVA Archive action is part of the DIVA group in Workflow Designer. It enables a workflow to add a new object to a specified DIVA Core, which is identified by connections which are managed in the Vantage Management Console.

If the Vantage job is canceled manually, Vantage sends a request to cancel the Archive operation to DIVA.

Note: In order to archive/restore content in association with DIVA, the server where the content is located MUST be accessible to BOTH Vantage and DIVA. This implies that a user should have implicit knowledge of where DIVA and Vantage may ingest or write material and take this into consideration when designing workflows.

All DIVA actions are executed by the Vantage DIVA Service that interacts with DIVA via the REST API. DIVA actions are not Open Workflow enabled.

DIVA actions are commonly used by an API-driven system or in workorder-based workflows, where parameter/control values that are dynamic and typically vary from job to job and are typically supplied by variables.

Before the action can execute, it must be configured using the inspector.

Inspector Wizard

Select the Connection...

Use this panel to select a DIVA Core by its connection.

DIVA Credential. Specifies the connection to use for this action. The menu displays the connections registered in Vantage (via the Vantage Management Console > Settings & Options > DIVA). During job execution, if the connection fails for any reason or if the account does not have permission to perform the operation, the action will emit a Failure state.

Next. Displays the next inspector panel.

Archive Material...

Use this panel to specify the material, metadata, and configure options.

Nickname to Archive. (Required) specifies the nickname that is associated with the file set to archive in DIVA.

New Archive Object Name. (Required) specifies the string (max 96 characters) that (along with the collection name) uniquely identifies the new object in DIVA. Click Edit Object Name to display the Filename Pattern Editor, where you can construct a quasi-unique object name. For example, by adding a unique time stamp, you can place multiple objects into DIVA in the same category.

Objects are displayed in the DIVA web app's Content Catalog table.

DIVA Media. (Required) specifies the name of the DIVA device (cloud | disk | tape) used for storing the object, or a variable that contains the string. Use the System Management program to determine what media is available.

Lookup Media. Click to display a list of devices registered in Arrays | Groups | Storage Plans that you can choose from. Select the media identifier and click OK to supply the string to the DIVA Media field.

Collection Name. (Required) specifies the collection string to associate with the object, or variable that contains the string. The combination of Object Name and Collection Name creates a unique identity for the new object in DIVA.

Objects are displayed in the DIVA web app's Content Catalog table.

Comments. Specifies a free text string or variable that contains the string. This string displays in the DIVA object table Comments column.

Source Server. (Required) specifies the identify of the external system (which must be registered in both Vantage and DIVA with authenticated credentials), where Vantage writes the source file(s). Manually enter the string, bind it to a variable, or click Lookup Server to select the system from the list.

Lookup Server. Click to display a list of authenticated source and destination external storage systems in the DIVA Configuration Utility. Select the target server and click OK to supply the server string to the Server field.

Archive Request Priority. When checked, ranks the priority (0-100) of the archive job in DIVA. When unchecked, the value is set to 50.

Generate Variables

Emit Object Name. Returns the object name as a string in a variable. Check to enable, and specify the text variable to generate, for use downstream in the workflow.

Next. Displays the next inspector panel, where you click Finish to save the action.

DIVA Lookup Action

The DIVA Lookup action is part of the DIVA group in Workflow Designer. It enables a workflow to determine if a specific object has been archived in the specified DIVA Core, which is identified by connections which are managed in the Vantage Management Console.

DIVA actions are commonly used by an API-driven system or in workorder-based workflows, and parameter/control values that are dynamic and typically vary from job to job are supplied by variables.

This action enables the workflow to make intelligent branching choices based on the results, including operating on the returned metadata when the object is present. This action should be used prior to restoring an object using DIVA Restore: attempting to restore an object that does not exist will fail.

If the lookup operation succeeds, the DIVA Lookup action emits Success, regardless of whether the object exists or not. The workflow must examine the results variable to determine what further action to take.

The DIVA Lookup action sends DIVA a lookup request for an object name and category/collection. DIVA returns the result of the search: TRUE | FALSE and, if successful, a JSON file of the object, in variables.

All DIVA actions are executed by the Vantage DIVA Service which interacts with DIVA via the REST API. DIVA actions are not Open Workflow enabled.

Before the action can execute, it must be configured using the inspector.

Inspector Wizard

Select the Connection...

Use this panel to select a DIVA instance by its connection.

DIVA Credential. Specifies the connection to use for this action. The menu displays the connections registered in Vantage (via the Vantage Management Console > Settings & Options > DIVA). During job execution, if the connection fails for any reason or if the account does not have permission to perform the operation, the action will emit a Failure state.

Next. Displays the next inspector panel.

Check for Existence...

Use this panel to specify search terms that uniquely identify an object, and generate returned variables for use downstream.

Object Name. (Required) specifies the string that (along with the collection name) uniquely identifies the object in DIVA. Or, bind it to a variable which contains the string.

Collection Name. Required— specifies the collection string associated with the object, or variable which contains the string. The combination of Object Name and Collection Name creates a unique identity for the object in DIVA.

Generate Variables

Object Exists. Returns a true | false value in a variable. Check to enable, and specify a True/False variable to generate, for use downstream in the workflow.

JSON Result. If the object does exist, the action returns the associated object metadata in a JSON document, which is generated by a DIVA info request. Otherwise, no JSON file is returned. Check to enable, and specify a text variable to generate, for use downstream in the workflow.

Next. Displays the next inspector panel, where you click Finish to save the action.

DIVA Restore Action

The DIVA Restore action is part of the DIVA group in Workflow Designer. It enables a workflow to write archived content to a storage system external to DIVA and Vantage that was previously archived in the specified DIVA Core. The specific DIVA Core is identified by connections which are managed in the Vantage Management Console.

Note: In order to archive/restore content in association with DIVA, the server where the content is located MUST be accessible to BOTH Vantage and DIVA. The user should insure that DIVA and Vantage can access the target server to ingest or write material, and take this into consideration when designing workflows.

All DIVA actions are executed by the Vantage DIVA Service which interacts with DIVA via the REST API. DIVA actions are not Open Workflow enabled.

DIVA actions are commonly used by an API-driven system or in workorder-based workflows, and parameter/control values that are dynamic and typically vary from job to job are supplied by variables.

Before the action can execute, it must be configured using the inspector.

Inspector Wizard

Select the Connection...

Use this panel to select a DIVA instance by its connection.

DIVA Credential. Specifies the connection to use for this action. The menu displays the connections registered in Vantage (via the Vantage Management Console > Settings & Options > DIVA). During job execution, if the connection fails for any reason or if the account does not have permission to perform the operation, the action will emit a Failure state.

Next. Displays the next inspector panel.

Restore Material...

Use this panel to specify content you want to restore from the DIVA instance.

Object Name. (Required) specifies the Object Name string that (along with the collection name) uniquely identifies the object in DIVA. Or, bind it to a variable that contains the string.

Collection Name. (Required) specifies the category/collection string associated with the object, or variable that contains the string, which was created in an upstream action or passed into the workflow. The combination of Object Name and Collection Name creates a unique identity for the object in DIVA.

Destination Server. (Required) specifies the identity of the external system (which must be registered in both Vantage and DIVA with authenticated credentials), where

DIVA should copy the content for ingest by Vantage. Manually enter the string, bind it to a variable, or click Lookup Server to select the system from the list.

Lookup Server. Click to display a list of authenticated source and destination storage systems in the DIVA Configuration Utility > Sources and Destinations table (Name column) that you can choose from. Select the target server and click OK to update the server string to the Server field.

Root File Path. Optional—if left blank, Vantage uses the root path specified in the Sources and Destinations server record to copy the file(s). To further define this path, enter a partially-qualified path as the destination.

For example: The Root File Path for the NAS is defined in the TSCM_LA DIVA as `\\MyBigNAS\TSCM\`. The partial path you enter in this field is `Restored_Content\DPX-HiRes\`. Thus, the fully-qualified path where the file set is written is `\\MyBigNAS\TSCM\Restored_Content\DPX-HiRes\` - the combination of the two partial string entries.

Restored Nickname. (Required) specifies the Vantage nickname assigned to the restored content, which is emitted from the DIVA Restore action for use downstream to access the media for localization and further processing.

Restore Request Priority. When checked, ranks the priority (0-100) of the restore job in DIVA. When unchecked, the value is set to 50.

Next. Displays the next inspector panel, where you click Finish to save the action.

DPP Validate Action

The DPP Validate action is part of the Analysis group. All analysis actions are executed by the Vantage Analysis Service.

This action is Cloud capable. It is supported in Vantage Cloud hosted workflows with the exception of the validation report option which is not supported. For details, consult the Vantage Cloud User Guide on the Telestream website.

Use the DPP Validate action to verify that the DPP metadata in the specified XML file is formatted correctly for the supported DPP version. When the action completes, it optionally reports True or False in a variable, depending on the results of the validation. You can use the variable to control downstream processing based on the results. You can also generate a report for reviewing the results in detail to correct problems.

Before this action can execute, it must be configured using the inspector.

Inspector Wizard

DPP Validator. Specifies the file validation component to use.

DRM Action

The DRM action is part of the Multiscreen group, and is executed by the Multiscreen Service. You use the DRM action to execute a script that utilizes input data and generates a JSON string which contains the information required to encrypt streaming media with DRM in Multiscreen workflows.

Scripts are created externally in a supported language and added to a Vantage domain via the Vantage Management Console > Workflow Design Items > Scripts. The specified script is executed in the DRM action, generating the output into a text variable for use in a downstream Multiscreen action. Multiscreen Flip uses the output of the script when encoding the media.

For more details on configuring the Multiscreen DRM action, please consult the 'Using Vantage Multiscreen DRM Actions' application note available on the Telestream website.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Inspector Wizard

Use the Wizard to select a script, specify input values and output variables.

Selecting a Script

Use the first panel to select a script. (If no DRM scripts are present in the domain, the DRM action displays an error message to alert you of the requirement.)

Script Configuration. Specifies the script configuration to execute. Script configurations must be created by adding scripts and configuring them or by importing script configurations to this domain that were previously exported.

Specifying Input Values

<Input Variable>.Each input variable defined in the script configuration is displayed in the Inspector so that you can provide an input value for each job. Manually enter a static value to assign the variable for every job, or click Browse and assign a variable to use, which must be assigned a dynamic value by an upstream action.

Specifying Output Variable

<Output Variable>.Each Output variable defined in the script configuration is displayed in the Inspector so that you can provide an output variable for each job. Assign a variable to contain the output, to be used in downstream actions.

Dublist Action

The Dublist action is an optional, licensed feature enabled with the TrafficManager license.

Dublist is an origin action, which runs outside the context of a job. Thus, Dublist actions can only be used as the first action in a workflow. Dublist actions run when the workflow is activated and during the active time frame, if specified.

Typically, you start a TrafficManager dublist workflow with a Dublist action, and configure it to identify new dublist files and process it based upon your workflow requirements. Dublist processing requirements are specified in a *dublist scheme*, which you create in the Vantage Management Console (Fulfillment Schemes > Dublist Schemes).

Note: When configuring a Dublist action, you can use one of the default dublist schemes provided in Vantage or create a dublist scheme to meet your requirements. If you are using an XML-based dublist (such as BXF, Eclipse, or Novar), the dublist must be saved with the appropriate encoding relative to the content in the file. For example, If your dublist contains non-ASCII characters (such as German or French), you must save the file with UTF-16 encoding. In XML files, the encoding type is generally indicated in the header line: <?xml version="1.0" encoding="utf-16"?>.

A Dublist action continually monitors the target Traffic directory on the specified file system for new dublist files. A Dublist action initiates a dublist processing job each time a new dublist file is discovered, and passes control to the next action in the workflow.

Before the Dublist action in this workflow can perform its monitoring task, it must be configured using the Inspector.

Inspector Wizard

Select a specific type of file system where the dublists are stored, and configure the action appropriately. When a new dublist file is detected, the file is associated with the specified nickname, and a new dublist processing job is submitted for processing.

emotion Action

The emotion action enables Vantage to utilize and interact with Emotion Systems Emotion Engine audio software.

Examine Action

The Examine action is part of the Analyze group and is executed by the Vantage Analysis Service. It enables you to select a specific analyzer to obtain certain metrics about the contents of the media stream itself: Black Detection, Slate Detection, etc. from the specified file, identified by a nickname.

Depending on the specified metric, you can configure the analyzer to meet your requirements, and then publish the metrics as metadata, variables, or states, all of which can be passed on to other actions in the workflow for utilization as appropriate.

Before the Examine action can execute, it must be configured using the inspector.

Inspector Wizard

Analyzer. Specifies the type of analyzer to use, selected from the list.

Input Media File. Specifies the input file to analyze, by nickname.

Settings. Click to display details. Depending on the specified metric, you can configure the analyzer to perform according to your requirements.

Publish Metadata. Click to display details. Check to publish appropriate metadata labels, based on the specified analyzer.

Generate Variables. Click to display details. Check to publish appropriate values in the specified variable, based on the specified analyzer.

Set Workflow State. Click to display details. Check the state to publish, based on the specified analyzer.

Save. Saves the action and closes the inspector.

Exist Action

The Exist action enables you to provide search criteria to search for a binder, to determine if a binder exists in a given catalog. Exist actions are executed by the Catalog Service.

To configure an Exist action, follow these steps:

1. Select a catalog to search.
2. Select the search criteria.
3. Specify the search string.
4. Optionally, set up a variable to set.

Before the Exist action can execute, it must be configured using the inspector.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings.

For details on each component of an Exist action, select the component and click the M icon (upper right).

Inspector Wizard

Select Where to Check for Binders. Specifies the catalog you want to search.

Search Criteria. Specifies Select by Name (default).

Settings. Specifies the name of the binder you are searching for by a literal value you enter, or a variable you specify.

Generate Variables. Publishes the result of the search (True/False) in the specified variable.

Save. Saves the action and closes the inspector.

Extract Action

The Extract action is part of the Metadata group and is executed by the Metadata service.

The Extract action identifies and extracts specific values from structured metadata and populates variables for use in downstream actions. The Extract action enables you to identify the location in the structured data where the value is located.

The workflow can ingest an XML or JSON file during job execution or by making web service calls. The Extract action automatically generates XPATH or JSONPath references from the structured metadata in these files to extract the data, and populates a variable with the value. During execution, each extraction path is evaluated against the input and the associated variables are populated for use in downstream actions.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings.

Inspector Wizard

Specify the Format Type

Specifies the format of the input file or text from which the values are to be extracted:

Json Extractor. Specifies the content is in JSON format and the auto-generated paths should be formatted as JSONPath references.

XML Extractor. Specifies the content is in XML format and the auto-generated paths should be formatted as an XPATH reference.

Faspex Delivery Action

The Faspex 5 Delivery action in the Aspera group enables Vantage workflows to deliver files to Aspera transfer servers via integrated Aspera client software.

Faspex 5 Delivery actions are executed by the Vantage Aspera Service.

The Faspex 5 Delivery action is designed to tolerate a certain amount of disruption and maintain connectivity under these conditions. It typically can continue a transfer with up to 60 seconds of interruption before terminating the connection.

To handle more severe problems where maintaining a transfer is critical, a separate parameter can be set to wait for a specified duration. This parameter defaults to 0 minutes (the feature is disabled). If this value is set to a value greater than 0, Vantage attempts to start a new transfer at the point where the previous one failed. Vantage will continually retry until it succeeds or reaches the resume timeout value.

For example, if this value is set to 10 minutes, Vantage waits up to 10 minutes before failing the action. If, at any time during this 10 minutes the transfer resumes, a new output file is generated with the naming convention `filename(nnn).ext` where (nnn) is incremented as needed for additional resumptions. Vantage checks the length of the previous output(s) and verify that no data is missing before resuming. If it is unable to resume at the exact point of interruption, the transfer fails.

When a transfer has completed successfully, but with one or more resumed parts, those file parts must be manually reassembled at the destination. There are built-in Windows and Linux command-line tools to perform this task:

Windows: `copy /b source-file.ext + source-file(2).ext output-file.ext`

Linux: `cat source-file.ext source-file(2).ext > output-file.ext`

Depending on the nature of the error, resuming the transfer may not be possible.

Inspector Wizard

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Faspex Connection Panel

Host (Required). Specifies the host name and domain of the Aspera Faspex server. Use the form *host.domain*. For example, *asperahost.telestream.net*.

Client ID (Required). Specifies the Faspex client ID - may require a Faspex administrator to provide this credential.

User Name (Required). Specifies the authorized user name for the host you're connecting to.

Private Key (Required). Specifies the RSA SSH private key, in PEM format.

Passphrase. Specifies the pass phrase required to decrypt the key.

Transfer Rate. Specifies the ideal transfer rate in Mbps, depending on network conditions and the specified transfer policy. Set this value to 0 to use the default rate set by the Faspex administrator. The value can not override the maximum transfer rate set by Faspex.

Transfer Policy. Specifies the bandwidth sharing policy utilized during the transfer.

Default - use the policy set by the Faspex server administrator.

High - When sharing bandwidth, use twice the rate used by the fair policy.

Fair - Share the bandwidth equally with other traffic.

Low - Use only unused bandwidth.

Next. Click Next to display the configuration panel.

Files to Deliver Panel

Files to Deliver. Specifies the media files or attachments to be delivered, by nickname.

To (Required). Manually enter one or more user names or email addresses separated by commas. Or click the plus sign icon and check the names on the list that you want these files delivered to. Email addresses can be external addresses which are not contained in the address book. In this case, the user must have permission to send packages externally for the action to function correctly.

Title (Required). Enter the title of this delivery notice. Or, click the green Browse button and select a variable that contains the string, assigned from an upstream action.

Note. Enter the note to send with this delivery notice. Or, click the green Browse button and select a variable that contains the string, assigned from an upstream action. The Note data is transferred and displayed in the package of the receiver as additional details.

Encrypt Package Using Passphrase/Password. Check to encrypt this package using the passphrase specified. Encryption protects the assets while they are stored in the Faspex repository.

Passphrase. When Encrypt Package... is checked, enter the passphrase to use for encryption. When the package is later retrieved from the Faspex repository, this same passphrase is required to decrypt the package.

Next. Click Next and Finish to save your changes.

Faspex 5 Delivery Action

The Faspex 5 Delivery action in the Aspera group enables Vantage workflows to deliver files to Aspera transfer servers via integrated Aspera client software.

Faspex 5 Delivery actions are executed by the Vantage Aspera Service.

The Faspex 5 Delivery action is designed to tolerate a certain amount of disruption and maintain connectivity under these conditions. It typically can continue a transfer with up to 60 seconds of interruption before terminating the connection.

To handle more severe problems where maintaining a transfer is critical, a separate parameter can be set to wait for a specified duration. This parameter defaults to 0 minutes (the feature is disabled). If this value is set to a value greater than 0, Vantage attempts to start a new transfer at the point where the previous one failed. Vantage will continually retry until it succeeds or reaches the resume timeout value.

For example, if this value is set to 10 minutes, Vantage waits up to 10 minutes before failing the action. If, at any time during this 10 minutes the transfer resumes, a new output file is generated with the naming convention `filename(nnn).ext` where (nnn) is incremented as needed for additional resumptions. Vantage checks the length of the previous output(s) and verify that no data is missing before resuming. If it is unable to resume at the exact point of interruption, the transfer fails.

When a transfer has completed successfully, but with one or more resumed parts, those file parts must be manually reassembled at the destination. There are built-in Windows and Linux command-line tools to perform this task:

Windows: `copy /b source-file.ext + source-file(2).ext output-file.ext`

Linux: `cat source-file.ext source-file(2).ext > output-file.ext`

Depending on the nature of the error, resuming the transfer may not be possible.

Inspector Wizard

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Faspex Connection Panel

Host (Required). Specifies the host name and domain of the Aspera Faspex server. Use the form *host.domain*. For example, *asperahost.telestream.net*.

Client ID (Required). Specifies the Faspex client ID - may require a Faspex administrator to provide this credential.

User Name (Required). Specifies the authorized user name for the host you're connecting to.

Private Key (Required). Specifies the RSA SSH private key, in PEM format.

Passphrase. Specifies the pass phrase required to decrypt the key.

Transfer Rate. Specifies the ideal transfer rate in Mbps, depending on network conditions and the specified transfer policy. Set this value to 0 to use the default rate set by the Faspex administrator. The value can not override the maximum transfer rate set by Faspex.

Transfer Policy. Specifies the bandwidth sharing policy utilized during the transfer.

Default - use the policy set by the Faspex server administrator.

High - When sharing bandwidth, use twice the rate used by the fair policy.

Fair - Share the bandwidth equally with other traffic.

Low - Use only unused bandwidth.

Next. Click Next to display the configuration panel.

Files to Deliver Panel

Files to Deliver. Specifies the media files or attachments to be delivered, by nickname.

To (Required). Manually enter one or more user names or email addresses separated by commas. Or click the plus sign icon and check the names on the list that you want these files delivered to. Email addresses can be external addresses which are not contained in the address book. In this case, the user must have permission to send packages externally for the action to function correctly.

Title (Required). Enter the title of this delivery notice. Or, click the green Browse button and select a variable that contains the string, assigned from an upstream action.

Note. Enter the note to send with this delivery notice. Or, click the green Browse button and select a variable that contains the string, assigned from an upstream action. The Note data is transferred and displayed in the package of the receiver as additional details.

Encrypt Package Using Passphrase/Password. Check to encrypt this package using the passphrase specified. Encryption protects the assets while they are stored in the Faspex repository.

Passphrase. When Encrypt Package... is checked, enter the passphrase to use for encryption. When the package is later retrieved from the Faspex repository, this same passphrase is required to decrypt the package.

Next. Click Next and Finish to save your changes.

FileCatalyst Action

The FileCatalyst action is an optional, licensed feature, which enables Vantage workflows to access and deliver files to FileCatalyst servers via integrated FileCatalyst client software.

For details, see the Vantage App Note *Installing and Using FileCatalyst in Vantage*, on the Telestream Web site: Support > Vantage > Main tab at bottom. (URL: http://www.telestream.net/pdfs/app-notes/app_Vantage_FileCatalyst.pdf).

Flip Action

The Flip action transcodes a new format of media from a specified input file, using a specific encoder profile. Flip actions are executed by a Transcode Service.

Video Processors

This transcoding action implements the following video processors:

- Legacy 8-bit RGB
- Multi-core 16-bit YCbCr
- Lightspeed Accelerated 16-bit YCbCr (Default video processor)
- Cinnafilm Tachyon

To select which video processor to utilize, select the encoder and select its video stream. Next, select the video processor from the Processor menu at the bottom of the inspector panel. Telestream recommends that you only use the Legacy RGB and Multi-core video processors on a standard Vantage server. They do not utilize the Lightspeed server GPUs. Likewise, if you do not have a Lightspeed server, do not select Lightspeed Accelerated or Cinnafilm Tachyon; these will only execute using the Transcode Service running on a Lightspeed server.

Note: When you select a video processor for a given encoder, you must make sure that it is available in the domain or you can't process media. For example, if you enable the Lightspeed Accelerated Processor, a Lightspeed server (with the Lightspeed Service running) must be available.
If a Lightspeed server is not available (the server or the service is not running, no license is present, or the service is hung), by default, the task will automatically be processed on an available CPU-based transcoding service. However, if the service or services are busy processing other tasks, the action will wait indefinitely until one becomes available, unless fallback rules are specified.
To verify that the required service is present, close the inspector. Right-click on the action and select Run On Rules to verify that a service exists that can process this particular action. In the Run On Rules dialog, click Check Services (bottom left corner). Vantage will verify that the required service is available and advise you. If one is not available, Vantage reports that none of the services can execute this Flip action. For assistance, contact your Vantage administrator.

Configuring a Flip Action

To configure a Flip action, follow these steps:

1. Select an encoder and identify the input file by nickname.

3. Specify a nickname for the new file and optionally, configure the filename pattern.

4. Specify output file location options.

5. Configure each building block in the media to your specific media requirements: decoder, video and audio streams, codec and wrapper/container. Add new streams and filters and configure them to meet your encoding requirements.

Note: The list of encoders, decoders, filters, containers, and codecs is color-coded as follows:
White - This component is licensed in this domain and available for use.
Aqua - This component is unlicensed. It can be used, but runs with in demo mode, with restricted functionality. For example, it adds a watermark to the video. When you save the action, Vantage displays a dialog to warn you that you are using an unlicensed feature.
Gray - This component is unlicensed, and can not be selected for use.

Before the Flip action can execute, it must be configured using the inspector.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings. Only TIFO inputs are accepted in Open mode for this action; outputs may be TIFO, TS, or PS.

Details

Configuration of a Flip action is comprehensive - it includes selection and configuration of decoders, encoders, codecs, wrapper/container, as well as various movie, audio, and video filters.

For details on each component of a Flip action, select the component and click the M icon (in the upper right corner of the window).

Inspector Wizard

Encoder. Specifies the encoder to use in this action. Certain encoders are enabled only as a licensed option.

Edit Filename Pattern. Displays the Filename Pattern Editor. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the encoder you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Input Media File Nickname. Specifies the nickname of the input file to transcode. You can create new nicknames or re-use existing nicknames.

Output Media File Nickname. Specifies the nickname (which you can select or enter) to assign the transcoded file or file set (as in the case of MXF, for example).

Output Location. Specifies where to store the file(s).

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Enable Path Preservation. Preserves the sub-folder structure of an input file provided by a Watch, Associate, Flip, Gather, Copy or Move action when writing the output file to the destination directory.

For example, if a Watch action monitors a hot folder share \\VantageIn\ with Look in Subfolders enabled, and a job is submitted by the Watch from \\VantageIn\Subfolder1\Subfolder2\Clip.mpg, then the output file will be written into the specified directory path plus Subfolder1\Subfolder2\, thus preserving the sub-folder structure in the destination location.

Toolbar and Media Components

Use the icons in the toolbar to add streams and filters. When you click on the icon, a new component (for example, a video stream or a contrast filter) is added In the case of filters - the next available item is added. You can also click the arrow on the icon to select a component to add from the list.

For each component in the media component panel, click on it to view and configure its details in the properties panel below the encoder.

Use the toolbar to add the following items:

- Video Streams
- Audio Streams
- Data Streams
- Movie Filters (Movie filters are a licensed option)
- Video Filters
- Audio Filters

Media Components Panel

The media components panel is a visual representation of the output media based on the encoder you've selected. Components include the decoder, audio, video, and data streams, and the codecs and container (on the far right). The video and audio codecs are right-aligned on their respective streams.

To the right of the video, audio, and data streams are any filters you have added.

To delete any component, click on the X icon in the upper right corner.

Click on each component to select a specific implementation (decoder, codec, container, etc.) and display its editor panel below the component panel, and configure it per your specifications.

Decoder. (Far right) Select a decoder. Default: Auto. When necessary, select a specific decoder, and configure it as required.

Video/Audio/Data Streams. Add any filters required, and configure them.

Video/Audio Codecs. Specify the codec for the target video/audio stream and configure them.

Wrapper/Container. (Far right) Specify the container/wrapper and configure it.

Flip64 Action

The Flip64 action is designed to facilitate the creation of media suited for delivery to broadcast servers. Transcoding may also include special-purpose conversion, as required.

The Flip64 action is a 64-bit, multi-core-optimized transcoder that transcodes media from one or more input files into another format as specified by the output configuration. Available resolutions extend from SD to Ultra HD and 4K in a broad range of file formats, from QuickTime to MPEG-4 and TIFO, and includes encoding for x264, x265 (H.265 HEVC), MXF, and others.

Flip64 actions are executed by the Vantage Transcode Service. Use of the Flip64 action is an optional, licensed feature. It requires a Transcode Pro license to utilize it.

To configure the Flip64 action, you add and configure the Input component(s) to specify one or more media formats being processed. The Input component passes the decoded media to any Converter components that have been configured, for processing as appropriate. Next, the media is passed to the output components in the action, which you configure to direct convert or encode your media with the specified codec to meet your requirements, apply any filters, and write the file out in the specified format/wrapper.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings. Note: Open workflow support is dependent on the input component selected. See individual input components for details.

Copying Open Files using Live Capture Smart Copy

In a Live Capture environment, you can use Flip64 to perform near real-time file copying. To do so, connect a Flip64 action to an upstream Capture action, and configure the workflow and action to operate in Open mode. Next, configure your input as required, and set your output to MXF OP1a or TIFO - only those two containers are supported. Finally, set your video and audio codecs to Direct Convert. Do not perform other operations when using Flip64 to copying open files.

Note: To display online help for each component of a Flip64 action, select the component and click the M icon (upper right).

Using This Action in Cloud Mode

This action is Cloud capable. Actions placed into Cloud mode are executed remotely in Vantage Cloud. For additional details, refer to the Vantage Cloud User Guide on the Telestream web site.

Settings

Required Passes. When supported by a codec, specify the number of passes to perform (1 to 16). When more than one pass is performed, the encoded frames are discarded except for the last pass. In incremental passes, statistics are gathered and saved for the final encoding to improve video quality.

In practice, more than 2 or 3 passes results in very little material change in quality. The statistics file is passed through the workflow and included in the output media binder if registered, so that you can view it. In supported codecs only, you can use it again on repeated encoding of the same input video.

Enable enhanced decoder error reporting. When checked, decoder errors that are normally ignored are reported and may cause the action to fail.

Note: When this feature is enabled, jobs that otherwise successfully complete, with possible flaws in the output, may fail due to the enhanced error checking.

State to Emit on Failure. When enabled, allows specification of state to emit if a failure occurs. Disabled by default.

Note: This feature is not supported in Cloud mode. If this feature is enabled, you will not be able to put the Flip64 action into Cloud Mode.

Configuring the Flip64 Action

Configuration of a Flip64 action is quite comprehensive - it includes selection and configuration of input, converter, and output components.

To configure a Flip64 action for your workflow, follow these steps:

1. Add your inputs and configure them for processing.

2. Add any converters as required, and configure them.

3. Specify the output files you want to create and configure them.

When you are done configuring this action, click Save.

Forward Action

The Forward action is part of the Common group, and can be executed by any Vantage service. The Forward action passes binder-based items to another workflow. Only those workflows that start with a Receive action are eligible.

If you are chaining workflows to create more comprehensive or complex workflows, you end each workflow (except the last) in this chain with a Forward action, and configure it to pass files, labels, and attachments (based upon your workflow requirements) that are held in a binder to the next workflow in the chain, each of which begins with a Receive action.

Variables utilized in this workflow have scope in the next workflow - that is, they can be utilized by actions in the receiving workflow and maintain the values assigned in this workflow.

Before the Forward action can execute, it must be configured using the inspector.

Before you can configure a Forward action, you must first create a workflow with a Receive action, so it can be selected as the target workflow.

Inspector Wizard

Forward actions can be configured in various way depending on your workflow needs.

Select the Target Workflow. Specifies the workflow that you want to forward items to. Only workflows that start with a Receive action are listed in the table.

Specify the Target Workflow ID. When enabled, allows specification of a workflow ID value rather than a workflow name. Disabled by default.

Specify Job Name. When checked, allows specification of text to be used as job name. Unchecked by default.

Create New Binder. When checked, duplicates this workflow's binder, so that the next workflow in the chain is working on a copy of this workflow's binder, not the original. Unchecked by default.

Select Items to Include. (Displays when you check Create New Binder and click Next.) Specifies the media files, labels, and attachments (if any) that you want to pass to the next workflow. You can also change nicknames for assets when forwarding them to the next workflow.

Allow Binder Content Discrepancy. When checked, allows forwarding of jobs even if required media nicknames, attachments and metadata labels are not provided. Unchecked by default.

Save/Finish. Saves the action and closes the inspector panel.

Frame.io Action

The Frame.io connector allows for the creation and delivery of assets, between Vantage and Frame.io, which is an online hub that facilitates the organization of, and collaboration around media assets. Frame.io allows team members to upload material, annotate this material, and collaborate with other team members on material. A special license is required to use this feature. The Frame.io action is part of the Publish group and is executed by the Publish service.

For configuration and set up details, see the *Integrating Vantage with Frame.IO* application note available on the Telestream website.

Select the Frame.io Action Type

Create Asset (Interactive). Creates an asset at Frame.io for direct submission.

Create Asset (Programmatic). Creates an asset at Frame.io using programmatic input.

Click Next to continue or Cancel.

Gather Action

The Gather action is part of the Staging group, and is executed by the Vantage Staging Service. The Gather action adds all files in the specified Windows or FTP server directory (and optionally, in all subfolders within a folder) as an attachment to the binder for a job. The user may supply a pattern (for example, *.mpg) to filter and limit the files selected and added to the attachment.

Before the Gather action can execute, it must be configured using the inspector.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Inspector Wizard

Select the File System. Specifies the type of file system you want to access.

Note: The Gather action only supports Windows, FTP and certain other bindable file systems. If a file system other than Windows or FTP is specified via the Bindable file system, the action will fail when it is executed.

Next. Displays the next panel of the inspector. Configure subsequent panel based on File System chosen.

Note: Depending on the File System chosen, subsequent configuration panel may differ.

Configure Settings for Gathering Files

After the file system specific panel is configured, click Next to open the Configure Settings for Gathering Files panel.

Look in Subfolders. When checked, specified folder and subfolders will be searched for files. Unchecked by default.

Attachment Nickname. Select or create an attachment nickname for the group of files. This nickname is used by other workflow actions to access the attachment.

Accept Pattern. Limits file selection to files that adhere to the specified pattern.

To enter one or more patterns use one of these methods:
- Manually enter the pattern(s)
- Select a pattern from the menu

- Click the green Browse button and select a variable that contains the pattern(s).

- Click Browse and select a file that contains the pattern.

Note: Patterns are not case sensitive. No spaces are allowed. Patterns can contain literal characters, plus the standard wild card characters ? and * and can include multiple patterns, separated by the | (OR bar) character.
- To filter files with an MPEG extension, enter **.mpg*. To filter files having the .fpk extension , enter **.fpk*.
- To filter all files beginning with the letters TESTBARS or containing the word BLACK, enter a compound pattern: TESTBARS* | *BLACK*.
- To filter files by a single character, use the ? wild card character. You can enter one ? for each character in the string. For example, to filter all MPEG files with the same root name plus a single character sequence, enter *NWCrossing?.mpg*.

Match File Name To. When you select (or enter) a pattern with the key phrase [Name], you must select the nickname of the file in the Match File Name to menu (the next control below) to replace the [Name] string in the pattern with the filename of the corresponding file.

Override Subfolder Path Enforcement. When checked, subfolder path structure between root Gather folder and location of discovered files is flattened for use in downstream Copy or Archive actions. Unchecked by default.

Text File Output

When checked (unchecked by default), instead of adding the actual files discovered by the Gather action, a single text file is generated and added as an attachment. This file contains the full path names for the discovered files, one entry per line. For example:

D:\Gather\A_File.mpg

D:\Gather\B_File.mpg

D:\Gather\C_File.mpg

D:\Gather\D_File.mpg

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the text file to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the text file to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the text file to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click the green Browse button to select a variable which supplies the fully-qualified path dynamically.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the filename.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

File List Order. Specifies sorting method of output file list.

Grid Action

The Grid action is part of the Transcode group, and is executed by the Vantage Transcode Service. The Grid action is not Open Workflow capable.

The Grid action is designed to significantly reduce a media file's total transcoding time by dividing it into multiple segments for concurrent transcoding and then re-assembling them. To accomplish this, it sends dynamically-generated Transcode CML that defines each segment to a separate Flip64 action workflow which transcodes the segment using the desired codec. When all segment jobs complete, the Grid action generates a new Transcode CML file that defines the output file comprised of the new segments. The new file is processed by a Flip64 action (in this or other workflow) which re-assembles the transcoded segments into the new media file via direct convert.

The Grid action workflow (referred to as the *control* workflow) sends segments to a *compute* workflow, which must begin with a Receive action. The compute workflow spawns a job for each segment, transcoding it via Flip64 independently and in parallel, based on your domain's capability.

Uniquely, the control workflow job does not terminate after sending segments to the compute workflow. It waits until all transcoding jobs are complete and then generates a Transcode CML file that defines the new media file comprised of the segments the compute jobs transcoded.

The resulting CML file is processed by a Flip64 action in the control workflow to re-assemble the segments into the final media file.

Before the Grid action can execute, it must be configured using the inspector.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Prototype Workflows

Control Workflow: Minimally, this workflow must be designed as Watch > Grid > Flip64. (The Flip64 action may be in another workflow, but must be utilized to produce the final output from the Transcode CML file.) Configure the Flip64 action to use two inputs: an Auto input to ingest the CML file's segments from the Grid action for video and ANC, and a second input to ingest the audio from the original media file. The container format should be the same as the container format specified in the compute workflow, and the video codec should be set to Direct Convert.

Compute Workflow: Minimally, this workflow must be designed as Receive > Flip64. The Receive action should be configured to receive one media file. The Flip64 action should be configured with one Auto input - the CML segment definition - and utilize

the video and ANC streams in the segment. The output should be the desired container and codec. (Audio is re-united with the video in the control workflow's Flip64 action.)

Guidelines and Constraints

In Grid transcoding, if several files are submitted simultaneously, the results may take longer to complete than simply processing these files as a single file - the usual method.

Because the Grid action continues to execute until all compute jobs are complete, consider implementing Retry settings to enable the compute workflow to identify job failures, automatically restart, and continue processing.

Grid transcoding is limited by your license. For example, if your domain has a 2-seat Tachyon license and grid-transcode the files using a Tachyon-based Flip64 action; only 2 of segments can execute concurrently.

Transcoding is also limited by your Transcode Service's Service Limits settings. The default session limit is 4: The Grid action itself consumes 1 session, leaving 3 remaining for simultaneous transcode transactions. Thus, only three compute jobs can run concurrently. Consider increasing the session limit if you are planning to process more segments than your available session limit per Transcode service you are utilizing.

For example, if your domain has multiple nodes (for example, 10); but it only has transcoding capability for 5; then the domain can only run jobs on the 5 nodes which acquire Transcoding licenses. And, if each node's Transcode Service session limit is 4, you can only process (5 x 4) - 1 = 19 jobs concurrently.

If you stop any of the compute workflow jobs, it triggers a failure of the control job since it is unable to successfully complete. If you later restart the stopped job, the failed control job does not restart.

If you restart a stopped control job or have a failed control job, you should discard all compute jobs and submit a new control job.

Stopping a control job also stops all spawned compute jobs that are still executing. However, deleting a completed control job has no effect on the associated compute jobs. These jobs are treated as independent jobs for the purposes of job deletion.

If a control job re-attaches, the throughput (speed) calculation is invalid.

If the compute jobs are deleted before the parent control workflow is complete, the control workflow may fail due to unresolved references.

Inspector Wizard

Media Input. Specifies the nickname of the input media file to segment for processing.

Compute Workflow. Specifies the name of the active workflow being used to transcode the segments or perform other tasks. The compute workflow must begin with a Receive action to accept the input segment CML file and start jobs from the control workflow's Grid action.

Note: The compute workflow must be configured to consume one nickname and emit one nickname. If the compute workflow expects more than one nickname or emits more than one nickname, the Grid action will fail.

Segments. Specifies the number of segments to create for processing by the compute workflow. For each segment, a new CML file is generated to define the next segment in the sequence, and it is submitted to the compute workflow for processing. For example, if the Grid action is configured to create 32 segments, then 32 discrete jobs are processed by the compute workflow.

Input Format for Workflow. Specifies Transform CML as the format of the input file to be generated by the Grid action and ingested by the compute workflow. No other options are available.

Video Only. When checked, audio is not identified or processed by the compute workflow. It is passed through to the output unchanged.

Output. Specifies the nickname assigned to the output media file.

Output Location. Click Output Location and select from these choices:

- Available Vantage Store: Write the file to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- Vantage Store/Folder: Write the file to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- Path: Write the file to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Browse button and select a variable which supplies the fully-qualified path..

Edit Filename. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the filename.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value `12H4JA678`, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Output Format. Specifies Transform CML. No other options are available.

Video Only. Checked and disabled. Audio is not segmented or processed. Output will be void of audio that may have been in the input. Subsequent transcoding operations should obtain any audio from the original file.

Video Frame Alignment. When checked, each video segment has a total frame count that is a multiple of the Video Frame Alignment number specified, except for the last segment which may be shorter. For example, if Video Frame Alignment is checked and set to 15 frames, each segment duration should be divisible by 15 frames except the last segment. This is used to make the segments align with GOP boundaries in the input.

Save. Click Save to update the configuration in the database and close the inspector.

iconik Action

The iconik action enables you to create, deliver, and annotate assets in iconik, a cloud media management and collaboration system. iconik Cloud Media Management and Collaboration is an online, cloud-native hub which facilitates the organization of and collaboration around media assets. iconik enables team members to upload material; annotate this material and collaborate with other team members on material.

The iconik action is an optional, licensed feature of Vantage. It is implemented in the Vantage Publish Service. Vantage interacts with iconik by utilizing the iconik API. iconik Application Tokens and Application IDs are used for authentication.

Note: In iconik, application tokens require setting an associated user. The user for the application token employed by Vantage must have sufficient permission and access in order to execute the desired functions implemented in the Vantage Workflow.

Operational Overview and Constraints

iconik supports a dynamic schema for many supported objects. In particular, objects such as Views and Metadata fields can have their definitions changed in an arbitrary or ad-hoc fashion while Vantage workflows are interacting with the MAM.

Vantage actions are static resources built with a definition from iconik at a specific point in time. If that definition changes after the action is configured, failure may occur if changes are not reflected in the action.

This implies that a Vantage workflow - built against a snapshot of the iconik definition at a specific time- may be invalidated, when an Admin-level user changes the underlying schema after the Vantage iconik workflow was created and configured using the original schema.

Schema Change Example

In this example, a metadata view is comprised of two fields: *Object_Name_Field1* and *Metadata_Field2*.

A Vantage workflow including interaction with iconik is built against a given definition. Later, a user removes *Object_Name_Field1*. Now, there is a potential problem when the workflow which used the original definition executes a job - without updating its configuration to correct the Vantage workflow based on the updated schema.

At a more granular level, consider that the original definition of the *Metadata_Field2* is readable and writable (Read Only is NOT set). This implies that Vantage is able to write a new value into this metadata field during workflow execution. Now, the iconik sysadmin changes *Metadata_Field2* to a read-only field; workflows/actions configured with the initial definition (*Metadata_Field2* was read + write) will encounter a problem.

Alternatively, if the sysadmin changes the name of the field from *Metadata_Field2* to *Metadata_Field3*; this results in incorrect data being sent to iconik by a Vantage workflow which was configured with the original definition.

In each case - and any case where the schema is altered after workflows have been configured - it is your responsibility to verify that Vantage workflows that utilize iconik are correctly configured AFTER schema changes have been made.

Immutable Metadata Fields

Metadata fields within iconik can be assigned properties which make them immutable from the perspective of client systems (for example, Vantage). Fields with Read-Only | Inherited properties are detected by Vantage and these fields are not allowed to be edited in the scope of Vantage.

In the Vantage implementation of metadata, when you select a view, Vantage determines the fields contained in that view at the time the view is selected. Any fields which are incapable of being manipulated by Vantage are not displayed in metadata editors when some type of UPDATE is being performed. (These fields however, are available when RETRIEVING metadata).

For example, Vantage is performing an update to an asset - changing metadata. Read-only fields are not displayed, since the field is incapable of having its value modified or updated.

In another example, these fields must be manipulated in Vantage using RAW JSON: *URL Field* and *TAG Field*. Both involve dynamic data entry that make this difficult to visualize/represent in Vantage as single parametric values. As such, if a *URL Field* or *TAG Field* is present, Vantage presents it as a single option. What must be placed in field (or what is expected to be provided as input) is the RAW JSON that corresponds to the complete entry for the field.

Metadata Manipulation Constraints

Vantage can only manipulate metadata fields which correspond to these primitive data types: Integer | Text | Boolean.

Complex Field Example

It is the responsibility of the Vantage user | iconik sysadmin to verify that only fields which Vantage can edit/manipulate are set as Required.

For example, the field *_gcvi_tags* is enforced in iconik as a special field within iconik, related to AI detection in Google. As such, it is not intended to be updated by other client applications.

Vantage does not display this field in any view which has Use in Filters enabled. If a user marks this as a Required tag, Vantage generates an error when the workflow runs, as Vantage can not update this field.

Required Fields Functionality

When an iconik field is defined as Required, then Vantage ensures that an appropriate value is supplied in the corresponding metadata entry field. If the parameter which corresponds to this field is bound to a variable which is NULL | undefined or the user enters a NULL | no value, the result is a runtime error. Vantage does not determine the validity of data entered at design time.

iconik has the same issue as Vantage with regards to field updates - having an iconik asset open and manipulating metadata will not reflect field property changes until the entire view is reloaded. The issue is complicated in Vantage because of the static definition of the action at design time - users should be very diligent to ensure that Vantage actions do not get out of date when the iconik schema changes.

Configuration

Select the iconik Action Type. Select the operation you want to perform in iconik with this action.

Next. Click Next to continue configuring this action.

Identify Action

The Identify action is part of the Analyze group and is executed by the Vantage Analysis Service. It enables you to extract certain file properties, metadata values and media file properties, or create an MD5 hash from the specified file, identified by nickname. The values you extract (or create, in the case of the hash) can be assigned to a variable.

You can also set the workflow state, depending on whether or not the values could be extracted, and in the case of media properties, audio or video is detected.

Before the Identify action can execute, it must be configured using the inspector.

Details

First, specify the identifier you want to use in this action, by selecting it from the Identifier menu:

Audio **(DEPRECATED - PLEASE USE THE ANALYZE ACTION'S AUDIO TRACK LANGUAGE TAGS FEATURE INSTEAD)**. Extracts specific information from one or more audio tracks in the specified source.

Exists. Determines if a Windows folder or file exists, and generate variables and workflow state as appropriate.

Note: Be sure to specify a share, recognizing that the Analysis Service executing this action may be on a different server than the target folder/file. Only use a letter-drive path if you know for certain where the Analysis Service that is executing this action is running, and you are targeting a folder/file on the local - hosting server.
Also, make sure that the Analysis Service has permission to access the target folder. Failure to do so will cause the action to fail, returning an erroneous message (it will set the True/False variable to False), indicating that the file does not exist.

File Properties **(DEPRECATED - PLEASE USE THE ANALYZE ACTION'S FILE PROPERTIES FEATURE INSTEAD)**. You can enable as many of these variable generation options you require: File Name | File Extension | File Size | File Path | File Modified Date. The identifier extracts the value and assigns it to the variable you specify. You can extract file properties from both media and attachment files.

MD5 Hash **(DEPRECATED - PLEASE USE THE ANALYZE ACTION'S FILE PROPERTIES FEATURE INSTEAD)**. Creates an MD5 hash from the selected media or attachment file, and assign the hash key value to a text variable you specify.

You compare the hash value variables in the Compute action to verify that two files are the same or different. You can also save the hash value as metadata, for use in external applications.

Media Metadata. Extracts author, title, copyright, rating, and abstract values, and assigns the value to a text variable you've created in the Vantage Console. This function can only be used on media files.

Media Properties **(DEPRECATED - PLEASE USE THE ANALYZE ACTION'S MEDIA PROPERTIES FEATURE INSTEAD)**. Select Media Properties to extract a comprehensive set of media metrics, and assign the value to a variable you've created in the Vantage Console. This function can only be used on media files.

Nickname Exists. Applies to nicknames in binders (may or may not be registered in a catalog), which may have been forwarded by a workflow, typically in TrafficManager systems. Determines if a file associated with a given nickname exists in the binder, and generates variables and sets the workflow state as appropriate.

For example, you can pass a binder into a second stage workflow, and use the Nickname Exists function to determine if a proxy file was generated or not, to avoid encoding a duplicate proxy if it already exists.

The file-related variables (for example, File Name) are only relevant (and will only be generated) if the selected nickname refers to a content item that has an associated file. For example, media and attachment nicknames have an associated file, but labels do not.

You can supply a binder to a workflow in four ways:

- Submissions from the Workflow Portal (copy binder mode or forward binder mode)
- Forward a binder to a workflow from a catalog by using the Management Console
- Using the Forward action in a workflow to a Receive action in another workflow
- Using a Dublist action (copy binder mode or forward binder mode)

Traffic File Properties. Traffic is an optional, licensed component of Vantage TrafficManager.

Note: For detailed help, select Traffic File Properties and display the online help page (the M icon in the upper right corner).

Inspector Wizard

Note: Depending on the identifier you select, not all options are displayed.

Identifier. Specifies the type of identifier to use.

Settings. These settings are conditional, depending on the identifier you are configuring. Configure as appropriate.

Input File Nickname. If present, specifies the file to analyze, by nickname.

Generate Variables. Publishes extracted values in the specified variable, based on the specified identifier.

Set Workflow State. Specifies the state to publish, based on the specified identifier results.

Save. Saves the action and closes the inspector.

Media Creation Action

Media Creation actions are executed by the Vantage Avid Service.

Vantage Avid Service log files (avid.trace) are written to the *C:\Program Files (x86)\Telestream\Vantage\Avid* directory on the server where the Vantage Avid Service that executed the action is hosted. Update the config file to write log files per your requirements.

The Media Creation action enables you to create single and multi-resolution assets for use in a Media Composer or a MediaCentral | Production Management system. The Media Creation action operates in two modes: Media Composer mode and Production mode. Your first configuration task is to choose the mode from the Interplay Configuration menu at the top of the configuration details panel.

Note: You can select *Interplay* and configure the target system directly in the action. Or, you can identify one or more Media Central | Production Management systems in the Vantage Management Console - Workflow Designer automatically displays these systems by name in the same menu. This enables you to choose the target MediaCentral | Production Management system from the menu, avoiding repeated manual configuration.

- Media Composer Mode: Select *Media Composer* to create Avid-compatible MXF OP-Atom files including metadata for ingest into a Media Composer editor. Media Composer is not required to be part of a MediaCentral | Production Management infrastructure.

- Interplay Mode: Select *Interplay Mode | Pre-defined MediaCentral | Production Management System (see Adding MediaCentral | Production Management Systems to Vantage*, below) to create Avid MXF OP-Atom files and metadata written to ISIS/NEXIS storage and automatically checked into a MediaCentral | Production Management system. Specific systems may be identified in the Vantage Management Console and selected from the menu.

When delivering media directly to a MediaCentral | Production Management system, assets include integrated User Property and Headframe creation. Locator metadata can also be created; use a Notify action for delivery along with the Avid Production Web Service check-in into an Avid MediaCentral | Production Management workspace.

You can also create files for ingest into Media Composer in Open mode for Frame Chase editing; metadata insertion is supported while live video is being captured and the file is being processed in Vantage, enabling real-time editing.

Note: The Media Creation action does not perform transcoding. Files are re-wrapped into Avid-compatible MXF OP Atom AAF files. Therefore, the video must already be processed if required, with a supported codec. The Media Creation action supports a number of popular file formats.

If the video in the file you want to add/update is not in a supported format, it should first be processed through a Flip64 action to produce MXF OP1a media containing video in the proper format.

This action is Open workflow capable. It requires an Open Workflows license; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the workflow and at the domain level, in Vantage Management Console > Settings.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Accessing a MediaCentral | Production Management System

Prior to designing and implementing Avid workflows in Vantage to access MediaCentral | Production systems, you (the customer or Avid representative) must identify each system, including credentials.

Use these specifications to define Avid connections in the Vantage Domain Console for use in Media Creation and Asset Monitor workflows, or define them statically or dynamically via variables, directly in your workflows.

Asset Monitor and Media Creation actions are configured to interact with a specific MediaCentral | Production Management system. System configuration may be manual—statically specifying a system which does not change on a job-by-job basis.

System identification can also be dynamic, where you can use variables to identify the system dynamically for each job you execute. This is preferable when you may be accessing one of many Avid systems in a single workflow, based on run-time metrics. Dynamic, variable-driven workflows often simplify workflow design and utilization.

Note: Always connect to MediaCentral | Production Management and Avid Production Web Services using a fully-qualified DNS name, which is registered with Forward and Reverse look up tables in DNS.

Note: Specific Avid systems that display in the Interplay Configuration menu are connections that have been configured in Vantage via the Management Console. For full details, see the Avid Integration Guide > Accessing MediaCentral | Production Management Systems.

To add a MediaCentral | Production connection to Vantage, follow these steps:

1. In the Vantage Management Console, in Settings & Options, display the Avid tab. The configuration panel enables you to create, configure, delete, import and export MediaCentral | Production Management system connections.

2. Create and configure a connection to the target system, providing the following information:

   - Name (displays as a menu item in the action's Interplay Configuration menu)

   - Web Services Host (enter the IP address | DNS name)

   - Interplay Web Services Port

   - Production Workgroup

   - Production Username

   - Production Password

   For more details on configuring and managing connections, click the ? icon to display the topic in the Vantage Domain Management Guide.

1. Click Test to confirm that Vantage can access the target MediaCentral | Production Management server. If you have problems, determine the issue and retry.

Action Configuration Details

Input (Left Panel)

Select. Specifies Auto | AIFF | MXF OP1a | TIFO | Wave.

- Auto: Ingest media which is in a video/audio format supported by your Media Composer/MediaCentral | Production system for re-wrapping into Avid-compatible MXF OP-Atom files.

- AIFF: Ingest media from an AIFF input file for re-wrapping into Avid-compatible MXF OP-Atom files.

- MXF OP1a: To process Open MXF OP1a files. For other supported file formats, select Auto or TIFO.

Note: The MXF OP1a decoder supports open workflows only for files being created by Lightspeed Live Capture.

- TIFO: To capture video in open workflow mode in TIFO format for re-wrapping into Avid-compatible MXF OP-Atom files. TIFO input is Open Workflow capable.

- Wave: To ingest media from a WAVE input file for re-wrapping into Avid-compatible MXF OP-Atom files. Each Wave input supports one-channel-per audio track(s). This input component should only be utilized when you are processing WAVE files. Submitting non WAVE files to this input will result in job failures. For other supported file formats select Auto, MXF OP1a or TIFO.

Interplay Configuration Mode

Production Configuration. Specifies Media Composer | Interplay | <<Avid System connections identified in the Management Console>>. There may be zero or more

connections in the menu, depending on the connections you've created. The connections below the Media Composer | Interplay menu items are dynamically generated from the MediaCentral | Production systems identified in the Vantage Management Console. See *Adding MediaCentral | Production Management Systems to Vantage* (above) for details.

- *Media Composer*. Select to write AAF files to a specific location, and configure the Media Creation action to facilitate Media Composer ingest and use of the files.

- *Interplay*: A workflow-specified MediaCentral | Production Management system.

- <<Avid System connections identified in the Management Console>>. There may be zero or more connections in the menu, depending on the connections you've created. The list is dynamically generated from the MediaCentral | Production connections identified in the Vantage domain. See *Adding a MediaCentral | Production Management System to Vantage* (above) for details.

Configuring Output Media File Settings

Output Media File Nickname. Specifies the nickname for the output file for use in downstream actions.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the filename.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value `12H4JA678`, wherever the ISCI variable token is located in the filename pattern, it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format via the menu.

- *Time*. The current time at the time the filename is constructed. Change the time format via the menu.

Media Management Action

Media Management actions are executed by the Vantage Avid Service.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Media Management Action Configuration

Input

Select. Select Auto to ingest media which is in a video/audio format supported by your MediaCentral | Asset Management system.

Output Media File Settings

Output Media File Nickname. Specifies the nickname for the output file for use in downstream actions.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the filename.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Media Management Settings

Media Central Authentication Settings

API Domain. Specify the URI of the Media Central API domain.

Authentication Login Name. Specify OAuth2 authentication login name.

Authentication Login Password. Specify OAuth2 authentication login password.

No Refresh Token. Specify OAuth2 authentication no refresh parameter value.

Authentication Scope. Specify OAuth2 authentication scope.

Authorization Extension Request Interval. Specify interval between authorization requests in seconds. Default is 120. Minimum value is 30.

Media Central Asset Settings

MAM System ID. Specify MAM system identification for ingesting media.

Asset Main Title. Specify main title attribute for the asset.

Asset Class. Specify asset class. Default is VIDEO.

Asset Output Directory Path. Specify output directory path for the asset.

Ingest Job Monitoring Interval. Specify time interval to monitor for asset creation job to complete in seconds. Default is 60.

Ingest Job Monitoring Timeout.Specify time period to monitor for asset creation job to complete in seconds. Default is 10,000.

Proxy Creation

Specify proxy to use.

Generate Proxy. Use proxy created by Avid MediaCentral.

Use Provided Proxy. Use provided proxy file and specify proxy directory and filename.

Asset Expiration

Specify asset expiration time frame.

Do Not Specify Expiration Days. No expiration date set for asset.

Specify Expiration Days. Set expiration date for current asset based on number of days indicated and current system date. Default is 10 days.

MAM Custom Data

Specify Metadata. Specify custom metadata.

- **Add MAM Custom Attributes.** When checked, allows specification of MAM custom attribute name/value pairs. Unchecked by default.

Import AXF. Specify import of AXF

- **Asset AXF Path**. Specify path to AXF file for the asset.

Production Asset Management Configuration

System ID. Specify original ID for PAM system.

MOB ID. Specify MOB ID for master clip.

Connection Settings

Override Basic HTTP Authentication String. Specifies override of the basic authentication string for the API domain. By default, the Telestream OAuth2 string is used.

HTTP Timeout. Specifies HTTP connection timeout in milliseconds. Default is 300,000.

Web ReadWrite Request Timeout. Specifies web read/write request timeout in milliseconds. Default is 300,000.

Web Continue Request Timeout. Specifies timeout waiting for 100-Continue from server before uploading data in milliseconds. Default is 350.

Auth Security Protocol Type. Specifies security protocol type to use. Default is ALL.

Web Mutual Authentication Level. Specifies mutual web authentication level to use. Default is None.

HTTP Allow Auto Redirect. When checked, allows auto redirect of HTTP requests. Unchecked by default.

HTTP Use Cookies. When checked, allows use of cookies. Unchecked by default.

Add HTTP Request Headers. When checked, allows specification of HTTP request header name/value pairs to add. Unchecked by default.

Media Central Service End Points

OAuth 2 End Point Address. Specify the URI of the OAuth2 end point.

Verify PAM Dual Ingest Process Supported. When checked, verifies support for the PAM dual ingest process. Checked by default.

Start Process Service End Point Address. Specify address of start process service end point.

Add PAM Matching Attributes

When checked, allows specification of PAM name/value pairs to add. Unchecked by default.

PAM Attribute Type is System. When checked, verifies that attribute type is System in PAM. Unchecked by default.

Add MAM Process Attributes to Set/Override

When checked, allows specification of MAM process attribute name/value pairs to set or override. Unchecked by default.

MAM Attribute Type. Specifies data type for MAM attribute. Default is boolean.

Asset Monitor Action

The Asset Monitor action monitors the specified folder and initiates a job each time a new or modified asset is discovered in Avid MediaCentral | Production Management since the last scan, and generates the specified format reference output, passing control to the next action (if any) in the workflow.

Asset Monitor actions are executed by the Vantage Avid Service.

The Asset Monitor action is an origin action, and can only be used as the first action in a workflow; however, it may be the *only* action in a workflow. Asset Monitor actions run when the workflow is activated and during the active time frame, if specified.

The Asset Monitor action is designed as a same-as-source-converter, assembling media as quickly as possible for processing (typically transcoding and related tasks) by downstream actions or other workflows.

It generates an Interplay Metadata and/or Telestream proprietary MP4 media file from the new/modified input asset.

Note: When some or all media is offline, and only AAF Container and Interplay Metadata are configured to produce output files for an asset (master clips or sequences), the job will process and complete. However, if MPEG-4 Reference is selected, the job will fail because Vantage can not create an MPEG-4 reference file with missing Avid OP Atom media.

A wide variety of Avid formats are supported for decoding. Consult the Ingesting Master Clips | Subclips | Sequences chapter in the Avid Integration Guide for a complete list.

Before this action can be activated and used in a workflow, you must configure your Vantage domain for the MediaCentral | Production system(s) you are using. See *Adding a MediaCentral | Production Management System to Vantage*, below, for details.

Topics

- Avid Media Composer Sequence Requirements
- Processing Asset Types
- MP4 File Generation
- Adding MediaCentral | Production Management Connections to Vantage
- Configuration Overview
- Configuration Details
- Output Components
- Adding and Configuring Outputs

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the

workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Avid Media Composer Sequence Requirements

In order for the Asset Monitor action to ingest and process Avid media, it must adhere to the following requirements:

The Asset Monitor action processes two kinds of assets - master clips and sequences. Sequences may have:

- Gaps in the timeline. During processing, gaps will be filled with black frames/silent audio.

- Mixed formats (codecs/resolutions). Segments that differ from the format of the first segment will be transcoded to the first segment's format and the samples will be stored in the output MP4.

- Transition effects. Transition effects must be rendered before submitting the asset to the Asset Monitor action.

- Segment effects. Tracks that contain segment effects must be rendered before submitting the asset.

Note: Segment effect rendering is effective for most commonly used compositions but may not work as expected for highly complex sequences.

Processing Asset Types

You can process Master Clip and Sequence assets as well as Master Clip assets.

Note: If the Asset Monitor is active and processing output as it is being written (frame chase editing | edit while ingest), occasionally the proxy file will be written first. As a result, his will be the file processed by the Asset Monitor. When ingesting growing media in the Avid folder being monitored, the Asset Monitor processes the asset only when it is complete. Files must be completed and closed prior to the Asset Monitor activation so that both the proxy and high-res are present.

MP4 File Generation

The Asset Monitor action creates a a Telestream proprietary MP4 media file for further Vantage processing, which references MXF OP-Atom files located on Avid shared storage for the asset and may also include additional transcoded media. The file also includes VANC data extracted from the asset's data track. In addition, a metadata XML file containing the asset's metadata is generated. The MP4 reference file and XML file

are passed to downstream actions in the workflow or to other workflows for transcoding and metadata extraction.

Any system processing these MP4 files must have fully-authenticated access to the media files located in the Avid shared storage (ISIS/NEXIS).

MP4 files generated by the Asset Monitor action contain Telestream-proprietary extensions. Therefore, the following requirements apply:

- Vantage transcoding actions processing these files must use the Auto decoder for Flip64.

- For playback, Switch 4.0 or later is required and processes closed captions including other metadata in these files.

Adding MediaCentral | Production Management Connections to Vantage

Before this action can be activated and used in a workflow, you must add and configure an Avid system in your Vantage domain to communicate with each MediaCentral | Production Management system you are monitoring.

Note: The systems displayed in the Asset Monitor action's Configuration menu are those that have been added to the Vantage Management Console.

To add an Avid system to Vantage and configure and test its connection, follow these steps:

1. Start the Vantage Management Console.
2. In Settings & Options, display the Avid tab.

   This panel is where you create, configure, delete, import and export Avid system connections.
3. Create and configure a connection to the target system, providing the following information:
   - Name
   - Web Services Host
   - Web Services Port
   - Production Workgroup
   - Production Username
   - Production Password.

   For more details on configuring and managing connections, click the ? icon to display the topic in the Vantage Domain Management Guide.
4. Click Test to confirm that Vantage can access the target MediaCentral | Production Management server. If you have problems, determine the issue and retry.

Configuration Overview

To configure an Asset Monitor action for your workflow, first specify the system you plan to monitor, and configure the monitoring options as required.

Note: The Avid configurations listed are created by you in the Vantage Management Console.

Next, add your output(s) and configure them for processing.

When you are done configuring this action, click Save.

Configuration Details

Interplay Configuration. Specifies the target Avid system for this workflow. When the workflow is activated, this list is dynamically generated from the Avid systems identified in the Vantage domain. See *Adding a MediaCentral | Production Management System to Vantage* (above) for details.

Asset Monitor Settings

Interplay Folder. Specifies the full folder path for the output asset. For example: `Incoming Media/Folder 1/Folder 2`. The folder can be specified in the following ways: entering the folder path; clicking Browse and selecting an existing folder path; binding to a folder path variable.

Note: Folder names are not case sensitive.

Master Clips. When checked, specifies that new master clips will be ingested for processing; otherwise they will be ignored. See Processing Asset Types below for more details.

Sequence Assets. When checked, specifies that new sequence assets will be ingested for processing; otherwise they will be ignored. See Processing Asset Types below for more details.

Ignore Custom User Attributes. Asset Monitor gathers all the asset metadata into an Interplay Metadata output file, that includes system metadata, user metadata and contents of custom metadata fields defined for the MediaCentral | Production Workgroup, by default. When this option is checked, the custom metadata fields will be ignored. This option is used to address server issues involving control characters in the custom metadata.

Reprocess Assets on Modifications. When checked, assets that have been processed will be processed again when the asset is modified.

Persist Assets. When unchecked, processes all assets in a specified folder (conforming to other criteria, such as the last modified time of the asset being later than the date specified in Ignore Modifications Before) after each system/service restart.

When checked, saves the assets and their last-modified time stamps in persistent storage so they are not reprocessed after a system or service restart.

Track Deleted Assets. When checked, tracks assets that were deleted from a folder then added again later. Vantage will not reprocess the asset when the asset re-appears or if the Avid Web service is restarted.

Process Incomplete Assets. When checked, processing an incomplete asset results in a failure for that asset. When unchecked (default), the asset will continue to be processed in subsequent scans.

Ignore Asset Online Status. When checked, ignores the online/offline status of an asset and processes the asset.

Process Partially Online Multi-Resolution Master Clip. When checked, processes the largest media size online resolution of a multi-resolution master clip track. When unchecked, the asset is always treated as having an offline track.

Asset Name Pattern. String supplied to Avid for filtering the responses using a regular expression on the asset display name.

User Attribute Monitor. Monitors for changes to user attribute metadata from Avid Production Access. When a change is detected, a new job is triggered.

Note: Changing the attribute value to null (blank) or changes made while the service is not actively monitoring will not trigger a new job. When Track Deleted Asset is checked, moving the asset, modifying metadata, then moving the asset back to its original folder will trigger a new job.

Ignore Assets Created Before. Specifies a date in the past, beyond which no newly created assets should be ingested.

Ignore Modifications Before. Specifies a date in the past, beyond which no modified assets should be ingested.

Interplay Folder Scan Interval. Specifies the number of seconds (5-120) that should occur between scans.

Web Service Request Timeout. Specifies the maximum number of seconds (5-120) to wait for a response from the specified system before timing out.

Web Service Wait Per Request. Specifies the wait time for Web Service requests in milliseconds (0-120). Non-zero values disables HTTP persistence.

Generate Variables

Master MOB ID. When checked, specifies the text variable that contains the value of the master MOB ID for the ingested asset.

Source MOB ID. When checked, specify the text variable that contains the value of the Source MOB ID of the ingested asset, for use in downstream actions. The source MOB ID can be used to associate a high-res asset that is already in Production Management to

link it to a Vantage/Flip64 proxy with the same MOB ID. The Source ID and Tape name are needed for Dynamic Relinking.

Tape (Source Package) Name. When checked, specify the text variable that contains the value of the tape name of the ingested asset, for use in downstream actions. The Source ID and Tape name are required for Dynamic Relinking.

Output Components

An Output component generates a file in the format specified, utilizing the ingested input file from the specified system.

Output Toolbar Buttons

Up/Down Arrows. Moves the selected output up and down the set, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the set.

Plus Sign. Adds another output to this action. Click to select the type of output you want to add.

Deleting an Output

Delete. To delete an output, click the X icon immediately right of the nickname menu.

Adding and Configuring Outputs

Configure these controls:

Add Outputs. Add (using the Add button - Plus sign button - in the Output component toolbar) your outputs by format. Add one output for each file you plan to generate. Output formats include:

AAF - Create an AAF file of an Avid asset.

Interplay Metadata - A CML file containing the metadata associated with the asset. This file is intended to make metadata, along with the media files, available to Avid workflows. Asset restriction information for master clip assets is preserved in Interplay Metadata outputs.

Note: If you require the metadata file to have an XML extension instead of the default CML extension, select the output component to display the Container details panel in the details panel at the bottom. Click on the Browse button on the File Extension control and create a text variable, supplying the string 'xml' as the default value. This causes the file to use an XML extension instead of the default CML extension.

MPEG-4 Reference - A Telestream variant of an MPEG4 Reference file, intended for use in defining OP-Atom files for transcoding into the intended media file in a downstream action or workflow. Telestream MPEG-4 Reference files can be played in Switch.

Select the Output Location. Click Output Location and select from these choices:

- Available Vantage Store: Write the file to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Vantage Store/Folder*: Write the file to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Browse button and select a variable which supplies the fully-qualified path.

Edit Filename Pattern. Displays the Filename Pattern Editor so that you can construct the exact filename pattern you require. Default: *Base Name*.

Click the insertion point in the text field and use the gear menu to select one or more tokens or multiple tokens of the same type to insert along with optional, static text fragments for the filename you are creating. You must specify a file extension. Drag tokens to re-arrange them; to delete a token, select and press Delete or right-click and select Delete.

Tokens:

- *Base Name*: Adds the Base Name (the portion of the filename excluding the period and the extension) of the input source file output filename to the output filename.

- *Variable*: Adds the value of the specified variable to the output filename. The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named *ISCI* is given the value `12H4JA678`, wherever the ISCI variable token exists in the filename pattern it is replaced with `12H4JA678`.

- *Date*: Adds the date to the filename. Right-click the down-arrow to select the date format.

- *Time*: Select to add the time to the filename. Right-click the down-arrow to select the time format.

Select the Media Nickname. Click the menu to select the nickname (or enter it manually) for this new file.

Specify the Container File Extension. Select the output panel and specify the file extension for the selected wrapper, at the base of the right panel.

IPTV Flip Action

The IPTV Flip action is designed to facilitate and optimize the creation of media intended for cable/VOD/set-top box applications.

The IPTV Flip action operates by ingesting media using an Input component which decodes the asset and supplies media to an optional converter or passes it to a Transcoder component which in turn supplies media to an Output component or, for direct convert, directly to an Output component to write the file out in the specified format/wrapper.

IPTV Flip actions are executed by the IPTV VOD Service. Before the action can execute, it must be configured using the inspector.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings.

Video Processors

This action supports two video processors:

- Multi-core 16-bit YCbCr 4:4:4:4 (YUV)
- Lightspeed Accelerated 16-bit YCbCr 4:4:4:4 (YUV)

Telestream recommends that you only use the Multi-core Processor on a standard Vantage server. It is optimized for multi-core CPUs and will not utilize the Lightspeed server GPUs. Likewise, if you do not have a Lightspeed server, do not select the Lightspeed Accelerated Processor; it can only execute on transcoding services running on a Lightspeed server.

Note: When you select a Video Processor for a given encoder, you must make sure that it is available in the domain or you can't process the media. For example, if you enable the Lightspeed Accelerated Processor, a Lightspeed server (with the Lightspeed Service running) must be available.
If a Lightspeed server is not available (the server or the service is not running, no license is present, or the service is hung), by default, the task will automatically be processed on an available CPU-based transcoding service. However, if that particular service or services are busy processing other tasks, the action will wait indefinitely until one becomes available, unless fallback rules are specified.
To verify that the required service is present, close the inspector. Right-click on the action and select Run On Rules to verify that a service exists that can service these particular actions. In the Run On Rules dialog, click Check Services (bottom left corner). Vantage will verify that the required service is available and advise you. If one is not available, Vantage reports that none of the services can execute this action. For assistance, contact your Vantage administrator.

Using This Action in Cloud Mode

This action is Cloud capable. Actions placed into Cloud mode are executed remotely in Vantage Cloud. For additional details, refer to the Vantage Cloud User Guide on the Telestream web site.

Settings

Required Passes. The required passes value that you set is applied to all transcoders in this action. When supported by a codec, specify the number of passes to perform. When more than one pass is performed, the encoded frames are discarded except for the last pass. In incremental passes, statistics are gathered and saved for the final encoding to improve video quality. In practice, more than 2 or 3 passes results in very little material change in quality.

The statistics file is passed through the workflow and included in the output media binder if registered, so that you can view it. In supported transcoders, you can use it again on repeated encoding of the same input video. Specify the file in the Multi-pass setting of the encoder.

Run as 32 Bit Process. Check to run as a 32 bit process, depending on the platform where the service is running.

Encoder Definition. Check to enable this action to be configured with an IPTV Flip action that was previously created and configured as required, and then exported (right-click the action and select Export), as an XML file. To statically assign a configuration, manually copy and paste the contents of the XML into the text field.

Typically, the XML content is assigned dynamically to a variable at runtime during job submission in a custom program, via the Vantage API. Click the green Variable Browse button and select the variable that has been assigned the XML.

Enable enhanced decoder error reporting. When checked, decoder errors that are normally ignored are reported and may cause the action to fail.

Note: When this feature is enabled, jobs that otherwise successfully complete, with possible flaws in the output, may fail due to the enhanced error checking.

Input Component Operation

Select the Input container/media type you are processing using the Add Input (Plus sign) icon at the right side of the Input panel. Select one input for each file you plan to process.

An Input component reads (or parses) a specific media format. For example, a Transport Stream Input has an input component that is utilized if the Input format is an ISO 13818 Transport Stream. Input components allow you to define the characteristics which are associated with a particular input. In particular, the number of audio tracks (maximum

16), and the presence of a video stream. These stream definitions are then provided to a Transcoder.

Note: If you expect to process a wide variety of input files through the same workflow or action, consider using the Auto input or Flip Decoder input. These input selections offer less control, but support varying numbers of input tracks, and in some cases, consolidate PCM tracks into a single audio stream.

Converter Component Operation

Optionally, select the converter that you need to implement from the Add Converter (Plus sign) icon at the right side of the Converter panel. Select it to display the settings panel, and configure it as required.

Transcoder Component Operation

If your input must be re-encoded into a compatible media type, select the encoding type you want to create using the Add Transcoder (Plus sign) icon at the right side of the Transcoders panel. Select one input for each type of media you plan to transcode - multiple channels are supported by a single transcoder, as appropriate.

A Transcoder component converts (transcodes) media from one format to another for Cable and VOD applications.

IPTV Flip transcodes video with MPEG-2, H264, x264 and x265 video transcoders. These components represent the underlying essence types utilized in the vast majority of cable/VOD/STB formats.

The x264 video transcoder transforms video into the H.264 implementation of the x264 codec. This transformation process has been optimized for use in the IPTV Flip action, with a particular concentration on high quality and resource optimization through stream reuse. The resulting images represent some of the highest quality that can be obtained while also providing a very high throughput rate.

An audio transcoder (including AAC, AC3, MPEG Audio, and PCM) allows a particular audio stream to be transformed into a new format. During this transformation a variety of processing may be applied. Audio may be re-sampled, or channels may be remapped in order to provide a specific configuration to the codec.

Output Component Operation

Select the Output media you are producing using the Add Output (Plus sign) icon at the right side of the Output panel. Select one output for each media file or package you plan to produce.

The Output component implements the types of files that can be generated by the IPTV Flip action.

Audio and video streams are interleaved into media containers or file formats.

Configuration Steps

Configuration of a IPTV Flip action is quite comprehensive - it includes selection and configuration of input, transcoder, and output components, plus optional converters as required.

To configure a IPTV Flip action, follow these steps:

1. Identify your inputs and configure them for processing.

2. Add encoders and configure them.

3. Specify the output files you want to create and configure them.

When you are done configuring this action, click Save.

To display online help for each component of a IPTV Flip action, select the component and click the M icon (upper right).

Location Action

The Location action is part of the Cloud group and is executed by the Telestream Cloud Service. The Location action enables you to generate Boolean variables that specify whether the associated media file (identified by its nickname) is stored in the Cloud or on premises - any location other than the Cloud.

The Location action provides a value on which a decision can be made with regards to the locality of a given file (represented by its nickname). Specifically, whether the file exists in an on-premises storage location or whether the file exists on a cloud-native storage location. This enables you to execute a specific workflow branch of actions that is determined by the location of the media.

For example, if the material resides in a cloud-native location (for example, Amazon S3), then a Decide action can route the media to a branch of the workflow with a Cloud-enabled Flip64 action for transcoding. If the material resides locally, the Decide action can route the media to another branch in the workflow and execute a Flip64 action for on-premises transcoding.

Inspector Wizard

Select the Media or Attachment Nickname. Specifies the nickname of the media or attachment file that you want to determine its location.

Is Local. Check to publish the selected Boolean variable with TRUE if the file is not stored in the Cloud and FALSE if it is stored in the Cloud.

Is Cloud. Check to publish the selected Boolean variable with TRUE if the file is stored in the Cloud and FALSE if it is not stored in the Cloud.

24 Hour Signed URL. Check to generate a path variable for a signed URL which is valid for 24 hours.

7 Day Signed URL. Check to generate a path variable for a signed URL which is valid for 7 days.

State to Emit If Signed URL Could Not Be Generated. Allows user control over state to emit if URL generation is enabled, but the URL can not be generated.

Note: The path variable for the signed URL is displayed in truncated form when viewed in Vantage but the full path value is contained in the variable.

Lookup Action

The Lookup action is part of the Metadata group and is executed by the Metadata service.

The Lookup action performs a search operation on a set of key-value pairs in a master CSV-formatted file, based on values extracted from the metadata file associated with a job submission. If the key is found, the corresponding value is returned in the output variable, for use downstream. Lookup is typically used with a Catch action workflow, in TrafficManager applications.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Inspector Wizard

CSV Lookup File

Enter the fully-qualified path to the CSV file, click Browse to navigate and select the file, or click Browse to select a path variable that contains the fully-qualified file name.

Note: The CSV Lookup file must be formatted with two comma separated data fields for the key-value pairs (For example `123,FIRST`). The first field always corresponds to the input variable and the second field always corresponds to the output variable.

Creating the Lookups to Perform

Select *Add New Item* in the Inspector window to add a new lookup.

Add New Item. Adds a new lookup based on user defined input and output variables. To delete a lookup operation, click the X icon (upper right).

Note: Lookups return the output value of the first line in a CSV which matches the input key value. Additional lines in the CSV file which contain the same input value are not processed. For example, if the key-value pairs `123,FIRST` and `123,SECOND` are present in that order in the CSV, only the first pair is processed returning an output value of `FIRST`.

Input Variable. Select an input variable from the menu. Typically this was generated upstream by an action such as Catch.

Note: The value of the input variable is case sensitive. For example, if the value of the input variable is `abcdefg` but the first field value in the CSV is `ABCDEFG`, the line containing this value is ignored during the lookup.

Output Variable. Select an output variable from the menu. This provides an output value to downstream actions. The type of the output variable determines how the results of the lookup are returned. For example, if the second field value in the CSV is `01:02:03:04@29.97` and the output value is of type String, the output variable is a text string with the value `01:02:03:04@29.97`. If the output value is of type Timecode, the output variable is a timecode with a timecode representation of `01:02:03:04@29.97`.

Note: If the value in the second field of the CSV Lookup file can not be converted into the type specified in the output variable (For example, second field value of `ABCDEFG` to output variable type Timecode) no value is returned for the output variable.

Note: Image and Color variable types are not supported for output variables. Mail Address variables are supported but must be single mail addresses and not CSV lists of addresses. All other variable types are supported for output variables.

Ignore Case. When checked, all lookups will be case insensitive. For example, when enabled *InputString* and *inputstring* are considered the same in a lookup. Unchecked (case sensitive) by default.

Result if NO matches found. Specifies the state to emit when an input variable value does not match ANY value in the CSV file for all specified lookups:
Success (pass blank result) | Success (pass input variable value) | Ignore | Failure

Result if ANY match NOT found. Specifies the state to emit when an input variable value does not match ANY value in the CSV file for at least one of the specified lookups: Success (pass blank result) | Success (pass input variable value) | Ignore | Failure.

Test

Click Test to validate the current lookup configuration(s) using a sample CSV file.

MediaInfo Action

The MediaInfo action is part of the Analysis group and is executed by the Vantage Analysis Service. It performs 2 tasks, based on analysis of a media file and its streams:

- Creates variables from properties, using the MediaInfo API

- Creates a report of the properties and their values.

In each category, you can publish variables of selected metrics with the analysis results.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Inspector Wizard

Input Media File Nickname. Specifies the file to analyze, by nickname.

Generate Report

When checked, produces a report file. Specify the three following options:

Report Type. Specifies the type of text file to generate.

Report Level. Specifies the level of file to generate: Basic | Advanced | Custom.

Output Attachment Nickname. Specifies the report file, by nickname. This allows downstream actions to operate on the file - for example, to email it to someone.

Edit Filename Pattern. Displays the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- Base Name (excluding the extension)

- Date

- Time

- Variable (you select the variable to use)

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Report Location. Specifies where to save the report file: Store | Store/Folder | Path.

Analysis Configuration Panels

Use the controls (which vary by tool) in these panels to display the components in each category: General | Video | Audio | Text | Other | Image | Menu. In each category, select a component (For example, Text > Text Stream 1) and then check each metric you need for use downstream and then select the variable to use.

Find. Enter search text in field and click Find to search for metric name as specified in MediaInfo.

Set State to Fail if Variables Could not be Generated. When checked, action will fail if any of the specified variables can not be generated. Unchecked by default.

Save. Saves the action and closes the inspector.

MediaMate Action

MediaMate is an optional, licensed feature of Vantage. The MediaMate action enables Vantage to utilize and interact with the subtitling capabilities of Screen MediaMate. Each subtitling option provides different capabilities that relate to the subtitle process.

Note: Older versions of the MediaMate action may not be compatible with the current version. Contact MediaMate for information.

Note: The MediaMate action is only supported on 64-bit Windows Server 2008.

Message Action

The Message action enables you to send an email communication (including attachments) from Vantage when a job runs, providing the recipient certain job-relating information.

Note: Before configuring a Message action to send email, you must configure the SMTP host settings in the Vantage Domain Console (Settings and Options).

Before the Message action can execute, it must be configured using the inspector.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings.

Inspector Wizard

Type of Message. Specifies the type of message to transmit (Email is the only choice).

Next. Displays the next inspector panel.

Mimir Action

The Mimir action enables you to create, deliver, and annotate assets in Mimir, a cloud-based media collaboration and production platform for professionals.

Note: Vantage interaction with Mimir requires an API key. The key employed by Vantage must have sufficient permission in order to execute the desired functions implemented in the Vantage Workflow.

Configuration

Select the Mimir action Type. Select the operation you want to perform in Mimir with this action.

Next. Click Next to continue configuring this action.

Move Action

The Move action is part of the Transport group, which enables you to perform file operations on specified files, identified by nickname. Where supported by the platform and situation, a highly-efficient, true move (file/path rename) is executed (for example, Windows local drives, UNC paths, and StorNex SAN).

A true move can be performed when:

- The source and destination locations are on a Windows platform on the same local drive letter

- The source and destination locations are on the same SAN volume, mounted as a drive letter

- The source and destination locations are both a UNC path with the same server and same share. For example, from \\serverX\share1\folderA to \\serverX\share1\folderB. Conversely, a true move can not be performed from \\serverX\share1\folderA to \\serverX\share2\folderB. A true move also cannot be performed from \\serverX\share1\folderA to \\ServerY\share1\folderB.

When a true move is not supported, the Move action copies the specified file to another location, then deletes the original file. The copy first, delete last process insures that the move completes normally before deleting the source file.

Before the Move action can execute, it must be configured using the inspector.

Inspector Wizard

Select Nickname of File to Move. Specifies the input file to move, by existing nickname. Optionally, a new nickname of either media or attachment type can be created.

Change Nickname During Move. Specifies that a different nickname should be used for the moved file.

Nickname for Moved File. When Change Nickname During Move is checked, specifies the existing nickname to assign the moved file. Optionally, a new nickname of either media or attachment type can be created.

Note: By specifying different input and output nickname types, conversions can easily be performed between media and attachment nicknames. This is useful in transfer of files for Vantage Web Portal and Vantage Cloud when a specific nickname type is required.

Output Location. Specifies where to store the file(s).

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Enable Path Preservation. Preserves the sub-folder structure of an input file provided by a Watch, Associate, Flip, Gather, Copy or Move action when writing the output file to the destination directory.

For example, if a Watch action monitors a hot folder share \\VantageIn\ with Look in Subfolders enabled, and a job is submitted by the Watch from \\VantageIn\Subfolder1\Subfolder2\Clip.mpg, then the output file will be written into the specified directory path plus Subfolder1\Subfolder2\, thus preserving the sub-folder structure in the destination location.

Destination Filename Pattern. Displays the Filename Pattern Editor. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, including the extension for file operation actions.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Note: Because the Base Name token includes the file extension, tokens added after Base Name are appended after the extension - thus, changing the extension. If you want to separate the base name from the extension, you can generate a file name variable in any Monitor or Identify action, and use a Compute action (with Substring by Character) to create a variable with the base file name and another variable with

the extension of the source. Substitute the Base Name token with your own file name and extension variables.

Save. Saves the action and closes the inspector.

Multiscreen Flip Action

The Multiscreen Flip action is designed to facilitate the creation of Adaptive Bitrate packages. Adaptive Bitrate delivery typically entails multiple bitrates and/or multiple resolutions of media that may be selectively displayed by the client of a streaming media server. The Multiscreen Flip action optimizes the creation of this type of media.

The Multiscreen Flip action operates by ingesting media using an Input component which decodes the asset and supplies media to an optional converter or passes it to a Transcoder component which in turn supplies media to an Output component or - for direct convert - directly an Output component.

In practice, the Multiscreen Flip action decomposes one or more input files you identify into discrete audio and video streams, optionally remapping channels. Next, it optionally transcodes (at a single resolution - image size and frame rate, or audio sample rate) utilizing a single transcoder or a high fanout transcoder, which can produce multiple encoded streams at different bit rates.

Multiscreen Flip is optimized to re-use artifacts obtained during the generation of individual output streams. For example, the same H.264 video stream that is generated from a particular source file can also be utilized in other output packages (for example, Apple HLS, Adobe HDS, Microsoft HSS).

Multiscreen Flip actions are executed by a Multiscreen Service. Before the action can execute, it must be configured using the inspector.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings.

Video Processors

This action supports two video processors:

- Multi-core 16-bit YCbCr 4:4:4:4 (YUV)
- Lightspeed Accelerated 16-bit YCbCr 4:4:4:4 (YUV)

Telestream recommends that you only use the Multi-core video processor on a standard Vantage server. It is optimized for multi-core CPUs and will not utilize the Lightspeed server GPUs. Likewise, if you do not have a Lightspeed server, do not select the Lightspeed Accelerated video processor; it can only execute on transcoding services running on a Lightspeed server.

Note: When you select a video processor for a given encoder, you must make sure that it is available in the domain or you can't process media. For example, if you enable the Lightspeed Accelerated processor, a Lightspeed server (with the Lightspeed Service running) must be available.
If a Lightspeed server is not available (the server or the service is not running, no license is present, or the service is hung), by default, the task will automatically be processed on an available CPU-based transcoding service. However, if the particular video processor service is busy processing other tasks, the action will wait indefinitely

until one becomes available, unless fallback rules are specified.
To verify that the required service is present, close the inspector. Right-click on the action and select Run On Rules to verify that a service exists that can service these particular actions. In the Run On Rules dialog, click Check Services (bottom left corner). Vantage will verify that the required service is available and advise you. If one is not available, Vantage reports that none of the services can execute this action. For assistance, contact your Vantage administrator.

The Multiscreen Flip action operates on the premise that an Input component supplies media to a Transcoder component, which in turn supplies media to an Output component.

Input Component Operation

An Input component reads (or parses) a specific media format. For example, a Transport Stream Input has an input component that is utilized if the Input format is an ISO 13818 Transport Stream. Input components allow you to define the characteristics which are associated with a particular input. In particular, the number of audio tracks (maximum 16), and the presence of a video stream. These stream definitions may then be provided to a Transcoder or directly sent to an Output for packaging.

Note: If you expect to have a wide variety of input files, consider using the Auto input or Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate PCM tracks into a single audio stream.

Converter Component Operation

Optionally, select the converter that you need to implement from the Add Converter (Plus sign) icon at the right side of the Converter panel. Select it to display the settings panel, and configure it as required. Next, create, identify, and configure the input and output stream/tracks.

Transcoder Component Operation

A Transcoder component converts (transcodes) media from one format to another. Multiscreen Flip includes several audio transcoders (AAC, AC3, PCM) as well as the x264 (H.264) video transcoder. These components represent the underlying essence types utilized in the vast majority of adaptive bitrate formats.

An audio transcoder allows a particular audio stream to be transformed into a new format. During this transformation a variety of processing may be applied. Audio may be re-sampled, or channels may be remapped in order to provide a specific configuration to the codec.

The unique nature of the stream manipulation of the Multiscreen Flip allows certain tracks from the Input component to be re-encoded by the Transcode component, while others may be directly passed through to the Output (packaging) component.

The x264 video transcoder transforms video into the H.264 implementation of the x264 codec. This transformation process has been optimized for use in the Multiscreen Flip action, with a particular concentration on high quality and resource optimization through stream reuse. The resulting images represent some of the highest quality that can be obtained while also providing an incredible throughput rate.

Output Component Operation

Finally, the Output component implements the types of packages that can be generated by the Multiscreen Flip action. A particular instance of the action may contain multiple packages, each referencing the same streams being emitted via the Transcoder component. This sophisticated architecture allows for a vast degree of optimization via the reuse of media tracks generated by a common encoding/transcoding component.

Audio and video streams are interleaved into media containers or assembled into a new media package. A package consists of multiple variant media containers, plus a manifest describing the resolutions and languages available in the presentation.

Using This Action in Cloud Mode

This action is Cloud capable. Actions placed into Cloud mode are executed remotely in Vantage Cloud. For additional details, refer to the Vantage Cloud User Guide on the Telestream web site.

Settings

Required Passes. When supported by a codec, select the number of passes to perform. When more than one pass is performed, the encoded frames are discarded except for the last pass. In incremental passes, statistics are gathered and saved for the final encoding to improve video quality. In practice, more than 2 or 3 passes results in very little material change in quality. The statistics file is passed through the workflow and included in the output media binder if registered, so that you can view it. In supported codecs only, you can use it again on repeated encoding of the same input video.

Enable enhanced decoder error reporting. When checked, decoder errors that are normally ignored are reported and may cause the action to fail. Unchecked by default.

Note: When this feature is enabled, jobs that otherwise successfully complete, with possible flaws in the output, may fail due to the enhanced error checking.

Configuration Steps

Configuration of a Multiscreen Flip action is quite comprehensive - it includes selection and configuration of input, transcoder, and output components.

To configure a Multiscreen Flip action, follow these steps:

1. Identify your inputs and configure them for processing.

2. Add optional encoders and configure them.

3. Specify the packages you want to create and configure them.

When you are done configuring this action, click Save.

To display online help for each component of a Multiscreen Flip action, select the component and click the M icon (upper right).

Using the Inspector Wizard

Inputs. Select the Input container/media type you are processing using the Add Input (Plus sign) icon at the right side of the Input panel. Select one input for each type of file you plan to process.

Converters. Select the optional converter to use.

Transcoders. If your input must be re-encoded into a compatible media type, select the encoding type you want to create using the Add Transcoder (Plus sign) icon at the right side of the Transcoders panel. Select one input for each type of media you plan to transcode - multiple channels are supported by a single transcoder, as appropriate.

Outputs. Select the Output media or package type you are producing using the Add Output (Plus sign) icon at the right side of the Output panel. Select one input for each file you plan to process. Select one output for each media file or package you plan to produce.

Configure your Inputs, Converters, Transcoders, and Outputs. Open each input, converter, transcoder and output component and configure it. For online help, select the panel, then click the M icon.

Save. Saves the action and closes the inspector.

Nexidia Action

The Nexidia action is an optional, licensed feature in Vantage. It uses the Vantage Nexidia Service to interact with Nexidia QC servers running Nexidia QC software. The specified input files are passed to the Nexidia QC software where they are analyzed using the test profile selected. The Nexidia action optionally returns 5 variable parameters that can be used to control workflow processing.

To configure the Nexidia action, you select a test profile from the list of profiles provided by the Nexidia server. You also select an input media file and, if the test profile calls for one, a caption file. The input files are passed to the Nexidia QC software where they are analyzed using the test profile selected. Select the variables that you want to generate (Passed, ResultSummary, JobReferenceURI, WarningCount, and ErrorCount) and configure the reports you want to generate (Raw XML and HTML Report).

Inspector Wizard

Select Plug-in. Specifies the test profile you want to use.

Input Media and Attachments.

Media File. Specifies the nickname of the input media file to be processed.

Caption File. If the test profile requires one, specifies the nickname of the caption file.

Generate Variables. Check the parameters you want returned, for use downstream in the workflow, and assign the variable to use for each result.

Output Media and Attachments.

Raw XML. Specifies the nickname of the raw XML file. Click Output Location to specify where to save the file. Click Edit Filename to modify the filename as required.

HTML Report. Specifies the nickname of the report in XML format. Click Output Location to specify where to save the file. Click Edit Filename to modify the filename as required.

Notify Action

The Notify action is part of the Communicate group, and enables you to save job data as a file, run programs on the server, or communicate with an external system via a Web Service, conveying a specific event.

To configure a Notify action, you select a specific notification type - for example, a Web Service notifier, and configure it for your requirements.

This action is Open Workflow capable with the MOB ID Generator | HTTP | Invoke | ExternalShell notifier selected, if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console settings.

Inspector Wizard

Select the Notification Type. Specifies the type of notification you want to perform.

Next. Displays the next inspector panel.

Populate Action

The Populate action is part of the Metadata group, and enables you to bring media and other files into workflows, create metadata labels and variables from file names and labels. You can also transfer metadata from job-related system information to variables.

For example, you can populate a specific label with values you obtain from variables that have been set by actions previously in the workflow. Or, you can populate a variable with values from a label. You can also populate variables with job-related system information such as a job identifier, and send this information to an external system using the Web Services Notify action.

You can also access media and other files for use in the workflow. For example, you might use a variety of Compute and Decide actions to generate variables, and compose a unique path to a specifically-named media file. You could then use the Item from File function in the Populate to access the media file from this path and pass it to the Flip action.

Before the Populate action can execute, it must be configured using the inspector.

Configure the action and then click Next and Finish to update the action and close the inspector.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings.

Inspector Wizard

Select What To Do. Specifies the type of Populate action you want to perform.

Next. Displays the next inspector panel.

Pulsar Action

The Pulsar action is an optional, licensed feature which enables Vantage workflows to utilize and interact with various QC tests provided by the Venera Pulsar application.

The tests provide the ability to determine (by inspecting returned values in variables) whether a particular input media (specified by nickname) passes or fails a particular QC check. Each test also generates a report file in PDF format that may be utilized during later stages of the workflow or reviewed by an operator.

The Pulsar software must be licensed and installed on the same server as the Vantage Pulsar Service. If Vantage does not detect the Pulsar software on the server where the Vantage Pulsar Service is running, the Vantage Pulsar Service starts in the maintenance state.

Before the Pulsar action can execute, it must be configured using the inspector.

Configure the action and then click Next and Finish to update the action and close the inspector.

Select Plug-in. Select the Pulsar template to run in this workflow.

Note: In order for Vantage to update new or changed templates (which display in the menu), you must restart the Vantage Pulsar Service (via the Vantage Management Console or in Windows in the Services control panel). Then, restart Vantage Workflow Designer.

Input Media and Attachments. Supply a nickname for the input media file to process by Pulsar.

Settings. This sections contains settings utilized by the Pulsar action.

Generate Variables. Check the variables which you want returned for analysis in downstream actions. When checked, select the variable (or create a new one) to use.

Output Media and Attachments. Select or enter a nickname for the analysis report generated. You can operate on the report using transport actions (Copy, Move, etc.) downstream, by referencing the file using its nickname. For example, if the Pulsar test fails, you can branch to a quarantine branch with actions which place the output file and the analysis report PDF file (which you can specifically name when saving it) in a quarantine folder for review by an operator.

Push Action

The Push action is designed to always operate in Open mode, and deliver Live Capture proxy (secondary) output to Amazon S3 object storage, during file generation by the Capture action in Open mode (with a Push action immediately following). The Push action is implemented in the Telestream Live Service.

The primary use case is for delivering Capture action secondary proxy output HLS | DASH media to remote object storage for live playback and sub-clipping in near real time. All segments and manifest/playlist files are pushed to S3 as soon as they are written or updated during Capture job execution.

If you upload an object with a key name that already exists in a versioning-enabled bucket, Amazon S3 creates another version of the object instead of replacing the existing object. If the object exists in a bucket that is not versioning-enabled, the file is overwritten without warning.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configure the action and then click Save to update the action and close the inspector.

Input File Nickname. The nickname of the file or file set to transfer to the external storage system. Typically, the secondary output of a Capture transcoding action. For example, the nickname *Proxy* may represent an HLS file named `sosb-1-7.hls`.

Push Type. Specifies S3. Can not be changed.

Region. Specifies the AWS-specified region code of the S3 region to use where your object storage is located. For example: *us-east-2*.

Bucket. Specifies the S3 bucket, as specified by you in your AWS account. For example, `s1e7`.

Target Path. Specifies the bucket or string of buckets that the specified bucket is in, if any. For example: `/shadowofsquarebutte/HLS/`. Opening and closing / characters may or may not be included. If the path does not exist, AWS creates it.

Access Key. Specifies the access key ID as provided from your AWS account.

Secret Key. Specifies the secret access key as provided from your AWS account.

Qualify Action

The Qualify action is part of the Qualify group, which is executed by the Vantage Qualify Service. Qualify is an optional Vantage feature which requires a license. Qualify for Vantage is offered in two tiers:

Standard: Contains all standard Video, Audio, Caption and Container checks.

Pro: Contains all standard Video, Audio, Caption and Container checks plus Harding PSE Testing, TMOS and AI Language Detection.

A Telestream Cloud account is required to create and generate Qualify templates for use in Vantage workflows.

To create an account on the Telestream Cloud web site, go to https://cloud.telestream.net/ and set one up. In your account, you should create one or more Quality Control projects and templates that can be executed by Cloud Qualify workflows or Qualify workflows in your on-prem Vantage domain.

The Qualify action processes a media file (identified by nickname) using a Qualify Template created in the Vantage Management Console and returns a report in PDF or JSON format.

Qualify uses templates you configure to detect errors in your video, audio, and metadata files. This advanced file-based QC solution automates mission-critical QC processes for content ingest and production workflows, ensuring the highest video quality while reducing content delivery times.

Qualify for Vantage seamlessly integrates with Vantage workflows to:

- Automatically check compliance with industry standards
- Flag non-compliant content files
- Scale to process large volumes of files

The Qualify action processes a media file (identified by nickname) based on a template you have imported from your Telestream Cloud account, and returns a report and the result - a string variable with the results of the test.

Template Creation

You create Qualify Templates in Telestream Cloud, export them, and import them into Vantage via the Vantage Management Console.

In Telestream Cloud, follow these steps to create a template:

1. Click on Templates (top left) or go to https://cloud.telestream.net/console/qualify/templates.

2. Click New Template to display the Templates page.

3. Select the desired tests for this template.

4. Click Save to save the template.

5. In the Overflow menu (...) of the template, select Export to download the JSON template.

In Vantage, follow these steps to import the Qualify template into Vantage:

1. Open the Vantage Management Console.

2. In Workflow Design Elements > Qualify Templates, click Add a new Qualify Template.

3. Name the template as appropriate.

4. Navigate to the previously downloaded template and import it.

Now, when you configure the Qualify action, you can select the appropriate template.

Inspector Wizard

Select the Input Media Nickname. Specifies the nickname of the input media file that was ingested upstream in the workflow, which you want to process.

Select the Qualify Template. Specifies the Qualify template you want to use, from the list of templates you have created and configured. Qualify templates are created, configured and managed in the Vantage Management Console > Workflow Design Items > Qualify Templates. At least one template is required.

Generate Variables

Job Status | Number of Alerts. When checked, specify the variable you want to publish for use in downstream actions.

Qualify Reports

PDF Report. Check Enable - the Qualify action generates the report in PDF format. Specify a nickname for the report (and edit the filename pattern as appropriate). Specify the Output Location where you want to store the file.

JSON Report. Check Enable - the Qualify action generates the report in JSON format. Specify a nickname for the report (and edit the filename pattern as appropriate). Specify the Output Location where you want to store the file.

Output Location. Specifies where to store the report file.

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage Users Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Displays the Filename Pattern Editor and specifies the pattern for the media file you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the Output file type you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Receive Action

The Receive action is part of the Common group, and can be executed by any Vantage service. The Receive action initiates a job when media is passed to it from a Forward action in another workflow, when a job is submitted via the Vantage SDK interface, when media is submitted to a target workflow in the Workflow Portal, or when media is manually submitted to the workflow.

The Receive action is an origin action, which can only be used as the first action in a workflow. The Receive action runs outside the context of a job when the workflow is activated in Workflow Designer. The Receive action runs indefinitely, accepting media passed to the workflow via multiple mechanisms as described above, and then submitting jobs and passing control to the next action in the workflow.

Before the Receive action can execute, it must be configured using the inspector.

Configure the action and then click Next and Finish to update the action and close the inspector.

Details

If you are chaining workflows to create more comprehensive or complex workflows, you start a workflow in this chain with a Receive action, and configure it to receive media files, labels, and attachments (based upon your workflow requirements). In addition, variables utilized in prior chained workflows have scope in this workflow - that is, they can be utilized by actions in the receiving workflow and maintain the values assigned in the previous workflow.

Inspector Wizard

The files and labels you identify must be present for the job to run:

Media Files. Specifies one or more media files you expect to receive in this workflow, by checking each nickname in the list. If a nickname this workflow is expecting is not in the list, add it using the Vantage Management console.

Labels. Specifies one or more labels you expect to receive in this workflow, by checking each label in the list. If a label this workflow is expecting is not in the list, add it using the Vantage Management console.

Attachments. Specifies one or more attachment files you expect to receive in this workflow, by checking each nickname in the list. If a nickname this workflow is expecting is not in the list, add it using the Vantage Management console.

Register Action

The Register action is part of the Catalog group, and is executed by the Vantage Catalog service. It allows you to create a binder in the specified Vantage catalog.

Before the Register action can execute, it must be configured using the inspector.

Configure the action and then click Next and Finish to update the action and close the inspector.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings.

Inspector Wizard

Select Where to Store the Binder. Specifies the catalog in which to store the binder.

Note: At least one catalog must exist to use the Register action. Catalogs are created in the Management Console.

Binder Expiration Policy Settings

Specifies which type of policy to use. The binder expiration policy is the amount of time you specify before the binder is automatically removed from the catalog. Media in output folders is not deleted, but the pointers to the media as part of the binder, are deleted. Media in stores (without an explicit location) is deleted once the catalog and Job status references expire OR are deleted.

Inherit from the Containing Catalog/Folder. Specifies that the expiration is inherited from the parent catalog/folder of the selected catalog. (Default: 7 days.)

Never Expire. Specifies that the binders should never expire.

Expire After. Specifies a user-defined period of time to pass before binders expire.

Set Expiration. Specifies a user-defined date and time for binder expiration.

Set Expiration Based on Job Expiration. Specifies that the binder should expire at the same time that the job that created it should expire. (If the expiration of the job is altered manually after it completes, the binder's expiration is NOT modified.)

Create Subfolder Settings

Specifies how to handle subfolders related to the location of the source media submitted for the job.

None. Do not create any relative path information for this media item, even though the media may have been submitted from a subfolder of the watch folder.

Preserve Path. Create a folder hierarchy in the catalog, based on the relative path to the media item.

Note: When using this option, you must check Look in Subfolders in the Watch action. Otherwise, no subfolders are examined for media, and no media in subfolders is found to submit, and thus, no relative path is ever reported.

For example, a file is submitted from a Watch action's hot folder: C:\MyFolder\. (Look in subfolders is checked in the Watch). The actual file discovered and submitted is: C:\MyFolder\Sub1\Sub2\Sub3\myfile.mpg, with the nickname *Original*. In the Original version, the relative path is: *Sub1\Sub2\Sub3*\.

You have configured a Register action to create a binder and register the media with Create Subfolder enabled and Preserve Path selected. The catalog you select is MyCatalog\MyTopFolder.

The Register creates the following folder structure in the binder: *MyCatalog\MyTopFolder\Sub1\Sub2\Sub3*. Thus, a new binder named: *MyFile* is created at this location.

Specify Subfolder. Specifies the path to create (relative to the base catalog folder that is specified), or specify a variable that contains the path as a string, which has been provided from an upstream action.

The Specify Subfolder option (distinct from the preserve path option) allows you to input a partial path and append it to the location initially identified.

Note: When Specify Subfolder is enabled, the Register action will create the Folder hierarchy if it does not already exist (with the exception of the root location – this must exist in order to be selected as the starting point).

Other Settings

Specify Binder Name. Check to specify a binder name entered by you (or specified in the variable you select). Normally, binder names are determined by the source file's base name. The base name is the file name without the file extension. To override this name and specify your own, use this option.

Remove Extension. Specifies that the binder name derived from the generated media file name should have the filename extension removed. For example, if the content name is myfile.mpg, the binder should be named *myfile*. Depending on the preceding workflow actions, the extension may have already been removed in which this control should remain unchecked.

Enforce Dublist Naming Rules. Specifies that the binder name should conform to the naming convention for ad IDs in a dublist (for example, by restricting the use of certain characters).

Conflict Resolution. Specifies how to resolve the conflict: Keep | Overwrite | Rename New | Rename Old - to determine what the action should do, in the case of a pre-existing binder with the same name:

Keep - The old binder is kept and the new binder is registered with the same name.

Overwrite - The old binder is deleted and replaced with the new one.

Rename New - The new binder is renamed and registered.

Rename Old - The old binder is renamed and the new binder is registered under its original name.

Update - Updates the modified date stored with the binder so that it may be detected by a TrafficManager dublist monitor and resubmit the job. The update option does not alter the contents of the binder in any way.

Remove Action

The Remove action is part of the Catalog group. This action enables a workflow to remove a specified binder from a specific catalog.

When a binder is removed from the catalog, the binder is set to expired immediately. The binder's files will be modified based upon the rules associated with expiring binders and/or deleting Vantage jobs. So the effect upon any of the binder's files is the same as when the binder is expired according to the expiration rules in place. If normal binder expiration causes the binder's files to be reclaimed (expired), then the Remove action will trigger the same result.

Note: Consistent with the expiration of a binder, certain views need to be manually refreshed in order to see the results of a binder deletion. In particular, if a Workflow Portal is open and is displaying the specified catalog where a binder is removed, then the catalog needs to be manually refreshed to reflect the change.

All Catalog actions are executed by the Vantage Catalog Service.

Before the Remove action can execute, it must be configured using the inspector.

Configure the action and then click Save to update the action and close the inspector.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings.

Details

This Remove action allows you to specify a state that should be emitted from the action in the event that the attempt to remove the binder was not possible. This may be due to either a binder not being located or some other issue that precludes deletion. If this occurs, the state that the user indicates is emitted as the final disposition for the action.

Note: As with other actions, if the user indicates that the final state is Failure, then the job will emit a Failure state as well. A state of Success is always emitted if the binder was removed successfully.

Inspector Wizard

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Select the Catalog. Specifies the catalog to remove the binder from.

Search Criteria. Specifies how to display catalogs to choose from.

Settings

Binder Name. Specifies the binder to remove. Enter the name as a string, or click the green Browse button and select the variable to use to supply the name of the binder to remove. The Binder variable must be populated with the name of the catalog to submit, prior to executing this action.

State To Emit

State. Specifies the state to publish, based on the result of the action.

Report Action

The Report action is part of the Analysis group and is executed by the Vantage Analysis Service. It generates a report of all variables that are utilized in the workflow, along with their value at the time of execution.

Note: Unless you place the Report action at the end of the workflow, you introduce the possibility of an incomplete or inaccurate report. The Report action generates the list of variables (and their values) that exist at the moment of execution. If you want a report of all variables and their last value, place the Report action as the last action in the workflow. You, of course, can place the Report action at any point in the workflow, and you can have multiple Report actions, as needed.

Before the Report action can execute, it must be configured using the inspector.

Configure the action and then click Save to update the action and close the inspector.

Inspector Wizard

Output Attachment Nickname. Specifies the nickname of the report file you are generating, so that it can be utilized downstream. For example, you might want to move it to a given server and directory for easy access, using the Move action.

Edit Filename Pattern. Displays the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- Base Name (excluding the extension)
- Date
- Time
- Variable (you select the variable to use)

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Output Location. Specifies where to store the file(s).

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Report Type. Specifies the type of file you want the report generated in.

Retrieve Action

The Retrieve action receives an AVID Interplay system master file's MOB ID. It retrieves the master clip identified by the MOB ID from the target Interplay system, and generates a Telestream MP4 reference file as the primary output. The Retrieve action can not process an asset if it is in an Offline or partially Online state, because Vantage can not create an MP4 Reference with missing Avid OP Atom media.

Retrieve actions are executed by the Vantage Avid Service.

Workflows using a Retrieve action may start with a Receive origin action configured with a variable to enable it to receive the MOB ID - from an API-based external system such as Media Composer, a Forward action in another workflow, a Workflow origin action, or a manual job submission in Workflow Designer.

The Retrieve action is designed as a same-as-source-converter, assembling media as quickly as possible for processing (typically production transcoding and related tasks) by downstream actions or other workflows. The Retrieve action can not process assets that are sequences or subclips.

Typical workflow functionality involves transcoding the MP4 file downstream in Flip64 or other transcoding action to produce the desired output format. Metadata and AAF are optional output files that are delivered as attachments.

Before this action can be used in a workflow, you may configure your Vantage domain for the MediaCentral | Production system(s) you are using. See *Adding a MediaCentral | Production Management System to Vantage*, below, for details. Alternatively, you can define the target Interplay directly in the action.

Topics

- *MP4 File Generation*
- *Adding MediaCentral | Production Management Connections to Vantage*
- *Configuration Details*

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

MP4 File Generation

The Retrieve action creates a Telestream proprietary MP4 file that references MXF OP-Atom files located on Avid shared storage for the asset and may also include additional transcoded media. The file also includes VANC data extracted from the Interplay asset's data track. In addition, a metadata XML file containing the Interplay asset's metadata may be generated. The MP4 reference file (and XML metadata file and AAF file if

present) may be passed to downstream actions in the workflow or to other workflows for transcoding and metadata extraction.

Any system processing these MP4 files must have fully-authenticated access to the media files located in the Avid shared storage (ISIS/NEXIS).

MP4 files generated by the Retrieve action contain Telestream-proprietary extensions and are primarily for utilization within the Telestream ecosystem. Therefore, the following requirements apply:

- Vantage Flip64 actions processing these files must use the Auto decoder.

- For playback, Switch 4.0 or later is required and processes closed captions including other metadata in these files.

Adding MediaCentral | Production Management Connections to Vantage

To identify the target Interplay system, you can define it directly in the Retrieve action or you may add and configure an Interplay connection in your Vantage domain to communicate with each MediaCentral | Production Management system you are interacting with.

Note: The systems displayed in the Retrieve action Interplay Configuration menu are those that have been added to Vantage via the Vantage Management Console.

To add an Interplay connection to Vantage and configure and test it, follow these steps:

1. Start the Vantage Management Console.
2. In Settings & Options, display the Interplay tab.

   Vantage displays the Interplay configuration panel where you create, configure, delete, import and export MediaCentral | Production Management system connections.
3. Create and configure a connection to the target system, providing the following information:

   - Connection Name
   - Interplay Web Services Host
   - Interplay Web Services Port
   - Interplay Workgroup
   - Interplay Username
   - Interplay Password

   For more details on configuring and managing connections, click the ? icon to display the topic in the Vantage Domain Management Guide.
4. Click Test to confirm that Vantage can access the target MediaCentral | Production Management server. If you have problems, determine the issue and retry.

Configuration Details

Interplay Configuration

Interplay Configuration. Specifies Interplay | <<Specific user-specified Interplay systems>>. The specific Interplay systems menu items are dynamically generated from the MediaCentral | Production systems identified in the Vantage Management Console. See Adding MediaCentral | Production Management Systems to Vantage (above) for details.

Note: When you select a pre-defined Interplay system, the Interplay Settings panel (directly below the General panel) is hidden. If you select *Interplay*, the Interplay Settings panel displays and must be configured to identify the target system.

Configuring Output Media File Settings

Output Media File Nickname. Specifies the nickname associated with the MP4 output file for use in downstream actions.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the filename. Use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The *Variable* token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value 12H4JA678, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the menu.

General Settings

Mob ID. Specifies the Mob ID associated with the Avid master clip asset registered in the specified Interplay system.

Interplay Settings

Note: This set of controls is only displayed when you select *Interplay* from the Interplay Configuration menu, to provide the target system directly in the action. If

you select an Interplay system that you have defined in the Vantage Management Console, this panel is not displayed.

Interplay Web Services Host. The DNS/IP address of the Interplay Web Services server.

Interplay Web Services Port. The port being utilized by the Interplay Web Services server.

Interplay Workgroup. Name of workgroup (case-sensitive) associated with this Interplay system.

Interplay Username. Authorized user name.

Interplay Password. Authorized password.

Output Interplay Metadata

Configure these controls to generate a separate metadata XML file containing CML, as an attachment file for use downstream or separately. In Vantage, you can use the Extract action to access the AVID assets metadata in these files.

The metadata CML file contains the MXF file paths, Avid User properties - Name/Value string pairs, Avid Interplay Frame Locators, Avid Asset Restrictions (Copyright information, TV rating, etc.).

Output Interplay Metadata. Specify Enable to generate an optional metadata file in XML format and supply a nickname or fully-qualified filename.

File Nickname. Select File nickname to identify the file by nickname.

File Name. Manually enter or browse and select the fully-qualified path to the XML metadata file. The destination must be writable by the Vantage Avid Service.

Overwrite Existing Metadata File. When checked, write the new file out to the destination, overwriting the existing file (if it is writable) without warning. If unchecked and the file exists, the job fails at the start of the job when user configuration is validated.

Output AAF

Configure these controls to generate a separate AAF file, as an attachment file for use downstream or separately.

Output AAF. Specify Enable to generate an optional AAF file and supply a nickname or fully-qualified filename.

File Nickname. Select File nickname to identify the file by nickname.

File Name. Manually enter or browse and select the fully-qualified path to the AAF file.

Overwrite Existing AAF File. Check to silently overwrite the existing output file without warning. If unchecked and the file exists, the job fails at the start of the job when user configuration is validated.

Override Output Path

Configure these controls to override the default output path for the MP4 Reference file, for use downstream or separately.

Override Output Path. Specify Enable to override the default MP4 location (Vantage store) and supply a fully-qualified filename. When disabled, the location is the default Vantage store.

Output Asset Path. Manually enter or browse and select the fully-qualified path to the MP4 reference file. The destination must be writable by the Vantage Avid Service.

Create Unique Folder. Specify Enable to generate a folder in the path, and write the file to the new folder. The subfolder is named with a randomly generated GUID.

Overwrite Existing Output File. Check to silently overwrite the existing output file without warning. If unchecked and the file exists, the job fails at the start of the job when user configuration is validated.

Signiant Delivery Action

The Signiant Delivery action is an optional, licensed feature which enables Vantage workflows to deliver files to Signiant-enabled servers. The Signiant Delivery action uses the Signiant Content Transfer Engine (CTE) feature, which must be licensed on the Signiant server.

Note: If a file of the same name already exists on the Signiant server, then the file is automatically overwritten, without warning. Vantage cannot determine if a file to be written already exists on the server, and no warning is presented.

Configuring a Signiant Agent in the Vantage Console

A Signiant agent must be configured in the Vantage Management Console before you can configure and use a Signiant Delivery action in a workflow. You should configure a Signiant agent in the console for each Signiant server you are using.

Configuring the Agent in Vantage

To configure a Signiant agent, follow these steps:

1. Open the Vantage Management Console and log in to the Vantage domain.

2. Click on Settings & Options > Signiant.

3. Click the Add New Setting icon to add a new configuration or import an existing Signiant agent configuration.

4. Click the ? to display the topic which describes how to configure a Signiant Agent.

When you're done, click the Save icon and close the Console.

Inspector Wizard

Note: You must have at least one agent (in the Vantage Management Console) before you can configure the Signiant Delivery action.

Name

From the menu, select the name of the Signiant agent you want to access. This list is populated from Signiant agents present in the Vantage Management Console.

Note: When you select an agent, the Address and User Name fields are auto-populated based on the agent configuration. These cannot be modified from within the Signiant action.

Click Next to continue. Vantage tests the access to the Signiant server and validates the configuration before continuing. If the connection fails, you must resolve the issue before continuing.

Files to Deliver

Check the nicknames of the files in this workflow that you want to deliver to the Signiant server.

Signiant Job Setings

Source (Sender) Agent. From the menu, select the name of the Signiant source agent you want to access.

Target (Receiver) Agents.From the menu, select the name of the Signiant target agent or agent group for file delivery. If agent group is selected, provide the proper API ID.

Set the Job Name. Specify job name pattern to use.

Select the Job Group. Specify the Signiant job group where the job will be created.

Select the Job Template Library. Specify the job template library to use.

Select the Job Template. Specify the job template to use as available from the selected library.

Select the Job Priority. Specify the job priority to use. This is the job priority relative to other Signiant jobs.

Target Directory. Specifies the target directory to use on the specified Signiant server. If this field is left blank, the default target directory on the specified Signiant server is used.

Bandwidth Ceiling. When checked, allows specification of the transfer bandwidth ceiling (inmbps) to the Signiant server. Unchecked by default.

Notification Email Address. Specify email address to use for Signiant notifications and logging reports.

Test. After specifying job settings, click the Test button to verify configuration settings.

Click Next to continue.

Click Finish to finalize configuration.

Signiant Media Shuttle Action

The Signiant Media Shuttle action is an optional, licensed feature which allows for automated Media Shuttle accelerated file transfers among a specified list of users using Vantage workflows.

Inspector Wizard

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

API Key

Specify API key provided with your established Signiant Media Shuttle account. For information on establishing this account or for configurations outside of the Vantage integration, consult your Signiant documentation or contact your support team at Signiant.

Click Next to continue. Vantage tests the access to the Signiant provider. If the connection fails, you must resolve the issue before continuing.

Target Portal

Specify the configured Media Shuttle portal to use for creating a package or download link.

Operation

Select an operation to perform.

Create Package

Vantage requests creation of a new package and populates that package with material which has been delivered/placed in a registered network location (shared between Vantage and Media Shuttle). Vantage then completes the creation of the package and generates a Package ID for use in downstream actions, such as subsequent instances of the Media Shuttle action.

Input Nickname. (Required) Specifies the media that will be inserted into the Media Shuttle package.

Package ID. (Required) Unique package ID variable generated for use in downstream Media Shuttle actions.

Create Download Link

Allows Vantage to request a specific download link to be generated for a given package intended for a specific user/set of users. An optional expiration parameter allows for specification of an expiration date for the download link.

User Email. (Required) Email address of the user(s) authorized to download the file(s).

Package ID. (Required) Media Shuttle package ID (generated in an upstream Media Shuttle action in Create Package mode) for which a download link is generated.

Expires On. Expiration date when download link expires.

Generated Download Link. Download link variable generated for specified package.

Stanza Action

Telestream Stanza is a broadcast-quality captioning and subtitling product. Stanza integration in Vantage enables you to create a Stanza project on a Stanza host and perform various Stanza tasks, such as converting speech to captions and exporting programs.

The Stanza action is part of the Publish group in Workflow Designer and is executed by the Vantage Publish Service.

For more information on Stanza, including server installation and configuration, see the Stanza page on the Telestream website.

Select the Stanza Action Type

Select the Stanza action type. Select the operation to perform in this action.

Click Next to continue.

Syndicate Action

The Syndicate action is an optional, licensed feature enabled with the TrafficManager license. The Syndicate action is part of the TrafficManager group. Syndicate actions are executed by the Traffic Service.

The Syndicate action is responsible for transforming sidecar metadata from supported providers (for example, PitchBlue) into a mezzanine format. The mezzanine attachment generated by the Syndicate action contains the relevant episodic metadata information including segment timing information. The mezzanine attachment can be utilized by the Vantage Portal in Syndication mode (Syndication Workflow Portal) or it can be consumed directly by other Vantage components.

After a Syndicate action has completed, the result of its execution (a state of Success or Failure) can be viewed in the Job Status tab. The action state for each job is controlled by the State to Emit controls on the next panel.

To determine if the Syndicate action found a match and applied a template for this job, select the job and open the Syndicate - Status/History window and select the Event. The Event element will explain if a matching template was found and whether the template applied has the same number of segments as the clip.

Note: The generated Result attachment should always have the nickname *Syndication* assigned to it when the Syndicate action is being utilized in an ingest workflow for the Vantage Syndication portal.

Inspector Wizard

Select a specific metadata format from the list and configure the action appropriately for your workflow. Click Next and Finish to update the action and close the inspector.

Syndication Forward Action

The Syndication Forward action is an optional, licensed feature enabled with the TrafficManager license. The Syndication Forward action is part of the TrafficManager group. Syndication Forward actions are executed by the Traffic Service.

The Syndication Forward action automatically forwards a CML file to a publishing workflow which performs segment extraction and processing using the Post Producer Conform action. This removes the step of manual Workflow Portal interactions involving a typical Syndication action workflow in cases where an automated process is required or desired.

For additional details on Traffic Manager related configurations, consult the Traffic Manager User's Guide available on the Telestream website.

For additional details on CML configurations, consult the Post Producer Developer Guide available on the Telestream website.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Inspector Wizard

Specifying Input Files

Specify the Input Media File Nickname. Specifies the input media file. Typically this represents the media content from a catch server that will be processed in a subsequent publishing workflow.

Specify the Input Syndication Attachment Nickname. Specifies the input syndication attachment nickname. Typically this represents a syndication metadata file created by an upstream Syndication action based on a sidecar metadata file from the catch server.

Edit Filename Pattern

Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Workflow Name*. The name of the workflow.

- *Index*. The index of the filename being constructed.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Output Location

Click Output Location and select from these choices:

- *Available Vantage Store*. Write the CML file to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the CML file to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the CML file to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click the green Browse button to select a variable which supplies the fully-qualified path dynamically.

-- *Collision Resolution*. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Target Workflow

Select the target workflow that the Syndication Forward action triggers. Typically this is a publishing workflow (see the Traffic Manager User's Guide for details) that receives the CML generated by the Syndication Forward action in order to perform media processing of files referenced in the CML.

Note: The target publishing workflow must be configured to expect only a single input nickname referring to the Syndication Forward CML output. This is a similar constraint to manual configurations requiring the use of the Workflow Portal.

Click Next to continue.

Syndication Template

Syndication Templates are configured in either the Workflow Portal or Vantage Management Console. See 'Creating Syndication Templates' in the Vantage Domain Management Guide for configuration details and typical use cases. Select an existing syndication template or choose No Template. Default is No Template.

Note: The default option No Template facilitates the use of the Auto Grouping segmenting information that is generated by the Syndicate action.

Per Segment Information

Start of Segment Offset. When checked, allows specification of an offset to apply at the start of each segment in the output CML. For example, a value of 00:00:05;00@29.97 would apply a five second offset to the Start of Media (SOM) timecode of an input segment.

Negative Start Offset. When checked, specifies that the Start of Segment Offset value is treated as a negative value. Unchecked (positive) by default. For example, if input segment SOM is 00:01:00;00@29.97:

- Start of Segment Offset value of 00:00:05;00@29.97 treated as positive (default), results in segment in the output CML with a SOM value of 00:01:05;00@29.97
- Start of Segment Offset value of 00:00:05;00@29.97 treated as negative, results in segment in the output CML with a SOM value of 00:00:55;00@29.97

End of Segment Offset. When checked, allows specification of an offset to apply at the end of each segment in the output CML. For example, a value of 00:00:05;00@29.97 would apply a five second offset to the End of Media (EOM) timecode of an input segment.

Negative End Offset. When checked, specifies that the End of Segment Offset value is treated as a negative value. Unchecked (positive) by default. For example, if input segment EOM is 00:02:00;00@29.97:

- End of Segment Offset value of 00:00:05;00@29.97 treated as positive (default), results in segment in the output CML with an EOM value of 00:02:05;00@29.97
- End of Segment Offset value of 00:00:05;00@29.97 treated as negative, results in segment in the output CML with an EOM value of 00:01:55;00@29.97

CML Options

Use Nickname in Generated CML. When checked, Source file location attribute in generated output CML uses Input Media File Nickname rather than filepath as referenced source location. The nickname option can be used if the receiving workflow has the nickname as an expected media nickname. Unchecked by default.

Centercut. When checked, creates a centercut clip from the larger source in the output, at the specified crop dimensions of the input frame. Units are specified as number of pixels (px). Typically used during HD/SD conversions. Unchecked by default.

Letterbox. When checked, creates a frame in the larger output in which to display the source, at the specified mask dimensions and color. Units are specified as number of pixels (px). Typically used during SD/HD conversions. Unchecked by default.

Click Next to continue.

Image Overlays

When checked, allows specification of an image overlay. Unchecked by default.

Filename. Specifies the fully-qualified UNC network path of the image overlay file. The overlay file must be accessible by the Vantage domain server processing this action and subsequent actions that attempt to access the referenced file. PNG, TIFF, TGA, BMP, and GIF formats are supported.

Overlay Left | Top. Together, these specify the top left corner of the origin of the overlay file on the frame, in pixels.

Opacity. Specifies the opacity of the overlay, in percent. 100% equals fully opaque (no original frame pixels display), and 0% equals fully transparent (no overlay pixels display).

Width | Height. Specifies, in pixels, the width and height of the overlay frame originating at the Overlay Left and Top location specified above.

Offset Start of Overlay By. Specifies how much the start of the overlay should be offset from the start of the media. Timecode of 00:00:00;00@29.97 (default) causes overlay to be displayed from the start of media.

Offset End of Overlay By. Specifies how much the end of the overlay should be offset from the end of the media. Timecode of 00:00:00;00@29.97 (default) causes overlay to be displayed until the end of the media.

Fade Duration. Specifies duration over which the overlay will fade in and fade out on the section of media the has the overly. Timecode of 00:00:00;00@29.97 (default) causes overlay to be displayed immediately.

Minimum Segment Duration. Specifies minimum duration of segments to which overlay will be applied. Default is 00:01:00;02@29.97. Timecode of 00:00:00;00@29.97 causes overlay to be applied to all segments.

Apply To. Specify the type of segments to which overlay is applied. Options are Entire Grouped Segment (default) | Program Segments Only.

Video Overlays

When checked, allows specification of a video overlay. Unchecked by default.

Filename. Specifies the fully-qualified UNC network path of the video overlay file. The overlay file must be accessible by the Vantage domain server processing this action and subsequent actions that attempt to access the referenced file. MP4, MOV, and MPG formats are supported.

Overlay Left | Top. Together, these specify the top left corner of the origin of the overlay file on the frame, in pixels.

Opacity. Specifies the opacity of the overlay, in percent. 100% equals fully opaque (no original frame pixels display), and 0% equals fully transparent (no overlay pixels display).

Scaling Factor X | Scaling Factor Y. Specifies the X and Y scaling factor of the overlay on the output frame, relative to the top left corner of the overlay.

Offset Start of Overlay By. Specifies how much the start of the overlay should be offset from the start of the media. Timecode of 00:00:00;00@29.97 (default) causes overlay to be displayed from the start of media.

Minimum Segment Duration. Specifies minimum duration of segments to which overlay will be applied. Default is 00:01:00;02@29.97. Timecode of 00:00:00;00@29.97 causes overlay to be applied to all segments.

Apply To. Specify the type of segments to which overlay is applied. Options are Entire Grouped Segment (default) | Program Segments Only.

Click Next to continue.

Click Finish to finalize configuration.

Tape Action

The Telestream Live Service and the Tape action are Vantage features enabled in a Vantage domain to support Live Capture and appropriately licensed. The Tape action is used in workflows created for ingesting tape-based media via SDI in the Lightspeed Live Server and serializing it to files for further video processing.

You use the Lightspeed Live Tape web application to select sources and control recording during playout. You can also use Live Capture API to create custom programs to control Vantage capture workflows.

The Tape action is used to start SDI-based tape capture workflows created in the Vantage domain installed on the Lightspeed Live server. The Tape action inspector enables you to select and configure VTR sources for processing, filtering, transcoding, and output. You can also use the action to add metadata labels.

The container and codec selected in the Tape action allow configuration of the encoding and format of the capture operation. The encoded media is captured to a primary file stored locally or copied to external storage.

Note: Most MXF files, and QuickTime Open files are created in such a way that they can be opened for editing/playing while they are still growing during capture. Check with your edit/player application guide for details about supported formats.

As an origin action, the Tape action in a Vantage workflow begins the workflow, and it may be the only action in the workflow. A tape capture workflow may also include additional actions, such as a Copy or Move action, which can be optionally used to output the captured file to an additional location.

Use the Live Tape Capture web application to control VTR sources from the VTR Preview Player panel, log clips from tapes, and capture logged clips from tape to files. For information about the Live Capture web application, please see the *Live Capture User Guide*. The Live Capture API can also be used to create custom programs to control tape capture workflows.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open workflows must also be enabled for the current workflow and in the Vantage Management Console Settings.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Inputs and Outputs

Configure inputs and outputs on the left side of the inspector.

Source Inputs

Source. Select the input to use from the Source menu. For more information on Sources, refer to Live Capture User Guide > Previewing Sources and Finding Workflows.

Channel Group. Specifies the name of the Group this workflow is associated with. You can add multiple workflows to each channel group you create, and then use channel groups in your Capture web apps to filter workflow selections, narrowing your view of workflows to those that are relevant to your work or focus. Channel Groups, which are referred to as Nexus definitions in the Vantage Management Console, are created and managed in the Workflow Design Items > Nexus Definitions tab.

Labels

Select the Expected Labels that you want to include, to allow operators to update label values in the Tape Capture web application and process them in the Tape action or downstream in the workflow. Labels can be used in downstream Vantage actions, typically to update or add properties in Interplay, or transformed into text or XML for out-of-band delivery.

Labels that are enabled can be configured in the Tape Capture web app - select the Channel Options > Configure Labels dialog. Label creation is performed in the Vantage Management Console.

For more information on creating labels, search the *Live Capture User Guide* for *Create Labels and Variables for the Tape and Capture Actions*. To update labels in the Live Capture web application, search for *Channel Options*.

Note: If label parameters are changed or modified in the Vantage Management Console, the changes need to be applied to Capture and Tape actions that use them, so that they display correctly in the Tape Capture web app.
To apply label updates to a Capture action, you must:

1. Put the workflow into edit mode and display the Capture action inspector.
2. In Expected Labels, disable the target label(s); then re-enable them.
3. Save the action and re-activate the workflow.

The updated label(s) will now display correctly in the Tape Capture web app.

Configuring Primary and Secondary Outputs

You use the Primary and optional Secondary Output panels to create configuration templates that you can select in the Tape Capture web app.

The output location, file name and nickname settings are set once for all primary and secondary configurations. Select the output location where the captured file should be written, optionally edit the file name using tokens or variables, and specify the output nickname for use by downstream actions operating on the file.

Configuration templates can be added to each output type and consist of a container format and the video and audio codecs to be use for the captured output. There is no limit to the number of configuration templates you can create.

Output Location. Click Output Location and select from these choices:

- *Vantage Store*: Write the output to a Live Store. Select an available Live Store from the menu.

Telestream recommends creating a Live Store in Vantage and using it as the output location for efficient Capture operations. See Live Capture User Guide > Using Live Stores for Capturing Files for details.

- *Path*: Write the output to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Browse button and select a variable which supplies the fully-qualified path.

Caution: In rare instances, two capture processes writing to the same path location folder may result in one file overwriting the other. To prevent this, the best practice is to use a unique folder location for each workflow, or append a Time token (set to mmm) to the file name in a workflow (configured in Edit Filename), which returns the current millisecond, thus altering the file name.

Edit Filename. Displays the Filename Pattern Editor and specifies the pattern for the file you are creating. Default: Base Name. Use the menu on the right to select one or more tokens to insert to create the exact filename pattern you require.

Available tokens:

- *Base Name*: Select to add the base (clip) name as part of the file name. The Base Name token is populated with the Clip Name selected in Clip Panel of the Tape Capture user interface.

- *Workflow Name*: Select to add the name of the workflow as part of the file name.

- *Source Name*: Select to add the name of the live source as part of the file name.

- *Variable*: Select to choose and add a variable to the file name.

- *Date*: Select to add the date as part of the file name.

- *Time*: Select to add the time as part of the file name.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value `12H4JA678`, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Specifies the nickname for this media.

Add. Create a new Configuration Template, by first choosing the template's output container format from the Add menu. Specify a container type, enter a unique name in the container's Config Name field and configure container details in the panel on the right. Now, click on the video and audio streams on the left and configure them as well, in the panel on the right. Add all of the output configurations that you want to have available in the Tape Capture web app.

After logging clips, click the Capture button in the Tape Capture web app to select the primary output container format you want to use for the capture operation.

Delete. Click the X icon on the right to delete the output from this action.

Settings Panel

Specify Tape action general settings in the Settings panel on the right.

Binding a parameter to a variable makes the parameter configurable directly in the Tape Capture web app.

Generate Variables

Generate Variables. Select which variables to generate for use in downstream actions.

Is Output Stitched. When checked, enables the ability to detect if the output is stitched or not. Select or create a True/False variable to generate, which is used in a downstream action to execute the workflow based on the result. (Use a Decide action to test the variable and perform one branch or another.)

Primary Configuration. When checked, generates the specified variable to enable downstream actions to determine which configuration was used in this action. The variable contains the primary configuration that was selected by an operator for this job, in the Record panel of the Tape Capture web app, which is selected from the menu that displays all of the primary configurations you have configured here in the Tape action to be available to the operator during tape capture operations.

Secondary Configuration. When checked, generates the specified variable to enable downstream actions to determine which configuration was used in this action. The variable contains the secondary configuration that was selected by an operator for this job, in the Record panel of the Tape Capture web app, which is selected from the menu that displays all of the secondary configurations you have configured here in the Tape action to be available to the operator during tape capture operations.

Avid Master Mob ID | Avid Source Mob ID. Check to generate variables to provide the Avid Master Mob ID and/or the Avid Source Mob ID for use in downstream actions. Then select the text variable you want to generate.

Workflow Name. Check to generate variable to provide the name of this workflow for use in downstream actions. Then select the text variable you want to generate.

Tape Action Settings

Configure these Tape action settings:

Ignore Lost Frames. When enabled, this option suppresses all source and load-related errors. It allows capture to continue recording if a Loss of Signal | FIFO overrun/overflow | Loss of RS422 condition is encountered or if video format changes are encountered. If disabled, capture stops when it encounters these conditions. Enabling Ignore Lost

Frames should not be necessary in most cases. For LOS details, see *Loss of Signal Behavior* in the *Lightspeed Live Capture User Guide*.

Pre-Roll Duration. Specifies the number of seconds that tape rolls before a scheduled recording begins. You can also assign a variable defined elsewhere in the workflow.

Note: Setting Pre-Roll Duration to 0 (zero) may have a use in some cases, such as capturing digital sources. A 0 (zero) setting could cause issues when capturing from tape sources. The default Pre-Roll is 3, which often works fine for a tape source.

Post-Roll Duration. Specifies the number of seconds that tape rolls after a scheduled recording ends. You can also assign a variable defined elsewhere in the workflow. Note that the VTR stops only after all frames have been captured, so post-roll may continue longer than the duration you specify.

Timecode Override Enable. When checked, activates and overrides the Input timecode with the one entered in the Timecode Override control. When enabled, Timecode Override overrides the Input timecode during a capture with the one specified and puts this timecode at the beginning of the output file. All clips in the Tape clip list will have their timecode overwritten by this timecode.

Timecode Override. Specifies the timecode value to use to put at the beginning of the output file when Timecode Override Enable is active.

Discontinuity Threshold. Specifies the minimum number of skipped frames that constitutes a discontinuity (timecode break) state. This threshold affects both Create New File on Discontinuity and Abort on Discontinuity, when enabled. Note that decremented and repeated frames always count as timecode discrepancies, and for these discrepancies, the threshold setting is ignored.

Discontinuity Cooldown. When checked, delays discontinuity checking for the specified time. After a discontinuity is detected, additional discontinuities are ignored until the specified time (in seconds) has passed.

Create New File on Discontinuity. When checked and timecode discontinuity is detected, specifies that the current media file is closed and a new media recording file is opened. During an active capture recording, if a discontinuity is encountered, the current capture file will complete, and a new media file recording will immediately start.

Time code discontinuities are defined as follows:

- Time code increments: If time code increments by a value equal to or greater than the selected Discontinuity Threshold value.
- Time code repeats: The Discontinuity Threshold value is ignored in this case.
- Time code decrements: The Discontinuity Threshold value is ignored in this case.

Example 1: A time code incrementing from 00:00:30;10 to 00:00:30;15 would be detected by a threshold of 4 or less.

Example 2: A time code repeating from 00:00:30;10 to 00:00:30;10 would be detected.

Example 3: A time code decrementing from 00:00:30;10 to 00:00:29;00 would be detected.

Abort on Discontinuity. When enabled, capture aborts when a timecode discontinuity is detected as specified by the Discontinuity Threshold or when the VTR servo is not locked.

Note: Create New File on Discontinuity and Abort on Discontinuity options are mutually exclusive; when both are checked, Abort on Discontinuity takes precedence. That is, if discontinuity is detected, the job is aborted.

Ignore Frames When Servo is Not Locked. If enabled, all frames captured while the servo is in the unlocked state (as reported by the VTR) are excluded from the output file.

Create New File When Servo Relocks. If enabled, creates a new media file when the servo relocks after being in the unlocked state. When a servo relock is encountered during an active capture recording, the current capture file will complete, and a new media file recording starts.

If Create New File When Servo Relocks is enabled and Ignore Frames When Servo is Not Locked is disabled, the system may create unwanted (unlocked) frames at the end of output files.

If Create New File on Discontinuity is enabled and Ignore Frames When Servo is Not Locked is also enabled, the result may be an output file that contains a discontinuous timecode, even though Create New File on Discontinuity is enabled and the timecode was always incrementing. This occurs because of the system ignoring frames, regardless of the timecode, while the servo is unlocked. With this configuration, the frames captured during the period when the servo was unlocked will be excluded from the output file. New frames would then be added to the file when the servo relocks, which would cause the output file to have discontinuous timecode. To avoid this scenario, enable the Create New File When Servo Relocks option. In this state the relock of the servo will start a new file where the discontinuity in the output file would have been.

As described above, repeating timecodes are counted as discontinuities. Most VTRs repeat timecodes when the servo is unlocked; therefore, if Ignore Frames When Servo is Not Locked is disabled and Create New File on Discontinuity is enabled, the result may be many single frame files while the servo is unlocked. This will not happen if Ignore Frames When Servo is Not Locked is enabled.

With many VTRs, particularly an SRW-5800, there can be gray frames after the servo relocks. Timecode for these frames is often invalid. Because the system is only able to respond to the status the VTR provides, it will not detect and exclude these gray frames.

No two passes of the same section of tape are likely to be identical. This occurs because the VTR can sometimes take longer than others to lock the servo after the control track is detected. Therefore, it is important to check the logs to verify whether the servo was locked while a specific frame was captured.

Use Duration Over Markout. Ignores mark out and rolls tape for the specified duration regardless of time code.

Treat input as Progressive. Assumes input is progressive even if it is interlaced.

RS422 time code delay. Adjusts RS422 time code by specified number of frames. RS422 time code delay can be used to compensate for VTR decks requiring adjustments to frame timing. Most VTR decks do not require this offset adjustment. If you have a VTR deck that requires this adjustment it is necessary to use a trial and error process to determine the correct offset. The default is 0, the minimum is -3 frames, and the maximum is +3 frames.

Rewind Tape. When checked, a Rewind command is sent to the VTR after capture is complete. If there are multiple clips on a tape slated for capture, the Rewind command is sent once; after all clip capture jobs have completed.

Stitch Clips. When checked, stitches the aggregated content from all captured clips into a direct-converted output file. See Stitch Behavior, below.

Stitch Clip Base Name. Specifies the base name to use in job names and the *Base Name* part of the file name pattern. When blank, `StitchedClip` is the default base name.

Stitch Behavior. Specifies the stitched file behavior: *Direct Convert*, which can not be changed. Creates a self-contained output file for the Primary and/or Secondary outputs, which contains the aggregated content from all captured clips in the order specified by the user.

The output file can be used by a downstream action for additional processing.

Allow Secondary Output to be Disabled. Check to add the option to disable the secondary output in the Tape Capture web application. When selected, the Disable Secondary Output control is displayed in the Tape Capture web app Capture Clips dialog.

Note: When *Allow Secondary Output to be Disabled* is selected, no downstream processing can be performed on secondary output. With this enabled, you cannot save the workflow if it is set to process secondary output.

When you have downstream actions process secondary output, but you want to disable secondary output in the Tape Capture web app, add a Poster Frame secondary output so that can be selected in the web app as the disabled option.

You must create one or more MP4 secondary outputs when Allow Secondary Output to be Disabled is selected, in order to have the option to enable and create a secondary output in the Tape Capture web app.

Tempo Action

The Tempo action is part of the Edit group, and is executed by the Vantage Edit Service. All actions in the Edit group are optional, licensed Post Producer features. For all Vantage licensing requirements, see http://www.telestream.net/telestream-support/vantage/vantage-licenses.htm.

Note: The configuration and utilization of the Tempo action and the design of Tempo-based workflows is comprehensive. You are encouraged to read the Tempo User Guide before implementing Tempo-based media re-timing workflows. The Tempo User Guide is published on the Telestream website (telestream.net).

The Tempo action re-times file-based media and adjusts the running time of shows and segments while maintaining program quality. The Tempo action interpolates the desired time change over the duration of the media, adjusting total elapsed time without any perceived loss of video or audio quality, including video, audio, and captions.

The Tempo action produces newly-timed media (as defined in the incoming CML file) from the source media specified in the CML, applying optional filters as appropriate, encoding the output video in the specified format.

Note: The supported audio and video input and output formats may be viewed on the Tempo data sheet, available on the Telestream website.

Timecode propagation is supported in TIFO and QuickTime containers, but not in Program Stream or MP4 containers.

Tempo supports closed captioning, content advisory, Active Format Description (AFD), and Copy Generation Management (CGMS-A).

The output video (limited to formats listed on data sheet) may be ready for distribution, or you can process it with a Flip or Flip64 action, or with Multiscreen or IPTV VOD actions for further transcoding and packaging prior to distribution.

Before the action can execute, you must select the video and audio transcoders, and the output format, and configure each component using the inspector.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings.

Tempo Action Operation

The Tempo action operates by converting (transcoding) the source media from one format to another and supplying the streams to the Output component. The output supports one video stream and up to 32 audio tracks. The Tempo action includes several video and audio codecs, as listed in the Transcoder menu, which represent those utilized in the vast majority of distribution formats.

During audio transformation a variety of processing may be applied. Audio may be re-sampled, or channels may be remapped in order to provide a specific configuration to the codec.

The Output component implements the types of media files that can be generated by the Tempo action. The Output component implements filters on media as it is being transcoded, applying the filters as specified by the Conform XML file, by specifying the template to utilize.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value on a job-by-job basis. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.
Hover over controls to display detailed tooltips.

Using This Action in Cloud Mode

This action is Cloud capable. Actions placed into Cloud mode are executed remotely in Vantage Cloud. For additional details, refer to the Vantage Cloud User Guide on the Telestream web site.

Configuration Details

Input File Nickname. Specifies the nickname (`CML` is required in the second of a two-pass application) of the input Composition XML file used to specify the composition of the output media. This file must have been ingested by a previous action (typically a Receive action configured with Media Files: Expected Nicknames = `CML`), which is submitted to the target workflow by an operator using Tempo Portal.

Generate Composition Chronicle.When checked, the action produces a post-rendered composition file specifically for the media rendered by this job. The new composition will contain actual timecodes where ambiguous timecodes were specified, and will contain current values where Vantage variables were specified. These as-run compositions can be processed by the Chronicle action to produce reports for use in ad insertion workflows.

When Generate Composition Chronicle is checked, complete these controls:

Output Attachment Nickname. *S*pecifies the nickname assigned to the new file.

Edit Filename Pattern. Displays the Filename Pattern Editor. Default: *Base Name*. Use the menu on the right side to insert one or more tokens in the pattern (along with literal text you can enter) to create the exact filename syntax you require.

You can use the following tokens:

Base Name: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the archive you choose.

Date: Select the format to use by clicking on the token in the pattern field.

Time: Select the format to use by clicking on the token in the pattern field.

Variable: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Composition Chronicle Location. Specifies where to write the generated composition chronicle file.

Select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Transcoders

You can specify one video transcoder and up to 32 audio transcoders - each represents a single stream or track. To add (or change) a video stream, click the Plus icon and select the format for the stream. Do likewise to add an audio stream. To delete a stream or track, click the Close icon on the stream/track component.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder, in actions where multiple transcoders are permitted. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click on the transcoder and select Duplicate.

Up and Down Arrows. Re-orders the selected transcoder.

Details Arrow. Expands or hides the transcoder details.

Plus Icon. Select a transcoder to specify the type of video and audio to generate. One video transcoder is permitted. You can add up to 32 audio transcoders.

Configuring Transcoder Components

Two components comprise the transcoder: the large panel represents the transcoder itself. Inside the transcoder component, the stream or track.

To configure the transcoder, select it to display the specified transcoder configuration panel on the right - configure its resolution and optionally add and configure filters,

To configure each stream/track, optionally modify its name as appropriate. Select it to display its configuration panel on the right to configure its controls, which vary by codec.

Output

You can specify one type of output. Select the media (container) type you are producing using the Select menu at the right side of the Output panel.

Multiple components comprise the output: the large panel represents the output itself. Inside the output component, the stream and tracks.

To configure the transcoder, select it to specify the output location, filename and nickname, and configure it in the configuration panel on the right.

Configuring the Video Stream Component

The video stream, when checked, propagates the stream from the transcoder. Normally, the stream is passed through to the next stage unless it is disabled. The video stream is automatically connected to the transcoder video, since only one is available.

Configuring Audio Track Components

Each audio track propagates the track from the transcoder. Normally, the audio track is passed through to the next stage unless the track is disabled. Create new tracks by checking the new, unnamed audio track to the right of the last enabled track in the panel.

Checkbox. Activates this track for output. Uncheck to delete the track, or disable processing if this is the only track in the set.

Note: The number of tracks that should be utilized is indicated by the number of *active* transcoder tracks you specify. If the source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Name. Select the name of the track to propagate.

Processors

Video Processors are provided to process video with Image Processing filters and/or the Color Space Filter. You can create and save multiple Video Processor templates with different filtering specifications, making for easy repeatability of particular configurations whenever you need them.

Configure each filter in the template as appropriate using the details panel on the right. The Tempo action permits up to two templates to be utilized per job, as specified in the CML file.

Note: Using the Video Processors requires manual modification of the composition file produced by the Tempo Portal before submitting the file to a Tempo workflow.

To create and configure a Video Processor template, perform these steps:

1. Click the + (add) button in the Tempo action Video Processors section.
2. In the Enter Field Name field, type a name used to identify this set of filter configurations, which must be unique within this action. This name is used to identify this set of filter configurations for execution, directly in the CML.
3. Click the new processor to highlight it, and make filter selections in the right panel.

To modify the composition, perform these steps:

1. Open the CML file generated by the Tempo Portal using a text editor.
2. In the Video Source element, add this element for each Video Processor template to execute (up to 2) on this media:

   ```
   <Processor template="<template name>"/>
   ```

   Where <template name> is the name you gave the Video Processor template in the Tempo action.

   Here is a snippet of CML code as an example:

```
<Source identifier="1764957960" timecode="ltc">
  <File location="\\share\path\media_file.mov" />
  <Subtitle preserve708="false" />
  <Processor template="VidProc1" />
  <Processor template="VidProc2" />
</Source>
```

Tempo Settings

Source Video Type

Specifies the type of video source being processed. Output quality may be enhanced by selecting a specific type, if it is known.

Auto: *Auto* causes Tempo to automatically determine the source video type. Progressive sources are treated as progressive. Progressive sources are treated as progressive. Interlaced sources are treated as interlaced except for interlaced sources at 29.97 fps, which are treated as mixed (see description below). If the entire source is known to be interlaced 29.97 fps, select *Interlaced* rather than *Auto*.

Progressive. Sources are treated as progressive even when the are encoded as interlaced.

Telecined 60i (Unedited, with fixed known cadence). Sources are treated as Telecine, unedited, but with unknown cadence and/or first repeated field position. Cadence is automatically determined with the first strong cadence. This option should not be selected if there are any changes in the Telecine cadence of the source. The output is Telecined.

Supply the following values:

Telecine Cadence Type. Specifies the type of inverse Telecine cadence to use.

First Repeated Field Position. Specifies the position of the first repeated field.

Telecined 60i (Unedited, with fixed unknown cadence). 60i (29.97 fps interlaced) sources are treated as Telecine, unedited, but with unknown cadence and/or first repeated field position. Cadence is automatically determined with the first strong cadence. This option should not be selected if there are any changes in the Telecine cadence of the source. The output is Telecined.

Telecined 60i (Edited). Sources are treated as Telecine, with possible edits and cadence changes. This option should be selected if there are any changes in the Telecine cadence of the source. The output is Telecined.

Telecined 60p (Unedited, with fixed known cadence). 60p (59.94 progressive) sources are treated as Telecine, unedited, with known cadence and first repeated field position. The fields for cadence type and first repeated field position must be set correctly for correct rendering of the video output. The output is progressive.

Supply the following values:

Telecine Cadence Type. Specifies the type of inverse Telecine cadence to use.

First Repeated Field Position. Specifies the position of the first repeated field.

Telecined 60p (Unedited, with fixed unknown cadence). 60p (59.94 fps progressive) sources are treated as telecined, unedited, but with an unknown first repeated frame position. Cadence is automatically determined with the first strong cadence. This option should not be selected if there are any changes in the Telecine cadence of the source. The output is progressive.

Supply the following values:

Telecine Cadence Type. Specifies the type of inverse Telecine cadence to use.

Cadence Detection Sensitivity. (Default: 50) Specifies the point at which film cadence is detected. In most cases, cadence sensitivity should be left at its default value. For high quality sources, setting to a lower value decreases sensitivity and should only be used if cadence changes are erroneously detected in places where cadence is stable. Setting to a higher value increases sensitivity and should only be used if cadence changes are not being detected. For lower quality sources, this value can be adjusted downward to prevent cadence-related errors. A typical value for a highly macro-blocked, low-quality source would be 25. Sources with light macroblocking work best at 40.

Telecined 60p (Edited). 60p (59.94 fps progressive) sources are treated as Telecine, with possible edits that may interrupt the expected cadence pattern. The output is progressive.

Supply the following values:

Telecine Cadence Type. Specifies the type of inverse Telecine cadence to use.

Cadence Detection Sensitivity. (Default: 50) Specifies the point at which film cadence is detected. In most cases, cadence sensitivity should be left at its default value. For high quality sources, setting to a lower value decreases sensitivity and should only be used if cadence changes are erroneously detected in places where cadence is stable. Setting to a higher value increases sensitivity and should only be used if cadence changes are not being detected. For lower quality sources, this value can be adjusted downward to prevent cadence-related errors. A typical value for a highly macro-blocked, low-quality source would be 25. Sources with light macroblocking work best at 40.

Telecined 30p (Unedited, with fixed known cadence). 30p (29.97 fps) sources are treated as Telecine, unedited, with 1:1:1:2 cadence and known first repeated field position. Output is progressive.

Supply the following value:

First Repeated Field Position. Specifies the position of the first repeated field.

Telecined 30p (Unedited, with fixed unknown cadence). 30p (29.97 fps) sources are treated as telecined, unedited, with 1:1:1:2 cadence but with an unknown first repeated frame position. Cadence is automatically determined with the first strong cadence. This option should not be selected if there are any changes in the Telecine cadence of the source. Output is progressive.

Supply the following value:

Cadence Detection Sensitivity. (Default: 50) Specifies the point at which film cadence is detected. In most cases, cadence sensitivity should be left at its default value. For high quality sources, setting to a lower value decreases sensitivity and should only be used if cadence changes are erroneously detected in places where cadence is stable. Setting to a higher value increases sensitivity and should only be used if cadence changes are not being detected. For lower quality sources, this value can be adjusted downward to prevent cadence-related errors. A typical value

for a highly macro-blocked, low-quality source would be 25. Sources with light macroblocking work best at 40.

Telecined 30p (Edited). 30p (29.97 fps) sources are treated as Telecine, with possible edits that may interrupt the expected cadence pattern. Output is progressive.

Supply the following value:

Cadence Detection Sensitivity. (Default: 50) Specifies the point at which film cadence is detected. In most cases, cadence sensitivity should be left at its default value. For high quality sources, setting to a lower value decreases sensitivity and should only be used if cadence changes are erroneously detected in places where cadence is stable. Setting to a higher value increases sensitivity and should only be used if cadence changes are not being detected. For lower quality sources, this value can be adjusted downward to prevent cadence-related errors. A typical value for a highly macro-blocked, low-quality source would be 25. Sources with light macroblocking work best at 40.

Interlaced. Sources are treated as interlaced, even when the source is encoded as progressive. The output is interlaced.

Mixed. Sources are assumed to have broken cadence and may also include interlaced and progressive fragments. For example, a Telecined source with interlaced or progressive commercial inserts.

Supply the following values:

Telecine Cadence Type. Specifies the type of inverse Telecine cadence to use.

In almost all the cases, selecting Auto yields the best results.

Auto: handles 2:2 (PsF), 3:2:3:2, 3:3:2:2, 1:1:1:2, 2:2:2:4 cadence, progressive and interlaced video.

22: Used for predominantly 2:2 (PsF) sources and if selecting Auto produces unsatisfactory results.

3232: Used for predominantly 3:2:3:2 sources and only if selecting Auto or using Telecine (Edited) video source type produces unsatisfactory results.

3322: Used for predominantly 3:3:2:2 sources and only if selecting Auto or using Telecine (Edited) video source type produces unsatisfactory results.

1112: Used for predominantly 1:1:1:2 sources and only if selecting Auto or using Telecine (Edited) video source type produces unsatisfactory results.

2224: Used for predominantly 2:2:2:4 sources and only if selecting Auto or Telecine (Edited) video source type produces unsatisfactory results.

Cadence Detection Sensitivity. (Default: 50) Specifies the point at which film cadence is detected. In most cases, cadence sensitivity should be left at its default value. For high quality sources, setting to a lower value decreases sensitivity and should only be used if cadence changes are erroneously detected in places where cadence is stable. Setting to a higher value increases sensitivity and should only be used if cadence changes are not being detected. For lower quality sources, this value can be adjusted downward to prevent cadence-related errors. A typical value

for a highly macro-blocked, low-quality source would be 25. Sources with light macroblocking work best at 40.

Ltr Propagation. Enables low-temporal-rate motion profile propagation in high-temporal-rate output. For instance, PsF frames will be converted to PsF instead of interlaced. This may help to reduce a pulsing effect in the video, when processing noisy sources.

Video Retime Method

Specifies the re-timing method to utilize:

Advanced Motion Compensation. Specifies that Tempo should apply a specific motion-compensation algorithm to re-time the video.

Cadence Modulation + Advanced Motion Compensation. Applies only to Telecined or Mixed sources. Fragments without cadence are processed by Advanced Motion Compensation.

When checked, source frames are retimed as follows:

For encodes configured to output interlaced video:

- 60i source fragments with 3:2:3:2 or 3:3:2:2 cadence result in altered 3:2:3:2 cadence after re-timing.
- 60i (30p) source fragments with 1:1:1:2 cadence result in altered 3:2:3:2 cadence after re-timing.
- 60i true interlace source fragments result in true interlace frames after re-timing obtained by applying advanced motion compensation.
- Progressive (or PsF) source fragments result in true interlace frames after re-timing obtained by applying advanced motion compensation.

For encodes configured to output progressive video:

- 60i source fragments with 3:2:3:2 or 3:3:2:2 cadence result in altered 1:1:1:2 cadence after re-timing.
- 60i (30p) source fragments with 1:1:1:2 cadence result in altered 1:1:1:2 cadence after re-timing.
- 60i true interlace source fragments result in progressive frames after re-timing obtained by applying advanced motion compensation.
- Progressive (or PsF) source fragments result in progressive frames after re-timing obtained by applying advanced motion compensation.
- 60p source fragments with 3:2:3:2, 3:3:2:2 and 2:2:2:4 cadence will result in altered 3:2:3:2 cadence after re-timing.

HQ Blend. Applies only to progressive and interlaced video. For interlaced video, specifies that Tempo should de-interlace the video using Advanced Motion Compensation, blend the sources according to the re-time settings, and then re-interlace the video. For progressive video, the sources are simply blended according to the re-time settings.

Supply the following value:

Use Original Frame if Within. Specifies the maximum percent (measured as a percentage of frame duration), for potential input frames to be considered as occurring at the same time as the current output frame. If an input and output frame are very close together, the output frame will be supplied by the input frame, based on this limit.

Cadence Modulation + HQ Blend. Specifies that Tempo should use Cadence Modulation on frames with 3:2:3:2, 3:3:2:2, 1:1:1:2 or 2:2:2:4 cadence and HQ Blend on all other frames. This setting only applies when the Source Video Type is set to Mixed, and Telecine Cadence Type is set to Auto.

Supply the following values:

Max Blend Duration. Specifies how the Cadence Modulation + HQ blend duration is calculated. Max Blend Duration provides user-settable controls to define the maximum duration per cycle that the blend process may take, limiting the blend duration to a range centered around the peak of the blend cycle.

Auto. When Auto is selected, the duration is calculated automatically. In situations where re-timing is only applied to a few frames, Tempo may spread the blend cycle over the entirety of the output duration, and result in most output frames being soft blended (soft) frames. Specify the following:

Use Original Frame if Within. Specifies how close the input and output frames must be to use the input frame in the output, when treated as the same time, when measured as a percentage of the frame duration.

User Specified. Select to control the maximum duration cycle. and set the following controls:

Max Blend Duration. Specifies the maximum blend duration, in milliseconds.

Soft Frame Synchronization. When checked, blending is adjusted to maintain maximum transparency.

Use Original Frame if Within. Specifies how close the input and output frames must be to use the input frame in the output, when treated as the same time, when measured as a percentage of the frame duration.

Adaptive. Specifies that Tempo should use Cadence Modulation on frames with cadence for mixed sources. Other frames are processed using Advanced Motion Compensation or HQ Blend based on quality metrics to minimize video artifacts. This setting only applies when the Source Video Type is set to Mixed | Interlaced | Mixed.

Supply these values:

Max Blend Duration. Specifies the maximum blend duration, in milliseconds.

Advanced Motion Compensation Quality Threshold. Specifies the AMC quality threshold, as a percentage. When the frame is processed using AMC and the quality

metric falls below this value, the frame is re-processed using HQ Blend to avoid video artifacts.

Max Blend Duration. When the frames are processed using HQ Blend, specifies the maximum frame interpolation duration in milliseconds.

Soft Frame Synchronization. When checked, blending is adjusted to maintain maximum transparency. In most cases, this option should be checked.

Nearest Neighbor

Applies only to progressive and interlaced source video. Specifies that Tempo should select the closest input frame as the source for any output frame to re-time the video.

Advanced Video Settings

Source Frame Configuration. Specifies how you want Tempo to decode the input file.

Detect from Source File - Specifies that the Tempo action should treat the input as normal for the type of essence in the input file, and also assume standard field dominance for interlaced media.

Interlaced Upper Field First | Lower Field First | Progressive - If the media essence is not encoded in a standard way or there is a field dominance error for interlaced, you should select the appropriate setting for decoding the file.

Output Frame Configuration. Specifies how you want Tempo to encode the output file:

Use Encoder Settings - Specifies that the Tempo action should treat the output as normal for the type of essence in the output file, and also assume standard field dominance for interlaced media.

Interlaced Upper Field First | Lower Field First | Progressive - If the media essence is not encoded in a standard way, you should select the appropriate setting for encoding the file. For instance, when using Cadence Modulation and encoding interlaced, but 1:1:1:2 cadence is desired in the output, select Progressive.

Extend Video to Match Audio. By default, when the video stream and audio track(s) are different lengths, Tempo shrinks/extends the audio to match the video stream duration. When checked - and the video is longer than the audio - Tempo inserts black frames to match the audio duration. This may be useful when processing poorly-made commercials or RTA spots.

Blank Top | Blank Bottom | Blank Left | Blank Right. Specifies frame alteration by filling the specified lines / columns with black to eliminate flicker and artifacts. See tooltips for details.

Preserve VBI Start Line. Specifies the index of the first line of VBI to preserve. Relative to the Blank Top value and the Number of VBI lines value. For example, using a 720 x 512 NTSC source, Blank Top is set to 32, Preserve VBI Start Line is 2, and Number of VBI Lines to Preserve is 2. In the output, the top 28 lines will be black filled; 2 lines of VBI will be preserved, and the final 2 lines again filled with black. See tooltips for details.

Number of VBI Lines to Preserve. Specifies the number of VBI lines to leave intact in the output frame. Relative to the Blank Top value and the Preserve VBI Start Line value. See example in previous control. See tooltips for details.

Noise Suppression Strength. Specifies the relative strength of the noise suppression process (0-100). Noise suppression is designed to prevent a pulsing effect in the apparent degree of noise in the output of re-timed noisy, native-interlaced sources.

Number of Threads. Specifies the number of threads to use when re-timing (0-128). When set to zero, one thread per core is utilized.

Align Segments to Full Second. Check to align each retimed segment to the nearest full second. When checked, all segments are set to full-second alignment. Fixed (non-retimed) segments may also be retimed by up to 2 frames to account for DF timecode. See tooltips for full details.

Processor. Specifies which video processor to use for transcoding:

Multi-core Video Processor. Select when you are running Vantage on standard CPU-based servers. More specifically, when the action is being executed by a Vantage transcoding service executing on a CPU-based server. This video processor is implemented to work well on a wide variety of Intel-compatible CPUs.

Lightspeed-Accelerated Video Processor. Select when you are running Vantage on a GPU-based Lightspeed server and you have a Lightspeed license. Specifically, when the action is being executed by a Vantage transcoding service executing on a GPU-based, Lightspeed server.

The Lightspeed-Accelerated Video Processor is implemented for high-performance, GPU processor usage, and only operates on a Lightspeed Vantage server. It provides the same capabilities as the Multi-core Video Processor, but is specifically designed to take full advantage of the GPUs present in the Lightspeed server, to ensure maximum performance and efficiency.

If a Lightspeed server is not available, by default the action will automatically be processed on an available CPU-based transcoding service. However, if the Video Processor service(s) are available, but busy processing other tasks, the action will wait indefinitely until one becomes available, unless fallback rules are specified.

Intel OpenCL Video Processor. Select when Vantage is hosted on on Intel-based servers and the action itself is being executed by a Vantage transcoding service executing on an Intel-based-based server.

The OpenCL Video Processor is implemented on the Intel OpenCL framework. This Video Processor performs more efficiently on compatible Intel CPU platforms than the Multi-Core Processor, which is implemented to work well on a wide variety of Intel-compatible CPUs.

Source Audio Type

Source Audio Type. Specifies Music | Speech as the audio type, so that the audio settings can be auto-adjusted for the specified type of audio in the media.

Advanced Audio Settings

Cross Fade Duration. Specifies the cross-fade duration between adjacent segments, in milliseconds.

Enable Pitch Correction. When checked, enables Tempo to automatically correct audio distortion introduced during processing. The likelihood of distortion increases as the rate of re-timing approaches the maximum allowable change. For operator-driven workflows, you can override the Tempo action setting, and allow the operator to set pitch correction on a segment-by-segment basis in Workflow Portal.

Metadata

Allows generating re-timed EBU STL files for up to three languages. The original file must be referenced in the source CML file. The files are associated with language 1, 2, and 3 output files ordinally. That is, the first file in the CML is associated with the Language 1 output file, etc.

Retimed STL Subtitles. When checked, specify the output file by file nickname or by fully-qualified path and file name.

Multi-Pass

Multi-pass. Specifies Disabled | 1st Pass | 2nd Pass to control Tempo action processing in single-pass workflows and 2-pass workflow sets.

> ***Disabled***. Specifies that the Tempo action is in a single-pass output workflow, and 2-pass processing is disabled.
>
> ***1st Pass***. Specifies that this instance of the Tempo action is in the first workflow of a two-pass workflow pair, and performs appropriately.
>
> In a two-pass application, the Tempo Quality report (an XML file of frames in the media whose quality does not meet the quality threshold specified) is loaded into Tempo Portal by an operator to prepare the media for submission to the second Tempo workflow. The Tempo Portal parses the file and places artifact markers on the timeline of the video player so that the operator can navigate between them

and mark them as excluded. When complete, Tempo Portal creates Exclusion Segments in an Exclusion Segment CML for use in the second pass.

Specify the following controls for the Tempo Quality Report and quality threshold:

File Nickname. When implemented in a two-pass application, you must specify the nickname `Tempo Quality Report` which identifies the Tempo Quality Report file.

File Name. When implemented in a two-pass application, this option must not be used. In other applications, specifies the fully-qualified path and file name of the Tempo Quality report file to be used.

Quality Threshold. Specifies the level (as a percentage) that defines the lowest acceptable video quality. Frames with a quality below the threshold are marked as potentially having artifacts, and included in the Tempo Quality report.

2nd Pass. Specifies that this instance of the Tempo action is in the second workflow of a 2-pass workflow pair, and performs appropriately. This step requires the Excluded Segments Composition (CML) file generated by the Tempo Portal. The Exclusion Segment CML is submitted to the second-pass workflow along with the original CML. The Tempo action - on the second pass - uses the entries to bypass exclusion segments, thus preventing video artifacts.

Specify the following controls for the Excluded Segments CML file:

File Nickname. When implemented in a two-pass application, you must specify the nickname *Exclusion CML* which identifies the incoming Exclusion CML file.

File Name. When implemented in a two-pass application, this option must not be used. In other applications, specifies the fully-qualified path and file name of the Exclusion CML file to be used.

Timed Text Conform Action

The Timed Text Conform action is part of the Timed Text group, which is executed by the Vantage Timed Text service. The actions in the Timed Text group are all optional, licensed features of Vantage.

The Timed Text Conform action is designed to extract subtitle/caption data from assets referenced in CML files and create one or more subtitle/caption files of the specified format, for use downstream, in other workflows or other systems.

The Timed Text Conform action automates proper stitching of caption/subtitle segments referenced in a CML file where clips have been cut that cause truncation or overruns. The Post Producer Conform action using Closed Caption filter) can correctly stitch audio and video as specified in the CML file, but caption/subtitles may be truncated or run over into subsequent segments, depending on the exact location of start and end times.

Timed Text Conform is used in these situations to isolate the caption/subtitles around a stitch point specified in the CML file, ensuring that no truncation or run over into subsequent segments occur. You can utilize the common CML file in Vantage workflows with actions that support CML as an input format - Post Producer Conform, for example - for stitching the video and audio. Outputs from Post Producer Conform and Timed Text Conform are then combined into a production media file downstream or in other Vantage workflows, using for example, Flip64 or Timed Text Flip configured with Same As Source output.

Configuration of a Timed Text Conform action includes selection of an input file and adding and configuring one or more output files, by format.

Note: Demo Mode - The Timed Text Conform action is fully functional, with watermark, for Vantage domains that are not licensed for this option. The letters DEMO replace existing characters in each caption or subtitle.

Using This Action in Cloud Mode

This action is Cloud capable. Actions placed into Cloud mode are executed remotely in Vantage Cloud. For additional details, refer to the Vantage Cloud User Guide on the Telestream website.

Common Use Case

A typical use case is that you have converted an IMF or a trigger file to CML using a Compose action in a Vantage workflow (or some other means) and you need to transfer the captions to the output in a media production transcoding workflow.

You have media files of a 30 minute show and two commercials (A and B), all three with associated SCC files. The CML specifies that you want the first 10 minutes of show, commercial A then B, 2nd 10 minutes of show, commercial B then A, last 10 min of show, then commercial A only.

The action parses the CML, identifying subtitle sequences that are referenced, and then stitches them together in an isolated subtitle/captions file, according to the specifications in the CML. An action such as Flip64 or Timed Text Flip downstream (or in another workflow) uses the same source CML to stitch the media itself and generate the appropriate output file, inserting the SCC into the production media or associating the IMSC/MCC file or files as a sidecar file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuring this Action

To configure this action, add one ore more input file types to process. Add one or more output files (by type) to generate, and configure them. Save the action and close the inspector.

Input Media File Nickname. Specifies the media file to process, by nickname. The file must have been ingested or created upstream in this workflow and identified by a nickname.

Output Components

Outputs. Select the output caption file type(s) to produce using the Add Output (Plus sign) icon at the right side of the Output panel. Select one output type for each caption file you plan to produce (multiple supported).

Timed Text Flip Action

The Timed Text Flip action automates caption file-type conversions, extracts caption data from media with embedded captions, creates subtitle overlay graphics, and manipulates caption data timecodes to match media.

This action is part of the Timed Text group and is executed by the Vantage Timed Text Service. The actions in the Timed Text group are all optional, licensed features of Vantage.

Note: Demo Mode - the Timed Text Flip action is fully functional, with watermark, for Vantage domains that are not licensed for this option. The letters DEMO replace existing characters in each caption or subtitle.

Using This Action in Cloud Mode

This action is Cloud capable. Actions placed into Cloud mode are executed remotely in Vantage Cloud. For additional details, refer to the Vantage Cloud User Guide on the Telestream web site.

Configuring this Action

To configure the Timed Text Flip action, follow these steps:

1. Add one or more input components by file type using the Add Input (Plus sign) icon at the right side of the Input panel, and configure them for processing. Add a Media input file when you want to insert caption data into it, using a Same as Source output.

2. Add one or more Output components by file type, to generate either a caption file or subtitle overlay graphic from the decoded caption or subtitle data, and configure them. Add a Same as Source output to insert caption data into an input video file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transform Action

The Transform action is part of the Metadata group, and enables you to transform metadata using XSLT, and to transform metadata between attachments and Vantage labels.

For example, you can transform a given XML file (attachment) with the specified XSLT to generate another XML attachment. Or, you can convert a Vantage label from one form to another.

Note: You can only use style sheets that have been implemented in the Vantage domain database - you can't select an XSL style sheet from a file system. You manage your XSL style sheets using the Vantage Management Console (Vantage Domain > Workflow Design Items > Style Sheets).

Before the Transform action can execute, it must be configured using the inspector.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings.

Inspector Wizard

Select What To Do. Specifies the type of transformation you want to perform.

Next. Displays the next inspector panel.

Utilization Action

The Utilization action is part of the Common group, and enables you to calculate various metrics to indicate the current utilization of the Vantage domain in general, and certain transcoding actions, reporting the result in variables. The primary purpose of the Utilization action is to generate a metric which represents a load estimation for a particular resource in your domain, from which other decisions may be made.

This action emits an integer variable with a value which represents a percentage of utilization for each checked metric. The variable can be used in downstream Decide actions to control the flow of work through the workflow.

For example, if you want to route IPTV VOD actions based upon current resource utilization to an on-premises resource (for example, a local domain server running the IPTV VOD service) or to a Cloud Based IPTV VOD resource, you can submit a job to a workflow which immediately executes a Utilization action that tests the IPTV VOD load.

If the result is lower than the expected threshold, the workflow can trigger an IPTV VOD action configured to execute on local resources. However, if the load is higher than the threshold, the workflow can trigger an IPTV VOD action configured to run in Cloud mode and transcode the media in Vantage Cloud.

The utilization (load) is calculated in two ways:

Domain CPU Utilization

For domain utilization (CPU), the reported utilization load is the average CPU load for each server in the domain. The utilization is normalized across all servers by the number of cores, dividing each server's reported CPU utilization by the number of cores and summing this value for all servers in the domain to obtain a total load. Next, the total load is divided by the total number of cores in the domain to provide a normalized utilization percent.

For example, if a 32-core server is running at 80% utilization and a second, 2-core server is running at 100% utilization, the domain utilization is reported as 81%:

(32 * 80%) + (2 * 100%) = 2760.

2760 / 34 = 81.

The total load is 2760. Thus, 2760 / 34 cores = ~81% utilization

If you simply aggregated each server load (80% + 100% / 2 = 90%), this would yield an inaccurate assessment, because it treats all servers as equal when they may be quite different.

Encoder Action Utilization

For encoder action utilization (All Encoders and specific encoder actions), the reported utilization load is defined as (# Active + # Queued) / Capacity.

For example, a Transcode service with a capacity of 6 that is currently running 2 jobs would have a utilization of 33% (2 / 6). An Edit service with a capacity of 6, that is

currently hosting 6 jobs and has 6 jobs queued would have a utilization of 200% ((6 + 6) / 6).

Inspector Wizard

Check each metric you want calculated, and select the variable to update and publish.

Domain Utilization (CPU). Specifies the current load on the local domain servers.

Domain Utilization (All Encoders). Specifies the current load on the services supporting all transcoding actions.

Domain Utilization (Edit). Specifies the current load on all Edit services supporting the Edit (Playlist) category of actions.

Domain Utilization (IPTV VOD). Specifies the current load on all IPTV VOD services supporting the IPTV VOD action.

Domain Utilization (Multiscreen). Specifies the current load on all Multiscreen services supporting the Multiscreen action.

Domain Utilization (Transcode). Specifies the current load on all Transport services supporting the Transcode category of actions.

Domain Utilization (Analysis). Specifies the current load on all Analyze services supporting the Analyze category of actions.

VidChecker Action

The VidChecker action is an optional, licensed feature which enables broadcasters to integrate VidChecker, automated QC and intelligent automated correction, directly in Vantage workflows.

VidChecker is used for checking file-based video before and after distribution, and for checking files received from post production and content distributors to ensure that file, video and audio parameters and levels are correct and ready for broadcast.

Note: VidChecker users must guarantee that all templates for all VidChecker nodes being utilized are replicated out to all of the VidChecker servers. You cannot have VidChecker servers running with different sets of templates. Running a job through VidChecker workflows accessing VidChecker servers using different sets of templates may result in a VidChecker session failure.

Note: Multiple versions of VidChecker may be used in Vantage. For best results, always select and supply all three variables or the job may end in a VidChecker session failure. Also, be sure to enable the Results variable to generate a variable and assign a variable name, then click Save. Running a job through workflows with the VidChecker action configured with Results disabled causes a VidChecker session failure.

Watch Action

The Watch action is an origin action, part of the Monitor group, which runs outside the context of a job. Thus, a Watch action can only be used as the first action in a workflow. Watch actions run when the workflow is activated and during the active time frame, if specified.

Watch actions are executed by the Monitor Service.

A Watch action continually monitors the target directory on the specified file system for new files - you can choose to monitor for media files or other files associated with a media file - referred to as an attachment. Configure a Watch action with the Media option when you want the file transcoded or analyzed. Configure Watch with the Attachments option when you are operating on the attachment file in ways other than transcoding or analysis. (Attachments files must be present before the associated media can be submitted for processing with this workflow.)

A Watch action initiates a job each time a new media file is discovered and passes control to the next action in the workflow. An Associate action - unlike a Watch action - only executes in the context of a running job. It runs until it has identified the file it is configured to look for, and then it passes control to the next action in the workflow. Associate actions are not origin actions - they cannot be the first action in a workflow, because they are not designed to submit jobs.

Independent of the Watch action configuration, you can also submit all media from its watch folder for processing in the workflow. With the workflow activated, in the Monitor status tabs, right-click on the origin action of the workflow and select Process Existing Files.

This action is Open Workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open Workflows must also be enabled for the current workflow and in the Vantage Management Console Settings.

Details

Attachment Files is a licensed option. If the Attachment Files license is not present, this feature is not enabled in this domain.

Some Media systems are also a licensed option. Access to media systems that are not licensed is not enabled in this domain.

Typically, you start a workflow with a Watch action, and configure it to identify either media files or attachments (based upon your workflow requirements). When the workflow is enabled, the Watch action runs indefinitely (or during specified time periods, if specified), identifying new files, submitting jobs, and passing control to the next action in the workflow. You can add any number of Associate actions, which will start, and hold control of the job until they identify the file they have been configured for, then pass control to the next action in the workflow.

Before the Watch action can perform its monitoring task, it must be configured using the inspector.

Actions
Watch Action

Workorder Action

The Workorder action enables automated submission of multiple jobs in batches. For example, you can use a workorder-based workflow to process multiple media files, without manually adding the files to a target directory - instead, you submit a workorder file, which contains a job entry for each media file you want to process. The Workorder action extracts each job entry and submits a separate job. Workorder files are a simpler, automated submission alternative to job submission via the Vantage SDK.

Note: At least one workorder scheme must be created (either directly in the Workorder action or in the Vantage Management Console) in order to properly identify the workorder schema and submit the jobs in a Workorder action-based workflow.

The Workorder action is part of the Monitor group, and is an origin action, which runs outside the context of a job. Thus, a Workorder action can only be used as the first action in a workflow. Workorder actions are executed by the Monitor Service.

Workorder actions run when the workflow is activated and during the active time frame, if specified.

A Workorder action continually monitors a target directory for new workorder files. It initiates one or more jobs each time a new workorder file is discovered (based on the number of jobs in the file) and passes control to the next action in the workflow.

A Workorder file is a text file containing one or more work orders, or job descriptions. The format of workorder files is CSV-based. Each job description is comprised of a fully-qualified reference to one or more media files, attachments, plus variables-all the input needed for the workflow performing the processing.

Jobs may be of any type, including Post Producer jobs, where the job identifies a CML file for processing. (Post Producer jobs require a special license.)

While workorder files may be manually created (in an Excel spreadsheet, or a text editor of some kind, for example), ideally a system component responsible for submitting media to Vantage for processing will dynamically and automatically create workorder files and deliver them to the target share for submission and processing. Workorder files must be created to conform to the schema specified in the selected workorder scheme.

Details

To submit a batch of jobs to a workflow, you create a workflow that starts with a Workorder action, and configure it to use a specific scheme and other details. Create and configure the rest of the workflow to meet your processing requirements. The design of your workflow will determine the specifications of the workflow scheme you create in the console. You can create a scheme that submits one or more media files, attachments, and variables to be utilized in your workflow.

For each media file, attachment, and variable you require in your scheme, specify and configure them in the Workorder action inspector.

Configuration

Workorder File System

Select the Workorder File System. Select a supported file system to monitor for incoming workorder files.

Next. Click Next to transition to subsequent configuration panels.

OR Select a Vantage Folder. Optionally choose a Vantage address folder location rather than a file system. Select an existing folder from the list or create/delete/edit another one by clicking on the Create/Edit/Delete Vantage Folders button.

Next. Click Next to proceed to the next panel.

Actions
Workorder Action

Analyze Action Media Analysis Filters

Vantage provides a comprehensive set of media analysis filters that allow you to examine specific characteristics of your media and assist you in applying filters intelligently.

The filters described here are implemented in the Analyze action.

Analysis Filters

Advanced Audio Measurement Filter

Ancillary Data Detection Filter

Application Specific Metadata Filter

Audio Track Language Tags Filter

Black Detection Filter

Color Data Filter

Color Levels Analysis Filter

Curtain Detection Filter

Dolby Atmos Analysis Filter

Dynamic Ad Insertion Analysis Filter

*DolbyE Detection Analysis Filter*Switch

Dolby Vision Filter

Duration Filter

File Properties Filter

Interlacing Detection Filter

Letterbox Detection Filter

Level/Gamut Check Filter

Level/Gamut Check (High Bit Depth) Filter

Light Level Filter

Light Level Comprimato J2K CUDA Filter

Macroblock Detection Filter

Media Properties Filter

Omneon User Data Filter

PSNR Filter

Scene Change Analysis Filter

Slate/Spot Analysis Filter

SSIM Filter

Telecine Cadence Analysis Filter

Telecine Cadence Analysis 2025 Filter

Telecine Detection Filter

Timecode Analysis Filter

VMAF Analysis Filter

Advanced Audio Measurement Filter

The Advanced Audio Measurement filter analyzes 44.1KHz or 48KHz audio in the specified input media file and performs a number of measurements related to audio loudness.

This filter performs analysis on selected items, and assigns the results data to variables which can be used in downstream actions for decision-making or as input data for the Audio Levels filter during transcoding. The Audio Levels filter can use this data to adjust media levels to match a specified audio loudness target.

Note: Only 44.1KHz and 48KHz sample rate audio is supported and is analyzed by this filter.

Note: For each control, optionally click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

General

Relative Loudness Gate. Specifies the loudness gate to be used as silence, set as default at the -10dB level specified in the EBU R128 and ITU-R BS. 1770-2 standards. Generally, the default value should not be changed.

True Peak Detection Version. Specifies which version of ITU BS 1770 standard should be employed.

Channel Map

Channel 1-32. Specifies which audio channels in a source file should be measured.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Ungated Loudness. Measures the Ungated Integrated Loudness of the audio, as defined in ITU-R BS.1770-1 and reports the decibel as a decimal value.

Loudness (-70dB Gate). Measures the intermediate value in the EBU R128 / ITU-R BS.1770-2 gated loudness measurement and reports the decibel as a decimal value.

Relative Gated Loudness. Measures the long term, integrated loudness measurement defined by EBU R128 / ITU-R BS.1770-2 and reports the decibel as a decimal value. This variable is used to supply the decibel level to the Source Loudness parameter in the Audio Levels filter.

Max Momentary Loudness. Measures the maximum ungated loudness, measured over a 0.4-second period and reports the decibel as a decimal value.

Max Short-term Loudness. Measures the maximum ungated loudness, measured over a 3-second period and reports the decibel as a decimal value.

Peak Signal. Measures the level of the peak audio sample in the uncompressed digital audio stream and reports the decibel as a decimal value.

True Peak Signal. Measures the True Peak of a digital audio stream when converted to an analog signal for playout may be slightly higher than the value indicated by Peak Signal as defined previously and reports the decibel as a decimal value.

The True Peak variable is generated using the True Peak measurement techniques outlined in Annex 2 of ITU-R BS.1770. This is the variable that should generally be bound to the Source Peak parameter in the Audio Levels filter.

Loudness Range. Measures the loudness range of the audio as defined in EBU R128 and reports the decibel as a decimal value. This measurement is primarily informational and is not intended to be bound to any parameter in the Audio Levels filter.

Note: In order to use Dialog Loudness, Dialog Percentage, or Measured Dialnorm, the channel map must be configured in a certain manner under the following conditions:

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1. If one channel is selected, the channel can not be identified as LFE.
2. If two channels are selected, they must be Left and Right.
3. If more than two channels are selected, they must include Left, Right, and Center.

Dialog Loudness. Measures the ITU-R B.S.1770-1 ungated loudness measurement that is applied only when there is dialog in the audio stream and reports the decibel as a decimal value.

Dialog detection is performed by the Dolby(R) Dialog Intelligence(TM) algorithm. This is the primary loudness measurement technique advocated by the ATSC in their Recommended Practice A/85. This is the variable that should generally be bound to the Dialog Loudness parameter in the Audio Levels filter.

Dialog Percentage. Measures the percentage of the source audio stream was found to contain dialog and reports the decimal value. This can be used to disable dialog based loudness correction in the case where very little dialog is present in the source audio. This is the variable that should generally be bound to the Dialog Percentage parameter in the Audio Levels filter.

Measured Dialnorm. Measures the metadata parameter that controls playback gain within the Dolby Laboratories Dolby Digital (AC-3) audio compression system and reports the integer value. Dialnorm is an integer value with range 1 to 31 corresponding to a playback gain of -30 to 0 dB (unity) respectively.

Ancillary Data Detection Filter

The Ancillary Data Detection filter analyzes the specified input media file for various types of ancillary data and generates captions/subtitles as attachment files of the results. It also analyzes the file(s) for specific items and publishes the results in variables.

Note: For each control, optionally click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

Publish Metadata

Check the caption/subtitle metadata to extract and generate as an attachment file (SMPTE 2052 | WebVTT | SCC Field 1 | SCC Field 2 | MCC | First Frame Metadata Description) and specify the file name or nickname. These files can be used in downstream actions to add captions/subtitles to your output.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Blank/Empty Captions Detected. Analyzes media to determine if all captions are blank/empty and reports True or False.

EIA-608 | EIA-708 Captions Detected. Analyzes media for 608 | 708 captions and reports True or False.

Active Format Descriptor Detected. Analyzes media for AFD data and reports True or False.

Active Format Descriptor Value. When AFD data detected, reports the AFD value as an integer.

AFD 16x9 Bit. When AFD data detected, reports True or False for the 16x9 bit setting.

Timecode Detected. Analyzes media for the presence of a timecode and reports True or False.

LTC Timecode Detected. When a timecode is detected, reports True or False for Linear/Longitudinal timecode (SMPTE-12M).

VITC-1 | VITC-2 Timecode Detected. When a timecode is detected, reports True or False for VITC-1 | VITC-2 timecode.

Start Timecode. Reports the starting timecode as a timecode value. Most media files have more than one timecode. See table below for order of reporting priority.

LTC Timecode. When LTC timecode is detected, reports the starting timecode as a TimeCode value.

VITC-1 | VITC-2 Timecode. When VITC-1 | VITC-2 timecode is detected, reports the starting timecode as a TimeCode value.

Drop Frame Detected. Analyzes the timecode for drop-frame; when detected, it reports True. Otherwise, reports False.

Start Timecode Order of Importance

GXF

MXF

MOV

DIF

LXF

MPEG2 GOP

MPEG2 GOP Header

MPEG4 Sony

GXF Striped

GXF Track

Local

MXF File Package

MXF Material Package

MXF Package

MXF Physical Package

MXF System

RS422

TIFO

CDP

ESI 1

ESI 2

LTC

VITC1

VITC2

SEI

Ancillary

VITC

Other

Application Specific Metadata Filter

The Application Specific Metadata filter analyzes the specified input DPP media file and extracts the AS-11 metadata and generates an XML file containing the AS-11 DPP metadata.

Note: For each control, optionally click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

AS-11

Generate AS-11 Attachment. Check to publish the XML file with DPP metadata as an attachment. Specify a nickname for the report if you plan to operate on the report downstream (for example, using a file action to save the file or a Register action to register this job and its assets in a catalog), or specify a fully-qualified path and file name to save the file in this action.

Audio Track Language Tags Filter

The Audio Track Language Tags filter analyzes the specified input media file to identify the language code for selected audio tracks (1 through 32).

If a language code is present on an audio track, it extracts the three-character ISO 639-2 language code and updates the corresponding text variable. When analysis is complete, the filter publishes the selected variables.

The variables you publish can be used in applications where you are re-mixing media for use in specific countries and regions to include a specific language, for example.

Audio Track (1... 32). Check to analyze the selected audio track and publish its tag data in the specified text variable, for use in downstream actions.

Black Detection Filter

The Black Detection filter analyzes the video and (optionally audio) in the specified input media file and optional reference media file, to determine the boundaries between segments that contain black (and optionally silence) and segments that contain active video/audio.

Up to 15 active segments (non-black regions) of the video can be reported, using variables. If you need to report on more segments, add multiple Analyze actions and configure each filter to divide and process a subset of segments.

You can specify any measurement to examine, and select a variable to assign the value of the measurement for use in downstream actions. Variables generated by this filter may be used to trim the file, or to make decisions based upon the content duration or number of active segments found.

Note: For each control, optionally click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

General

Blackness Threshold. Specifies (as Normalized Luma) the level of a pixel considered to be black. Higher numbers increase the brightness of pixels considered to be black.

Black Percent Threshold. Specifies the threshold for the percentage of black pixels over which the image will be considered black.

Maximum Black Frames. Specifies the maximum number of sequential black frames that are permitted in video frame intervals.

Report Black Segment Information. When checked, data for Black Segments is included in the report specified in Analyze Settings. Unchecked by default.

The analysis provides an ActiveSegment element for each content segment, and a BlackSegment element for each black segment (as defined by the criteria set in your action). Each ActiveSegment and BlackSegment provides attributes with frame numbers, seconds, and timecode values for the first frame, last frame, first I Frame, last I Frame, and mid-point frame and I Frame closest to the mid-point.

To determine how best to utilize this data, open the file and review it.

Consider Audio. When checked, black frames with audio (above the silence threshold) will be considered active content (not black) frames.

Silence Threshold. Specifies in decibels, the silence threshold under which the audio will be considered silent. Higher numbers indicated that louder audio is considered silent.

Maximum Audio Gap. Specifies the maximum number of silent frames that are permitted in a clip.

Ignore Margins for Black Detection

When checked, specifies margin dimensions in the frame, beyond which no analysis should be performed.

Left | Top | Right |Bottom Margin. Specifies (in pixels) the distance of the margin line from the related frame boundary.

Active Segment

Optionally, specify the start and/or duration of the media where you want this filter to perform its analysis. These options limit the amount of media that is analyzed. If both are unchecked, the entire file is analyzed.

Start of Active Segment. When checked, specifies the starting time or timecode.

Duration of Active Segment. When checked, specifies the duration as time or timecode.

Active Video Regions

Active Video Region for PAL 608 x 720 | NTSC 512 x 720 | NTSC 486 X 720. Specifies limits on the search to video regions of the frame by ignoring VBI and other lines.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

First Content Start Time. Detects when the first non-black segment starts, and reports the timecode.

Last Content Start Time. Detects when the last non-black segment ends, and reports the timecode.

Total Elapsed Time. Calculates the total elapsed time between the first detected active content and the last and reports the duration as a timecode.

Black Frame Count. Counts the total number of black frames and reports it as an integer.

Active Segment Count. Counts the total number of non-black segments and reports it as an integer.

Active Segment 1...15 Start | End |Duration Time. Reports the start, end, and duration timecode. Up to 15 segments can be reported.

Color Levels Analysis Filter

The Color Levels Analysis filter analyzes the specified input media file and optional reference media file, to determine if it contains any pixels (referred to as an *outlier pixel*) in the luminance/chrominance plane which exceeds the user-specified valid range. The results are reported in selected variables.

Note: For each control to utilize, optionally click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

General

YMax/YMin, UMax/UMin, Vmax/VMin). Specifies the minimum and maximum value of luminance and chrominance pixel (Y/U/V) and the maximum number of outlier pixels. The filter can calculate the total number of outlier pixels for each plane.

Active Segment

Optionally, specify the start and/or duration of the media where you want this filter to perform its analysis. These options limit the amount of media that is analyzed. If both are unchecked, the entire file is analyzed.

Start of Active Segment. When checked, specifies the starting time or timecode.

Duration of Active Segment. When checked, specifies the duration as time or timecode.

Active Video Regions

Active Video Region for PAL 608 x 720 | NTSC 512 x 720 | NTSC 486 X 720. Specifies limits on the search to video regions of the frame by ignoring VBI and other lines.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Out-of-range Pixel Count. Reports the total number of out of range pixels identified in the clip, based on the minimum and maximum values specified in the general controls.

Out-of-range Y | U | V Pixel Count. Reports the total number of out of range Y, U, and V pixels identified in the clip, based on the minimum and maximum values specified in the general controls.

Curtain Detection Filter

The Curtain Detection filter analyzes the specified input media file to determine how many curtains are present in the media. Variables generated by this filter may be used to crop the file or to make decisions based upon the content duration.

In addition to detecting curtains, this filter can also generate suggested crop values to remove black edges on the left or right of the media. These values are presented as variables that may be used during a transcode, by binding them to a Crop filter.

By default, suggested crop values ensures that all non-black media is preserved after cropping.

Note: For each control, optionally click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

General

Blackness Threshold. Specifies (as Normalized Luma) the level of a pixel considered to be black. Higher numbers increase the brightness of pixels considered to be black.

Minimum Curtain Width. Specifies the minimum width (in pixels) to be considered a curtain.

Define Behavior for Multiple Differing Curtained Segments

Some distribution channels require the removal of black edges for a specified percentage of the final timeline.

This filter can meet this requirement by checking Define Behavior for Multiple Differing Curtain Segments, and then specifying the percentage of material after a crop which should not have black edges. For example, a media file is analyzed and the parameter is set to 80%. The suggested crop values, when applied, results in a file that has black on the left and right for no more than 20% of the total timeline - that is, 80% of the output has non-black edges.

Suggested Values Ensure Curtain Cropping For. Specifies that the filter should dynamically choose a left and right crop value, so that the minimum specified percentage of the media being cropped has no black on left or right.

Active Segment

Optionally, specify the start and/or duration of the media where you want this filter to perform its analysis. These options limit the amount of media that is analyzed. If both are unchecked, the entire file is analyzed.

Start of Active Segment. When checked, specifies the starting time or timecode.

Duration of Active Segment. When checked, specifies the duration as time or timecode.

Active Video Regions

Active Video Region for PAL 608 x 720 | NTSC 512 x 720 | NTSC 486 X 720. Specifies limits on the search to video regions of the frame by ignoring VBI and other lines.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Suggested Crop Left | Right. Reports the value chosen and applied by the filter when cropping curtains and the Suggested Values Ensure Curtain Cropping For option has been enabled.

Curtains Detected. Reports True if curtains are detected by the filter, otherwise reports False.

1x1 | 4x3 | 14x9 | 16x9 | 2.39x1 Content Detected. Reports the type of content detected by the filter.

Dolby Atmos Analysis Filter

The Dolby Atmos Analysis filter is used for loudness analysis of a Dolby Atmos Master File (DAMF) to create variables that are used by the Dolby Atmos encoder in Flip64.

The Dolby Atmos Analysis filter is an optional feature which requires that you have an Analysis Pro License activated in your domain to utilize this filter.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

General

These two controls are utilized for Channel-Based Immersive Audio input support:

Height Trim Type. Specifies in decibels, the value for Height Trim.

Surround Trim Type. Specifies in decibels, the value for Surround Trim.

Metering Mode

Metering Mode. Specifies the metering mode to use. This parameter specifies the weighting (A-weighting | K-weighting) used to estimate perceived loudness and whether dialogue should serve as the anchor element for measuring loudness.

Speech Threshold. Specifies the speech threshold. The parameter specifies what percentage of a program must consist of speech in order to use speech-gated loudness measurement. If the program contains less than the specified percentage of speech, level-gated loudness measurement is used. Default value is 15.

Dialog Intelligence. When checked, dialog intelligence is applied when applying speech-gating. Checked by default. This parameter enables or disables Dialogue Intelligence, a feature that identifies and analyzes dialogue segments within audio as a basis for speech-gating.

Note: Per Dolby specification, if Metering Mode is set to either ITU-R BS.1770-1 or Leq (A) the Dialogue Intelligence parameter is set to enabled and excluded from the user interface.

Variables

Integrated Level Gated Loudness. When checked, generates a decimal variable that specifies the average measured loudness in LKFS with level-gating.

Integrated Speech Gated Loudness. When checked, generates a decimal variable that specifies the average measured loudness in LKFS with speech-gating.

Note: If the Speech Threshold percentage specified isn't met, the default decimal value generated for Integrated Speech Gated Loudness will be -120 LKFS.

Integrated Loudness. When checked, generates a decimal variable that specifies average measure loudness in LKFS. This is either speech-gated or level-gated loudness and is based on audio and speech threshold settings specified previously.

Integrated Loudness Range. When checked, generates a decimal variable that specifies the integrated loudness range across the entire file.

True Peak. When checked, generates a decimal variable that specifies true peak loudness in the input file. Note that this value may exceed the sample peak value based on a predicted wave form between samples.

Gating Used. When checked, allows specification of the type of gating used for integrated loudness. These integer values are passed to downstream Vantage actions which support Dolby Atmos encoding. Options are:

- (-1) Invalid

- (0) Ungated

- (1) Speech Gated

- (2) Level Gated

Dynamic Ad Insertion Analysis Filter

SCTE messages are used by broadcast and cable systems to communicate timing and descriptive information to downstream systems. SCTE message information is carried in the video signal.

SCTE triggers are messages which are used for real-time insertion of ads in broadcast and cable operations. These triggers, inserted at the point of origination, provide downstream ad insertion systems with information needed to insert local ads into the live stream during playout.

The trigger messages in the signal are saved when the output is recorded during broadcast, and can be extracted from the file to automate the VOD Dynamic Ad Insertion process.

The Dynamic Ad Insertion Analysis filter extracts SCTE trigger data from the input video (Transport Stream PIDs (SCTE 35) and Broadcast SMPTE 436 ANC data (SCTE 104)) and generates an entry in an XML file describing each event. The XML output of the Analysis filter is utilized by the Compose action to create a CML document for Post Producer to create the stream-conditioned output and DAI metadata for the VOD DAI platform.

The Dynamic Ad Insertion Analysis filter creates an element for each SCTE message (for example, a program start, end, or break) on a frame. Two time references to the break location are provided. The first is an offset from the start of the clip and the second is the extracted timecode.

The generated DAI Trigger XML file can be saved as a file attachment, or you can assign a nickname for processing by the SCTE Trigger Composer in the Post Producer Compose action, and translated into a Composition (CML document) for DAI processing with the Post Producer DAI Conform Action.

The Conform action generates Conform As-Run CML output from which the Chronicle action produces DAI metadata for VOD ad insertion systems.

Analyze Settings

The settings in the Analysis Settings section are ignored in this filter.

Publish Metadata Settings

Generate Trigger Attachment. Check Generate Analysis Result Attachment to generate the XML file, and specify a nickname or file name.

DolbyE Detection Analysis Filter

The Dolby E Detection Analysis filter analyzes the specified input media file for specified Dolby E metadata and assigns the value to a variable, as well as generating a report.

Note: For each control, optionally click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

DolbyE Detected Flag. If the filter detects DolbyE audio, sets the specified variable to True. Otherwise, the variable is set to False.

DolbyE Channel Stream Count. Counts the number of Dolby E streams and reports the total count in an integer variable.

DolbyE Audio Type. Determines the type of audio in the DolbyE pair (16-, 20-, or 24-bit) and reports it as an integer value in the variable.

DolbyE Detection Analysis Filter

The Dolby E Detection Analysis filter analyzes the specified input media file for specified Dolby E metadata and assigns the value to a variable, as well as generating a report.

Note: For each control, optionally click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

DolbyE Detected Flag. If the filter detects DolbyE audio, sets the specified variable to True. Otherwise, the variable is set to False.

DolbyE Channel Stream Count. Counts the number of Dolby E streams and reports the total count in an integer variable.

DolbyE Audio Type. Determines the type of audio in the DolbyE pair (16-, 20-, or 24-bit) and reports it as an integer value in the variable.

Stream 1| 2 | 3 | 4 DolbyE Detected Time. Detects when the first DolbyE audio stream starts, and reports the timecode.

Stream 1| 2 | 3 | 4 First DolbyE Channel. Reports the first DolbyE channel number of the first DolbyE stream as an integer.

Stream 1| 2 | 3 | 4 Program Configuration. Indicates the identity of program configuration of the DolbyE stream as an integer. See the tooltip for program sequence for each program identified.

Stream 1| 2 | 3 | 4 Program Count. Indicates the program count of the first DolbyE stream as an integer.

Stream 1| 2 | 3 | 4 Channel Count. Indicates the channel count of the first DolbyE stream as an integer.

Stream 1| 2 | 3 | 4 Dialnorm. Indicates the dialnorm of the first program of the first DolbyE stream as an integer.

Dolby Vision Filter

The Dolby Vision filter processes input CPL XML or video track (MXF) files from a Dolby Vision IMF package containing Dolby Vision metadata and extracts the metadata into a separate XML file for use downstream, in other Vantage workflows, or in external systems, typically for re-insertion into the transcoded video.

Note: For each control, optionally click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

General

Output Dolby Vision XML Metadata. Specifies the identity of the generated XML sidecar file by File Nickname | File Name:

> **File Nickname**. Specifies the user-specified nickname of the file, for use in downstream actions or other Vantage workflows.
>
> **File name**. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

The Use of this filter requires an Analysis Pro License. Notifies user that in order to utilize the Dolby Vision filter, you must have an Analysis Pro License installed in your Vantage domain.

Generate Dolby Vision Metadata. When checked, the filter generates its own Dolby Vision metadata, using the settings specified and writes them to the sidecar XML metadata file, instead of extracting the metadata from the source input file. If unchecked, the filter extracts the metadata from the source input file and writes it to the sidecar XML metadata file. Configure these controls:

> **Mastering Display Type**. Specifies the Predefined Mastering Display Type for this file.
>
> **Number of Threads**. Specifies the maximum number of threads; used to throttle the processor to avoid overuse of server resources. -1 sets the number of threads based on cores; 0 dispbles threading.

XML Version. Specifies the Dolby Vision XML metadata version to generate. When displayed, configure these controls:

> **Content Type**. Specifies the Level 1 analysis content type for this file.
>
> **White Point Type**. Specifies the Level 11 white point type (in Kelvin) for this file.

Long Play Analysis. When checked, conducts long play analysis. Configure this control:

> **Temporal Filter half-window Size**. Specifies the content type for this file.

Duration Filter

The Duration filter analyzes the specified input media file to determine the exact duration of the file, and reports it in the timecode format you specify.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Ignore Filler Frames. When checked, filler frames (which have a duration but contain no data and are often added during muxing for audio video sync) are not counted in duration or frame count results. Unchecked by default.

Frame Count. Counts the number of frames in the input file and reports the integer value in the variable.

Content Duration in Seconds. Calculates the duration of the input file and reports the integer value in seconds in the variable.

Exact Content Duration in Seconds. Calculates the duration of the input file and reports the decimal value in seconds to 15 significant digits in the variable.

Content Duration. Calculates the duration of the input file and reports the duration in timecode format in the variable.

File Properties Filter

The File Properties filter analyzes the specified input media file to extract certain file-related metadata, which you can assign to a variable for use in downstream actions.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

File Hashing Settings

Make Hashes Lowercase. When checked, the hash string is converted to all lower-case letters. Otherwise, the hash string is returned unmodified.

General

File Name. Publishes the file name, including the extension (for example, *mymovie.mov*) in a text variable.

File Extension. Publishes the extension portion only of the file name (for example, *mov*) in a text variable.

File Size. Publishes the size of the file in bytes (for example, 638303117) in a size variable (size variables are simply large integers).

File Path. Validates and publishes the path as a URI including the file name with extension (for example, a local *file:///C:/VantageInput/mymovie.mov* or a network file: *file://networkshare/VantageInput/mymovie.mov)* in a path variable.

File Modified Date. Publishes the date time stamp indicating the last time the file was accessed for modification - or creation if it did not previously exist - in a date variable. For example, *7/28/2016 10:51:06 AM*.

File Hashing

Check each of the hashes that you want executed against the file: MD5 | SHA-1 | SHA-256. Performs the selected hashes, and if Make Hashes Lowercase is checked (above), converts upper-case letters to lower-case. Publishes the hash string in a text variable.

Interlacing Detection Filter

The Interlacing Detection filter is a video analyzer which determines, based on a frame-by-frame analysis, whether the video is progressive or it is interlaced upper-field or lower-field first.

It detects interlaced video and field dominance by performing statistical analysis of field luminance correlation on each frame.

This analyzer also reports a confidence level which indicates the certainty of the reported result. Because field correlation is only a useful measure in scenes that contain motion, video that contains virtually no motion will report a low confidence level.

Note: For each control, optionally click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

General

Interlacing Motion Threshold. Specifies the relative motion threshold for interlacing detection. Increasing the value of the threshold increases the likelihood that the frame is categorized as progressive, instead of an interlaced frame with field motion.

Active Segment

Optionally, specify the start and/or duration of the media where you want this filter to perform its analysis. These options limit the amount of media that is analyzed. If both are unchecked, the entire file is analyzed.

Start of Active Segment. When checked, specifies the starting time or timecode.

Duration of Active Segment. When checked, specifies the duration as time or timecode.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Progressive Video. Determines if the video is progressive or interlaced. For progressive, the filter reports True; for interlaced it reports False.

Top Field First. Determines if the video is top or lower field dominant. For upper field first, the filter reports True; for lower field first it reports False.

Confidence. The filter makes a quantitative judgment on its analysis and reports it as an integer (range: 0 to 100) where 0 is no confidence and 100 is absolute certainty.

Letterbox Detection Filter

The Letterbox Detector filter analyzes the specified input media file to determine how many lines of black are present at the top and bottom of the frame.

In addition to detecting letterboxing, this filter can also generate suggested crop values to remove black edges on the top and bottom of the media. These values are presented as variables that may be used during a transcode, by binding them to a Crop filter.

By default, suggested crop values ensure that all original non-black media is preserved after cropping. However, some distribution channels require the removal of black edges for some percentage of the final timeline. This filter can accomplish this by selecting Define behavior for media that contains multiple, differing curtain segments, and then specifying the percentage of material after a crop which should not have black edges.

For example, suppose that a media file is analyzed and the above parameter is set to 80%. The suggested crop values, when applied, result in a file that has black on the top and bottom for no more than 20% of the total timeline - that is, 80% of the output has non-black edges.

Note: For each control, optionally click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

General

Blackness Threshold. Specifies (as Normalized Luma) the level of a pixel considered to be black. Higher numbers increase the brightness of pixels considered to be black.

Minimum Letterbox Height. Specifies the minimum height (in pixels) to be considered a letterbox.

Active Segment

Optionally, specify the start and/or duration of the media where you want this filter to perform its analysis. These options limit the amount of media that is analyzed. If both are unchecked, the entire file is analyzed.

Start of Active Segment. When checked, specifies the starting time or timecode.

Duration of Active Segment. When checked, specifies the duration as time or timecode.

Active Video Regions

Active Video Region for PAL 608 x 720 | NTSC 512 x 720 | NTSC 486 X 720. Specifies limits on the search to video regions of the frame by ignoring VBI and other lines.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Suggested Crop Top |Bottom. Determines the number of pixels that the filter recommends should be cropped from the top/bottom and reports it as an integer.

Letterboxing Detected. Determines if letterboxing is in fact detected and reports True. If letterbox is not detected, the filter reports False.

1x1 | 4x3 | 14x9 | 16x9 | 2.39x1 Content Detected. Reports the type of content detected by the filter.

Level/Gamut Check Filter

The Level/Gamut Check filter determines whether or not the incoming media is compliant with various gamut and chroma/luminance level standards (YCbCr, HD 709, SD 601, etc.).

Note: This filter is only operative on 8-bit, MPEG-2 video (as in 4:2:2 video format).

Each activated standard test analyzes and reports on whether or not the video is compliant with the standard, and if not, reports (a) the timecode of the frame which is least compliant, and (b) the percentage of pixels in that frame which are not compliant.

From a pass/fail perspective, some frames may have only a few pixels out of compliance. Specific thresholds may vary based upon your requirements. Consider visually reviewing frames with more than 5% non-compliant pixels.

For level checking, the YCbCr 16-235(240) standard should be used. This analysis examines the color space to ensure that the entire video is within acceptable chroma and luminance levels for broadcast material.

Active Segment

Optionally, specify the start and/or duration of the media where you want this filter to perform its analysis. These options limit the amount of media that is analyzed. If both are unchecked, the entire file is analyzed.

Start of Active Segment. When checked, specifies the starting time or timecode.

Duration of Active Segment. When checked, specifies the duration as time or timecode.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Timecode of the Frame with the Maximum Percent of Pixels Outside of the YCbCr 16-235(240) | 16-235 709 RGB | 0-255 709 RGB | 16-235 601 RGB | 16-255 601 RGB Range. Reports the timecode of the frame with the highest percentage of pixels that fall outside the range of the specified standard.

Maximum Percent of Pixels Outside of the YCbCr 16-235(240) | 16-235 709 RGB | 16-235 601 RGB | 0-255 709 RGB | 16-255 601 RGB Range. Reports the maximum percentage as a decimal, of the pixels in the maximum frame that fall outside the range of the specified standard.

Broadcast Safe Flag of 16-235 601 RGB | 16-235 709 | YCbCr 16-235(240) Range. Determines if any pixel falls out of the 601/709/YCbCr 16-235(240) range of 16-235 and sets the variable to False. Otherwise, the variable is set to True.

Color Clipping Flag of 601 | 709 RGB. Determines if any pixel falls out of the 601/709 range of 0-255 and sets the variable to True. Otherwise, the variable is set to False.

Level/Gamut Check (High Bit Depth) Filter

The Level/Gamut Check (High Bit Depth) filter operates on video up to 10-bit, and determines whether or not the incoming media is compliant with various gamut and chroma/luminance level standards (YCbCr, HD 709, SD 601, etc.).

Each activated standard test analyzes and reports on whether or not the video is compliant with the standard, and if not, reports (a) the timecode of the frame which is least compliant, and (b) the percentage of pixels in that frame which are not compliant.

From a pass/fail perspective, some frames may have only a few pixels out of compliance. Specific thresholds may vary based upon your requirements. Consider visually reviewing frames with more than 5% non-compliant pixels.

For level checking, the YCbCr 16-235(240) standard should be used. This analysis examines the color space to ensure that the entire video is within acceptable chroma and luminance levels for broadcast material.

Ignore Margins

Top Margin | Right Margin | Bottom Margin | Left Margin. (Default 0) Specifies the pixel boundary line expressed as an integer that defines the region from that side of the frame beyond which the filter should ignore. For example, Right Margin 24 on a 1080 pixel frame defines the right margin boundary at 1056 pixels from the left edge of the frame (independent of the Left Margin value, if any).

Active Segment

When you want to limit the media being analyzed to a clip within, check and specify these two values:

Start of Active Segment. Specifies the timecode at which to start analysis.

Duration of Active Segment. Specifies the duration from start of active segment, expressed as timecode or time (select Time from the FPS menu) at which to stop analysis. When you specify Time, you can specify frames only, as all time code values are relative to midnight.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Percentage of Frames with Out of Range Gamut Pixels. Reports the percentage as an integer, of frames that contain out of range gamut pixels.

Maximum Percent of Pixels in a Frame with Out of Range Gamut. Reports the maximum percentage as an integer, of frames that contain out of range gamut pixels.

Timecode of Frames with the Out of Range Gamut Pixels. Reports the timecode of the frame with the highest percentage of out of range gamut pixels.

Light Level Filter

The Light Level filter calculates Maximum Frame Average Light Level (MaxFALL) and Maximum Content Light Level (MaxCLL) values for HDR10 media.

Note: This filter is only operative on HRD10 video.

MaxCLL is an integer metadata value defining the maximum light level, in nits, of any single pixel within encoded HDR video. MaxCLL should be measured during or after mastering.

MaxFALL is an integer metadata value defining the maximum average light level, in nits, for any single frame within encoded HDR video. MaxFALL is calculated by averaging the decoded brightness values of all pixels within each frame (that is, converting the digital value of each frame into its corresponding nits value, and averaging all of the nits values within each frame).

General

Tolerance Threshold. Specifies as a percentage (0-100 percent expressed as an integer or real number), the tolerance threshold. Zero (0) percent preserves the original CEA-861.3-A behavior. When a non-zero percentage is specified, that percentage of pixels with higher light level value than the rest of the pixels from the frame are ignored when calculating light levels.

Ignore Margins for Light Level Analysis

Enable when you want to establish a margin boundary inside the actual frame, to exclude certain pixel regions from analysis. For example, curtained or pillared material.

Left | Top | Right | Bottom Margin. Specifies a new margin boundary to be used during analysis, in pixels.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Max Content Light Level (MaxCLL). Integer metadata value specifying the maximum light level.

Maximum Frame Average Light Level (MaxFALL). Integer metadata value specifying the maximum average light level.

Light Level Comprimato J2K CUDA Filter

Note: In executing this filter, the Analysis Service uses Comprimato CUDA mode to decompress J2K video samples, achieving performance improvements in the range of 30 percent in sample tests, over the standard Light Level filter. You should use the Light Level Comprimato J2K CUDA filter when you have a Comprimato J2K License. The server executing the action must have a compatible GPU that is supported by the Comprimato CUDA driver. If there is no compatible GPU or when GPU resources are being consumed by other jobs, decompression falls back to CPU compute mode.

The Light Level Comprimato J2K CUDA filter calculates Maximum Frame Average Light Level (MaxFALL) and Maximum Content Light Level (MaxCLL) values for HDR10 media.

Note: This filter is only operative on HRD10 video.

MaxCLL is an integer metadata value defining the maximum light level, in nits, of any single pixel within encoded HDR video. MaxCLL should be measured during or after mastering.

MaxFALL is an integer metadata value defining the maximum average light level, in nits, for any single frame within encoded HDR video. MaxFALL is calculated by averaging the decoded brightness values of all pixels within each frame (that is, converting the digital value of each frame into its corresponding nits value, and averaging all of the nits values within each frame).

General

Tolerance Threshold. Specifies as a percentage (0-100 percent expressed as an integer or real number), the tolerance threshold. Zero (0) percent preserves the original CEA-861.3-A behavior. When a non-zero percentage is specified, that percentage of pixels with higher light level value than the rest of the pixels from the frame are ignored when calculating light levels.

Ignore Margins for Light Level Analysis

Enable when you want to establish a margin boundary inside the actual frame, to exclude certain pixel regions from analysis. For example, curtained or pillared material.

Left | Top | Right | Bottom Margin. Specifies a new margin boundary to be used during analysis, in pixels.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Max Content Light Level (MaxCLL). Integer metadata value specifying the maximum light level.

Maximum Frame Average Light Level (MaxFALL). Integer metadata value specifying the maximum average light level.

Macroblock Detection Filter

The Macroblock Detection filter analyzes the specified input media file to determine whether excessive macroblocking artifacts are present in the file. The filter detects frames with significant macroblocking artifacts and assigns it a *macroblocking level* number which indicates the amount of macroblocking detected.

This level is a weighted combination of the average strength of macroblocking artifacts, including the number of artifacts in a frame compared to the size of the frame.

Different quality thresholds may be desired for different media frame sizes. Generally, the larger the frame size, the higher the acceptable macroblocking level is. For example, a 1080i HD video frame with a level of 30 may be acceptable, whereas a QCIF (320x240) frame with the same level would likely be extremely poor quality.

Telestream recommends that media should be examined visually if either (a) any one frame has a macroblocking level greater than 30 or (b) the average macroblocking for the entire file is greater than 10.

Note: For each control, optionally click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

Active Segment

Optionally, specify the start and/or duration of the media where you want this filter to perform its analysis. These options limit the amount of media that is analyzed. If both are unchecked, the entire file is analyzed.

Start of Active Segment. When checked, specifies the starting time or timecode.

Duration of Active Segment. When checked, specifies the duration as time or timecode.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Average Macroblock. Reports the average of the macroblock levels in each frame of the video as an integer.

Maximum Macroblock. Reports the highest macroblock level detected in the video as an integer.

Maximum Macroblock Timecode. Reports the timecode of the frame with the highest amount of macroblocking.

Media Properties Filter

The Media Properties filter extracts selected media-related metadata that you specify from the specified input media file, and provides its value in a variable.

Note: For each control, optionally click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

General

Index Transport Stream for Bitrate. When enabled, file will be indexed to calculate bitrate if the bitrate cannot be determined from the transport stream header. Enabled by default.

Index for Bitrate When Missing. When enabled, files will be indexed for bitrate if the bitrate cannot be found in container metadata. Disabled by default.

BWF Base Timecode. This timecode value is used to interpret the BWF time reference; defined as the number of samples since midnight.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Omneon User Data Filter

The Omneon User Data filter extracts the first OVN track match data tag from the selected video/audio tracks, and updates the selected variable for use in downstream actions.

Analysis Items

Check each track that you want the filter to analyze and select the variable to be published with the value reported by the filter.

PSNR Filter

The PSNR filter compares the peak signal-to-noise ratio between two files, on a frame-by-frame basis. Peak Signal to Noise Ratio is a value (0 - very different to 100 - identical) which indicates the relative difference between two signals.

One use of PSNR is to compare an original file against a reference version - for example, its newly-transcoded version. Generally, differences between 30 and 50 are considered acceptable for traditional video compression, though lower values may be acceptable for low-bitrate outputs.

When Normalize Reference is enabled in the Analyze action, reference video is normalized to match the input video before comparing peak signal-to-noise ratio. The reference video is checked to see if it's the same format as this input. (Ex. width, height, colorspace, color ordering, planarity etc.)

Note: On non-GPU systems, the use of PSNR in the Analyze action with Normalize Reference enabled may result in high levels of CPU utilization.

Note: For each control, optionally click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

Ignore Margins for PSNR Comparison

In cases where the files to be compared are of different frame sizes, check to specify frame boundaries beyond which the frames should not be analyzed for PSNR.

This option converts the reference input to match the source input, using the specified video processing instructions. It also allows the specification of filters for cases where field dominance is different between input and outputs.

While using this option to compare files of different frame sizes and frame rates can produce useful information about the quality of an output file, it does not produce a true PSNR value. PSNR values generated when using this option will typically be lower than values generated when the files being compared have the same frame size, frame rate and interlacing characteristics.

Left | Top | Right | Bottom Margin. Specifies a new margin boundary to be used during analysis, in pixels.

Active Segment

Optionally, specify the start and/or duration of the media where you want this filter to perform its analysis. These options limit the amount of media that is analyzed. If both are unchecked, the entire file is analyzed.

Start of Active Segment. When checked, specifies the starting time or timecode.

Duration of Active Segment. When checked, specifies the duration as time or timecode.

Active Video Regions

Active Video Region for PAL 608 x 720 | NTSC 512 x 720 | NTSC 486 X 720. Specifies limits on the search to video regions of the frame by ignoring VBI and other lines.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Average Video PSNR. Reports the average of PSNR measured across all the frames in the content as a decimal number.

Global Video PSNR. The sum of all the mean squared errors across the entire pixel space, converted to a PSNR as a decimal number.

Best Video PSNR. The PSNR of the single frame in the content that had the best (highest) PSNR value as a decimal number.

Time Of Best Video PSNR. The timecode of the frame that with the best PSNR.

Worst Video PSNR. PSNR of the single frame in the content that had the worst (lowest) PSNR value as a decimal number.

Time Of Worst Video PSNR. The timecode of the frame that had the worst PSNR.

Color Data Filter

The Color Data filter identifies and extracts relevant color data metrics and HDR metadata in the specified input media file. It returns each value in a variable to indicate the result.

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Analyze Settings

Prefer NCLC Data. Check to cause NCLC data to overwrite essence color metadata.

Maximum Video Samples Processed. Specifies the maximum number of video samples to process.

General

NCLC Atom Found. Returns True or False, depending on whether or not an NCLC Atom was identified.

NCLC Atom Found. Returns True or False, depending on whether or not an NCLC Atom was identified.

Color Primaries. Extracts and returns an integer; the value of the primaries code for the video color space. See *Color Primaries Specification*.

Color Transfer Function. Extracts and returns an integer; the transfer function code for the video color space. See *Color Transfer Function Specification*.

Color Matrix. Extracts and returns an integer; the matrix code for the video color space. See *Color Matrix Specification*.

Color Range. Extracts and returns an integer; the color range for the video color space. See *Color Range Specification*.

HDR Metadata

The following decimal or Integer values are extracted and returned as variables for use in downstream actions:

Mastering Display Red | Green | Blue | White X and Y Coordinates. Extracts and returns a decimal value for the X and Y coordinate variables; the mastering display color primaries for the video color space.

Minimum | Maximum Mastering Display Luminance. Extracts and returns a decimal value; the mastering display luminance in cd/m2 for the video color space.

Maximum Light Level. Extracts and returns an integer; the maximum light level in cd/m2 for the video color space.

Maximum Frame Average Light Level. Extracts and returns an integer; the maximum frame average light level in cd/m2 for the video color space.

Color Primaries Specification

Standard of RGB primaries in XYZ color space.

Number reported by Analysis	Specification (as set in the color space filter)
0	Reserved
1	ITU-R BT.709-6 ITU-R BT.1361-0 IEC 61966-2-1 IEC 61966-2-4 SMPTE RP 177 (1993) Annex B
2	Unknown
3	Reserved
4	Rec. ITU-R BT.470-6 System M FCC Title 47 Code of Federal Regulations (2003) 73.682 (a) (20)
5	Rec. ITU-R BT.470-6 Rec. ITU-R BT.601-7 Rec. ITU-R BT.1358-0 Rec. ITU-R BT.1700-0
6	Rec. ITU-R BT.601-7 Rec. ITU-R BT.1358-1 Rec. ITU-R BT.1700-0 SMPTE ST 170 (2004)
7	SMPTE ST 240
8	Generic Film
9	Rec. ITU-R BT.2020-2 Rec. ITU-R BT.2100-1
10	SMPTE ST 248-1 (2006) (CIE 1931 XYZ)
11	SMPTE RP 431-2 (2011)
12	SMPTE EG 432-1 (2010)
13-21	Reserved
22	EBU Tech. 3213-E (1975)

Number reported by Analysis	Specification (as set in the color space filter)
23-128	Reserved
129	S-Gamut3.Cine
130-255	Reserved

Color Transfer Function Specification

Standards of the transfer function.

Number reported by Analysis	Specification (as set in the color space filter)
0	Reserved
1	ITU-R BT.709-6 ITU-R BT.1361-0
2	Unknown/Unspecified
3	Reserved
4	Rec. ITU-R BT.470-6 System M FCC Title 47 Code of Federal Regulations (2003) 73.682 (a) (20)
5	Rec. ITU-R BT.470-6 Rec. ITU-R BT.1700-0
6	Rec. ITU-R BT.601-7 Rec. ITU-R BT.1358-1 Rec. ITU-R BT.1700-0 SMPTE ST 170 (2004)
7	SMPTE ST 240
8	Linear Transfer Characteristics
9	Logarithmic Transfer Characteristic
10	Logarithmic Transfer Characteristic
11	IEC 61966-2-4
12	ITU-R BT.1361-0
13	IEC 61966-2-1
14	ITU-R BT.2020-2

Number reported by Analysis	Specification (as set in the color space filter)
15	ITU-R BT.2020-2
16	SMPTE ST 2084 (2014) ITU-R BT.2100-1 perceptual quantization (PQ) system
17	SMPTE ST 428-1 (2006)
18	(ARIB) STD-B67 ITU-R BT.2100-1 hybrid log-gamma (HLG) system
19-129	Reserved
130	SONY S-Log3
131-255	Reserved

Color Matrix Specification

Standard of YUV color matrix for RGB conversions.

Number reported by Analysis	Specification (as set in the color space filter)
0	Identity Matrix IEC 61966-2-1 sRGB SMPTE ST 428-1 (2006)
1	ITU-R BT.709-5 ITU-R BT.709-6 ITU-R BT.1361-0 IEC 61966-2-1 IEC 61966-2-4 SMPTE RP 177 (1993) Annex B
2	Unknown/Unspecified
3	Reserved
4	FCC Title 47 Code of Federal Regulations (2003) 73.682 (a) (20)
5	Rec. ITU-R BT.470-6 Rec. ITU-R BT.601-7 Rec. ITU-R BT.1358-0 Rec. ITU-R BT.1700-0 IEC 61966-2-4

Number reported by Analysis	Specification (as set in the color space filter)
6	Rec. ITU-R BT.601-7 Rec. ITU-R BT.1358-1 Rec. ITU-R BT.1700-0 SMPTE ST 170 (2004)
7	SMPTE ST 240
8	YCoCg or YCgCo
9	Rec. ITU-R BT.2020-2 Rec. ITU-R BT.2100-1
10	ITU-R BT.2020-2
11	SMPTE ST 2085 (2015)
12	Chromaticity-derived non-constant luminance system
13	Chromaticity-derived constant luminance system
14	ITU-R BT.2100-1
15-255	Reserved

Color Range Specification

Number reported by Analysis	Specification (as set in the color space filter)
0	Undefined
1	Narrow or Studio Range
2	Full Range

Scene Change Analysis Filter

Use the Scene Change Analysis filter to determine the start and stop times of each scene detected in the specified input media file.

Typically, in the Analyze settings, you check Generate Analysis Result Attachment to produce an XML file containing each scene's start and stop times, for use in Tempo Portal applications for auto-segment generation, or other similar purposes.

Note: For each control, optionally click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

General

Scene Change Motion Threshold. Specifies an integer value (0-255) to specify when to detect and trigger a scene change. Higher numbers increase the amount of change from frame to frame, to be considered a scene change.

Interlace Mode. Specifies that the scene change should be measured on fields in Interlace Mode.

Active Segment

Optionally, specify the start and/or duration of the media where you want this filter to perform its analysis. These options limit the amount of media that is analyzed. If both are unchecked, the entire file is analyzed.

Start of Active Segment. When checked, specifies the starting time or timecode.

Duration of Active Segment. When checked, specifies the duration as time or timecode.

Active Video Regions

Active Video Region for PAL 608 x 720 | NTSC 512 x 720 | NTSC 486 X 720. Specifies limits on the search to video regions of the frame by ignoring VBI and other lines.

Slate/Spot Analysis Filter

Use the Slate/Spot Analysis filter to determine if slate, spot, and color bar segments conforming to metrics you specify exist in the specified input media file.

For use in Tempo Portal applications, in the Analyze settings, you'll check Generate Analysis Result Attachment to produce an XML file containing slate and color bars start and stop times.

Note: For each control, optionally click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

General

Minimum Slate Duration. If older workflows are upgraded, the Minimum Slate Duration is calculated by subtracting Slate Duration Tolerance from the Estimated Slate Duration.

Maximum Slate Duration. If older workflows are upgraded, the Maximum Slate Duration is calculated by adding the Estimated Slate Duration to the Slate Duration Tolerance.

Maximum Number of Sequential Black Frames in a Spot. Specifies the maximum number of sequential black frames that can occur in a spot.

Blackness Threshold. Specifies (as Normalized Luma) the level of a pixel considered to be black. Higher numbers increase the brightness of pixels considered to be black.

Silence Threshold. Specifies in decibels, the silence threshold under which the audio will be considered silent. Higher numbers indicated that louder audio is considered silent.

Consider Audio. When Consider audio is checked, black frames with audio are considered active content, not black frames.

Active Segment

Optionally, specify the start and/or duration of the media where you want this filter to perform its analysis. These options limit the amount of media that is analyzed. If both are unchecked, the entire file is analyzed.

Start of Active Segment. When checked, specifies the starting time or timecode.

Duration of Active Segment. When checked, specifies the duration as time or timecode.

Active Video Regions

Active Video Region for PAL 608 x 720 | NTSC 512 x 720 | NTSC 486 X 720. Specifies limits on the search to video regions of the frame by ignoring VBI and other lines.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

SSIM Filter

Use the SSIM filter (which implements the SSIM indexing algorithm) to evaluate the quality of digital video processing between a video file generated from transcoding earlier in the workflow (identified by the Input Media File nickname) and a reference video (identified by the Reference Media File nickname).

General

Step Size. Specifies the step size for SSIM comparison.

Compare Files of Different Length. Activates support for properly comparing files of different length. When comparing two files of different length, you must enable this option or an error is generated and the action completes with a failure. When enabled, you can process two files of different length for the duration of the shortest file.

Ignore Margins

In cases where the files to be compared are of different frame sizes, check to specify frame boundaries beyond which the frames should not be analyzed for SSIM.

This option converts the reference input to match the source input, using the specified video processing instructions. It also allows the specification of filters for cases where field dominance is different between input and outputs.

While using this option to compare files of different frame sizes and frame rates can produce useful information about the quality of an output file, it does not produce a true SSIM value. SSIM values generated when using this option will typically be lower than values generated when the files being compared have the same frame size, frame rate and interlacing characteristics.

Left | Top | Right | Bottom Margin. Specifies a new margin boundary to be used during analysis, in pixels.

Active Segment

Optionally, specify the start and/or duration of the media where you want this filter to perform its analysis. These options limit the amount of media that is analyzed. If both are unchecked, the entire file is analyzed.

Start of Active Segment. Specifies when analysis begins.

Duration of Active Segment. Specifies analysis duration.

Active Video Regions

Active Region for PAL 608x720 | NTSC 512x720 | NTSC 486x720. Specifies VBI lines to ignore, thus setting the active region for the video frame.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Average Video SSIM. Calculates the average SSIM of the entire input file and publishes it as a decimal value.

Best Video SSIM. Publishes the value of the frame with the highest SSIM.

Time of Best Video SSIM. Publishes the timecode of the frame with the highest SSIM value.

Worst Video SSIM. Publishes the value of the frame with the lowest SSIM value.

Time of Best Video SSIM. Publishes the timecode of the frame with the lowest SSIM value.

Telecine Cadence Analysis Filter

Inverse Telecine is the process of converting Telecined media back to 24fps progressive media. When the starting phase and cadence of the material is known, the inverse Telecine algorithm is easy to implement with excellent results. However, when Telecined material contains edits, or long sections of static content (black bumpers or animation, for example), the inverse Telecine algorithm may make an incorrect determination on certain frames, resulting in poorer quality output.

Inverse Telecine is improved by implementing a two-pass approach.

The first pass - implemented in the Telecine Cadence Analyzer in the Analysis action - analyzes the specified input media file and optional reference media file, for breaks or changes in Telecined content, to determine the cadence(3322/3232), field order, starting phase, and position of the first repeated position in the cadence. The filter can detect both a 3:2:3:2 and a 3:3:2:2 cadence within the source media. The filter can also detect all of the cadence changes and generate a report about frame number, cadence type and starting phase in the cadence in case of a cadence change. The result of this analysis is stored in an XML file.

This filter can be configured to generate an Analysis Result Attachment - an XML file - for use in any actions that support the Custom Cadence filter.

The second pass - implemented in the Custom Cadence Video Filter in the Flip action utilizing the Multi-Core or Lightspeed VPL - uses the XML file created by the Telecine Cadence Analyzer to apply the frame-by-frame cadence and phase to the inverse Telecine operation.

You can also configure this filter to generate an Analysis Result Attachment (Analyze Settings > Generate Analysis Result Attachment) - an XML file - for use in actions that support the Custom Cadence Video filter for the optional second pass:

The second pass - implemented in the Custom Cadence Video Filter in the Flip action utilizing the Multi-Core or Lightspeed VPL and in the Flip64 action - uses the XML file created by the Telecine Cadence Analysis Filter, to apply the frame-by-frame cadence and phase to the inverse Telecine operation.

Note: When using the Custom Cadence Video Filter, if you supply a nickname instead of a file name in the Analysis action (Analyze Settings > Generate Analysis Result Attachment), you MUST add an Identify > File Properties action to the workflow and enable a Path variable to assign to a variable so that you can transfer the file path to the Custom Cadence video filter in a variable - the Custom Cadence video filter is not capable of using nicknames.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Active Segment

When you want to limit the media being analyzed to a clip within, check and specify these two values:

Start of Active Segment. Specifies the timecode at which to start analysis.

Duration of Active Segment. Specifies the duration from start of active segment, expressed as timecode or time (select Time from the FPS menu) at which to stop analysis. When you specify Time, you can specify frames only, as all time code values are relative to midnight.

Active Video Regions

In these settings, the No Override and Entire Frame specifications function similarly. When the setting is default No Override, cross-checking configuration settings and input video properties is avoided.

PAL 608 x 720. Specifies No Override | VBI (2 settings) | Entire Frame.

NTSC 512 x 720. Specifies No Override | VBI (2 settings) | Entire Frame.

NTSC 386 x 720. Specifies No Override | VBI (2 settings) | Entire Frame.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Telecine Cadence 3322. Analyzes the video for the presence of Telecine video with a cadence of 3322 and reports True if any is detected. Otherwise, reports False.

Telecine Cadence 3232. Analyzes the video for the presence of Telecine video with a cadence of 3232 and reports True if any is detected. Otherwise, reports False.

Telecine Cadence 2224 (4:1). Analyzes the video for the presence of Telecine video with a cadence of 2224 and reports True if any is detected. Otherwise, reports False.

Telecine Upper Field First. Analyzes the video and reports True if it is upper-field first. Otherwise, it reports False.

Telecine Starting Phase. Calculates and reports the Telecine starting phase as an integer.

Telecine First Repeated Field Position. Detects and reports the frame number of the first AB frame in the sequence as an integer.

Telecine Cadence Analysis 2025 Filter

The Telecine Cadence Analysis 2025 Filter is an improved implementation of the Telecine Cadence Analysis Filter. This filter adds a confidence threshold, the ability to ignore margins within the frames, and Telecine Cadence 64 and Still Image cadence settings.

Overview

Inverse Telecine is the process of converting Telecined media back to 24fps progressive media. When the starting phase and cadence of the material is known, the inverse Telecine algorithm is easy to implement with excellent results. However, when Telecined material contains edits, or long sections of static content (black bumpers or animation, for example), the inverse Telecine algorithm may make an incorrect determination on certain frames, resulting in poorer quality output.

Inverse Telecine is improved by implementing a two-pass approach:

The first pass - implemented in the Telecine Cadence Analyzer in the Analysis action - analyzes the specified input media file and optional reference media file for breaks or changes in Telecined content, to determine the cadence, field order, starting phase, and position of the first repeated position in the cadence. The filter can detect both a 3:2:3:2 and a 3:3:2:2 cadence within the source media. The filter can also detect all of the cadence changes and generate a report about frame number, cadence type and starting phase in the cadence in case of a cadence change. The result of this analysis is stored in an XML file.

You can also configure this filter to generate an Analysis Result Attachment (Analyze Settings > Generate Analysis Result Attachment) - an XML file - for use in actions that support the Custom Cadence Video filter for the optional second pass:

The second pass - implemented in the Custom Cadence Video Filter in the Flip action utilizing the Multi-Core or Lightspeed VPL and in the Flip64 action - uses the XML file created by the Telecine Cadence Analysis Filter, to apply the frame-by-frame cadence and phase to the inverse Telecine operation.

Note: When using the Custom Cadence Video Filter, if you supply a nickname instead of a file name in the Analysis action (Analyze Settings > Generate Analysis Result Attachment), you MUST add an Identify > File Properties action to the workflow and enable a Path variable to assign to a variable so that you can transfer the file path to the Custom Cadence video filter in a variable - the Custom Cadence video filter is not capable of using nicknames.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

General

Confidence Threshold. Specifies the minimum confidence level percentage expressed as an integer (0-100) that the detected Telecine cadence should be accepted.

Ignore Margins

Top Margin | Right Margin | Bottom Margin | Left Margin. (Default 0) Specifies the pixel boundary line expressed as an integer that defines the region from that side of the frame beyond which the Telecine Cadence filter should ignore. For example, Right Margin 24 on a 1080 pixel frame defines the right margin boundary at 1056 pixels from the left edge of the frame (independent of the Left Margin value, if any).

Active Segment

When you want to limit the media being analyzed to a clip within, check and specify these two values:

Start of Active Segment. Specifies the timecode at which to start analysis.

Duration of Active Segment. Specifies the duration from start of active segment, expressed as timecode or time (select Time from the FPS menu) at which to stop analysis. When you specify Time, you can specify frames only, as all time code values are relative to midnight.

Active Video Regions

In these settings, the No Override and Entire Frame specifications function similarly. When the setting is default No Override, cross-checking configuration settings and input video properties is avoided.

PAL 608 x 720. Specifies No Override | VBI (2 settings) | Entire Frame.

NTSC 512 x 720. Specifies No Override | VBI (2 settings) | Entire Frame.

NTSC 386 x 720. Specifies No Override | VBI (2 settings) | Entire Frame.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Telecine Cadence 3322. Analyzes the video for the presence of Telecine video with a cadence of 3322 and reports True if any is detected. Otherwise, reports False.

Telecine Cadence 3232. Analyzes the video for the presence of Telecine video with a cadence of 3232 and reports True if any is detected. Otherwise, reports False.

Telecine Cadence 2224 (4:1). Analyzes the video for the presence of Telecine video with a cadence of 2224 and reports True if any is detected. Otherwise, reports False.

Telecine Cadence 64. Analyzes the video for the presence of Telecine video with a cadence of 64 (top field is repeated 6 times followed by the bottom field repeating 4 times) and reports True if any is detected. Otherwise, reports False.

Telecine Cadence Still Image. Analyzes the video for the presence of Telecine video with a cadence of Still Image (top field is repeated all 10 times) and reports True if any is detected. Otherwise, reports False.

Telecine Detection Filter

The Telecine Detection filter analyzes the specified input media file to determine if it contains content created using a 3:2 pulldown process. It can detect both a 3:2 and a 3:3:2:2 cadence within the source media.

The Minimum Threshold parameter provides a rough guideline for what percentage of material must contain a Telecine cadence in order for the entire clip to be considered *Telecine*. Bad edits or cadence breaks may cause portions of the media to be mis-identified, so this value should generally be set somewhat lower than the expected actual Telecine level in the media to be analyzed.

General

Threshold. Specifies the threshold for Telecine detection, as a percent of the media timeline on which the Telecine signal is detected.

Active Segment

Optionally, specify the start and/or duration of the media where you want this filter to perform its analysis. These options limit the amount of media that is analyzed. If both are unchecked, the entire file is analyzed.

Start of Active Segment. Specifies when analysis begins.

Duration of Active Segment. Specifies analysis duration.

Active Video Regions

Active Region for PAL 608x720 | NTSC 512x720 | NTSC 486x720. Specifies VBI lines to ignore, thus setting the active region for the video frame.

Analysis Items

Check each item you want the filter to analyze and select the variable to be published with the value reported by the filter, for use in downstream actions.

Telecine Detect. When Telecine video has been detected, this filter reports True. If the analyzed video did not contain Telecine material, the filter reports False.

Timecode Analysis Filter

The Timecode Analysis filter analyzes media for various timecode types and parameters.

Timecode Source Selection

Timecode Source. Select timecode sources from available options. Timecode source priority is sorted from top down in descending order of importance.

Selected Timecode Detected

Indicates if any of the analyzed samples contain one of the timecode types selected.

Start Timecode

Returns the first timecode value found.

End Timecode

Returns the last timecode value found.

Start Timecode Name

Returns the name of the first timecode source found in the file based on the specified timecode source list.

End Timecode Name

Returns name of the last timecode source found in the file based on the specified timecode source list.

Note: Start and End timecode types are usually the same but may differ. This could occur as the result of tape edits involving media using different timecode types or with GOP timecodes using I frames.

Note: Timecode names that are returned represent the string values present in the timecode source drop down and not the underlying timecode type. For example, if *Any Timecode* is selected and an LXF Timecode is detected, the name *Any Timecode* is returned.

Is Start Timecode Drop Frame

Indicates if the start timecode is drop frame. If time code is not drop frame, a value of false is returned.

VMAF Analysis Filter

The VMAF (Video Multimethod Assessment Fusion) analysis filter in Vantage uses an open source algorithm developed by Netflix to perform objective video quality assessments on source material. Results may be generated as XML or GLIM clip list files for further review.

When Normalize Reference is enabled in the Analyze action, reference video is normalized to match the input video before comparison. The reference video is checked to see if it's the same format as this input. (Ex. width, height, colorspace, color ordering, planarity etc.)

General

VMAF Score Threshold. Specify a VMAF Score Threshold. Frames with a score equal or lower than this value will be captured. By enabling Generate Analysis Result Attachment in the Analyze Settings panel, an XML Metadata file listing these captured frames will be generated.

Publish Metadata

Specify GLIM clip list to generate based on value specified in the VMAF Score Threshold setting. This list may be imported using GLIM for operator review of captured frames.

Average VMAF Score

Generates a variable with the average VMAF score from all frames analyzed.

Worst VMAF Score

Generates a variable with the lowest VMAF score from all frames analyzed.

Archive Formats

Archiving options are implemented in the Archive action, to enable workflows to package file in various formats for utilization outside of Vantage.

Archiving Options

TAR Archive

ZIP Archive

TAR Archive

The TAR archiver is implemented in the Archive action.

Note: By default, TAR archives are written in USTAR format. If any of the individual files in the archive is 8 GB (8589934592 bytes) or larger, the POSIX.1-2000 format is used. Most modern TAR utilities support the POSIX.1-2000 specification, but some older implementations may not handle it properly.

ZIP Archive

The ZIP archiver is implemented in the Archive action.

Note: Files archived into a standard ZIP file must each be less than 4 GB (4,294,967,295 bytes). The ZIP archive itself also must be less than 4GB. If either of these limits is exceeded, the archive is created using Zip64 format. Zip64 format supports file sizes up to approximately 9 million terabytes (2^63-1 bytes), but they may not be compatible with some ZIP utilities.

Archive Formats
ZIP Archive

File Associators

File associators are options associated with the Associate action, which suspends workflow processing until the target file is identified. Associators can be configured to identify specific files which must be processed along with the file that was submitted as a job for the workflow.

For example, you can configure a single file associator to identify a sidecar XML file with the same name as the media file it is associated with, and submit it along with the target media file for processing in the same job.

Single File Associator

Single File Associator Settings

Single File Associator

The Single File associator causes the action it is utilized by (typically, a Watch or Associate action) to monitor the target directory on a supported file system for a non-media file: for example, a sidecar XML file, or a file with closed captioning, for example. When the file is identified, the job is submitted for processing.

Note: This does not prevent you from ingesting a media file as an attachment for other purposes; it just can't be decoded and encoded or processed by an analysis filter.

Next. Displays the next inspector panel.

Single File Associator Settings

Configure the Single File Associator settings to attach a new file to the workflow for processing according to your requirements.

New Files

A file is considered new if at least one of the following conditions is met:

- The file was not present on server during the last scan

- The size of the file has changed during the scan counts specified

- The modification date of the file has changed since last scan.

A new file is submitted when both of the following conditions are met:

- The size of the file has not changed during the scan counts specified

- The modification date of the file has not changed during the scan counts specified.

Inspector Wizard

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Nickname. Specifies the nickname to assign to the specified file, which you can use to reference this file in all subsequent actions in the workflow.

Cycle and Count. Determines how many seconds occur between polls, and how many polls the file must remain at the same size before being submitted (to ensure that the file system has closed new files after writing is complete).

Stop Looking After. **(for Associate actions only)** Searches for the target file to terminate after the specified time period if the file is not found, and specify the time in seconds.

State to Emit. **(for Associate actions only)** When the Stop Looking After feature is enabled, allows you to specify the state of the action to pass to the next action in the workflow. Options are Success | Failure | Ignore.

Look in Subfolders. Searches all sub-folders in the target location for new files.

Send Offline Notification Emails. Sends an email to the administrator when this action fails.

Process Existing Files. **(for Watch Actions)** Indicates that you want the workflow to process all existing media in the specified directory that has not yet been processed. When checked, select All, Limit to last X days, or Since Last Workflow Deactivation.

For example, if this is the first time that a workflow has been put into production, you may want all media files submitted the first time. Or, check this when you need to compensate for the monitor being offline for some period of time.

File Match Pattern. **(for Watch actions)** Limits file selection to files that adhere to the specified pattern. Enter patterns in the Accept (required) or Reject fields.

Note: When used with the Media File option only, to accept all files, do not enter a pattern. When used with the Attachments option, you must enter an asterisk (*) for the pattern.

File Match Pattern. **(for Associate actions)** Limits file selection to files that adhere to the specified pattern. Enter patterns in the Accept (required) field.

To enter one or more patterns use one of these methods:
- Manually enter the pattern(s) in the Accept Pattern field
- Select a pattern from the Accept Pattern menu
- Click the Browse button and select a variable that contains the pattern(s)
- Click Browse and select a file that contains the pattern.

Note: For Associate actions only, you can enter (or select a pattern with) the key phrase [Name] and then select the nickname of the file in the **Match File Name to** menu to use for the Name pattern.

Pattern Rules. **(for Watch and Associate actions)** Patterns are not case sensitive. No spaces are allowed. Patterns can contain literal characters, plus the standard wild card characters ? and * and can include multiple patterns, separated by the | (OR bar) character.

Note: When used in Watch actions only, to accept all files, do not enter a pattern. When used in an Associate action, you must enter an asterisk (*) for the pattern.

- To filter files with an MPEG extension, enter **.mpg*. To filter files having the .fpk extension enter **.fpk*.
- To filter all files beginning with the letters TESTBARS or containing the word BLACK, enter a compound pattern: TESTBARS* | *BLACK*.
- To filter files by a single character, use the ? wild card character. You can enter one ? for each character in the string. For example, to filter all MPEG files with the same root name plus a single character sequence, enter *NWCrossing?.mpg*.

Generate Variables. Specifies variables that you want to generate.

Active Only and Active Days (for Watch actions). Controls the times and/or days when the monitor is active and accepts jobs. Specifies the start and end time on a daily basis, as measured by the service's host computer clock. Also specifies the selected days when the monitor is active.

Next. Displays the next inspector panel.

File Associators
Single File Associator Settings

Avid Input & Media Composer | AAF | Retrieve | Interplay Configuration

The Media Creation action supports a variety of input formats for processing and generates output for Media Composer and Interplay systems.

Media Creation Action Configuration

Media Creation Action Configuration

Media Creation Action Inputs

AIFF Input

Auto Input

MXF OP1a Input

TIFO Input

Wave Input

AAF Action Configuration

AAF Action Configuration

AAF Action Inputs

AAF Input

Retrieve Action Configuration

Retrieve Action Configuration

AIFF Input

The AIFF Input component re-wraps media into Avid-compatible MXF OP-Atom files. AIFF Input supports one-channel-per audio track(s). When using a Media Creation action with AIFF Input, it is not Open workflow capable.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Buttons

Gear > Convert To. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Delete. To delete this input, click the X icon in the upper right corner.

Input Configuration

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Container Settings

Start Timecode Option. Specifies the edit rate to use. The edit rate is required for proper timecode calculations in Media Composer projects.

Auto Input

The Auto Input, as implemented for the Media Creation action, ingests media which is in a video/audio format supported by your Avid Media Composer/MediaCentral | Production Management system for re-wrapping into Avid-compatible MXF OP-Atom files. This is the default input component for the Media Creation action.

There are no user-configurable options for this decoder.

Note: Auto Input supports one video track. Audio must contain one track per channel otherwise the job will fail.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Buttons

Gear > Convert To. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Delete. To delete this input, click the X icon in the upper right corner.

Input Configuration

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

MXF OP1a Input

The MXF OP1a Input component re-wraps media into Avid-compatible AAF/MXF OP-Atom files. Each MXF OP1a Input supports one video stream and one or more PCM audio tracks, plus an ANC stream.

MXF OP1a Input is Open workflow capable. The MXF OP1a decoder supports open workflows, but only with MXF OP1A or TIFO files created by Live Capture and Flip64 actions. When Input Type is set to WAVE/AIFF/Auto, open mode is not supported.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Buttons

Gear > Convert To. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Delete. To delete this input, click the X icon in the upper right corner.

Input Configuration

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Container Settings

Open File Support. When checked, the workflow starts transcoding this stream as soon as the file is opened and media is being written to it in real time. Input sup-

ports one video track. Audio must contain one track per channel otherwise the job will fail.

Open File Timeout. Specifies the maximum amount of time in seconds to wait after the file has stopped growing before assuming that file is finished being written to and has been closed.

Process Origin as Precharge. Specifies processing of MXF origin as Precharge Frames.

Cache Size. Specifies (in bytes) the stream cache buffer size. Should be set to a practical, non-zero value in Open workflows, when Flip64 or another Vantage action is writing to a Network Attached Storage (NAS) and the Media Creation action running on a separate Vantage node is reading the file, to enable buffered reads when reading from NAS.

Cache Count. Specifies the number of stream cache buffers to create. Should be set to a practical, non-zero value in Open workflows, when Flip64 or another Vantage action is writing to a Network Attached Storage (NAS) and the Media Creation action running on a separate Vantage node is reading the file, to enable buffered reads when reading from NAS..

Max Invalid Key Count. Specifies the maximum number of random, failed read operations when ingesting a file from NAS. Set the value to the maximum value to prevent premature termination of Media Creation jobs.

TIFO Input

The TIFO Input component implemented in the Media Creation action supports capturing media in TIFO format for re-wrapping into Avid-compatible AAF/MXF OP-Atom files.

TIFO Input is Open workflow capable. The MXF OP1a decoder supports open workflows, but only with MXF OP1A or TIFO files created by Live Capture and Flip64 actions. When Input Type is set to WAVE/AIFF/Auto, open mode is not supported.

TIFO format is required for Avid classic proxies. Specification of Avid Picture Essence Coding Type is also supported. See Specifying Avid the Picture Essence Coding Type in the Avid Integration Guide.

Note: TIFO Input supports one video track. Audio must contain one track per channel otherwise the job will fail.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Buttons

Gear > Convert To. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Delete. To delete this input, click the X icon in the upper right corner.

Input Configuration

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Container Settings

Open File Support. Check to enable Open File support, indicating that you want to start processing this stream as soon as the file is created and media is being written to it in real time.

Open File Timeout. Specifies the maximum amount of time to wait after the file has stopped growing before assuming that file is finished being written to and has been closed.

Avid Picture Essence Coding Type

Set Avid Picture Essence Coding Type. Specify coding type for creation of Avid proxy formats. Default is Auto.

Note: For AVCI 50, AVCI 100, XAVCI 50, XAVCI 100 formats, sets the MXF descriptor for compliance.

Wave Input

The Wave Input component re-wraps media into Avid-compatible MXF OP-Atom files. Each Wave Input supports one-channel-per audio track(s). Avid MXF output has one track per channel. The input WAVE file may have multiple channels per track.

Wave Input is not Open workflow capable.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Buttons

Gear > Convert To. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Delete. To delete this input, click the X icon in the upper right corner.

Input Configuration

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Container Settings

Start Timecode Option. Specify start timecode to use.

Start Timecode Option. Specifies the edit rate to use. The edit rate is required for proper timecode calculations in Media Composer projects.

Note: Audio-only Wave outputs may have frame rates which are incorrectly identified in Interplay Access. These include:
- 60 fps NDF/DF identified as 59.94 FPS
- 30 fps NDF/DF identified as 29.97 FPS

- 48 fps NDF/DF identified with no FPS value
- 47.95 fps NDF/DF identified with no FPS value

AAF Action Configuration

PMR Maintenance | Frame Chase (Edit While Ingest) Editing

When enabled, you can use the MXF folder referenced in the file to perform PMR maintenance.

Avid Media Composer utilizes Persistent Media Record (PMR) files for information about the online status of file Media Object information (MOB). Each PMR file provides an index in a form that an editor can quickly load all the file MOBs and their associated media files in the media directory in which the PMR file resides.

The purpose of PMR maintenance is to provide an index for Media Composer specifying the online status of MXF files in a shared media directory.

For frame chase editing outside of Interplay, you also specify these controls.

Open the AAF Settings panel and the PMR Maintenance sub panel to configure PMR maintenance controls.

PMR Processing. Provides an MXF status index. Select from these options:

- *None*. (Default) No PMR processing is performed. Select None when you do not want to perform PMR operations.

- *Append*. Incrementally adds entries to the PMR file for those MXF files that have been added to the directory since the last modification to the PMR file. The PMR file should have been created by the AAF action; it is not interoperable with PMR files created by other programs.

- *Rebuild*. Deletes any existing PMR file in the directory and creates a new PMR file with entries for all the existing MXF files in the directory.

MXF Path Override. (Optional) When supplied, overrides the location of MXF files referenced in the AAF file.

Project Name. Specifies the asset's project name. Default: *Vantage*.

Copy Input AAF File. Specifies whether or not to copy the input AAF file. When enabled, configure these controls:

> **Input AAF Path**. Specifies the fully-qualified path to the folder where the copied AAF file will be written.
>
> **Create Unique Folder**. When checked, creates a unique folder in the Input AAF Path folder in which to store the AAF file.
>
> **Overwrite Existing File**. When checked, enables the action to replace the existing AAF file with the copied file. If unchecked, the action fails.

Matte/Key Effect Operation

The Matte/Key Effect feature in the AAF action generates a Matte/Key composition that you can import and use as an effect in Avid Media composer by applying the Effect AAF file V1 track alpha channel to the Input AAF file V1 track RGB channel.

Note: For a practical discussion of typical Matte/Key Effects use cases, see the Creating a Matte/Key Effect for Media Composer topic in the Avid Integration Guide, published on the Telestream web site.

Note: The two files originate from a single source that is split into two files using a parallel set of Flip64 and Media Creation actions preceding this AAF action in the workflow. The AAF action does not check for the presence of RGB and alpha channels in the input file. It only checks that the first video track of each AAF file has the same frame rate and frame count (duration).

Open the AAF Settings panel and the Matte/Key Effect sub panel to configure the AAF action for Matte/Key Effect processing.

Matte/Key Effect Processing. Enables or disables Matte/Key effect processing (optionally specify a variable containing one of these keywords):

- *None*. (Default) Matte/Key effect processing is disabled. Select None when you do not want to perform Matte/Key effect processing.

- *Apply*. Matte/Key effect processing is enabled. Select Apply when you want to perform Matte/Key effect processing and configure these controls:

Effect AAF Path. Specifies the fully-qualified path to the input effect source, by file nickname or by file name; enter it manually or click Browse to navigate and select the file. It must be in DNxHD or DNxHR format - specify the nickname or path and file:

> **File Nickname**: Check and select the alpha channel AAF file nickname, bound to AAF Path variable *AAFPathKey*, set in alpha channel's Media Creation #1 action.
>
> OR
>
> **File name**. Manually enter or browse and select the fully-qualified path to the file. The Vantage Avid service that executes this action must have access to the file location. Use this option when you want to assign a static file, which is used for every job. If you assign a variable, the variable must be assigned the fully-qualified path and file name in an upstream action and the file can change for each job.

Effect Name. Practical string, per your utilization in Avid Media Composer.

Composition MOB ID. Specifies the MOB ID for the new asset.

Swap Sources. Typically, unchecked. When checked, the AAF action swaps foreground and background layers to compensate for an inverted alpha channel.

Invert Key. When checked, inverts the key to reverse the effect of the matte; used when key is initially inverted when applied - making previously transparent areas opaque and opaque areas transparent.

Link Master Clips. When checked, links the effect to the fill and key files.

Opacity. Specifies the relative opacity of the key - where 100 is fully opaque and 0 is fully transparent.

Override Output Path

When enabled, if you are conducting frame chase editing outside of an Interplay environment (as specified in the Media Creation action in your workflow), you configure PMR maintenance to suit your requirements specify the Override Output Path as required.

Note: In order to perform Open Workflow, Frame Chase (Edit While Capture) processing of Media Creation outputs, you must bind the AAF Path variable (created in an upstream Media Creation action) to the Input Source File Name field.

Override Output Path. Specifies Disable | Enable.

- *Disable*. When disabled, the output is saved in the current Vantage Store.

- *Enabled*. When enabled, you can save the output to a shared drive or other location for use directly in Interplay / Avid Media Composer.

Create Unique Folder. Check enabled when you want a unique folder created for the output of this job in the location you specify. Use this option when you always want output to be saved, avoiding duplicate file names.

Overwrite Existing Output File. Check enabled when you want to replace the previous job file with the current output. When disabled and the output file with same name exists, the job will fail.

Retrieve Action Configuration

General Settings

Mob ID. Specifies the Mob ID associated with the Avid master clip asset registered in the specified Interplay system.

Interplay Settings

Note: This set of controls is only displayed when you select *Interplay* from the Interplay Configuration menu, to provide the target system directly in the action. If you select an Interplay system that you have defined in the Vantage Management Console, this panel is not displayed.

Interplay Web Services Host. The DNS/IP address of the Interplay Web Services server.

Interplay Web Services Port. The port being utilized by the Interplay Web Services server.

Interplay Workgroup. Name of workgroup (case-sensitive) associated with this Interplay system.

Interplay Username. Authorized user name.

Interplay Password. Authorized password.

Output Interplay Metadata

Configure these controls to generate a separate metadata XML file containing CML, as an attachment file for use downstream or separately. In Vantage, you can use the Extract action to access the AVID assets metadata in these files.

The metadata CML file contains the MXF file paths, Avid User properties - Name/Value string pairs, Avid Interplay Frame Locators, Avid Asset Restrictions (Copyright information, TV rating, etc.).

Output Interplay Metadata. Specify Enable to generate an optional metadata file in XML format and supply a nickname or fully-qualified filename.

File Nickname. Select File nickname to identify the file by nickname.

File Name. Manually enter or browse and select the fully-qualified path to the XML metadata file. The destination must be writable by the Vantage Avid Service.

Overwrite Existing Metadata File. When checked, write the new file out to the destination, overwriting the existing file (if it is writable) without warning. If unchecked and the file exists, the job fails at the start of the job when user configuration is validated.

Output AAF

Configure these controls to generate a separate AAF file, as an attachment file for use downstream or separately.

Output AAF. Specify Enable to generate an optional AAF file and supply a nickname or fully-qualified filename.

File Nickname. Select File nickname to identify the file by nickname.

File Name. Manually enter or browse and select the fully-qualified path to the AAF file.

Overwrite Existing AAF File. Check to silently overwrite the existing output file without warning. If unchecked and the file exists, the job fails at the start of the job when user configuration is validated.

Override Output Path

Configure these controls to override the default output path for the MP4 Reference file, for use downstream or separately.

Override Output Path. Specify Enable to override the default MP4 location (Vantage store) and supply a fully-qualified filename. When disabled, the location is the default Vantage store.

Output Asset Path. Manually enter or browse and select the fully-qualified path to the MP4 reference file. The destination must be writable by the Vantage Avid Service.

Create Unique Folder. Specify Enable to generate a folder in the path, and write the file to the new folder. The subfolder is named with a randomly generated GUID.

Overwrite Existing Output File. Check to silently overwrite the existing output file without warning. If unchecked and the file exists, the job fails at the start of the job when user configuration is validated.

AAF Input

The AAF Input component ingests an AAF file for processing.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar

Select. Click to specify one AAF input. No other file formats are supported, and only one file can be ingested per job.

General Input Details

Source. Click Select to display the Input Source dialog and specify the file to process, by nickname or by a unique file name.

Note: When used to create a composition for a Matte/Key Effect in Avid Media Composer, this file is intended for use of the alpha channel file.

Delete. To delete this input, click the X icon in the upper right corner.

Media Creation Action Configuration

Configuring the Media Creation action varies slightly, depending on whether you specified Interplay Configuration for Media Composer, or Interplay generally or a specific Interplay system which was pre-defined in the Vantage Management Console.

Topics

Media Composer Configuration

Interplay Mode Configuration

Media Composer Configuration

Use these panels to configure the Media Creation action for use with a Media Composer system:

Physical File Settings

AAF File Location. Specifies the UNC path to Avid storage where the AAF file will be written. The typical pattern is \\<*servername*>\<*workgroup folder*>\<*filename*>. For example: `\\avidnexispro\Interplay2021\AAF\AAF File1.aaf`.

MXF File Location. UNC path to Avid storage where the MXF OP-Atom media files will be written. The typical pattern is *servername\workgroup folder\Avid MediaFiles\MXF\file*. For example: `\\avidnexispro\Interplay2021\Avid MediaFiles\MXF\MXF File1.mxf`.

Note: Initial MXF path name must include the *\Avid MediaFiles\MXF* string.

Delete AAF Sub-directory and Temporary Files. When checked, deletes the AAF files and temporary files after the media has been checked into Interplay. These files are not deleted if the job fails.

Create Unique Folder for AAF. When checked, creates a unique directory folder for the output AAF file.

Physical Directory Control. Specifies Limit Files per Directory | Do Not Limit Files per Directory.

- *Limit Files per Directory*: When Limit Files per Directory is selected, update the Max Number of MXF Files in MXF Directory field to specify the maximum number of files. When the maximum is reached, the action creates a new directory with a numerical suffix (<dirname>.1, etc.) to store the next set of files. Range: 100 - 10,000. Default: 5,000.

- *Do Not Limit Files per Directory*: When Do Not Limit Files per Directory is selected, there is no maximum.

Copy AAF File. Specifies Enable | Disable:

- *Enable*: Specifies the AAF Copy Directory and option to Overwrite Existing AAF File.

  AAF Copy Directory. Browse to select or manually enter the fully-qualified folder path.

  Overwrite Existing AAF File. Check to overwrite an existing file of the same name in the target copy directory; uncheck to fail the action.

- *Disable*: Do not copy the AAF file. Local AAF file is temporary and disposed of per Vantage settings.

Note: If Overwrite Existing File is unchecked and a file with the same name exists in the destination directory, the job fails.

Asset Attributes

Master MOB ID. Specifies the master MOB ID for this asset.

Source MOB ID. Specifies the source MOB ID for this asset.

Disable Data Track in the Output. When checked, disables creation of a data track in the output.

Set Source Clip Start Time Offset. When checked, sets the timecode in the SMTE 377 timeline.

Material Name. Specify Use Media Name | Override. This name displays as the asset's display name unless a non-empty tape name is configured.

- *Use Media Name*. Input media name is used to configure the asset name.

- *Override*. Overrides default asset name with the user specified value. When selected, complete this control:

  Material Name. Specifies the name to use for the asset.

Note: To change the AAF folder name and filename use the Filename Pattern Editor to change the naming scheme.

Timecode

If the transcoded source uses drop frame timecode then the Media Creation action generates drop frame output. Conversely, if the transcoded source is non-drop frame then the generated output is also non-drop frame.

Timecode. Specifies timecode to use: Use Source Timecode | Override Timecode.

- *Use Source Timecode*. Uses the source timecode detected in the media.

- *Override Timecode*. Timecode detected in source file is used with no changes to the timecode in the output. When selected, provide:

  Override Timecode. Specify the timecode, frame rate, and drop frame or non-drop frame notation to use.

Input Type

Both Tape Name and Source Package Name values change the first 9 characters of the MXF output filenames and add metadata to Access and Media Composer in the tape name field (no character limit). If values are entered, this overrides the name set in the Filename Pattern Editor.

Dynamic Relinking: Avid uses the input descriptor information to check whether one of the two media are proxies or can be dynamically relinked. In the case of Dynamic Relinking using 2 Media Creation actions (1 high-res, the other proxy) the input descriptors (Tape Name/Source Package Name values) must be the same. This is best achieved by using a variable.

Naming Tapes: Tape names must be alphanumeric characters (A - Z, 0 - 9) and include uppercase and lowercase characters. Select a case convention and maintain it throughout a project.

Guidelines for MultiRez Tape Management: When working in a MultiRez workflow, it is important to name tapes properly. In particular, you should keep the following in mind:

Whenever you create a new tape, Media Composer generates a new source ID, even if the name you type for the new tape exactly matches that of an existing tape. You cannot dynamically relink media that does not share a source ID.

Do not use the same name for two different tapes or different names for the same tape. This might cause incorrect media association. Do not use the default tape name New Tape.

Input Type. Specifies input type: Tape | Import. Default: Import.

Tape: Select when media is tape-based, and specify the optional tape name of the asset.

Note: Avid does not support ingesting media define as Tape for 4K media - the asset displays as offline. Additionally, media with a non-zero timecode greater than 26 seconds also displays as offline.

Tape Name. When Input Type is *Tape*, optionally specify the asset tape name.

Import: When media is digital (disk-based), specifies the asset source package name.

Note: While Avid strongly recommends using *Import* mode for file-based digital media workflows, this method does not permit the Tape name field to be used for relinking. Tape mode should be used for traditional dynamic relinking using the Tape field.

Tape name data replaces the Asset Name set in the Vantage Filename Pattern Editor when not empty. To configure the Asset Name you must configure a User Property with the property name Display Name along with the desired value. Consult the Avid Integration Guide for more details.

Source Package Name. When Input Type is *Import*, specifies the optional source package name of the asset.

Asset Tag Properties

Tagged Values. Specifies Disable | Enable. When enabled, allows specification by filename or file nickname of an XML file containing tagged values for an asset.

Import Tagged Values. When checked, allows specification by filename or file nickname of an XML file containing tagged values for an asset.

File Nickname. Select File nickname to identify the file by nickname.

File Name. Manually enter or browse and select the fully-qualified path to the XML file.

Set Tagged Values. When checked, allows specification of tagged value pairs that are displayed in the Media Composer bin. Click Add New Item and configure pairs. Each tagged value pair item contains metadata fields for the name and associated value for the tagged pair.

Processor Configuration

Hang Detection Interval. (Default: 160,000) Specifies the time interval in MS to detect a hung process.

Flush Period. (Default: 6,000) Specifies the flush period time interval in MS.

Progress Report Interval. (Default: 50,000) Specifies the progress report time interval in MS.

IO Performance Tuning

Specifies Default | Custom. For Custom settings, configure these controls:

Video | Audio | Data Essence File System IO Page Size. Larger size leads to better performance. 512KB to 64MB in 512K increments.

Video | Audio | Data Essence File System IO Page Count. Smaller page count leads to better performance. 1 - 4 pages.

AAF Updates

AAF Update Interval. An AAF file, updated progressively, is made available for importing into Media Composer for editing, at the beginning of media capture. Specifies optional local AAF update interval time in milliseconds. Default is 0 (disabled).

Expected Maximum Duration. Expected duration in seconds, rationalized for 60 fps.

AAF Path and Mob ID Variables

AAF Path. When checked, specifies the path variable and is assigned the fully-qualified path of the AAF file for use by downstream actions. Typically this is used in Open workflows to provide an intermediate AAF path while media files are still growing. The variable is set from the AAF action from the Input > Source > File name field.

Master MOB ID. When checked, specifies the text variable and is assigned the master MOB ID of the asset for use by downstream actions.

Interplay Mode Configuration

Use the following panels to configure the Media Creation action for use with an Interplay system that you want to specify directly in this action or for use with a specific Interplay system:

Note: The Interplay Definition panel is only displayed when you select Interplay and must identify the target system directly in the action. If you select an Interplay system that you have defined in the Vantage Management Console, these controls are not displayed.

Interplay Definition

Interplay Web Services Host. The DNS/IP address of the Interplay Web Services server.

Interplay Web Services Port. The port being utilized by the Interplay Web Services server.

Interplay Workgroup. Name of workgroup (case-sensitive) associated with this Interplay system.

Interplay Username. Authorized user name.

Interplay Password. Authorized password.

Interplay Settings

Interplay Folder. Specifies the MediaCentral | Production Management virtual folder path to be used for the output asset. For example, `/Incoming Media/Media Creation/New Folder or /Incoming Media/`. You may enter a known path; browse to an existing folder path; or bind to a folder path variable.

Create Interplay Folder Path. When checked, creates the Production virtual folder(s) that do not exist in the configured Interplay Folder path. When not enabled, the job fails if the Interplay folder path does not exist.

These top-level system directories in Production can't be modified Catalogs

- Incoming Media

- Orphan Clips
- Projects
- Send To Playback
- Unchecked-In Avid Assets

Note: These special characters are not allowed in folder names ? : / \ " < > |

Frame Chase Editing. Specifies Enable | Disable. When enabled, creates a special type of Production asset, that can be edited while media ingest is in progress. The growing asset is available in the Production system, as soon as the initial check-in occurs. When the media capture ends, a final update is made to the Production system. This update changes the clip's type from an in-progress clip to a conventional master clip and updates the metadata. Configure these controls:

Interplay Frame Chase Interval. Specifies the frame chase interval (integer - number of milliseconds). Growing assets are checked into Production at the end of every specified frame chase interval.

Expected Maximum Duration. Specifies the expected maximum duration in seconds @60fps that is displayed in Interplay Access and Media Composer while a file is being processed. Once the file is complete and updated, the duration shows the actual duration of the file. This applies to both open and closed workflow configurations.

Custom Metadata Management. Enable to allow an Asset Name to be updated in MediaCentral | Production Management in an Open, Edit-During-Capture (Frame Chase) Flip64, Lightspeed Live Capture or Tape workflow. Enables Vantage to update the asset user metadata and the head frame without requiring the use of the Notify action to generate the MOB ID. For proxy generation in a Flip64 workflow, you must use a Notify action to generate MOB IDs. In a Capture/Tape workflow, you may use the Capture/Tape action to generate the MOB IDs directly.

Note: For improved Head Frame display performance in Interplay Access, enable Custom Metadata Management.

Second Interplay Folder. Specifies Enable | Disable. When enabled, creates an identical, duplicate media asset to a secondary folder on the same system.

Second Interplay Folder. Specifies the MediaCentral | Production Management virtual folder path to be used for the secondary output asset. For example, `/Incoming Media/Media Creation/New Folder or /Incoming Media/`. You may enter a known path; browse to an existing folder path; or bind to a folder path variable.

Create the Second Interplay Folder Path. Optionally, create the virtual folder manually in Interplay Access. Or check the control to create the Production virtual

folder(s) that do not exist in the configured Interplay Folder path. When not enabled, the job fails if the Interplay folder path does not exist.

These top-level system directories in Production can't be modified Catalogs

- Incoming Media
- Orphan Clips
- Projects
- Send To Playback
- Unchecked-In Avid Assets

Note: These special characters are not allowed in folder names ? : / \ " < > |

Asset Head Frame. Specifies Enable | Disable. When enabled, allows specification of a Head Frame source as generated by a Media Creation or Flip64 action. Creation of an open Head Frame is supported.

Asset Head Frame Source. Specifies Create | Set. Allows specification of a Head Frame source using Frame Number or Timecode (Create) or via an Asset Head Frame file (Set). Configure these controls:

- *Create*. Specifies Head frame using frame number or timecode (default).

  Asset Head Frame Configuration. Specifies Specify Frame Number | Specify Timecode. Complete these controls as appropriate:

  Frame Number. Creates and uses the first I-frame from the specified frame number in the input video track.

  Specify Timecode. Creates and uses the first I-frame from the specified timecode in the input video track.

- *Set*. Specifies Head Frame using filename or nickname of the file generated:

  File Nickname. Specifies the file by nickname. The file must have been ingested by an upstream action and assigned a nickname. Use this option when the file changes for each job.

  File Name. Manually enter or browse and select the fully-qualified path to the file. The Vantage service that executes this action must have access to the file location. Use this option when you want to assign a static file, which is used for every job. If you assign a variable, the variable must be assigned the fully-qualified path and file name in an upstream action and the file can change for each job.

Interplay Asset Metadata. Specifies Disable | Enable. When enabled, allows metadata to be added via a file using a (Interplay) Production metadata file or manually using Add Asset Restrictions, Add Asset Locators, or Add User Properties controls.

Note: The XML for Avid User Property Metadata and Locators uses a simple structure. It consists of two Element types: <Entry> for adding Avid User Property data and <Locator> for adding Avid Locator data. Each Element has several attributes, used to

supply data for the Entry or Locator element you are defining. Multiple Entry and Locator elements are permitted.

Import Metadata File. Allows specification of an Production Asset Metadata file by file path or nickname. Various parameters such as User Properties and Locators can be added via an XML file.

Add Asset Restrictions. When checked, allows manual addition of Asset Restrictions. A restriction is a span of an asset that indicates a clip, or a portion of a clip, whose use is limited in some way, such as through intellectual property rights management or content compliance. There are 2 options for setting the Restriction:
- In Frame Number / Out Frame Number
- In Timecode / Out Timecode

The Frame Number options are enabled by default and values entered in Timecode fields are ignored. Disable the Frame Number options to use the In Timecode and Out Timecode values.
If Frame Numbers are used, the In Frame Number and Out Frame Number are offsets from the beginning of the clip. A Frame Number is considered invalid if it is negative or if it extends past the duration of the clip.

Note: Jobs complete successfully, and assets are created, even if a restriction was unable to be added to the database. This can occur, for example, if an Asset Restriction uses a non-existent frame number or timecode value. However, such failures with Production transactions in setting the asset metadata will not result in job failures.

Note: Unlike other Interplay Access metadata features, the following special characters are allowed ? : / \ " < > |.

Add Asset Locators. When enabled, allows the addition of frame locators and associated attributes for assets. These include Comment, Color, Timecode, Frame Number, and Track.

Add User Properties. When enabled, allows the addition of Avid User Properties. If the name of the User Property does not exist, it is created and populated with the associated value.

Note: When viewed in Interplay Access, copied clips may intermittently include a random number sequence appended to the display name (EX.*Dup_12345678*). Specifying 'Display Name' for Name in Add User Properties metadata field prevents this from occurring.

Physical File Settings

AAF File Location. Specifies the UNC path to Avid storage where the AAF file will be written. The typical pattern is \\<*servername*>\<*workgroup folder*>\<*filename*>. For example: `\\avidnexispro\Interplay2021\AAF\AAF File1.aaf`.

MXF File Location. UNC path to Avid storage where the MXF OP-Atom media files will be written. The typical pattern is *\\servername\workgroup folder\Avid MediaFiles\MXF\file*. For example: `\\avidnexispro\Interplay2021\Avid MediaFiles\MXF\MXF File1.mxf`.

Note: Initial MXF path name must include the **\Avid MediaFiles\MXF** string.

Delete AAF Sub-directory and Temporary Files. When checked, deletes the AAF files and temporary files after the media has been checked into Interplay. These files are not deleted if the job fails.

Create Unique Folder for AAF. When checked, creates a unique directory folder for the output AAF file.

Physical Directory Control. Specifies Limit Files per Directory | Do Not Limit Files per Directory.

- *Limit Files per Directory*: When Limit Files per Directory is selected, specify the **Max Number of MXF Files in MXF Directory**. When the maximum is reached, a new directory is created with a numerical suffix (<dirname>.1, etc.) to store the next set of files. Range: 100 - 10,000. Default: 5,000.

- *Do Not Limit Files per Directory*: When Do Not Limit Files per Directory is selected, there is no maximum.

Copy AAF File. Specifies Enable | Disable.

- *Enable*: Specifies the **AAF Copy Directory** and option to **Overwrite Existing AAF File**.

- *Disable*: Do not copy the AAF file. Local AAF file is temporary and disposed of per Vantage settings.

Note: If Overwrite Existing File is unchecked and a file with the same name exists in the destination directory, the job fails.

Asset Attributes

Master MOB ID. Specifies the master MOB ID for this asset.

Source MOB ID. Specifies the source MOB ID for this asset.

Disable Data Track in the Output. When checked, disables creation of a data track in the output.

Set Source Clip Start Time Offset. When checked, sets the timecode in the SMTE 377 timeline.

Material Name

Specify Use Media Name | Override. This name displays as the asset's display name unless a non-empty tape name is configured:

- ***Use Media Name***. Input media name is used to configure the asset name.

- ***Override***. Overrides default asset name with the user specified value. When selected, complete this control:

  Material Name. Specifies the name to use for the asset.

Note: To change the AAF folder name and filename use the Filename Pattern Editor to change the naming scheme.

Timecode

If the transcoded source uses drop frame timecode then output is drop frame. If transcoded source is non-drop frame then output is non-drop frame.

Specifies timecode to use: Use Source Timecode | Override Timecode:

- ***Use Source Timecode***. Uses the source timecode detected in the media.

- ***Override Timecode***. Timecode detected in source file is used with no changes to the timecode in the output. When selected, specify...

  Override Timecode. Specify the timecode, frame rate, and drop frame or non-drop frame notation to use.

Override Physical Source Timecode

When the Media Creation action generates a new asset from a part of the media file that was used to make another asset and these two assets need to be relinked, then the new asset should have the same physical start timecode as the one made with the complete media file.

Specifies: Enable | Disable. When enabled, specify...

Override Timecode. Specify the timecode, frame rate, and drop frame or non-drop frame notation to use.

Input Type

Specifies: Tape | Import. Complete these controls as appropriate:

Note: Avid does not support ingesting media via Tape mode for 4K media - the asset displays as offline. Additionally, non-zero timecode greater than 26 seconds also displays as offline.

- ***Tape Name***. When Input Type is *Tape*, specifies the tape name of the asset.

- Import. When Input Type is *Import*, specifies the source package name of the asset.

Note: While Avid strongly recommends using Import for file based digital media workflows, this method does not allow for the Tape name field to be used for relinking. Tape mode may be used for traditional dynamic relinking using the Tape field.
Tape name data replaces the Asset Name set in the Vantage Filename Pattern Editor when not empty. To configure the Asset Name you must configure a User Property with the property name 'Display Name' along with the desired value. Consult the Avid Integration Guide for more details on this configuration.

Processor Configuration

Hang Detection Interval. (Default: 160,000) Specifies the time interval in MS to detect a hung process.

Flush Period. (Default: 6,000) Specifies the flush period time interval in MS.

Progress Report Interval. (Default: 50,000) Specifies the progress report time interval in MS.

IO Performance Tuning

Specifies Default | Custom. For Custom settings, configure these controls:

Video | Audio | Data Essence File System IO Page Size. Larger size leads to better performance. 512KB to 64MB in 512K increments.

Video | Audio | Data Essence File System IO Page Count. Smaller page count leads to better performance. 1 - 4 pages.

AAF Path and Mob ID Variables

AAF Path. When checked, specifies the path variable and is assigned the fully-qualified path of the AAF file for use by downstream actions. Typically this is used in Open workflows to provide an intermediate AAF path while media files are still growing. The variable is set from the AAF action from the Input > Source > File name field.

Master MOB ID. When checked, specifies the text variable and is assigned the master MOB ID of the asset for use by downstream actions.

Capture Action Output Formats

The Capture action and supported output formats are implemented in the Vantage Capture service, to enable live stream capture-to-file workflows.

Matroska Output

Proxy SRT Live Streaming Output

MXF OP1a Output

MXF XAVC Output

MPEG2-TS Output

QuickTime Output

QuickTime Open Output

SRTLive Streaming Output

TIFO Output

Proxy DASH Output

Proxy TIFO Output

Proxy MP4 Output

Proxy MXF OP-1a Output

Proxy MXF RDD 25 Output

Proxy HLS Output

Proxy SRTLive Stream Output

Matroska Output

The Matroska output container encodes video as FFV1 or x264 and audio as PCM, and saves it in the open source Matroska Multimedia Container format as an MKV file.

Matroska files do not contain a timecode track.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Select the container to display its settings in the configuration panel on the right.

Format Summary

Video

FFV1 | x264

Audio

PCM

Container Settings

General

File Extension. Specifies *mkv*.

Aspect Ratio Mode

Aspect Ratio Mode. Specifies the aspect ratio mode to set in the output: Automatic | Display Aspect Ratio | Pixel Aspect Ratio. Automatic specifies the output aspect ratio based on the input file aspect ratio. Specify Display or Pixel to specify aspect ratio mode, regardless of the input mode.

Video Stream Details

Select the Video Stream component to display its options in the panel on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling (Default: Auto). Specifies the standard for color primaries signaling in the MP4 container.

Transfer Function Signaling (Default: Auto). Specifies the standard for transfer function signaling in the MP4 container.

Color Matrix Signaling (Default: Auto). Specifies the standard for color matrix signaling in the MP4 container.

Codec

Codec. Specifies which codec (FFV1 | x264) to use to encode the video stream.

FFV1

Format Type. Specifies the uncompressed data type. YUV | RGB, subsampling, alpha channel presence, and bit depth.

Version. Specifies which version of the FFV1 codec to utilize.

Coder Type. Specifies the entropy coder type.

GOP Length. Specifies the GOP length.

Threads. When checked, specifies the number of threads to use while processing. If unchecked, the value is set to the number of CPU cores available.

Slices (Default: 30). Specifies the number of slices per frame. Increasing slice count may speed performance, but it also increases the file size.

Slice CRC. When checked, enables the decoder to detect errors in the bit stream, rather than blindly decoding a broken slice.

x264

Profile. Specifies the video quality profile.

Bit Rate. Specifies the output video bit rate in kbps (512 - 50,000).

Command Line. Configure the compressor using x264 command line syntax. For setting specific x264 parameters, you can enter x264 CLI commands (separated by spaces) to execute them. For best results, be sure to use long form: *--bframe 5*, for example. Use of short form (*-b 5*) is not recommended.

The following x264 command line parameters are not supported: *--fake-interlaced* | *--nal-hrd cbr* | *--profile* |*--video-format* | *--bitrate*.

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The X position of the top-left of the timecode in the output video frame (0 - 4096 pixels).

Y Position. The Y position of the top-left of the timecode in the output video frame (0 - 2160 pixels).

Font Size. Sets the font size of the timecode (6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

Deinterlace Conversion Filter

Deinterlace Conversion Filter. Deinterlacing converts interlaced source to progressive output during transcoding. When checked, select the deinterlacing method to apply. Weston3 and Weston5 methods reconstruct a true progressive image from the interlaced output.

The Deinterlace Conversion filter supports progressive mezzanine output from an interlaced source. The filter is utilized only if the transcoder supports progressive output at the given frame rate.

Note: GPU-based transcoders (AVC and HEVC) in a primary container do not support interlaced output: You must enable the Deinterlace Conversion filter.

Secondary, proxy output is generally transcoded to progressive, as it is often resized to a smaller frame size. During resizing, the transcoder blends frames. When a proxy is resized, the frames are always blended, so it is not necessary to enable the deinterlacing filter.

When a proxy is transcoded at the same frame size as the source, the scaling filter is bypassed, and the fields are weaved together in the output to produce a full-size progressive frame. High-motion video may benefit from employing the deinterlacing filter to blend the frames in the progressive output for smoother playback.

Audio Stream Details

Select the Audio Stream component to display its details in the panel on the right.

Language Tags

Language Tags. Specify mode: Automatically Detect Language Tags | Manually Set Language Tags.

Language. When Language Tags is set to Manually Set Language Tags, specifies the language to use.

Codec: PCM

Codec. Specifies PCM as the codec to use to encode audio tracks. No other codecs are provided.

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Channel Configuration. Specifies keyword or number of channels per track: Mono | Stereo | <<multi-channel, AAC encoded surround format>> | <<Specified number of channels per track>>.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Label Channel Pairs Left/Right. When checked, causes the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is checked, in which case this setting is ignored.

Bit Depth. Specifies the output audio bit depth.

Force One Track Per Channel. When checked, creates multiple mono tracks - one track for each channel - instead of a single, multi-channel track, and specify the number of tracks you want in output that supports multiple tracks.

Channel Map. Allows re-mapping of the incoming source audio channels to the captured file output channels within the scope of a track. Channels are numbered from 1 to 32. Specify the number of the audio input channels to use for each output channel.

MP4 Output

The MP4 Output container encodes video and audio as specified, and saves it as an MP4 file. MP4 files do not contain a timecode track.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Select the container to display its settings in the configuration panel on the right.

Format Summary

Video

AVC (Lightspeed Live Server Only) | x264

Audio

AAC 16-bit, 64-512 kbps, up to 8 stereo channels

PCM

MP4 Applicable Standards

IEC 14496-14

Container Settings

General

File Extension. Specifies *mp4*. The MP4 container wraps the specified media in MP4 file format.

Aspect Ratio Mode

Select one option:

Automatic. Set the aspect ratio automatically, based on the detected content.

Display Aspect Ratio. When selected, specify the display frame aspect ratio to utilize.

Pixel Aspect Ratio. When selected, specify the pixel aspect ratio to utilize.

Video Stream Details

Select the Video Stream component to display its options in the panel on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MP4 container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MP4 container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MP4 container.

Codec

Codec. Specifies which codec (AVC | x264) to use to encode MPEG video streams.

AVC (Lightspeed Live Server Only)

Note: If your Live Capture server is equipped with an NVIDIA RTX or T series GPU, you can not use the AVC codec to encode interlaced sources.

Profile. Specifies the video quality profile.

Baseline - Primarily for low-cost applications, typically used in video-conferencing and mobile applications. By specification, interlaced only.

Main - Standard-definition digital TV broadcasts that use MPEG-4 format.

High - Broadcast and disk storage applications, particularly for HD televisions.

Bit Rate. Specifies the output target bit rate in kbps (512 - 50,000).

x264 (All Live Capture Platforms - GPU-enabled Optimum)

Same as Source. Specifies the width and height to match that of the source video, ignoring the values specified in the Width and Height Controls in the user interface.

Width | Height. Specifies the width and height of the output video frame in pixels.

Bit Rate. Specifies the output target bit rate in kbps (512 - 50,000).

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The X position of the top-left of the timecode in the output video frame (0 - 4096 pixels).

Y Position. The Y position of the top-left of the timecode in the output video frame (0 - 2160 pixels).

Font Size. Sets the font size of the timecode (6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

Deinterlace Conversion Filter

Deinterlace Conversion Filter. Deinterlacing converts interlaced source to progressive output during transcoding. When checked, select the deinterlacing method to apply. Weston3 and Weston5 methods reconstruct a true progressive image from the interlaced output.

The Deinterlace Conversion filter supports progressive mezzanine output from an interlaced source. The filter is utilized only if the transcoder supports progressive output at the given frame rate.

Note: GPU-based transcoders (AVC and HEVC) in a primary container do not support interlaced output: You must enable the Deinterlace Conversion filter.

Secondary, proxy output is generally transcoded to progressive, as it is often resized to a smaller frame size. During resizing, the transcoder blends frames. When a proxy is resized, the frames are always blended, so it is not necessary to enable the deinterlacing filter.

When a proxy is transcoded at the same frame size as the source, the scaling filter is bypassed, and the fields are weaved together in the output to produce a full-size progressive frame. High-motion video may benefit from employing the deinterlacing filter to blend the frames in the progressive output for smoother playback.

Audio Stream Details

Select the Audio Stream component to display its details in the panel on the right.

Language Tags

Language Tags. Specify mode: Automatically Detect Language Tags | Manually Set Language Tags.

Language. When Language Tags is set to Manually Set Language Tags, specifies the language to use.

Codec

Codec. Specifies which codec to use to encode audio streams. For configuration details, see appropriate topic following.

Codec: AAC

General

Channel Configuration. Specifies the number or layout of the audio channels.

Bitrate. Specifies the target bit rate for this audio stream: AAC 16-bit, 64-512 kbps, up to 8 channel stereo.

Create Stereo Pairs. When checked, specifies that each set of tracks should be converted to a stereo pair. Specify the number of stereo pairs to create (up to 8 pairs).

Channel Map. When checked, enables re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

Codec: PCM

Codec. Specifies PCM as the codec to use to encode audio tracks. No other codecs are provided.

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Channel Configuration. Specifies keyword or number of channels per track: Mono | Stereo | <<multi-channel, AAC encoded surround format>> | <<Specified number of channels per track>>.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Label Channel Pairs Left/Right. When checked, causes the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is checked, in which case this setting is ignored.

Bit Depth. Specifies the output audio bit depth.

Force One Track Per Channel. When checked, creates multiple mono tracks instead of a single multi-channel track.

Channel Map. Allows re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

MXF OP1a Output

MXF OP1a Output produces an MXF Operational Pattern 1a (OP-1a, SMPTE 379M-2004) file with a generic container mapped to video and audio formats encoded by codecs implemented in Lightspeed Live Capture.

Note: Most Lightspeed Live Capture MXF files containing IMX, XDCAM or AVC-Intra, and all QuickTime Open files, can be opened for editing/playing while they are still growing during capture. See the Partition Duration and Cache Size controls for details. Read your video editor/player user guide for details on supported formats.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Format Summary

Video

Apple ProRes | AVC | Avid DNxHD | Avid DNxHR | DV | DVCPRO HD | IMX | JPEG2000 Lossless | JPEG2000 Lossy | Panasonic AVC-Intra | Panasonic AVC-Ultra | Sony XDCAM | Uncompressed | x264

Audio

PCM 16/20/24-bit, 48Kbps, up to 16 channels

PCM/Dolby E (pass through)

Timecode

SMPTE 377M, Timecode track

SMPTE 385M, System item

SMPTE 405M, System item (DNxHD)

MXF Applicable Standards

SMPTE 331M-2004, Elements and Metadata Definitions for SDTI-CP

SMPTE 377M-2004, Material Exchange Format (MXF)

SMPTE 378M-2004, MXF Operational Pattern 1a

SMPTE 379M-2004, MXF Generic Container

SMPTE 382M-2007, Mapping AES3 and Broadcast Wave Audio into MXF Generic Container - DV (AES3), DNxHD, (BWF)

SMPTE 383M-2008, Mapping DV-DIF Data into MXF Generic Container - DV

SMPTE 385M-2004, Mapping SDTI-CP Essence and Metadata into MXF Generic Container - DV, IMX

SMPTE 386M-2004, Mapping Type D-10 Essence Data to MXF Generic Container - IMX

SMPTE 394M-2006, System Scheme 1 for MXF Generic Container DNxHD

SMPTE 405M-2006, Elements and Individual Data Items for MXF Generic Container System Scheme 1 - DNxHD

SMPTE 436M-2006, MXF Mappings for VBI Lines and Ancillary Data Packets

SMPTE 2019-4-2008, Mapping VC-3 Coding Units into MXF Generic Container - DNxHD

SMPTE RDD03, eVTR MXF Interoperability Specification - DV, IMX

SMPTE RDD 9-2009, MXF Interoperability Specification of Sony MPEG Long GOP Product

SMPTE ST 298-2009, Universal Labels for Unique Identification of Digital Data

SMPTE ST 326:2000, Television -SDTI Content Package Format (SDTI-CP)

SMPTE ST 381-1:2005, Television-Material Exchange Format (MXF) - Mapping MPEG Streams into the MXF Generic Container

SMPTE RDD 25:2014, AVC MXF Proxies

Note: The resulting MXF (OP-1a) file can contain VANC data (SMPTE 436M) if present in the incoming stream.

Container Settings

The MXF OP1a Container wraps the specified media in MXF OP-1a file format.

General

File Extension. Specifies *mxf*. No other extensions are provided.

436 Data Track. Specifies how to add SMPTE 436 data to the output.

Partition Strategy. Specifies how to apply MXF partitioning. The Partition Strategy must be set to *Isolated Body Leading Index + RIP* in order for the Partition Duration parameter to be used.

The Partition Duration parameter is ignored if the Partition Strategy is set to Automatic.

Partition Duration. For Open Workflows where files are being opened for edit/copy during capture. Should not be used with AVC Intra, DNxHD, DV, IMX, and Uncompressed video - instead, use the Cache Size control. When checked, specifies the

MXF partition duration in seconds, where lowering it allows growing MXF files to be opened more quickly.

Cache Size. For Open Workflows generating with AVC Intra, DNxHD, DV, IMX, and Uncompressed video, where files are being opened for edit/copy during capture. For other video formats, use the Partition Duration control.

This control specifies how much data is cached in RAM before the file is written to disk, controlling the speed at which video is written to the file, and depends on codec format and bitrate. Lowering the cache size allows growing MXF files to be opened more quickly. Default value of 20 is a suggested starting point for fastest file availability.

When checked, specifies the media cache size in seconds and adjusts the time delay on a growing capture recording before it can be opened by a downstream action or by Glim or other video editors.

Broadcast Wave Audio. When checked, sets the audio tracks to Broadcast Wave format, adding metadata such as timestamps to the audio stream.

Mpeg Picture Element. Specifies that MPEG picture elements should be used, for Avid and Adobe Premiere Pro compatibility.

Telestream Index. When enabled, a proprietary Telestream Index file is created for use in specific customer workflows.

Aspect Ratio Mode

Automatic. Set the aspect ratio automatically, based on the detected content.

Display Aspect Ratio. When selected, specify the display frame aspect ratio to utilize.

Pixel Aspect Ratio. When selected, specify the pixel aspect ratio to utilize.

Video Stream Details

Select the Video Stream component to display its options on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codec

Codec. Specifies which codec to use to encode video streams. For configuration details, see appropriate topic following.

Apple ProRes

Apple ProRes is a lossy video compression format developed by Apple, Inc. for use in post-production.

Quality. Specifies the quality (chroma sub-sampling and preset bitrate) profile to use when encoding the output media.

512 VBI Cropping Method. When processing 512 NTSC SD source, the codec removes the top 25 | 26 | 27 VBI data lines from the source.

AVC (Lightspeed Live Server Only)

Note: If your Live Capture server is equipped with an NVIDIA RTX or T series GPU, you can not use the AVC codec to encode interlaced sources.

Profile. Specifies the video quality profile.

Baseline - Primarily for low-cost applications, typically used in video-conferencing and mobile applications. By specification, interlaced only.

Main - Standard-definition digital TV broadcasts that use MPEG-4 format.

High - Broadcast and disk storage applications, particularly for HD televisions.

Bit Rate. Specifies the output target bit rate in kbps (512 - 50,000).

Avid DNxHD

DNxHD generates HD video, with a set bitrate for each DNXHD quality profile.

Quality. Specifies the video quality profile. Certain profiles have limits:

- 444 - (10-bit) only supported in these 1080p resolutions: 23.98, 24, 25, 29.97
- HQ TR - Not supported in Capture - do not use.
- SQ TR (8-bit) - not supported in 1080p 50/59.94/60.
- LB (8-bit) - only supported for these 1080p resolutions: 23.98, 24, 25, 29.97

Table 1.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHD HQX	Avid DNxHD 440x 1080p/60	10-bit 440 Mbs
DNXHD HQ	Avid DNxHD 440 1080p/60	8-bit 440 Mbs
DNXHD SQ	Avid DNxHD 290 1080p/60	8-bit 291 Mbs
DNXHQ LB	Avid DNxHD 90 1080p/60	8-bit 90 Mbs
DNXHD HQX	Avid DNxHD 440x 1080p/59.94	10-bit 440 Mbs
DNXHD HQ	Avid DNxHD 440 1080p/59.94	8-bit 440 Mbs
DNXHD SQ	Avid DNxHD 290 1080p/59.94	8-bit 291 Mbs
DNXHD LB	Avid DNxHD 90 1080p/59.94	8-bit 90 Mbs
DNXHD HQX	Avid DNxHD 365x 1080p/50	10-bit 367 Mbs
DNXHD HQ	Avid DNxHD 365 1080p/50	8-bit 367 Mbs
DNXHD SQ	Avid DNxHD 240 1080p/50	8-bit 242 Mbs
DNXHD LB	Avid DNxHD 75 1080p/50	8-bit 75 Mbs
DNXHD HQX	Avid DNxHD 220x 1080i/59.94	10-bit 220 Mbs
DNXHD HQ	Avid DNxHD 220 1080i/59.94	8-bit 220 Mbs
DNXHD SQ	Avid DNxHD 145 1080i/59.94	8-bit 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 1080i/59.94	8-bit 100 Mbs
DNXHD HQX	Avid DNxHD 185x 1080i/50	10-bit 184 Mbs
DNXHD HQ	Avid DNxHD 185 1080i/50	8-bit 184 Mbs
DNXHD SQ	Avid DNxHD 120 1080i/50	8-bit 121 Mbs
DNXHD SQ TR	Avid DNxHD 85 1080i/50	8-bit 84 Mbs
DNXHD 4:4:4	Avid DNxHD 365x 1080p/25	10-bit 367 Mbs
DNXHD HQX	Avid DNxHD 185x 1080p/25	10-bit 184 Mbs
DNXHD HQ	Avid DNxHD 185 1080p/25	8-bit 184 Mbs
DNXHD SQ	Avid DNxHD 120 1080p/25	8-bit 121 Mbs
DNXHD SQ TR	Avid DNxHD 85 1080p/25	8-bit 84 Mbs
DNXHD LB	Avid DNxHD 36 1080p/25	8-bit 36 Mbs
DNXHD 4:4:4	Avid DNxHD 350x 1080p/24	10-bit 352 Mbs

Table 1.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHD HQX	Avid DNxHD 175x 1080p/24	10-bit 176 Mbs
DNXHD HQ	Avid DNxHD 175 1080p/24	8-bit 176 Mbs
DNXHD SQ	Avid DNxHD 115 1080p/24	8-bit 116 Mbs
DNXHD SQ TR	Avid DNxHD 80 1080p/24	8-bit 80 Mbs
DNXHD LB	Avid DNxHD 36 1080p/24	8-bit 36 Mbs
DNXHD 4:4:4	Avid DNxHD 350x 1080p/23.976	10-bit 352 Mbs
DNXHD HQX	Avid DNxHD 175x 1080p/23.976	10-bit 176 Mbs
DNXHD HQ	Avid DNxHD 175 1080p/23.976	8-bit 176 Mbs
DNXHD SQ	Avid DNxHD 115 1080p/23.976	8-bit 116 Mbs
DNXHD SQ TR	Avid DNxHD 80 1080p/23.976	8-bit 80 Mbs
DNXHD LB	Avid DNxHD 36 1080p/23.976	8-bit 36 Mbs
DNXHD 4:4:4	Avid DNxHD 440x 1080p/29.97	10-bit 440 Mbs
DNXHD HQX	Avid DNxHD 220x 1080p/29.97	10-bit 220 Mbs
DNXHD HQ	Avid DNxHD 220 1080p/29.97	8-bit 220 Mbs
DNXHD SQ	Avid DNxHD 145 1080p/29.97	8-bit 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 1080p/29.97	8-bit 100 Mbs
DNXHD LB	Avid DNxHD 45 1080p/29.97	8-bit 45 Mbs
DNXHD HQX	Avid DNxHD 220x 720p/59.94	10-bit 220 Mbs
DNXHD HQ	Avid DNxHD 220 720p/59.94	8-bit 220 Mbs
DNXHD SQ	Avid DNxHD 145 720p/59.94	8-bit 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 720p/59.94	8-bit 100 Mbs
DNXHD HQX	Avid DNxHD 175x 720p/50	10-bit 175 Mbs
DNXHD HQ	Avid DNxHD 175 720p/50	8-bit 175 Mbs
DNXHD SQ	Avid DNxHD 115 720p/50	8-bit 115 Mbs
DNXHD SQ TR	Avid DNxHD 85 720p/50	8-bit 85 Mbs

Avid DNxHR

Avid DNxHR is a UHD/4K format codec.

Frame sizes - 3840x2160, 4096x2160 (up to 30 fps at 444, up to 60 fps at HQX 10-bit)

Frame rates - 23.976, 25, 29.97, 50, 59.94

Quality. Specifies the video quality profile:

- 444 - 12-bit RGB 4:4:4, cinema-quality delivery. This profile is not supported in Live Capture due to performance limitations.
- HQX - UHD/4K 12-bit YUV 4:2:2, Broadcast-quality delivery
- HQ - 8-bit 4:2:2 high-quality
- SQ (8-bit 4:2:2 standard-quality)
- LB (8-bit 4:2:2 low bandwidth, offline quality

DV

The DV codec generates interlaced SD format NTSC (29.97 fps) and PAL (25 fps) video.

Quality. Specifies the video quality profile.

DVCPRO HD

DVCPro HD video is an anamorphic format - the horizontal pixels are sub-sampled in the recording to save bandwidth, and stretched to fit a 16:9 frame during playback.

Supported input frame rates:

- 720p: 50/59.94
- 1080i: 25/29.97
- 1080p: 23.976p/psf

No user-configurable settings available.

Video is encoded at 8-bit, using 4:2:2 chroma. The data rate is generally recorded at 115 mbs. Encoded frames vary by input size:

- 1280x720 video is encoded at 960x720.
- 1920x1080 is encoded at 1280x1080@59.94i
- 1920x1080 is encoded at 1440x1080@50i

DVCPro HD supports up to eight audio channels at 48kHz/16 bits per channel.

IMX

The IMX codec can only encode SD video. The IMX format specified by Sony supports 4 channel, 48 kHz, 24 bit or 8 channel, 48 kHz,16 bit audio to match the Sony IMX implementation. Both configurations require Force One Track per Channel to be enabled in the PCM audio transcoder.

Quality. Specifies the video quality profile.

Follow D-10/SMPTE 331M Spec. To match the Sony IMX implementation, uncheck this control and configure the audio tracks to specify Force one track per channel. Check this control to produce output conforming to D-10/SMPTE 331M.

You should not enable Follow D-10 and also configure the audio tracks to Force one track per channel – this creates audio that is not compatible with D-10 or Sony IMX.

Mask VBI. When enabled, the VBI portion of the video signal is replaced with black - 26 lines for NTSC, 30 lines for PAL. The metadata from the VBI is still preserved in the container, when possible.

JPEG2000 Lossless (Comprimato)

The Comprimato JPEG2000 Lossless codec encodes video into JPEG2000 format, using the JPEG2000 codec in lossless mode. Comprimato-based ISO/ITU still image compression provides a fast and flexible solution for high-quality, wavelet-based compression.

JPEG-2000 is an intra-frame HD video codec specified by ISO/IEC 15444-1. It uses wavelet transformations to compress the image which results in high quality images in both lossy and lossless modes. JPEG 2000 offers higher compression ratios over standard JPEG video. It offers resolution, color, quality and position progression scalability, and also supports 4:2:2 and 4:4:4 chroma sub-sampling methods.

There are no general frame size or frame rate limitations. However, compression is resource intensive, and real time performance cannot be sustained beyond HD 1080p@59.94 for YUV encoding, and lower frame rates for RGB encoding.

Codec Settings

Pixel Format. Specifies the color space, chroma sub-sampling, and bit depth to use for encoding.

Tile Partition Width. Specifies the tile partition width in pixels.

Tile Partition Height. Specifies the tile partition height in pixels.

Precinct Width and Height. Specifies the precinct size.

Code-block Width and Height. Specifies the height and width (in pixels) of a code block to process.

Packet Progression Order. Specifies the order of packet progression.

Decomposition Levels. Specifies the maximum number of discrete wavelet transform levels, or stages, to use (also known as Discrete Wavelet Transformation resolution).

Tile-Part Length Markers. When checked, specifies that Tile Length Markers will be used.

End of Packet Header Markers. When checked, EPH marker segments are generated.

Start of Packet Markers. When checked, SOP marker segments are generated.

CUDA Memory Limit. Specifies the CUDA memory limit in MB.

Note: When the CUDA Memory Limit is set to 0, GPU processing is disabled.

CUDA Tile Limit. Specifies the CUDA tile limit.

Encoder Queue Size. Specifies the encoder queue size.

Encode Less VBI. When checked, the codec removes the top 32 lines from PAL SD sources or 26 lines from NSTC SD sources that contain VBI data.

JPEG2000 Lossy (Comprimato)

The Comprimato JPEG2000 Lossy codec encodes video into JPEG2000 format, using the JPEG2000 codec in lossy mode. Comprimato-based ISO/ITU still image compression provides a fast and flexible solution for high-quality, wavelet-based compression.

JPEG 2000 is an intra-frame HD video codec specified by ISO/IEC 15444-1. It uses wavelet transformations to compress the image which results in high quality images in both lossy and lossless modes. JPEG 2000 offers higher compression ratios over standard JPEG video. It offers resolution, color, quality and position progression scalability, and also supports 4:2:2 and 4:4:4 chroma sub-sampling methods.

There are no general frame size or frame rate limitations. However, compression is resource intensive, and real time performance cannot be sustained beyond HD 1080p@59.94 for YUV encoding, and lower frame rates for RGB encoding.

Codec Settings

Video Bit Rate. Specifies the output bit rate in kbps.

Quantization Coefficient. Specifies quality (1-100). If set toward the lower bound it reduces data correspondingly and quality decreases; if set toward the upper bound it increases data and quality. The default value of 100 allows the full quality as set by the bit rate to be used.

Pixel Format. Specifies the color space, chroma sub-sampling, and bit depth to use for encoding.

Tile Partition Width. Specifies the tile partition width in pixels.

Tile Partition Height. Specifies the tile partition height in pixels.

Precinct Width and Height. Specifies the precinct size.

Code-block Width and Height. Specifies the height and width (in pixels) of a code block to process.

Packet Progression Order. Specifies the order of packet progression.

Decomposition Levels. Specifies the maximum number of discrete wavelet transform levels, or stages, to use (also known as Discrete Wavelet Transformation resolution).

Tile-Part Length Markers. When checked, specifies that tile length markers will be used.

End of Packet Header Markers. When checked, EPH marker segments are generated.

Start of Packet Markers. When checked, SOP marker segments are generated.

CUDA Memory Limit. Specifies the CUDA memory limit in MB.

Note: When the CUDA Memory Limit is set to 0, GPU processing is disabled.

CUDA Tile Limit. Specifies the CUDA tile limit.

Encoder Queue Size. Specifies the encoder queue size.

Encode Less VBI. When checked, the codec removes the top 32 lines from PAL SD sources or 26 lines from NSTC SD sources that contain VBI data.

Panasonic AVC-Intra

Follow SMPTE RP2027 Spec (Only applies to AVC-I class 50 and 100). When enabled, specifies that the file should be recognized as Panasonic AVC-I in the Media Creation action. The parameter is enabled by default, but may be disabled for generic AVC-I output.

Essence Descriptor. Specifies the essence type; sets the essence type (CDCI | MPEG) in the header to identify it.

Quality. Specifies the video quality profile.

AVC-Intra 50

CABAC entropy coding only

1920 x 1080@59.94i, 50i, 29.97p, 25p, 23.98p

1920 x 1080@59.94, 50p

1280 x 720@59.94p, 50p

4:2:0 chrominance sampling, 10-bit luma

Output frames are sub-sampled (1920x1080 is scaled to 1440x1080. 1280 x 720 is scaled to 960x720).

AVC-Intra 100

CAVLC entropy coding only

1920 x 1080@59.94i, 50i, 29.97p, 25p, 23.98p

1920 x 1080@59.94, 50p

1280 x 720@59.94p, 50p

4:2:2 chrominance sampling, 10-bit luma

Output frames are not scaled.

AVC-Intra 200

CAVLC entropy coding only

1920 x 1080@59.94i, 50i, 29.97p, 25p, 23.98p

1920 x 1080@59.94, 50p

1280 x 720@59.94p, 50p

4:2:2 chrominance sampling, 10-bit luma

Output frames are not scaled.

Panasonic AVC-Ultra

Panasonic AVC-Ultra is generated at 10-bit, with 4:2:2 chroma sub-sampling.

Supported frame rates for long GOP: 23.98p | 25i | 25p | 29.97i | 29.97p | 50p (720 at 25 and 50 Mbs, 1080 for Long GOP 25 only) | 59.94p (720 at 25 and 50Mbs, 1080 for Long GOP 25 only).

Quality. Specifies the video quality profile.

- AVC-Ultra Long GOP 12 for 1280 x 720: 50p | 59.94p.

- AVC-Ultra Long GOP 12 for 1920 x 1080: 12 Mbs for 25i | 29.97i | 50p | 59.94p. 50p/59.94p@1080 is supported for Ultra Long G 12, but is recorded at 24 Mbs.

- AVC-Ultra Long GOP 25 (25 Mbs for all frame rates, except 59.94p@1080 is recorded at 50 Mbs)

- AVC-Ultra Long GOP 50 (50 Mbs for all supported frame rates)

Sony XDCAM

The XDCAM codec generates 1920x1080 interlaced video at 25 and 29.97fps, and 1280x720 progressive sources at 50 and 59.94 fps.

XDCAM HD422 is based on a 4:2:2 chroma MPEG essence that is compatible with the Sony XDCAM VTR (when wrapped as MXF). The codec records at 50 Mbs at full resolution (for example, 1920x1080 interlaced or, 1280x720 progressive).

Other XDCAM variants are based on a 4:2:0 chroma MPEG essence, also compatible with the Sony XDCAM VTR, that are recorded at reduced bit rates (18,25,35 Mbs). To save bandwidth, 1080i source is horizontally sub-sampled (for example, 1440x1080). Sony EX 35 is an exception in that it does not sub-sample horizontal pixels.

XDCAM 18 is only supported for 1080i sources.

Quality. Specifies the video quality profile.

Uncompressed

Encode Less VBI. When checked, the codec removes the top 32 lines from PAL SD sources or 26 lines from NSTC SD sources that contain VBI data.

512 VBI Cropping Method. In interlaced video, when transcoding to a Lower Field First convention, the lower field is the first line of output of an interlaced format, followed by alternating upper (aka top, odd) and lower (aka bottom, even) field lines.

To preserve the standard of encoding VBI data on a specific line of the output video, such as preserving captions on line 21, an encoder may need to either pad, crop and/or shift lines when creating the output.

When recording SD NTSC video from tape, 26 lines of non-visible data need to be discarded to produce 486 lines of visible data. Capture adds additional cropping options to maintain VBI caption data from line 21 in a transcoded output for 486 line output when using the ProRes or Uncompressed transcoders.

Crop 25 lines from the top. Crop 25 lines from the top and 1 line from the bottom. This results in Lower Field first video with Closed Captioning on Line 22.

Crop 26 lines from the top. Crop 26 lines from the top, resulting in Upper field first video with Closed Captioning on Line 21.

Crop 27 lines from the top. Crop 27 lines from the top, and pad the bottom with 1 blank line to keep the correct frame dimensions, resulting in Lower Field first video with Closed Captioning on Line 21.

x264

Quality. Specifies the video quality profile.

Bit Rate. Specifies the output video bit rate in kbps (512 - 50,000).

Command Line. Configure the compressor using x264 command line syntax. For setting specific x264 parameters, you can enter x264 CLI commands (separated by spaces) to execute them. For best results, be sure to use long form: *--bframe 5*, for example. Use of short form (*-b 5*) is not recommended.

The following x264 command line parameters are not supported: *--fake-interlaced* | *--nal-hrd cbr* | *--profile* |*--video-format* | *--bitrate*.

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The X position of the top-left of the timecode in the output video frame (0 - 4096 pixels).

Y Position. The Y position of the top-left of the timecode in the output video frame of the timecode in the output (0 - 2160 pixels).

Font Size. Sets the font size of the timecode (range 6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is

completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

HDR Metadata Filter

Master Display

Add. When checked, enables embedding SMPTE 2086 master display metadata in the output. HDR metadata is written to the container for use by downstream players to accurately display the High Dynamic Range video.

Master Display X | Y Coordinates for Red | Green | Blue | White Point. specify the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Light Level

Add CTA-861.3 Content Light Level Metadata. When checked, inserts CTA-861.3 message with Content Light Level Metadata. Configure these controls:

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Deinterlace Conversion Filter

Deinterlace Conversion Filter. Deinterlacing converts interlaced source to progressive output during transcoding. When checked, select the deinterlacing method to apply. Weston3 and Weston5 methods reconstruct a true progressive image from the interlaced output.

The Deinterlace Conversion filter supports progressive mezzanine output from an interlaced source. The filter is utilized only if the transcoder supports progressive output at the given frame rate.

Note: GPU-based transcoders (AVC and HEVC) in a primary container do not support interlaced output: You must enable the Deinterlace Conversion filter.

Secondary, proxy output is generally transcoded to progressive, as it is often resized to a smaller frame size. During resizing, the transcoder blends frames. When a proxy is resized, the frames are always blended, so it is not necessary to enable the deinterlacing filter.

When a proxy is transcoded at the same frame size as the source, the scaling filter is bypassed, and the fields are weaved together in the output to produce a full-size progressive frame. High-motion video may benefit from employing the deinterlacing filter to blend the frames in the progressive output for smoother playback.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codec (PCM)

Codec. Specifies PCM as the codec to use to encode audio tracks. No other codecs are provided.

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Channel Configuration. Specifies keyword or number of channels per track: Mono | Stereo | <<multi-channel, AAC encoded surround format>> | <<Specified number of channels per track>>.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Label Channel Pairs Left/Right. When checked, causes the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is checked, in which case this setting is ignored.

Bit Depth. Specifies the output audio bit depth.

Force One Track Per Channel. When checked, creates multiple mono tracks instead of a single multi-channel track.

Create Stereo Pairs. When checked, specifies that each set of tracks should be converted to a stereo pair. Specify the number of stereo pairs to create (up to 8 pairs).

Channel Map. Allows re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

MXF XAVC Output

The MXF XAVC Output component generates Sony-compliant XAVC video wrapped in an MXF OP1a file. Audio defaults to 8 tracks of 24 bit PCM audio, with each track containing one channel of audio. These files are compliant with the SMPTE-377M standard.

Note: Most Lightspeed Live Capture MXF files containing IMX, XDCAM or AVC-Intra, and all QuickTime Open files, are created in such a way that they can be opened for editing/playing while they are still growing during capture. Check in your edit/player application guide for details on supported formats.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Select the container to display its settings in the configuration panel on the right.

Format Summary

Video

Sony XAVC

Audio

PCM 24-bit, 48Kbps, 8 channels

Timecode

SMPTE 377M, Timecode track

SMPTE 385M, System item

MXF Applicable Standards

SMPTE 331M-2004, Elements and Metadata Definitions for SDTI-CP

SMPTE 377M-2004, Material Exchange Format (MXF)

SMPTE 378M-2004, MXF Operational Pattern 1a

SMPTE 379M-2004, MXF Generic Container

SMPTE 436M-2006, MXF Mappings for VBI Lines and Ancillary Data Packets

SMPTE ST 298-2009, Universal Labels for Unique Identification of Digital Data

SMPTE ST 326:2000, Television-SDTI Content Package Format (SDTI-CP)

Note: The resulting MXF (OP-1a) file can contain VANC data (SMPTE 436M) if present within the incoming SDI stream.

Container Settings

General

File Extension. Specifies *mxf*. No other extensions permitted.

436 Data Track. Specifies how to add SMPTE 436 data (None | Ancillary | VBI) to the output.

Broadcast Wave Audio. When checked, sets the audio tracks to Broadcast Wave format, adding metadata such as timestamps to the audio stream.

Partition Duration. When checked, sets the partition duration to the value specified, in seconds. Default: 30 seconds.

Partition Strategy. Place Essence Container and Index Table in Header Partition + RIP.

Color Primaries Signaling. Overrides the color primaries signaling in the MXF container per the selected specification.

Transfer Function Signaling. Overrides the color transfer function signaling in the MXF container per the selected specification.

Aspect Ratio Mode

Automatic. Set the aspect ratio automatically, based on the detected content.

Display Aspect Ratio. When selected, specify the display frame aspect ratio to utilize.

Pixel Aspect Ratio. When selected, specify the pixel aspect ratio to utilize.

Video Stream Details

Select the Video Stream component to display its settings in the panel on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codec

Codec. Specifies Sony XAVC as codec used to encode the output video stream.

Sony XAVC

Sony XAVC is available in TIFO, but only MXF XAVC is maintained for Sony specification performance. XAVC HD is always CBR - Use Constrained Bytes Per GOP is ignored.

Sony XAVC HD Long classes 25, 35, and 50 are long GOP, 10-bit 4:2:2 chroma.

Table 2.

Standard	25	35	50
720p50			*
720p59.94			*
1080i50	*	*	*
1080i59.94	*	*	*
1080p23.98	*	*	*
1080p25	*	*	*
1080p29.97	*	*	*
1080p50p		*	*
1080p59.94		*	*

The bitrate for a class is maintained for all resolutions (25/35/50 mbs)

GOP length for 23.976/25 fps = 12 frames

GOP length for 29.97 fps = 15 frames

GOP length for 50 fps = 24 frames

GOP length for 59.94 fps = 30 frames

Quality. Specifies the video quality profile.

Class 50 - The class category is determined by the approximate bitrate for a 1080i 59.94 stream. The size of each frame is fixed (223,232 bytes (NTSC FHD)) and 271,360 bytes (PAL FHD). Therefore, high frame rates will result in higher bit rates.

Capture support is limited to 10-bit 4:2:2 chroma sampling.

Supported frame rates: Standard | 1080i 50 | 1080i 59.94 | 1080p 23.98 | 1080p 25 | 1080p 29.97.

Class 100 4:2:2 - HD - CBG only

The class category is determined by the approximate bitrate for a 1080i 59.94 stream. The size of each frame is fixed (462,848 bytes (NTSC 1080)) and 559,104 bytes (PAL 1080), so high frame rates will result in higher bit rates.

Capture support is limited to 10-bit 4:2:2 chroma sampling.

Output is full HD - it is not anamorphically scaled.

Supported frame rates: Standard | 720p 50 | 720p 59.94 | 1080i 50 | 1080i 59.94 | 1080p 23.98 | 1080p 25 | 1080p 29.97 | 1080p 50p | 1080p 59.94.

Class 300 4:2:2 and **Class 480 4:2:2** - UHD/4K - CBG/VBR - Capture action only

Capture support is limited to 10-bit 4:2:2 chroma sampling.

Constant bitrate (Use Constrained Bytes Per GOP) is enabled by default.

Supported frame rates for UHD and 4K: Standard | 23.98 | 24 (4K only) | 25 | 29.97 | 50 | 59.94

XAVC Long QFHD

Class 100 Supported sources: UHD 23.98, 25, 29.97)

Class 140 Supported sources: UHD 23.98, 25, 29.97, 50, 59.94)

Class 200 Supported sources: UHD 23.98, 25, 29.97, 50, 59.94)

Use Constrained Bytes per GOP. When enabled, XAVC Class 300 and Class 480 is generated as CBG. All other classes are generated as VBR. Ignored for XAVC HD video.

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

Note: The burned-in timecode always represents the actual input timecode being used by the Input Source.

X Position. The X position of the top-left of the timecode in the output video frame (0 - 4096 pixels).

Y Position. The Y position of the top-left of the timecode in the output video frame of the timecode in the output (0 - 2160 pixels).

Font Size. Sets the font size of the timecode (range 6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

HDR Metadata Filter

Master Display

Add. When checked, enables embedding SMPTE 2086 master display metadata in the output. HDR metadata is written to the container for use by downstream players to accurately display the High Dynamic Range video.

Master Display X | Y Coordinates for Red | Green | Blue | White Point. specify the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Light Level

Add CTA-861.3 Content Light Level Metadata. When checked, inserts CTA-861.3 message with Content Light Level Metadata. Configure these controls:

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Deinterlace Conversion Filter

Deinterlace Conversion Filter. Deinterlacing converts interlaced source to progressive output during transcoding. When checked, select the deinterlacing method to apply. Weston3 and Weston5 methods reconstruct a true progressive image from the interlaced output.

The Deinterlace Conversion filter supports progressive mezzanine output from an interlaced source. The filter is utilized only if the transcoder supports progressive output at the given frame rate.

Note: GPU-based transcoders (AVC and HEVC) in a primary container do not support interlaced output: You must enable the Deinterlace Conversion filter.

Secondary, proxy output is generally transcoded to progressive, as it is often resized to a smaller frame size. During resizing, the transcoder blends frames. When a proxy is resized, the frames are always blended, so it is not necessary to enable the deinterlacing filter.

When a proxy is transcoded at the same frame size as the source, the scaling filter is bypassed, and the fields are weaved together in the output to produce a full-size progressive frame. High-motion video may benefit from employing the deinterlacing filter to blend the frames in the progressive output for smoother playback.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codec (PCM)

Codec. Specifies PCM as the codec used to generate audio tracks. No other codecs provided.

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Channel Configuration. Specifies keyword or number of channels per track: Mono | Stereo | <<multi-channel, AAC encoded surround format>> | <<Specified number of channels per track>>.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Label Channel Pairs Left/Right. When checked, forces the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is selected, in which case this setting is ignored.

Bit Depth. Specifies the output audio bit depth.

Force One Track Per Channel. True. Not changeable by user.

Channel Map. Allows re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

MPEG2-TS Output

The MPEG2-TS output container encodes media and saves it as an MPEG2 Transport Stream file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Format Summary

Video

MPEG-2 | x264

Audio

AAC 16-bit, 64-512 kbps, 1 track | PCM 16-24-bit, 32 channel

Container Settings

File Extension. Specifies the extension to apply to the output file name.

File Bit Rate. (Default 19,000,000 bps). If unchecked, the Multiplexer uses the minimum rate as computed from the sum of all maximum rates for elementary streams, data streams, PSI streams and necessary overhead.

List Audio Streams Before Video Streams. When checked, will list audio streams before video streams in the PMT stream order.

PAT Rate. (Default 10.0 tables per second). This function specifies the repetition rate of the Program Association Table in the output stream. The PAT lists all programs in a transport stream, each of which is identified by a 16-bit Program Number.

PMT Rate. (Default 10.0 tables per second). This function specifies the repetition rate of the Program Map Table in the output stream. Each program listed in the PAT has a PMT (with PID) containing information about the program.

Transport ID. (Default 0). This function sets the ID number for this transport stream.

PAT Version. (Default 0). This function sets the version number of the Program Association Table.

Program Number. (Default 1). This sets the ID number of a specific program.

PMT PID. (Default 480). This sets the Packet ID used for the Program Map Table.

PCR PID. (Defaults unselected/zero). This specifies the Packet ID that carries the Program Clock Reference for this program. Set to the first video PID value if not specified.

Maximum PCR Interval. (Default 37 ms). This function defines the maximum time between Program Clock References for this stream.

PCR on every PES header. When selected (default), a PCR is inserted on each packet that has a PES header.

No Empty Adaptation Fields. When selected (default), the multiplexer avoids using zero length adaptation field video packets.

VBR Transport stream. Defaults to unselected. When selected, the Multiplexer creates a variable bit rate transport stream, and no attempt is made to maintain the bit rate.

Error Behavior. Defaults to Fail on Error. Species Fail on Error | Always Complete | Fail on Warning or Error.

Error/Warning Threshold. Defaults to 1 (range 1 - 100). Specifies the number of errors permitted before file generation fails and the number of warnings that trigger a Fail on warning or error. This parameter has no effect when Error Behavior is set to Always Complete.

Treat Buffer Underflows/Overflow Warnings as Errors. Defaults to selected. When selected, buffer underflow or overflow warnings are treated as errors.

2-Pass Multiplexing. Only use if you need to correct excessive bitrate fluctuations in the encoded stream resulting in video decoder underflow errors. The second pass is only executed if the first pass fails.

Generate Config File. Generates and places a Manzanita-compliant configuration file using the current UI settings into the same location as the muxed output. The file can be augmented and specified under Manzanita Configuration File in Advanced Settings.

Video Stream Details

Select the Video Stream component to display its options on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codec

Codec. Specifies which codec to use to encode video streams. For configuration details, see appropriate topic following.

MPEG-2

General

Bit Rate. Specifies the output video bit rate in kbps (512 - 300,000).

GOP Structure. Sets the GOP Structure as a combination of I frames, B frames, and P frames. I frame-only structures have a lower visual quality but are well suited for editing. Longer GOP structures have higher visual quality and are best suited for playout.

GOP Configuration. Specifies the type of GOP structure.

Start with I Frame. When checked, specifies that the GOP start with an I-frame (display and coded order).

Motion Estimation Factor. Indicates how much motion estimation to use when encoding the video stream. A higher value results in higher quality and increases the encode time. (Default 80; range 1 - 100).

Profile. Specifies the video quality profile.

Table 3.

Profile	Max Data Rate	Resolution	Color Sampling
Main Profile@Main Level	15Mbps	720 x 480 up to 30fps	4:2:0
Main Profile@High 1440 Level	60Mbps	1080i x 1440 up to 30fps or 1080p x 1440 up to 30fps	4:2:0
Main Profile@High Level	60Mbps	1920 x 1080 at 30 fps OR 1280 x 720 up to 60fps	4:2:0
High Profile@Main Level / 4:2:2Profile@Main Level	20Mbps	720 x 480 up to 60fps	4:2:2
High Profile@High 1440 Level / 4:2:2 Profile@High 1440 Level	80Mbps	1080i x 1440 up to 30fps or 720p up to 60 fps	4:2:2
High Profile@High Level / 4:2:2 Profile@High Level	100Mbps	1080i x 1920 up to 30fps or 1080p x 1920 up to 60fps	4:2:2

Level. Specifies the MPEG level to use during encoding.

Video Performance Setting. Indicates the video quality setting to use when encoding the video stream. A higher value results in higher quality and increases the encode time. Default 9; range 0 - 31.

MPEG Encoder Version. Specifies the MainConcept MPEG encoder version to use, or set to Auto.

Video Buffer Verifier

Video Buffer Verifier. Specifies whether or not to use the default settings or custom VBV settings. When Specify VBV Settings is set, configure these controls:

VBV Buffer Size. Specifies the size of the VBV buffer in kbps. Larger values allow the encoder greater flexibility during encoding.

VBV Delay. Specifies how much time is allowed between the transmission of the first frame and its actual decode. Larger values allow the encoder greater flexibility during encoding.

x264

Profile. Specifies the video quality profile.

Bit Rate. Specifies the target bit rate in kbps (512 - 50,000).

Command Line. Configure the compressor using x264 command line syntax. For setting specific x264 parameters, you can enter x264 CLI commands (separated by spaces) to execute them. For best results, be sure to use long form: --bframe 5, for example. Use of short form (-b 5) is not recommended.

The following x264 command line parameters are not supported: *-fake-interlaced* | *--nal-hrd cbr* | *--profile* |*--video-format* | *--bitrate*.

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The X position of the top-left of the timecode in the output video frame (0 - 4096 pixels).

Y Position. The Y position of the top-left of the timecode in the output video frame (0 - 2160 pixels).

Font Size. Sets the font size of the timecode (range: 6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

Deinterlace Conversion Filter

Deinterlace Conversion Filter. Deinterlacing converts interlaced source to progressive output during transcoding. When checked, select the deinterlacing method to apply. Weston3 and Weston5 methods reconstruct a true progressive image from the interlaced output.

The Deinterlace Conversion filter supports progressive mezzanine output from an interlaced source. The filter is utilized only if the transcoder supports progressive output at the given frame rate.

Note: GPU-based transcoders (AVC and HEVC) in a primary container do not support interlaced output: You must enable the Deinterlace Conversion filter.

Secondary, proxy output is generally transcoded to progressive, as it is often resized to a smaller frame size. During resizing, the transcoder blends frames. When a proxy is resized, the frames are always blended, so it is not necessary to enable the deinterlacing filter.

When a proxy is transcoded at the same frame size as the source, the scaling filter is bypassed, and the fields are weaved together in the output to produce a full-size progressive frame. High-motion video may benefit from employing the deinterlacing filter to blend the frames in the progressive output for smoother playback.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codec

Codec. Specifies which codec to use to encode audio tracks. No other codecs are provided. For configuration details, see appropriate topic following.

AAC

General

Channel Configuration. Specifies the number or layout of the audio channels.

Bitrate. Specifies the target bit rate for this audio stream: AAC 16-bit, 64-512 kbps, 1 track.

PCM

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Channel Configuration. Specifies keyword or number of channels per track: Mono | Stereo | <<multi-channel, AAC encoded surround format>> | <<Specified number of channels per track>>.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Label Channel Pairs Left/Right. When checked, causes the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is checked, in which case this setting is ignored.

Bit Depth. Specifies the output audio bit depth.

Force One Track Per Channel. When checked, creates multiple mono tracks instead of a single multi-channel track. When checked, overrides the Label Channel Pairs Left and Right control.

Channel Map

Channel Map. When checked, enables re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

QuickTime Output

The QuickTime container conforms to the IEC 14496-14 MP4 File Format standard and the QuickTime File Format Specification.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Format Summary

Video

Apple ProRes | AVC | Avid DNxHD | Avid DNxHR | DV | DVCPro HD | HEVC | IMX | Panasonic AVC-Intra | Sony XDCAM | Uncompressed | x264 | x265.

Audio

PCM, 16/20/24-bit, 48Kbps, up to 32 channels; PCM/Dolby E.

Container Settings

The QuickTime Container wraps the specified media into a QuickTime file format.

General

File Extension. Specifies QuickTime (MOV). No other file extensions are available.

Tape Reel Name. This name is embedded into the container for later identification. The string that is embedded in the output should be viewable in the following supported editing applications: Final Cut Pro, Adobe Premiere Pro, and DaVinci Resolve.

Timecode Track. Specifies no track, or a track that is hidden or visible.

Caption Track. (Closed caption track) Specifies the type of closed caption track or None. When creating output using the 608 caption track in a QuickTime container, only 29.97 FPS sources are supported, and it is generally expected that the source is SD NTSC with captions in VBI. Also, in this scenario, the Create 708 Caption Data control in the Program panel should be disabled. If the source that is being recorded is progressive HD, you must select the 708 caption track in the QuickTime container to propagate captions.

Fast Start. Check to improve web-based playback when downloading the file.

Header Compression. When checked, compresses QuickTime header information to improve playback responsiveness when downloading the file.

Color Space. Specifies the QuickTime file color space:

- *Do not specify*

- *ITU-R Recommendation BT.601*

- *XYZ with SMPTE 428-1 (DCDM) Transfer Characteristics*

- *ITU-R Recommendation BT.601 with SMPTE-C Color Primaries (NTSC)*

- *ITU-R Recommendation BT.601 with SMPTE-C Color Primaries (PAL)*

- *ITU-R Recommendation BT.2020*

- *ITU-R Recommendation BT.709*

- *RGB with BT.709 Color Primaries*

Conform Aperture. Check to enable, then choose one of these options:

- *Disabled*

- *Classic* - Displays the image without applying either the pixel aspect ratio or the clean aperture. The image is displayed using the track header dimensions, meaning the decompressed picture is scaled into the track header dimensions if the encoded dimensions are different.

- *Clean Aperture* - Both the clean aperture and the pixel aspect ratio are applied. The dimensions of the track become equal to the clean dimensions which are equal to the display dimensions (with conformed contents).

- *Production Aperture* - Applies the pixel aspect ratio but not the clean aperture. The image is presented in the correct aspect ratio, but the extra pixels outside of the image that exist in the source material will be presented. The track dimensions are equal to the result of applying the pixel aspect ratio.

- *Encoded Pixels* - The encoded pixels are displayed intact in this mode. Under this mode the track dimensions are equal to the encoded dimensions. No scaling or transformation takes place.

Note: The Clean Aperture selection should not be used in conjunction with the Enable CLAP Atom selection. Only one or the other should be used.

Enable CLAP Atom. Enables the QuickTime Clean Aperture atom.

Note: CLAP Atom insertion should be used in conjunction with Conform Aperture > Clean Aperture selection above.

Aspect Ratio Mode

Automatic. Set the aspect ratio automatically, based on the detected content.

Display Aspect Ratio. When selected, specify the display frame aspect ratio to utilize.

Pixel Aspect Ratio. When selected, specify the pixel aspect ratio to utilize.

Clean Aperture

Clean Aperture. Specify the crop settings for Left, Right, Top, and Bottom pixels to apply to the Clean Aperture:

- *Not Enabled* - Turns off the crop settings for Clean Aperture.

- *Specify Inset* - Enables the ability to specify the Clean Aperture crop settings.

Video Stream Details

Select the Video Stream component to display its options on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codec

Codec. Specifies which codec to use to encode video streams. For details, see the appropriate topic following.

Apple ProRes

Quality. Specifies the video quality profile.

AVC (Lightspeed Live Server Only)

Note: If your Live Capture server is equipped with an NVIDIA RTX or T series GPU, you can not use the AVC codec to encode interlaced sources.

Quality. Specifies the video quality profile.

Baseline - Primarily for low-cost applications, typically used in video-conferencing and mobile applications. By specification, interlaced only.

Main - Standard-definition digital TV broadcasts that use MPEG-4 format.

High - Broadcast and disk storage applications, particularly for HD televisions.

Bit Rate. Specifies the output target bit rate (512 - 50,000).

Avid DNxHD

DNxHD generates HD video, with a set bitrate for each DNXHD quality profile.

Quality. Specifies the video quality profile. Certain profiles have limits:

- 444 - (10-bit) only supported in these 1080p resolutions: 23.98, 24, 25, 29.97
- HQ TR - Not supported in Capture - do not use.
-SQ TR (8-bit) - not supported in 1080p 50/59.94/60
- LB (8-bit) - only supported for these 1080p resolutions: 23.98, 24, 25, 29.97

Table 4.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHD HQX	Avid DNxHD 440x 1080p/60	10-bit 440 Mbs
DNXHD HQ	Avid DNxHD 440 1080p/60	8-bit 440 Mbs
DNXHD SQ	Avid DNxHD 290 1080p/60	8-bit 291 Mbs
DNXHQ LB	Avid DNxHD 90 1080p/60	8-bit 90 Mbs
DNXHD HQX	Avid DNxHD 440x 1080p/59.94	10-bit 440 Mbs
DNXHD HQ	Avid DNxHD 440 1080p/59.94	8-bit 440 Mbs
DNXHD SQ	Avid DNxHD 290 1080p/59.94	8-bit 291 Mbs
DNXHD LB	Avid DNxHD 90 1080p/59.94	8-bit 90 Mbs
DNXHD HQX	Avid DNxHD 365x 1080p/50	10-bit 367 Mbs
DNXHD HQ	Avid DNxHD 365 1080p/50	8-bit 367 Mbs
DNXHD SQ	Avid DNxHD 240 1080p/50	8-bit 242 Mbs
DNXHD LB	Avid DNxHD 75 1080p/50	8-bit 75 Mbs
DNXHD HQX	Avid DNxHD 220x 1080i/59.94	10-bit 220 Mbs
DNXHD HQ	Avid DNxHD 220 1080i/59.94	8-bit 220 Mbs
DNXHD SQ	Avid DNxHD 145 1080i/59.94	8-bit 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 1080i/59.94	8-bit 100 Mbs
DNXHD HQX	Avid DNxHD 185x 1080i/50	10-bit 184 Mbs
DNXHD HQ	Avid DNxHD 185 1080i/50	8-bit 184 Mbs

Table 4.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHD SQ	Avid DNxHD 120 1080i/50	8-bit 121 Mbs
DNXHD SQ TR	Avid DNxHD 85 1080i/50	8-bit 84 Mbs
DNXHD 4:4:4	Avid DNxHD 365x 1080p/25	10-bit 367 Mbs
DNXHD HQX	Avid DNxHD 185x 1080p/25	10-bit 184 Mbs
DNXHD HQ	Avid DNxHD 185 1080p/25	8-bit 184 Mbs
DNXHD SQ	Avid DNxHD 120 1080p/25	8-bit 121 Mbs
DNXHD SQ TR	Avid DNxHD 85 1080p/25	8-bit 84 Mbs
DNXHD LB	Avid DNxHD 36 1080p/25	8-bit 36 Mbs
DNXHD 4:4:4	Avid DNxHD 350x 1080p/24	10-bit 352 Mbs
DNXHD HQX	Avid DNxHD 175x 1080p/24	10-bit 176 Mbs
DNXHD HQ	Avid DNxHD 175 1080p/24	8-bit 176 Mbs
DNXHD SQ	Avid DNxHD 115 1080p/24	8-bit 116 Mbs
DNXHD SQ TR	Avid DNxHD 80 1080p/24	8-bit 80 Mbs
DNXHD LB	Avid DNxHD 36 1080p/24	8-bit 36 Mbs
DNXHD 4:4:4	Avid DNxHD 350x 1080p/23.976	10-bit 352 Mbs
DNXHD HQX	Avid DNxHD 175x 1080p/23.976	10-bit 176 Mbs
DNXHD HQ	Avid DNxHD 175 1080p/23.976	8-bit 176 Mbs
DNXHD SQ	Avid DNxHD 115 1080p/23.976	8-bit 116 Mbs
DNXHD SQ TR	Avid DNxHD 80 1080p/23.976	8-bit 80 Mbs
DNXHD LB	Avid DNxHD 36 1080p/23.976	8-bit 36 Mbs
DNXHD 4:4:4	Avid DNxHD 440x 1080p/29.97	10-bit 440 Mbs
DNXHD HQX	Avid DNxHD 220x 1080p/29.97	10-bit 220 Mbs
DNXHD HQ	Avid DNxHD 220 1080p/29.97	8-bit 220 Mbs
DNXHD SQ	Avid DNxHD 145 1080p/29.97	8-bit 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 1080p/29.97	8-bit 100 Mbs
DNXHD LB	Avid DNxHD 45 1080p/29.97	8-bit 45 Mbs
DNXHD HQX	Avid DNxHD 220x 720p/59.94	10-bit 220 Mbs
DNXHD HQ	Avid DNxHD 220 720p/59.94	8-bit 220 Mbs

Table 4.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHD SQ	Avid DNxHD 145 720p/59.94	8-bit 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 720p/59.94	8-bit 100 Mbs
DNXHD HQX	Avid DNxHD 175x 720p/50	10-bit 175 Mbs
DNXHD HQ	Avid DNxHD 175 720p/50	8-bit 175 Mbs
DNXHD SQ	Avid DNxHD 115 720p/50	8-bit 115 Mbs
DNXHD SQ TR	Avid DNxHD 85 720p/50	8-bit 85 Mbs

Avid DNxHR

Avid DNxHR is a UHD/4K format codec.

Frame sizes - 3840x2160, 4096x2160 (up to 30 fps at 444, up to 60 fps at HQX 10-bit)

Frame rates - 23.976, 25, 29.97, 50, 59.94

Quality. Specifies the video quality profile:

- 444 - 12-bit RGB 4:4:4, cinema-quality delivery. This profile is not supported in Live Capture due to performance limitations.

- HQX - UHD/4K 12-bit YUV 4:2:2, Broadcast-quality delivery

- HQ - 8-bit 4:2:2 high-quality

- SQ (8-bit 4:2:2 standard-quality)

- LB (8-bit 4:2:2 low bandwidth, offline quality

DV

The DV codec generates interlaced SD format NTSC (29.97 fps) and PAL (25 fps) video.

Quality. Specifies the video quality profile.

DVCPRO HD

DVCPro HD video is an anamorphic format - the horizontal pixels are sub-sampled in the recording to save bandwidth, and stretched to fit a 16:9 frame during playback.

No user-configurable settings available.

Supported input frame rates:

- 720p: 50/59.94

- 1080i: 25/29.97

- 1080p: 23.976p/psf

Video is encoded at 8-bit, using 4:2:2 chroma. The data rate is generally recorded at 115 mbs. Encoded frames vary by input size:

- 1280x720 video is encoded at 960x720.
- 1920x1080 is encoded at 1280x1080@59.94i
- 1920x1080 is encoded at 1440x1080@50i

DVCPro HD supports up to eight audio channels at 48kHz/16 bits per channel.

HEVC (Lightspeed Live Server Only)

There are no general limitations for frame size or frame rate generation, but compression is resource intensive, and real time performance cannot be sustained beyond HD 1080p at 59.94 fps.

Bit Rate. Specifies the output target bit rate (512 - 50,000).

IMX

The IMX codec can only encode SD video. The IMX format specified by Sony supports 4 channel, 48 kHz, 24 bit or 8 channel, 48 kHz,16 bit audio to match the Sony IMX implementation. Both configurations require Force One Track per Channel to be enabled in the PCM audio transcoder.

Quality. Specifies the video quality profile.

Follow D-10/SMPTE 331M Spec. To match the Sony IMX implementation, uncheck this control and configure the audio tracks to specify Force one track per channel. Check this control to produce output conforming to D-10/SMPTE 331M.

You should not enable Follow D-10 and also configure the audio tracks to Force one track per channel – this creates audio that is not compatible with D-10 or Sony IMX.

Mask VBI. When enabled, the VBI portion of the video signal is replaced with black - 26 lines for NTSC, 30 lines for PAL. The metadata from the VBI is still preserved in the container, when possible.

Panasonic AVC-Intra

Follow SMPTE RP2027 Spec (Only applies to AVC-I class 50 and 100). When enabled, specifies that the file should be recognized as Panasonic AVC-I in the Media Creation action. The parameter is enabled by default, but may be disabled for generic AVC-I output.

Quality. Specifies the video quality profile.

AVC-Intra 50

CABAC entropy coding only

1920 x 1080@59.94i, 50i, 29.97p, 25p, 23.98p

1920 x 1080@59.94, 50p

1280 x 720@59.94p, 50p

4:2:0 chrominance sampling, 10-bit luma

Output frames are sub-sampled (1920x1080 is scaled to 1440x1080. 1280 x 720 is scaled to 960x720)

AVC-Intra 100

CAVLC entropy coding only

1920 x 1080@59.94i, 50i, 29.97p, 25p, 23.98p

1920 x 1080@59.94, 50p

1280 x 720@59.94p, 50p

4:2:2 chrominance sampling, 10-bit luma

Output frames are not scaled.

AVC-Intra 200

CAVLC entropy coding only

1920 x 1080@59.94i, 50i, 29.97p, 25p, 23.98p

1920 x 1080@59.94, 50p

1280 x 720@59.94p, 50p

4:2:2 chrominance sampling, 10-bit luma

Output frames are not scaled.

Sony XDCAM

The XDCAM codec generates 1920x1080 interlaced video at 25 and 29.97fps, and 1280x720 progressive sources at 50 and 59.94 fps.

XDCAM HD422 is based on a 4:2:2 chroma MPEG essence that is compatible with the Sony XDCAM VTR (when wrapped as MXF). The codec records at 50 Mbs at full resolution (for example, 1920x1080 interlaced or, 1280x720 progressive).

Other XDCAM variants are based on a 4:2:0 chroma MPEG essence, also compatible with the Sony XDCAM VTR, that are recorded at reduced bit rates (18,25,35 Mbs). To save bandwidth, 1080i source is horizontally sub-sampled (for example, 1440x1080). Sony EX 35 is an exception in that it does not sub-sample horizontal pixels.

XDCAM 18 is only supported for 1080i sources.

Quality. Specifies the video quality profile.

Uncompressed

Encode Less VBI. When checked, the codec removes the top 32 lines from PAL SD sources or 26 lines from NSTC SD sources that contain VBI data.

512 VBI Cropping Method. In interlaced video, when transcoding to a Lower Field First convention, the lower field is the first line of output of an interlaced format, followed by alternating upper (that is - top, odd) and lower (aka bottom, even) field lines.

To preserve the standard of encoding VBI data on a specific line of the output video, such as preserving captions on line 21, an encoder may need to either pad, crop and/or shift lines when creating the output.

When recording SD NTSC video from tape, 26 lines of non-visible data need to be discarded to produce 486 lines of visible data. Capture adds additional cropping options to maintain VBI caption data from line 21 in a transcoded output for 486 line output when using the ProRes or Uncompressed transcoders.

Crop 25 lines from the top. Crop 25 lines from the top and 1 line from the bottom. This results in Lower Field first video with Closed Captioning on Line 22.

Crop 26 lines from the top. Crop 26 lines from the top, resulting in Upper field first video with Closed Captioning on Line 21.

Crop 27 lines from the top. Crop 27 lines from the top, and pad the bottom with 1 blank line to keep the correct frame dimensions, resulting in Lower Field first video with Closed Captioning on Line 21.

x264

Profile. Specifies the video quality profile.

Bit Rate. Specifies the output target bit rate (512 - 50,000).

Command Line. Configure the compressor using x264 command line syntax. For setting specific x264 parameters, you can enter x264 CLI commands (separated by spaces) to execute them. For best results, be sure to use long form: --bframe 5, for example. Use of short form (-b 5) is not recommended.

The following x264 command line parameters are not supported: *-fake-interlaced* | *--nal-hrd cbr* | *--profile* |*--video-format* | *--bitrate*.

x265

There are no general limitations for frame size or frame rate, but encoding interlaced source is not supported. Compression is resource intensive, and real time performance may not be sustained when recording high frame rates.

Profile. Specifies the video quality profile.

Bit Rate. Specifies the output target bit rate (512 - 50,000).

Command Line. Configure the compressor using x265 command line syntax. For setting specific x265 parameters, you can enter x265 CLI commands (separated by spaces) to execute them. For best results, be sure to use long form: --bframe 5, for example. Use of short form (-b 5) is not recommended.

The following x265 command line parameters are not supported:*-fake-interlaced* | *--nal-hrd cbr* | *--profile* |*--video-format* | *--bitrate*.

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The X position of the top-left of the timecode in the output video frame (0 - 4096 pixels).

Y Position. The Y position of the top-left of the timecode in the output video frame (0 - 2160 pixels).

Font Size. Sets the font size of the timecode (range 6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

HDR Metadata Filter

Master Display

Add. When checked, enables embedding SMPTE 2086 master display metadata in the output. HDR metadata is written to the container for use by downstream players to accurately display the High Dynamic Range video.

Master Display X | Y Coordinates for Red | Green | Blue | White Point. specifies the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Light Level

Add CTA-861.3 Content Light Level Metadata. When checked, inserts CTA-861.3 message with Content Light Level Metadata. Configure these controls:

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Deinterlace Conversion Filter

Deinterlace Conversion Filter. Deinterlacing converts interlaced source to progressive output during transcoding. When checked, select the deinterlacing method to apply. Weston3 and Weston5 methods reconstruct a true progressive image from the interlaced output.

The Deinterlace Conversion filter supports progressive mezzanine output from an interlaced source. The filter is utilized only if the transcoder supports progressive output at the given frame rate.

Note: GPU-based transcoders (AVC and HEVC) in a primary container do not support interlaced output: You must enable the Deinterlace Conversion filter.

Secondary, proxy output is generally transcoded to progressive, as it is often resized to a smaller frame size. During resizing, the transcoder blends frames. When a proxy is resized, the frames are always blended, so it is not necessary to enable the deinterlacing filter.

When a proxy is transcoded at the same frame size as the source, the scaling filter is bypassed, and the fields are weaved together in the output to produce a full-size progressive frame. High-motion video may benefit from employing the deinterlacing filter to blend the frames in the progressive output for smoother playback.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codec (PCM)

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Codec. Specifies PCM as the codec to use to encode audio tracks. No other codecs are provided.

Channel Configuration. Specifies keyword or number of channels per track: Mono | Stereo | <<multi-channel, AAC encoded surround format>> | <<Specified number of channels per track>>.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Label Channel Pairs Left/Right. When checked, causes the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is checked, in which case this setting is ignored.

Bit Depth. Specifies the desired audio bit depth.

Force One Track Per Channel. When checked, creates multiple mono tracks instead of a single multi-channel track. QuickTime audio channel Assignment metadata is set to Mono.

Create Stereo Pairs. When checked, specifies that each set of tracks should be converted to a stereo pair. Specify the number of stereo pairs to create (up to 8 pairs).

Channel Map. Allows re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

QuickTime Open Output

QuickTime Open output is implemented in the Capture action with Capture ComponentPac 7.0.4 or later.

Note: Most Lightspeed Live Capture MXF files containing IMX, XDCAM or AVC-Intra, and all QuickTime Open files, can be opened for editing/playing while they are still growing during capture. Check in your edit/player application guide for details on supported formats.

Because of the unique characteristics of QuickTime Open files created by Live Capture, the duration set in the QuickTime header is hard-coded to the value of the Default Duration setting during capture. If a capture is stopped prior to the timecode specified in the Default Duration, the QuickTime Open process updates the captured file's header with the actual duration of the clip. See Important Information about Default Duration below for important details.

The QuickTime container conforms to the IEC 14496-14 MP4 File Format standard and the QuickTime file format specification.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Format Summary

Video

Apple ProRes | *Avid DNxHD* | *Avid DNxHR*

Audio

Codec (PCM) - 16/20/24-bit, 48Kbps, up to 32 channels; PCM/Dolby E

Container Settings

The QuickTime Container wraps the specified media into a QuickTime file format.

General

File Extension. Specifies QuickTime (MOV). No other file extensions are provided.

Tape Reel Name. This name is embedded into the container for later identification. The string that is embedded in the output should be viewable in the following supported editing applications: Final Cut Pro, Adobe Premiere Pro, and DaVinci Resolve.

Note: In DaVinci Resolve, the following setting must be changed for the Tape Reel Name to appear: Go to File > Project Settings > General Options. Enable "Assist using reel names from the:" and set it to "Embedding in source clip file".

Caption Track. (Closed caption track) Specifies the type of closed caption track or None. When creating output using the 608 caption track in a QuickTime container, only 29.97 FPS sources are supported, and it is generally expected that the source is SD NTSC with captions in VBI. Also, in this scenario, the Create 708 Caption data should be disabled. If the source that is being recorded is progressive HD, you must select the 708 caption track in the QuickTime container to propagate captions.

Default Duration. The maximum duration for a captured file.

Important Information about Default Duration

Note: The *Default Duration* is the maximum duration that can be captured using the QuickTime Open container. Default: 9 hours.

The QuickTime Open container's *Default Duration* is used to set the initial duration written to the QuickTime Open file's header. This value is reported by the QuickTime media file when it is opened by a media player or edit application while the captured file is being written and is growing. If a capture session is stopped before the *Default Duration* is reached the QuickTime Open process updates the QuickTime header with the *actual* captured duration of the clip.

Here are three scenarios that you may encounter:

1. A capture session is stopped before reaching, or exactly at, the *Default Duration* set in the workflow. In this case the workflow completes successfully. The captured QuickTime file header is updated with the *actual* captured duration of the clip.
2. Your capture session attempts to record to a duration that is *beyond* the *Default Duration* set in the workflow. In this case the associated workflow's origin action (and any subsequent downstream actions) indicates that they have FAILED. The Capture origin action reports the following error:
   ... Failed to write sample. The Default Duration of this workflow has been reached. Capture actions configured with a QuickTime Open container will automatically stop at the container's Default Duration regardless of the requested record duration. The output file created by this action will contain a duration equal to the Default Duration. In most cases the resulting output file will be playable and can be used for editing. The default duration has been exceeded.
3. If scenario #1 or #2 occur with a workflow in the Open mode and the action immediately following the Capture origin action is an Open Copy action, the file copied by the Open Copy action retains the original *Default Duration*. The *copied* media file shows a duration equal to the workflow's *Default Duration* and is playable and editable. Captured files stopped prior to the *Default Duration* (scenario #1) contain no active media data from the point where the capture session was stopped through the end of the file. Some media players or edit

applications may display errors or faults when trying to access the timeline locations with no active media data.

Header Compression. Compresses QuickTime header information to improve playback responsiveness when downloading the file.

Color Space. Specifies the QuickTime file color space. Options include:

- *Do not specify*

- *ITU-R Recommendation BT.601*

- *XYZ with SMPTE 428-1 (DCDM) Transfer Characteristics*

- *ITU-R Recommendation BT.601 with SMPTE-C Color Primaries (NTSC)*

- *ITU-R Recommendation BT.601 with SMPTE-C Color Primaries (PAL)*

- *ITU-R Recommendation BT.2020*

- *ITU-R Recommendation BT.709*

- *RGB with BT.709 Color Primaries*

Conform Aperture. Check to enable, then choose one of these options:

- *Disabled*

- *Classic* - Displays the image without applying either the pixel aspect ratio or the clean aperture. The image is displayed using the track header dimensions, meaning the decompressed picture is scaled into the track header dimensions if the encoded dimensions are different.

- *Clean Aperture* - Both the clean aperture and the pixel aspect ratio are applied. The dimensions of the track become equal to the clean dimensions which are equal to the display dimensions (with conformed contents).

- *Production Aperture* - Applies the pixel aspect ratio but not the clean aperture. The image is presented in the correct aspect ratio, but the extra pixels outside of the image that exist in the source material will be presented. The track dimensions are equal to the result of applying the pixel aspect ratio.

- *Encoded Pixels* - The encoded pixels are displayed intact in this mode. Under this mode the track dimensions are equal to the encoded dimensions. No scaling or transformation takes place.

Note: The Clean Aperture selection should not be used in conjunction with the Enable CLAP Atom selection. Only one or the other should be used.

Enable CLAP atom. Enables the QuickTime Clean Aperture atom.

Note: The Clean Aperture selection should not be used in conjunction with the Enable CLAP Atom selection. Only one or the other should be used.

Aspect Ratio Mode

Automatic. Set the aspect ratio automatically, based on the detected content.

Display Aspect Ratio. When selected, specify the display frame aspect ratio to utilize.

Pixel Aspect Ratio. When selected, specify the pixel aspect ratio to utilize.

Clean Aperture

Clean Aperture. Specify the crop settings for Left, Right, Top, and Bottom pixels to apply to the Clean Aperture:

- *Not Enabled* - Turns off the crop settings for Clean Aperture.

- *Specify Inset* - Enables the ability to specify the Clean Aperture crop settings.

Video Stream Details

Select the Video Stream component to display its options on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codec

Codec. Specifies which codec to use to encode video streams. For details, see the appropriate topic following.

Apple ProRes

Quality. Specifies the video quality profile.

512 VBI Cropping Method. In interlaced video, when transcoding to a Lower Field First convention, the lower field is the first line of output of an interlaced format, followed by alternating upper (aka top, odd) and lower (aka bottom, even) field lines.

To preserve the standard of encoding VBI data on a specific line of the output video, such as preserving captions on line 21, an encoder may need to either pad, crop and/or shift lines when creating the output.

When recording SD NTSC video from tape, 26 lines of non-visible data need to be discarded to produce 486 lines of visible data. Capture adds additional cropping options to maintain VBI caption data from line 21 in a transcoded output for 486 line output when using the ProRes or Uncompressed transcoders.

Crop 25 lines from the top. Crop 25 lines from the top and 1 line from the bottom. This results in Lower Field first video with Closed Captioning on Line 22.

Crop 26 lines from the top. Crop 26 lines from the top, resulting in Upper field first video with Closed Captioning on Line 21.

Crop 27 lines from the top. Crop 27 lines from the top, and pad the bottom with 1 blank line to keep the correct frame dimensions, resulting in Lower Field first video with Closed Captioning on Line 21.

Avid DNxHD

DNxHD generates HD video, with a set bitrate for each DNXHD quality profile.

Quality. Specifies the video quality profile. Certain profiles have limits:

- 444 - (10-bit) only supported in these 1080p resolutions: 23.98, 24, 25, 29.97

- HQ TR - Not supported in Capture - do not use.

-SQ TR (8-bit) - not supported in 1080p 50/59.94/60.

- LB (8-bit) - only supported for these 1080p resolutions: 23.98, 24, 25, 29.97

Table 5.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHD HQX	Avid DNxHD 440x 1080p/60	10-bit 440 Mbs
DNXHD HQ	Avid DNxHD 440 1080p/60	8-bit 440 Mbs
DNXHD SQ	Avid DNxHD 290 1080p/60	8-bit 291 Mbs
DNXHQ LB	Avid DNxHD 90 1080p/60	8-bit 90 Mbs
DNXHD HQX	Avid DNxHD 440x 1080p/59.94	10-bit 440 Mbs
DNXHD HQ	Avid DNxHD 440 1080p/59.94	8-bit 440 Mbs
DNXHD SQ	Avid DNxHD 290 1080p/59.94	8-bit 291 Mbs
DNXHD LB	Avid DNxHD 90 1080p/59.94	8-bit 90 Mbs
DNXHD HQX	Avid DNxHD 365x 1080p/50	10-bit 367 Mbs
DNXHD HQ	Avid DNxHD 365 1080p/50	8-bit 367 Mbs

Table 5.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHD SQ	Avid DNxHD 240 1080p/50	8-bit 242 Mbs
DNXHD LB	Avid DNxHD 75 1080p/50	8-bit 75 Mbs
DNXHD HQX	Avid DNxHD 220x 1080i/59.94	10-bit 220 Mbs
DNXHD HQ	Avid DNxHD 220 1080i/59.94	8-bit 220 Mbs
DNXHD SQ	Avid DNxHD 145 1080i/59.94	8-bit 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 1080i/59.94	8-bit 100 Mbs
DNXHD HQX	Avid DNxHD 185x 1080i/50	10-bit 184 Mbs
DNXHD HQ	Avid DNxHD 185 1080i/50	8-bit 184 Mbs
DNXHD SQ	Avid DNxHD 120 1080i/50	8-bit 121 Mbs
DNXHD SQ TR	Avid DNxHD 85 1080i/50	8-bit 84 Mbs
DNXHD 4:4:4	Avid DNxHD 365x 1080p/25	10-bit 367 Mbs
DNXHD HQX	Avid DNxHD 185x 1080p/25	10-bit 184 Mbs
DNXHD HQ	Avid DNxHD 185 1080p/25	8-bit 184 Mbs
DNXHD SQ	Avid DNxHD 120 1080p/25	8-bit 121 Mbs
DNXHD SQ TR	Avid DNxHD 85 1080p/25	8-bit 84 Mbs
DNXHD LB	Avid DNxHD 36 1080p/25	8-bit 36 Mbs
DNXHD 4:4:4	Avid DNxHD 350x 1080p/24	10-bit 352 Mbs
DNXHD HQX	Avid DNxHD 175x 1080p/24	10-bit 176 Mbs
DNXHD HQ	Avid DNxHD 175 1080p/24	8-bit 176 Mbs
DNXHD SQ	Avid DNxHD 115 1080p/24	8-bit 116 Mbs
DNXHD SQ TR	Avid DNxHD 80 1080p/24	8-bit 80 Mbs
DNXHD LB	Avid DNxHD 36 1080p/24	8-bit 36 Mbs
DNXHD 4:4:4	Avid DNxHD 350x 1080p/23.976	10-bit 352 Mbs
DNXHD HQX	Avid DNxHD 175x 1080p/23.976	10-bit 176 Mbs
DNXHD HQ	Avid DNxHD 175 1080p/23.976	8-bit 176 Mbs
DNXHD SQ	Avid DNxHD 115 1080p/23.976	8-bit 116 Mbs
DNXHD SQ TR	Avid DNxHD 80 1080p/23.976	8-bit 80 Mbs
DNXHD LB	Avid DNxHD 36 1080p/23.976	8-bit 36 Mbs

Table 5.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHD 4:4:4	Avid DNxHD 440x 1080p/29.97	10-bit 440 Mbs
DNXHD HQX	Avid DNxHD 220x 1080p/29.97	10-bit 220 Mbs
DNXHD HQ	Avid DNxHD 220 1080p/29.97	8-bit 220 Mbs
DNXHD SQ	Avid DNxHD 145 1080p/29.97	8-bit 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 1080p/29.97	8-bit 100 Mbs
DNXHD LB	Avid DNxHD 45 1080p/29.97	8-bit 45 Mbs
DNXHD HQX	Avid DNxHD 220x 720p/59.94	10-bit 220 Mbs
DNXHD HQ	Avid DNxHD 220 720p/59.94	8-bit 220 Mbs
DNXHD SQ	Avid DNxHD 145 720p/59.94	8-bit 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 720p/59.94	8-bit 100 Mbs
DNXHD HQX	Avid DNxHD 175x 720p/50	10-bit 175 Mbs
DNXHD HQ	Avid DNxHD 175 720p/50	8-bit 175 Mbs
DNXHD SQ	Avid DNxHD 115 720p/50	8-bit 115 Mbs
DNXHD SQ TR	Avid DNxHD 85 720p/50	8-bit 85 Mbs

Avid DNxHR

Avid DNxHR is a UHD/4K format codec.

Frame sizes - 3840x2160, 4096x2160 (up to 30 fps at 444, up to 60 fps at HQX 10-bit)

Frame rates - 23.976, 25, 29.97, 50, 59.94

Quality. Specifies the video quality profile:

- 444 - 12-bit RGB 4:4:4, cinema-quality delivery. This profile is not supported in Live Capture due to performance limitations.

- HQX - UHD/4K 12-bit YUV 4:2:2, Broadcast-quality delivery

- HQ - 8-bit 4:2:2 high-quality

- SQ (8-bit 4:2:2 standard-quality)

- LB (8-bit 4:2:2 low bandwidth, offline quality

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The X position of the top-left of the timecode in the output video frame (0 - 4096 pixels).

Y Position. The Y position of the top-left of the timecode in the output video frame (0 - 2160 pixels).

Font Size. Sets the font size of the timecode (6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

HDR Metadata Filter

Master Display

Add. When checked, enables embedding SMPTE 2086 master display metadata in the output. HDR metadata is written to the container for use by downstream players to accurately display the High Dynamic Range video.

Master Display X | Y Coordinates for Red | Green | Blue | White Point. specify the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Light Level

Add CTA-861.3 Content Light Level Metadata. When checked, inserts CTA-861.3 message with Content Light Level Metadata.

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Deinterlace Conversion Filter

Deinterlace Conversion Filter. Deinterlacing converts interlaced source to progressive output during transcoding. When checked, select the deinterlacing method to apply. Weston3 and Weston5 methods reconstruct a true progressive image from the interlaced output.

The Deinterlace Conversion filter supports progressive mezzanine output from an interlaced source. The filter is utilized only if the transcoder supports progressive output at the given frame rate.

Note: GPU-based transcoders (AVC and HEVC) in a primary container do not support interlaced output: You must enable the Deinterlace Conversion filter.

Secondary, proxy output is generally transcoded to progressive, as it is often resized to a smaller frame size. During resizing, the transcoder blends frames. When a proxy is resized, the frames are always blended, so it is not necessary to enable the deinterlacing filter.

When a proxy is transcoded at the same frame size as the source, the scaling filter is bypassed, and the fields are weaved together in the output to produce a full-size progressive frame. High-motion video may benefit from employing the deinterlacing filter to blend the frames in the progressive output for smoother playback.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codec (PCM)

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

General

Codec. Specifies PCM as the codec to use to encode audio tracks. No other codecs are provided.

General

Channel Configuration. Specifies keyword or number of channels per track: Mono | Stereo | <<multi-channel, AAC encoded surround format>> | <<Specified number of channels per track>>.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Label Channel Pairs Left/Right. When checked, causes the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is checked, in which case this setting is ignored.

Bit Depth. Select the desired audio bit depth.

Force One Track Per Channel. Select to make multiple mono tracks instead of a single multi-channel track. QuickTime audio channel Assignment metadata is set to Mono.

Create Stereo Pairs. When checked, specifies that each set of tracks should be converted to a stereo pair. Specify the number of stereo pairs to create (up to 8 pairs).

Channel Map. Allows re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

SRT Live Streaming Output

SRT live streaming output is implemented in the Capture action.

SRT Output streams the incoming video stream to the connected SRT receiver, either in caller mode or receiver mode, with optional encryption.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Format Summary

Video

AVC (Lightspeed Live Server Only) | *HEVC (Lightspeed Live Server Only)* | *Sony XDCAM* | *x265*

Audio

AAC | *PCM*

Settings

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MP4 container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MP4 container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MP4 container.

General

Local NIC/IP Address. Specifies the Live Capture server's IP address. This field is auto-populated and can not be edited.

Port Number. In Listener mode (SRT Caller Mode is unchecked), specifies the local port number (default: 1234) for the SRT socket the process is listening on. In Caller mode, it specifies the remote port number of the remote SRT receiver where the stream is being delivered.

Use Server Name as Endpoint. When checked, this server's end point is identified by its domain name rather than its IP address. When unchecked, this server's end point is identified by its IP address instead of its domain name.

Accurate Timing. When checked, generates less jitter (improves quality) at the expense of processor performance. When unchecked, reduces processor load, but potentially induces more jitter (degrades quality).

SRT Caller Mode

SRT Caller Mode. When checked, this SRT process operates in SRT Caller Mode, initiating the connection to the SRT receiver specified below, as SRT Stream Address. Be sure to specify the port number (above) of the remote SRT receiver. When unchecked, operates in SRT Receiver Mode, initiating the connection to the SRT receiver specified below, as SRT Stream Address. Be sure to specify the port number of this local SRT process.

SRT Stream Address. Specifies the passphrase for encryption (min. 10 character; max. 79 characters).

AES Password Encryption

AES Password Encryption. When checked, encrypts this stream. When unchecked, the stream is transmitted unencrypted. When checked, complete these controls:

Password for Stream Encryption. Specifies the passphrase for encryption (min. 10 character; max. 79 characters).

Encryption Passkey Length. Specifies the encryption key length keyword.

Video Stream Details

Select the Video Stream component to display its options in the panel on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MP4 container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MP4 container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MP4 container.

Codec

Codec. Specifies which codec (AVC | HEVC | Sony XDCAM | x265) to use to encode SRT video streams. These codecs are configured to perform encoding to frame sizes same as source.

AVC (Lightspeed Live Server Only)

NVIDIA encoding is executed on the NVIDIA GPU.

Note: If your Live Capture server is equipped with an NVIDIA RTX or T series GPU, you can not use the AVC codec to encode interlaced sources.

Profile. Specifies the video quality profile.

Baseline - Primarily for low-cost applications, typically used in video-conferencing and mobile applications. By specification, interlaced only.

Main - Standard-definition digital TV broadcasts that use MPEG-4 format.

High - Broadcast and disk storage applications, particularly for HD televisions.

Bit Rate. Specifies the output target bit rate in kbps (512 - 50,000).

HEVC (Lightspeed Live Server Only)

NVIDIA encoding is executed on the NVIDIA GPU.

There are no general limitations for frame size or frame rate generation, but compression is resource intensive, and real time performance cannot be sustained beyond HD 1080p at 59.94 fps.

Bit Rate. Specifies the output target bit rate (512 - 50,000).

Sony XDCAM

This Codec is configured to support only broadcast format sources - using sources with non-conforming frame rates and sizes (for example, SD or UHD) will fail.

The XDCAM codec generates 1920x1080 interlaced video at 25 and 29.97fps, and 1280x720 progressive sources at 50 and 59.94 fps.

XDCAM HD422 is based on a 4:2:2 chroma MPEG essence that is compatible with the Sony XDCAM VTR (when wrapped as MXF). The codec records at 50 Mbs at full resolution (for example, 1920x1080 interlaced or, 1280x720 progressive).

Other XDCAM variants are based on a 4:2:0 chroma MPEG essence, also compatible with the Sony XDCAM VTR, that are recorded at reduced bit rates (18,25,35 Mbs). To save bandwidth, 1080i source is horizontally sub-sampled (for example, 1440x1080). Sony EX 35 is an exception in that it does not sub-sample horizontal pixels.

XDCAM 18 is only supported for 1080i sources.

Quality. Specifies the video quality profile.

x265

There are no general limitations for frame size or frame rate, but encoding interlaced source is not supported. Compression is resource intensive, and real time performance may not be sustained when recording high frame rates.

Profile. Specifies the video quality profile.

Bit Rate. Specifies the output target bit rate in kbps (512 - 50,000).

Command Line. Configure the compressor using x265 command line syntax. For setting specific x265 parameters, you can enter x265 CLI commands (separated by spaces) to execute them. For best results, be sure to use long form: *--bframe 5*, for example. Use of short form (*-b 5*) is not recommended.

The following x265 command line parameters are not supported:*-fake-interlaced* | *--nal-hrd cbr* | *--profile* |*--video-format* | *--bitrate*.

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The X position of the top-left of the timecode in the output video frame (0 - 4096 pixels).

Y Position. The Y position of the top-left of the timecode in the output video frame (0 - 2160 pixels).

Font Size. Sets the font size of the timecode (6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

HDR Metadata Filter

Master Display

Add. When checked, enables embedding SMPTE 2086 master display metadata in the output. HDR metadata is written to the container for use by downstream players to accurately display the High Dynamic Range video.

Master Display X | Y Coordinates for Red | Green | Blue | White Point. specify the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Light Level

Add CTA-861.3 Content Light Level Metadata. When checked, inserts CTA-861.3 message with Content Light Level Metadata. Configure these controls:

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Deinterlace Conversion Filter

Deinterlace Conversion Filter. Deinterlacing converts interlaced source to progressive output during transcoding. When checked, select the deinterlacing method to apply. Weston3 and Weston5 methods reconstruct a true progressive image from the interlaced output.

The Deinterlace Conversion filter supports progressive mezzanine output from an interlaced source. The filter is utilized only if the transcoder supports progressive output at the given frame rate.

Note: GPU-based transcoders (AVC and HEVC) in a primary container do not support interlaced output: You must enable the Deinterlace Conversion filter.

Secondary, proxy output is generally transcoded to progressive, as it is often resized to a smaller frame size. During resizing, the transcoder blends frames. When a proxy is resized, the frames are always blended, so it is not necessary to enable the deinterlacing filter.

When a proxy is transcoded at the same frame size as the source, the scaling filter is bypassed, and the fields are weaved together in the output to produce a full-size

progressive frame. High-motion video may benefit from employing the deinterlacing filter to blend the frames in the progressive output for smoother playback.

Audio Stream Details

Select the Audio Stream component to display its details in the panel on the right.

Codec

Codec. Specifies which codec to use to encode audio streams. For configuration details, see appropriate topic following.

AAC

General

Channel Configuration. Specifies the number or layout of the audio channels: Mono | Dolby 5.1 | Max. 8 stereo pairs.

Bitrate. Specifies the target bit rate for this audio stream.

Create Stereo Pairs. When checked, specifies that each set of tracks should be converted to a stereo pair. Specify the number of stereo pairs to create (up to 8 pairs).

Language Tags

Language Tags. Specify mode: Automatically Detect Language Tags | Manually Set Language Tags.

Language. When Language Tags is set to Manually Set Language Tags, specifies the language to use.

Channel Map. When checked, enables re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

PCM

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Channel Configuration. Specifies keyword or number of channels per track: Mono | Stereo | <<multi-channel, AAC encoded surround format>> | <<Specified number of channels per track>>.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Label Channel Pairs Left/Right. When checked, forces the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is selected, in which case this setting is ignored.

Bit Depth. Select the desired audio bit depth.

Force One Track Per Channel. Select to make multiple mono tracks instead of a single multi-channel track.

Create Stereo Pairs. When checked, specifies that each set of tracks should be converted to a stereo pair. Specify the number of stereo pairs to create (up to 8 pairs).

Channel Map. When checked, enables re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

TIFO Output

Telestream Intermediary Format (TIFO) is an intermediate media wrapper format designed by Telestream as a uniform, interchangeable file format to ensure interoperability among Telestream's media processing solutions, including Vantage and Lightspeed Live Capture. TIFO provides a lightweight, low-overhead wrapper that is essence-agnostic, with out-of-band metadata, timecode, and closed caption support.

Using TIFO improves the ability to move media files between Telestream's media processing solutions with all media essence elements and metadata intact, preserving the widest range of transcoding options.

Note: TIFO files can be opened, as they are being captured, by Telestream's Switch player and Vantage systems at a time when the captured file reports a non-zero file size. Requires Switch 4.0 or later.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Format Summary

Video

Apple ProRes | AVC | Avid DNxHD | Avid DNxHR | DV | DVCProHD | HEVC | IMX | JPEG2000 Lossless | JPEG2000 Lossy | MPEG-2 | Panasonic AVC-Intra | Panasonic AVC-Ultra | Sony XAVC | Sony XDCAM | Uncompressed | x264 | x265.

Audio

PCM, 16/20/24-bit, 48Kbps, up to 16 channels; PCM/Dolby E

Container Settings

The TIFO Container wraps the specified media into a TIFO file format.

General

File Extension. Specifies *tifo*. No other extensions are provided.

Flush Period. When checked, writes all buffered media to disk at the specified interval (1000 ms default) at a minimum.

Aspect Ratio Mode

Automatic. Set the aspect ratio automatically, based on the detected content.

Display Aspect Ratio. When selected, specify the display frame aspect ratio to utilize.

Pixel Aspect Ratio. When selected, specify the pixel aspect ratio to utilize.

Video Stream Details

Select the Video Stream component to display its options on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codec

Codec. Specifies which codec to use to encode video streams. For details, see the appropriate topic following.

Apple ProRes

Quality. Specifies the video quality profile.

Video Buffer Verifier

Video Buffer Verifier. Specifies whether or not to use the default settings or custom VBV settings. When Specify VBV Settings is set, configure these controls:

VBV Buffer Size. Specifies the size of the VBV buffer in kbps. Larger values allow the encoder greater flexibility during encoding.

VBV Delay. Specifies how much time is allowed between the transmission of the first frame and its actual decode. Larger values allow the codec greater flexibility during encoding.

AVC (Lightspeed Live Server Only)

Note: If your Live Capture server is equipped with an NVIDIA RTX or T series GPU, you can not use the AVC codec to encode interlaced sources.

Profile. Specifies the video quality profile:

Baseline - Primarily for low-cost applications, typically used in video-conferencing and mobile applications. By specification, interlaced only.

Main - Standard-definition digital TV broadcasts that use MPEG-4 format.

High - Broadcast and disk storage applications, particularly for HD televisions.

Bit Rate. Specifies the output target bit rate (512 - 50,000).

Avid DNxHD

DNxHD generates HD video, with a set bitrate for each DNXHD quality profile.

Quality. Specifies the video quality profile. Certain profiles have limits:

- 444 - (10-bit) only supported in these 1080p resolutions: 23.98, 24, 25, 29.97

- HQ TR - Not supported in Capture - do not use.

-SQ TR (8-bit) - not supported in 1080p 50/59.94/60.

- LB (8-bit) - only supported for these 1080p resolutions: 23.98, 24, 25, 29.97

Table 6.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHD HQX	Avid DNxHD 440x 1080p/60	10-bit 440 Mbs
DNXHD HQ	Avid DNxHD 440 1080p/60	8-bit 440 Mbs
DNXHD SQ	Avid DNxHD 290 1080p/60	8-bit 291 Mbs
DNXHQ LB	Avid DNxHD 90 1080p/60	8-bit 90 Mbs
DNXHD HQX	Avid DNxHD 440x 1080p/59.94	10-bit 440 Mbs
DNXHD HQ	Avid DNxHD 440 1080p/59.94	8-bit 440 Mbs
DNXHD SQ	Avid DNxHD 290 1080p/59.94	8-bit 291 Mbs
DNXHD LB	Avid DNxHD 90 1080p/59.94	8-bit 90 Mbs
DNXHD HQX	Avid DNxHD 365x 1080p/50	10-bit 367 Mbs
DNXHD HQ	Avid DNxHD 365 1080p/50	8-bit 367 Mbs
DNXHD SQ	Avid DNxHD 240 1080p/50	8-bit 242 Mbs

Table 6.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHD LB	Avid DNxHD 75 1080p/50	8-bit 75 Mbs
DNXHD HQX	Avid DNxHD 220x 1080i/59.94	10-bit 220 Mbs
DNXHD HQ	Avid DNxHD 220 1080i/59.94	8-bit 220 Mbs
DNXHD SQ	Avid DNxHD 145 1080i/59.94	8-bit 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 1080i/59.94	8-bit 100 Mbs
DNXHD HQX	Avid DNxHD 185x 1080i/50	10-bit 184 Mbs
DNXHD HQ	Avid DNxHD 185 1080i/50	8-bit 184 Mbs
DNXHD SQ	Avid DNxHD 120 1080i/50	8-bit 121 Mbs
DNXHD SQ TR	Avid DNxHD 85 1080i/50	8-bit 84 Mbs
DNXHD 4:4:4	Avid DNxHD 365x 1080p/25	10-bit 367 Mbs
DNXHD HQX	Avid DNxHD 185x 1080p/25	10-bit 184 Mbs
DNXHD HQ	Avid DNxHD 185 1080p/25	8-bit 184 Mbs
DNXHD SQ	Avid DNxHD 120 1080p/25	8-bit 121 Mbs
DNXHD SQ TR	Avid DNxHD 85 1080p/25	8-bit 84 Mbs
DNXHD LB	Avid DNxHD 36 1080p/25	8-bit 36 Mbs
DNXHD 4:4:4	Avid DNxHD 350x 1080p/24	10-bit 352 Mbs
DNXHD HQX	Avid DNxHD 175x 1080p/24	10-bit 176 Mbs
DNXHD HQ	Avid DNxHD 175 1080p/24	8-bit 176 Mbs
DNXHD SQ	Avid DNxHD 115 1080p/24	8-bit 116 Mbs
DNXHD SQ TR	Avid DNxHD 80 1080p/24	8-bit 80 Mbs
DNXHD LB	Avid DNxHD 36 1080p/24	8-bit 36 Mbs
DNXHD 4:4:4	Avid DNxHD 350x 1080p/23.976	10-bit 352 Mbs
DNXHD HQX	Avid DNxHD 175x 1080p/23.976	10-bit 176 Mbs
DNXHD HQ	Avid DNxHD 175 1080p/23.976	8-bit 176 Mbs
DNXHD SQ	Avid DNxHD 115 1080p/23.976	8-bit 116 Mbs
DNXHD SQ TR	Avid DNxHD 80 1080p/23.976	8-bit 80 Mbs
DNXHD LB	Avid DNxHD 36 1080p/23.976	8-bit 36 Mbs
DNXHD 4:4:4	Avid DNxHD 440x 1080p/29.97	10-bit 440 Mbs

Table 6.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHD HQX	Avid DNxHD 220x 1080p/29.97	10-bit 220 Mbs
DNXHD HQ	Avid DNxHD 220 1080p/29.97	8-bit 220 Mbs
DNXHD SQ	Avid DNxHD 145 1080p/29.97	8-bit 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 1080p/29.97	8-bit 100 Mbs
DNXHD LB	Avid DNxHD 45 1080p/29.97	8-bit 45 Mbs
DNXHD HQX	Avid DNxHD 220x 720p/59.94	10-bit 220 Mbs
DNXHD HQ	Avid DNxHD 220 720p/59.94	8-bit 220 Mbs
DNXHD SQ	Avid DNxHD 145 720p/59.94	8-bit 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 720p/59.94	8-bit 100 Mbs
DNXHD HQX	Avid DNxHD 175x 720p/50	10-bit 175 Mbs
DNXHD HQ	Avid DNxHD 175 720p/50	8-bit 175 Mbs
DNXHD SQ	Avid DNxHD 115 720p/50	8-bit 115 Mbs
DNXHD SQ TR	Avid DNxHD 85 720p/50	8-bit 85 Mbs

Avid DNxHR

Avid DNxHR is a UHD/4K format codec.

Frame sizes - 3840x2160, 4096x2160 (up to 30 fps at 444, up to 60 fps at HQX 10-bit)

Frame rates - 23.976, 25, 29.97, 50, 59.94

Quality. Specifies the video quality profile:

- 444 - 12-bit RGB 4:4:4, cinema-quality delivery. This profile is not supported in Live Capture due to performance limitations.

- HQX - UHD/4K 12-bit YUV 4:2:2, Broadcast-quality delivery

- HQ - 8-bit 4:2:2 high-quality

- SQ (8-bit 4:2:2 standard-quality)

- LB (8-bit 4:2:2 low bandwidth, offline quality

DV

The DV codec generates interlaced SD format NTSC (29.97 fps) and PAL (25 fps) video.

Quality. Specifies the video quality profile.

DVCPRO HD

DVCPro HD video is an anamorphic format - the horizontal pixels are sub-sampled in the recording to save bandwidth, and stretched to fit a 16:9 frame during playback.

Supported Input Frame Rates:

- 720p: 50/59.94
- 1080i: 25/29.97
- 1080p: 23.976p/psf

No user-configurable settings available.

Video is encoded at 8-bit, using 4:2:2 chroma. The data rate is generally recorded at 115 mbs. Encoded frames vary by input size:

- 1280x720 video is encoded at 960x720.
- 1920x1080 is encoded at 1280x1080@59.94i
- 1920x1080 is encoded at 1440x1080@50i

DVCPro HD supports up to eight audio channels at 48kHz/16 bits per channel.

HEVC (Lightspeed Live Server Only)

There are no general limitations for frame size or frame rate generation, but compression is resource intensive, and real time performance cannot be sustained beyond HD 1080p at 59.94 fps.

Bit Rate. Specifies the output target bit rate (512 - 50,000).

IMX

The IMX codec can only encode SD video. The IMX format specified by Sony supports 4 channel, 48 kHz, 24 bit or 8 channel, 48 kHz,16 bit audio to match the Sony IMX implementation. Both configurations require Force One Track per Channel to be enabled in the PCM audio transcoder.

Quality. Specifies the video quality profile.

Follow D-10/SMPTE 331M Spec. To match the Sony IMX implementation, uncheck this control and configure the audio tracks to specify Force one track per channel. Check this control to produce output conforming to D-10/SMPTE 331M.

You should not enable Follow D-10 and also configure the audio tracks to Force one track per channel – this creates audio that is not compatible with D-10 or Sony IMX.

Mask VBI. When enabled, the VBI portion of the video signal is replaced with black - 26 lines for NTSC, 30 lines for PAL. The metadata from the VBI is still preserved in the container, when possible.

JPEG2000 Lossless (Comprimato)

The Comprimato JPEG2000 Lossless codec encodes video into JPEG2000 format, using the JPEG2000 codec in lossless mode. Comprimato-based ISO/ITU still image compression provides a fast and flexible solution for high-quality, wavelet-based compression.

JPEG 2000 is an intra-frame HD video codec specified by ISO/IEC 15444-1. It uses wavelet transformations to compress the image which results in high quality images in both lossy and lossless modes. JPEG 2000 offers higher compression ratios over standard JPEG video. It offers resolution, color, quality and position progression scalability, and also supports 4:2:2 and 4:4:4 chroma sub-sampling methods.

There are no general frame size or frame rate limitations. However, compression is resource intensive, and real time performance cannot be sustained beyond HD 1080p@59.94 for YUV encoding, and lower frame rates for RGB encoding.

Configuration Settings

Pixel Format. Specifies the color space, chroma sub-sampling, and bit depth to use for encoding.

Tile Partition Width. Specifies the tile partition width in pixels.

Tile Partition Height. Specifies the tile partition height in pixels.

Precinct Width and Height. Specifies the precinct size.

Code-block Width and Height. Specifies the height and width (in pixels) of a code block to process.

Packet Progression Order. Specifies the order of packet progression.

Decomposition Levels. Specifies the maximum number of discrete wavelet transform levels, or stages, to use (also known as Discrete Wavelet Transformation resolution).

Tile-Partition Length Markers. When checked, specifies that Tile Length Markers will be used.

End of Packet Header Markers. When checked, EPH marker segments are generated.

Start of Packet Markers. When checked, SOP marker segments are generated.

CUDA Memory Limit. Specifies the CUDA memory limit in MB.

Note: When the CUDA Memory Limit is set to 0, GPU processing is disabled.

CUDA Tile Limit. Specifies the CUDA tile limit.

Encoder Queue Size. Specifies the encoder queue size.

Encode Less VBI. When checked, the codec removes the top 32 lines from PAL SD sources or 26 lines from NSTC SD sources that contain VBI data.

JPEG2000 Lossy (Comprimato)

The Comprimato JPEG2000 Lossy codec encodes video into JPEG2000 format, using the JPEG2000 codec in lossy mode. Comprimato-based ISO/ITU still image compression provides a fast and flexible solution for high-quality, wavelet-based compression.

JPEG 2000 is an intra-frame HD video codec specified by ISO/IEC 15444-1. It uses wavelet transformations to compress the image which results in high quality images in both lossy and lossless modes. JPEG 2000 offers higher compression ratios over standard JPEG video. It offers resolution, color, quality and position progression scalability, and also supports 4:2:2 and 4:4:4 chroma sub-sampling methods.

There are no general frame size or frame rate limitations. However, compression is resource intensive, and real time performance cannot be sustained beyond HD 1080p@59.94 for YUV encoding, and lower frame rates for RGB encoding.

Settings

Video Bit Rate. Specifies the output bit rate in kbps.

Quantization Coefficient. Specifies quality (1-100). If set toward the lower bound it reduces data correspondingly and quality decreases; if set toward the upper bound it increases data and quality. The default value of 100 allows the full quality as set by the bitrate to be used.

Pixel Format. Specifies the color space, chroma sub-sampling, and bit depth to use for encoding.

Tile Partition Width. Specifies the tile partition width in pixels.

Tile Partition Height. Specifies the tile partition height in pixels.

Precinct Width and Height. Specifies the precinct size.

Code-block Width and Height. Specifies the height and width (in pixels) of a code block to process.

Packet Progression Order. Specifies the order of packet progression.

Decomposition Levels. Specifies the maximum number of discrete wavelet transform levels, or stages, to use (also known as Discrete Wavelet Transformation resolution).

Tile-Part Length Markers. When checked, specifies that Tile Length Markers will be used.

End of Packet Header Markers. When checked, EPH marker segments are generated.

Start of Packet Markers. When checked, SOP marker segments are generated.

CUDA Memory Limit. Specifies the CUDA memory limit in MB.

Note: When the CUDA Memory Limit is set to 0, GPU processing is disabled.

CUDA Tile Limit. Specifies the CUDA tile limit.

Encoder Queue Size. Specifies the encoder queue size.

Encode Less VBI. When checked, the codec removes the top 32 lines from PAL SD sources or 26 lines from NSTC SD sources that contain VBI data.

MPEG-2

Bit Rate. Specifies the target bit rate (512 - 300,000).

GOP Structure

Sets the GOP Structure as a combination of I frames, B frames, and P frames.
I frame-only structures have a lower visual quality but are well suited for editing. Longer GOP structures have higher visual quality and are best suited for playout.

GOP Configuration

Specifies the type of GOP structure: Open GOP or Closed GOP.

Start with I Frame

When checked, specifies that the GOP start with an I-frame (display and coded order).

Motion Estimation Factor

Indicates how much motion estimation to use when encoding the video stream. A higher value results in higher quality and increases the encode time. The default is 80 and the range is 1 to 100.

Profile. Specifies the video quality profile.

Table 7.

Profile	Max Data Rate	Resolution	Color Sampling
Main Profile@Main Level	15Mbps	720 x 480 up to 30fps	4:2:0
Main Profile@High 1440 Level	60Mbps	1080i x 1440 up to 30fps or 1080p x 1440 up to 30fps	4:2:0
Main Profile@High Level	60Mbps	1920 x 1080 at 30 fps OR 1280 x 720 up to 60fps	4:2:0
High Profile@Main Level / 4:2:2Profile@Main Level	20Mbps	720 x 480 up to 60fps	4:2:2
High Profile@High 1440 Level / 4:2:2 Profile@High 1440 Level	80Mbps	1080i x 1440 up to 30fps or 720p up to 60 fps	4:2:2
High Profile@High Level / 4:2:2 Profile@High Level	100Mbps	1080i x 1920 up to 30fps or 1080p x 1920 up to 60fps	4:2:2

Level. Specifies the level to use for encoding.

Video Performance Setting

Indicates the video quality setting to use when encoding the video stream. A higher value results in higher quality and increases the encode time. The default is 9 and the range is 0 to 31.

Panasonic AVC-Intra

Follow SMPTE RP2027 Spec (Only applies to AVC-I class 50 and 100). When enabled, specifies that the file should be recognized as Panasonic AVC-I in the Media Creation action. The parameter is enabled by default, but may be disabled for generic AVC-I output.

Quality. Specifies the video quality profile.

AVC-Intra 50

CABAC entropy coding only

1920 x 1080@59.94i, 50i, 29.97p, 25p, 23.98p

1920 x 1080@59.94, 50p

1280 x 720@59.94p, 50p

4:2:0 chrominance sampling, 10-bit luma

Output frames are sub-sampled (1920x1080 is scaled to 1440 x 1080. 1280 x 720 is scaled to 960x720).

AVC-Intra 100

CAVLC entropy coding only

1920 x 1080@59.94i, 50i, 29.97p, 25p, 23.98p

1920 x 1080@59.94, 50p

1280 x 720@59.94p, 50p

4:2:2 chrominance sampling, 10-bit luma

Output frames are not scaled.

AVC-Intra 200

CAVLC entropy coding only

1920 x 1080@59.94i, 50i, 29.97p, 25p, 23.98p

1920 x 1080@59.94, 50p

1280 x 720@59.94p, 50p

4:2:2 chrominance sampling, 10-bit luma

Output frames are not scaled.

Panasonic AVC-Ultra

Panasonic AVC-Ultra is generated at 10-bit, with 4:2:2 chroma sub-sampling.

Supported frame rates for long GOP: 23.98p | 25i | 25p | 29.97i | 29.97p | 50p (720 at 25 and 50 Mbs, 1080 for Long GOP 25 only) | 59.94p (720 at 25 and 50Mbs, 1080 for Long GOP 25 only)

Quality. Specifies the video quality profile.

- AVC-Ultra Long GOP 12 for 1280 x 720: 50p | 59.94p.

- AVC-Ultra Long GOP 12 for 1920 x 1080: 12 Mbs for 25i | 29.97i | 50p | 59.94p. 50p/59.94p@1080 is supported for Ultra Long G 12, but is recorded at 24 Mbs.

- AVC-Ultra Long GOP 25 (25 Mbs for all frame rates, except 59.94p@1080 is recorded at 50 Mbs).

- AVC-Ultra Long GOP 50 (50 Mbs for all supported frame rates).

Sony XAVC

Sony XAVC is available in TIFO, but only MXF XAVC is maintained for Sony specification performance.

XAVC HD is always CBR - Use Constrained Bytes Per GOP is ignored.

Quality. Specifies the quality setting to use for encoding.

Sony XAVC HD Long classes 25, 35, and 50 are long GOP, 10-bit 4:2:2 chroma.

Table 8.

Standard	25	35	50
720p50			*
720p59.94			*
1080i50	*	*	*
1080i59.94	*	*	*
1080p23.98	*	*	*
1080p25	*	*	*
1080p29.97	*	*	*
1080p50p		*	*
1080p59.94		*	*

The bitrate for a class is maintained for all resolutions (25/35/50 mbs)

GOP length for 23.976/25 fps = 12 frames

GOP length for 29.97 fps = 15 frames

GOP length for 50 fps = 24 frames

GOP length for 59.94 fps = 30 frames

Class 50 - The class category is determined by the approximate bitrate for a 1080i 59.94 stream. The size of each frame is fixed (223,232 bytes (NTSC FHD)) and 271,360 bytes (PAL FHD). Therefore, high frame rates will result in higher bit rates.

Capture support is limited to 10-bit 4:2:2 chroma sampling.

Supported frame rates: Standard | 1080i 50 | 1080i 59.94 | 1080p 23.98 | 1080p 25 | 1080p 29.97.

Class 100 4:2:2 - HD - CBG only

The class category is determined by the approximate bitrate for a 1080i 59.94 stream. The size of each frame is fixed (462,848 bytes (NTSC 1080)) and 559,104 bytes (PAL 1080), so high frame rates will result in higher bit rates.

Capture support is limited to 10-bit 4:2:2 chroma sampling

Output is full HD - it is not anamorphically scaled.

Supported frame rates: Standard | 720p 50 | 720p 59.94 | 1080i 50 | 1080i 59.94 | 1080p 23.98 | 1080p 25 | 1080p 29.97 | 1080p 50p | 1080p 59.94.

Class 300 4:2:2 and **Class 480 4:2:2** - UHD/4K - CBG/VBR - Capture action only

Capture support is limited to 10-bit 4:2:2 chroma sampling.

Constant bitrate (Use Constrained Bytes Per GOP) is enabled by default.

Supported frame rates for UHD and 4K: Standard | 23.98 | 24 (4K only) | 25 | 29.97 | 50 | 59.94

XAVC Long QFHD

Class 100 Supported sources: UHD 23.98, 25, 29.97)

Class 140 Supported sources: UHD 23.98, 25, 29.97, 50, 59.94)

Class 200 Supported sources: UHD 23.98, 25, 29.97, 50, 59.94)

Use Constrained Bytes per GOP. When enabled, XAVC Class 300 and Class 480 is generated as CBG. All other classes are generated as VBR. Ignored for XAVC HD video.

Sony XDCAM

The XDCAM codec generates 1920x1080 interlaced video at 25 and 29.97fps, and 1280x720 progressive sources at 50 and 59.94 fps.

XDCAM HD422 is based on a 4:2:2 chroma MPEG essence that is compatible with the Sony XDCAM VTR (when wrapped as MXF). The codec records at 50 Mbs at full resolution (for example, 1920x1080 interlaced or, 1280x720 progressive).

Other XDCAM variants are based on a 4:2:0 chroma MPEG essence, also compatible with the Sony XDCAM VTR, that are recorded at reduced bit rates (18,25,35 Mbs). To

save bandwidth, 1080i source is horizontally sub-sampled (for example, 1440x1080). Sony EX 35 is an exception in that it does not sub-sample horizontal pixels.

XDCAM 18 is only supported for 1080i sources.

Quality. Specifies the video quality profile.

Uncompressed

Encode Less VBI. When checked, the codec removes the top 32 lines from PAL SD sources or 26 lines from NSTC SD sources that contain VBI data.

512 VBI Cropping Method. In interlaced video, when transcoding to a Lower Field First convention, the lower field is the first line of output of an interlaced format, followed by alternating upper (that is - top, odd) and lower (bottom, even) field lines.

To preserve the standard of encoding VBI data on a specific line of the output video, such as preserving captions on line 21, an encoder may need to either pad, crop and/or shift lines when creating the output.

When recording SD NTSC video from tape, 26 lines of non-visible data need to be discarded to produce 486 lines of visible data. Capture adds additional cropping options to maintain VBI caption data from line 21 in a transcoded output for 486 line output when using the ProRes or Uncompressed transcoders.

Crop 25 lines from the top. Crop 25 lines from the top and 1 line from the bottom. This results in Lower Field first video with Closed Captioning on Line 22.

Crop 26 lines from the top. Crop 26 lines from the top, resulting in Upper field first video with Closed Captioning on Line 21.

Crop 27 lines from the top. Crop 27 lines from the top, and pad the bottom with 1 blank line to keep the correct frame dimensions, resulting in Lower Field first video with Closed Captioning on Line 21.

x264

Profile. Specifies the video quality profile.

Bit Rate. Specifies the target bit rate in kbps (512 - 50,000).

Command Line. Configure the compressor using x264 command line syntax. For setting specific x264 parameters, you can enter x264 CLI commands (separated by spaces) to execute them. For best results, be sure to use long form: --bframe 5, for example. Use of short form (-b 5) is not recommended.

The following x264 command line parameters are not supported: *-fake-interlaced* | *--nal-hrd cbr* | *--profile* |*--video-format* | *--bitrate*.

x265

There are no general limitations for frame size or frame rate, but encoding interlaced source is not supported. Compression is resource intensive, and real time performance may not be sustained when recording high frame rates.

Profile. Specifies the video quality profile.

Bit Rate. Specifies the output target bit rate in kbps (512 - 50,000).

Command Line. Configure the compressor using x265 command line syntax. For setting specific x265 parameters, you can enter x265 CLI commands (separated by spaces) to execute them. For best results, be sure to use long form: *--bframe 5*, for example. Use of short form (*-b 5*) is not recommended.

The following x265 command line parameters are not supported:*-fake-interlaced* | *--nal-hrd cbr* | *--profile* |*--video-format* | *--bitrate*.

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The X position of the top-left of the timecode in the output video frame (0 - 4096 pixels).

Y Position. The Y position of the top-left of the timecode in the output video frame (0 - 2160 pixels).

Font Size. Sets the font size of the timecode (6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

HDR Metadata Filter

Master Display

Add. When checked, enables embedding SMPTE 2086 master display metadata in the output. HDR metadata is written to the container for use by downstream players to accurately display the High Dynamic Range video.

Master Display X | Y Coordinates for Red | Green | Blue | White Point. specify the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Light Level

Add CTA-861.3 Content Light Level Metadata. When checked, inserts CTA-861.3 message with Content Light Level Metadata. Configure these controls:

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Deinterlace Conversion Filter

Deinterlace Conversion Filter. Deinterlacing converts interlaced source to progressive output during transcoding. When checked, select the deinterlacing method to apply. Weston3 and Weston5 methods reconstruct a true progressive image from the interlaced output.

The Deinterlace Conversion filter supports progressive mezzanine output from an interlaced source. The filter is utilized only if the transcoder supports progressive output at the given frame rate.

Note: GPU-based transcoders (AVC and HEVC) in a primary container do not support interlaced output: You must enable the Deinterlace Conversion filter.

Secondary, proxy output is generally transcoded to progressive, as it is often resized to a smaller frame size. During resizing, the transcoder blends frames. When a proxy is resized, the frames are always blended, so it is not necessary to enable the deinterlacing filter.

When a proxy is transcoded at the same frame size as the source, the scaling filter is bypassed, and the fields are weaved together in the output to produce a full-size progressive frame. High-motion video may benefit from employing the deinterlacing filter to blend the frames in the progressive output for smoother playback.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codec (PCM)

Codec. Specifies PCM as the codec to use to encode audio tracks. No other codecs are provided.

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Channel Configuration. Specifies keyword or number of channels per track: Mono | Stereo | <<multi-channel, AAC encoded surround format>> | <<Specified number of channels per track>>.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Label Channel Pairs Left/Right. When checked, causes the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is checked, in which case this setting is ignored.

Bit Depth. Select the desired audio bit depth.

Force One Track Per Channel. Select to make multiple mono tracks instead of a single multi-channel track.

Create Stereo Pairs. When checked, specifies that each set of tracks should be converted to a stereo pair. Specify the number of stereo pairs to create (up to 8 pairs).

Channel Map. Allows re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

Proxy DASH Output

Dynamic Adaptive Streaming over HTTP (DASH) is an HTTP-based, adaptive bitrate streaming communications protocol.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

The Proxy DASH Container wraps the specified media in DASH file format.

File Extension. *mpd* selected by default. No other selections are available.

GOP Length. Specifies the GOP length in number of frames.

GOPs per Segment. Number of GOPs per segment.

Note: Segment duration should be a multiple of GOP duration. Lower segment duration can reduce latency.

Video Stream Details

Select the Video Stream component (up to 4 permitted) to display its details on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

NOTE: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codec

Codec. Specifies which codec (AVC | x264) to use to encode MPEG video streams.

AVC (Lightspeed Live Server Only)

Note: If your Live Capture server is equipped with an NVIDIA RTX or T series GPU, you can not use the AVC codec to encode interlaced sources.

Same as Source. Specifies the width and height to match that of the source video, ignoring the values specified in the Width and Height Controls in the user interface.

Width | Height. Specifies the width and height of the output video frame in pixels.

Bit Rate. Specifies the output target bit rate in kbps (512 - 50,000).

x264 (All Live Capture Platforms - GPU-enabled Optimum)

Same as Source. Specifies the width and height to match that of the source video, ignoring the values specified in the Width and Height Controls in the user interface.

Width | Height. Specifies the width and height of the output video frame in pixels.

Bit Rate. Specifies the output target bit rate in kbps (512 - 50,000).

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The X position of the top-left of the timecode in the output video frame (0 - 4096 pixels).

Y Position. The Y position of the top-left of the timecode in the output video frame of the timecode in the output (0 - 2160 pixels).

Font Size. Sets the font size of the timecode (6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

Deinterlace Conversion Filter

Deinterlace Conversion Filter. Deinterlacing converts interlaced source to progressive output during transcoding. When checked, select the deinterlacing method to apply. Weston3 and Weston5 methods reconstruct a true progressive image from the interlaced output.

The Deinterlace Conversion filter supports progressive mezzanine output from an interlaced source. The filter is utilized only if the transcoder supports progressive output at the given frame rate.

Note: GPU-based transcoders (AVC and HEVC) in a primary container do not support interlaced output: You must enable the Deinterlace Conversion filter.

Secondary, proxy output is generally transcoded to progressive, as it is often resized to a smaller frame size. During resizing, the transcoder blends frames. When a proxy is resized, the frames are always blended, so it is not necessary to enable the deinterlacing filter.

When a proxy is transcoded at the same frame size as the source, the scaling filter is bypassed, and the fields are weaved together in the output to produce a full-size progressive frame. High-motion video may benefit from employing the deinterlacing filter to blend the frames in the progressive output for smoother playback.

Audio Stream Details

Select the Audio Stream component to display its details in the panel on the right.

Codec

Codec. Specifies which codec to use to encode audio streams. For configuration details, see appropriate topic following.

Codec: AAC

General

Channel Configuration. Specifies the number or layout of the audio channels.

Bitrate. Specifies the target bit rate for this audio stream: AAC 16-bit, 64-512 kbps, up to 8 channel stereo.

Create Stereo Pairs. When checked, specifies that each set of tracks should be converted to a stereo pair. Specify the number of stereo pairs to create (up to 8 pairs).

Language Tags

Language Tags. Specify mode: Automatically Detect Language Tags | Manually Set Language Tags.

Language. When Language Tags is set to Manually Set Language Tags, specifies the language to use.

Channel Map. When checked, enables re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

PCM

Channel Configuration. Specifies the number or layout of the audio channels.

Note: Up to 16 channels are supported from SDI sources.

Label Channel Pairs Left/Right. When checked, forces the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is selected, in which case this setting is ignored.

Bit Depth. Select the desired audio bit depth.

Force One Track Per Channel. Select to make multiple mono tracks instead of a single multi-channel track.

Create Stereo Pairs. When checked, specifies that each set of tracks should be converted to a stereo pair. Specify the number of stereo pairs to create (up to 8 pairs).

Channel Map. When checked, enables re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

Proxy SRT Live Streaming Output

Proxy SRT Live Streaming Output is implemented in the Capture action.

Proxy SRT streams the incoming video stream in near real time to the connected SRT receiver, either in caller mode or receiver mode, with optional encryption.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Format Summary

Video

AVC (Lightspeed Live Server Only) | *HEVC (Lightspeed Live Server Only)* | *Sony XDCAM* | *x265*

Audio

AAC | *PCM*

Settings

General

Local NIC/IP Address. Specifies the Live Capture server's IP address. This field is auto-populated and can not be edited.

Port Number. In Listener mode (SRT Caller Mode is unchecked), specifies the local port number (default: 1234) for the SRT socket the process is listening on. In Caller mode, it specifies the remote port number of the remote SRT receiver where the stream is being delivered.

Use Server Name as Endpoint. When checked, this server's end point is identified by its domain name rather than its IP address. When unchecked, this server's end point is identified by its IP address instead of its domain name.

Accurate Timing. When checked, generates less jitter (improves quality) at the expense of processor performance. When unchecked, reduces processor load, but potentially induces more jitter (degrades quality).

SRT Caller Mode

SRT Caller Mode. When checked, this SRT process operates in SRT Caller Mode, initiating the connection to the SRT receiver specified below, as SRT Stream Address. Be sure to specify the port number (above) of the remote SRT receiver. When unchecked,

operates in SRT Receiver Mode, initiating the connection to the SRT receiver specified below, as SRT Stream Address. Be sure to specify the port number of this local SRT process.

SRT Stream Address. Specifies the passphrase for encryption (min. 10 character; max. 79 characters).

AES Password Encryption

AES Password Encryption. When checked, encrypts this stream. When unchecked, the stream is transmitted unencrypted. When checked, complete these controls:

Password for Stream Encryption. Specifies the passphrase for encryption (min. 10 character; max. 79 characters).

Encryption Passkey Length. Specifies the encryption key length keyword.

Video Stream Details

Select the Video Stream component to display its options in the panel on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MP4 container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MP4 container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MP4 container.

Codec

Codec. Specifies which codec (AVC | HEVC | Sony XDCAM | x265) to use to encode SRT video streams.

AVC (Lightspeed Live Server Only)

NVIDIA encoding is executed on the NVIDIA GPU.

Note: If your Live Capture server is equipped with an NVIDIA RTX or T series GPU, you can not use the AVC codec to encode interlaced sources.

Profile. Specifies the video quality profile.

Baseline - Primarily for low-cost applications, typically used in video-conferencing and mobile applications. By specification, interlaced only.

Main - Standard-definition digital TV broadcasts that use MPEG-4 format.

High - Broadcast and disk storage applications, particularly for HD televisions.

Bit Rate. Specifies the output target bit rate in kbps (512 - 50,000).

HEVC (Lightspeed Live Server Only)

NVIDIA encoding is executed on the NVIDIA GPU.

There are no general limitations for frame size or frame rate generation, but compression is resource intensive, and real time performance cannot be sustained beyond HD 1080p at 59.94 fps.

Bit Rate. Specifies the output target bit rate (512 - 50,000).

Sony XDCAM

The XDCAM codec generates 1920x1080 interlaced video at 25 and 29.97fps, and 1280x720 progressive sources at 50 and 59.94 fps.

XDCAM HD422 is based on a 4:2:2 chroma MPEG essence that is compatible with the Sony XDCAM VTR (when wrapped as MXF). The codec records at 50 Mbs at full resolution (for example, 1920x1080 interlaced or, 1280x720 progressive).

Other XDCAM variants are based on a 4:2:0 chroma MPEG essence, also compatible with the Sony XDCAM VTR, that are recorded at reduced bit rates (18,25,35 Mbs). To save bandwidth, 1080i source is horizontally sub-sampled (for example, 1440x1080). Sony EX 35 is an exception in that it does not sub-sample horizontal pixels.

XDCAM 18 is only supported for 1080i sources.

Quality. Specifies the video quality profile.

x265

There are no general limitations for frame size or frame rate, but encoding interlaced source is not supported. Compression is resource intensive, and real time performance may not be sustained when recording high frame rates.

Profile. Specifies the video quality profile.

Bit Rate. Specifies the output target bit rate in kbps (512 - 50,000).

Command Line. Configure the compressor using x265 command line syntax. For setting specific x265 parameters, you can enter x265 CLI commands (separated by spaces) to execute them. For best results, be sure to use long form: *--bframe 5*, for example. Use of short form (*-b 5*) is not recommended.

The following x265 command line parameters are not supported:*-fake-interlaced* | *--nal-hrd cbr* | *--profile* |*--video-format* | *--bitrate*.

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The X position of the top-left of the timecode in the output video frame (0 - 4096 pixels).

Y Position. The Y position of the top-left of the timecode in the output video frame (0 - 2160 pixels).

Font Size. Sets the font size of the timecode (6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

HDR Metadata Filter

Master Display

Add. When checked, enables embedding SMPTE 2086 master display metadata in the output. HDR metadata is written to the container for use by downstream players to accurately display the High Dynamic Range video.

Master Display X | Y Coordinates for Red | Green | Blue | White Point. specify the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Light Level

Add CTA-861.3 Content Light Level Metadata. When checked, inserts CTA-861.3 message with Content Light Level Metadata. Configure these controls:

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Deinterlace Conversion Filter

Deinterlace Conversion Filter. Deinterlacing converts interlaced source to progressive output during transcoding. When checked, select the deinterlacing method to apply. Weston3 and Weston5 methods reconstruct a true progressive image from the interlaced output.

The Deinterlace Conversion filter supports progressive mezzanine output from an interlaced source. The filter is utilized only if the transcoder supports progressive output at the given frame rate.

Note: GPU-based transcoders (AVC and HEVC) in a primary container do not support interlaced output: You must enable the Deinterlace Conversion filter.

Secondary, proxy output is generally transcoded to progressive, as it is often resized to a smaller frame size. During resizing, the transcoder blends frames. When a proxy is resized, the frames are always blended, so it is not necessary to enable the deinterlacing filter.

When a proxy is transcoded at the same frame size as the source, the scaling filter is bypassed, and the fields are weaved together in the output to produce a full-size progressive frame. High-motion video may benefit from employing the deinterlacing filter to blend the frames in the progressive output for smoother playback.

Audio Stream Details

Select the Audio Stream component to display its details in the panel on the right.

Codec

Codec. Specifies which codec to use to encode audio streams. For configuration details, see appropriate topic following.

AAC

General

Channel Configuration. Specifies the number or layout of the audio channels: Mono | Dolby 5.1 | Max. 8 stereo pairs.

Bitrate. Specifies the target bit rate for this audio stream: AAC 16-bit, 64-512 kbps, up to 8 channel stereo.

Create Stereo Pairs. When checked, specifies that each set of tracks should be converted to a stereo pair. Specify the number of stereo pairs to create (up to 8 pairs).

Language Tags

Language Tags. Specify mode: Automatically Detect Language Tags | Manually Set Language Tags.

Language. When Language Tags is set to Manually Set Language Tags, specifies the language to use.

Channel Map. When checked, enables re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

PCM

Channel Configuration. Specifies the number or layout of the audio channels: Mono | arbitrary even number of outputs | up to 8 stereo pairs.

Note: Up to 16 channels are supported from SDI sources.

Label Channel Pairs Left/Right. When checked, forces the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is selected, in which case this setting is ignored.

Bit Depth. Select the desired audio bit depth.

Force One Track Per Channel. Select to make multiple mono tracks instead of a single multi-channel track.

Create Stereo Pairs. When checked, specifies that each set of tracks should be converted to a stereo pair. Specify the number of stereo pairs to create (up to 8 pairs).

Channel Map. When checked, enables re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

Proxy MP4 Output

The Proxy MP4 output container encodes media and saves it as an MP4 file. The MP4 container conforms to IEC 14496-14 MP4 file format standard.

MP4 files do not contain a timecode track.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Select the container to display its settings in the configuration panel on the right.

Format Summary

Video

AVC | x264

Audio

AAC | PCM

Container Settings

The Proxy MP4 Container wraps the specified media into an MP4 file format.

General

File Extension. MP4 selected by default. No other selections are available.

Aspect Ratio Mode

Automatic. Set the aspect ratio automatically, based on the detected content.

Display Aspect Ratio. When selected, specify the display frame aspect ratio to utilize.

Pixel Aspect Ratio. When selected, specify the pixel aspect ratio to utilize.

Video Stream Details

Select the Video Stream component to display its details on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codec

Codec. Specifies which codec (AVC | x264) to use to encode MPEG video streams.

AVC (Lightspeed Live Server Only)

Note: If your Live Capture server is equipped with an NVIDIA RTX or T series GPU, you can not use the AVC codec to encode interlaced sources.

Same as Source. Specifies the width and height to match that of the source video, ignoring the values specified in the Width and Height Controls in the user interface.

Width | Height. Specifies the width and height of the output video frame in pixels.

Bit Rate. Specifies the output target bit rate in kbps (512 - 50,000).

x264 (All Live Capture Platforms - GPU-enabled Optimum)

Same as Source. Specifies the width and height to match that of the source video, ignoring the values specified in the Width and Height Controls in the user interface.

Width | Height. Specifies the width and height of the output video frame in pixels.

Bit Rate. Specifies the output target bit rate in kbps (512 - 50,000).

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The X position of the top-left of the timecode in the output video frame (0 - 4096 pixels).

Y Position. The Y position of the top-left of the timecode in the output video frame of the timecode in the output (0 - 2160 pixels).

Font Size. Sets the font size of the timecode (6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

Deinterlace Conversion Filter

Deinterlace Conversion Filter. Deinterlacing converts interlaced source to progressive output during transcoding. When checked, select the deinterlacing method to apply. Weston3 and Weston5 methods reconstruct a true progressive image from the interlaced output.

The Deinterlace Conversion filter supports progressive mezzanine output from an interlaced source. The filter is utilized only if the transcoder supports progressive output at the given frame rate.

Note: GPU-based transcoders (AVC and HEVC) in a primary container do not support interlaced output: You must enable the Deinterlace Conversion filter.

Secondary, proxy output is generally transcoded to progressive, as it is often resized to a smaller frame size. During resizing, the transcoder blends frames. When a proxy is resized, the frames are always blended, so it is not necessary to enable the deinterlacing filter.

When a proxy is transcoded at the same frame size as the source, the scaling filter is bypassed, and the fields are weaved together in the output to produce a full-size progressive frame. High-motion video may benefit from employing the deinterlacing filter to blend the frames in the progressive output for smoother playback.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codec

Specifies that the audio is encoded using the AAC | PCM codec.

Codec: AAC

Codec. Specifies AAC for encoding audio tracks. No other codecs are provided.

General

Channel Configuration. Specifies the number or layout of the audio channels.

Bitrate. Specifies the target bit rate for this audio stream: AAC 16-bit, 64-512 kbps, 1 track.

Channel Map

Channel Map. Check to enable re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

Codec: PCM

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Channel Configuration. Specifies keyword or number of channels per track: Mono | Stereo | <<multi-channel, AAC encoded surround format>> | <<Specified number of channels per track>>.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Label Channel Pairs Left/Right. When checked, causes the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is checked, in which case this setting is ignored.

Bit Depth. Specifies the output audio bit depth.

Force One Track Per Channel. When checked, creates multiple mono tracks instead of a single multi-channel track.

Channel Map

Channel Map. Allows re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

Proxy MXF OP-1a Output

Proxy MXF OP-1a Output produces an MXF Operational Pattern 1a (OP-1a, SMPTE 379M-2004) file with offline quality video generated by selected codecs, in a generic container mapped to video and audio formats encoded by codecs implemented in Lightspeed Live Capture Secondary Output.

Note: Most Lightspeed Live Capture MXF files containing IMX, XDCAM or AVC-Intra, and all QuickTime Open files, can be opened for editing/playing while they are still growing during capture. See the Partition Duration and Cache Size controls for details. Read your video editor/player user guide for details on supported formats.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Format Summary

Video

Apple ProRes Proxy | Avid DNxHD LB | Avid DNxHR LB | Sony XDCAM

Audio

PCM 16/20/24-bit, 48Kbps, up to 16 channels

Timecode

SMPTE 377M, Timecode track

SMPTE 385M, System item

SMPTE 405M, System item (DNxHD)

MXF Applicable Standards

SMPTE 331M-2004, Elements and Metadata Definitions for SDTI-CP

SMPTE 377M-2004, Material Exchange Format (MXF)

SMPTE 378M-2004, MXF Operational Pattern 1a

SMPTE 379M-2004, MXF Generic Container

SMPTE 382M-2007, Mapping AES3 and Broadcast Wave Audio into MXF Generic Container - DV (AES3), DNxHD, (BWF)

SMPTE 383M-2008, Mapping DV-DIF Data into MXF Generic Container - DV

SMPTE 385M-2004, Mapping SDTI-CP Essence and Metadata into MXF Generic Container - DV, IMX

SMPTE 386M-2004, Mapping Type D-10 Essence Data to MXF Generic Container - IMX

SMPTE 394M-2006, System Scheme 1 for MXF Generic Container DNxHD

SMPTE 405M-2006, Elements and Individual Data Items for MXF Generic Container System Scheme 1 - DNxHD

SMPTE 436M-2006, MXF Mappings for VBI Lines and Ancillary Data Packets

SMPTE 2019-4-2008, Mapping VC-3 Coding Units into MXF Generic Container - DNxHD

SMPTE RDD03, eVTR MXF Interoperability Specification - DV, IMX

SMPTE RDD 9-2009, MXF Interoperability Specification of Sony MPEG Long GOP Product

SMPTE ST 298-2009, Universal Labels for Unique Identification of Digital Data

SMPTE ST 326:2000, Television -SDTI Content Package Format (SDTI-CP)

SMPTE ST 381-1:2005, Television-Material Exchange Format (MXF) - Mapping MPEG Streams into the MXF Generic Container

SMPTE RDD 25:2014, AVC MXF Proxies

Note: The resulting MXF (OP-1a) file can contain VANC data (SMPTE 436M) if present in the incoming stream.

Container Settings

The MXF OP1a Container wraps the specified media in MXF OP-1a file format.

General

File Extension. Specifies *mxf*. No other extensions are provided.

436 Data Track. None | Ancillary | VBI. Specifies how to add SMPTE 436 data to the output.

Partition Strategy. Specifies how to apply MXF partitioning. The Partition Strategy must be set to *Isolated Body Leading Index + RIP* in order for the Partition Duration parameter to be used.

The Partition Duration parameter is ignored if the Partition Strategy is set to Automatic.

Partition Duration. (Default: Enabled) For Open Workflows where files are being opened for edit/copy during capture. Should not be used with DNxHD - instead, use the Cache Size control. When checked, specifies the MXF partition duration in seconds, where lowering it allows growing MXF files to be opened more quickly.

Cache Size. (Default: 256) For Open Workflows generating with DNxHD video, where files are being opened for edit/copy during capture. For other video formats, use the Partition Duration control.

This control specifies how much data is cached in RAM before the file is written to disk, controlling the speed at which video is written to the file, and depends on codec format and bitrate. Lowering the cache size allows growing MXF files to be opened more quickly. Default value of 20 is a suggested starting point for fastest file availability.

When checked, specifies the media cache size in seconds and adjusts the time delay on a growing capture recording before it can be opened by a downstream action or by Glim or other video editors.

Broadcast Wave Audio. When checked, sets the audio tracks to Broadcast Wave format, adding metadata such as timestamps to the audio stream.

Mpeg Picture Element. (Default: Enabled) Specifies that MPEG picture elements should be used, for Avid and Adobe Premiere Pro compatibility.

Telestream Index. When enabled, a proprietary Telestream Index file is created for use in specific customer workflows.

Aspect Ratio Mode

Automatic. Set the aspect ratio automatically, based on the detected content.

Display Aspect Ratio. When selected, specify the display frame aspect ratio to utilize.

Pixel Aspect Ratio. When selected, specify the pixel aspect ratio to utilize.

Video Stream Details

Select the Video Stream component to display its options on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codec

Codec. Specifies which codec to use to encode video streams. For configuration details, see appropriate topic following.

Apple ProRes Proxy

Apple ProRes Proxy allows you to choose from two codec profiles.

Apple ProRes 422 LT is a more highly compressed codec than Apple ProRes 422, with roughly 70 percent of the data rate and 30 percent smaller file sizes. This codec is perfect for environments where storage capacity and data rate are at a premium.

Apple ProRes Proxy is more highly compressed codec than Apple ProRes 422 LT, intended for use in offline workflows that require low data rate, full-resolution video. Target data rate approximately 45 Mbps at 1920 x 1080 at 29.97 fps.

Quality. Specifies the codec to utilize: 422 LT | 422 Proxy.

Avid DNxHD LB

The DNxHD LR (Low Bandwidth) codec generates 8-bit 4:2:2 1080p offline quality video.

Avid DNxHR LB

Avid DNxHR LB is a UHD/4K format codec for generating 8-bit 4:2:2 offline quality video.

Sony XDCAM

The XDCAM codec generates interlaced or progressive video at the specified quality profile and frame size.

Quality. Specifies the video quality / bitrate profile.

Proxy Resizing Height. Specifies the frame height for resizing; width as appropriate.

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The X position of the top-left of the timecode in the output video frame (0 - 4096 pixels).

Y Position. The Y position of the top-left of the timecode in the output video frame of the timecode in the output (0 - 2160 pixels).

Font Size. Sets the font size of the timecode (range 6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is

completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

HDR Metadata Filter

Master Display

Add. When checked, enables embedding SMPTE 2086 master display metadata in the output. HDR metadata is written to the container for use by downstream players to accurately display the High Dynamic Range video.

Master Display X | Y Coordinates for Red | Green | Blue | White Point. specify the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Light Level

Add CTA-861.3 Content Light Level Metadata. When checked, inserts CTA-861.3 message with Content Light Level Metadata. Configure these controls:

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Deinterlace Conversion Filter

Deinterlace Conversion Filter. Deinterlacing converts interlaced source to progressive output during transcoding. When checked, select the deinterlacing method to apply. Weston3 and Weston5 methods reconstruct a true progressive image from the interlaced output.

The Deinterlace Conversion filter supports progressive mezzanine output from an interlaced source. The filter is utilized only if the transcoder supports progressive output at the given frame rate.

Note: GPU-based transcoders (AVC and HEVC) in a primary container do not support interlaced output: You must enable the Deinterlace Conversion filter.

Secondary, proxy output is generally transcoded to progressive, as it is often resized to a smaller frame size. During resizing, the transcoder blends frames. When a proxy is resized, the frames are always blended, so it is not necessary to enable the deinterlacing filter.

When a proxy is transcoded at the same frame size as the source, the scaling filter is bypassed, and the fields are weaved together in the output to produce a full-size progressive frame. High-motion video may benefit from employing the deinterlacing filter to blend the frames in the progressive output for smoother playback.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codec: PCM

Codec. Specifies PCM as the codec to use to encode audio tracks. No other codecs are provided.

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Channel Configuration. Specifies keyword or number of channels per track: Mono | Stereo | <<multi-channel, AAC encoded surround format>> | <<Specified number of channels per track>>.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Label Channel Pairs Left/Right. When checked, causes the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is checked, in which case this setting is ignored.

Bit Depth. Specifies the output audio bit depth.

Force One Track Per Channel. When checked, creates multiple mono tracks instead of a single multi-channel track.

Channel Map. Allows re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

Proxy MXF RDD 25 Output

The Proxy MXF RDD 25 Secondary Output component generates media in a container that conforms to the RDD 25 MXF file format standard.

Note: RDD 25 proxy files can be opened in Telestream's Switch player, and other applications, as they are being captured and are growing in size. Requires Switch 4.0 or later.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

The Proxy MXF RDD 25 container wraps the specified media in MXF format.

File Extension. Specifies *mxf*. No other extensions are available.

Video Stream Details

Select the Video Stream component to display its details on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codec

Codec. Specifies which codec (AVC | x264) to use to encode MPEG video streams.

AVC (Lightspeed Live Server Only)

Note: If your Live Capture server is equipped with an NVIDIA RTX or T series GPU, you can not use the AVC codec to encode interlaced sources.

Same as Source. Specifies the width and height to match that of the source video, ignoring the values specified in the Width and Height Controls in the user interface.

Width | Height. Specifies the width and height of the output video frame in pixels.

Bit Rate. Specifies the output target bit rate in kbps (512 - 50,000).

x264 (All Live Capture Platforms - GPU-enabled Optimum)

Same as Source. Specifies the width and height to match that of the source video, ignoring the values specified in the Width and Height Controls in the user interface.

Width | Height. Specifies the width and height of the output video frame in pixels.

Bit Rate. Specifies the output target bit rate in kbps (512 - 50,000).

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The X position of the top-left of the timecode in the output video frame (0 - 4096 pixels).

Y Position. The Y position of the top-left of the timecode in the output video frame of the timecode in the output (0 - 2160 pixels).

Font Size. Sets the font size of the timecode (6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

Deinterlace Conversion Filter

Deinterlace Conversion Filter. Deinterlacing converts interlaced source to progressive output during transcoding. When checked, select the deinterlacing method to apply. Weston3 and Weston5 methods reconstruct a true progressive image from the interlaced output.

The Deinterlace Conversion filter supports progressive mezzanine output from an interlaced source. The filter is utilized only if the transcoder supports progressive output at the given frame rate.

Note: GPU-based transcoders (AVC and HEVC) in a primary container do not support interlaced output: You must enable the Deinterlace Conversion filter.

Secondary, proxy output is generally transcoded to progressive, as it is often resized to a smaller frame size. During resizing, the transcoder blends frames. When a proxy is resized, the frames are always blended, so it is not necessary to enable the deinterlacing filter.

When a proxy is transcoded at the same frame size as the source, the scaling filter is bypassed, and the fields are weaved together in the output to produce a full-size progressive frame. High-motion video may benefit from employing the deinterlacing filter to blend the frames in the progressive output for smoother playback.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codec (AAC)

Codec. Specifies AAC for encoding audio tracks. No other codecs are provided.

General

When binding a control to a variable, choose a Text variable and set the value to the menu option you choose.

Channel Configuration. Specifies which type of audio to generate. This settings is valid only when Create Stereo Pairs is *not* checked.

Bitrate. Specifies the target bit rate for this audio stream: AAC 16-bit, 64/96/128 kbps, 8 channel.

Create Stereo Pairs. When checked, specifies that each set of tracks should be converted to a stereo pair. Specify the number of stereo pairs to create (up to 8 pairs).

Channel Map. When checked, enables re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

Proxy HLS Output

HTTP Live Streaming (HLS) is an HTTP-based, adaptive bit rate streaming communications protocol. The Proxy HLS output generates AVC | X264 media in HLS format.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

The Proxy HLS Container wraps the specified media into HLS format.

File Extension. *m3u8* selected by default. No other selections are available.

GOP Length. Specifies the GOP length in number of frames.

GOPs per Segment. Number of GOPs per Segment.

Note: Segment duration should be a multiple of GOP duration. Lower segment duration can reduce latency.

SCTE date range. When checked, adds SCTE date messages to the manifest files.

Floating point duration. When checked, enables floating point duration. When unchecked, integer values are used.

Video Stream Details

Select the Video Stream component (up to 4 permitted) to display its details on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

NOTE: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codec

Codec. Specifies which codec (AVC | x264) to use to encode MPEG video streams.

AVC (Lightspeed Live Server Only)

Note: If your Live Capture server is equipped with an NVIDIA RTX or T series GPU, you can not use the AVC codec to encode interlaced sources.

Same as Source. Specifies the width and height to match that of the source video, ignoring the values specified in the Width and Height Controls in the user interface.

Width | Height. Specifies the width and height of the output video frame in pixels.

Bit Rate. Specifies the output target bit rate in kbps (512 - 50,000).

x264 (All Live Capture Platforms - GPU-enabled Optimum)

Same as Source. Specifies the width and height to match that of the source video, ignoring the values specified in the Width and Height Controls in the user interface.

Width | Height. Specifies the width and height of the output video frame in pixels.

Bit Rate. Specifies the output target bit rate in kbps (512 - 50,000).

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The X position of the top-left of the timecode in the output video frame (0 - 4096 pixels).

Y Position. The Y position of the top-left of the timecode in the output video frame of the timecode in the output (0 - 2160 pixels).

Font Size. Sets the font size of the timecode (6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must

be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

Deinterlace Conversion Filter

Deinterlace Conversion Filter. Deinterlacing converts interlaced source to progressive output during transcoding. When checked, select the deinterlacing method to apply. Weston3 and Weston5 methods reconstruct a true progressive image from the interlaced output.

The Deinterlace Conversion filter supports progressive mezzanine output from an interlaced source. The filter is utilized only if the transcoder supports progressive output at the given frame rate.

Note: GPU-based transcoders (AVC and HEVC) in a primary container do not support interlaced output: You must enable the Deinterlace Conversion filter.

Secondary, proxy output is generally transcoded to progressive, as it is often resized to a smaller frame size. During resizing, the transcoder blends frames. When a proxy is resized, the frames are always blended, so it is not necessary to enable the deinterlacing filter.

When a proxy is transcoded at the same frame size as the source, the scaling filter is bypassed, and the fields are weaved together in the output to produce a full-size progressive frame. High-motion video may benefit from employing the deinterlacing filter to blend the frames in the progressive output for smoother playback.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codec (AAC)

Codec. Specifies AAC for encoding audio tracks. No other codecs are provided.

General

Channel Configuration. Specifies the number or layout of the audio channels.

Bitrate. Specifies the target bit rate for this audio stream: AAC 16-bit, 64-512 kbps, 1 track.

Channel Map. When checked, enables re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

ANC Stream Details

Select the ANC component to display its details on the right.

ANC (Web VTT)

Codec. Enable to create WebVTT output.

Language. Specifies the language of the WebVTT output subtitles.

Force Separate Video, Audio, and VTT Folders. When checked, the output audio, video, and VTT files are all in separate folders and files.

Caption Input Type. Specifies the caption format of the input.

Proxy TIFO Output

Telestream Intermediary Format (TIFO) is an intermediate media wrapper format designed by Telestream as a uniform, interchangeable file format to ensure interoperability among Telestream's media processing solutions, including Vantage and Lightspeed Live Capture. TIFO provides a lightweight, low-overhead wrapper that is essence-agnostic, with out-of-band metadata, timecode, and closed caption support.

Using TIFO improves the ability to move media files between Telestream's media processing solutions with all media essence elements and metadata intact, preserving the widest range of transcoding options.

Note: TIFO files can be opened, as they are being captured, by Telestream's Switch player and Vantage systems at a time when the captured file reports a non-zero file size. Requires Switch 4.0 or later.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Format Summary

Video

Apple ProRes Proxy | AVC | Avid DNxHD LB | Avid H.264 Proxy

Audio

MPEG-1 Layer 2 - Mono, 48 kHz, 64-192 Kbps, up to 16 tracks

PCM, 16/20/24-bit, 48Kbps, up to 16 channels; PCM/Dolby E

Container Settings

The TIFO Container wraps the specified media into a TIFO file format.

General

File Extension. Specifies *tifo*. No other extensions are provided.

Flush Period. When checked, writes all buffered media to disk at the specified interval (1000 ms default) at a minimum.

Aspect Ratio Mode

Automatic. Set the aspect ratio automatically, based on the detected content.

Display Aspect Ratio. When selected, specify the display frame aspect ratio to utilize.

Pixel Aspect Ratio. When selected, specify the pixel aspect ratio to utilize.

Video Stream Details

Select the Video Stream component to display its options on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codec

Codec. Specifies which codec to use to encode video streams. For details, see the appropriate topic following.

Apple ProRes Proxy

There are no user-settable controls in this codec.

AVC (Lightspeed Live Server Only)

Note: If your Live Capture server is equipped with an NVIDIA RTX or T series GPU, you can not use the AVC codec to encode interlaced sources.

Same as Source. When checked, the width and height of the source is passed through. Width and Height parameters set in the action for the AVC codec are ignored.

Caution: Same as Source cannot be used when UHD/4K is set as the primary output.

Width. (Ignored when Same as Source is checked.) Specifies the width of the frame, in pixels (320 - 720).Height. (Ignored when Same as Source is checked.) Specifies the height of the frame, in pixels (240 - 480).Bit Rate. Specifies the output target bit rate in kbps (512 - 50,000).

Avid DNxHD LB

There are no user-settable controls in this codec.

Avid H.264 Proxy

When used in conjunction in a workflow with the Avid Media Creation action for Interplay ingest, the Avid H.264 Proxy outputs are checked in with Avid-compatible Hi Res outputs from the Capture action and can be linked for proxy based editing.Quality. Specifies the video quality profile.

Quality. Specifies the video quality profile.

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The X position of the top-left of the timecode in the output video frame (0 - 4096 pixels).

Y Position. The Y position of the top-left of the timecode in the output video frame (0 - 2160 pixels).

Font Size. Sets the font size of the timecode (6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

Deinterlace Conversion Filter

Deinterlace Conversion Filter. Deinterlacing converts interlaced source to progressive output during transcoding. When checked, select the deinterlacing method to apply. Weston3 and Weston5 methods reconstruct a true progressive image from the interlaced output.

The Deinterlace Conversion filter supports progressive mezzanine output from an interlaced source. The filter is utilized only if the transcoder supports progressive output at the given frame rate.

Note: GPU-based transcoders (AVC and HEVC) in a primary container do not support interlaced output: You must enable the Deinterlace Conversion filter.

Secondary, proxy output is generally transcoded to progressive, as it is often resized to a smaller frame size. During resizing, the transcoder blends frames. When a proxy is resized, the frames are always blended, so it is not necessary to enable the deinterlacing filter.

When a proxy is transcoded at the same frame size as the source, the scaling filter is bypassed, and the fields are weaved together in the output to produce a full-size progressive frame. High-motion video may benefit from employing the deinterlacing filter to blend the frames in the progressive output for smoother playback.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codec: MPEG-1 Layer 2

MPEG-1 Layer 2 is part of the ISO/IEC 11172-3 standard and is a very common compression format for broadcast and cable-quality audio.

Channel Configuration. Specifies Mono.

Track Count. Specifies the number of tracks (max. 16) to generate in this output.

Bit Rate. Sets the encoded bit rate of the encoded audio stream.

Sample Rate. Specifies 48kHz for this audio stream.

Codec: PCM

Codec. Specifies PCM as the codec to use to encode audio tracks. No other codecs are provided.

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs,

then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Channel Configuration. Specifies keyword or number of channels per track: Mono | Stereo | <<multi-channel, AAC encoded surround format>> | <<Specified number of channels per track>>.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Label Channel Pairs Left/Right. When checked, causes the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is checked, in which case this setting is ignored.

Bit Depth. Select the desired audio bit depth.

Force One Track Per Channel. Select to make multiple mono tracks instead of a single multi-channel track.

Create Stereo Pairs. When checked, specifies that each set of tracks should be converted to a stereo pair. Specify the number of stereo pairs to create (up to 8 pairs).

Channel Map. Allows re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

Capture Action Output Formats

Tape Action and Output Formats

The Tape action and supported output formats are implemented in the Vantage Live service to enable tape-based SDI capture workflows.

Tape Action

Matroska Output

MXF XAVC Output

MPEG2-TS Output

Proxy MXF RDD 25 Output

QuickTime Output

QuickTime Open Output

TIFO Output

Proxy TIFO Output

Proxy MP4 Output

Poster Frame

Tape Action

The Telestream Live Service and the Tape action are Vantage features enabled in a Vantage domain to support Live Capture and appropriately licensed. The Tape action is used in workflows created for ingesting tape-based media via SDI in the Lightspeed Live Server and serializing it to files for further video processing.

You use the Lightspeed Live Tape web application to select sources and control recording during playout. You can also use Live Capture API to create custom programs to control Vantage capture workflows.

The Tape action is used to start SDI-based tape capture workflows created in the Vantage domain installed on the Lightspeed Live server. The Tape action inspector enables you to select and configure VTR sources for processing, filtering, transcoding, and output. You can also use the action to add metadata labels.

The container and codec selected in the Tape action allow configuration of the encoding and format of the capture operation. The encoded media is captured to a primary file stored locally or copied to external storage.

Note: Most MXF files, and QuickTime Open files are created in such a way that they can be opened for editing/playing while they are still growing during capture. Check with your edit/player application guide for details about supported formats.

As an origin action, the Tape action in a Vantage workflow begins the workflow, and it may be the only action in the workflow. A tape capture workflow may also include additional actions, such as a Copy or Move action, which can be optionally used to output the captured file to an additional location.

Use the Live Tape Capture web application to control VTR sources from the VTR Preview Player panel, log clips from tapes, and capture logged clips from tape to files. For information about the Live Capture web application, please see the *Live Capture User Guide*. The Live Capture API can also be used to create custom programs to control tape capture workflows.

This action is open workflow capable if the Open Workflows license is installed; right-click the action and select Workflow Mode > Open. Open workflows must also be enabled for the current workflow and in the Vantage Management Console Settings.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Inputs and Outputs

Configure inputs and outputs on the left side of the inspector.

Source Inputs

Source. Select the input to use from the Source menu. For more information on Sources, refer to Live Capture User Guide > Previewing Sources and Finding Workflows.

Channel Group. Specifies the name of the Group this workflow is associated with. You can add multiple workflows to each channel group you create, and then use channel groups in your Capture web apps to filter workflow selections, narrowing your view of workflows to those that are relevant to your work or focus. Channel Groups, which are referred to as Nexus definitions in the Vantage Management Console, are created and managed in the Workflow Design Items > Nexus Definitions tab.

Labels

Select the Expected Labels that you want to include, to allow operators to update label values in the Tape Capture web application and process them in the Tape action or downstream in the workflow. Labels can be used in downstream Vantage actions, typically to update or add properties in Interplay, or transformed into text or XML for out-of-band delivery.

Labels that are enabled can be configured in the Tape Capture web app - select the Channel Options > Configure Labels dialog. Label creation is performed in the Vantage Management Console.

For more information on creating labels, search the *Live Capture User Guide* for *Create Labels and Variables for the Tape and Capture Actions*. To update labels in the Live Capture web application, search for *Channel Options*.

Note: If label parameters are changed or modified in the Vantage Management Console, the changes need to be applied to Capture and Tape actions that use them, so that they display correctly in the Tape Capture web app.
To apply label updates to a Capture action, you must:

1. Put the workflow into edit mode and display the Capture action inspector.
2. In Expected Labels, disable the target label(s); then re-enable them.
3. Save the action and re-activate the workflow.

The updated label(s) will now display correctly in the Tape Capture web app.

Configuring Primary and Secondary Outputs

You use the Primary and optional Secondary Output panels to create configuration templates that you can select in the Tape Capture web app.

The output location, file name and nickname settings are set once for all primary and secondary configurations. Select the output location where the captured file should be written, optionally edit the file name using tokens or variables, and specify the output nickname for use by downstream actions operating on the file.

Configuration templates can be added to each output type and consist of a container format and the video and audio codecs to be use for the captured output. There is no limit to the number of configuration templates you can create.

Output Location. Click Output Location and select from these choices:

- *Vantage Store*: Write the output to a Live Store. Select an available Live Store from the menu.

Telestream recommends creating a Live Store in Vantage and using it as the output location for efficient Capture operations. See Live Capture User Guide > Using Live Stores for Capturing Files for details.

- *Path*: Write the output to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Browse button and select a variable which supplies the fully-qualified path.

Caution: In rare instances, two capture processes writing to the same path location folder may result in one file overwriting the other. To prevent this, the best practice is to use a unique folder location for each workflow, or append a Time token (set to mmm) to the file name in a workflow (configured in Edit Filename), which returns the current millisecond, thus altering the file name.

Edit Filename. Displays the Filename Pattern Editor and specifies the pattern for the file you are creating. Default: Base Name. Use the menu on the right to select one or more tokens to insert to create the exact filename pattern you require.

Available tokens:

- *Base Name*: Select to add the base (clip) name as part of the file name. The Base Name token is populated with the Clip Name selected in Clip Panel of the Tape Capture user interface.

- *Workflow Name*: Select to add the name of the workflow as part of the file name.

- *Source Name*: Select to add the name of the live source as part of the file name.

- *Variable*: Select to choose and add a variable to the file name.

- *Date*: Select to add the date as part of the file name.

- *Time*: Select to add the time as part of the file name.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value `12H4JA678`, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Specifies the nickname for this media.

Add. Create a new Configuration Template, by first choosing the template's output container format from the Add menu. Specify a container type, enter a unique name in the container's Config Name field and configure container details in the panel on the right. Now, click on the video and audio streams on the left and configure them as well, in the panel on the right. Add all of the output configurations that you want to have available in the Tape Capture web app.

After logging clips, click the Capture button in the Tape Capture web app to select the primary output container format you want to use for the capture operation.

Delete. Click the X icon on the right to delete the output from this action.

Settings Panel

Specify Tape action general settings in the Settings panel on the right.

Binding a parameter to a variable makes the parameter configurable directly in the Tape Capture web app.

Generate Variables

Generate Variables. Select which variables to generate for use in downstream actions.

Is Output Stitched. When checked, enables the ability to detect if the output is stitched or not. Select or create a True/False variable to generate, which is used in a downstream action to execute the workflow based on the result. (Use a Decide action to test the variable and perform one branch or another.)

Primary Configuration. When checked, generates the specified variable to enable downstream actions to determine which configuration was used in this action. The variable contains the primary configuration that was selected by an operator for this job, in the Record panel of the Tape Capture web app, which is selected from the menu that displays all of the primary configurations you have configured here in the Tape action to be available to the operator during tape capture operations.

Secondary Configuration. When checked, generates the specified variable to enable downstream actions to determine which configuration was used in this action. The variable contains the secondary configuration that was selected by an operator for this job, in the Record panel of the Tape Capture web app, which is selected from the menu that displays all of the secondary configurations you have configured here in the Tape action to be available to the operator during tape capture operations.

Avid Master Mob ID | Avid Source Mob ID. Check to generate variables to provide the Avid Master Mob ID and/or the Avid Source Mob ID for use in downstream actions. Then select the text variable you want to generate.

Workflow Name. Check to generate variable to provide the name of this workflow for use in downstream actions. Then select the text variable you want to generate.

Tape Action Settings

Configure these Tape action settings:

Ignore Lost Frames. When enabled, this option suppresses all source and load-related errors. It allows capture to continue recording if a Loss of Signal | FIFO overrun/overflow | Loss of RS422 condition is encountered or if video format changes are encountered. If disabled, capture stops when it encounters these conditions. Enabling Ignore Lost

Frames should not be necessary in most cases. For LOS details, see *Loss of Signal Behavior* in the *Lightspeed Live Capture User Guide*.

Pre-Roll Duration. Specifies the number of seconds that tape rolls before a scheduled recording begins. You can also assign a variable defined elsewhere in the workflow.

Note: Setting Pre-Roll Duration to 0 (zero) may have a use in some cases, such as capturing digital sources. A 0 (zero) setting could cause issues when capturing from tape sources. The default Pre-Roll is 3, which often works fine for a tape source.

Post-Roll Duration. Specifies the number of seconds that tape rolls after a scheduled recording ends. You can also assign a variable defined elsewhere in the workflow. Note that the VTR stops only after all frames have been captured, so post-roll may continue longer than the duration you specify.

Timecode Override Enable. When checked, activates and overrides the Input timecode with the one entered in the Timecode Override control. When enabled, Timecode Override overrides the Input timecode during a capture with the one specified and puts this timecode at the beginning of the output file. All clips in the Tape clip list will have their timecode overwritten by this timecode.

Timecode Override. Specifies the timecode value to use to put at the beginning of the output file when Timecode Override Enable is active.

Discontinuity Threshold. Specifies the minimum number of skipped frames that constitutes a discontinuity (timecode break) state. This threshold affects both Create New File on Discontinuity and Abort on Discontinuity, when enabled. Note that decremented and repeated frames always count as timecode discrepancies, and for these discrepancies, the threshold setting is ignored.

Discontinuity Cooldown. When checked, delays discontinuity checking for the specified time. After a discontinuity is detected, additional discontinuities are ignored until the specified time (in seconds) has passed.

Create New File on Discontinuity. When checked and timecode discontinuity is detected, specifies that the current media file is closed and a new media recording file is opened. During an active capture recording, if a discontinuity is encountered, the current capture file will complete, and a new media file recording will immediately start.

Time code discontinuities are defined as follows:

- Time code increments: If time code increments by a value equal to or greater than the selected Discontinuity Threshold value.
- Time code repeats: The Discontinuity Threshold value is ignored in this case.
- Time code decrements: The Discontinuity Threshold value is ignored in this case.

Example 1: A time code incrementing from 00:00:30;10 to 00:00:30;15 would be detected by a threshold of 4 or less.

Example 2: A time code repeating from 00:00:30;10 to 00:00:30;10 would be detected.

Example 3: A time code decrementing from 00:00:30;10 to 00:00:29;00 would be detected.

Abort on Discontinuity. When enabled, capture aborts when a timecode discontinuity is detected as specified by the Discontinuity Threshold or when the VTR servo is not locked.

Note: Create New File on Discontinuity and Abort on Discontinuity options are mutually exclusive; when both are checked, Abort on Discontinuity takes precedence. That is, if discontinuity is detected, the job is aborted.

Ignore Frames When Servo is Not Locked. If enabled, all frames captured while the servo is in the unlocked state (as reported by the VTR) are excluded from the output file.

Create New File When Servo Relocks. If enabled, creates a new media file when the servo relocks after being in the unlocked state. When a servo relock is encountered during an active capture recording, the current capture file will complete, and a new media file recording starts.

If Create New File When Servo Relocks is enabled and Ignore Frames When Servo is Not Locked is disabled, the system may create unwanted (unlocked) frames at the end of output files.

If Create New File on Discontinuity is enabled and Ignore Frames When Servo is Not Locked is also enabled, the result may be an output file that contains a discontinuous timecode, even though Create New File on Discontinuity is enabled and the timecode was always incrementing. This occurs because of the system ignoring frames, regardless of the timecode, while the servo is unlocked. With this configuration, the frames captured during the period when the servo was unlocked will be excluded from the output file. New frames would then be added to the file when the servo relocks, which would cause the output file to have discontinuous timecode. To avoid this scenario, enable the Create New File When Servo Relocks option. In this state the relock of the servo will start a new file where the discontinuity in the output file would have been.

As described above, repeating timecodes are counted as discontinuities. Most VTRs repeat timecodes when the servo is unlocked; therefore, if Ignore Frames When Servo is Not Locked is disabled and Create New File on Discontinuity is enabled, the result may be many single frame files while the servo is unlocked. This will not happen if Ignore Frames When Servo is Not Locked is enabled.

With many VTRs, particularly an SRW-5800, there can be gray frames after the servo relocks. Timecode for these frames is often invalid. Because the system is only able to respond to the status the VTR provides, it will not detect and exclude these gray frames.

No two passes of the same section of tape are likely to be identical. This occurs because the VTR can sometimes take longer than others to lock the servo after the control track is detected. Therefore, it is important to check the logs to verify whether the servo was locked while a specific frame was captured.

Use Duration Over Markout. Ignores mark out and rolls tape for the specified duration regardless of time code.

Treat input as Progressive. Assumes input is progressive even if it is interlaced.

RS422 time code delay. Adjusts RS422 time code by specified number of frames. RS422 time code delay can be used to compensate for VTR decks requiring adjustments to frame timing. Most VTR decks do not require this offset adjustment. If you have a VTR deck that requires this adjustment it is necessary to use a trial and error process to determine the correct offset. The default is 0, the minimum is -3 frames, and the maximum is +3 frames.

Rewind Tape. When checked, a Rewind command is sent to the VTR after capture is complete. If there are multiple clips on a tape slated for capture, the Rewind command is sent once; after all clip capture jobs have completed.

Stitch Clips. When checked, stitches the aggregated content from all captured clips into a direct-converted output file. See Stitch Behavior, below.

Stitch Clip Base Name. Specifies the base name to use in job names and the *Base Name* part of the file name pattern. When blank, `StitchedClip` is the default base name.

Stitch Behavior. Specifies the stitched file behavior: *Direct Convert*, which can not be changed. Creates a self-contained output file for the Primary and/or Secondary outputs, which contains the aggregated content from all captured clips in the order specified by the user.

The output file can be used by a downstream action for additional processing.

Allow Secondary Output to be Disabled. Check to add the option to disable the secondary output in the Tape Capture web application. When selected, the Disable Secondary Output control is displayed in the Tape Capture web app Capture Clips dialog.

Note: When *Allow Secondary Output to be Disabled* is selected, no downstream processing can be performed on secondary output. With this enabled, you cannot save the workflow if it is set to process secondary output.

When you have downstream actions process secondary output, but you want to disable secondary output in the Tape Capture web app, add a Poster Frame secondary output so that can be selected in the web app as the disabled option.

You must create one or more MP4 secondary outputs when Allow Secondary Output to be Disabled is selected, in order to have the option to enable and create a secondary output in the Tape Capture web app.

Matroska Output

The Matroska output container encodes video as FFV1 or x264 and audio as PCM, and saves it in the open source Matroska Multimedia Container format as an MKV file.

Matroska files do not contain a timecode track.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Select the container to display its settings in the configuration panel on the right.

Format Summary

Video

FFV1 | x264

Audio

PCM

Container Settings

The Matroska Container wraps the specified media in the open source Matroska Multimedia Container format as an MKV file format.

Matroska Config Name. Specifies the custom name of this output configuration. Displayed as a Configuration Template (along with all other outputs in this action, if any) in the Tape Capture Web app, so that the operator can select a specific output configuration to utilize in the current capture session.

General

File Extension. Specifies *mkv*.

Video Stream Details

Select the Video Stream component to display its options in the panel on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling (Default: Auto). Specifies the standard for color primaries signaling in the MP4 container.

Transfer Function Signaling (Default: Auto). Specifies the standard for transfer function signaling in the MP4 container.

Color Matrix Signaling (Default: Auto). Specifies the standard for color matrix signaling in the MP4 container.

Codec

Codec. Specifies which codec (FFV1 | x264) to use to encode the video stream.

FFV1

Format Type. Specifies the uncompressed data type. YUV | RGB, subsampling, alpha channel presence, and bit depth.

Version. Specifies which version of the FFV1 codec to utilize.

Coder Type. Specifies the entropy coder type.

GOP Length. Specifies the GOP length.

Threads. When checked, specifies the number of threads to use while processing. If unchecked, the value is set to the number of CPU cores available.

Slices (Default: 30). Specifies the number of slices per frame. Increasing slice count may speed performance, but it also increases the file size.

Slice CRC. When checked, enables the decoder to detect errors in the bit stream, rather than blindly decoding a broken slice.

x264

Profile. Specifies the video quality profile.

Bit Rate. Specifies the output video bit rate in kbps (512 - 50,000).

Command Line. Configure the compressor using x264 command line syntax. For setting specific x264 parameters, you can enter x264 CLI commands (separated by spaces) to execute them. For best results, be sure to use long form: *--bframe 5*, for example. Use of short form (*-b 5*) is not recommended.

The following x264 command line parameters are not supported: *--fake-interlaced* | *--nal-hrd cbr* | *--profile* |*--video-format* | *--bitrate*.

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The X position of the top-left of the timecode in the output video frame (0 - 4096 pixels).

Y Position. The Y position of the top-left of the timecode in the output video frame (0 - 2160 pixels).

Font Size. Sets the font size of the timecode (6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

Audio Stream Details

Select the Audio Stream component to display its details in the panel on the right.

Codec: PCM

Codec. Specifies PCM as the codec to use to encode audio tracks. No other codecs are provided.

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For

example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Channel Configuration. Specifies keyword or number of channels per track: Mono | Stereo | <<multi-channel, AAC encoded surround format>> | <<Specified number of channels per track>>.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Label Channel Pairs Left/Right. When checked, causes the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is checked, in which case this setting is ignored.

Bit Depth. Specifies the output audio bit depth.

Force One Track Per Channel. When checked, creates multiple mono tracks - one track for each channel - instead of a single, multi-channel track, and specify the number of tracks you want in output that supports multiple tracks.

Channel Map. Check to enable re-mapping of the incoming source audio channels to the captured file output channels within the scope of a track. Channels are numbered from 1 to 32. Specify the number of the audio input channels to use for each output channel.

MXF OP1a Output

The MXF OP1a Output container encodes the media in an MXF Operational Pattern 1a (OP-1a, SMPTE 379M-2004) file with a generic container mapped to Lightspeed Live Capture's video essences.

Note: Most Lightspeed Live Capture MXF files containing IMX, XDCAM or AVC-Intra, and all QuickTime Open files, are created in such a way that they can be opened for editing/playing while they are still growing during capture. Check in your edit/player guide for details on supported formats.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Select the container to display its settings in the configuration panel on the right.

Producing IMX SD NTSC Video without VBI

To produce MPEG, iFrame-only MXF OP1media with IMX SD NTSC at 720x480 without VBI, add a primary MXF OP1a output and use the MPEG-2 I-Frame codec. Select a quality profile to meet your requirements. This codec crops the SD NTSC input from 720x512 to 720x480, dropping VBI lines. You can produce AES audio with 8 tracks of 24-bit audio (similar to IMX audio if Follow D-10/SMPTE 331M Spec is disabled) by setting the PCM codec to 24-bit 8-channel and enable Force One Track Per Channel.

Format Summary

Video

Apple ProRes | AVC | Avid DNxHD | DV | DVCPro HD | IMX | JPEG2000 Lossless | JPEG2000 Lossy | MPEG-2 I-Frame | Panasonic AVC-Intra | Panasonic AVC-Ultra | Sony XDCAM | Uncompressed | x264

Audio

PCM 16/20/24-bit, 48Kbps, up to 16 tracks

Timecode

The following standards, available from SMPTE, describe the timecode track:

SMPTE 377M, Timecode track

SMPTE 385M, System item

SMPTE 405M, System item (DNxHD)

MXF Applicable Standards

The following standards, available from SMPTE, describe the MXF format:

SMPTE 331M-2004, Elements and Metadata Definitions for SDTI-CP

SMPTE 377M-2004, Material Exchange Format (MXF)

SMPTE 378M-2004, MXF Operational Pattern 1a

SMPTE 379M-2004, MXF Generic Container

SMPTE 382M-2007, Mapping AES3 and Broadcast Wave Audio into MXF Generic Container - DV (AES3), DNxHD, (BWF)

SMPTE 383M-2008, Mapping DV-DIF Data into MXF Generic Container - DV

SMPTE 385M-2004, Mapping SDTI-CP Essence and Metadata into MXF Generic Container - DV, IMX

SMPTE 386M-2004, Mapping Type D-10 Essence Data to MXF Generic Container - IMX

SMPTE 394M-2006, System Scheme 1 for MXF Generic Container DNxHD

SMPTE 405M-2006, Elements and Individual Data Items for MXF Generic Container System Scheme 1 - DNxHD

SMPTE 436M-2006, MXF Mappings for VBI Lines and Ancillary Data Packets

SMPTE 2019-4-2008, Mapping VC-3 Coding Units into MXF Generic Container - DNxHD

SMPTE RDD03, eVTR MXF Interoperability Specification - DV, IMX

SMPTE RDD 9-2009, MXF Interoperability Specification of Sony MPEG Long GOP Product

SMPTE ST 298-2009, Universal Labels for Unique Identification of Digital Data

SMPTE ST 326:2000, Television -SDTI Content Package Format (SDTI-CP)

SMPTE ST 381-1:2005, Television-Material Exchange Format (MXF) - Mapping MPEG Streams into the MXF Generic Container

SMPTE RDD 25:2014, AVC MXF Proxies

Note: The resulting MXF (OP-1a) file can contain VANC data (SMPTE 436M) if present within the incoming SDI stream.

Output Settings

MXF OP-1a Config Name. Specifies the custom name of this output configuration. Displayed as a Configuration Template (along with all other outputs in this action, if

any) in the Tape Capture Web app, so that the operator can select a specific output configuration to utilize in the current capture session.

Container Settings

General

File Extension. Specifies the extension of the output file name: mxf. No other options available.

436 Data Track. Specifies how to add SMPTE 436 data to the output.

Partition Strategy. Specifies how to apply MXF partitioning.

Broadcast Wave Audio. When checked, sets the audio tracks to Broadcast Wave format, adding metadata such as timestamps to the audio stream.

Mpeg Picture Element. When checked, specifies that MPEG picture elements should be used for Avid and Adobe Premiere Pro compatibility.

Telestream Index. When checked, a proprietary, sidecar Telestream Index file is created for use in specific customer workflows. For details, please contact Customer Service.

Aspect Ratio Mode

Automatic. Set the aspect ratio automatically, based on the detected content.

Display Aspect Ratio. When selected, specify the display frame aspect ratio to utilize.

Pixel Aspect Ratio. When selected, specify the pixel aspect ratio to utilize.

Video Stream Details

Select the Video Stream component to display its settings on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codecs

Codec. Specifies the codec used to encode the output video stream.

Apple ProRes

Apple ProRes is a lossy video compression format developed by Apple, Inc. for use in post-production.

Quality. Specifies the quality (chroma sub-sampling and preset bitrate) profile to use when encoding the output media.

512 VBI Cropping Method. When processing 512 NTSC SD source, the codec removes the top 25 | 26 | 27 VBI data lines from the source.

AVC (Lightspeed Live Server Only)

Note: If your Live Capture server is equipped with an NVIDIA RTX or T series GPU, you can not use the AVC codec to encode interlaced sources.

Profile. Specifies the video quality profile:

Baseline - Primarily for low-cost applications, typically used in video-conferencing and mobile applications. By specification, interlaced only.

Main - Standard-definition digital TV broadcasts that use MPEG-4 format.

High - Broadcast and disk storage applications, particularly for HD televisions.

Bit Rate. Specifies the output target bit rate in kbps (512 - 50,000).

Avid DNxHD

DNxHD generates HD video, with a set bitrate for each DNXHD quality profile.

Quality. Specifies the video quality profile. Certain profiles have limits:

- 444 - (10 bit) only supported in these 1080p resolutions: 23.98, 24, 25, 29.97

- HQ TR - Not supported in Capture - do not use.

-SQ TR (8 bit) - not supported in 1080p 50/59.94/60.

- LB (8 bit) - only supported for these 1080p resolutions: 23.98, 24, 25, 29.97.

Table 9.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHD HQX	Avid DNxHD 440x 1080p/60	10 bits 440 Mbs
DNXHD HQ	Avid DNxHD 440 1080p/60	8 bits 440 Mbs
DNXHD SQ	Avid DNxHD 290 1080p/60	8 bits 291 Mbs

Table 9.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHQ LB	Avid DNxHD 90 1080p/60	8 bits 90 Mbs
DNXHD HQX	Avid DNxHD 440x 1080p/59.94	10 bits 440 Mbs
DNXHD HQ	Avid DNxHD 440 1080p/59.94	8 bits 440 Mbs
DNXHD SQ	Avid DNxHD 290 1080p/59.94	8 bits 291 Mbs
DNXHD LB	Avid DNxHD 90 1080p/59.94	8 bits 90 Mbs
DNXHD HQX	Avid DNxHD 365x 1080p/50	10 bits 367 Mbs
DNXHD HQ	Avid DNxHD 365 1080p/50	8 bits 367 Mbs
DNXHD SQ	Avid DNxHD 240 1080p/50	8 bits 242 Mbs
DNXHD LB	Avid DNxHD 75 1080p/50	8 bits 75 Mbs
DNXHD HQX	Avid DNxHD 220x 1080i/59.94	10 bits 220 Mbs
DNXHD HQ	Avid DNxHD 220 1080i/59.94	8 bits 220 Mbs
DNXHD SQ	Avid DNxHD 145 1080i/59.94	8 bits 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 1080i/59.94	8 bits 100 Mbs
DNXHD HQX	Avid DNxHD 185x 1080i/50	10 bits 184 Mbs
DNXHD HQ	Avid DNxHD 185 1080i/50	8 bits 184 Mbs
DNXHD SQ	Avid DNxHD 120 1080i/50	8 bits 121 Mbs
DNXHD SQ TR	Avid DNxHD 85 1080i/50	8 bits 84 Mbs
DNXHD 4:4:4	Avid DNxHD 365x 1080p/25	10 bits 367 Mbs
DNXHD HQX	Avid DNxHD 185x 1080p/25	10 bits 184 Mbs
DNXHD HQ	Avid DNxHD 185 1080p/25	8 bits 184 Mbs
DNXHD SQ	Avid DNxHD 120 1080p/25	8 bits 121 Mbs
DNXHD SQ TR	Avid DNxHD 85 1080p/25	8 bits 84 Mbs
DNXHD LB	Avid DNxHD 36 1080p/25	8 bits 36 Mbs
DNXHD 4:4:4	Avid DNxHD 350x 1080p/24	10 bits 352 Mbs
DNXHD HQX	Avid DNxHD 175x 1080p/24	10 bits 176 Mbs
DNXHD HQ	Avid DNxHD 175 1080p/24	8 bits 176 Mbs
DNXHD SQ	Avid DNxHD 115 1080p/24	8 bits 116 Mbs
DNXHD SQ TR	Avid DNxHD 80 1080p/24	8 bits 80 Mbs

Table 9.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHD LB	Avid DNxHD 36 1080p/24	8 bits 36 Mbs
DNXHD 4:4:4	Avid DNxHD 350x 1080p/23.976	10 bits 352 Mbs
DNXHD HQX	Avid DNxHD 175x 1080p/23.976	10 bits 176 Mbs
DNXHD HQ	Avid DNxHD 175 1080p/23.976	8 bits 176 Mbs
DNXHD SQ	Avid DNxHD 115 1080p/23.976	8 bits 116 Mbs
DNXHD SQ TR	Avid DNxHD 80 1080p/23.976	8 bits 80 Mbs
DNXHD LB	Avid DNxHD 36 1080p/23.976	8 bits 36 Mbs
DNXHD 4:4:4	Avid DNxHD 440x 1080p/29.97	10 bits 440 Mbs
DNXHD HQX	Avid DNxHD 220x 1080p/29.97	10 bits 220 Mbs
DNXHD HQ	Avid DNxHD 220 1080p/29.97	8 bits 220 Mbs
DNXHD SQ	Avid DNxHD 145 1080p/29.97	8 bits 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 1080p/29.97	8 bits 100 Mbs
DNXHD LB	Avid DNxHD 45 1080p/29.97	8 bits 45 Mbs
DNXHD HQX	Avid DNxHD 220x 720p/59.94	10 bits 220 Mbs
DNXHD HQ	Avid DNxHD 220 720p/59.94	8 bits 220 Mbs
DNXHD SQ	Avid DNxHD 145 720p/59.94	8 bits 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 720p/59.94	8 bits 100 Mbs
DNXHD HQX	Avid DNxHD 175x 720p/50	10 bits 175 Mbs
DNXHD HQ	Avid DNxHD 175 720p/50	8 bits 175 Mbs
DNXHD SQ	Avid DNxHD 115 720p/50	8 bits 115 Mbs
DNXHD SQ TR	Avid DNxHD 85 720p/50	8 bits 85 Mbs

DV

The DV codec generates interlaced SD format NTSC (29.97 fps) and PAL (25 fps) video.

Quality. Specifies the encoder quality setting.

DVCPRO HD

DVCPro HD video is an anamorphic format - the horizontal pixels are sub-sampled in the recording to save bandwidth, and stretched to fit a 16:9 frame during playback. There are no user-configurable settings.

Supported input frame rates:

- 720p: 50/59.94
- 1080i: 25/29.97
- 1080p: 23.976p/psf

Video is encoded at 8-bit, using 4:2:2 chroma. The data rate is generally recorded at 115 mbs. Encoded frames vary by input size:

- 1280x720 video is encoded at 960x720.
- 1920x1080 is encoded at 1280x1080@59.94i
- 1920x1080 is encoded at 1440x1080@50i

DVCPro HD supports up to eight audio channels at 48kHz/16 bits per channel.

IMX

The IMX codec can only encode SD video. The IMX format specified by Sony supports 4 channel, 48 kHz, 24 bit or 8 channel, 48 kHz,16 bit audio to match the Sony IMX implementation. Both configurations require Force One Track per Channel to be enabled in the PCM audio transcoder.

Quality. Specifies the encoder quality setting.

Follow D-10/SMPTE 331M Spec. To match the Sony IMX implementation, uncheck this control and configure the audio tracks to specify Force one track per channel. Check this control to produce output conforming to D-10/SMPTE 331M.

Mask VBI. When enabled, the VBI portion of the video signal is replaced with black - 26 lines for NTSC, 30 lines for PAL. The metadata from the VBI is still preserved in the container, when possible.

JPEG2000 Lossless (Comprimato)

The Comprimato JPEG2000 Lossless codec encodes the input video into one output video file in JPEG2000 format, using the JPEG2000 codec in lossless mode. Comprimato-based ISO/ITU still image compression provides a fast and flexible solution for high-quality, wavelet-based compression.

JPEG-2000 is an intra-frame HD video codec specified by ISO/IEC 15444-1. It uses wavelet transformations to compress the image which results in high quality images in both lossy and lossless modes. JPEG 2000 offers higher compression ratios over standard JPEG video. It offers resolution, color, quality and position progression scalability, and also supports 4:2:2 and 4:4:4 chroma sub-sampling methods.

There are no general frame size or frame rate limitations. However, compression is resource intensive, and real time performance cannot be sustained beyond HD 1080p@59.94 for YUV encoding, and lower frame rates for RGB encoding.

Codec Settings

Pixel Format. Specifies the color space, chroma sub-sampling, and bit depth to use for encoding.

Tile Partition Width. Specifies the tile partition width in pixels.

Tile Partition Height. Specifies the tile partition height in pixels.

Precinct Width and Height. Specifies the precinct size.

Code-block Width and Height. Specifies the height and width (in pixels) of a code block to process.

Packet Progression Order. Specifies the order of packet progression.

Decomposition Levels. Specifies the maximum number of discrete wavelet transform levels, or stages, to use (also known as Discrete Wavelet Transformation resolution).

Tile-Part Length Markers. When checked, specifies that Tile Length Markers will be used.

End of Packet Header Markers. When checked, EPH marker segments are generated.

Start of Packet Markers. When checked, SOP marker segments are generated.

CUDA Memory Limit. Specifies the CUDA memory limit, in megabytes (MB).

Note: When the CUDA Memory Limit is set to 0, GPU processing is disabled.

CUDA Tile Limit. Specifies the CUDA tile limit.

Encoder Queue Size. Specifies the encoder queue size.

Encode Less VBI. When checked, the codec removes the top 32 lines from PAL SD sources or 26 lines from NSTC SD sources that contain VBI data.

JPEG2000 Lossy (Comprimato)

The Comprimato JPEG2000 Lossy codec encodes the input video into one output video file in JPEG2000 format, using the JPEG2000 codec in lossy mode. Comprimato-based ISO/ITU still image compression provides a fast and flexible solution for high-quality, wavelet-based compression.

JPEG-2000 is an intra-frame HD video codec specified by ISO/IEC 15444-1. It uses wavelet transformations to compress the image which results in high-quality images in both lossy and lossless modes. JPEG 2000 offers higher compression ratios over standard JPEG video. It offers resolution, color, quality and position progression scalability, and also supports 4:2:2 and 4:4:4 chroma sub-sampling methods.

There are no general frame size or frame rate limitations. However, compression is resource intensive, and real time performance cannot be sustained beyond HD 1080p@59.94 for YUV encoding, and lower frame rates for RGB encoding.

Codec Settings

Video Bit Rate. Specifies the bit rate of the output in kbps.

Quantization Coefficient. Specifies quality (1-100). If set toward the lower bound it reduces data correspondingly and quality decreases; if set toward the upper bound it increases data and quality. The default value of 100 allows the full quality as set by the bit rate to be used.

Pixel Format. Specifies the color space, chroma sub-sampling, and bit depth to use for encoding.

Tile Partition Width. Specifies the tile partition width in pixels.

Tile Partition Height. Specifies the tile partition height in pixels.

Precinct Width and Height. Specifies the precinct size.

Code-block Width and Height. Specifies the height and width (in pixels) of a code block to process.

Packet Progression Order. Specifies the order of packet progression.

Decomposition Levels. Specifies the maximum number of discrete wavelet transform levels, or stages, to use (also known as Discrete Wavelet Transformation resolution).

Tile-Part Length Markers. When checked, specifies that Tile Length Markers will be used.

End of Packet Header Markers. When checked, EPH marker segments are generated.

Start of Packet Markers. When checked, SOP marker segments are generated.

CUDA Memory Limit. Specifies the CUDA memory limit in MB.

Note: When the CUDA Memory Limit is set to 0, GPU processing is disabled.

CUDA Tile Limit. Specifies the CUDA tile limit.

Encoder Queue Size. Specifies the encoder queue size.

Encode Less VBI. When checked, the codec removes the top 32 lines from PAL SD sources or 26 lines from NSTC SD sources that contain VBI data.

MPEG-2 I-Frame

The MPEG-2 I-Frame codec is an alternative IMX codec that encodes SD NTSC video cropped to 720x480 to eliminate VBI. It is encoded as an MPEG-2, I-Frame-only file in an MXF OP1a container.

The IMX format specified by Sony supports 4 channel, 48 kHz, 24 bit or 8 channel, 48 kHz,16 bit audio to match the Sony IMX implementation. Both configurations require Force One Track per Channel to be enabled in the PCM audio transcoder.

Quality. Specifies the encoder quality setting.

Panasonic AVC-Intra

Follow SMPTE RP2027 Spec (Only applies to AVC-I class 50 and 100). When enabled, specifies that the file should be recognized as Panasonic AVC-I in the Media Creation action. The parameter is enabled by default, but may be disabled for generic AVC-I output.

Quality. Specifies the encoder quality setting.

AVC-Intra 50

CABAC entropy coding only

1920 x 1080@59.94i, 50i, 29.97p, 25p, 23.98p

1920 x 1080@59.94, 50p

1280 x 720@59.94p, 50p

4:2:0 chrominance sampling, 10 bit luma

Output frames are sub-sampled (1920x1080 is scaled to 1440x1080. 1280 x 720 is scaled to 960x720)

AVC-Intra 100

CAVLC entropy coding only

1920 x 1080@59.94i, 50i, 29.97p, 25p, 23.98p

1920 x 1080@59.94, 50p

1280 x 720@59.94p, 50p

4:2:2 chrominance sampling, 10 bit luma

Output Frames are not scaled

AVC-Intra 200

CAVLC entropy coding only

1920 x 1080@59.94i, 50i, 29.97p, 25p, 23.98p

1920 x 1080@59.94, 50p

1280 x 720@59.94p, 50p

4:2:2 chrominance sampling, 10 bit luma

Output frames are not scaled.

Panasonic AVC-Ultra

Panasonic AVC-Ultra is generated at 10 bits, with 4:2:2 chroma subsampling.

Supported frame rates for long GOP: 23.98p | 25i | 25p | 29.97i | 29.97p | 50p (720 at 25 and 50 Mbs, 1080 for Long GOP 25 only) | 59.94p (720 at 25 and 50Mbs, 1080 for Long GOP 25 only)

Quality. Specifies the video quality profile:

- AVC-Ultra Long GOP 25 (25 Mbs for all frame rates, except 59.94p@1080 is recorded at 50 Mbs)

- AVC-Ultra Long GOP 50 (50 Mbs for all supported frame rates)

Sony XDCAM

The XDCAM codec generates 1920x1080 interlaced video at 25 and 29.97fps, and 1280x720 progressive sources at 50 and 59.94 fps.

XDCAM HD422 is based on a 4:2:2 chroma MPEG essence that is compatible with the Sony XDCAM VTR (when wrapped as MXF). The codec records at 50 Mbs at full resolution (for example, 1920x1080 interlaced or, 1280x720 progressive).

Other XDCAM variants are based on a 4:2:0 chroma MPEG essence, also compatible with the Sony XDCAM VTR, that are recorded at reduced bit rates (18,25,35 Mbs). To save bandwidth, 1080i source is horizontally sub-sampled (for example, 1440x1080). Sony EX 35 is an exception in that it does not sub-sample horizontal pixels.

XDCAM 18 is only supported for 1080i sources.

Quality. Specifies the video quality profile.

Uncompressed

Encode Less VBI. When checked, the codec removes the top 32 lines from PAL SD sources or 26 lines from NSTC SD sources that contain VBI data.

x264

Profile. Specifies the profile to use for encoding.

Bit Rate. Specifies the output bit rate in kbps.

Command Line. Enables you to optionally configure the codec using x264 command line syntax. For setting specific x264 parameters, you can enter x264 CLI commands (separated by spaces) to execute them. For best results, be sure to use long form.

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The horizontal position of the top-left of the timecode in the output video frame (range 0 - 4096 pixels).

Y Position. The vertical position of the top-left of the timecode in the output video frame of the timecode in the output (range: 0 - 2160 pixels).

Font Size. Specifies the font size of the timecode (range 6 - 120 pixels).

Text Color. (Default: white). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

HDR Metadata Filter

Master Display

Add SMPTE 2086 Master Display Metadata. Enables embedding SMPTE 2086 master display metadata in the output. HDR metadata is written to the container for use by downstream players to accurately display the High Dynamic Range video.

Master Display X | Y Coordinates - Red | Green | Blue | White Point. specify the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Light Level

Add CTA-861.3 Content Light Level Metadata. When checked, inserts CTA-861.3 message with Content Light Level Metadata. Configure these controls:

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codec (PCM)

Codec. Specifies PCM as the codec used to generate audio tracks. No other codecs provided.

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). Enabling this control overrides the Channel Configuration setting.

Channel Configuration. Specifies the number or layout of the audio channels.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Label Channel Pairs Left/Right. When checked, forces the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is selected, in which case this setting is ignored

Channel Map

Channel Map. Enables re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

MXF XAVC Output

The MXF XAVC Output component generates Sony-compliant XAVC video wrapped in an MXF OP1a file. Audio defaults to 8 tracks of 24 bit PCM audio, with each track containing one channel of audio. These files are compliant with the SMPTE-377M standard.

Note: Most Lightspeed Live Capture MXF files containing IMX, XDCAM or AVC-Intra, and all QuickTime Open files, are created in such a way that they can be opened for editing/playing while they are still growing during capture. Check in your edit/player application guide for details on supported formats.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Select the container to display its settings in the configuration panel on the right.

Format Summary

Video

Sony XAVC

Audio

PCM 24-bit, 48Kbps, 8 channels

PCM/Dolby E (pass through,16 bit only)

Timecode

SMPTE 377M, Timecode track

SMPTE 385M, System item

MXF Applicable Standards

SMPTE 331M-2004, Elements and Metadata Definitions for SDTI-CP

SMPTE 377M-2004, Material Exchange Format (MXF)

SMPTE 378M-2004, MXF Operational Pattern 1a

SMPTE 379M-2004, MXF Generic Container

SMPTE 436M-2006, MXF Mappings for VBI Lines and Ancillary Data Packets

SMPTE ST 298-2009, Universal Labels for Unique Identification of Digital Data

SMPTE ST 326:2000, Television - SDTI Content Package Format (SDTI-CP)

Note: The resulting MXF (OP-1a) file can contain VANC data (SMPTE 436M) if present within the incoming SDI stream.

Container Settings

The MXF XAVC Container wraps the specified media in a Sony compliant MXF OP-1a file format.

MXF XAVC Config Name. Specifies the custom name of this output configuration. Displayed as a Configuration Template (along with all other outputs in this action, if any) in the Tape Capture Web app, so that the operator can select a specific output configuration to utilize in the current capture session.

General

File Extension. Specifies *mxf*. No other extensions permitted.

436 Data Track. Specifies how to add SMPTE 436 data to the output.

Broadcast Wave Audio. When checked, sets the audio tracks to Broadcast Wave format, adding metadata such as timestamps to the audio stream.

Partition Duration. When checked, sets the partition duration to the value specified, in seconds. Default: 30 seconds.

Partition Strategy. Place Essence Container and Index Table in Header Partition + RIP.

Aspect Ratio Mode

Automatic. Set the aspect ratio automatically, based on the detected content.

Display Aspect Ratio. When selected, specify the display frame aspect ratio to utilize.

Pixel Aspect Ratio. When selected, specify the pixel aspect ratio to utilize.

Video Stream Details

Select the Video Stream component to display its settings on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Sony XAVC

Sony XAVC is available in TIFO, but only MXF XAVC is maintained for Sony specification performance.

XAVC HD is always CBR - Use Constrained Bytes Per GOP is ignored.

Quality. Specifies the quality setting to use for encoding.

Sony XAVC HD Long classes 25, 35, and 50 are long GOP, 10-bit 4:2:2 chroma.

Table 10.

Standard	25	35	50
720p50			*
720p59.94			*
1080i50	*	*	*
1080i59.94	*	*	*
1080p23.98	*	*	*
1080p25	*	*	*
1080p29.97	*	*	*
1080p50p		*	*
1080p59.94		*	*

The bitrate for a class is maintained for all resolutions (25/35/50 mbs)

GOP length for 23.976/25 fps = 12 frames

GOP length for 29.97 fps = 15 frames

GOP length for 50 fps = 24 frames

GOP length for 59.94 fps = 30 frames

Quality. Specifies the video quality profile.

Class 50 - The class category is determined by the approximate bitrate for a 1080i 59.94 stream. The size of each frame is fixed (223,232 bytes (NTSC FHD)) and 271,360 bytes (PAL FHD). Therefore, high frame rates will result in higher bit rates.

Capture support is limited to 10-bit 4:2:2 chroma sampling.

Supported frame rates: Standard | 1080i 50 | 1080i 59.94 | 1080p 23.98 | 1080p 25 | 1080p 29.97.

Class 100 4:2:2 - HD - CBG only

The class category is determined by the approximate bitrate for a 1080i 59.94 stream. The size of each frame is fixed (462,848 bytes (NTSC 1080)) and 559,104 bytes (PAL 1080), so high frame rates will result in higher bit rates.

Capture support is limited to 10 bit 4:2:2 chroma sampling

Output is full HD - it is not anamorphically scaled.

Supported frame rates: Standard | 720p 50 | 720p 59.94 | 1080i 50 | 1080i 59.94 | 1080p 23.98 | 1080p 25 | 1080p 29.97 | 1080p 50p | 1080p 59.94.

Class 300 4:2:2 and **Class 480 4:2:2** - UHD/4K - CBG/VBR - Capture action only

Capture support is limited to 10-bit 4:2:2 chroma sampling.

Constant bitrate (Use Constrained Bytes Per GOP) is enabled by default.

Supported frame rates for UHD and 4K: Standard | 23.98 | 24 (4K only) | 25 | 29.97 | 50 | 59.94

XAVC Long QFHD

Class 100 Supported sources: UHD 23.98, 25, 29.97)

Class 140 Supported sources: UHD 23.98, 25, 29.97, 50, 59.94)

Class 200 Supported sources: UHD 23.98, 25, 29.97, 50, 59.94)

Use Constrained Bytes per GOP. When enabled, XAVC Class 300 and Class 480 is generated as CBG. All other classes are generated as VBR. Ignored for XAVC HD video.

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The horizontal position of the top-left of the timecode in the output video frame (range 0 - 4096 pixels).

Y Position. The vertical position of the top-left of the timecode in the output video frame of the timecode in the output (range: 0 - 2160 pixels).

Font Size. Sets the font size of the timecode (range 6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code

such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

HDR Metadata Filter

Master Display

Add SMPTE 2086 Master Display. When checked, enables embedding SMPTE 2086 master display metadata in the output. HDR metadata is written to the container for use by downstream players to accurately display the High Dynamic Range video.

Master Display X | Y Coordinates for Red | Green | Blue | White Point. specify the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Light Level

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codec (PCM)

Codec. Specifies PCM as the codec used to generate audio tracks. No other codecs provided.

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Channel Configuration. Specifies the number or layout of the audio channels.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Label Channel Pairs Left/Right. When checked, forces the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is selected, in which case this setting is ignored.

Bit Depth. Specifies the audio bit depth.

Force One Track Per Channel. When checked, the codec creates multiple mono tracks instead of a single multi-channel track.

Channel Map

Channel Map. Check to enable re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

MPEG2-TS Output

The MPEG2-TS output container encodes media and saves it as an MPEG2 Transport Stream file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Select the container to display its settings in the configuration panel on the right.

Format Summary

Video

MPEG-2 | x264

Audio

PCM

Container

MPEG2-TS Config Name. Specifies the custom name of this output configuration. Displayed as a Configuration Template (along with all other outputs in this action, if any) in the Tape Capture Web app, so that the operator can select a specific output configuration to utilize in the current capture session.

Container Settings

File Extension. Specifies the extension to apply to the output file name.

File Bit Rate. (Default 19,000,000 bps). If unchecked, the Multiplexer uses the minimum rate as computed from the sum of all maximum rates for elementary streams, data streams, PSI streams and necessary overhead.

List Audio Streams Before Video Streams. When checked, lists audio streams before video streams in the PMT stream order.

PAT Rate. (Default 10.0 tables per second.) Specifies the repetition rate of the Program Association Table in the output stream. The PAT lists all programs in a transport stream, each of which is identified by a 16-bit Program Number.

PMT Rate. (Default 10.0 tables per second.) Specifies the repetition rate of the Program Map Table in the output stream. Each program listed in the PAT has a PMT (with PID) containing information about the program.

Transport ID. (Default 0.) Specifies the ID number for this transport stream.

PAT Version. (Default 0.) Specifies the version number of the Program Association Table.

Program Number. (Default 1.) Specifies the ID number of a specific program.

PMT PID. (Default 480.) This sets the Packet ID used for the Program Map Table.

PCR PID. (Default unselected/zero.) Specifies the Packet ID that carries the Program Clock Reference for this program. Set to the first video PID value if not specified.

Maximum PCR Interval. (Default 37 ms.) Specifies the maximum time between Program Clock References for this stream.

PCR on every PES header. When checked, inserts a PCR in each packet that has a PES header.

No Empty Adaptation Fields. When checked, forces the Multiplexer to avoid using zero-length adaptation field video packets.

VBR Transport stream. When checked, the Multiplexer creates a VBR transport stream; no attempt is made to maintain the bit rate.

Error Behavior. (Default: Fail on error.) Specifies how the action responds to an error.

Error/Warning Threshold. (Default 1.) Specifies the number of errors before the action enters the error state and the number of warnings that trigger a Fail on Warning or Error. This parameter has no effect when Error Behavior is set to Always Complete.

Treat Buffer Underflows/Overflows as Errors. When checked, buffer underflow or overflow warnings are treated as errors.

2-Pass Multiplexing. When checked, performs 2-pass multiplexing. Only use if you need to correct excessive bit rate fluctuations in the encoded stream resulting in video decoder underflow errors. The second pass is only executed if the first pass fails.

Generate Config File. Generates and places a Manzanita-compliant configuration file using the current settings into the same location as the output. The configuration file can be utilized in the IPTV transcoder action or in other actions that utilize Manzanita configuration files.

Video Stream Details

Select the Video Stream component to display its options on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codecs

Generate Config File. Specifies which codec (MPEG-2 | x264) to use to encode the output file.

MPEG-2

General

Bit Rate (in kbps). Specifies the bit rate in kbps.

GOP Structure. Specifies the GOP Structure as a combination of I frames, B frames, and P frames. I frame-only structures have a lower visual quality but are well suited for editing. Longer GOP structures have higher visual quality and are best suited for playout.

GOP Configuration. Specifies the type of GOP structure.

Start with I Frame. When checked, specifies that the GOP start with an I-frame (display and coded order).

Motion Estimation Factor. Specifies how much motion estimation to use when encoding the video stream. A higher value results in higher quality and increases encoding time.

Profile. Specifies the video quality profile.

Table 11.

Profile	Max Data Rate	Resolution	Color Sampling
Main Profile@Main Level	15Mbps	720 x 480 up to 30fps	4:2:0
Main Profile@High 1440 Level	60Mbps	1080i x 1440 up to 30fps or 1080p x 1440 up to 30fps	4:2:0
Main Profile@High Level	60Mbps	1920 x 1080 at 30 fps OR 1280 x 720 up to 60fps	4:2:0

Table 11.

Profile	Max Data Rate	Resolution	Color Sampling
High Profile@Main Level / 4:2:2Profile@Main Level	20Mbps	720 x 480 up to 60fps	4:2:2
High Profile@High 1440 Level / 4:2:2 Profile@High 1440 Level	80Mbps	1080i x 1440 up to 30fps or 720p up to 60 fps	4:2:2
High Profile@High Level / 4:2:2 Profile@High Level	100Mbps	1080i x 1920 up to 30fps or 1080p x 1920 up to 60fps	4:2:2

Level. Specifies the level to use for encoding.

Chroma. Specifies the chroma sub-sampling to use.

Video Buffer Verifier

Video Buffer Verifier. Specifies whether or not to use the default settings or custom VBV settings. When Specify VBV Settings is set, configure these controls:

VBV Buffer Size. Specifies the size of the VBV buffer in kbps. Larger values allow the encoder greater flexibility during encoding.

VBV Delay. Specifies how much time is allowed between the transmission of the first frame and its actual decode. Larger values allow the codec greater flexibility during encoding.

x264

Profile. Specifies the profile to use for encoding.

Bit Rate (in kbps). Specifies the bit rate in kbps.

Command Line. Enables you to optionally configure the codec using x264 command line syntax. For setting specific x264 parameters, you can enter x264 CLI commands (separated by spaces) to execute them. For best results, be sure to use long form.

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The horizontal position of the top-left of the timecode in the output video frame (range 0 - 4096 pixels).

Y Position. The vertical position of the top-left of the timecode in the output video frame of the timecode in the output (range: 0 - 2160 pixels).

Font Size. Sets the font size of the timecode (range 6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code

such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, and 0.00 is fully transparent - invisible.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codec

Codec. Specifies PCM as the codec used to generate audio tracks.

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Channel Configuration. Specifies the number or layout of the audio channels.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Label Channel Pairs Left/Right. When checked, forces the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is selected, in which case this setting is ignored.

Bit Depth. Specifies the audio bit depth.

Force One Track Per Channel. When checked, the codec creates multiple mono tracks instead of a single multi-channel track.

Channel Map

Output Channel (1... 32). When checked, enables re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

QuickTime Output

The QuickTime container conforms to the IEC 14496-14 MP4 File Format standard and the QuickTime File Format Specification.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Format Summary

Video

Apple ProRes | AVC | Avid DNxHD | Avid DNxHR | DV | DVCPro HD | HEVC | IMX | Panasonic AVC-Intra | Sony XDCAM | Uncompressed | x264 | x265

Audio

PCM, 16/20/24-bit, 48Kbps, up to 32 channels

Container Settings

The QuickTime Container wraps the specified media into a QuickTime file format.

QuickTime Config Name. Specifies the custom name of this output configuration. Displayed as a Configuration Template (along with all other outputs in this action, if any) in the Tape Capture Web app, so that the operator can select a specific output configuration to utilize in the current capture session.

General Panel

File Extension. QuickTime (MOV) selected by default. No other selections are available.

Timecode Track. Specifies no track, or a track that is hidden or visible.

Caption Track. (Closed caption track) None, C608, or C708.

Fast Start. Enable Fast Start to improve web based playback when downloading the file.

Header Compression. Compresses QuickTime header information to improve playback responsiveness when downloading the file.

Color Space. Specifies the color space to use for the generated video. Options include:

Conform Aperture. Check to enable, then choose one of these options:

- Disabled

- *Classic* - Displays the image without applying either the pixel aspect ratio or the clean aperture. The image is displayed using the track header dimensions, meaning the decompressed picture is scaled into the track header dimensions if the encoded dimensions are different.

- *Clean Aperture* - Both the clean aperture and the pixel aspect ratio are applied. The dimensions of the track become equal to the clean dimensions which are equal to the display dimensions (with conformed contents).

- *Production Aperture* - Applies the pixel aspect ratio but not the clean aperture. The image is presented in the correct aspect ratio, but the extra pixels outside of the image that exist in the source material will be presented. The track dimensions are equal to the result of applying the pixel aspect ratio.

- *Encoded Pixels* - The encoded pixels are displayed intact in this mode. Under this mode the track dimensions are equal to the encoded dimensions. No scaling or transformation takes place.

Note: The Clean Aperture selection should not be used in conjunction with the Enable CLAP Atom selection. Only one or the other should be used.

Enable CLAP atom. Enables the QuickTime Clean Aperture atom.

CLAP Atom insertion should not be used in conjunction with Conform Aperture > Clean Aperture selection above. Only one or the other should be used.

Aspect Ratio Mode

Automatic. Set the aspect ratio automatically, based on the detected content.

Display Aspect Ratio. When selected, specify the display frame aspect ratio to utilize.

Pixel Aspect Ratio. When selected, specify the pixel aspect ratio to utilize.

Clean Aperture

Clean Aperture. Specify the crop settings for Left, Right, Top, and Bottom pixels to apply to the Clean Aperture:

- *Not Enabled* - Turns off the crop settings for Clean Aperture.

- *Specify Inset* - Enables the ability to specify the Clean Aperture crop settings.

Video Stream Details

Select the Video Stream component to display its options on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codecs

Specifies the codec to produce the capture output. Additional configuration parameters may be present.

Apple ProRes

Quality. Specifies video quality profile.

AVC (Lightspeed Live Server Only)

Note: If your Live Capture server is equipped with an NVIDIA RTX or T series GPU, you can not use the AVC codec to encode interlaced sources.

Profile. Specifies the video quality profile:

Baseline - Primarily for low-cost applications, typically used in video-conferencing and mobile applications. By specification, interlaced only.

Main - Standard-definition digital TV broadcasts that use MPEG-4 format.

High - Broadcast and disk storage applications, particularly for HD televisions.

Bit Rate. Specifies the target bit rate of the output in kbps (512 - 50,000).

Avid DNxHD

DNxHD generates HD video, with a set bitrate for each DNXHD quality profile.

Quality. Specifies the video quality profile. Certain profiles have limits:

- 444 - (10 bit) only supported in these 1080p resolutions: 23.98, 24, 25, 29.97
- HQ TR - Not supported in Capture - do not use.
- SQ TR (8 bit) - not supported in 1080p 50/59.94/60.
- LB (8 bit) - only supported for these 1080p resolutions: 23.98, 24, 25, 29.97

Table 12.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHD HQX	Avid DNxHD 440x 1080p/60	10 bits 440 Mbs
DNXHD HQ	Avid DNxHD 440 1080p/60	8 bits 440 Mbs
DNXHD SQ	Avid DNxHD 290 1080p/60	8 bits 291 Mbs
DNXHQ LB	Avid DNxHD 90 1080p/60	8 bits 90 Mbs
DNXHD HQX	Avid DNxHD 440x 1080p/59.94	10 bits 440 Mbs
DNXHD HQ	Avid DNxHD 440 1080p/59.94	8 bits 440 Mbs
DNXHD SQ	Avid DNxHD 290 1080p/59.94	8 bits 291 Mbs
DNXHD LB	Avid DNxHD 90 1080p/59.94	8 bits 90 Mbs
DNXHD HQX	Avid DNxHD 365x 1080p/50	10 bits 367 Mbs
DNXHD HQ	Avid DNxHD 365 1080p/50	8 bits 367 Mbs
DNXHD SQ	Avid DNxHD 240 1080p/50	8 bits 242 Mbs
DNXHD LB	Avid DNxHD 75 1080p/50	8 bits 75 Mbs
DNXHD HQX	Avid DNxHD 220x 1080i/59.94	10 bits 220 Mbs
DNXHD HQ	Avid DNxHD 220 1080i/59.94	8 bits 220 Mbs
DNXHD SQ	Avid DNxHD 145 1080i/59.94	8 bits 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 1080i/59.94	8 bits 100 Mbs
DNXHD HQX	Avid DNxHD 185x 1080i/50	10 bits 184 Mbs
DNXHD HQ	Avid DNxHD 185 1080i/50	8 bits 184 Mbs
DNXHD SQ	Avid DNxHD 120 1080i/50	8 bits 121 Mbs
DNXHD SQ TR	Avid DNxHD 85 1080i/50	8 bits 84 Mbs
DNXHD 4:4:4	Avid DNxHD 365x 1080p/25	10 bits 367 Mbs
DNXHD HQX	Avid DNxHD 185x 1080p/25	10 bits 184 Mbs
DNXHD HQ	Avid DNxHD 185 1080p/25	8 bits 184 Mbs
DNXHD SQ	Avid DNxHD 120 1080p/25	8 bits 121 Mbs
DNXHD SQ TR	Avid DNxHD 85 1080p/25	8 bits 84 Mbs
DNXHD LB	Avid DNxHD 36 1080p/25	8 bits 36 Mbs
DNXHD 4:4:4	Avid DNxHD 350x 1080p/24	10 bits 352 Mbs

Table 12.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHD HQX	Avid DNxHD 175x 1080p/24	10 bits 176 Mbs
DNXHD HQ	Avid DNxHD 175 1080p/24	8 bits 176 Mbs
DNXHD SQ	Avid DNxHD 115 1080p/24	8 bits 116 Mbs
DNXHD SQ TR	Avid DNxHD 80 1080p/24	8 bits 80 Mbs
DNXHD LB	Avid DNxHD 36 1080p/24	8 bits 36 Mbs
DNXHD 4:4:4	Avid DNxHD 350x 1080p/23.976	10 bits 352 Mbs
DNXHD HQX	Avid DNxHD 175x 1080p/23.976	10 bits 176 Mbs
DNXHD HQ	Avid DNxHD 175 1080p/23.976	8 bits 176 Mbs
DNXHD SQ	Avid DNxHD 115 1080p/23.976	8 bits 116 Mbs
DNXHD SQ TR	Avid DNxHD 80 1080p/23.976	8 bits 80 Mbs
DNXHD LB	Avid DNxHD 36 1080p/23.976	8 bits 36 Mbs
DNXHD 4:4:4	Avid DNxHD 440x 1080p/29.97	10 bits 440 Mbs
DNXHD HQX	Avid DNxHD 220x 1080p/29.97	10 bits 220 Mbs
DNXHD HQ	Avid DNxHD 220 1080p/29.97	8 bits 220 Mbs
DNXHD SQ	Avid DNxHD 145 1080p/29.97	8 bits 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 1080p/29.97	8 bits 100 Mbs
DNXHD LB	Avid DNxHD 45 1080p/29.97	8 bits 45 Mbs
DNXHD HQX	Avid DNxHD 220x 720p/59.94	10 bits 220 Mbs
DNXHD HQ	Avid DNxHD 220 720p/59.94	8 bits 220 Mbs
DNXHD SQ	Avid DNxHD 145 720p/59.94	8 bits 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 720p/59.94	8 bits 100 Mbs
DNXHD HQX	Avid DNxHD 175x 720p/50	10 bits 175 Mbs
DNXHD HQ	Avid DNxHD 175 720p/50	8 bits 175 Mbs
DNXHD SQ	Avid DNxHD 115 720p/50	8 bits 115 Mbs
DNXHD SQ TR	Avid DNxHD 85 720p/50	8 bits 85 Mbs

Avid DNxHR

Frame sizes - 3840x2160, 4096x2160 (up to 30 fps at 444, up to 60 fps at HQX 10 bit)

Frame rates - 23.976, 25, 29.97, 50, 59.94

Quality. Specifies the video quality profile:

- 444 - 12-bit RGB 4:4:4, cinema-quality delivery. This profile is not supported in Live Capture due to performance limitations.
- HQX - UHD/4K 12-bit YUV 4:2:2, Broadcast-quality delivery
- HQ - 8-Bit 4:2:2 high-quality
- SQ (8-Bit 4:2:2 standard-quality)
- LB (8-Bit 4:2:2 low bandwidth, offline quality

DV

The DV codec generates interlaced SD format NTSC (29.97 fps) and PAL (25 fps) video.

Quality. Specifies video quality profile.

DVCPRO HD

DVCPro HD video is an anamorphic format - the horizontal pixels are sub-sampled in the recording to save bandwidth, and stretched to fit a 16:9 frame during playback. There are no user-configurable settings.

Supported input frame rates:

- 720p: 50/59.94
- 1080i: 25/29.97
- 1080p: 23.976p/psf

Video is encoded at 8-bit, using 4:2:2 chroma. The data rate is generally recorded at 115 mbs. Encoded frames vary by input size:

- 1280x720 video is encoded at 960x720.
- 1920x1080 is encoded at 1280x1080@59.94i
- 1920x1080 is encoded at 1440x1080@50i

DVCPro HD supports up to eight audio channels at 48kHz/16 bits per channel.

HEVC (Lightspeed Live Server Only)

There are no general limitations for frame size or frame rate generation, but compression is resource intensive, and real time performance cannot be sustained beyond HD 1080p at 59.94 fps.

Bit Rate. Specifies the output target bit rate (512 - 50,000).

IMX

The IMX codec can only encode SD video. The IMX format specified by Sony supports 4 channel, 48 kHz, 24 bit or 8 channel, 48 kHz,16 bit audio to match the Sony IMX implementation. Both configurations require Force One Track per Channel to be enabled in the PCM audio transcoder.

Quality. Specifies video quality profile.

Follow D-10/SMPTE 331M Spec. To match the Sony IMX implementation, uncheck this control and configure the audio tracks to specify Force one track per channel. Check this control to produce output conforming to D-10/SMPTE 331M.

Mask VBI. When enabled, the VBI portion of the video signal is replaced with black - 26 lines for NTSC, 30 lines for PAL. The metadata from the VBI is still preserved in the container, when possible.

Panasonic AVC-Intra

Quality. Specifies video quality profile.

AVC-Intra 50

CABAC entropy coding only

1920 x 1080@59.94i, 50i, 29.97p, 25p, 23.98p

1920 x 1080@59.94, 50p

1280 x 720@59.94p, 50p

4:2:0 chrominance sampling, 10 bit luma

Output frames are sub-sampled (1920x1080 is scaled to 1440x1080. 1280 x 720 is scaled to 960x720)

AVC-Intra 100

CAVLC entropy coding only

1920 x 1080@59.94i, 50i, 29.97p, 25p, 23.98p

1920 x 1080@59.94, 50p

1280 x 720@59.94p, 50p

4:2:2 chrominance sampling, 10 bit luma

Output Frames are not scaled

AVC-Intra 200

CAVLC entropy coding only

1920 x 1080@59.94i, 50i, 29.97p, 25p, 23.98p

1920 x 1080@59.94, 50p

1280 x 720@59.94p, 50p

4:2:2 chrominance sampling, 10 bit luma

Output frames are not scaled.

Sony XDCAM

The XDCAM codec generates 1920x1080 interlaced video at 25 and 29.97fps, and 1280x720 progressive sources at 50 and 59.94 fps.

XDCAM HD422 is based on a 4:2:2 chroma MPEG essence that is compatible with the Sony XDCAM VTR (when wrapped as MXF). The codec records at 50 Mbs at full resolution (for example, 1920x1080 interlaced or, 1280x720 progressive).

Other XDCAM variants are based on a 4:2:0 chroma MPEG essence, also compatible with the Sony XDCAM VTR, that are recorded at reduced bit rates (18,25,35 Mbs). To save bandwidth, 1080i source is horizontally sub-sampled (for example, 1440x1080). Sony EX 35 is an exception in that it does not sub-sample horizontal pixels.

XDCAM 18 is only supported for 1080i sources.

Quality. Specifies the video quality profile.

Uncompressed (10-bit)

Encode Less VBI. When checked, the codec removes the top 32 lines from PAL SD sources or 26 lines from NSTC SD sources that contain VBI data.

x264

Quality. Specifies video quality profile.

Bit Rate. Specifies the bit rate of the output in kbps (512 - 50,000).

Command Line. Configure the compressor using x264 command line syntax. For setting specific x264 parameters, you can enter x264 CLI commands (separated by spaces) to execute them. For best results, be sure to use long form: --bframe 5, for example. Use of short form (-b 5) is not recommended.

The following x264 command line parameters are not supported:

--fake-interlaced

--nal-hrd cbr

--profile

--video-format

--bitrate

x265

There are no general limitations for frame size or frame rate, but encoding interlaced source is not supported. Compression is resource intensive, and real time performance may not be sustained when recording high frame rates.

Profile. Specifies video quality profile.

Bit Rate. Specifies the bit rate of the output in kbps (512 - 50,000).

Command Line. Configure the compressor using x265 command line syntax. For setting specific x265 parameters, you can enter x265 CLI commands (separated by spaces) to execute them. For best results, be sure to use long form: --bframe 5, for example. Use of short form (-b 5) is not recommended.

The following x265 command line parameters are not supported:

--fake-interlaced

--nal-hrd cbr

--profile

--video-format

--bitrate

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The horizontal position of the top-left of the timecode in the output video frame (range 0 - 4096 pixels).

Y Position. The vertical position of the top-left of the timecode in the output video frame of the timecode in the output (range: 0 - 2160 pixels).

Font Size. Sets the font size of the timecode (range 6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

HDR Metadata Filter

Master Display

Add. When checked, enables embedding SMPTE 2086 master display metadata in the output. HDR metadata is written to the container for use by downstream players to accurately display the High Dynamic Range video.

Master Display X | Y Coordinates for Red | Green | Blue | White Point. specify the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Light Level

Add CTA-861.3 Content Light Level Metadata. When checked, inserts CTA-861.3 message with Content Light Level Metadata. Configure these controls:

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codec

PCM is specified by default. No other selections are available.

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Channel Configuration. Specifies the number or layout of the audio channels.

Note: Up to 16 channels are supported from SDI sources.

Label Channel Pairs Left/Right. When checked, forces the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is selected, in which case this setting is ignored.

Bit Depth. Specifies the output audio bit depth.

Force One Track Per Channel. Select to make multiple mono tracks instead of a single multi-channel track. QuickTime audio channel Assignment metadata are set to Mono.

Create Stereo Pairs. When checked, specifies that each set of tracks should be converted to a stereo pair. Specify the number of stereo pairs to create (up to 8 pairs).

Channel Map

Channel Map. Check to enable re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

QuickTime Open Output

The QuickTime Open container conforms to the IEC 14496-14 MP4 File Format standard and the QuickTime File Format Specification.

Because of the unique characteristics of QuickTime Open files created by Live Capture, the duration set in the QuickTime header is hard-coded to the value of the Default Duration setting during capture. If a capture is stopped prior to the timecode specified in the Default Duration, the QuickTime Open process updates the captured file's header with the actual duration of the clip. See *Important Information about Default Duration* below for important details.

Note: Most Lightspeed Live Capture MXF files containing IMX, XDCAM or AVC-Intra, and all QuickTime Open files, can be opened for editing/playing while they are still growing during capture. Check in your edit/player application guide for details on supported formats.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Format Summary

Video

Apple ProRes | Avid DNxHD

Audio

MPEG-1 Layer 2 | PCM, 16/20/24-bit, 48Kbps, up to 32 channels

Container Settings

The QuickTime container wraps the specified media into a QuickTime file format.

QuickTime Open Config Name. Specifies the custom name of this output configuration. Displayed as a Configuration Template (along with all other outputs in this action, if any) in the Tape Capture Web app, so that the operator can select a specific output configuration to utilize in the current capture session.

General Panel

File Extension. QuickTime (MOV) selected by default. Not changeable.

Timecode Track. Specifies no track, or a track that is hidden or visible.

Caption Track. Specifies the type of closed caption track or None. When creating output using the 608 caption track in a QuickTime container, only 29.97 FPS sources are supported, and it is generally expected that the source is SD NTSC with captions in VBI. Also, in this scenario, the Create 708 Caption data should be disabled. If the source that is being recorded is progressive HD, you must select the 708 caption track in the QuickTime container to propagate captions.

Default Duration. The maximum possible duration for a captured file.

Important Information about Default Duration

Note: The *Default Duration* is the maximum possible duration that can be captured using the QuickTime Open container. Default: 9 hours.

The QuickTime Open container's *Default Duration* is used to set the initial duration written to the QuickTime Open file's header. This value will be reported by the QuickTime media file when it is opened by a media player or edit application while the captured file is being written to and is growing. If a capture session is stopped before the *Default Duration* is reached the QuickTime Open process will update the captured file's QuickTime header with the *actual* captured duration of the clip.

Here are three possible scenarios that you may encounter when using the QuickTime Open container:

1. A capture session is stopped before reaching, or exactly at, the *Default Duration* set in the Workflow. In these cases the Workflow will complete successfully. The captured QuickTime file's header will be updated with the *actual* captured duration of the clip.
2. Your capture session attempts to record to a duration that is *beyond* the *Default Duration* set in the Workflow. In this case the associated Workflow's origin action (and any subsequent downstream actions) indicates that they have 'FAILED'. The Capture origin action reports the following error:
   ... Failed to write sample. The Default Duration of this workflow has been reached. Capture actions configured with a QuickTime 'Open' container will automatically stop at the container's Default Duration regardless of the requested record duration. The output file created by this action will contain a duration equal to the Default Duration. In most cases the resulting output file will be playable and can be used for editing. The default duration has been exceeded.
3. If scenario #1 or #2 occur with a Workflow in the Open mode, and the action immediately following the capture origin action is an Open Copy action, the file copied by the Open Copy action will retain the original *Default Duration*. The *copied* media file will show a duration equal to the Workflow's *Default Duration* and will be playable and editable. Captured files stopped prior to the *Default Duration* (scenario #1) will contain no active media data from the point where the capture session was stopped through the end of the file. Some media players or edit applications may display errors or faults when trying to access the timeline locations with no active media data.

Header Compression. Compresses QuickTime header information to improve playback responsiveness when downloading the file.

Color Space. Specifies the QuickTime file color space. Options include:

- *Do not specify*

- *XYZ with SMPTE 428-1 (DCDM) Transfer Characteristics*

- *ITU-R Recommendation BT.601 with SMPTE-C Color Primaries (NTSC)*

- *ITU-R Recommendation BT.601 with SMPTE-C Color Primaries (PAL)*

- *ITU-R Recommendation BT.2020*

- *ITU-R Recommendation BT.709 Color Primaries*

- *RGB with BT.709 Color Primaries*

***Conform Aperture**. Check to enable, then choose one of these options:*

- *Disabled*

- *Classic* - Displays the image without applying either the pixel aspect ratio or the clean aperture. The image is displayed using the track header dimensions, meaning the decompressed picture is scaled into the track header dimensions if the encoded dimensions are different.

- *Clean Aperture* - Both the clean aperture and the pixel aspect ratio are applied. The dimensions of the track become equal to the clean dimensions which are equal to the display dimensions (with conformed contents).

- *Production Aperture* - Applies the pixel aspect ratio but not the clean aperture. The image is presented in the correct aspect ratio, but the extra pixels outside of the image that exist in the source material will be presented. The track dimensions are equal to the result of applying the pixel aspect ratio.

- *Encoded Pixels* - The encoded pixels are displayed intact in this mode. Under this mode the track dimensions are equal to the encoded dimensions. No scaling or transformation takes place.

Note: The Clean Aperture selection should not be used in conjunction with the Enable CLAP Atom selection. Only one or the other should be used.

Enable CLAP atom. Enables the QuickTime Clean Aperture atom.

CLAP Atom insertion should not be used in conjunction with Conform Aperture > Clean Aperture selection above. Only one or the other should be used.

Aspect Ratio Mode

Automatic. Set the aspect ratio automatically, based on the detected content.

Display Aspect Ratio. When selected, specify the display frame aspect ratio to utilize.

Pixel Aspect Ratio. When selected, specify the pixel aspect ratio to utilize.

Clean Aperture

Clean Aperture. Specify the crop settings for Left, Right, Top, and Bottom pixels to apply to the Clean Aperture:

- *Not Enabled* - Turns off the crop settings for Clean Aperture.

- *Specify Inset* - Enables the ability to specify the Clean Aperture crop settings.

Video Stream Details

Select the Video Stream component to display its options on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codecs

Codec. Specifies which codec to use to encode video streams.

Apple ProRes

Quality. Specifies video quality profile.

512 VBI Cropping Method. In interlaced video, when transcoding to a Lower Field First convention, the lower field is the first line of output of the interlaced format, followed by alternating upper (that is - top, odd) and lower (that is - bottom, even) field lines.

To preserve the standard of encoding VBI data on a specific line of the output video, such as preserving captions on line 21, an encoder may need to either pad, crop and/or shift lines when creating the output.

When recording SD NTSC video from tape, 26 lines of non-visible data need to be discarded to produce 486 lines of visible data. Capture adds additional cropping

options to maintain VBI caption data from line 21 in a transcoded output for 486 line output when using the ProRes or Uncompressed transcoders.

Crop 25 lines from the top. Crop 25 lines from the top and 1 line from the bottom. This results in Lower Field first video with Closed Captioning on Line 22.

Crop 26 lines from the top. Crop 26 lines from the top, resulting in Upper field first video with Closed Captioning on Line 21.

Crop 27 lines from the top. Crop 27 lines from the top, and pad the bottom with 1 blank line to keep the correct frame dimensions, resulting in Lower Field first video with Closed Captioning on Line 21.

Avid DNxHD

DNxHD generates HD video, with a set bitrate for each DNXHD quality profile.

Quality. Specifies the video quality profile. Certain profiles have limits:

- 444 - (10 bit) only supported in these 1080p resolutions: 23.98, 24, 25, 29.97

- HQ TR - Not supported in Capture - do not use.

-SQ TR (8 bit) - not supported in 1080p 50/59.94/60.

- LB (8 bit) - only supported for these 1080p resolutions: 23.98, 24, 25, 29.97

Table 13.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHD HQX	Avid DNxHD 440x 1080p/60	10 bits 440 Mbs
DNXHD HQ	Avid DNxHD 440 1080p/60	8 bits 440 Mbs
DNXHD SQ	Avid DNxHD 290 1080p/60	8 bits 291 Mbs
DNXHQ LB	Avid DNxHD 90 1080p/60	8 bits 90 Mbs
DNXHD HQX	Avid DNxHD 440x 1080p/59.94	10 bits 440 Mbs
DNXHD HQ	Avid DNxHD 440 1080p/59.94	8 bits 440 Mbs
DNXHD SQ	Avid DNxHD 290 1080p/59.94	8 bits 291 Mbs
DNXHD LB	Avid DNxHD 90 1080p/59.94	8 bits 90 Mbs
DNXHD HQX	Avid DNxHD 365x 1080p/50	10 bits 367 Mbs
DNXHD HQ	Avid DNxHD 365 1080p/50	8 bits 367 Mbs
DNXHD SQ	Avid DNxHD 240 1080p/50	8 bits 242 Mbs
DNXHD LB	Avid DNxHD 75 1080p/50	8 bits 75 Mbs
DNXHD HQX	Avid DNxHD 220x 1080i/59.94	10 bits 220 Mbs
DNXHD HQ	Avid DNxHD 220 1080i/59.94	8 bits 220 Mbs

Table 13.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHD SQ	Avid DNxHD 145 1080i/59.94	8 bits 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 1080i/59.94	8 bits 100 Mbs
DNXHD HQX	Avid DNxHD 185x 1080i/50	10 bits 184 Mbs
DNXHD HQ	Avid DNxHD 185 1080i/50	8 bits 184 Mbs
DNXHD SQ	Avid DNxHD 120 1080i/50	8 bits 121 Mbs
DNXHD SQ TR	Avid DNxHD 85 1080i/50	8 bits 84 Mbs
DNXHD 4:4:4	Avid DNxHD 365x 1080p/25	10 bits 367 Mbs
DNXHD HQX	Avid DNxHD 185x 1080p/25	10 bits 184 Mbs
DNXHD HQ	Avid DNxHD 185 1080p/25	8 bits 184 Mbs
DNXHD SQ	Avid DNxHD 120 1080p/25	8 bits 121 Mbs
DNXHD SQ TR	Avid DNxHD 85 1080p/25	8 bits 84 Mbs
DNXHD LB	Avid DNxHD 36 1080p/25	8 bits 36 Mbs
DNXHD 4:4:4	Avid DNxHD 350x 1080p/24	10 bits 352 Mbs
DNXHD HQX	Avid DNxHD 175x 1080p/24	10 bits 176 Mbs
DNXHD HQ	Avid DNxHD 175 1080p/24	8 bits 176 Mbs
DNXHD SQ	Avid DNxHD 115 1080p/24	8 bits 116 Mbs
DNXHD SQ TR	Avid DNxHD 80 1080p/24	8 bits 80 Mbs
DNXHD LB	Avid DNxHD 36 1080p/24	8 bits 36 Mbs
DNXHD 4:4:4	Avid DNxHD 350x 1080p/23.976	10 bits 352 Mbs
DNXHD HQX	Avid DNxHD 175x 1080p/23.976	10 bits 176 Mbs
DNXHD HQ	Avid DNxHD 175 1080p/23.976	8 bits 176 Mbs
DNXHD SQ	Avid DNxHD 115 1080p/23.976	8 bits 116 Mbs
DNXHD SQ TR	Avid DNxHD 80 1080p/23.976	8 bits 80 Mbs
DNXHD LB	Avid DNxHD 36 1080p/23.976	8 bits 36 Mbs
DNXHD 4:4:4	Avid DNxHD 440x 1080p/29.97	10 bits 440 Mbs
DNXHD HQX	Avid DNxHD 220x 1080p/29.97	10 bits 220 Mbs
DNXHD HQ	Avid DNxHD 220 1080p/29.97	8 bits 220 Mbs
DNXHD SQ	Avid DNxHD 145 1080p/29.97	8 bits 145 Mbs

Table 13.

Transcoder Category	Legacy Avid Resolution	Bit Depth / Rate
DNXHD SQ TR	Avid DNxHD 100 1080p/29.97	8 bits 100 Mbs
DNXHD LB	Avid DNxHD 45 1080p/29.97	8 bits 45 Mbs
DNXHD HQX	Avid DNxHD 220x 720p/59.94	10 bits 220 Mbs
DNXHD HQ	Avid DNxHD 220 720p/59.94	8 bits 220 Mbs
DNXHD SQ	Avid DNxHD 145 720p/59.94	8 bits 145 Mbs
DNXHD SQ TR	Avid DNxHD 100 720p/59.94	8 bits 100 Mbs
DNXHD HQX	Avid DNxHD 175x 720p/50	10 bits 175 Mbs
DNXHD HQ	Avid DNxHD 175 720p/50	8 bits 175 Mbs
DNXHD SQ	Avid DNxHD 115 720p/50	8 bits 115 Mbs
DNXHD SQ TR	Avid DNxHD 85 720p/50	8 bits 85 Mbs

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The horizontal position of the top-left of the timecode in the output video frame (0 - 4096 pixels).

Y Position. The vertical position of the top-left of the timecode in the output video frame of the timecode in the output (0 - 2160 pixels).

Font Size. Sets the font size of the timecode (6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

HDR Metadata Filter

Master Display

Add SMPTE 2086 Master Display. When checked, enables embedding SMPTE 2086 master display metadata in the output. HDR metadata is written to the container for use by downstream players to accurately display the High Dynamic Range video.

Master Display X | Y Coordinates for Red | Green | Blue | White Point. specify the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Light Level

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codecs

Specifies MPEG-1 Layer 2 | PCM codec to use to encode audio streams.

PCM

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Channel Configuration. Specifies the number or layout of the audio channels: Mono | Stereo | number of channels.

Note: Up to 16 channels are supported from SDI sources.

Label Channel Pairs Left/Right. When checked, forces the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is selected, in which case this setting is ignored.

Bit Depth. Select the desired audio bit depth. 16, 20, or 24 bit.

Force One Track Per Channel. Select to make multiple mono tracks instead of a single multi-channel track. QuickTime audio channel Assignment metadata are set to Mono.

Channel Map

Channel Map. Check to enable re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

TIFO Output

Telestream Intermediary Format (TIFO) is an intermediate media wrapper format designed by Telestream as a uniform, interchangeable file format to ensure inter-operability among Telestream's media processing solutions, including Vantage and Lightspeed Live Capture. TIFO provides a lightweight, low-overhead wrapper that is essence-agnostic, with out-of-band metadata, timecode, and closed caption support.

Using TIFO improves the ability to move media files between Telestream's media processing solutions with all media essence elements and metadata intact, preserving the widest range of transcoding options.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Format Summary

Video

Apple ProRes | AVC | Avid DNxHD | Avid DNxHR | DV | DVCPro HD | HEVC | IMX | JPEG2000 Lossless | JPEG2000 Lossy | MPEG-2 | Panasonic AVC-Intra | Panasonic AVC-Ultra | Sony XAVC | Sony XDCAM | Uncompressed | x264 | x265

Audio

PCM, 16/20/24-bit, 48Kbps, up to 32 channels

Container Settings

The TIFO Container wraps the specified media into Telestream TIFO file format.

TIFO Config Name. Specifies the custom name of this output configuration. Displayed as a Configuration Template (along with all other outputs in this action, if any) in the Tape Capture Web app, so that the operator can select a specific output configuration to utilize in the current capture session.

General Panel

File Extension. TIFO selected by default. No other selections are available.

Aspect Ratio Mode

Automatic. Set the aspect ratio automatically, based on the detected content.

Display Aspect Ratio. When selected, specify the display frame aspect ratio to utilize.

Pixel Aspect Ratio. When selected, specify the pixel aspect ratio to utilize.

Video Stream Details

Select the Video Stream component to display its options on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codecs

Select a codec to produce the desired capture output. Additional configuration parameters may also be present.

Apple ProRes

Quality. Specifies video quality profile.

AVC (Lightspeed Live Server Only)

Note: If your Live Capture server is equipped with an NVIDIA RTX or T series GPU, you can not use the AVC codec to encode interlaced sources.

Profile. Specifies the video quality profile:

Baseline - Primarily for low-cost applications, typically used in video-conferencing and mobile applications. By specification, interlaced only.

Main - Standard-definition digital TV broadcasts that use MPEG-4 format.

High - Broadcast and disk storage applications, particularly for HD televisions.

Bit Rate. Specifies the target output bit rate in kbps (512 - 50,000).

Avid DNxHD

DNxHD generates HD video, with a set bitrate for each DNXHD quality profile.

Quality. Specifies video quality profile.

Avid DNxHR

Frame sizes - 3840x2160, 4096x2160 (up to 30 fps at 444, up to 60 fps at HQX 10 bit)

Frame rates - 23.976, 25, 29.97, 50, 59.94

Quality. Specifies the video quality profile:

- 444 - 12-bit RGB 4:4:4, cinema-quality delivery. This profile is not supported in Live Capture due to performance limitations.
- HQX - UHD/4K 12-bit YUV 4:2:2, Broadcast-quality delivery
- HQ - 8-Bit 4:2:2 high-quality
- SQ (8-Bit 4:2:2 standard-quality)
- LB (8-Bit 4:2:2 low bandwidth, offline quality

DV

The DV codec generates interlaced SD format NTSC (29.97 fps) and PAL (25 fps) video.

Quality. Specifies video quality profile.

DVCPRO HD

DVCPro HD video is an anamorphic format - the horizontal pixels are sub-sampled in the recording to save bandwidth, and stretched to fit a 16:9 frame during playback. There are no user-configurable settings.

Supported input frame rates:

- 720p: 50/59.94
- 1080i: 25/29.97
- 1080p: 23.976p/psf

Video is encoded at 8-bit, using 4:2:2 chroma. The data rate is generally recorded at 115 mbs. Encoded frames vary by input size:

- 1280x720 video is encoded at 960x720.
- 1920x1080 is encoded at 1280x1080@59.94i
- 1920x1080 is encoded at 1440x1080@50i

DVCPro HD supports up to eight audio channels at 48kHz/16 bits per channel.

HEVC (Lightspeed Live Server Only)

There are no general limitations for frame size or frame rate generation, but compression is resource intensive, and real time performance cannot be sustained beyond HD 1080p at 59.94 fps.

Bit Rate. Specifies the output target bit rate (512 - 50,000).

IMX

The IMX codec can only encode SD video. The IMX format specified by Sony supports 4 channel, 48 kHz, 24 bit or 8 channel, 48 kHz,16 bit audio to match the Sony IMX implementation. Both configurations require Force One Track per Channel to be enabled in the PCM audio transcoder.

Quality. Specifies video quality profile.

Follow D-10/SMPTE 331M Spec. To match the Sony IMX implementation, uncheck this control and configure the audio tracks to specify Force one track per channel. Check this control to produce output conforming to D-10/SMPTE 331M.

Mask VBI. When enabled, the VBI portion of the video signal is replaced with black - 26 lines for NTSC, 30 lines for PAL. The metadata from the VBI is still preserved in the container, when possible.

JPEG2000 Lossless (Comprimato)

The Comprimato JPEG2000 Lossless codec encodes the input video into one output video file in JPEG2000 format, using the JPEG2000 codec in lossless mode. Comprimato-based ISO/ITU still image compression provides a fast and flexible solution for high-quality, wavelet-based compression.

JPEG-2000 is an intra-frame HD video codec specified by ISO/IEC 15444-1. It uses wavelet transformations to compress the image which results in high quality images in both lossy and lossless modes. JPEG 2000 offers higher compression ratios over standard JPEG video. It offers resolution, color, quality and position progression scalability, and also supports 4:2:2 and 4:4:4 chroma sub-sampling methods.

There are no general frame size or frame rate limitations. However, compression is resource intensive, and real time performance cannot be sustained beyond HD 1080p@59.94 for YUV encoding, and lower frame rates for RGB encoding.

Codec Settings

Pixel Format. Specifies the color space, chroma sub-sampling, and bit depth to use for encoding.

Tile Partition Width. Specifies the tile partition width in pixels.

Tile Partition Height. Specifies the tile partition height in pixels.

Precinct Width and Height. Specifies the precinct size.

Code-block Width and Height. Specifies the height and width (in pixels) of a code block to process.

Packet Progression Order. Specifies the order of packet progression.

Decomposition Levels. Specifies the maximum number of discrete wavelet transform levels, or stages, to use (also known as Discrete Wavelet Transformation resolution).

Tile-Part Length Markers. When checked, specifies that Tile Length Markers will be used.

End of Packet Header Markers. When checked, EPH marker segments are generated.

Start of Packet Markers. When checked, SOP marker segments are generated.

CUDA Memory Limit. Specifies the CUDA memory limit in MB.

Note: When the CUDA Memory Limit is set to 0, GPU processing is disabled.

CUDA Tile Limit. Specifies the CUDA tile limit.

Encoder Queue Size. Specifies the encoder queue size.

Encode Less VBI. When checked, the codec removes the top 32 lines from PAL SD sources or 26 lines from NSTC SD sources that contain VBI data.

JPEG2000 Lossy (Comprimato)

The Comprimato JPEG2000 Lossy codec encodes the input video into one output video file in JPEG2000 format, using the JPEG2000 codec in lossy mode. Comprimato-based ISO/ITU still image compression provides a fast and flexible solution for high-quality, wavelet-based compression.

JPEG-2000 is an intra-frame HD video codec specified by ISO/IEC 15444-1. It uses wavelet transformations to compress the image which results in high quality images in both lossy and lossless modes. JPEG 2000 offers higher compression ratios over standard JPEG video. It offers resolution, color, quality and position progression scalability, and also supports 4:2:2 and 4:4:4 chroma sub-sampling methods.

There are no general frame size or frame rate limitations. However, compression is resource intensive, and real time performance cannot be sustained beyond HD 1080p@59.94 for YUV encoding, and lower frame rates for RGB encoding.

Codec Settings

Video Bit Rate. Specifies the bit rate of the output in kbps.

Quantization Coefficient. Specifies quality (1-100). If set toward the lower bound it reduces data correspondingly and quality decreases; if set toward the upper bound it increases data and quality. The default value of 100 allows the full quality as set by the bit rate to be used.

Pixel Format. Specifies the color space, chroma sub-sampling, and bit depth to use for encoding.

Tile Partition Width. Specifies the tile partition width in pixels.

Tile Partition Height. Specifies the tile partition height in pixels.

Precinct Width and Height. Specifies the precinct size.

Code-block Width and Height. Specifies the height and width (in pixels) of a code block to process.

Packet Progression Order. Specifies the order of packet progression.

Decomposition Levels. Specifies the maximum number of discrete wavelet transform levels, or stages, to use (also known as Discrete Wavelet Transformation resolution).

Tile-Part Length Markers. When checked, specifies that Tile Length Markers will be used.

End of Packet Header Markers. When checked, EPH marker segments are generated.

Start of Packet Markers. When checked, SOP marker segments are generated.

CUDA Memory Limit. Specifies the CUDA memory limit in MB.

Note: When the CUDA Memory Limit is set to 0, GPU processing is disabled.

CUDA Tile Limit. Specifies the CUDA tile limit.

Encoder Queue Size. Specifies the encoder queue size.

Encode Less VBI. When checked, the codec removes the top 32 lines from PAL SD sources or 26 lines from NSTC SD sources that contain VBI data.

MPEG-2

Bit Rate. Specifies the bit rate of the output in kbps (512 - 800,000).

GOP Structure. Sets the GOP Structure as a combination of I frames, B frames, and P frames. I frame-only structures have a lower visual quality but are well suited for editing. Longer GOP structures have higher visual quality and are best suited for playout.

GOP Configuration. Specifies the type of GOP structure: Open GOP or Closed GOP.

Start with I Frame. When checked, specifies that the GOP start with an I-frame (display and coded order).

Motion Estimation Factor. Indicates how much motion estimation to use when encoding the video stream. A higher value results in higher quality and increases the encode time. The default is 80 and the range is 1 to 100.

Profile. Specifies the video quality profile.

Table 14.

Profile	Max Data Rate	Resolution	Color Sampling
Main Profile@Main Level	15Mbps	720 x 480 up to 30fps	4:2:0
Main Profile@High 1440 Level	60Mbps	1080i x 1440 up to 30fps or 1080p x 1440 up to 30fps	4:2:0
Main Profile@High Level	60Mbps	1920 x 1080 at 30 fps OR 1280 x 720 up to 60fps	4:2:0
High Profile@Main Level / 4:2:2Profile@Main Level	20Mbps	720 x 480 up to 60fps	4:2:2
High Profile@High 1440 Level / 4:2:2 Profile@High 1440 Level	80Mbps	1080i x 1440 up to 30fps or 720p up to 60 fps	4:2:2
High Profile@High Level / 4:2:2 Profile@High Level	100Mbps	1080i x 1920 up to 30fps or 1080p x 1920 up to 60fps	4:2:2

Level. Specifies the MPEG level at which to encode the video.

Chroma. Specifies the chroma sub-sampling to use.

VBV Buffer Size. When Specify VBV Settings is selected, VBV Buffer Size specifies the size of the VBV buffer in kbps. Larger values allow the encoder greater flexibility during encoding.

VBV Delay. When Specify VBV Settings is selected, VBV Delay specifies how much time is allowed between the transmission of the first frame and its actual decode. Larger values allow the encoder greater flexibility during encoding.

Panasonic AVC-Intra

Quality. Specifies video quality profile.

AVC-Intra 50

CABAC entropy coding only

1920 x 1080@59.94i, 50i, 29.97p, 25p, 23.98p

1920 x 1080@59.94, 50p

1280 x 720@59.94p, 50p

4:2:0 chrominance sampling, 10 bit luma

Output frames are sub-sampled (1920x1080 is scaled to 1440x1080. 1280 x 720 is scaled to 960x720)

AVC-Intra 100

CAVLC entropy coding only

1920 x 1080@59.94i, 50i, 29.97p, 25p, 23.98p

1920 x 1080@59.94, 50p

1280 x 720@59.94p, 50p

4:2:2 chrominance sampling, 10 bit luma

Output Frames are not scaled

AVC-Intra 200

CAVLC entropy coding only

1920 x 1080@59.94i, 50i, 29.97p, 25p, 23.98p

1920 x 1080@59.94, 50p

1280 x 720@59.94p, 50p

4:2:2 chrominance sampling, 10 bit luma

Output frames are not scaled.

Panasonic AVC-Ultra

Panasonic AVC-Ultra is generated at 10 bits, with 4:2:2 chroma subsampling.

Supported frame rates for long GOP: 23.98p | 25i | 25p | 29.97i | 29.97p | 50p (720 at 25 and 50 Mbs, 1080 for Long GOP 25 only) | 59.94p (720 at 25 and 50Mbs, 1080 for Long GOP 25 only)

Quality. Specifies the video quality profile:

- AVC-Ultra Long GOP 25 (25 Mbs for all frame rates, except 59.94p@1080 is recorded at 50 Mbs)

- AVC-Ultra Long GOP 50 (50 Mbs for all supported frame rates)

Sony XAVC

Sony XAVC is available in TIFO, but only MXF XAVC is maintained for Sony specification performance.

XAVC HD is always CBR - Use Constrained Bytes Per GOP is ignored.

Quality. Specifies the quality setting to use for encoding.

Sony XAVC HD Long classes 25, 35, and 50 are long GOP, 10-bit 4:2:2 chroma.

Table 15.

Standard	25	35	50
720p50			*
720p59.94			*
1080i50	*	*	*
1080i59.94	*	*	*
1080p23.98	*	*	*
1080p25	*	*	*
1080p29.97	*	*	*
1080p50p		*	*
1080p59.94		*	*

The bitrate for a class is maintained for all resolutions (25/35/50 mbs)

GOP length for 23.976/25 fps = 12 frames

GOP length for 29.97 fps = 15 frames

GOP length for 50 fps = 24 frames

GOP length for 59.94 fps = 30 frames

Quality. Specifies the video quality profile.

Class 50 - The class category is determined by the approximate bitrate for a 1080i 59.94 stream. The size of each frame is fixed (223,232 bytes (NTSC FHD)) and 271,360 bytes (PAL FHD). Therefore, high frame rates will result in higher bit rates.

Capture support is limited to 10-bit 4:2:2 chroma sampling.

Supported frame rates: Standard | 1080i 50 | 1080i 59.94 | 1080p 23.98 | 1080p 25 | 1080p 29.97.

Class 100 4:2:2 - HD - CBG only

The class category is determined by the approximate bitrate for a 1080i 59.94 stream. The size of each frame is fixed (462,848 bytes (NTSC 1080)) and 559,104 bytes (PAL 1080), so high frame rates will result in higher bit rates.

Capture support is limited to 10 bit 4:2:2 chroma sampling

Output is full HD - it is not anamorphically scaled.

Supported frame rates: Standard | 720p 50 | 720p 59.94 | 1080i 50 | 1080i 59.94 | 1080p 23.98 | 1080p 25 | 1080p 29.97 | 1080p 50p | 1080p 59.94.

Class 300 4:2:2 and **Class 480 4:2:2** - UHD/4K - CBG/VBR - Capture action only

Capture support is limited to 10-bit 4:2:2 chroma sampling.

Constant bitrate (Use Constrained Bytes Per GOP) is enabled by default.

Supported frame rates for UHD and 4K: Standard | 23.98 | 24 (4K only) | 25 | 29.97 | 50 | 59.94

XAVC Long QFHD

Class 100 Supported sources: UHD 23.98, 25, 29.97)

Class 140 Supported sources: UHD 23.98, 25, 29.97, 50, 59.94)

Class 200 Supported sources: UHD 23.98, 25, 29.97, 50, 59.94)

Use Constrained Bytes per GOP. When enabled, XAVC Class 300 and Class 480 is generated as CBG. All other classes are generated as VBR. Ignored for XAVC HD video.

Sony XDCAM

The XDCAM codec generates 1920x1080 interlaced video at 25 and 29.97fps, and 1280x720 progressive sources at 50 and 59.94 fps.

XDCAM HD422 is based on a 4:2:2 chroma MPEG essence that is compatible with the Sony XDCAM VTR (when wrapped as MXF). The codec records at 50 Mbs at full resolution (for example, 1920x1080 interlaced or, 1280x720 progressive).

Other XDCAM variants are based on a 4:2:0 chroma MPEG essence, also compatible with the Sony XDCAM VTR, that are recorded at reduced bit rates (18,25,35 Mbs). To save bandwidth, 1080i source is horizontally sub-sampled (for example, 1440x1080). Sony EX 35 is an exception in that it does not sub-sample horizontal pixels.

XDCAM 18 is only supported for 1080i sources.

Quality. Specifies the video quality profile.

Uncompressed

Encode Less VBI. When checked, the codec removes the top 32 lines from PAL SD sources or 26 lines from NSTC SD sources that contain VBI data.

x264

Profile. Specifies the video quality profile.

Bit Rate. Specifies the bit rate of the output in kbps (512 - 50,000).

Command Line. Configure the compressor using x264 command line syntax. For setting specific x264 parameters, you can enter x264 CLI commands (separated by spaces) to execute them. For best results, be sure to use long form: *--bframe 5*, for example. Use of short form (*-b 5*) is not recommended.

The following x264 command line parameters are not supported:

--fake-interlaced

--nal-hrd cbr

--profile

--video-format

--bitrate

x265

There are no general limitations for frame size or frame rate, but encoding interlaced source is not supported. Compression is resource intensive, and real time performance may not be sustained when recording high frame rates.

Profile. Specifies video quality profile.

Bit Rate. Specifies the bit rate of the output in kbps (512 - 50,000).

Command Line. Configure the compressor using x265 command line syntax. For setting specific x265 parameters, you can enter x265 CLI commands (separated by spaces) to execute them. For best results, be sure to use long form: --bframe 5, for example. Use of short form (-b 5) is not recommended.

The following x265 command line parameters are not supported:

--fake-interlaced

--nal-hrd cbr

--profile

--video-format

--bitrate

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The horizontal position of the top-left of the timecode in the output video frame (range 0 - 4096 pixels).

Y Position. The vertical position of the top-left of the timecode in the output video frame of the timecode in the output (range: 0 - 2160 pixels).

Font Size. Sets the font size of the timecode (range 6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

HDR Metadata Filter

Master Display

Add. When checked, enables embedding SMPTE 2086 master display metadata in the output. HDR metadata is written to the container for use by downstream players to accurately display the High Dynamic Range video.

Master Display X | Y Coordinates for Red | Green | Blue | White Point. specify the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Light Level

Add CTA-861.3 Content Light Level Metadata. When checked, inserts CTA-861.3 message with Content Light Level Metadata. Configure these controls:

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codec (PCM)

PCM is selected by default. No other selections are available.

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Channel Configuration. Specifies the number or layout of the audio channels.

Note: Up to 16 channels are supported from SDI sources.

Label Channel Pairs Left/Right. When checked, forces the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is selected, in which case this setting is ignored.

Bit Depth. Specifies the output audio bit depth.

Force One Track Per Channel. When checked, creates multiple mono tracks instead of a single, multi-channel track.

Create Stereo Pairs. When checked, specifies that each set of tracks should be converted to a stereo pair. Specify the number of stereo pairs to create (up to 8 pairs).

Channel Map

Channel Map. Check to enable re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

Proxy TIFO Output

Telestream Intermediary Format (TIFO) is an intermediate media wrapper format designed by Telestream as a uniform, interchangeable file format to ensure interoperability among Telestream's media processing solutions, including Vantage and Lightspeed Live Capture. TIFO provides a lightweight, low-overhead wrapper that is essence-agnostic, with out-of-band metadata, timecode, and closed caption support.

Using TIFO improves the ability to move media files between Telestream's media processing solutions with all media essence elements and metadata intact, preserving the widest range of transcoding options.

Note: TIFO files can be opened as they are being captured, by Telestream's Switch player and Vantage systems at a time when the captured file reports a non-zero file size. Requires Switch 4.0 or later.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Format Summary

Video

Apple ProRes Proxy | AVC | Avid DNxHD LB | Avid H.264 Proxy

Audio

MPEG-1 Layer 2, Mono, 48 kHz, 96Kbps, up to 16 tracks

PCM, 16/20/24-bit, 48Kbps, up to 32 tracks; PCM/Dolby E

Container Settings

The TIFO Container wraps the specified media in TIFO file format.

Proxy TIFO Config Name. Specifies the custom name of this output configuration. Displayed as a Configuration Template (along with all other outputs in this action, if any) in the Tape Capture Web app, so that the operator can select a specific output configuration to utilize in the current capture session.

General

File Extension. Specifies .tifo. No other extensions are provided.

Flush Period. When checked, writes all buffered media to disk at the specified interval (1000 ms default) at a minimum.

Aspect Ratio Mode

Automatic. Set the aspect ratio automatically, based on the detected content.

Display Aspect Ratio. When selected, specify the display frame aspect ratio to utilize.

Pixel Aspect Ratio. When selected, specify the pixel aspect ratio to utilize.

Video Stream Details

Select the Video Stream component to display its options on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codecs

Codec. Specifies which codec to use to encode video streams.

Apple ProRes Proxy

AVC (Lightspeed Live Server Only)

Note: If your Live Capture server is equipped with an NVIDIA RTX or T series GPU, you can not use the AVC codec to encode interlaced sources.

Same as Source. When enabled, the width and height of the source is passed through. Width and Height parameters are ignored.

Caution: Same as Source cannot be used when UHD/4K is set as the primary output.

Width. (Ignored when Same as Source is checked.) Specifies the width of the frame, in pixels (320 - 720).

Height. (Ignored when Same as Source is checked.) Specifies the height of the frame, in pixels (240 - 480).

Bit Rate. Specifies the target bit rate (512 - 50,000) in kbps.

Avid DNxHD LB

No user-configurable settings.

Avid H.264 Proxy

When used in conjunction in a workflow with the Avid Media Creation action for Interplay ingest, the Avid H.264 Proxy outputs are checked in with Avid-compatible Hi Res outputs from the Capture action and can be linked for proxy based editing.

Quality. Specifies video quality profile.

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The horizontal position of the top-left of the timecode in the output video frame (range 0 - 4096 pixels).

Y Position. The vertical position of the top-left of the timecode in the output video frame of the timecode in the output (range: 0 - 2160 pixels).

Font Size. Sets the font size of the timecode (range 6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codecs

Codec. Specifies which codec MPEG-1 Layer 2 | PCM) to use to encode audio tracks.

MPEG-1 Layer 2

Channel Configuration. Specifies Mono.

Track Count. Specifies the number of tracks (max. 32).

Bit Rate. Specifies 96 kbps for the encoded audio stream.

Sample Rate. Specifies 48kHZ as sample rate of the encoded audio stream.

PCM

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Channel Configuration. Specifies the layout / number of audio channels.

Note: Up to 16 channels are supported from SDI sources.

Label Channel Pairs Left/Right. When checked, forces the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is selected, in which case this setting is ignored.

Bit Depth. Specified the output audio bit depth. 16 | 20 | 24 bit.

Force One Track Per Channel. Select to make multiple mono tracks instead of a single multi-channel track.

Create Stereo Pairs. When checked, specifies that each set of tracks should be converted to a stereo pair. Specify the number of stereo pairs to create (up to 8 pairs).

Channel Map

Channel Map. Check to enable re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

Proxy MP4 Output

The Proxy MP4 output container encodes media and saves it as an MP4 file. The MP4 container conforms to IEC 14496-14 MP4 file format standard.

MP4 files do not contain a timecode track.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Select the container to display its settings in the configuration panel on the right.

Format Summary

Video

AVC

Audio

AAC | PCM

Container

Proxy MP4 Config Name. Specifies the custom name of this output configuration. Displayed as a Configuration Template (along with all other outputs in this action, if any) in the Tape Capture Web app, so that the operator can select a specific output configuration to utilize in the current capture session.

Container Settings

General

File Extension. mp4 - specifies the file extension of the generated MP4 file.

Aspect Ratio Mode

Automatic. Set the aspect ratio automatically, based on the detected content.

Display Aspect Ratio. When selected, specify the display frame aspect ratio to utilize.

Pixel Aspect Ratio. When selected, specify the pixel aspect ratio to utilize.

Video Stream Details

Select the Video Stream component to display its details on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codec - AVC (Lightspeed Live Server Only)

Note: If your Live Capture server is equipped with an NVIDIA RTX or T series GPU, you can not use the AVC codec to encode interlaced sources.

Codec. Specifies AVC. No other codecs provided.

Same as Source. When enabled, the width and height of the source is passed through. Width and Height parameters are ignored.

Caution: Same as Source cannot be used when UHD/4K is set as the primary output.

Width. Specifies the output frame width in pixels.

Height. Specifies the output frame height in pixels.

Bit Rate. Specifies the output video bit rate in kbps.

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The horizontal position of the top-left of the timecode in the output video frame (range 0 - 4096 pixels).

Y Position. The vertical position of the top-left of the timecode in the output video frame of the timecode in the output (range: 0 - 2160 pixels).

Font Size. Sets the font size of the timecode (range 6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codec

Specifies that the audio is encoded using the AAC | PCM codec.

Codec (AAC)

Codec. Specifies AAC for encoding audio tracks. No other codecs are provided.

General

Channel Configuration. Specifies Mono | Stereo | 5.1.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Channel Map

Channel Map. Check to enable re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

Codec (PCM)

General

Live Capture supports recording a source with various track groupings, up to 32 channels total. If you do not check Force One Track per Channel or Create Stereo Pairs, then the number of channels and their grouping in the output will the same as the source.

To support appropriate processing of transport streams and SRT streams with multiple audio groups, use the Channel Configuration control to match the number of source channels per track with the number of output channels per track in the output. For example, if the source has 4 tracks of 4 channel audio, specify the Channel Configuration value as 4 channels (per track).

If you enable Channel Mapping, the mapping is within the scope of one track. For example, if channel 3 is mapped to input 3 and there are two source tracks with 4 channels each, then you should map it to 1-4, not 5-8.

Note: In the use case of creating an arbitrary amount of mono channels to match the source, check Force One Track per Channel and specify the number of output channels (max. 32). **Enabling this control overrides the Channel Configuration setting**.

Channel Configuration. Specifies keyword or number of channels per track: Mono | Stereo | <<Specified number of channels per track>>.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Label Channel Pairs Left/Right. When checked, causes the first channel pair to be labeled Left and Right, unless Force One Track Per Channel is checked, in which case this setting is ignored.

Bit Depth. Specifies the output audio bit depth.

Force One Track Per Channel. When checked, creates multiple mono tracks - one track for each channel - instead of a single, multi-channel track, and specify the number of tracks you want in output that supports multiple tracks.

Channel Map

Channel Map. Check to enable re-mapping of the incoming source audio channels to the captured file output channels within the scope of a track. Channels are numbered from 1 to 32. Specify the number of the audio input channels to use for each output channel.

Proxy MXF RDD 25 Output

The Proxy MXF RDD 25 container conforms to the RDD 25 MXF file format standard.

Note: RDD 25 proxy files can be opened in Telestream's Switch player, and other applications, as they are being captured and are growing in size. Requires Switch 4.0 or later.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

The Proxy MXF RDD 25 container wraps the specified media into a MXF file format.

Proxy MXF RDD 25 Config Name. Specifies the custom name of this output configuration. Displayed as a Configuration Template (along with all other outputs in this action, if any) in the Tape Capture Web app, so that the operator can select a specific output configuration to utilize in the current capture session.

File Extension. Specifies MXF. No other extensions are available.

Video Stream Details

Select the Video Stream component to display its details on the right.

Color Space Signaling

Color space signaling may be inserted into the container; it may also be inserted into the video stream.

Note: Color space signaling is only supported in certain container and media formats. It may not be inserted in the output, based on the container/codec you are utilizing.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

Codec - AVC (Lightspeed Live Server Only)

Note: If your Live Capture server is equipped with an NVIDIA RTX or T series GPU, you can not use the AVC codec to encode interlaced sources.

Codec. Specifies AVC. No other codecs are provided.

Same as Source. When enabled, the width and height of the source is passed through. Width and Height parameters set in the action for the AVC codec are ignored.

Caution: Same as Source cannot be used when UHD/4K is set as the primary output.

Width. Specifies the width of the frame, in pixels (320 - 720).

Height. Specifies the height of the frame, in pixels (240 - 480).

Bit Rate (in kbps). Specifies the target bit rate (512 - 50,000).

Time Code Burn-in Filter

When checked, this filter rasterizes the current timecode value into each output video frame.

X Position. The horizontal position of the top-left of the timecode in the output video frame (range 0 - 4096 pixels).

Y Position. The vertical position of the top-left of the timecode in the output video frame of the timecode in the output (range: 0 - 2160 pixels).

Font Size. Sets the font size of the timecode (range 6 - 120 pixels).

Text Color. (Default: White). Specifies the text color of the timecode. You can enter simple color names, such as red, green, or white. Or enter a color hexadecimal code such as #0000DDFF, which is dark blue. The "FF" characters in this example specify the opacity, and are optional. When these characters are not included the text is completely opaque (no transparency). The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the black default is used.

Background Color. (Default: Black). Specifies the color of the area behind the timecode. You can enter simple color names, such as red, green, or blue. Or enter a color hexadecimal code such as #0000DD, which is dark blue. The pound sign (#) must be included with the hexadecimal code. When a color entry is not valid, the white default is used.

Timecode Transparency. The opacity of the timecode. 1.00 is fully opaque, or 100% opacity, 0 is transparent.

Force Source Timecode Burn-in. When the Override Timecode Enable option in the Program panel is checked and this control is also checked, burn-in the source timecode instead of the override timecode.

Audio Stream Details

Select the Audio Stream component to display its details on the right.

Codec (AAC)

Codec. Specifies AAC for encoding audio tracks. No other codecs are provided.

General

Channel Configuration. Specifies Mono | Stereo | 5.1.

Note: Up to 16 channels are supported from SDI sources. Up to 32 channels are supported from IP sources.

Channel Map

Channel Map. Check to enable re-mapping of the incoming source audio channels to the captured file output channels. Channels are numbered from 1 to 32. Specify the number of the audio input channel to use for each output channel.

Poster Frame

The Poster Frame output creates a small thumbnail bitmap image of the first frame of the input.

Use the Poster Frame output option when you need to have some type of output to satisfy the ability to activate the workflow when you have downstream actions, but you plan to delete the file and want the output to be a small file size that uses very little computing power and takes a small amount of hard drive space.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

The Poster Frame container creates a bitmap image file.

Poster Frame Config Name. Specifies the custom name of this output configuration. Displayed as a Configuration Template (along with all other outputs in this action, if any) in the Tape Capture Web app, so that the operator can select a specific output configuration to utilize in the current capture session.

File Extension. Specifies BMP as the extension of the file name. No other selections are available.

Tape Action and Output Formats

Flip Action Decoding Options

The Flip action supports selecting decoder options.

Decoders

Auto Decoder

Pick-a-Decoder

Auto Decoder

The Auto decoder automatically identifies the incoming file format and employs the appropriate decoder to decompress the video into digital baseband. This is the default setting for a Flip action, and should be utilized unless you have special video processing requirements that are not correctly handled by the auto-decoder.

There are no user-configurable options for this decoder.

Pick-a-Decoder

Select Pick-A-Decoder when you want to utilize a specific codec, identified by a GUID. The codec must have been installed on all servers where the Transcode service is installed (which executes Flip actions). The specified codec will be used to decompress the video into digital baseband.

Details

Configure the following controls:

Override Decoder. Check to cause Vantage to use the specified codec, identified by the user-supplied GUID.

Flip Action Decoding Options
Pick-a-Decoder

Deploy Action Extensions

These man pages describe Deployment action implementations for third-party platforms.

Export Deployment

Export Deployment Collision Resolution

Avid TransferManager/TransferEngine Deployment

Synamedia COS Delivery

YouTube Deployment

Export Deployment

The Export deployment allows multiple files to be copied to a new location, all as part of the same action. There are two distinguishing features of this deployment that make it different from the Copy action.

First, the Copy action only operates on one file at a time - that is, only one media item or attachment can be copied at a time. In contrast, the Export deployment can delivery multiple media and attachment files simultaneously.

Second, the new copies of files created by the Export deployment are not referenced in the binder after the action completes. This deployment is intended for final delivery of files to a location; as a result, the new copies of files do not have nicknames.

Export Deployment Collision Resolution

The Export Deployment Collision Resolution panel enables you to specify what the action should do to resolve a collision - when the destination folder already contain a file of the same name as the one being deployed.

Select one of three choices:

Create Unique Name. Create a unique name. Check the nickname of the file being deployed, and click Filename Pattern to specify the unique name.

Overwrite. Write the new file or files out to the destination, overwriting the existing file (if it is writable) without warning.

Set Failure State. Set the final state of this action to Failure; do not write out the file or files.

When you *Overwrite* or *Set Failure State* as the action to take, do not check any of the Rename files controls.

Avid TransferManager/TransferEngine Deployment

The Avid TransferManager/TransferEngine deployment is used to deliver files to TransferManager/TransferEngine. It requires that input files are generated using the Avid TransferManager/TransferEngine encoder; these files are then re-wrapped in a new container by TransferManager/TransferEngine, and delivered into Avid storage.

Note: When an in-process Avid TransferManager/TransferEngine Deploy action is stopped, the job state transitions to Stopped By User, but the Avid system doesn't stop ingesting the file until completion, and the progress bar continues to display progress.

It also requires that the input files are located on a network share; this can be fulfilled by setting the preferred store used by the Transcode Service, or by using a Transport group action to relocate the files after being transcoded.

Note: The use of this deployment requires a separate installer from Telestream.

General Settings

Media File Nickname to Deploy. Specifies the nickname of this media file, for use in downstream actions.

Unity/LAN Share Workspace. Specifies the name of the workspace that this media should be placed in. Leave blank to utilize the default workspace.

Transfer Engine Hostname. The name | IP address of the TransferEngine | TransferManager that is the target of this deployment.

Ingest Type. The container format of the media (AAF | OMF) that should be created during the deployment process.

Metadata Tab

Use The Metadata tab to create a collection of metadata name/value pairs, which may be provided to the Avid TransferManager ingest process.

Insert Metadata Name/Value Pairs. Check to add metadata tags; add as many as required.

Add New Item. Adds a new metadata tag. Manually enter the Metadata tag name and value or click Browse to assign a variable which contains the value. To re-arrange the list, use the up/down arrows. To delete a tag, click the X icon (upper right).

Locators Tab

Use The Locators tab to create a collection of color-coded labels to mark points of interest on the timeline, which may be provided to the Avid TransferManager ingest process.

Insert Locators. Check to add locators; add as many as required.

Add New Item. Adds a new l Manually enter the comment (which displays the string at the specified timecode) or click Browse to assign a variable which contains the value. Specify the color of the mark point and the timecode. To re-arrange the list, use the up/down arrows. To delete a locator, click the X icon (upper right).

Synamedia COS Delivery

The Synamedia COS Delivery deployment is used to deliver files to Synamedia Cloud Object Stores (COS). It requires that input files are generated using the Multiscreen encoder with the CMAF Packager for delivery to COS. These files are then read by the Synamedia JIIP (Just in time packager) which re-packages them to the end device.

Note: When an in-process Synamedia Deploy action is stopped, the job state transitions to Stopped By User, but the system doesn't stop ingesting the file until completion, and the progress bar continues to display progress.

It also requires that the input files are located on a network share; this can be fulfilled by setting the preferred store used by the Transcode Service, or by using a Transport group action to relocate the files after being transcoded.

Settings

Media Input. Specifies the media file to use, by nickname.

Server Address. Name or IP address of the ingest gateway for the Synamedia COS server.

Note: The name or IP specified must be accessible by the Vantage server where the Deploy action is running.

Port. Port of the ingest gateway for the Synamedia COS server. Default is 80.

Username. Username credential required to access the Synamedia COS server at the specified Server Address.

Password. Password required to access the Synamedia COS server using the specified Server Address.

Bucket/Folder Location. Folder location where the delivered media should be stored on the Synamedia COS server.

Attempt to Delete Existing Media if a Collision is Detected. When checked, Vantage will attempt to delete an existing file if it corresponds to a file that is being uploaded. Unchecked by default.

YouTube Deployment

You use YouTube Deployment in the Deploy action to upload media files to your YouTube account. The Vantage YouTube Deployment enables you to upload a single media file (video) per action.

Optionally, a single captions file maybe uploaded with the media file. You must include a captions file name and language for the captions file. A custom thumbnail file for the upload maybe defined for the media file.

You must configure the Vantage domain host server and firewall to enable network port 443 to enable Vantage to communicate with YouTube.

You must have a YouTube account and supply the required credentials for authentication to configure this action. It is the user's responsibility to adhere to all Google and YouTube terms of service when interacting with YouTube via Vantage.

Topics

- *YouTube Requirements and Recommendations*
- *Creating the Refresh Token for the API Key*
- *API Access Control*
- *Configuration*
- *Captions File Settings*
- *Generating Variables*

YouTube Requirements and Recommendations

In your YouTube Studio account, you should configure it for the features that you require: Enabling standard, intermediate, or advanced features. For example, if you intend to upload videos exceeding 15 minutes, you should configure your account for intermediate features. For details, see your YouTube Studio settings. The account may limit the number of daily video uploads: Vantage will report an error in the job, if an upload fails due to exceeding the daily video upload limit.

Vantage uses the Google YouTube API to upload media files to YouTube. The Google account associated with your YouTube Studio account must be configured to enable YouTube Data API v3. The account must support an adequate API quota based on your desired upload frequency. Vantage reports an error in the job, if an upload fails when the Google API quota limits are exceeded.

The Google YouTube API requires authentication. Vantage uses Google OAuth 2.0 client authorization. You should configure a project in the Google cloud console and define a project before using this action in a workflow. Under the project, create an OAuth 2.0 client and download the client file for use with the Vantage YouTube authorization console application (see *Creating the Refresh Token for the API Key*).

Creating the Refresh Token for the API Key

The refresh token is created from your credentials. Telestream provides YouTubeAuthConsoleApp.exe, a utility to generate this token. This is a one-time requirement during configuration or when your YouTube account credentials change. The refresh token is stored with the workflow in the Vantage database and used each time a job is run.

To create a Google refresh token which you enter into the Deploy > API Key field, follow these steps:

1. Go to https://console.cloud.google.com and sign in with your credentials.
2. In the target project, go to APIs & Services > Credentials. Note that if you don't have a project, create one now.
3. If you haven't already created a client ID file for your target project, create one.
4. Select the target OAuth2.0 key client ID file—download the file and save it, typically in the C:\Program Files (x86)\Telestream\Vantage\transport directory. This is the JSON file you use to connect your Vantage domain with YouTube. (For ease of use, consider renaming it to a shorter name).
5. Open a CMD window in the C:\Program Files (x86)\Telestream\Vantage\transport directory where the YouTubeAuthConsoleApp.exe utility and the client ID file is located.
6. Execute this command, replacing `<client ID file>` with your OAuth2.0 key client ID file name:
   `YouTubeAuthConsoleApp.exe <client ID file>`.

   Your web browser launches - log in with your Google credentials.
7. The YouTubeAuthConsoleApp returns your client ID, client secret, and refresh token - return to Workflow Designer and enter them into the action inspector along with your other configuration settings.

API Access Control

Client ID (Required). Specifies your YouTube client ID, obtained from YouTubeAuthConsoleApp.

Client Secret (Required). Specifies your YouTube client ID obtained from YouTubeAuthConsoleApp.

API Key (Required). Specifies your refresh token, generated from your YouTube Client ID and Client Secret values via the YouTubeAuthConsoleApp (see *Creating the Refresh Token for the API Key*, above.

Click Next to continue. Vantage attempts to log in to your YouTube account. If login fails, review the settings in this panel and resolve.

Configuration

Video File Nickname (Required). Specifies the nickname of the file that you are uploading, which was specified in a previous action (typically, the origin action).

Title. Specifies the title of the media that you want to display.

Description. Specifies the description of the media that you want to display.

Tags. Specifies the tags associated with the media; multiple tags separated by commas.

Category. When checked, specifies the category for this media.

Privacy Status. When checked, specifies the status of privacy you want to apply to this media. If you set a Publish at Date, you must also set Privacy Status to Private.

Recording Date. When checked, specifies the date and time that the media was recorded.

Publish at Date. When checked, specifies the date and time when this media should first be made available. The time you set must be at least 60 minutes after the video is uploaded. If you set a Publish at Date, you must also set Privacy Status to Private.

Public Stats Viewable. When checked, specifies that media statistics may be viewed by viewers.

Self-Declared Made For Kids. When checked, specifies that this media should be identified as Self-Declared Made for Kids.

Captions File Settings

If you plan to upload captions files, you must first set your YouTube Studio settings to a default language. If you don't have a default language set, the upload fails.

Optionally, check **Captions File** to include a captions file and configure these settings:

Caption files may be generated by a Timed Text Flip action or a third-party product; you assign the nickname of the file in this action. The file name must be in the form of `<filename>.en_US.<suffix>`, where the locale (shown here as US) may be any locale.

Captions File Name. Specifies the name of the closed caption file to display in YouTube.

Captions File Language. Specifies the 2-letter ISO 639-1 code with an optional regional code, which identifies the subtitle language, selected from the menu.

Captions File Nickname. Specifies the nickname of this file, ingested upstream in the workflow.

Thumbnail File Settings

Optionally, check **Thumbnail File** to include a thumbnail file and configure these settings:

Thumbnail File Nickname. Specifies the nickname of an optional thumbnail file which was ingested into the workflow upstream. The file must be meet YouTube format and file size requirements.

Note: You can not upload thumbnails unless your account is verified. To check if your account is verified, display your YouTube settings. Click on Channel Settings > Features to view your Account status. If your account is verified, YouTube displays the word Verified next to your brand's name.
If your account is not verified, display the default account Features page and click the blue Verify check button next to your username. Enter a telephone number to obtain a verification code via text or automated phone call and then enter it to verify your account.

Generating Variables

Click Next to display the Generate Variables panel.

Video URL. Check to return the URL to the uploaded video file. Select a variable to assign this path value to, for use downstream in the workflow. For example, you can use the URL in this variable when advertising the video on LinkedIn.

Video Embedded URL. Check to return a URL to the uploaded video file for use in embedded applications. Select a variable to assign this path value to, for use downstream in the workflow.

Video Identifier. Check to return the Video ID assigned by YouTube to the uploaded video file. Select a variable to assign this text value to, for use downstream in the workflow.

Thumbnail URL. Check to return the URL to the YouTube-generated thumbnail. Select a variable to assign this path value to, for use downstream in the workflow. For example, you can use this variable when posting to LinkedIn as the Thumbnail URL.

File System, Listeners, and Detectors

File System detectors are utilized to configure servers by operating system/platform, and file access and polling functionality (for Watch actions) when utilizing the target file system to read and write files.

Camera detectors provide access to a variety of cameras and camera-specific file systems. Camera detectors are used to read recorded media and associated files. Each camera's storage system has certain characteristics that Vantage camera detectors are designed to utilize.

Note: Vantage stores all file paths as a URL, which it uses to reference both local and remote target directories. Although paths are stored in URL format, they are always displayed to the user in UNC or local (drive-letter) format, for ease of reading and use.

Amazon SQS Listener

Any Media File Detector

Any Media File Detector Settings

ACVHD Camera File Detector

Avid File Detector

Avid File System File Detector Settings

Camera Ingest Settings

Camera Shot Submission Mode Settings

Camera Variables and Logging Settings

Canon Camera Detector

Detection Mode

Drive Selector

GoPro Camera Detector

Grass Valley File Detector

Grass Valley File Detector Settings

Harris/LXF File Detector

Harris/LXF File Detector Settings

Ikegama Camera Detector

Image Sequence File Detector

Image Sequence File Detector Settings

MediaStream File Detector

MediaStream File Detector Settings

Network Path Selector

Omneon File Detector

Omneon File Detector Settings

Oracle Listener

P2 File Detector

P2 Detector

P2 File Detector Settings

RED R3D Camera Detector

SeaChange BML File Detector

SeaChange BML Detector Settings

Sony Camera Detector

Amazon SQS Listener

The Amazon SQS Listener plugin monitors a cloud based message queue and generates jobs from received messages.

Note: A single Vantage Listen action may service any single SQS Queue. Telestream advises against using multiple Vantage Listen actions to monitor a single SQS Queue as a subset of jobs will be created for each.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration

Key. Specifies the access key id as provided from your AWS account.

Secret. Specifies the secret access key as provided from your AWS account.

Queue URL. Specifies the HTTPS endpoint for the message queue as indicated in your AWS account.

Job Name Attribute. (optional) Specifies the name of an attribute in an SQS message which can be used to control the names used for Vantage jobs.

Received Message

Select output options for use in downstream actions.

Generate Attachment. Specify attachment to be generated which contains message data.

Generate Variable. When checked, allows specification of a text variable which contains message data. Unchecked by default.

Any Media File Detector

Select Any Media to display a list of file systems that you can select and configure to poll directories on supported file systems for new files of any type. When a new file is detected, a job is submitted for processing using this workflow.

The list of file systems displayed is dependent on the components licensed for this Vantage domain.

Inspector Wizard

Configuration is specific to the selected file system. For details about the selected file system, click M in the toolbar. For details about each control in the panel, hover the mouse over the control to display roll-over text describing how to use the control.

Select one of the displayed file detectors and click Next to continue.

Any Media File Detector Settings

Configure the Any Media settings to submit new files for processing according to your requirements using the Watch or Associate actions.

Note: When using a filename variable in File Match Pattern fields, you may have assigned the full file name (*myfile.mpg* for example) to a filename variable. If you need just the base name (in this example, *myfile*), use string functions in the Compute action to extract the base name and assign it to another variable, which you can use to implement your file match pattern.

New Files

A file is considered new if at least one of the following conditions is met:

- The file was not present on server during the last scan
- The size of the file has changed during the scan counts specified
- The modification date of the file has changed since the last scan.

A new file is submitted when both of the following conditions are met:

- The size of the file has not changed during the scan counts specified
- The modification date of the file has not changed during the scan counts specified.

Inspector Wizard

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Nickname (for Watch and Associate actions with Media file option). Specifies the nickname to assign to the specified file, which you can use to reference this file in all subsequent actions in the workflow.

Cycle and Count. Does not apply to AWS S3 file systems when you have enabled the option Use AWS S3 Event Queues for Watch Actions with S3 File Systems in the Vantage Management Console > Settings & Options > General.

Determines how many seconds occur between polls, and how many polls the file must remain at the same size before being submitted (to ensure that the file system has closed new files after writing is complete).

Stop Looking After (for Associate actions). Indicates that you want the search for the target file to terminate after the specified time period if the file is not found, and specify the time in seconds.

State to Emit (for Associate actions). When Stop Looking After is checked, specifies the state of the action to pass to the next action in the workflow: Success | Failure | Ignore.

Submit Immediately (for Watch and Associate actions with Media file option- does not apply to S3 File Systems). Only check when processing files that can be processed in real time such as TIFO files. You should only use downstream actions that do not require a closed file as input, such as a transcode type action (for example Flip, Flip64, Multiscreen, and IPTV) which can execute properly on a file that is still open and being written.

Look in Subfolders. Indicates that you want all sub-folders in the target location to be polled for new media as well.

Optionally, enter one or more folder name filtering patterns in the Accept and Reject fields. Patterns are not case sensitive and no spaces are allowed anywhere in the field. If you must use spaces in folder names, use a ? as needed to filter them. Patterns can contain literal characters, plus the standard wild card characters ? and *. Multiple patterns are separated by the | (OR bar).

If you do not enter patterns in either field, all files are submitted, provided they are filtered by the optional File Match Pattern, if enabled.

If the path does not match the Accept filter or the path matches a Reject pattern, then it and all of its subfolders are rejected.

When you enter a pattern in either field, the pattern always processes it against the full path - the baseline path of the watch folder implicitly via wildcards or explicitly with a literal string - plus any additional pattern. The baseline watch folder is always processed for files, regardless of the pattern entered.

Do not include a trailing backslash (\) at the end of patterns. Doing so causes the filter to not match the intended folder, and the folder is excluded from processing.

To filter sub-folders for processing, enter one pattern for each folder.

For example:

Your folder structure is `D:\Watch\Folder1\Subfolder1` and your Accept pattern is `*\Folder1\Subfolder1`.

Vantage will not process `Subfolder1`, because `Folder1` does not match the pattern.

To process `Subfolder1`, you must also accept its parent by entering one pattern for each folder. For example:
`D:\Watch\Folder1|D:\Watch\Folder1\SubFolder1`.

The wildcard * character represents any series of characters within a folder name. For example, `*\Folder1` may be used to filter the baseline watch folder

`D:\Watch\Folder1\SubFolder1` to process files in `Folder1`. Here, sub-folders under `Folder1` (`SubFolder1`) are not processed. To process a given sub-folder, it must be part of the literal or via the * wildcard character. To process all sub-folders, end the string with *: `*\Folder1*`, for example.

The wildcard ? character provides more focused filtering - it represents any single character within a folder name. For example, `D:\Watch\Folder??` may be used to filter the baseline watch folder for any folders with 2 characters at the end of the word: `Folder01`, `Folder02`, and `Folder03`, for example.

Send Offline Notification Emails. Indicates that you want an email sent to the administrator when this action fails.

Process Existing Files (for Watch Actions). Indicates that you want the workflow to process all existing media in the specified directory that has not yet been processed. When checked, select All, Limit to last X days, or Since Last Workflow Deactivation.

For example, if this is the first time that a workflow has been put into production, you may want all media files submitted the first time. Or, check this when you need to compensate for the monitor being offline for some period of time.

File Match Pattern (for Watch actions). Limits file selection to files that adhere to the specified pattern.

Enter in the Accept or Reject fields, one or more patterns. Filename patterns are not case sensitive. No spaces are allowed. Patters can contain literal characters, plus the standard wild card characters ? and * where multiple patterns are separated by the | (OR bar) character. For example, to filter files having an MPEG extension, enter **.mpg*. To filter all files having extension .fpk, enter **.fpk*.

Note: When used with the Media File option only, to accept all files, do not enter a pattern. When used with the Attachments option, you must enter an asterisk (*) for the pattern.

To filter all files beginning with the letters TESTBARS or containing the word BLACK, enter TESTBARS* | *BLACK*.

To filter files by a single character, use the ? wild card character. You can use the ? repeatedly; one for each wildcard character. For example, to filter all MXF files with the same root name plus a four-character sequence, enter *Clip????.mxf*.

File Match Pattern (for Associate actions)

Accept Pattern. (Required) Limits file selection to files that adhere to the specified pattern.

To enter one or more patterns use one of these methods:
- Manually enter the pattern(s) in the Accept Pattern field
- Select a pattern from the Accept Pattern menu
- Click the Browse button and select a variable that contains the pattern(s)

- Click Browse and select a file that contains the pattern.

Note: For Associate actions only, you can enter (or select a pattern with) the key phrase [Name] and then select the nickname of the file in the Match File Name to menu to use for the Name pattern.

Pattern Rules. Filename patterns are not case sensitive. No spaces are allowed. Patterns can contain literal characters, plus the standard wild card characters ? and * and can include multiple patterns, separated by the | (OR bar) character.

To filter files having an MPEG extension, enter **.mpg*. To filter all files having extension .fpk, enter **.fpk*.

To filter all files beginning with the letters TESTBARS or containing the word BLACK, enter TESTBARS* | *BLACK*.

To filter files by a single character, use the ? wild card character. You can enter multiple ? characters, one for each unknown character in the string. For example, to filter all MPEG files with the same root name plus single character sequence, enter *NWCrossing?.mpg*.

Match File Name To. When you select (or enter) a pattern with the key phrase [Name], you must select the nickname of the file in the Match File Name to menu (the next control below) to replace the [Name] string in the pattern with the filename of the corresponding file.

Generate Variables. Specifies the variables that you want to generate. The variables can be used by downstream actions to perform file operations on the ingested file or use the metadata for other processing.

Active Only and Active Days (for Watch actions). Controls the times and/or days when the monitor is active and accepts jobs. Specifies the start and end time on a daily basis, as measured by the service's host computer clock. Also specifies the selected days when the monitor is active.

ACVHD Camera File Detector

The AVCHD Camera File Detector identifies and processes AVCHD media files with a MTS extension, originally captured on Canon C100 cameras, as well as cameras from other manufacturers.

The AVCHD Camera File Detector provides the ability to identify and process the AVCHD file structure, and then submit jobs for processing by Vantage.

An AVCHD clip is either a single file or a sequence of files created when the media was originally recorded. The AVCHD Camera File Detector determines whether a clip is comprised of a single file or multiple files (a spanned clip).

The AVCHD Camera File Detector monitors the specified Windows directory for existing or new media files. The path to the MTS files should have the following path: \PRIVATE\AVCHD\BDMV\STREAM*.mts.

Avid File Detector

Select Avid to configure this action to poll a Windows file system network folder for QuickTime movie files that are created by an Avid Editing workstation. When a new file is detected, a job is submitted for processing using this workflow.

This detector automatically adjusts reference QuickTime Movies, leaving original essences in place.

Vantage requires the ability to modify the QuickTime movie in the location where it is detected. This is necessary to repair any references that may not be correctly resolved based on the how the movie was originally created.

The Avid File System option only operates on Windows Network file systems.

Select Windows file system and click Next to continue.

Avid File System File Detector Settings

Configure the Avid File System settings to submit new files for processing according to your requirements.

New Files

A file is considered new if at least one of the following conditions is met:

- The file was not present on server during the last scan

- The size of the file has changed during the scan counts specified

- The modification date of the file has changed since last scan.

A new file is submitted when both of the following conditions are met:

- The size of the file has not changed during the scan counts specified

- The modification date of the file has not changed during the scan counts specified.

Settings

Nickname. Specifies the nickname to assign to the specified file, which you can use to reference this file in all subsequent actions in the workflow.

Cycle and Count. Determines how many seconds occur between polls, and how many polls the file must remain at the same size before being submitted.

Look in Subfolders. Indicates that you want all sub-folders in the target location to be polled for new media as well.

Process Existing Files. Indicates that you want the workflow to process all existing media in the target directory. For example, if this is the first time that a workflow has been put into production, you may want all media files processed the first time. Or, you may have to re-run all of the files in the target directory due to some error in the workflow that you've corrected.

Send Offline Notification Emails. Indicates that you want an email sent to the administrator when this Watch action fails.

File Match Pattern. Specifies the suffix acceptance options that apply.

Generate Variables. Creates variables from filenames, file paths, and file timestamps. Check each variable to generate.

Active Only and Active Days (for Watch actions). Controls the times and/or days when the monitor is active and accepts jobs. Specifies the start and end time on a daily basis, as measured by the service's host computer clock. Also specifies the selected days when the monitor is active.

Camera Ingest Settings

Configure the camera ingest settings to submit new files for processing according to your requirements.

New Shots

In the context of the Camera Ingest action, a *shot* (sometimes referred to as a *clip*) is the media which is created by a single, continuous recording action on a camera, and is stored in one or more files created as necessary, under control of the camera's file system.

A shot is considered new if at least one of the following conditions is met:

- The shot file itself was not present on server during the last scan

- The size of the shot file has changed during the scan counts specified

- The modification date of the shot file has changed since last scan.

A new job is submitted for a shot (or a collection of shots, depending on your configuration) when all of the following conditions are met:

- The size of the shot file(s) and associated media files has not changed during the scan counts specified

- The modification date of the shot file(s) and associated media files has not changed during the scan counts specified.

- All media files required for the shot(s) are ready for ingest and processing.

Settings

Nickname. Specifies the nickname to assign to the specified shot, which you can use to reference this shot in all subsequent actions in the workflow.

Cycle and Count. Determines how many seconds occur between polls, and how many polls the shot file(s) must remain at the same size before being submitted (ensure that the file system has closed new files after writing is complete).

Look in Subfolders. Indicates that you want all sub-folders in the target location to be polled for new media as well.

Optionally, enter one or more folder name filtering patterns in the Accept and Reject fields. Patterns are not case sensitive and no spaces are allowed anywhere in the field. If you must use spaces in folder names, use a ? as needed to filter them. Patterns can contain literal characters, plus the standard wild card characters ? and *. Multiple patterns are separated by the | (OR bar).

If you do not enter patterns in either field, all files are submitted, provided they are filtered by the optional File Match Pattern, if enabled.

If the path does not match the Accept filter or the path matches a Reject pattern, then it and all of its subfolders are rejected.

When you enter a pattern in either field, the pattern always processes it against the full path - the baseline path of the watch folder implicitly via wildcards or explicitly with a literal string - plus any additional pattern. The baseline watch folder is always processed for files, regardless of the pattern entered.

Do not include a trailing backslash (\) at the end of patterns. Doing so causes the filter to not match the intended folder, and the folder is excluded from processing.

To filter sub-folders for processing, enter one pattern for each folder.

For example:

Your folder structure is `D:\Watch\Folder1\Subfolder1` and your Accept pattern is `*\Folder1\Subfolder1`.

Vantage will not process `Subfolder1`, because `Folder1` does not match the pattern.

To process `Subfolder1`, you must also accept its parent by entering one pattern for each folder. For example:
`D:\Watch\Folder1|D:\Watch\Folder1\SubFolder1`.

The wildcard * character represents any series of characters within a folder name. For example, `*\Folder1` may be used to filter the baseline watch folder `D:\Watch\Folder1\SubFolder1` to process files in `Folder1`. Here, sub-folders under `Folder1` (`SubFolder1`) are not processed. To process a given sub-folder, it must be part of the literal or via the * wildcard character. To process all sub-folders, end the string with *: `*\Folder1*`, for example.

The wildcard ? character provides more focused filtering - it represents any single character within a folder name. For example, `D:\Watch\Folder??` may be used to filter the baseline watch folder for any folders with 2 characters at the end of the word: `Folder01`, `Folder02`, and `Folder03`, for example.

Send Offline Notification Emails. Indicates that you want an email sent to the administrator when this action fails.

File Match Pattern. Limits file selection to files that adhere to the specified pattern. Select Accept or Reject, and enter one or more patterns, separated by an OR bar (|). No spaces are allowed. To accept all files, do not enter a pattern.

The default or appropriate file type(s) to search for depend on the system:

- AVCHD: *.mts
- Canon: *.xml|*.mov.
- GoPro: *.mp4
- P2: *.xml.
- RED R3D: *.r3d

- Sony: For XDCAM and XDCAM EX files, use *.smi. For XAVC | XAVC-S files, use *.xml.

Filename patterns are not case sensitive. They can contain the standard wild card characters ? and * and can include multiple patterns, separated by the | (OR bar) character. For example, to filter files having an MPEG extension, enter **.mpg*. To filter all files having extension .smi, enter **.smi*.

To filter all files beginning with the letters TESTBARS or containing the word BLACK, enter TESTBARS* | *BLACK*.

To filter files by a single character, use the ? wild card character. You can use the ? repeatedly; one for each wildcard character. For example, to filter all MXF files with the same root name plus a four-character sequence, enter *Clip????.mxf*.

Process Existing. Indicates that you want the workflow to process all existing media in the specified directory that has not yet been processed. For example, if this is the first time that a workflow has been put into production, you may want all media files submitted the first time.

Active Only and Active Days. Controls the times and/or days when the monitor is active and accepts jobs. Specifies the start and end time on a daily basis, as measured by the service's host computer clock. Also specifies the selected days when the monitor is active.

Camera Shot Submission Mode Settings

The Camera Ingest action can be configured to submit jobs in one of three modes:

- One Job Per Shot
- Stitch Shots
- Time-align Shots

For all modes, the camera ingest detection settings on the previous panel determine how new shots are discovered.

Submission Mode. Specifies the submission mode this action should use. Proceed to the topic below for the mode you want to use, to learn how it works and how to configure it for your requirements.

One Job Per Shot

The name of the output file in One Job Per Shot is always the base name of the input file.

For each *logical* shot, the Camera Ingest action submits one job to the workflow for processing as a single item. A logical shot may be a single file or may be comprised of multiple files in a folder. In single-shot mode, the Camera Ingest action will still stitch clips that are recorded back to back (that is, the first frame of the next clip is recorded immediately after the last frame of the preceding clip).

For example: You are shooting with a Canon C300 camera and you record continuously for an extended period of time; the media will be written as multiple MXF files in a specific folder. These files are all considered to be part of the one shot and in this mode will be submitted as a single job.If you have multiple shots on the camera, each will be submitted as a single job.

Auto-stitch Neighboring Clips. For Canon ONLY - Uncheck to prevent back-to-back clips from being stitched together, forcing a single job for every shot.

Stitch Shots

When you specify that the Camera Ingest action should stitch multiple shots, configure the controls as described below.

Stitch Shots specifies that all shots identified on a card or a Windows network location should be stitched together into a single file.

All shots saved in a common root folder AND which share common temporal and spatial characteristics are stitched together. For example, you have both NTSC and PAL shots in a single folder. All of the NTSC shots of the same resolution are stitched together and all of the PAL shots of the same resolution are stitched together. The same is true for NTSC SD and HD shots - they would not be stitched together.

Content Name. Specifies how jobs and output files are named:

- *Subfolder Name*. Use the name of the containing folder that is not unique to a given camera format. When Submission Mode is Stitch Shots and Content Name is set to Subfolder Name, the name the same value as the Subfolder variable value, unless the Subfolder is null - then the job name is set to the lowest folder name in the target directory.

- *First Shot*. Use the name of the first shot (ordered by SOM)

- *Date/Time*. Use the file date/time of the first shot (ordered by SOM).

Shots Included. Specifies which shots to include:

- *All shots found*. Include all shots in different subfolder branches down to the lowest level subfolders above the camera file system.

- *All shots in Subfolder*. Include only shots in a single subfolder, down to the lowest level subfolder above the camera file system.

Stitching Order. Specifies that the shots are stitched in order of timecode.

Time-align Shots

When you specify that the Camera Ingest action should stitch multiple shots by time alignment, configure the controls as described below.

Time-align Shots specifies that all shots identified on a card or a Windows network location should be stitched together into a single file. Those shots which relate to one another temporally are submitted to a single job for stitching.

All shots saved in a common root folder AND which share common temporal and spatial characteristics are stitched together. Thus, if for example, you have both NTSC and PAL shots in a single folder, all of the NTSC shots of the same resolution are stitched together and all of the PAL shots of the same resolution are stitched together. The same is true for NTSC SD and HD shots - they would not be stitched.

Content Name. Specifies how jobs and output files are named:

- *Subfolder Name*. Use the name of the containing folder that is not unique to a given camera format. When Submission Mode is Stitch Shots and Content Name is set to Subfolder Name, the name the same value as the Subfolder variable value, unless the Subfolder is null - then the job name is set to the lowest folder name in the target directory.

- *First Shot*. Use the name of the first shot (ordered by SOM)

- *Date/Time*. Use the file date/time of the first shot (ordered by SOM).

Stitch Clips Within. Specifies the threshold of time (in seconds) between shots that should be stitched (for example, *Stitch shots less than 90 seconds apart*). This threshold is the elapsed time from the EOM of one shot to the SOM of the next shot. This allows you to control the maximum amount of black added between shots. Maximum threshold: 1800 seconds - 30 minutes. Eligibility for inclusion rolls over at midnight.

Clips stitched in this manner will have Black inserted for the duration of any gap between shots, to recreate the time-of-day of the original shoot.

For multi-camera editing, when multiple cameras are creating shots over a period of time, Vantage simplifies the process of aligning shots across cameras by creating one large media file per camera with all shots contained, and pre-aligned to real time. This allows editors to align one file per camera, instead of having to align all shots individually.

For example, three 29.97 shots are in a folder: ClipA, ClipB, and ClipC. ClipA runs from 00:00:10:00 to 00:00:12:00; ClipB from 00:00:12:30 to 00:00:14:00 and ClipC from 00:00:18:00 to 00:00:20:00. An interval of 60 is specified. Thus, a single job will be created for ClipA and ClipB, since the end of ClipA is less than 60 seconds from the start of ClipB, and the 30 second gap between the shots will be filled with Black. However, since the start of ClipC is more than 60 seconds from the end of ClipB, ClipC will be submitted by itself, as a second, single job.

Camera Variables and Logging Settings

Generate Variables. Check each item that you want assigned to a variable for use in downstream actions, and select the variable to use. The metadata items vary, depending on the camera file format you are processing.

Clip Name: The base name of the file, or the first file in the clip, if stitching.

Shoot Start Date: The date/time stamp of the file, or the first file in the clip, if stitching.

Shoot End Date: The date/time stamp of the file, or the last file in the clip, if stitching.

SOM: The starting timecode of the clip. In a job which comprises multiple shots, the SOM always corresponds to the SOM value of the first clip in the shot - the earliest SOM.

Subfolder: When the target is a network directory, the folder structure between the monitored location and the location that is unique to a camera format. This value will be null when camera files are store directly in the monitored folder.

Subfolder Path: When the target is a network directory, the fully-qualified path down to the lowest subfolder that is not unique to the camera format.

The goal of publishing the Subfolder and Subfolder path variables is to provide the name of the folder or folders, as well as the fully-qualified path of the shot or shots being transcoded (and possibly stitched) for use in downstream actions that may need to operate on these files. These values will generally not include the underlying file structure of the camera file system.

Logging. To log activity on this action, check Log Activity and specify the directory where you want the action to write log files, optionally specifying a file name pattern. The information includes information about why certain files were not submitted. For example, a Canon-configured Camera Ingest action would log an error if a C300 clip was encountered which did not have SOM material.

This also provides a complete history of all files that have been submitted. You can use this information to compare it against producer notes and make sure that all shots have been accounted for and processed.

Subfolder and Subfolder Path Variables Examples

The following examples illustrate the values of the Subfolder and Subfolder Path variables in various situations.

Note: In Card Reader Mode (P2 Only), the Camera Ingest action reads the card drives directly and thus folders have no meaning. As a result, the Subfolder Path and Subfolder variables are not enabled.

One Job Per Shot

In this example, submission mode is set to One Job Per Shot and the action is set to look in subfolders. The Camera Ingest action target directory is C:\IN\ and you provide one of the following folder structures, which may contain multiple shots:

C:\IN\HurricaneSandy\XDROOT\... for Sony XDCAM clips, where XDROOT is part of the Sony file system

C:\IN\HurricaneSandy\BPAV\... for Sony MP4 clips, where BPAV is part of the Sony file system

C:\IN\HurricaneSandy\CONTENTS\... for Panasonic clips, where CONTENTS is part of the Panasonic file system

C:\IN\HurricaneSandy\CONTENTS\... for Canon MXF clips, where CONTENTS\CLIPS001 is part of the Canon file system

C:\IN\HurricaneSandy\... for Canon or GoPro MP4 files where they are simply located in the directory without file system structure

The action publishes these values in the Subfolder and Subfolder Path variables for each shot being transcoded:

Subfolder: HurricaneSandy

Subfolder Path: C:\IN\HurricaneSandy\

Nested Subfolders

Nested subfolders return the entire subfolder structure, as shown in this example. Submission mode is set to One Job Per Shot and Look in Subfolders is enabled. The target folder is C:\IN\ and you provide this structure:

C:\IN\Week23\Monday\HurricaneSandy\XDROOT\... for Sony XDCAM clips, where XDROOT is part of the Sony file system and may contain multiple shots

The action publishes these values in the Subfolder and Subfolder Path variables for each shot being transcoded:

Subfolder: Week23\Monday\HurricaneSandy

Subfolder Path: C:\IN\Week23\Monday\HurricaneSandy\

Stitching

When stitching shots (Submission mode is set to Stitch Shots or Time-align Shots), the common *root* subfolder and subfolders (if any) for the shots being stitched is published in Subfolder. The fully-qualified path down to the lowest common folder is published in Subfolder Path.

Each of these examples also describe what the Clip Name variable is set to, assuming that Content Name is set to Subfolder name.

Example #1

In this first example, the target is C:\IN\ Shots Included is set to All Shots Found, and Look in Subfolders is enabled. You provide the following directory structure:

C:\IN\Week23\Monday\HurricaneSandy\XDROOT\...

C:\IN\Week23\Monday\CountyFair\XDROOT\...

The action submits one job, which stitches both HurricaneSandy and CountyFair clips, because both are subfolders of \Monday.

The action publishes these values in the Subfolder, Subfolder Path, and Content Name variables:

Subfolder: Week23\Monday

Subfolder Path: C:\IN\Week23\Monday\

Clip Name: Monday.

Example #2

In this second example, a different directory structure exists:

C:\IN\Week23\Monday\HurricaneSandy\XDROOT\...

C:\IN\Week23\Monday\CountyFair\XDROOT\...

C:\IN\Week23\Tuesday\CarCrash\XDROOT\...

In this case, the action again submits one job, which stitches the HurricaneSandy, CountyFair, and CarCrash clips as expected, because all are subfolders of \Monday.

The highest common path is \Week23, so the action publishes these values in the Subfolder, Subfolder Path, and Content Name variables:

Subfolder: Week23

Subfolder Path: C:\IN\Week23\

Clip Name: Week23.

Example #3

In this example, a third directory structure exists:

C:\IN\Week23\Monday\HurricaneSandy\XDROOT\...

C:\IN\Week23\Monday\CountyFair\XDROOT\...

C:\IN\Week42\XDROOT\...

In this case, the action again submits one job, which stitches the HurricaneSandy, CountyFair, and Week42 clips as expected; all are subfolders of \Monday.

However, the highest common path in this example is the root folder, so the action publishes these values in the Subfolder, Subfolder Path, and Content Name variables (note that subfolder is empty):

Subfolder:

Subfolder Path: C:\IN\

Clip Name: IN.

Example #4

In this example, the target directory is again C:\IN\, but Shots Included is set to All Shots in Subfolder. The following directory structure exists:

C:\IN\Week23\Monday\HurricaneSandy\XDROOT\...

C:\IN\Week23\Monday\CountyFair\XDROOT\...

C:\IN\Week23\Tuesday\CarCrash\XDROOT\...

In this case, the action submits three jobs - one each for HurricaneSandy, CountyFair, and CarCrash.

The action publishes these values in the Subfolder, Subfolder Path, and Content Name variables:

For the HurricaneSandy job...

Subfolder: Week23\Monday\HurricaneSandy

Subfolder Path: C:\IN\Week23\Monday\HurricaneSandy\

Content Name: HurricaneSandy

For the CountyFair job...

Subfolder: Week23\Monday\CountyFair

Subfolder Path: C:\IN\Week23\Monday\CountyFair\

Content Name: CountyFair

For the CarCrash job...

Subfolder: Week23\Tuesday\CarCrash

Subfolder Path: C:\IN\Week23\Tuesday\CarCrash\

Content Name: CarCrash

Canon Camera Detector

The Canon Camera Detector component identifies and processes media files created on Canon cameras - specifically 5D Mark II, Mark II, C200, C300, and XF cameras. The Canon Camera detector can ingest either MOV or MXF files, which are typically in a DCIM (for MOV) or a CONTENTS (for MXF) directory structure on the camera.

The Canon Camera Detector provides the ability to identify and process the structure of Canon clips, associate them based upon the rules of the file system component, and then submit jobs for processing by Vantage.

A Canon clip is either a single file or a sequence of files created when the media was originally recorded on the camera. The Canon Camera Detector determines whether a clip is comprised of a single file or multiple files (a spanned clip).

The Canon Camera Detector monitors the specified Windows directory for existing or new media files.

Detection Mode

Select which type of file system to monitor:

Network Folder. When checked, the monitor polls the specified server and directory, including portable hard drives, for new media files.

Camera Card Reader. When checked, specify the number of slots in the card reader. The monitor polls the specified card reader directly, for new media files, detecting insertions and removal, processing new files on insertion.

Drive Selector

Use this panel to select the drive letter assigned to the card reader slot.

Drives to Watch. For each drive specified, select the drive letter assigned to each card reader.

Note: Unlike a network directory, when a card is removed and re-inserted, it is treated as a new card and any shots on that card as new. This is true whether the operator ejects a card and inserts the same card or a different card.

GoPro Camera Detector

The GoPro Camera Detector is responsible for processing MP4 files from GoPro cameras.

Files which do not include Start of material (SOM) Time code cannot be stitched in Time-align mode. This affects GoPro files recorded at 48, 80, 90, 120, and 240 fps. Stitching will be performed using normal stitching (Stitch shots), instead. In this case, the stitching order of the clips is determined by the incrementing filename (for example: GOPRO601 > GOPRO602 > GOPRO603). The SOM attribute is omitted from the .smil files.

For files that do include SOM time code, stitching modes function normally - the same as the other Camera Ingest formats.

Grass Valley File Detector

Select Grass Valley to display a list of file systems that you can select and configure to poll for new files. When a new file is detected, a job is submitted for processing using this workflow.

Select Grass Valley when you want to select and configure the action to poll directories on FTP, SFTP, HTTP, and Windows file systems for new Grass Valley files. The list of file systems displayed is dependent on the components licensed and installed in this Vantage domain.

Inspector Wizard

Configuration is specific to the selected file system. For details about the selected file system, click M in the toolbar to display the context-sensitive help page. For details about each control in the panel, hover the mouse over the control to display roll-over text describing how to use the control.

Select one of the displayed file detectors and click Next to continue.

Grass Valley File Detector Settings

Configure the Grass Valley settings to submit new files for processing according to your requirements.

New Files

A file is considered new if at least one of the following conditions is met:

- The file was not present on server during the last scan

- The size of the file has changed during the scan counts specified

- The modification date of the file has changed since last scan.

A new file is submitted when both of the following conditions are met:

- The size of the file has not changed during the scan counts specified

- The modification date of the file has not changed during the scan counts specified.

Inspector Wizard

Nickname. Specifies the nickname to assign to the specified file, which you can use to reference this file in all subsequent actions in the workflow.

Cycle and Count. Determines how many seconds occur between polls, and how many polls the file must remain at the same size before being submitted (ensure that the file system has closed new files after writing is complete).

Process Existing Files. Indicates that you want the workflow to process all existing media in the specified directory that has not yet been processed. For example, if this is the first time that a workflow has been put into production, you may want all media files submitted the first time.

Look in Subfolders. Indicates that you want all sub-folders in the target location to be polled for new media as well.

Optionally, enter one or more folder name filtering patterns in the Accept and Reject fields. Patterns are not case sensitive and no spaces are allowed anywhere in the field. If you must use spaces in folder names, use a ? as needed to filter them. Patterns can contain literal characters, plus the standard wild card characters ? and *. Multiple patterns are separated by the | (OR bar).

If you do not enter patterns in either field, all files are submitted, provided they are filtered by the optional File Match Pattern, if enabled.

If the path does not match the Accept filter or the path matches a Reject pattern, then it and all of its subfolders are rejected.

When you enter a pattern in either field, the pattern always processes it against the full path - the baseline path of the watch folder implicitly via wildcards or explicitly with a

literal string - plus any additional pattern. The baseline watch folder is always processed for files, regardless of the pattern entered.

Do not include a trailing backslash (\) at the end of patterns. Doing so causes the filter to not match the intended folder, and the folder is excluded from processing.

To filter sub-folders for processing, enter one pattern for each folder.

For example:

Your folder structure is `D:\Watch\Folder1\Subfolder1` and your Accept pattern is `*\Folder1\Subfolder1`.

Vantage will not process `Subfolder1`, because `Folder1` does not match the pattern.

To process `Subfolder1`, you must also accept its parent by entering one pattern for each folder. For example:
`D:\Watch\Folder1|D:\Watch\Folder1\SubFolder1`.

The wildcard * character represents any series of characters within a folder name. For example, `*\Folder1` may be used to filter the baseline watch folder `D:\Watch\Folder1\SubFolder1` to process files in `Folder1`. Here, sub-folders under `Folder1` (`SubFolder1`) are not processed. To process a given sub-folder, it must be part of the literal or via the * wildcard character. To process all sub-folders, end the string with *: `*\Folder1*`, for example.

The wildcard ? character provides more focused filtering - it represents any single character within a folder name. For example, `D:\Watch\Folder??` may be used to filter the baseline watch folder for any folders with 2 characters at the end of the word: `Folder01`, `Folder02`, and `Folder03`, for example.

Send Offline Notification Emails. Indicates that you want an email sent to the administrator when this Watch action fails.

File Match Pattern. Limits file selection to files that adhere to the specified pattern. Select Accept or Reject, and enter one or more patterns, separated by an OR bar (|). No spaces are allowed. To accept all files, do not enter a pattern.

Filename patterns are not case sensitive. They can contain the standard wild card characters ? and * and can include multiple patterns, separated by the | (OR bar) character. For example, to filter files having an MPEG extension, enter **.mpg*. To filter all files having extension .fpk, enter **.fpk*.

To filter all files beginning with the letters TESTBARS or containing the word BLACK, enter TESTBARS* | *BLACK*.

To filter files by a single character, use the ? wild card character. You can use the ? repeatedly; one for each wildcard character. For example, to filter all MXF files with the same root name plus a four-character sequence, enter *Clip????.mxf*.

Generate Variables. Check File Name and select the text variable that you want assigned the fully-qualified path and filename of the file for this job.

Active Only and Active Days (for Watch actions). Controls the times and/or days when the monitor is active and accepts jobs. Specifies the start and end time on a daily basis, as measured by the service's host computer clock. Also specifies the selected days when the monitor is active.

Harris/LXF File Detector

The Harris/LXF File Detector displays a list of file systems that you can select and configure to poll for new files. When a new file is detected, a job is submitted for processing using this workflow.

The list of file systems displayed is dependent on the components licensed and installed in this Vantage domain.

Select the Harris/LXF Detector when you want to select and configure the action to poll directories on FTP, SFTP, HTTP, Nexio, and Windows file systems for new files.

Inspector Wizard

Configuration is specific to the selected file system. For details about the selected file system, click M in the toolbar to display the context-sensitive help page. For details about each control in the panel, hover the mouse over the control to display roll-over text describing how to use the control.

Select one of the displayed file detectors and click Next to continue.

Harris/LXF File Detector Settings

Configure the Harris/LXF detector to poll a user-specified LXF WANStreamer server for media files. When a new file is detected on the server; a job is automatically submitted to be processed by the workflow.

New Files

A file is considered new if at least one of the following conditions is met:

- The file was not present on server during the last scan

- The size of the file has changed during the scan counts specified

- The modification date of the file has changed since last scan.

A new file is submitted when both of the following conditions are met:

- The size of the file has not changed during the scan counts specified

- The modification date of the file has not changed during the scan counts specified.

Inspector Wizard

Nickname. Specifies the nickname to assign to the specified file, which you can use to reference this file in all subsequent actions in the workflow.

Cycle and Count. Determines how many seconds occur between polls, and how many polls the file must remain at the same size before being submitted.

Process Existing Files. Indicates that you want the workflow to process all existing media in the specified directory that has not yet been processed. For example, if this is the first time that a workflow has been put into production, you may want all media files submitted the first time.

Send Offline Notification Emails. Indicates that you want an email sent to the administrator when this Watch action fails.

File Match Pattern. Specifies all suffix acceptance options that apply.

Generate Variables. Check File Name and select the text variable that you want assigned the fully-qualified path and filename of the file for this job.

Active Only and Active Days (for Watch actions). Controls the times and/or days when the monitor is active and accepts jobs. Specifies the start and end time on a daily basis, as measured by the service's host computer clock. Also specifies the selected days when the monitor is active.

Image Sequence File Detector

The Image Sequence File Detector enables you to select a Windows server and directory, and configure the Watch to poll for a new folder containing a set of DPX image sequence files.

When a new set of files is detected, a job is submitted with an auto-generated reference file for processing in a Flip action, using this workflow.

Inspector Wizard

File configuration is for the Windows file system. For details, click M in the toolbar to display the context-sensitive help page. For details about each control in these panels, hover the mouse over the control to display roll-over text describing how to use the control.

Select the Windows File System and click Next to continue.

Image Sequence File Detector Settings

Configure the Image Sequence File Detector to poll a user-specified Windows server location for a set of DPX image sequence files in a folder, as specified by these settings.

A sequence is defined as a series of single-frame files in a folder, where the pattern is <BaseName>.<Index>.<extension>, where only the index changes. The Image Sequence File Detector processes all of the frames (or some of the frames, for a subclip) in that folder. The base name is used as the job name.

The Image Sequence File Detector will submit a new job for each time the Basename in this pattern changes within the same directory.

If a sequence has any other name pattern (<Index>.<extension> or just <Index>), then the folder can only have one set of images. The containing folder name is used as the job name.

Note: If an image sequence does not include a BaseName, then the sequence must be placed in a subfolder of the folder being monitored.

Inspector Wizard

Nickname. Specifies the nickname to assign to the reference file, which you can use to reference this file in all subsequent actions in the workflow.

Frame Timeout. Determines how long the detector will continue looking for new frames, when you activate the monitor (or the monitor is already active) prior to starting the generation of a new image sequence. The time-out period determines how long the detector waits for the next frame in the sequence. If the next frame does not arrive within the time-out period, the clip is considered complete and a job will be submitted.

Submit Immediately. Only check when processing an image sequence that can be processed in real time. That is, the sequence of files are being written to the sequence folder quicker than the frame time-out limit.

Send Offline Notification Emails. Indicates that you want an email sent to the administrator when this Watch action fails.

Process Existing Files. Indicates that you want the workflow to process all existing media in the specified directory that has not yet been processed. For example, if this is the first time that a workflow has been put into production, you may want all media files submitted the first time.

Enable Subclip. Specifies that the clip is derived from a subset of images in the sequence - activates the next two controls:

- Start. Specifies the number of frames in the sequence to skip prior to the start of the subclip. The next succeeding clip is essentially the mark-in point.

- Duration. Specifies the duration of the subclip in frames. The last clip is essentially the mark-out point.

Sequence Frame Rate. Specifies the frame rate for this sequence, in frames per second.

File Match Pattern. Limits file selection to files that adhere to the specified pattern. and enter one or more patterns, separated by an OR bar (|) in Select Accept or Reject text fields. No spaces are allowed. To accept all files, do not enter a pattern.

Filename patterns are not case sensitive. They can contain the standard wild card characters ? and * and can include multiple patterns, separated by the | (OR bar) character. For example, to filter all files having an MPEG extension, enter **.mpg*. To filter all DPX files for the Bering Sea clip, enter *BeringSea.*.dpx*.

To filter all files beginning with the letters TESTBARS or containing the word BLACK, enter *TESTBARS* | *BLACK**.

To filter files by a single character, use the ? wild card character. You can use the ? repeatedly; one for each wildcard character. For example, to filter all the DPX files in a specific version or edit of a clip (BeringSea) with a two-character edit version (??), enter *BeringSea_??.*.dpx*.

Generate Variables. Check File Name and select the text variable that you want assigned the fully-qualified path and filename of the file for this job.

MediaStream File Detector

Select MediaStream to display a list of file systems that you can select and configure to poll for new files. When a new file is detected, a job is submitted for processing using this workflow.

Select MediaStream when you want to select and configure the action to poll directories on FTP, SFTP, HTTP, and Windows file systems for new Mediastream files. The list of file systems displayed is dependent on the components licensed and installed in this Vantage domain.

Inspector Wizard

Configuration of each file system is specific to the selected file system. For details about the selected file system, click M in the toolbar. For details about each control in the panel, hover the mouse over the control to display roll-over text describing how to use the control.

Select one of the displayed file system detectors and click Next to continue.

MediaStream File Detector Settings

Configure the MediaStream settings to submit new files for processing according to your requirements.

New Files

A file is considered new if at least one of the following conditions is met:

- The file was not present on server during the last scan

- The size of the file has changed during the scan counts specified

- The modification date of the file has changed since last scan.

A new file is submitted when both of the following conditions are met:

- The size of the file has not changed during the scan counts specified

- The modification date of the file has not changed during the scan counts specified.

Inspector Wizard

Nickname. Specifies the nickname to assign to the specified file, which you can use to reference this file in all subsequent actions in the workflow.

Cycle and Count. Determines how many seconds occur between polls, and how many polls the file must remain at the same size before being submitted (to ensure that the file system has closed new files after writing is complete).

Process Existing Files. Indicates that you want the workflow to process all existing media in the specified directory that has not yet been processed. For example, if this is the first time that a workflow has been put into production, you may want all media files submitted the first time.

Send Offline Notification Emails. Indicates that you want an email sent to the administrator when this Watch action fails.

File Match Pattern. Limits file selection to files that adhere to the specified pattern. Select Accept or Reject, and enter one or more patterns, separated by an OR bar (|). No spaces are allowed. To accept all files, do not enter a pattern.

Filename patterns are not case sensitive. They can contain the standard wild card characters ? and * and can include multiple patterns, separated by the | (OR bar) character. For example, to filter files having an MPEG extension, enter **.mpg*. To filter all files having extension .fpk, enter **.fpk*.

To filter all files beginning with the letters TESTBARS or containing the word BLACK, enter TESTBARS* | *BLACK*.

To filter files by a single character, use the ? wild card character. You can use the ? repeatedly; one for each wildcard character. For example, to filter all MXF files with the same root name plus a four-character sequence, enter *Clip????.mxf*.

Generate Variables. Check File Name and select the text variable that you want assigned the fully-qualified path and filename of the file for this job.

Active Only and Active Days (for Watch actions). Controls the times and/or days when the monitor is active and accepts jobs. Specifies the start and end time on a daily basis, as measured by the service's host computer clock. Also specifies the selected days when the monitor is active.

Network Path Selector

Use this panel to specify the target to monitor for media files.

Path to Watch. Enter the fully-qualified path to the Windows server and directory, or click Browse to navigate to and select the server and directory. Telestream recommends the use of UNC paths to assure access to the file. Only use local paths when both the Camera Ingest action and any other actions reading the media (such as a transcode action) are located on the same computer, with access to the same local path.

Note: If the network drive goes off-line, when it comes back online, the Camera Ingest action will scan it again to determine if any new shots have been placed in the directory during the off-line period.

Omneon File Detector

Select Omneon when you want to select and configure the action to poll directories on supported file systems for new Omneon files. The file systems displayed is dependent on the components licensed and installed in this Vantage domain.

You can also set chroma, aspect ratio, video type and frame rate acceptance filtering options.

When a new file is detected, a job is submitted for processing in this workflow. The Omneon File Detector automatically copies all necessary files and preserves the correct directory structure.

Inspector Wizard

Configuration is specific to the selected file system.

Windows

The Omneon Windows Server Watch action regularly polls a shared folder on a user-specified Omneon MediaDirector server, using Windows networking. The Omneon Server detector may be used for any type of Omneon file (reference or self-contained).

The reference filename must match its corresponding video and audio files, because this Watch action does not explicitly read the reference file. Instead, it attempts to identify the video and audio files by matching the file name of the reference file.

FTP/S3

The Omneon FTP/S3 Server Watch action should ONLY be utilized for Omneon Reference movies (MOV files). This Watch action can also process files in situations where the reference file name does not match the names of its video and audio files, because this Watch action reads the reference file to determine the video and audio files.

Omneon File Detector Settings

Configure Omneon settings to submit new files for processing according to your requirements.

New Files

A file is considered new if at least one of the following conditions is met:

- The file was not present on server during the last scan

- The size of the file has changed during the scan counts specified

- The modification date of the file has changed since last scan.

A new file is submitted when both of the following conditions are met:

- The size of the file has not changed during the scan counts specified

- The modification date of the file has not changed during the scan counts specified.

Inspector Wizard

Nickname. Specifies the nickname to assign to the specified file, which you can use to reference this file in all subsequent actions in the workflow.

Cycle and Count. Determines how many seconds occur between polls, and how many polls the file must remain at the same size before being submitted.

Look in Subfolders. Indicates that you want all sub-folders in the target location to be polled for new media as well.

Send Offline Notification Emails. Indicates that you want an email sent to the administrator when this Watch action fails.

Process Existing Files. Indicates how you want the workflow to process media in the specified directory that has not yet been processed: All | Limit to Last <period of time> | Since Last Workflow Deactivation.

File Match Pattern. Limits file selection to files that adhere to the specified pattern. Enter one or more patterns in the Accept and/or Reject fields, separated by an OR bar (|). No spaces are allowed. To accept all files, do not enter a pattern.

Filename patterns are not case sensitive. They can contain the standard wild card characters ? and * and can include multiple patterns, separated by the | (OR bar) character. For example, to process (accept) only files having an MXF extension, enter **.mxf* in Accept. To process all files beginning with the letters TESTBARS or containing the word BLACK, enter TESTBARS* | *BLACK*. To filter out (reject) all files having an FPK extension , enter **.fpk* in Reject.

To filter files by a single character, use the ? wild card character. You can use the ? repeatedly; one for each wildcard character. For example, to filter all MXF files with the same root name plus a four-character sequence, enter *Clip????.mxf*.

Generate Variables. Check each type of metadata you want to generate and select the variable that you want assigned the value for this job.

Active Only and Active Days (for Watch actions). Controls the times and/or days when the monitor is active and accepts jobs. Specifies the start and end time on a daily basis, as measured by the service's host computer clock. Also specifies the selected days when the monitor is active.

Next. Click Next to proceed to the next panel.

Select Acceptance Filtering Options. Uncheck Chroma | Aspect Ratio | Video Type \ Frame Rate when you want to process only files with certain attributes. For each category, check those attribute values that must be present for files you want processed.

Oracle Listener

The Oracle Listener plugin monitors the cloud-based Oracle Queue service and generates jobs from received messages.

Note: A single Vantage Listen action may service any single queue. Telestream advises against using multiple Vantage Listen actions to monitor a single queue as a subset of jobs will be created for each.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration

Configure these controls to receive messages from the Oracle Queue service in Oracle Cloud. Obtain keys from your Oracle Queue administrator.

This feature utilizes the Oracle API, which requires configuration and user credentials to allow access. You can obtain values for these parameters from the OCI console, which requires an OCI account.

Region. (Required) Specifies the location where the Oracle system is hosted.

User ID. (Required) Specifies the Oracle User OCID.

Tenant ID. (Required) Specifies the OCID of the Oracle account tenancy.

Queue ID. (Required) Specifies the OCID of the target queue.

Fingerprint. (Required) Specifies the Oracle API fingerprint of the public key added to the account used by Vantage for OCI Queue API access.

Private Key. (Required) Oracle API private key added to the account used by Vantage for OCI Queue API access.

Job Name Attribute. Specifies the job name from the value of this field - the message attribute.

Received Message

Select output options for use in downstream actions.

Generate Attachment. Specify attachment to be generated which contains message data.

Generate Variable. When checked, allows specification of a text variable which contains message data. Unchecked by default.

Next and Finish. Click Next, then click Finish to save your action and close the inspector.

P2 File Detector

Note: The P2 Watch action has limitations in file format, stitching, and card reading. It is included for backward compatibility, for customers who are currently using it. For new P2 file processing implementations, please use the Camera Ingest option for ingesting P2 media.

Select P2 to select and configure this action to poll a Windows file system for new files. When a new file is detected, a job is submitted for processing using this workflow.

Vantage uses the contents of the XML file to process the associated media files. For this reason, the XML file should only be copied into the target folder after all the media files have been copied.

Selecting P2 allows users to process media from their Panasonic P2 camera/memory drive/player/recorder or other P2 device. The Watch action can be configured to ingest from a network share pointing to a directly-attached device, or by copying the CONTENT folder into the Watch action's target share on a network server.

The P2 option checks the current directory, then checks for a CONTENTS\CLIP sub-directory. If not found, it walks up the file system tree following the same procedure. If it reaches the root, it then checks each drive for a <Drive>:\CONTENTS\CLIP directory before terminating.

Direct access to the P2 card is preferred, however you can copy the folders from any mounted CONTENTS directory (AUDIO, CLIP, IXMLCON, PROXY, VIDEO, VOICE) into the target folder being polled. The CLIP directory should be copied last, because it has the XML files in it.

Inspector Wizard

For details about configuring this action for the Windows file system, click M in the inspector toolbar. For details about each control in the panel, hover the mouse over the control to display roll-over text describing how to use the control.

Select Windows File System and click Next to continue.

P2 Detector

The P2 Detector is responsible for identifying new files in the target directory, and processing them. Panasonic P2 AVC-Intra, AVC-Ultra XML/MXF, and Lumix GH5 file detection are supported.

P2 storage cards are used by many Panasonic cameras. Each shot on P2 storage has a single XML file which defines the shot and has supporting media files containing video and audio. Panasonic cameras support both AVC-Intra and AVC-Ultra MXF video codecs. For different cameras, the directory structure is fundamentally the same but there may be differences in the XML syntax, depending upon which camera is used.

When a Panasonic P2 Detector is specified, workflows can process media from a Panasonic P2 camera/memory drive/player/recorder or other P2 device. The Camera Ingest action can be configured to ingest from a directly-attached card reader, or by copying the CONTENT folder into the target local folder on the local Vantage server or into a share folder on a network-accessible Windows server.

When reading from a card reader, Vantage accesses P2 cards as mounted individual drives identified by drive letter; multiple P2 cards may be presented at the same time (for example, the AJ-HPM200 card reader may present five drives, one for each card). Older Panasonic cameras impose a 4GB limit on file sizes, so a single shot may span multiple files. A single shot may also span multiple cards. Vantage will reconcile spanned clips but does require that all cards are available at the same time before the job can be submitted, and requires that cards remain available until the media has finished being copied locally or processed.

When reading from a network folder, when a new XML file is detected in the monitored folder, a job is automatically submitted. Vantage uses the contents of the XML file to process the associated media files. Spanned clips will be reconciled across multiple subfolders, allowing you to copy the contents of multiple cards to a network folder without keeping cards in the card reader during processing.

P2 File Detector Settings

Configure P2 settings to submit new files for processing according to your requirements.

New Files

A file is considered new if at least one of the following conditions is met:

- The file was not present on server during the last scan

- The size of the file has changed during the scan counts specified

- The modification date of the file has changed since last scan.

A new file is submitted when both of the following conditions are met:

- The size of the file has not changed during the scan counts specified

- The modification date of the file has not changed during the scan counts specified.

Inspector Wizard

Nickname. Specifies the nickname to assign to the specified file, which you can use to reference this file in all subsequent actions in the workflow.

Cycle and Count. Determines how many seconds occur between polls, and how many polls the file must remain at the same size before being submitted.

Look in Subfolders. Indicates that you want all sub-folders in the target location to be polled for new media as well.

Optionally, enter one or more folder name filtering patterns in the Accept and Reject fields. Patterns are not case sensitive and no spaces are allowed anywhere in the field. If you must use spaces in folder names, use a ? as needed to filter them. Patterns can contain literal characters, plus the standard wild card characters ? and *. Multiple patterns are separated by the | (OR bar).

If you do not enter patterns in either field, all files are submitted, provided they are filtered by the optional File Match Pattern, if enabled.

If the path does not match the Accept filter or the path matches a Reject pattern, then it and all of its subfolders are rejected.

When you enter a pattern in either field, the pattern always processes it against the full path - the baseline path of the watch folder implicitly via wildcards or explicitly with a literal string - plus any additional pattern. The baseline watch folder is always processed for files, regardless of the pattern entered.

Do not include a trailing backslash (\) at the end of patterns. Doing so causes the filter to not match the intended folder, and the folder is excluded from processing.

To filter sub-folders for processing, enter one pattern for each folder.

For example:

Your folder structure is `D:\Watch\Folder1\Subfolder1` and your Accept pattern is `*\Folder1\Subfolder1`.

Vantage will not process `Subfolder1`, because `Folder1` does not match the pattern.

To process `Subfolder1`, you must also accept its parent by entering one pattern for each folder. For example:
`D:\Watch\Folder1|D:\Watch\Folder1\SubFolder1`.

The wildcard * character represents any series of characters within a folder name. For example, `*\Folder1` may be used to filter the baseline watch folder `D:\Watch\Folder1\SubFolder1` to process files in `Folder1`. Here, sub-folders under `Folder1` (`SubFolder1`) are not processed. To process a given sub-folder, it must be part of the literal or via the * wildcard character. To process all sub-folders, end the string with *: `*\Folder1*`, for example.

The wildcard ? character provides more focused filtering - it represents any single character within a folder name. For example, `D:\Watch\Folder??` may be used to filter the baseline watch folder for any folders with 2 characters at the end of the word: `Folder01`, `Folder02`, and `Folder03`, for example.

Send Offline Notification Emails. Indicates that you want an email sent to the administrator when this Watch action fails.

Generate Variables. Check File Name and select the text variable that you want assigned the fully-qualified path and filename of the file for this job.

Active Only and Active Days (for Watch actions). Controls the times and/or days when the monitor is active and accepts jobs. Specifies the start and end time on a daily basis, as measured by the service's host computer clock. Also specifies the selected days when the monitor is active.

RED R3D Camera Detector

The RED R3D Digital Cinema Camera Detector component identifies and processes media files created on RED WEAPON, SCARLET-W, EPIC-W, and RAVEN cameras.

The RED R3D Camera detector ingests R3D files, which are typically in a folder which ends in *.RDC (Red Digital Clip). These clip folders in turn exist within a *.RDM (RED Digital MAG) directory.

The Camera Ingest action also extracts the following clip metadata from the R3D filename: Camera Letter, Reel Number, and Take Number. Because these metadata properties are presented in the file name, this action rejects clips which do not conform to the standard RED file name structure.

The RED R3D Camera Detector monitors the specified Windows directory for existing or new media files.

SeaChange BML File Detector

Select SeaChange BML to poll the root directory on the user-specified BML FTP server for media files. When a new media file is detected in the monitored folder a job is automatically submitted for processing with this workflow. The BML FTP server should not be protected with a username and password

Inspector Wizard

For details about configuring this action for the FTP file system, click M in the inspector toolbar. For details about each control in the panel, hover the mouse over the control to display roll-over text describing how to use the control.

Select SeaChange BML and click Next to continue.

SeaChange BML Detector Settings

Configure the SeaChange BML File Detector settings to submit new files for processing according to your requirements.

New Files

A file is considered new if at least one of the following conditions is met:

- The file was not present on server during the last scan

- The size of the file has changed during the scan counts specified

- The modification date of the file has changed since last scan.

A new file is submitted when both of the following conditions are met:

- The size of the file has not changed during the scan counts specified

- The modification date of the file has not changed during the scan counts specified.

Inspector Wizard

Nickname. Specifies nickname to assign to the specified file, which you can use to reference this file in all subsequent actions in the workflow.

Cycle and Count. Determines how many seconds occur between polls, and how many polls the file must remain at the same size before being submitted.

Look in Subfolders. Indicates that you want all sub-folders in the target location to be polled for new media as well.

Send Offline Notification Emails. Indicates that you want an email sent to the administrator when this Watch action fails.

Generate Variables. Check File Name and select the text variable that you want assigned the fully-qualified path and filename of the file for this job.

Active Only and Active Days (for Watch actions). Controls the times and/or days when the monitor is active and accepts jobs. Specifies the start and end time on a daily basis, as measured by the service's host computer clock. Also specifies the selected days when the monitor is active.

Sony Camera Detector

The Sony Camera Detector is responsible for processing media from Sony cameras. The supported formats are XDCAM, XDCAM EX, XAVC (MXF files), and XAVC-S (MP4 files).

XDCAM and XDCAM EX format content is created in a directory structure containing BPAV\CLPR files. The Sony Camera Detector examines this directory structure to identify XDCAM/XDCAM EX clips. Therefore, when copying XDCAM or XDCAM EX files into a Windows directory that is a watch folder, the directory structure must be preserved. To watch for XDCAM and XDCAM EX files, the file accept pattern should be configured to look for *.SMI files.

XAVC format content is stored in a directory structure containing XDROOT\Clip files, and the component examines this directory structure to identify XAVC clips. Therefore, when copying XAVC files into a Windows directory that is a watch folder, this directory structure must be preserved. To watch for XAVC files, the file accept pattern should be configured to look for *.XML files.

XAVC-S format content is stored in a directory structure containing M4ROOT\Clip files, and the component examines this directory structure to identify XAVC-S clips. Therefore, when copying XAVC-S files into a Windows directory that is a watch folder, this directory structure must be preserved. To watch for XAVC-S files, the file accept pattern should be configured to look for *.XML files.

Note: When using a Flip action for transcoding XAVC and XAVC-S clips, you must enable the Use SMIL SOM Timecode option to obtain the start timecode of the clip for the encoded output media file.

Sony clips may be spanned across multiple media files. The Sony Camera Detector determines which media files are part of the same clip and submits them as a single clip.

Vantage Telestream Media Framework Filters

Audio Filters

Audio Fade In/Out Filter

Audio Fade In/Out Filter (Flip64)

Audio Levels Filter

Audio Offset Filter

Audio Overlay Filter

Speed Adjustment Filter

Channel Designation Filter

Dolby E Decoding Filter

Dolby Vision HEVC Filter (Flip64)

Dolby Vision HEVC Filter (Multiscreen)

Kantar Watermarking Filter

Kantar Watermarking Filter (Flip64)

NexGuard Audio Watermark Filter (Flip64)

NexGuard Audio Watermark Filter (IPTV)

Nielsen ID3 Filter (Multiscreen Flip)

Nielsen Watermarking Filter (Flip)

Nielsen Watermarking Filter (Flip64)

- *Nielsen Watermarking Filter Program Content Application*
- *Nielsen Watermarking Filter Commercial Content Application*
- *Nielsen Watermarking Filter RT VOD Application*

Nielsen Watermarking Filter (IPTV)

- *Nielsen Watermarking Program Content Application*

Nielsen Watermarking RT VOD Application

Nielsen Pre-Rendering Watermarking Filter (Flip64)

Nielsen Watermarking V3 Filter (Flip64)

Nielsen Watermarking V3 CommID Application

Nielsen Watermarking V3 Comm CC Application

Nielsen Watermarking V3 VOD (Program) Application

Nielsen Watermarking RT VOD Application

Nielsen Watermarking V3 Linear (Pre-Render) Application

Insert Audio Filter

Insert Silence Filter

Sample Rate Filter

Video Filters

Alpha Mask Filter

Blur Filter

Blur Filter (Flip64)

Chroma Settings Filter

Closed Caption Burn-in Filter

Color Clipping Filter

Colorfront Filter

Color Lookup Table Filter (IPTV)

Color Lookup Table Filter (Flip64)

Dolby Vision HDR to SDR Conversion Filter

Legacy Lookup Table Filter

Legacy Color Space Filter

Color Space Filter

Color Space Filter (Flip64)

Contrast Filter

Copy Generation Management Filter

Custom Cadence Video Filter

Fade In/Out Filter

Frame Rate Conversion Filter

Gamma Correction Filter

Grayscale Image Filter

Image Overlay Filter (IPTV and Multiscreen)

Image Overlay Filter (Flip64)

Image Processing Filter

Insert Black Filter

Insert Video Filter

Interlacing Rules Filter

Metadata Processing Filter

Metadata Processing Filter (Multiscreen)

Metadata Processing Filter (IPTV)

NexGuard Video Watermark Filter (Conform)

NexGuard Video Watermark Filter (Flip64)

NexGuard Video Watermark Filter (IPTV)

NexGuard(JWT license)Watermark Filter (Conform)

NexGuard(JWT license)Watermark Filter (Flip64)

NexGuard Streaming Watermark Filter (Multiscreen)

Noise Reduction Filter

Open Subtitle Overlay Filter

Precision Dithering Filter

Resizing Filter

Saturation Filter (Flip 64)

Sharpen Filter

Teletrax Watermark Filter

Teletrax Watermark Filter (Flip64)

Text Overlay Filter (Flip64)

Time Code Burn-in Filter

User Data Filter

Video File Overlay Filter

Video File Overlay Filter (Flip64)

Video Overlay Filter

Allow Video Processor Bypass Filter

ANC Filters

Active Format Description Filter (Flip64)

Active Format Description Filter (IPTV and Multiscreen)

Closed Caption Processing Filter (IPTV and Flip64)

Closed Caption Processing Filter (Multiscreen)

Content Advisory Filter

Direct Convert Settings Filter (Flip64)

Time Code Processing Filter

Audio Fade In/Out Filter

The Audio Fade In/Fade Out filter enables you to fade in audio at the start of the file, and fade the audio out at the end. Specify the time of each fade in seconds.

Fade In Duration | Fade Out Duration. Specifies the duration of the fade, in seconds.

Audio Fade In/Out Filter (Flip64)

The Audio Fade In/Fade Out filter in Flip64 enables you to fade in audio at the start of the file, and fade the audio out at the end. Specify the duration and shape of each fade.

Fade In Duration. Specifies the duration of the fade in measured in seconds.

Fade In Shape. Specifies the shape of the fade in as linear (default) or logarithmic.

Fade Out Duration. Specifies the duration of the fade out measured in seconds.

Fade Out Shape. Specifies the shape of the fade out as linear (default) or logarithmic.

Audio Levels Filter

The Audio Levels filter enables automatic adjustment of output audio levels.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Manual Master Gain Adjustment

When using the Master Gain Adjustment option, the output levels are adjusted by the specified amount.

Loudness Adjustment

The Loudness Adjustment option is generally used in conjunction with the results generated by the Advanced Audio Measurement filter in the Analyze action and passed to this filter via variables.

Add New Item. When using the Loudness Adjustment option, add new loudness adjustment items to enable automatic adjustment of groups of output channels.

For each channel group item you add, configure these settings:

Apply To Channels. A comma-separated list of channels to which the loudness adjustment will be applied. For example: *1,2,3,4,5,6*. A range of channels can also be specified with a hyphen, so that *1-6* is functionally equivalent to *1,2,3,4,5,6*.

Source Loudness. The measured loudness of the source file. Typically this is bound to a Relative Gated Loudness variable generated by the Advanced Audio Measurement filter.

Target Loudness. The desired target loudness for the output file.

Apply Peak Limits. Check to use Peak Limiting. If unchecked, the Source Peak and Peak Limit parameters are ignored. When the peak limit option is checked, peak limiting may override the loudness correction in circumstances where a positive loudness adjustment is applied.

For example: If Source Loudness = -28dB and Target Loudness = -23dB then +5dB of loudness adjustment is required. If the Source Peak is -6dB and the Peak Limit is -3dB then applying a +5dB gain correction results in a peak of the output of -1dB, which is 2dB above the specified limit. In this case, only +3dB of loudness adjustment will be applied, ensuring that the peak does not exceed the specified limit. The loudness of the output in this case will not reach the required target of -23dB and will only be adjusted to -25dB.

Note: The peak limit is only applied in the case of a positive loudness adjustment. In the case that a negative loudness adjustment is required the peak limit parameters will be ignored.

Apply Peak Limits to Negative Gain. Check to apply peak limiting to negative gain. If unchecked, the Source Peak and Peak Limit parameters are ignored. When the peak limiting to negative gain option is checked, peak limiting may override the loudness correction in circumstances where a negative peak adjustment is applied. Unchecked by default.

Source Peak. The true peak volume of the source file. Typically this is bound to the True Peak variable generated by the Advanced Audio Measurement filter.

Peak Limit. The peak that should not be exceeded in the event of a positive loudness adjustment.

Use Dialog Based Measurement. When checked, Dialog Loudness is primarily used in place of Source Loudness to calculate the loudness adjustment. If Use Dialog Based Measurements is unchecked, the subsequent Dialog parameters in the interface are ignored.

Source Dialog Percentage. The percentage of dialog present in the source. Typically this is bound to a Dialog Percentage variable generated by the Advanced Audio Measurement filter.

Minimum Dialog Threshold. If Source Dialog percentage is greater than the Minimum Dialog Threshold, then the Source Dialog Loudness is used in place of Source Loudness to calculate the required loudness adjustment. If Source Dialog percentage is less than the Minimum Dialog Threshold, then the Source Loudness is used.

Source Dialog Loudness. The loudness of the dialog in the source. Typically this is bound to a Dialog Loudness variable generated by the Advanced Audio Measurement filter.

Audio Offset Filter

The Audio Offset filter enables you to adjust the alignment of the audio track in the output in order to counteract sync issues caused by encoders.

When adjusting the audio forward in the output (so that audio is later than video), silent audio is added to the beginning of the audio and the end of the audio is trimmed. When moving audio backward (so that audio is earlier than video), silent audio is added to the end and the beginning of the audio is trimmed.

Offset. Specifies a positive value (max. 100 ms) or a negative value (min -100 ms) to offset the audio by in the output video.

Note: If you have not measured the adjustment required, you can estimate the number of frames and use this value to calculate the offset in milliseconds. Use the formula: ms offset = (Number of Frames/FPS) * 1000.

For example, you estimate that the audio has an offset of approximately 3 frames which you want to correct. The video frame rate is 29.97 frames per second. Thus, a 100 millisecond offset is required: (3 / 29.97) *1000 = 100 ms.

Audio Overlay Filter

The Audio Overlay filter replaces the audio stream on which the filter is applied with another stream during transcoding. The file containing the stream you want to use as the overlay must be specified by an Input in the action.

If the overlay is shorter than the base video, the overlay stops at the end of the overlay track. It does not truncate the base video. If the overlay is longer, it is cropped at the end of the duration of the base video.

If there are more channels in the overlay than in the base, they are added to the base. If there less channels in the overlay than the base, the excess base channels are dropped.

Overlay Start Time. Specifies the timecode for the target audio insertion in the output media.

Stream. Specifies the name of the audio stream to be used as the overlay.

Speed Adjustment Filter

The Speed Adjustment filter is primarily intended for changing the audio speed when doing conversions between 24 fps and 25 fps (hence the default is 24 fps) to match changes in your video frame rate.

The Speed Adjustment filter is typically used in conjunction with the Frame Rate Conversion filter, configured to Use Original Frames. This frame rate conversion method enables you to easily change frame rates by minutely changing the duration of the content, and re-timing the audio to match the change in duration using the Speed Adjustment filter.

Any source or output frame rate between 1 fps and 100 fps is permitted, enabling you to speed up or slow down the audio up to 100 times. Decimal numbers can be manually entered, such as 29.97 or 23.976.

Source Frame Rate. Specifies the video frame rate of the source media.

Output Frame Rate. Specifies the output video frame rate, indicating how to adjust the audio stream to match.

Enable Pitch Correction. When checked, enables pitch correction to maintain the original audio tone, when the file duration is made shorter or longer. If pitch correction is not enabled when changing the file duration, the pitch will drop for longer file duration or rise for shorter file duration.

For example, a 16-second source file with a 1000 Hz tone frequency is converted from 24 fps to 25 fps, reducing the duration:

- Conversion: 24 fps to 25 fps
- New Duration: 15.36 seconds
- Tone Frequency with Pitch Correction enabled: 1000 Hz
- Tone Frequency with Pitch Correction disabled: 1043 Hz

In another example, the same 16-second source file is converted from 25 fps to 24 fps, thus lengthening the duration:

Conversion: 25 fps to 24 fps

- New Duration: 16.66 seconds
- Tone Frequency with Pitch Correction enabled: 1000 Hz
- Tone Frequency with Pitch Correction disabled: 960 Hz

Channel Designation Filter

The Channel Designation Filter is used to define speaker labels for output channels within the selected track. The speaker designation for each channel can be bound to variables so that they can be replicated from upstream analysis of the input media.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Labels Channel 1... Channel 16

Select a label from the menu to associate it with a given channel, and pass it to downstream actions via the specified variable.

Dolby E Decoding Filter

The Dolby E Decoding filter decodes Dolby into a specified channel configuration.

Dolby E decoding is performed on an audio stereo pair. The Channel Map Filter should be used to determine which input channels within the input stream represent the Left and Right portions of the Dolby E audio.

For example, if you have an input audio stream containing 8 PCM audio channels, and Dolby E is present on channels 7 and 8, then you should configure the Channel Map Filter as follows:

Channel 7: Left

Channel 8: Right

Channel Configuration. Dolby E may contain up to four individual programs. The Channel Configuration filter allows you to indicate which Dolby E configuration is expected, and to select which programs should be encoded in this Transcoder.

Selections include 7.1, 5.1, variations of 5.1 plus 2.0, and variations of dual (2x) and quad (4x) stereo 2.0.

For example, suppose that your Dolby E audio contains two programs: a 5.1 English program and a 2.0 German program. If you want the Transcoder to encode the German program in addition to the English program, then you would select the 5.1 + 2.0 (L4 R4) configuration.

Alternatively, suppose that your Dolby E audio contains four programs: French (1), Spanish (2), English (3), and Korean (4). In this case, if you want the Transcoder to encode the English program, you would select the channel configuration 4 x 2.0 (L3, R3), which outputs the English program in quad (4x) stereo (2.0).

Dolby Vision HEVC Filter (Flip64)

The Dolby Vision HEVC filter in Flip64 encodes video in MXF J2K format with interleaved Dolby Vision metadata | MXF J2K + XMF metadata sidecar | ProRes + XML sidecar into a Dolby Vision HDR HEVC-compliant MP4 file that is suitable for playback on a Dolby Vision TV/monitor.

Dolby Vision Profile. Specifies the ID of the Dolby Vision bitstream profile to utilize.

- **Profile 5**. (Default) Uses proprietary color space and can only be decoded by a display device that supports Dolby Vision.
- **Profile 8.1**. Compatible with HDR/HDR10 using the BT.2020 color space. Can be displayed on devices that support HDR/HDR10 or Dolby Vision.

Note: Content Mapping Control is only in effect when Profile 8.1 is selected.

Content Mapping Method. Specify the content mapping method to utilize.

- **None**. (Default) Content mapping is not applied to the HDR10-compatible signal. Depending on the source peak nit level, clipping may occur on HDR devices without Dolby Vision.
- **Dynamic**. Creates 1,000 nits peak HDR10-compatible signal by applying dynamic content mapping to the source. This mode is optimized for quality to maintain creative intent when performing content mapping.

Max Processing Frame Size. Set maximum number of frames to store in memory for Dolby Vision preprocessing. This allows for memory usage control. The size must not be smaller than the encoding GOP size setting.

The following settings must be used together. When checked, they allow for overwriting the MaxCLL and MaxFALL (L6 metadata) values present in the incoming interleaved mezzanine or sidecar xml metadata.

Max Content Light Level (MaxCLL). Integer metadata value (in nits-cd/m^2) specifying the static HDR metadata value that corresponds to the brightest pixel in the entire in the entire stream.

Maximum Frame Average Light Level (MaxFALL). Integer metadata value (in nits-cd/m^2) specifying the static HDR metadata value that corresponds to the highest frame-average brightness per frame in the entire stream.

Note: MaxCLL and MaxFALL values are specific to Dolby Vision Level 6 metadata in both Profile 5 and Profile 8.1. For Profile 8.1, the setting of MaxCLL/MaxFALL in the SEI message can be overwritten via the HDR Metadata. In most cases, Dolby Vision Level 6 MaxCLL/MaxFALL and SEI message MaxCLL/MaxFALL values will be the same.

Dolby Vision HEVC Filter (Multiscreen)

The Dolby Vision HEVC filter in Multiscreen encodes video in MXF J2K format with interleaved Dolby Vision metadata | MXF J2K + XMF metadata sidecar | ProRes + XML sidecar into a Dolby Vision HDR HEVC-compliant MP4 file that is suitable for playback on a Dolby Vision TV/monitor. Dolby Vision Signaling is supported for MPEG-DASH, Apple HLS, ATS and CMAF outputs.

Note: The Color Space Filter must also be enabled in order to use the Dolby Vision HEVC Filter.

Stream. Specifies the Dolby Vision Metadata input stream to use.

Max Processing Frame Size. Set maximum number of frames to store in memory for Dolby Vision preprocessing. This allows for memory usage control. The size must not be smaller than the encoding GOP size setting.

The following settings must be used together. When checked, they allow for over-writing the MaxCLL and MaxFALL (L6 metadata) values present in the incoming interleaved mezzanine or sidecar xml metadata.

Max Content Light Level (MaxCLL). Integer metadata value (in nits-cd/m^2) specifying the static HDR metadata value that corresponds to the brightest pixel in the entire in the entire stream.

Maximum Frame Average Light Level (MaxFALL). Integer metadata value (in nits-cd/m^2) specifying the static HDR metadata value that corresponds to the highest frame-average brightness per frame in the entire stream.

Note: MaxCLL and MaxFALL values are specific to Dolby Vision Level 6 metadata in Profile 5.

Dolby Vision Profile. Specifies the ID of the Dolby Vision bitstream profile to utilize.

- *Profile 5*. (Default) Uses proprietary color space and can only be decoded by a display device that supports Dolby Vision.

- *Profile 8.1*. Compatible with HDR/HDR10 using the BT.2020 color space. Can be displayed on devices that support HDR/HDR10 or Dolby Vision. When selected, configure this control:

  Content Mapping Method. Specify the content mapping method to utilize.

  - *None*. (Default) Content mapping is not applied to the HDR10-compatible signal. Depending on the source peak nit level, clipping may occur on HDR devices without Dolby Vision.

  - *Dynamic*. Creates 1,000 nits peak HDR10-compatible signal by applying dynamic content mapping to the source. This mode is optimized for quality to maintain creative intent when performing content mapping.

Note: Selections in the Content Mapping Control are only applicable when Profile 8.1 is used.

Kantar Watermarking Filter (Flip64)

The Kantar Watermarking filter inserts Kantar Media audio watermarks in your media during transcoding, for audience measurement via compatible systems such as Mediametrie.

File duration of the input file is calculated automatically and presented as metadata 10 in the metadata xml file that is generated by Kantar. To specify file duration automatically, specify the XML file in metadata selection > Metadata File. To specify manually, Select Metadata Selection > Metadata Manual Entry, then check File Duration and specify the duration in seconds.

The use of the Kantar Watermarking filter is an optional, licensed feature in Vantage.

Note: In order to obtain a watermarking embedding license, please contact Kantar Media support at www.kantarmedia.com/watermarkinghelpdesk with the following information:
• Product name and version
• Customer name
• Country
• If different, country of broadcast
• Channel(s) to be watermarked
• Customer internal name for the hardware platform
• Authorisation Code for each hardware or login contact for online solution.

Watermarking Method. Specifies the type of watermark: SNAP. No other options are available.

License File Directory. Enter or browse to select the directory where the Kantar Watermarking license file is located. This field is required when using the Offline Authorization Code License mode.

Audience License File Directory. Enter or browse to select the directory where the Kantar Watermarking audience license file is located. This field is required when using the Offline Authorization Code License mode.

Embedding Report Path or Attachment. Check to provide, and check File Nickname | File Path and configure. The report file contains information about the watermarking process.

> **File Nickname**. Enable to specify the file by nickname and assign a nickname for use downstream. Use this option when the file changes for each job.
>
> **File Name**. Enable to manually enter or browse and select the fully-qualified path to the file. The service that executes this action must have access to the file location. You can use this option when you want to assign a static file, which is used for every job. If you assign a variable, the variable must be assigned the fully-qualified path and file name in an upstream action so that you can change the file for each job.

Online Watermark License Credentials. When enabled, allows you to configure the credentials (Online Login, Online Password, and Online License ID) to use the Kantar Online License mode, rather than the Offline Authorization Code License mode. This can be used for on premise jobs and Vantage Cloud jobs.

Note: Online Watermark License Credentials are required for use of Kantar Watermarking in Cloud mode.

Metadata Selection

Select Metadata File | Metadata Manual Entry and configure:

Metadata File. Select Metadata File to utilize.

Metadata File Location. Manually enter or browse to set the fully-qualified metadata file location. This is the location of the metadata file that contains the content identifier, channel name, file duration, and other optional metadata. The Metadata File option is not supported for use in Online Licensing mode, which requires use of Metadata Manual Entry instead.

Metadata Manual Entry. Select Metadata Manual Entry to utilize and enter unique and custom metadata.

Unique Content ID. The unique content identifier added in the embedding report. This is required when manual entry is selected.

Channel Name. Enter the channel name to use in the embedding process. This is required when manual entry is selected.

File Duration. Check to specify the file duration in seconds.

Custom Metadata. Click the Add New Item button to add user-defined metadata to the list (maximum 7 user-defined metadata fields) and arrange the list as required.

Kantar Watermarking Filter (IPTV)

The Kantar Watermarking filter enables you to insert Kantar Media audio watermarks in your media during transcoding, for audience measurement via compatible systems such as Mediametrie.

The use of the Kantar Watermarking filter is an optional, licensed feature in Vantage.

Note: In order to obtain a watermarking embedding license, please contact Kantar Media support at www.kantarmedia.com/watermarkinghelpdesk with the following information:
• Product name and version
• Customer name
• Country
• If different, country of broadcast
• Channel(s) to be watermarked
• Customer internal name for the hardware platform
• Authorisation Code for each hardware or login contact for online solution.

Watermarking Method. Specifies the type of watermark: SNAP.

License File Directory. Enter or browse to select the directory where the Kantar Watermarking license file is located. This field is required when using the Offline Authorization Code License mode.

Audience License File Directory. Enter or browse to select the directory where the Kantar Watermarking audience license file is located. This field is required when using the Offline Authorization Code License mode.

Embedding Report Path. Enter or browse to select the report path. The report file contains information about the watermarking process.

Online Watermark License Credentials. When enabled, allows you to configure the credentials to use the Kantar Online License mode, rather than the Offline Authorization Code License mode. This can be used for on premise jobs and Vantage Cloud jobs.

Note: Online Watermark License Credentials are required for use of Kantar Watermarking in Cloud mode.

Metadata Selection

Metadata File. Select Metadata File and then browse to set the metadata file location. This is the location of the metadata file that contains the content identifier, channel name, and other optional metadata. The Metadata File option is not supported for use with Online Licensing mode and requires use of Metadata Manual Entry instead.

File duration is calculated and presented as metadata 10 in the XML file generated by Kantar and may be extracted automatically, when not entered manually, using the Metadata Manual Entry control (following).

Metadata Manual Entry. Select this option to enter unique and custom metadata.

- *Unique Content ID.* The unique content identifier added in the embedding report. This is required when manual entry is selected.

- *Channel Name.* Enter the channel name to use in the embedding process. This is required when manual entry is selected.

- *File Duration.* When checked, sets file duration in seconds. When unchecked (default) actual file duration is used, by extracting it from the XML file specified in the Metadata File control (previous).

- *Custom Metadata.* Click the Add New Item button to add user-defined metadata to the list (max. 7 user-defined metadata fields).

NexGuard Audio Watermark Filter (Flip64)

The NexGuard Audio Watermark filter in Flip64 is an optional, licensed feature implementing the NexGuard Embedder (deprecated), which adds an indelible, invisible pattern to source audio as a watermark so that content owners can protect content by identifying unique copies of their material.

Note: For comprehensive information about using NexGuard filters in Vantage, including suggested workflows, see the *NexGuard Integration Guide* on the Telestream web site.

The NexGuard Audio Watermark filter can only operate when you are using the Multi-core 16-bit or Lightspeed Accelerated video processor.

The NexGuard Audio Watermark filter requires a NexGuard Audio Watermark license from NexGuard, as well as a NexGuard Connector Vantage license from Telestream (the NexGuard Vantage license enables both the video and audio watermark filters).

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

The watermark ID and key are typically provided by an upstream Notify action, configured with a NexGuard Notifier which communicates with NexGuard Manager to obtain these values, and pass them to the Flip64 action via variables. For details, see the help page for the Notify action NexGuard Notifier.

You can provide these values in these ways:

- Statically, by specifying them manually, which remain the same for every job
- Dynamically, via variables
- Using NexGuard Manager.

General

NexGuard Watermark ID. Specifies the watermark (payload) ID that NexGuard should use to generate the watermark. If you aren't using NexGuard Manager or it is temporarily unavailable, provide the watermark ID statically or populate and select the variable.

NexGuard Watermark Key. Specifies the key to use when NexGuard applies the watermark. Select from the list in the menu.

Note: When you are using a machine license in the *Vantage* directory on one server in an array, a race condition may occur where an unlicensed transcode service updates the Vantage database with licensing information after the licensed transcoder service has already done so. In this situation, the NexGuard Watermark filter won't be able to populate the Watermark Key field, requiring you to add it manually.

If the NexGuard Watermark Key is a text field displaying the value *Key 1*, it means that the service was unable to access the license file or that the license information was updated by an unlicensed transcode service. Verify that the license file is valid and in the correct directory, restart the transcode service, and then retry.

NexGuard Audio Watermark Filter (IPTV)

The NexGuard Audio Watermark filter in IPTV is an optional, licensed feature implementing the NexGuard Embedder (deprecated), which adds an indelible, invisible pattern to source audio as a watermark so that content owners can protect content by identifying unique copies of their material.

Note: For comprehensive information about using NexGuard filters in Vantage, including suggested workflows, see the *NexGuard Integration Guide* on the Telestream web site.

The NexGuard Audio Watermark filter can only operate when you are using the Multi-core 16-bit or Lightspeed Accelerated video processor.

The NexGuard Audio Watermark filter requires a NexGuard Audio Watermark license from NexGuard, as well as a NexGuard Connector Vantage license from Telestream (the NexGuard Vantage license enables both the video and audio watermark filters).

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

The watermark ID and key are typically provided by an upstream Notify action, configured with a NexGuard Notifier which communicates with NexGuard Manager to obtain these values, and pass them to the Flip64 action via variables. For details, see the help page for the Notify action NexGuard Notifier.

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General

NexGuard Watermark ID. Specifies the watermark (payload) ID that NexGuard should use to generate the watermark. If you aren't using NexGuard Manager or it is temporarily unavailable, provide the watermark ID statically or populate and select the variable.

NexGuard Watermark Key. Specifies the key to use when NexGuard applies the watermark. Select from the list in the menu.

Note: When you are using a machine license in the *Vantage* directory on one server in an array, a race condition may occur where an unlicensed transcode service updates the Vantage database with licensing information after the licensed transcoder service has already done so. In this situation, the NexGuard Watermark filter won't be able to populate the Watermark Key field, requiring you to add it manually.

If the NexGuard Watermark Key is a text field displaying the value *Key 1*, it means that the service was unable to access the license file or that the license information was updated by an unlicensed transcode service. Verify that the license file is valid and in the correct directory, restart the transcode service, and then retry.

Nielsen ID3 Filter

The Nielsen ID3 filter processes files that have existing Nielsen audio watermarks embedded in the audio stream and converts the watermarks to ID3 metadata tags on the output AAC audio track, for use by downstream adaptive bit-rate (ABR) players which support reading Nielsen metadata.

Watermark Channel. Specifies the audio channel of the incoming media to examine for Nielsen watermarks.

Device ID. Free-form metadata; identifies the program that performed this conversion, or the identity (serial number, domain name or other practical identifying information) of the device/platform/computer that is hosting the conversion process. Example: `Vantage`, or `NYCStudio_Jupiter_17`.

Audio Codec. Free-form metadata; the name of the audio codec used to perform the conversion. For example, `Multiscreen_Flip_AAC`.

Distributor ID. Free-form metadata; the DNS of the MVPD/CDN distributor you are delivering this media to. For example: `www.neptunemusic.com`.

Nielsen Watermarking Filter (Flip64)

This filter is a non-linear, RT VOD watermarking filter for both program content and commercial content. The filter requires access to a SID/TIC Server.

This filter writes metadata, log, and signature files containing information about the transcode and watermarked content for each job, for zipping and delivery to the Nielsen TIC Collection Facility.

The Nielsen Watermarking Filter implements a Nielsen software component that inserts an inaudible sequence of bits periodically into PCM audio streams. The components of the watermark (SID, TIC, and watermarking level) uniquely identify the portion of audio where the watermark is applied and the distribution source to which the audio content is credited.

Note: The use of the Nielsen Watermark filter is an optional, licensed feature. For full details about Nielsen watermarking, see Nielsen documentation. For details about applying Nielsen watermarking in Vantage, see the Nielsen Integration Guide, published on the Telestream web site.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Application Type. Select the application type to utilize and click the appropriate link to view the man page for this application's controls.

Nielsen Watermarking Filter Program Content Application

Note: For Nielsen watermarking in Flip64 workflows, the Audio Mixer must be used when the source contain a different number of audio channels than is defined in the output.

Watermark SID. Nielsen assigns one or more source IDs to each content provider or distribution source. The SID uniquely identifies the distribution source and is included as a component of each watermark.

Nielsen SID/TIC Server IP Address. The IP address of the computer running the Nielsen licensing SID/TIC server system, which is required to run the Nielsen Watermarking. Nielsen must be contacted in order to obtain their licensing SID/TIC server system.

Connection Failure Sleep Time. Retry delay value (in milliseconds) for the connection to the Nielsen SID/TIC server. If a connection attempt fails, Vantage waits the prescribed time until it attempts another connection. Upon failing a second time, the transcode aborts.

TIC Duration. Duration (in seconds) of the source audio. The SID/TIC Server uses the duration to allocate the proper range of TICs.

Nielsen Param Type. Nielsen Watermark Engine. This value can not be changed.

Nielsen Timecode Type. Inserter TIC. This value can not be changed.

Content Type. Program Content, set as specified by Workflow Type selection.

Process Type. Specifies which watermarking process is implemented.

CBET Source ID. Only used when Process Type is set to include the CBET process type. Manually enter a single digit Level Number and 4-digit CBET source ID in hex format with 0x prefix - 0xLXXXX. For example: *0x2123B* for Level 2, 123B CBET source ID. The level number and source ID are separated by the filter for utilization. To bind this control to a variable, utilize a String variable and supply the value in the same format: 0xLXXXX - 0x prefix, single digit level, and 4 digit hex source ID.

EAS Flag. When enabled, allows user to set EAS Flag. Disabled by default.

Distribution Type. Program content codes. Set as specified by Workflow Type selection.

Metadata Fields. Optional, free-form text. Specifies the value of each metadata item.

Decode and Signature. Check to generate signature files (DNA, PAS or both, depending on settings and content). Log files and decode files are also generated. These files are written to the Metadata/Logging Output Directory, specified below.

Metadata and Logging Output. Specifies File Nickname | File Path:

File nickname: Use when you want to use a Deploy action in this workflow to deliver the file to the Nielsen TIC Collection Facility, for example. Select a File nickname for a metadata attachment file. Vantage creates a ZIP file containing metadata, log, and signature output files to a Vantage store (from the perspective of the Vantage domain server). The File nickname specifies the nickname to assign the ZIP file created as an attachment to the binder. Downstream file operation actions can access and operate on the file based on this nickname.

File path: Use when you plan to utilize these files and/or deliver the file to the Nielsen TIC Collection Facility externally or separate from this workflow. Enter or browse to select the directory path - usually a share - which is required if you have a distributed (multi-server) domain. Vantage requires write permission for this directory. The filter generates individual files if you select File path.

The resulting ZIP file can be delivered to the Nielsen TIC Collection Facility via SFTP using the Nielsen File Transfer Manager program, your own custom or commercial file transfer program, or utilizing a Vantage workflow to automate delivery directly in the context of the job.

Nielsen Watermarking Filter Commercial Content Application

Watermark SID. Nielsen assigns one or more source IDs to each content provider or distribution source. The SID uniquely identifies the distribution source and is included as a component of each watermark.

Nielsen SID/TIC Server IP Address. The IP address of the computer hosting the Nielsen SID/TIC server. Use 255.255.255.255 to search for all SID/TIC servers. This is used when a site has redundant SID/TIC servers; the first SID/TIC server to respond is utilized.

Connection Failure Sleep Time. Retry delay value (in milliseconds) for the connection to the Nielsen SID/TIC server. If a connection attempt fails, Vantage waits the prescribed time until it attempts another connection. Upon failing a second time, the transcode aborts.

TIC Duration. Duration (in seconds) of the source audio. The SID/TIC Server uses the duration to allocate the proper range of TICs.

Nielsen Param Type. Nielsen Watermark Engine. This value can not be changed.

Nielsen Timecode Type. Inserter TIC. This value can not be changed.

Content Type. Commercial Content, set as specified by Workflow Type selection. N2HF/NWCC codes are inserted into the program band.

Process Type. Specifies which watermarking process is implemented.

EAS Flag. When enabled, allows user to set EAS Flag. Disabled by default.

Distribution Type. Commercial content codes. Set as specified by Workflow Type selection.

Metadata Fields. Optional, free-form text. Specifies the value of each metadata item.

Decode and Signature. Check to generate signature files (DNA, PAS or both, depending on settings and content). Log files and decode files are also generated. These files are written to the Metadata/Logging Output Directory, specified below.

Metadata and Logging Output. Specifies File Nickname | File Path:

- **File nickname**: Use when you want to use a Deploy action in this workflow to deliver the file to the Nielsen TIC Collection Facility, for example. Select a File nickname for a metadata attachment file. Vantage creates a ZIP file containing metadata, log, and signature output files to a Vantage store (from the perspective of the Vantage domain server). The File nickname specifies the nickname to assign the ZIP file created as an attachment to the binder. Downstream file operation actions can access and operate on the file based on this nickname.
- **File path**: Use when you plan to utilize these files and/or deliver the file to the Nielsen TIC Collection Facility externally or separate from this workflow. Enter or browse to select the directory path—usually a share—which is required if you have

a distributed (multi-server) domain. Vantage requires write permission for this directory. The filter generates individual files if you select File path.

The resulting ZIP file can be delivered to the Nielsen TIC Collection Facility via SFTP using the Nielsen File Transfer Manager program, your own custom or commercial file transfer program, or utilizing a Vantage workflow to automate delivery directly in the context of the job.

Nielsen Watermarking Filter RT VOD Application

Nielsen Param Type. Nielsen Watermark Engine. This value can not be changed.

Nielsen Timecode Type. Inserter TIC. This value can not be changed.

Content Type. Offline Content, set as specified by Workflow Type selection. C3/C7 codes are inserted into the program band.

Watermark Type. C3 | C7. Specifies which watermark flag is implemented.

Metadata Fields. Optional, free-form text. Specifies the value of each metadata item.

Duration. Specifies the duration of the media, in seconds.

Decode and Signature. Check to generate signature files (DNA, PAS or both, depending on settings and content). Log files and decode files are also generated. These files are written to the Metadata/Logging Output Directory, specified below.

Metadata and Logging Output. Specifies File Nickname | File Path:

- **File nickname**: Use when you want to use a Deploy action in this workflow to deliver the file to the Nielsen TIC Collection Facility, for example. Select a File nickname for a metadata attachment file. Vantage creates a ZIP file containing metadata, log, and signature output files to a Vantage store (from the perspective of the Vantage domain server). The File nickname specifies the nickname to assign the ZIP file created as an attachment to the binder. Downstream file operation actions can access and operate on the file based on this nickname.
- **File path**: Use when you plan to utilize these files and/or deliver the file to the Nielsen TIC Collection Facility externally or separate from this workflow. Enter or browse to select the directory path—usually a share—which is required if you have a distributed (multi-server) domain. Vantage requires write permission for this directory. The filter generates individual files if you select File path.

  The resulting ZIP file can be delivered to the Nielsen TIC Collection Facility via SFTP using the Nielsen File Transfer Manager program, your own custom or commercial file transfer program, or utilizing a Vantage workflow to automate delivery directly in the context of the job.

Nielsen Watermarking Filter (IPTV)

This filter is a non-linear, RT VOD watermarking filter for both program content and commercial content. The filter requires access to a SID/TIC Server.

This filter writes metadata, log, and signature files containing information about the transcode and watermarked content for each job, for zipping and delivery to the Nielsen TIC Collection Facility.

Note: The use of the Nielsen Watermark filter is an optional, licensed feature. For full details about the Nielsen watermarking, see the vendor documentation. For full details about using the Nielsen Watermarking Filter with Vantage, see the Nielsen Integration Guide, published on the Telestream web site.

The Nielsen Watermarking Filter implements a Nielsen software component that inserts an inaudible sequence of bits periodically into PCM audio streams. The components of the watermark (SID, TIC, and watermarking level) uniquely identify the portion of audio where the watermark is applied and the distribution source to which the audio content is credited.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Application Type. Select the watermarking application type to utilize.

Nielsen Watermarking Program Content Application

Watermark SID. Nielsen assigns one or more source IDs to each content provider or distribution source. The SID uniquely identifies the distribution source and is included as a component of each watermark.

Nielsen SID/TIC Server IP Address. The IP address of the computer running the Nielsen licensing SID/TIC server system, which is required to run the Nielsen Watermarking. Nielsen must be contacted in order to obtain their licensing SID/TIC server system.

Connection Failure Sleep Time. Retry delay value (in milliseconds) for the connection to the Nielsen SID/TIC server. If a connection attempt fails, Vantage waits the prescribed time until it attempts another connection. Upon failing a second time, the transcode aborts.

TIC Duration. Duration (in seconds) of the source audio. The SID/TIC Server uses the duration to allocate the proper range of TICs.

Nielsen Param Type. Nielsen Watermark Engine. This value can not be changed.

Nielsen Timecode Type. Inserter TIC. This value can not be changed.

Content Type. Program Content, set as specified by Workflow Type selection.

Process Type. Specifies which watermarking process is implemented.

CBET Source ID. Only used when Process Type is set to include the CBET process type. Manually enter a single digit Level Number and 4-digit CBET source ID in hex format with 0x prefix - 0xLXXXX. For example: *0x2123B* for Level 2, 123B CBET source ID. The level number and source ID are separated by the filter for utilization. To bind this control to a variable, utilize a String variable and supply the value in the same format: 0xLXXXX - 0x prefix, single digit level, and 4 digit hex source ID.

EAS Flag. When enabled, allows user to set EAS Flag. Disabled by default.

Distribution Type. Program content codes. Set as specified by Workflow Type selection.

Metadata Fields. Optional, free-form text. Specifies the value of each metadata item.

Decode and Signature. Check to generate signature files (DNA, PAS or both, depending on settings and content). Log files and decode files are also generated. These files are written to the Metadata/Logging Output Directory, specified below.

Metadata and Logging Output. Specifies File Nickname | File Path:

> **File nickname**: Use when you want to use a Deploy action in this workflow to deliver the file to the Nielsen TIC Collection Facility, for example. Select a File nickname for a metadata attachment file. Vantage creates a ZIP file containing metadata, log, and signature output files to a Vantage store (from the perspective of the Vantage domain server). The File nickname specifies the nickname to assign the ZIP

file created as an attachment to the binder. Downstream file operation actions can access and operate on the file based on this nickname.

File path: Use when you plan to utilize these files and/or deliver the file to the Nielsen TIC Collection Facility externally or separate from this workflow. Enter or browse to select the directory path - usually a share - which is required if you have a distributed (multi-server) domain. Vantage requires write permission for this directory. The filter generates individual files if you select File path.

The resulting ZIP file can be delivered to the Nielsen TIC Collection Facility via SFTP using the Nielsen File Transfer Manager program, your own custom or commercial file transfer program, or utilizing a Vantage workflow to automate delivery directly in the context of the job.

Nielsen Watermarking Commercial Content Application

Watermark SID. Nielsen assigns one or more source IDs to each content provider or distribution source. The SID uniquely identifies the distribution source and is included as a component of each watermark.

Nielsen SID/TIC Server IP Address. The IP address of the computer hosting the Nielsen SID/TIC server. Use 255.255.255.255 to search for all SID/TIC servers. This is used when a site has redundant SID/TIC servers; the first SID/TIC server to respond is utilized.

Connection Failure Sleep Time. Retry delay value (in milliseconds) for the connection to the Nielsen SID/TIC server. If a connection attempt fails, Vantage waits the prescribed time until it attempts another connection. Upon failing a second time, the transcode aborts.

TIC Duration. Duration (in seconds) of the source audio. The SID/TIC Server uses the duration to allocate the proper range of TICs.

Nielsen Param Type. Nielsen Watermark Engine. This value can not be changed.

Nielsen Timecode Type. Inserter TIC. This value can not be changed.

Content Type. Commercial Content, set as specified by Workflow Type selection. N2HF/NWCC codes are inserted into the program band.

Process Type. Specifies which watermarking process is implemented.

EAS Flag. When enabled, allows user to set EAS Flag. Disabled by default.

Distribution Type. Commercial content codes. Set as specified by Workflow Type selection.

Metadata Fields. Optional, free-form text. Specifies the value of each metadata item.

Decode and Signature. Check to generate signature files (DNA, PAS or both, depending on settings and content). Log files and decode files are also generated. These files are written to the Metadata/Logging Output Directory, specified below.

Metadata and Logging Output. Specifies File Nickname | File Path:

- **File nickname**: Use when you want to use a Deploy action in this workflow to deliver the file to the Nielsen TIC Collection Facility, for example. Select a File nickname for a metadata attachment file. Vantage creates a ZIP file containing metadata, log, and signature output files to a Vantage store (from the perspective of the Vantage domain server). The File nickname specifies the nickname to assign the ZIP file created as an attachment to the binder. Downstream file operation actions can access and operate on the file based on this nickname.
- **File path**: Use when you plan to utilize these files and/or deliver the file to the Nielsen TIC Collection Facility externally or separate from this workflow. Enter or browse to select the directory path—usually a share—which is required if you have

a distributed (multi-server) domain. Vantage requires write permission for this directory. The filter generates individual files if you select File path.

The resulting ZIP file can be delivered to the Nielsen TIC Collection Facility via SFTP using the Nielsen File Transfer Manager program, your own custom or commercial file transfer program, or utilizing a Vantage workflow to automate delivery directly in the context of the job.

Nielsen Watermarking RT VOD Application

Nielsen Param Type. Nielsen Watermark Engine. This value can not be changed.

Nielsen Timecode Type. Inserter TIC. This value can not be changed.

Content Type. Offline Content, set as specified by Workflow Type selection. C3/C7 codes are inserted into the program band.

Watermark Type. C3 | C7. Specifies which watermark flag is implemented.

Metadata Fields. Optional, free-form text. Specifies the value of each metadata item.

Duration. Specifies the duration of the media, in seconds.

Decode and Signature. Check to generate signature files (DNA, PAS or both, depending on settings and content). Log files and decode files are also generated. These files are written to the Metadata/Logging Output Directory, specified below.

Metadata and Logging Output. Specifies File Nickname | File Path:

- **File nickname**: Use when you want to use a Deploy action in this workflow to deliver the file to the Nielsen TIC Collection Facility, for example. Select a File nickname for a metadata attachment file. Vantage creates a ZIP file containing metadata, log, and signature output files to a Vantage store (from the perspective of the Vantage domain server). The File nickname specifies the nickname to assign the ZIP file created as an attachment to the binder. Downstream file operation actions can access and operate on the file based on this nickname.
- **File path**: Use when you plan to utilize these files and/or deliver the file to the Nielsen TIC Collection Facility externally or separate from this workflow. Enter or browse to select the directory path—usually a share—which is required if you have a distributed (multi-server) domain. Vantage requires write permission for this directory. The filter generates individual files if you select File path.

  The resulting ZIP file can be delivered to the Nielsen TIC Collection Facility via SFTP using the Nielsen File Transfer Manager program, your own custom or commercial file transfer program, or utilizing a Vantage workflow to automate delivery directly in the context of the job.

Nielsen Pre-Rendering Watermarking Filter

The Nielsen Pre-Rendering Watermarking filter is a Nielsen software component that inserts an inaudible sequence of bits periodically into audio streams. The components of the watermark such as Source Identification (SID), watermarking level, etc. uniquely identify the portion of audio from which the watermark is extracted and the distribution source to which the audio content is credited.

The Nielsen Pre-Rendering Watermark filter writes metadata, log, and signature output files containing information about the transcode and the watermarked content. These files are automatically bundled into a zip file and processed according to the workflow type specified.

Note: Typically, the Nielsen Pre-Rendering Watermark filter is used in conjunction with upstream Cloud Utility actions. The Cloud Utility action features various plugins that interact with a Cloud based SDK providing Nielsen SID reservation and TIC parametric data which are used as variable inputs for downstream action configurations such as Flip64 Nielsen Watermarking transcodes. The use of the Nielsen Pre-Rendering Watermark filter is an optional, licensed feature. For full details about Nielsen Watermark products, see the vendor documentation. For full details about using the Nielsen Pre-Rendering Watermarking Filter, see the relevant Telestream app note found at www.telestream.net.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Workflow Type. Specifies the type of watermarking to apply. Pre-Encode is the only option.

Nielsen Param Type. This value can not be changed. The default selection is Nielsen Watermark Engine.

Process Type. Choose N2 and NW (default) | CBET | N2, NW, and CBET. Specifies the Nielsen technology, including the frequency spectrum, utilized when inserting watermarks.

Distribution Type. Specifies watermarking level. Options are Program-content codes (default) | Final-distributor codes.

Insertion Type. This value can not be changed. The default selection is Watermark Insert.

CBET EAS Off. When enabled, CBET watermarking engine will not encode Emergency Alert System (EAS) alerts. Disabled by default.

CBET Step Aside. When enabled, will NOT overwrite previous encoding on the same layer. Disabled by default.

Metadata Fields. Optional, free-form strings. Specifies the value of each metadata item. OEM Application Name should be *Vantage*, and OEM Application Version should be the version of Vantage you are using.

Decode and Signature. Select to generate signature files (DNA, PAS or both, depending on settings and content). Log files and decode files are also generated. These files are written to the specified Metadata/Logging Output Directory.

Metadata/Logging Output Directory. Select File Nickname | File Name:

- File nickname: Use when you want to use a Deploy action to deliver the file to the Nielsen TIC Collection Facility via a Deploy action, for example. Select a File nickname for a metadata attachment file. Vantage creates a ZIP file containing metadata, log, and signature output files to a Vantage store (from the perspective of the Vantage domain server). The File nickname specifies the nickname to assign the ZIP file created as an attachment to the binder. Downstream file operation actions can access and operate on the file based on this nickname.
- File path: Enter or browse to select the directory path—usually a share—which is required if you have a distributed (multi-server) domain. Vantage requires write permission for this directory. The filter generates individual files if you select File path.

  The resulting ZIP file can be delivered to the Nielsen TIC Collection Facility via SFTP using the Nielsen File Transfer Manager program, your own custom or commercial file transfer program, or utilizing a Vantage workflow to automate delivery directly in the context of the job.

Encoding Time

Broadcast UTC Date/Time. UTC Date/Time in yyyy-MM-ddTHH:mm:ss format. For example, 2020-06-15T19:45:22.

Is Broadcast Time Zone Different from Processing Time Zone

When enabled, allows specification of positive or negative timecode offset. This feature is used when the time zone for broadcast is different than the time zone where the file was processed. For example, if a file is intended for broadcast in New York (UTC -4) but was processed in San Francisco (UTC -7), a +3 hour value must be applied. Disabled by default.

Daylight Savings in Effect in Broadcast Location. When enabled, specifies that seasonal Daylight Savings time is in effect at the Broadcast location. Disabled by default.

Check Digit Parameters

SID. Nielsen assigns one or more SIDs to each content provider or distribution source. The SID uniquely identifies the content provider / distribution source and is included as a component of each watermark. Default value is 0.

SID Check digit. Corresponds to the SID. If the check digit string does not match the SID, the authenticator does not permit watermarking with the SID.

CBET ID. Optional - unique Nielsen CBET source ID.

CBET Check Digit. Corresponds to the CBET ID. If the check digit string does not match the CBET ID, the authenticator does not permit watermarking with the CBET ID.

Nielsen Watermarking V3 Filter (Flip64)

The Nielsen Watermarking V3 Filter combines the functionality of the original Nielsen Watermarking Filter and the Nielsen Pre-Rendering Watermarking Filter into one filter. It is implemented in the Flip64 action.

This filter supports both linear and non-linear watermarking. The Nielsen V3 filter utilizes a SID/TIC server when you are producing VOD, Commercial (CC), and Commercial ID content.

In the linear, pre-render application, you can use this filter to watermark content prior to initial show air time. The filter pre-allocates and adds Nielsen watermarks to content using time stamps from the time and date that the content will actually go to air, using the cloud-based SRS (SID Reservation System) to generate the SID and timestamp for pre-rendered content.

In non-linear applications, this filter watermarks program content and commercial content using a local /TIC server. RT VOD (C3 | C7) watermarks are only applied to pre-watermarked media. RT VOD flags cannot be applied to any of the following:

- Clean (non-watermarked) content
- Fully-encoded content (where all Nielsen Watermarks slots are filled)
- Content with pre-existing RT VOD flags

This filter writes metadata, log, and signature files containing information about the transcode and watermarked content. These files are automatically bundled into a zip file and processed externally to Vantage, according to the application type specified.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Application Type. Select the watermarking application type to utilize.

Nielsen Watermarking V3 CommID Application

Client ID. Nielsen-assigned 4-digit integer identifier for commercial identification. This is utilized in place of the SID in Commercial (CC) application watermarks.

Nielsen SID/TIC Server IP Address. The IP address of the computer hosting the Nielsen SID/TIC server. Use 255.255.255.255 to search for all SID/TIC servers. This is used when a site has redundant SID/TIC servers; the first SID/TIC server to respond is utilized.

Connection Failure Sleep Time. Retry delay value (in milliseconds) for the connection to the Nielsen SID/TIC server. If a connection attempt fails, Vantage waits the prescribed time until it attempts another connection. Upon failing a second time, the transcode aborts.

TIC Duration. The SID/TIC Server uses the duration to allocate the proper range of TICs. When enabled, specifies the duration (as an integer value, in seconds) of the source audio. When disabled, the Nielsen Watermarking V3 filter automatically calculates the duration value. You should enable this control when you want to supply the duration to the job, calculate it using an Analyze action, or need to utilize the duration in other actions downstream.

Metadata Fields (multiple). Optional, free-form text. Specifies the value of each metadata item.

Metadata and Logging Output. Select File Nickname | File Path:

- **File nickname**: Use when you want to use a Deploy action in this workflow to deliver the file to the Nielsen TIC Collection Facility, for example. Select a File nickname for a metadata attachment file. Vantage creates a ZIP file containing metadata, log, and signature output files to a Vantage store (from the perspective of the Vantage domain server). The File nickname specifies the nickname to assign the ZIP file created as an attachment to the binder. Downstream file operation actions can access and operate on the file based on this nickname.
- **File path**: Use when you plan to utilize these files and/or deliver the file to the Nielsen TIC Collection Facility externally or separate from this workflow. Enter or browse to select the directory path—usually a share—which is required if you have a distributed (multi-server) domain. Vantage requires write permission for this directory. The filter generates individual files if you select File path.

  The resulting ZIP file can be delivered to the Nielsen TIC Collection Facility via SFTP using the Nielsen File Transfer Manager program, your own custom or commercial file transfer program, or utilizing a Vantage workflow to automate delivery directly in the context of the job.

Nielsen Label and Cluster Mapping

Nielsen Label and Cluster Mapping. Select the desired labeling and cluster mapping method:

- Auto. Used when the input audio stream has 8 channels or less and all channels are in the same cluster. There are no user-configurable controls. Channels 4, 5, and 6 are not watermarked with N6 or CBET watermarks.

- Manual. Specify when the input audio stream has more than 8 channels—and thus, requires more than one cluster—or you require multiple clusters even if there are 8 channels or less. For example, your source files may have 4 stereo pairs and each stereo pair is in its own cluster. Or, a 12-channel stream containing three separate audio programs can be organized into 3 clusters.

You can create multiple audio clusters with a maximum of 8 channels to support different types of audio channel layouts in input source content. Create and configure each channel with a label and a cluster number.

Add New Item. When method is set to Manual, click Add New Item for each channel, and configure it:

Channel Number. Identifies the channel number being mapped for this item.

Label. Specifies the channel label to use for this channel during watermarking.

Cluster Number. Specifies the watermark cluster number for this channel. Do not assign more than 8 channels to a given cluster.

Cluster Mapping Guidelines

- Clusters may only contain 1, 2, 6, or 8 channels. In order to watermark four channels (for example, a pair of stereo channels) use two clusters of two channels each. Clusters consisting of 3, 4, 5, or 7 channels are not supported.
- When watermarking 6 or 8 channels, channels 4, 5 and 6 (Low Frequency Effects, Left Surround and Right Surround) are not watermarked with N6 or CBET watermarks. This is true for both Auto and Manual mapping. In Manual mode, changing label names will not cause channels 4, 5 and 6 to be watermarked, either.

Nielsen Watermarking V3 Comm CC Application

Source ID. Nielsen-assigned 4-digit integer source identifier for commercial identification and encoding.

Nielsen SID/TIC Server IP Address. The IP address of the computer hosting the Nielsen SID/TIC server. Use 255.255.255.255 to search for all SID/TIC servers. This is used when a site has redundant SID/TIC servers; the first SID/TIC server to respond is utilized.

Connection Failure Sleep Time. Retry delay value (in milliseconds) for the connection to the Nielsen SID/TIC server. If a connection attempt fails, Vantage waits the prescribed time until it attempts another connection. Upon failing a second time, the transcode aborts.

Process Type. Specifies that N2+NW Nielsen technology, including the frequency spectrum, is utilized when inserting watermarks. Not user-configurable.

TIC Duration. The SID/TIC Server uses the duration to allocate the proper range of TICs. When enabled, specifies the duration (as an integer value, in seconds) of the source audio. When disabled, the Nielsen Watermarking V3 filter automatically calculates the duration value. You should only enable this control when you want to supply the duration to the job, calculate it using an Analyze action, or need to utilize the duration in other actions downstream.

Metadata Fields (multiple). Optional, free-form text. Specifies the value of each metadata item.

Metadata and Logging Output. Select File Nickname | File Path:

- **File nickname**: Use when you want to use a Deploy action in this workflow to deliver the file to the Nielsen TIC Collection Facility, for example. Select a File nickname for a metadata attachment file. Vantage creates a ZIP file containing metadata, log, and signature output files to a Vantage store (from the perspective of the Vantage domain server). The File nickname specifies the nickname to assign the ZIP file created as an attachment to the binder. Downstream file operation actions can access and operate on the file based on this nickname.
- **File path**: Use when you plan to utilize these files and/or deliver the file to the Nielsen TIC Collection Facility externally or separate from this workflow. Enter or browse to select the directory path—usually a share—which is required if you have a distributed (multi-server) domain. Vantage requires write permission for this directory. The filter generates individual files if you select File path.

  The resulting ZIP file can be delivered to the Nielsen TIC Collection Facility via SFTP using the Nielsen File Transfer Manager program, your own custom or commercial file transfer program, or utilizing a Vantage workflow to automate delivery directly in the context of the job.

Nielsen Label and Cluster Mapping

Nielsen Label and Cluster Mapping. Select the desired labeling and cluster mapping method:

- Auto. Used when the input audio stream has 8 channels or less and all channels are in the same cluster. There are no user-configurable controls. Channels 4, 5, and 6 are not watermarked with N6 or CBET watermarks.

- Manual. Specify when the input audio stream has more than 8 channels—and thus, requires more than one cluster—or you require multiple clusters even if there are 8 channels or less. For example, your source files may have 4 stereo pairs and each stereo pair is in its own cluster. Or, a 12-channel stream containing three separate audio programs can be organized into 3 clusters.

You can create multiple audio clusters with a maximum of 8 channels to support different types of audio channel layouts in input source content. Create and configure each channel with a label and a cluster number.

Add New Item. When method is set to Manual, click Add New Item for each channel, and configure it:

Channel Number. Identifies the channel number being mapped for this item.

Label. Specifies the channel label to use for this channel during watermarking.

Cluster Number. Specifies the watermark cluster number for this channel. Do not assign more than 8 channels to a given cluster.

Cluster Mapping Guidelines

- Clusters may only contain 1, 2, 6, or 8 channels. In order to watermark four channels (for example, a pair of stereo channels) use two clusters of two channels each. Clusters consisting of 3, 4, 5, or 7 channels are not supported.
- When watermarking 6 or 8 channels, channels 4, 5 and 6 (Low Frequency Effects, Left Surround and Right Surround) are not watermarked with N6 or CBET watermarks. This is true for both Auto and Manual mapping. In Manual mode, changing label names will not cause channels 4, 5 and 6 to be watermarked, either.

Nielsen Watermarking V3 VOD (Program) Application

Source ID. Nielsen-assigned 4-digit integer source identifier for identification and encoding.

CBET Source ID (Optional). Specifies the hexadecimal, Nielsen-assigned 4-digit CBET source identifier. For example: `112B`. Do not prefix with 0x when manually supplying a value.

To bind this control to a variable, modify the origin action in your workflow to utilize a text variable and supply the hex CBET source ID value, prefixed with *0x*. For example: `0x112B`. Add a Compute action and configure it to convert the text string to an integer, saving it in an integer variable. The filter automatically converts the integer variable back to hex for utilization.

Nielsen SID/TIC Server IP Address. The IP address of the computer hosting the Nielsen SID/TIC server. Use *255.255.255.255* to search for all SID/TIC servers. This is used when a site has redundant SID/TIC servers; the first SID/TIC server to respond is utilized.

Connection Failure Sleep Time. Retry delay value (in milliseconds) for the connection to the Nielsen SID/TIC server. If a connection attempt fails, Vantage waits the prescribed time until it attempts another connection. Upon failing a second time, the transcode aborts.

TIC Duration. When enabled, specifies duration (in seconds) of the source audio. The SID/TIC Server uses the duration to allocate the proper range of TICs. If disabled, the duration of the source audio is automatically calculated.

Process Type. Specifies which Nielsen technology, including the frequency spectrum, utilized when inserting watermarks. Options are N2 + NW | CBET | N2 + NW + CBET.

Metadata Fields (multiple). Optional, free-form text. Specifies the value of each metadata item.

Metadata and Logging Output. Select File Nickname | File Path:

- File nickname: Use when you want to use a Deploy action to deliver the file to the Nielsen TIC Collection Facility via a Deploy action, for example. Select a File nickname for a metadata attachment file. Vantage creates a ZIP file containing metadata, log, and signature output files to a Vantage store (from the perspective of the Vantage domain server). The File nickname specifies the nickname to assign the ZIP file created as an attachment to the binder. Downstream file operation actions can access and operate on the file based on this nickname.
- File path: Enter or browse to select the directory path—usually a share—which is required if you have a distributed (multi-server) domain. Vantage requires write permission for this directory. The filter generates individual files if you select File path.

  The resulting ZIP file can be delivered to the Nielsen TIC Collection Facility via SFTP using the Nielsen File Transfer Manager program, your own custom or commercial file transfer program, or utilizing a Vantage workflow to automate delivery directly in the context of the job.

Nielsen Label and Cluster Mapping

Nielsen Label and Cluster Mapping. Select the desired labeling and cluster mapping method:

- Auto. Used when the input audio stream has 8 channels or less and all channels are in the same cluster. There are no user-configurable controls. Channels 4, 5, and 6 are not watermarked with N6 or CBET watermarks.

- Manual. Specify when the input audio stream has more than 8 channels—and thus, requires more than one cluster—or you require multiple clusters even if there are 8 channels or less. For example, your source files may have 4 stereo pairs and each stereo pair is in its own cluster. Or, a 12-channel stream containing three separate audio programs can be organized into 3 clusters.

You can create multiple audio clusters with a maximum of 8 channels to support different types of audio channel layouts in input source content. Create and configure each channel with a label and a cluster number.

Add New Item. When method is set to Manual, click Add New Item for each channel, and configure it:

Channel Number. Identifies the channel number being mapped for this item.

Label. Specifies the channel label to use for this channel during watermarking.

Cluster Number. Specifies the watermark cluster number for this channel. Do not assign more than 8 channels to a given cluster.

Cluster Mapping Guidelines

- Clusters may only contain 1, 2, 6, or 8 channels. In order to watermark four channels (for example, a pair of stereo channels) use two clusters of two channels each. Clusters consisting of 3, 4, 5, or 7 channels are not supported.
- When watermarking 6 or 8 channels, channels 4, 5 and 6 (Low Frequency Effects, Left Surround and Right Surround) are not watermarked with N6 or CBET watermarks. This is true for both Auto and Manual mapping. In Manual mode, changing label names will not cause channels 4, 5 and 6 to be watermarked, either.

Nielsen Watermarking RT VOD Application

RT-VOD Watermark Type. RT-VOD specific watermark type. Select C3 | C7.

Metadata Fields. Optional, free-form text. Specifies the value of each metadata item.

Metadata and Logging Output. Select File Nickname | File Path:

- **File nickname**: Use when you want to use a Deploy action in this workflow to deliver the file to the Nielsen TIC Collection Facility, for example. Select a File nickname for a metadata attachment file. Vantage creates a ZIP file containing metadata, log, and signature output files to a Vantage store (from the perspective of the Vantage domain server). The File nickname specifies the nickname to assign the ZIP file created as an attachment to the binder. Downstream file operation actions can access and operate on the file based on this nickname.
- **File path**: Use when you plan to utilize these files and/or deliver the file to the Nielsen TIC Collection Facility externally or separate from this workflow. Enter or browse to select the directory path—usually a share—which is required if you have a distributed (multi-server) domain. Vantage requires write permission for this directory. The filter generates individual files if you select File path.

  The resulting ZIP file can be delivered to the Nielsen TIC Collection Facility via SFTP using the Nielsen File Transfer Manager program, your own custom or commercial file transfer program, or utilizing a Vantage workflow to automate delivery directly in the context of the job.

Nielsen Label and Cluster Mapping

Nielsen Label and Cluster Mapping. Select the desired labeling and cluster mapping method:

- Auto. Used when the input audio stream has 8 channels or less and all channels are in the same cluster. There are no user-configurable controls. Channels 4, 5, and 6 are not watermarked with N6 or CBET watermarks.

- Manual. Specify when the input audio stream has more than 8 channels—and thus, requires more than one cluster—or you require multiple clusters even if there are 8 channels or less. For example, your source files may have 4 stereo pairs and each stereo pair is in its own cluster. Or, a 12-channel stream containing three separate audio programs can be organized into 3 clusters.

You can create multiple audio clusters with a maximum of 8 channels to support different types of audio channel layouts in input source content. Create and configure each channel with a label and a cluster number.

Add New Item. When method is set to Manual, click Add New Item for each channel, and configure it:

Channel Number. Identifies the channel number being mapped for this item.

Label. Specifies the channel label to use for this channel during watermarking.

Cluster Number. Specifies the watermark cluster number for this channel. Do not assign more than 8 channels to a given cluster.

Cluster Mapping Guidelines

- Clusters may only contain 1, 2, 6, or 8 channels. In order to watermark four channels (for example, a pair of stereo channels) use two clusters of two channels each. Clusters consisting of 3, 4, 5, or 7 channels are not supported.
- When watermarking 6 or 8 channels, channels 4, 5 and 6 (Low Frequency Effects, Left Surround and Right Surround) are not watermarked with N6 or CBET watermarks. This is true for both Auto and Manual mapping. In Manual mode, changing label names will not cause channels 4, 5 and 6 to be watermarked, either.

Nielsen Watermarking V3 Linear (Pre-Render) Application

Source ID. Nielsen-assigned 4-digit integer source identifier for identification and encoding.

Check Digits. Corresponds to the Source ID. If the check digit string does not match the SID, the authenticator does not permit watermarking with the SID.

CBET Source ID (Optional). Specifies the Nielsen-assigned 4-digit integer CBET source identifier, in hex format; prefixed with a Level identifier (1-5). For example, 2112B is a Level 2, 112B CBET Source ID. Do not prefix with 0x when manually supplying a value.

To bind this control to a variable, modify the origin action in your workflow to utilize a text variable and supply the hex CBET source ID value, prefixed with *0x*. For example: `0x2112B`. Add a Compute action and configure it to convert the text string to an integer, saving it in an integer variable. The filter automatically converts the integer variable back to hex for utilization.

CBET Check Digits. Corresponds to the CBET Source ID. If the check digit string does not match the CBET Source ID, the authenticator does not permit watermarking with the CBET Source ID.

Broadcast Start UTC Date/Time. UTC formatted date/time in yyyy-mm-ddThh:mm:ss format, where T is a constant. For example, 2020-06-15T19:45:22.

Time Offset Hours. Allows specification of positive or negative time zone offset. This feature is used when the time zone for broadcast is different than the time zone where the file was processed. For example, if a file is intended for broadcast in New York (UTC -4) but was processed in San Francisco (UTC -7), a +3 hour value must be applied. If the value is 0, no offset is applied.

Enable Daylight Savings Time. When enabled, specifies that seasonal Daylight Savings time is in effect at the Broadcast location. Disabled by default.

Disable CBET EAS Detection. When checked, CBET watermarking engine will not decode Emergency Alert System (EAS) alerts. Enabled (unchecked) by default.

Enable CBET Step Aside. When checked, will NOT overwrite previous encoding on the same layer. Disabled (unchecked) by default.

Process Type. Specifies which Nielsen technology, including the frequency spectrum, is utilized when inserting watermarks: N2 + NW | CBET | N2 + NW + CBET. N2 represents an NAES II watermark; NW represents NAES VI. CBET is Critical Band Encoding Technology.

Distribution Type. Specifies watermarking level: Program Content (PC) | Final Distributor (FD).

Metadata Fields. Optional, free-form text. Specifies the value of each metadata item.

Metadata and Logging Output. Specifies File Nickname | File Path:

- **File nickname**: Use when you want to use a Deploy action in this workflow to deliver the file to the Nielsen TIC Collection Facility, for example. Select a File nickname for a metadata attachment file. Vantage creates a ZIP file containing metadata, log, and signature output files to a Vantage store (from the perspective of the Vantage domain server). The File nickname specifies the nickname to assign the ZIP file created as an attachment to the binder. Downstream file operation actions can access and operate on the file based on this nickname.
- **File path**: Use when you plan to utilize these files and/or deliver the file to the Nielsen TIC Collection Facility externally or separate from this workflow. Enter or browse to select the directory path—usually a share—which is required if you have a distributed (multi-server) domain. Vantage requires write permission for this directory. The filter generates individual files if you select File path.

  The resulting ZIP file can be delivered to the Nielsen TIC Collection Facility via SFTP using the Nielsen File Transfer Manager program, your own custom or commercial file transfer program, or utilizing a Vantage workflow to automate delivery directly in the context of the job.

Nielsen Label and Cluster Mapping

Nielsen Label and Cluster Mapping. Select the desired labeling and cluster mapping method:

- Auto. Used when the input audio stream has 8 channels or less and all channels are in the same cluster. There are no user-configurable controls. Channels 4, 5, and 6 are not watermarked with N6 or CBET watermarks.

- Manual. Specify when the input audio stream has more than 8 channels—and thus, requires more than one cluster—or you require multiple clusters even if there are 8 channels or less. For example, your source files may have 4 stereo pairs and each stereo pair is in its own cluster. Or, a 12-channel stream containing three separate audio programs can be organized into 3 clusters.

You can create multiple audio clusters with a maximum of 8 channels to support different types of audio channel layouts in input source content. Create and configure each channel with a label and a cluster number.

Add New Item. When method is set to Manual, click Add New Item for each channel, and configure it:

Channel Number. Identifies the channel number being mapped for this item.

Label. Specifies the channel label to use for this channel during watermarking.

Cluster Number. Specifies the watermark cluster number for this channel. Do not assign more than 8 channels to a given cluster.

Cluster Mapping Guidelines

- Clusters may only contain 1, 2, 6, or 8 channels. In order to watermark four channels (for example, a pair of stereo channels) use two clusters of two channels each. Clusters consisting of 3, 4, 5, or 7 channels are not supported.

- When watermarking 6 or 8 channels, channels 4, 5 and 6 (Low Frequency Effects, Left Surround and Right Surround) are not watermarked with N6 or CBET watermarks. This is true for both Auto and Manual mapping. In Manual mode, changing label names will not cause channels 4, 5 and 6 to be watermarked, either.

Insert Audio Filter

The Insert Audio filter inserts an audio stream into your output.

Note: When inserting audio into a file that also contains video, you must also insert a video stream of the same length (using the Insert Video Filter) or the video and audio will be out of sync.

You can insert up to two audio streams (one in each Insert Audio filter) during a transcode. These files must be specified by an Input in this action, so that they can be decoded to expose the stream.

Stream. Select the name of the audio stream to insert, as specified in the Input.

Insert Start Time (Inclusive). Specifies the timecode in the output media where you want the target audio inserted.

Insert Silence Filter

The Insert Silence Filter adds silent audio to your media, lengthening its duration. You can insert up to 2 silent audio segments (a bumper and trailer, for example).

Insert Point. Specifies Beginning | End | Timecode.

Timecode. When Timecode is selected as Insert Point, specifies the timecode where the silent audio should be inserted.

Insert Duration Timecode. Specifies the duration timecode of the silent audio.

Sample Rate Filter

The Sample Rate filter adjusts the sample rate of the output audio.

Sample Rate. Specifies the sample rate of the output audio stream(s).

Alpha Mask Filter

Use the Alpha Mask Filter to extract the alpha (opacity) channel from the source video and generate an output video with only the alpha mask data in it. The video stream created in the output file will only contain the grayscale alpha mask image from the source.

This process is typically used when converting source formats that use 4:4:4:4 video that includes an alpha channel to formats that do not carry alpha channel data.

In a typical application, two output components are added to the action and two files are created: One (in the first output component), is transcoded with the Alpha Mask Filter applied, which carries the alpha data from the source (sometimes referred to as the *key*) in the video stream. The second output file (in the second output component of the same format), is transcoded without the Alpha Mask Filter applied, and it carries the visible image data from the source (sometimes referred to as the *fill*).

By convention, low values of alpha data represent high opacity, but the opposite is also sometimes true. Check the Assume Inverted Alpha Mask option to handle situations where source and output do not follow convention.

Assume Use Inverted Alpha Mask. When checked, uses the *inverted* alpha channel data to create the mask.

Alpha Scaling. Specifies whether to pass-through alpha channel scaling or convert full range alpha to studio range:

- Default - pass-through - no scaling
- Full to Studio - scales full range alpha to studio range alpha.

Blur Filter

The Blur filter decreases the sharpness and detail of the video. This is done using a two-step process:

First, the entire source image is blurred. The window size parameter determines the number of neighboring pixels used by the filter. Larger window sizes result in a more generalized blur effect.

Second, the blurred image is mixed with the original image allowing further control of the effective softness of the image.

Window Size. Specifies the size (in pixels) of the blur kernel to operate on. A smaller kernel increases the quality of blurring by reducing the surrounding area it is blurred with.

Mix Amount. Specifies to what degree the blurred kernel should be blended back into the original. A lower percentage creates less blur than a higher percentage.

Blur Filter (Flip64)

The Blur filter in Flip64 decreases the sharpness and detail of the video. This is done using a two-step process:

First, the entire source image is blurred. The kernel size parameter determines the number of neighboring pixels used by the filter. Larger kernel sizes result in a more generalized blur effect.

Second, the blurred image is mixed with the original image allowing further control of the effective softness of the image.

Kernel Size. Specifies the size of the blur kernel width. A smaller kernel increases the quality of blurring by reducing the surrounding area it is blurred with.

Mix Amount. Specifies to what degree the blurred kernel should be blended back into the original. A lower percentage creates less blur than a higher percentage.

Chroma Settings Filter

The Chroma Settings filter helps reduce color bleed.

Note: Horizontal and Interstitial are valid only for 4:2:0 chroma subsampling. For 4:2:2 or others, specify Cosited.

Input Chroma Siting. Specifies the input file's chroma siting (*Cosited (Default)* | *Horizontal* | *Interstitial*).

Output Chroma Siting. Specifies the output file's chroma siting (*Cosited (Default)* | *Horizontal* | *Interstitial*).

Closed Caption Burn-in Filter

The Closed Caption Burn-in filter burns the closed caption channel data into each output frame during transcoding.

The filter renders the captions as part of the video image in the output file. This results in captions that are permanently visible and can no longer be turned on and off, but is useful for playback on devices that don't support caption decoding natively.

Closed Caption Burn-in. Specifies 608 | 708 Burn-in enabled. This determines whether the 608 caption data or the 708 caption data in the source file is used to generate the caption overlay.

608 Burn In Enabled. Specifies that 608 captions are to be burned into the source video frame, prior to encoding. When selected, specify the channel:

608 Caption Channel. Specifies the 608 channel (CC 1|2|3|4) from which to extract captions.

708 Burn In Enabled. Specifies that 708 captions are to be burned into the source video frame, prior to encoding. When selected, specify the service:

708 Caption Service. Specifies the 708 servicel (1 - 63) from which to extract captions.

Color Clipping Filter

The Color Clipping Filter enables you to correct the YUV color level by value, applying a limit to each channel of YCbCr output, as specified by you. RGB outputs are unaffected by this filter.

All color value changes are made in 16-bit color space; you do not have to know or specify what YUV color level range the input media is; the filter normalizes the values automatically.

Color Range Specifies the color level range for the output. (8 bit YUV | 10 bit YUV | 16 bit YUV | Broadcast RGB Gamut | Full RGB Gamut | EBU Rec. 103 Gamut)

Min/Max for Y | U | V Channel. Specifies the minimum and maximum values for this output. This filter clips values that are out of the specified range.

Colorfront Filter

The Colorfront color space conversion filter uses Colorfront's state of the art advanced color volume remapping engine and complex Human Perceptual Model for multiple display mastering which maintains creative image design intent. This filter is currently supported for Flip64 and requires an optional Colorfront license available from Telestream.

Note: The Colorfront filter in Vantage supports the following inputs: HLG, PQ, BT.709, P3 D65, P3 DCI, XYZ DCI.

Note: All inputs to the Colorfront filter must be Full Range RGB. The Telestream Colorspace filter must be used to properly configure inputs for the Colorfront filter. If the Telestream Colorspace filter is not enabled and properly configured, jobs will fail. The Telestream Colorspace filter should not be used to change color primaries or transfer functions but may be used to identify colorspace and transfer functions if not already properly signaled in the source.
For example, a source is known to have BT.709 color primaries and transfer function but this is not properly signaled in the source. In the Telestream Colorspace filter, select BT.709 for Color Primaries (input and output) and Transfer Function (input and output).

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Settings

Output Color Space. Specifies the desired output color space. Default is HLG.

Output Video Range. Specifies the desired output video range. Default is Full Range.

HDR Amount. Specifies adjustment to the dynamic intensity of the image. Configurable from negative one (-1) to positive one (+1). Zero (0) is the default. Adjusting the value negative lowers the dynamic intensity. Adjusting the value positive increases dynamic intensity. This feature is often used on an HDR image to reduce an overly bright background. Adjustments are perceptually constant in that perceived color, hue, and saturation are not affected.

HDR Surround. Specifies compensation for the brightness of the viewing environment in order to maintain a consistent look. Configurable from negative one (-1) to positive one (+1). Zero (0) is the default. Adjusting the value negative is typically used for dark surrounding environments such as a traditional cinema. Adjusting the value positive is typically used for brighter surrounding environments such as daylight.

Color Lookup Table Filter (IPTV)

The Color Lookup Table (LUT) Filter in IPTV enables you to manipulate the colors in the video frame using color lookup table files.

Note: In order for the LUT filter to work correctly, you must also implement the Color Space Filter (*not* the Legacy Color Space Filter) in the same IPTV action.

The filter supports both one-dimensional and three-dimensional tables in the following formats:

- Adobe Systems Cube format lookup table files (.cube).
- Foundry 3dl format lookup table files (.3dl).

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Color Lookup Table. Specifies the fully-qualified path to the lookup table file.

Note: To use specific LUT files dynamically on a job-by-job basis, add an Associate action after the origin action (typically, Watch) in the workflow. Configure the action as required to select the proper LUT file. Check File Path and assign the variable to hold this value.

Input Color Primaries. Specifies the standard of the RGB primaries in XYZ color space, in the input media.

Input Transfer Function. Specifies the standard of the transfer function in the input media.

Input Video Range. Specifies the standard of the video range in the input media.

Output Color Primaries. Specifies the standard of the RGB primaries to utilize in the output media.

Output Transfer Function. Specifies the standard of the transfer function to utilize in the output media.

Output Video Range. Specifies the standard of the video range to utilize in the output media.

Color Lookup Table Filter (Flip64)

The Color Lookup Table (LUT) Filter in Flip64 enables you to manipulate the colors in the video frame using color lookup table files.

Note: In order for the LUT filter to work correctly, you must also implement the Color Space Filter (*not* the Legacy Color Space Filter) in the same Flip64 action.

The filter supports both one-dimensional and three-dimensional tables in the following formats:

- Adobe Systems Cube format lookup table files (.cube).
- Foundry 3dl format lookup table files (.3dl).

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Color Lookup Table. Specifies the fully-qualified path to the lookup table file.

Note: To use specific LUT files dynamically on a job-by-job basis, add an Associate action after the origin action (typically, Watch) in the workflow. Configure the action as required to select the proper LUT file. Check File Path and assign the variable to hold this value.

Note: Sample open source LUT files (developed by NBCUniversal Media) are available for customer use. These can be found in your Vantage installer location under Components\Flip64 (ex. C:\Program Files (x86)\Telestream\Vantage\Components\Flip64.X.X.X.X\NBC_LUTs where X.X.X.X is your Flip64 component pac version).

Input Color Primaries. Specifies the standard of the RGB primaries in XYZ color space, in the input media.

Input Transfer Function. Specifies the standard of the transfer function in the input media.

Input Video Range. Specifies the standard of the video range in the input media.

Output Color Primaries. Specifies the standard of the RGB primaries to utilize in the output media.

Output Transfer Function. Specifies the standard of the transfer function to utilize in the output media.

Output Video Range. Specifies the standard of the video range to utilize in the output media.

Dolby Vision HDR to SDR Conversion Filter

The Dolby Vision HDR to SDR conversion filter performs content mapping from the Dolby Vision signal to an SDR signal. Content mapping uses the metadata from the mezzanine source file to convert HDR content to 709 YUV Studio Range SDR. This filter is supported for Flip64 and requires an optional Dolby Vision license available from Telestream.

Input Color Space. Specifies the color space of the input file. Options are PQ 2020 (default) and PQ P3D65.

Input Video Range. Specifies the video range of the input file. Options are Same As Source (default), Full Range, and Studio Range.

Output Color Space. Specifies the desired output color space. By default, this is set to 709 YUV Studio Range.

Note: The Dolby Vision HDR to SDR conversion filter and Color Space filter in Flip64 can be used in conjunction if an output color space other than 709 YUV Studio Range SDR is required. Color processing will first be performed by the HDR to SDR conversion filter followed by the Color Space filter with input parameters set to Same As Source.

Legacy Lookup Table Filter

The Legacy Lookup Table Filter enables you to manipulate the colors in the video frame using color lookup table files.

The filter supports both one-dimensional and three-dimensional tables in the following formats:

- Adobe Systems Cube format lookup table files (.cube).
- Foundry 3dl format lookup table files (.3dl).

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Color Lookup Table. Specifies the fully-qualified path to the lookup table file.

Note: To use specific LUT files dynamically on a job-by-job basis, add an Associate action after the origin action (typically, Watch) in the workflow. Configure the action as required to select the proper LUT file. Check File Path and assign the variable to hold this value.

For any control set to Auto-Detect, the standard is set automatically by the filter, from the input video/output video metadata properties. If a given property is unspecified or unknown, the filter attempts to determine the correct value based on other video characteristics (resolution, frame rate, and so on).

Input Color Space. Specifies the color space of the input file.

Output Color Space. Specifies the color space of the output file.

Legacy Color Space Filter

The Legacy Color Space Filter enables you to convert the color space from one format to another.

For any control set to Auto-Detect, the standard is set automatically by the filter, from the input video/output video metadata properties. If a given property is unspecified or unknown, the filter attempts to determine the correct value based on other video characteristics (resolution, frame rate, and so on).

Input Color Space. Specifies the input file color space. The Conform and Tempo actions automatically detect input and output color spaces, assuming that HD content is BT.709 and SD content is BT.601. Web and desktop frame sizes are also assumed to be BT.709.

Output Color Space. Specifies the output file color space to apply.

Change Color Space. Specifies when to change the color space if making the change: before or after gamma and contrast.

Assume Input RGB has Broadcast Levels. When checked and the Input Color Space is specified as BT.601 or BT.709, the output video is treated as being within the broadcast level RGB range of 16-235.

Assume Output RGB has Broadcast Levels. When checked and the Output Color Space is specified as BT.601 or BT.709, the output video is treated as being within the broadcast level RGB range of 16-235.

Assume Use of Explicit Color Matrix. When checked, the Video Processor utilizes a color space matrix to [algorithmically] convert a set of color values in a different color space. Normalized 444 format is first converted from YUV color space to RGB color space, 1D/3D color LUTs are applied, then the new RGB pixel values are converted back to YUV color space.

Color Space Filter

The Color Space Filter enables you to control color space conversion by manually and independently specifying the digital video standard that applies to the primaries, transfer functions, and matrices of the input and the output.

For any control set to Auto, the standard is set automatically by the filter, from the input video/output video metadata properties. If a given property is unspecified or unknown, the filter attempts to determine the correct value based on other video characteristics (resolution, frame rate, and so on).

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

General

Input Color Primaries. Specifies the standard of the RGB primaries in XYZ color space, in the input media.

Input Transfer Function. Specifies the standard of the transfer function in the input media.

Input Color Matrix. Specifies the standard of YUV color matrix for RGB conversions, in the input media.

Input Video Range. Specifies the standard of the video range (studio | full range) in the input media.

Output Color Primaries. Specifies the standard of the RGB primaries to utilize in the output media.

Output Transfer Function. Specifies the standard of the transfer function to utilize in the output media.

Output Color Matrix. Specifies the standard of the YUV color matrix to utilize in the output media.

Output Video Range. Specifies the standard of the video range to utilize in the output media.

Use OOTF and Inverse OOTF During Conversion. When enabled, Telestream Media Framework always uses OOTF (Optical to Optical Transfer Function) and Inverse OOTF during color space conversions. Default is Auto which allows Telestream Media Framework to determine if OOTF is used.

Note: By default, the Color Space Filter will attempt to auto detect input and output color space typically based on frame size and without reading any custom metadata. If

your workflow requires specific input and output color spaces, select those from the available options.

Reference Levels Mapping

Allows mapping of input black/white levels to output black/white levels. Options are NotEnabled | Default (default) | Manual. Default setting automatically detects in/out white levels. Manual setting allows specification of the following parameters:

Input Reference Black Level Specifies the input reference black level as a percentage using a decimal variable. Unchecked by default. Value is 0 percent by default.

Input Reference White Level Specifies the input reference white level as a percentage using a decimal variable. Unchecked by default. Value is 50 percent by default.

Output Reference Black Level Specifies the output reference black level as a percentage using a decimal variable. Unchecked by default. Value is 0 percent by default.

Output Reference White Level Specifies the output reference white level as a percentage using a decimal variable. Unchecked by default. Value is 50 percent by default.

Color Space Filter (Flip64)

The Color Space Filter in Flip64 enables you to control color space conversion by manually and independently specifying the digital video standard that applies to the primaries, transfer functions, and matrices of the input and the output.

For any control set to Auto, the standard is set automatically by the filter, from the input video/output video metadata properties. If a given property is unspecified or unknown, the filter attempts to determine the correct value based on other video characteristics (resolution, frame rate, and so on).

Note: When you use the Clipping Filter in combination with the Color Space filter, the Color Space setting in the Clipping filter is ignored; the Color Space setting in the Color Space filter is utilized instead.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

General

Input Color Primaries. Specifies the standard of the RGB primaries in XYZ color space, in the input media.

Input Transfer Function. Specifies the standard of the transfer function in the input media.

Input Color Matrix. Specifies the standard of YUV color matrix for RGB conversions, in the input media.

Input Video Range. Specifies the standard of the video range (studio | full range) in the input media.

Output Color Primaries. Specifies the standard of the RGB primaries to utilize in the output media.

Output Transfer Function. Specifies the standard of the transfer function to utilize in the output media.

Output Color Matrix. Specifies the standard of the YUV color matrix to utilize in the output media.

Output Video Range. Specifies the standard of the video range to utilize in the output media.

Use OOTF and Inverse OOTF During Conversion. When enabled, Telestream Media Framework always uses OOTF (Optical to Optical Transfer Function) and Inverse OOTF during color space conversions. Default is Auto which allows Telestream Media Framework to determine if OOTF is used.

GPU Acceleration. Causes the codec to use GPU acceleration on a Lightspeed server in the domain, if available.

Note: By default, the Color Space Filter will attempt to auto detect input and output color space typically based on frame size and without reading any custom metadata. If your workflow requires specific input and output color spaces, select those from the available options.

Reference Levels Mapping

Allows mapping of input black/white levels to output black/white levels. Options are Not Enabled | Default (default) | Manual. Default setting automatically detects in/out white levels. Manual setting allows specification of the following parameters:

Input Reference Black Source. Specifies the input reference black source.

Input Reference Black Level. Specifies the input reference black level as a percentage using a decimal variable.

Input Reference White Source. Specifies the input reference white source.

Input Reference White Level. Specifies the input reference white level as a percentage using a decimal variable.

Output Reference Black Level. Specifies the output reference black level as a percentage using a decimal variable. Unchecked by default. Value is 0 percent by default.

Output Reference White Level. Specifies the output reference white level as a percentage using a decimal variable. Unchecked by default. Value is 50 percent by default.

Enable Range Compression of Highlights. When checked, allows range compression of highlights. Unchecked by default. (also supported for Default mapping option)

Contrast Filter

The Contrast filter enhances the contrast of the video. Contrast values greater than zero generate images with more contrast, while contrast values less than zero generate images with less contrast. Unlike the Legacy RGB video processing library, contrast is performed on the luminance channel; only color brightness (not actual color) is affected by this contrast adjustment.

Amount. Specifies to what degree (as a percentage) the contrast should be increased or decreased.

Copy Generation Management Filter

The Copy Generation Management filter enables you to set the Copy Generation Management System signal in the output from Conform, per the CEA-608-B specification.

Rep Rate. Specifies the Rep Rate in frames.

Copy Control. Specifies the type of copy control to enforce.

Custom Cadence Video Filter

Inverse Telecine is the process of converting Telecined media back to 24 fps progressive media. When the starting phase and cadence of the material is known, the inverse Telecine algorithm is easy to implement with excellent results. However, when Telecined material contains edits, or long sections of static content (black bumpers or animation, for example), the inverse Telecine algorithm may make an incorrect determination on certain frames, resulting in poorer quality output.

The Custom Cadence Video filter forms part of an improved two-pass approach to the problem of processing difficult cadence patterns.

The first pass, which is performed using the Telecine Cadence Analyzer in the Analysis action, analyzes the entire media file for breaks or changes in Telecined content, determining the most likely phase and cadence of each frame individually. The result of this analysis is stored in an XML file.

The second pass, performed in the Custom Cadence Video Filter uses the XML file created by the Telecine Cadence Analyzer in the first pass to apply the correct inverse Telecine operation.

Note: This filter is intended for use in video encoders generating 24 FPS progressive media only.

To perform inverse Telecine using the Custom Cadence Video filter, you must first use the Telecine Cadence Analyzer in the Analyze action to perform phase and cadence analysis on the media and produce the required XML file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Cadence Information XML File. Browse to select (or manually enter the fully-qualified path to) the cadence information XML file. Or, use a variable to obtain the file, which has been set in the Telecine Cadence Analyzer in an upstream Analysis action in the same workflow.

You can use the fully-qualified path when the file is generated in an earlier job by this or another workflow (use a generic file name for this method to make the workflow operate on a continual basis).

Note: If you supplied a nickname instead of a file name in the Telecine Cadence Analyzer in the Analyze action, you MUST add an Identify > File Properties action to the workflow and enable a File Path variable to assign to a variable so that you can transfer the file path over to the Custom Cadence video filter in a variable - the Custom Cadence video filter is not capable of using nicknames.

Fade In/Out Filter

The Fade In/Out filter fades the video in from black at the start of the clip. It also fades the video out to black at the end of the clip. To fade only at the start or end of the clip, specify 0 seconds for the unused fade duration.

Fade In Duration. Specifies the duration of the fade in, in seconds.

Fade Out Duration. Specifies the duration of the fade out, in seconds.

Frame Rate Conversion Filter

Implement the Frame Rate Conversion Filter to alter the video frame rate of the output media. Configure the filter to specify how video frame rate changes should be performed.

General

Permit Variable Frame Duration. When checked, the frame rate converter is permitted to produce frames with variable duration. This may be useful if the output frame rate is nominally the same as the input frame rate and the input has variable duration frames as well.

Conversion Method

Conversion Method. Specifies how to handle frame rate conversion. The Interlacing Rules Filter should be used when performing Inverse Telecine.

Automatic - automatically chooses the best approach based upon the type of transcode you are performing. You can specify the quality level that you prefer (Fastest Speed | Balance Speed & Quality | Highest Quality).

Use Original Frames - The output file contains all of the original frames played out from the input file, at the new frame rate. This results in speed changes of the output. Small changes in frame rates can use this method (for example, performing a 23.976 fps to 25 fps conversion), maintaining the highest fidelity to the original source. The audio rate is modified automatically to synch with the video speed change without any perceptive change in pitch. This method should not be used to alter the speed, when the frame rate change is large, or adverse video slow downs or speed ups can result.

Nearest Neighbor - utilizes the closest input frame as the source for any output frame.

Blend Frames - blends the two nearest frames to create each output frame. A threshold may be provided; if an output frame is close enough (within the threshold) to the input frame, it may simply use that one input frame instead of blending two.

When Blend Frames is selected, specify the delta between frames, as a percentage. If an input frame and an output frame are very close together, the output will simply use the input (similar to Nearest Neighbor). This parameter specifies how close the input and output frames must be, to be treated as essentially the same time, expressed as a percentage of frame duration.

Note: More sophisticated frame rate conversions are available using the Tachyon Converter, an optional licensed feature.

Gamma Correction Filter

The Gamma Correction filter applies gamma correction to the output video for the purpose of displaying it uniformly on different display devices which have different gamma characteristics: for example, CRT televisions, CRT computer monitors, LCD televisions, LCD computer monitors, and handheld devices.

Television and computer monitors have very different gamma characteristics. Material originally produced for television viewing often displays more darkly when viewed on a computer monitor, requiring a gamma correction to prepare it for desktop viewing.

Amount. Specifies the amount of decrease or increase, expressed as a percent (-100 to +100).

Grayscale Image Filter

Check to enable this filter. The Grayscale Image filter enables you to create a gray scale image. There are no user-modifiable settings.

Image Overlay Filter

The Image Overlay Filter composites the specified image file over the output video. Supported overlay image types include PNG, TGA, TIFF, JPG, BMP, and GIF. Alpha channel data (if present in the image) is used to determine which portions of the image are transparent in the overlay.

Click Add New Item to create a new overlay and configure it. To delete an overlay, click the Close icon (X) in the upper right corner. To re-order an overlay in the list, select it and click the Up/Down arrows.

Positioning the overlaid image is done using the top-left corner of the image and specifying its coordinates relative to the top-left of the output video frame. From this position either width and height values can be provided or the original image width and height can be observed.

All coordinates are measured in output video pixels. Cropping can be used to adjust the image prior to overlay. Cropping is applied before calculating the top-left coordinate of the image and the image width and height; that is, the cropped version of the image is used to calculate all coordinates.

Configuring an Overlay

For each image overlay you add, configure these settings:

Filename. Specifies the fully-qualified path of the overlay file. The overlay file must be accessible by the Vantage domain server processing this action. Ideally, use a share and a UNC path.

Overlay Left | Top. Together, these specify the top left corner of the origin of the overlay file on the frame, in pixels.

Opacity. Specifies the relative opacity of the overlay in percent, where 0 is fully transparent (invisible) and 100 is fully opaque, completely hiding the underlying image.

Width | Height. Specifies, in pixels, the width and height of the overlay frame originating at the Overlay Left and Top location specified above.

Use Source Media Video Timing. Specifies that the source video timecode should be used, instead of absolute time for the start and end times for the overlay.

Use Source Media Video Dimensions. Specifies that the overlay rectangle should be resized (if necessary) to be identical to the frame size of the source video.

Overlay Start Time (Inclusive) | Overlay End Time (Inclusive). Specifies the start and end time or timecode of the image overlay.

Fade-in Duration | Fade-out Duration. Specifies the in and out fade duration time or timecode. If set to Time and the value is zero, there is no fade - it is displayed (or stopped) instantly.

Image Overlay Filter

Composites the specified image file over the output video. Up to four overlays are permitted.

Supported overlay image types include PNG, TGA, TIFF, JPG, BMP, and GIF. Alpha channel data (if present in the image) is used to determine which portions of the image are transparent in the overlay.

Positioning the overlaid image is done using the top-left corner of the image and specifying its coordinates relative to the top-left of the output video frame. From this position either width and height values can be provided or the original image width and height can be observed.

Configuring an Overlay

For each image overlay you add, configure these settings:

Filename. Specifies the fully-qualified path of the overlay file. The overlay file must be accessible by the Vantage domain server processing this action. Ideally, use a share and a UNC path.

Overlay Left | Top. Together, these specify the top left corner of the origin of the overlay file on the frame, in pixels.

Opacity. Specifies the relative opacity of the overlay in percent, where 0 is fully transparent (invisible) and 100 is fully opaque, completely hiding the underlying image.

Width | Height. Specifies, in pixels, the width and height of the overlay frame originating at the Overlay Left and Top location specified above.

Use Source Media Video Timing. Specifies that the source video timecode should be used, instead of absolute time for the start and end times for the overlay.

Use Source Media Video Dimensions. Specifies that the overlay rectangle should be resized (if necessary) to be identical to the frame size of the source video.

Overlay Start Time (Inclusive) | Overlay End Time (Inclusive). Specifies the start and end time or timecode of the image overlay.

Fade-in Duration | Fade-out Duration. Specifies the in and out fade duration time or timecode. If set to Time and the value is zero, there is no fade - it is displayed (or stopped) instantly.

Image Processing Filter

Implement the Image Processing Filter to perform various operations on video. Enable the operations to perform and specify the settings.

Blur. Check to apply a blurring adjustment. When applying, set the window size in pixels and the mix amount to apply. A larger window size, and a larger mix amount results in more blurring.

Sharpen. Check to apply a sharpen adjustment. When applying, set the window size in pixels and the mix amount to apply. A larger window size, and a larger mix amount results in a more pronounced sharpening effect.

Contrast. Check to enhance the contrast of the video. Contrast amounts (to what degree, as a percentage, the contrast should be changed) greater than zero increase contrast; amounts less than zero reduce contrast. Contrast is performed on the luminance channel; only color brightness (not actual color) is affected by this contrast adjustment.

Noise Reduction. Check to apply noise reduction. Noise reduction is generally used to remove fine noise such as film grain. When applying, set the window size. A larger window sizes results in more noise reduction.

Gamma Correction. Check to apply gamma correction. Gamma correction is generally used when encoding for CRT-based displays. When applying, set the percent to apply.

Precision Dithering. Check to enable you to specify the rounding mode to apply to dithering: Cumulative | Dynamic | Normal.

Insert Black Filter

The Insert Black filter (2 permitted) inserts black frames of the same size as the output, and inserts them into the video stream at the specified insertion point for the specified duration, thus lengthening the total duration of the output.

Insert Point. Specifies Beginning | End | Timecode.

Insert Duration. Specifies the Timecode as the unit of measure.

Timecode. Specifies the timecode of the black frames. Ideally this should match the speed of the output video stream as measured in FPS.

Insert Video Filter

The Insert Video filter (two permitted) splices a separate media file into the output file at the specified location.

When video is inserted, it is not altered. That is, if the frame size is not the same as the encoded output, it will either be cropped or padded. If the speed is not the same, it will be faster or slower than the original.

Note: When inserting video into a file that also contains audio, you must also insert an audio stream of the same length (using the Insert Audio Filter) or the video and audio will be out of synch.

You can insert up to two video streams (one in each Insert Video filter) during a transcode. These files must be specified by an Input in this action, so that they can be decoded to expose the stream.

Stream. Specifies the name of the video stream to insert, as specified in the Input.

Insert Start Time (Inclusive). Specifies the time or timecode in the output media where you want the target video inserted.

Format. Specifies whether the video format is the same as the input, or the same as the output.

Interlacing Rules Filter

The Interlacing Rules filter enables you to specify the method to use for resizing interlaced video. The Interlacing Rules filter can be used during up-conversion, down-conversion, and standards conversion where both the input and output media are interlaced. This filter also allows you to specify rules for handling various conversions between interlaced and progressive video.

Note: If Motion Adaptive de-interlacing is used, these rules allow you to choose Motion Adaptive interlacing, which re-uses information from the de-interlacing stage to reduce artifacts in the output. You may also specify that Vantage perform Inverse Telecine for 30fps/29.97fps input video as the preferred de-interlacing mode.

All of these rules may be set to *Automatic*, with user selection between quality, speed, or some balance between the two. In Automatic mode, Vantage determines the best possible set of operations given the input, and the output video characteristics. Examples include (1) If the output is less than half the input frame size, Vantage will drop a field to achieve the output size; (2) If the operation is 1080i to SD, Vantage will resize fields independently (this provides the best down-conversion quality in those cases).

Note: For interlaced input, *Automatic* may be specified to use Inverse Telecine if the input is 29.97 or 30fps. Inverse Telecine converts 29.97 or 30fps film media back to the original 24p footage. When the input is Telecined material, inverse Telecine will provide the absolute best de-interlacing. When you specify Inverse Telecine, it will only be performed if the input is 29.97 or 30fps, otherwise the user-specified preferred de-interlacing method will be used. When performed, Inverse Telecine is performed prior to any resizing or frame rate changes, with the advantage that the frame rate changes and resizing is performed on the best possible progressive representation of the original 24p material. For example, converting from NTSC Telecine content to PAL will produce significantly higher quality results using Inverse Telecine, instead of any other form of de-interlacing.

Interlacing converts a progressive frame or frames to an interlaced frame containing two fields. The following interlacing options are available when converting from progressive input to interlaced output, or interlaced input to interlaced output.

Sub-Sampling - simply uses alternating lines from the nearest progressive frames, as fields.

Filtered Sub-Sampling - blends data from the nearest progressive frames to create fields.

Motion Adaptive Interlacing (interlaced to interlaced rules only) - only used when performing Motion Adaptive or Motion Compensated deinterlacing. This uses motion analysis to reduce artifacts caused by the deinterlacing stage.

Filter options

A variety of conversion rules and methods options are available. The following controls are supported:

Quality Level. Specify prioritization of speed versus quality when processing. Default is Fastest Processing.

Telecine Cadence Type. Specify which inverse Telecine cadence type is used. Default is 3232.

First Repeated Field Position. Specify position of first repeated field. Default is 0.

Apply inverse telecine if source is 29.97fps or 30fps. When enabled, forces inverse telecine when converting from 29.97 or 30.0 to 23.976 or 24 fps.

Note: If *Apply inverse telecine if source is 29.97fps or 30fps* is disabled, controls for *Apply fixed cadence inverse telecine* and *Apply cautious inverse telecine* are ignored**.**

Apply fixed cadence inverse telecine. When enabled, the same inverse telecine cadence will be used for the entire video. When disabled, the cadence will be automatically detected in every group of 5 frames.

Apply cautious inverse telecine. When enabled, a higher confidence threshold is used to switch cadence during automatic detection of cadence for a group of 5 frames. When disabled, the default threshold is used to switch cadence during automatic detection of cadence for a group of 5 frames.

Rules for Interlaced Input to Interlaced Output.

Specifies the method to use for converting interlaced input to interlaced output. For each method, there are a specific set of controls that you can set. Display tooltips for details.

Deinterlacing converts an interlaced frame (containing two fields) to a progressive frame. This can be performed in all cases where the input is interlaced.

All options allow you to apply inverse Telecine if the input is 29.97 or 30 FPS interlaced material. With Telecined material, this option gives the best possible quality deinterlacing, as the original progressive film frames are re-constructed. Frame rate conversion occurs after the inverse Telecine step, so inverse Telecine can be used for deinterlacing regardless of what the output frame rate will be.

Note: This option should only be enabled if the input is actually telecined; Vantage Analysis may be used to determine whether a video has a Telecine cadence.

Automatic - determines the best rule for the input content and the output frame size. By specifying whether you prefer faster transcoding or higher quality, you can specify how the decisions should be made.

Process Fields Independently - determines the best rule for the input content and the output frame size. By specifying whether you prefer faster transcoding or higher quality, you can specify how the decisions should be made. You can simply resize the fields independently to create output fields directly. This is recommended when performing down-conversion from HD to SD, where the input and output frame rates are the same (for example, 1080i60 to NTSC, or 1080i50 to PAL).

Keep Only Upper Field / Keep Only Lower Field - drops a field to create progressive frames.

Blend Both Fields - effectively does not perform deinterlacing. This is particularly useful for content that has no motion, or content that is encoded as PsF (progressive segmented frames).

Motion Adaptive Deinterlacing - converts every field into a progressive frame. This is done by keeping the original field, then examining each pixel in the other field to determine whether or not it is moving, and then choosing to either discard it (if it is moving, to avoid field artifacts), or keeping it (if not, to preserve detail).

Advanced Motion Adaptive Deinterlacing - the same as motion adaptive deinterlacing, but allows control over thresholds for what constitutes motion. Values are measured in luma value differences between pixels; lower values will result in less detail, but fewer field motion artifacts.

Zero-motion Compensated Deinterlacing - converts every field into a progressive frame. This is done by keeping the original field, then performing block matching to determine whether a given region is moving or not. The noise threshold indicates how sensitive the algorithm should be to noise; higher values will cause the algorithm to treat noise as actual object motion.

Motion Compensated Deinterlacing - converts every field into a progressive frame. This is done by keeping the original field, then performing a full motion-vector search to determine whether a region of video is in motion, or not. If a motion vector is found, it will be used to synthesize missing information between fields. This algorithm provides the highest quality, but also requires the most processing time.

Motion Compensated Deinterlacing - converts every field into a progressive frame. This is done by keeping the original field, then performing a full motion-vector search to determine whether a region of video is in motion, or not. If a motion vector is found, it will be used to synthesize missing information between fields. This algorithm provides the highest quality, but also requires the most processing time.

EDMA Deinterlacing - converts every field into a progressive frame using EDMA (Edge Directed Motion Adaptive) deinterlacing, an enhancement of motion adaptive deinterlacing, often producing better results around moving edges in the video.

Rules for Interlaced Input to Progressive Output.

Specifies the method to use for converting interlaced input to interlaced output.

These rules are applied when the input is interlaced and the output is progressive. Fundamentally, this is the choice of which deinterlacing algorithm to apply *prior to resizing and changing the frame rate*.

These rules include one specialized option - *Resize both fields as progressive frames* - which allows you to convert each incoming field into a progressive frame. This option may be beneficial when creating 50p or 60p output from 50i or 60i input, particularly if the output frame size is significantly smaller than the input. For example, 1080i60 to 640x480p60. This option may also be used to quickly convert from 1080i to 720p, though it will not provide as high quality output as true deinterlacing.

These rules also allow you to select other deinterlacing options. Refer to Deinterlacing Options (following) for details.

Automatic - determines the best rule for the input content and the output frame size. By specifying whether you prefer faster transcoding or higher quality, you can specify how the decisions should be made.

Keep Both Fields - determines the best rule for the input content and the output frame size. By specifying whether you prefer faster transcoding or higher quality, you can specify how the decisions should be made. You can simply resize the fields independently to create output fields directly. This is recommended when performing down-conversion from HD to SD, where the input and output frame rates are the same (for example, 1080i60 to NTSC, or 1080i50 to PAL).

Keep Only Upper Field / Keep Only Lower Field - drops a field to create progressive frames.

Resize Both Fields As Separate Frames - effectively does not perform deinterlacing. This is particularly useful for content that has no motion, or content that is encoded as PsF (progressive segmented frames).

Motion Adaptive Deinterlacing - converts every field into a progressive frame. This is done by keeping the original field, then examining each pixel in the other field to determine whether or not it is moving, and then choosing to either discard it (if it is moving, to avoid field artifacts), or keeping it (if not, to preserve detail).

Advanced Motion Adaptive Deinterlacing - the same as motion adaptive deinterlacing, but allows control over thresholds for what constitutes motion. Values are measured in luma value differences between pixels; lower values will result in less detail, but fewer field motion artifacts.

Zero-motion Compensated Deinterlacing - converts every field into a progressive frame. This is done by keeping the original field, then performing block matching to determine whether a given region is moving or not. The noise threshold indicates how sensitive the algorithm should be to noise; higher values will cause the algorithm to treat noise as actual object motion.

Motion Compensated Deinterlacing - converts every field into a progressive frame. This is done by keeping the original field, then performing a full motion-vector search to determine whether a region of video is in motion, or not. If a motion vector is found, it will be used to synthesize missing information between fields. This algorithm provides the highest quality, but also requires the most processing time.

EDMA Deinterlacing - converts every field into a progressive frame using EDMA (Edge Directed Motion Adaptive) deinterlacing, an enhancement of motion adaptive deinterlacing, often producing better results around moving edges in the video.

Rules for Progressive Input to Interlaced Output.

Specifies the method to use for converting progressive input to interlaced output.

Resizing and frame rate changes are performed on the progressive frames, and then interlacing is performed; with these rules, you select which interlacing algorithm should be used. Refer to Interlacing Options (following) for details.

Telecine 3:3:2:2 and *Telecine 3:2:3:2* - only applicable when converting 24p or 23.976p input to 29.97i or 30i output. This overrides the frame rate conversion algorithm and instead, directly creates fields according to either a 3:2 or a 3:3:2:2 Telecine cadence.

Input and Output Frame Configurations

These controls allow you to override the way that Vantage treats incoming and outgoing frames. By default, Vantage detects the input frame type from the source file, and uses the encoder settings to determine the output frame type; generally this behavior is correct and should not be changed.

Note: When dealing with PSF (progressive segmented encoded frames, where a frame is progressive but encoded within an interlaced codec), you may specify that the input or output is progressive, even if the actual video encoding is using an interlaced form.

Input Frame Configuration. Specifies how to handle input frames.

Detect from Input File - Select to determine input frame configuration automatically by using the default type for the media.

Manual Settings - Select to explicitly set (or override) the default input frame configuration, and force Interlace Upper Field First | Interlaced Lower Field First | Progressive processing.

Output Frame Configuration. Specifies how to generate output frames.

Use Encoder Settings - Select to specify this setting in the Encoder or use the default type for the media.

Manual Settings - Select to explicitly set (or override) the default type, and force Interlace Upper Field First | Interlaced Lower Field First | Progressive processing.

Metadata Processing Filter

The Metadata Processing filter provides a means of insuring that specified tags resident in the VANC data stream of the incoming media file are transferred to the output file.

Check to enable this filter and configure it.

Preserve ID3 Tags. Check to replicate the ID3 tags from the input file to the output file, insuring that they are preserved in the transcoding stream. In certain configurations, the ID3 tags may not transfer to the output file.

Preserve SCTE-35 Tags. Check to replicate the SCTE-35 tags from the input file to the output file, insuring that they are preserved in the transcoding stream. In certain configurations, the SCTE-35 tags may not transfer to the output file.

Metadata Processing Filter (Multiscreen)

The Metadata Processing filter in Multiscreen provides a means of insuring that specified metadata tags resident in the Video stream of the incoming media file are transferred to the output file.

Check to enable this filter and configure it. When disabled (default), all metadata is detached from the video sample before being sent to the compressor.

Preserve ID3 Tags. Check to replicate the ID3 tags from the input file to the output file, insuring that they are preserved in the transcoding stream. In certain configurations, the ID3 tags may not transfer to the output file.

Preserve SCTE-35 Tags. Check to replicate the SCTE-35 tags from the input file to the output file, insuring that they are preserved in the transcoding stream. In certain configurations, the SCTE-35 tags may not transfer to the output file.

Metadata Processing Filter (IPTV)

The Metadata Processing filter in IPTV provides a means of insuring that specified tags resident in the VANC data stream of the incoming media file are transferred to the output file.

Check to enable this filter and configure it.

Preserve ID3 Tags. Check to replicate the ID3 tags from the input file to the output file, insuring that they are preserved in the transcoding stream. In certain configurations, the ID3 tags may not transfer to the output file.

Preserve SCTE-35 Tags. Check to replicate the SCTE-35 tags from the input file to the output file, insuring that they are preserved in the transcoding stream. In certain configurations, the SCTE-35 tags may not transfer to the output file.

NexGuard Video Watermark Filter (Conform)

The NexGuard Video Watermark filter is an optional, licensed feature implementing the NexGuard Embedder (deprecated), which adds an indelible, invisible pattern to source video as a watermark so that content owners can protect content by identifying unique copies of their material. In the Conform action, only the Video Watermark filter is implemented.

The NexGuard Video Watermark filter requires a NexGuard Video Watermark license from NexGuard, as well as a NexGuard Connector Vantage license from Telestream (the NexGuard Vantage license enables both the video and audio watermark filters).

Note: For comprehensive information about using NexGuard filters in Vantage, including suggested workflows, see the *NexGuard Integration Guide* on the Telestream web site.

This NexGuard Video Watermark filter can operate in any video processor mode: Multi-core 16-bit | Lightspeed Accelerated | Intel OpenCL 16-bit.

Conform action workflows with NexGuard watermarking have the following limits/requirements:

- Watermarking can't be performed with codecs being used in Direct-Convert mode; they must decode and re-encode the video.

- The video must be at least 2 1/2 minutes long for the watermark to be detected. For audio, clips must be at least 15 seconds long.

- You can't watermark media in formats or containers that don't support watermarking, including those marked as Legacy.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

The watermark ID and key are typically provided by an upstream Notify action, configured with a NexGuard Notifier which communicates with NexGuard Manager to obtain these values, and pass them to the Flip64 action via variables. For details, see the help page for the Notify action NexGuard Notifier.

You can provide these values in these ways:

- Statically, by specifying them manually, which remain the same for every job
- Dynamically, via variables
- Using NexGuard Manager.

In special circumstances, you can optionally supply the watermark ID and watermark key manually - for example, if the NexGuard Manager is temporarily unavailable.

General

NexGuard Watermark ID. Specifies the watermark (payload) ID that NexGuard should use to generate the watermark. If you aren't using NexGuard Manager or it is temporarily unavailable, provide the watermark ID statically or populate and select the variable.

NexGuard Watermark Key. Specifies the key to use when NexGuard applies the watermark. Select from the list in the menu.

Note: When you are using a machine license in the *\Vantage* directory on one server in an array, a race condition may occur where an unlicensed transcode service updates the Vantage database with licensing information after the licensed transcoder service has already done so. In this situation, the NexGuard Watermark filter won't be able to populate the Watermark Key field, requiring you to add it manually.

NexGuard HDR Support

NexGuard HDR Support. When checked, enables NexGuard's high dynamic range support.

Transfer Characteristics. Specifies [Linear Gamma Corrected | DPX Cineon | Hybrid Log Gamma | Perceptual Quantizer]. DPX Cineon can only be used with an RGB10 stream type.

NexGuard Video Watermark Filter (Flip64)

The NexGuard Video Watermark filter is an optional, licensed feature implementing the NexGuard Embedder (deprecated), which adds an indelible, invisible pattern to source video as a watermark so that content owners can protect content by identifying unique copies of their material.

Note: For comprehensive information about using NexGuard filters in Vantage, including suggested workflows, see the *NexGuard Integration Guide* on the Telestream web site.

The NexGuard Video Watermark filter can only operate when you are using the Multi-core 16-bit or Lightspeed Accelerated video processor.

The NexGuard Video Watermark filter requires a NexGuard Video Watermark license from NexGuard, as well as a NexGuard Connector Vantage license from Telestream (the NexGuard Vantage license enables both the video and audio watermark filters).

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

The watermark ID and key are typically provided by an upstream Notify action, configured with a NexGuard Notifier which communicates with NexGuard Manager to obtain these values, and pass them to the Flip64 action via variables. For details, see the help page for the Notify action NexGuard Notifier.

You can provide these values in these ways:

- Statically, by specifying them manually, which remain the same for every job
- Dynamically, via variables
- Using NexGuard Manager.

In special circumstances, you can optionally supply the watermark ID and watermark key manually - for example, if the NexGuard Manager is temporarily unavailable.

General

NexGuard Watermark ID. Specifies the watermark (payload) ID that NexGuard should use to generate the watermark. If you aren't using NexGuard Manager or it is temporarily unavailable, provide the watermark ID statically or populate and select the variable.

NexGuard Watermark Key. Specifies the key to use when NexGuard applies the watermark. Select from the list in the menu.

Note: When you are using a machine license in the *\Vantage* directory on one server in an array, a race condition may occur where an unlicensed transcode service updates the Vantage database with licensing information after the licensed transcoder service

has already done so. In this situation, the NexGuard Watermark filter won't be able to populate the Watermark Key field, requiring you to add it manually.

If the NexGuard Watermark Key is a text field displaying the value *Key 1*, it means that the service was unable to access the license file or that the license information was updated by an unlicensed transcode service. Verify that the license file is valid and in the correct directory, restart the transcode service, and then retry.

NexGuard HDR Support

NexGuard HDR Support. When checked, enables high dynamic range support.

Transfer Characteristics. Specifies [Linear Gamma Corrected | DPX Cineon | Hybrid Log Gamma | Perceptual Quantizer]. DPX Cineon can only be used with an RGB10 stream.

NexGuard Video Watermark Filter (IPTV)

The NexGuard Video Watermark filter in IPTV is an optional, licensed feature implementing the NexGuard Embedder (deprecated), which adds an indelible, invisible pattern to source video as a watermark so that content owners can protect content by identifying unique copies of their material.

Note: For comprehensive information about using NexGuard filters in Vantage, including suggested workflows, see the *NexGuard Integration Guide* on the Telestream web site.

The NexGuard Video Watermark filter can only operate when you are using the Multi-core 16-bit or Lightspeed Accelerated video processor.

The NexGuard Video Watermark filter requires a NexGuard Video Watermark license from NexGuard, as well as a NexGuard Connector Vantage license from Telestream (the NexGuard Vantage license enables both the video and audio watermark filters).

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

The watermark ID and key are typically provided by an upstream Notify action, configured with a NexGuard Notifier which communicates with NexGuard Manager to obtain these values, and pass them to the Flip64 action via variables. For details, see the help page for the Notify action NexGuard Notifier.

You can provide these values in these ways:

- Statically, by specifying them manually, which remain the same for every job
- Dynamically, via variables
- Using NexGuard Manager.

In special circumstances, you can optionally supply the watermark ID and watermark key manually - for example, if the NexGuard Manager is temporarily unavailable.

General

NexGuard Watermark ID. Specifies the watermark (payload) ID that NexGuard should use to generate the watermark. If you aren't using NexGuard Manager or it is temporarily unavailable, provide the watermark ID statically or populate and select the variable.

NexGuard Watermark Key. Specifies the key to use when NexGuard applies the watermark. Select from the list in the menu.

Note: When you are using a machine license in the *\Vantage* directory on one server in an array, a race condition may occur where an unlicensed transcode service updates the Vantage database with licensing information after the licensed transcoder service

has already done so. In this situation, the NexGuard Watermark filter won't be able to populate the Watermark Key field, requiring you to add it manually.

If the NexGuard Watermark Key is a text field displaying the value *Key 1*, it means that the service was unable to access the license file or that the license information was updated by an unlicensed transcode service. Verify that the license file is valid and in the correct directory, restart the transcode service, and then retry.

NexGuard HDR Support

NexGuard HDR Support. When checked, enables high dynamic range support.

Transfer Characteristics. Specifies [Linear Gamma Corrected | DPX Cineon | Hybrid Log Gamma | Perceptual Quantizer]. DPX Cineon can only be used with an RGB10 stream.

NexGuard(JWT license)Watermark Filter

The NexGuard (JWT license) Watermark Filter is an optional, licensed feature implementing the NexGuard Transcoder Plugin, which adds an indelible, invisible pattern to source video as a watermark so that content owners can protect content by identifying unique copies of their material.

Note: For comprehensive information about using NexGuard filters in Vantage, including suggested workflows, see the *NexGuard Integration Guide* on the Telestream web site.

This NexGuard Video Watermark filter can operate in any video processor mode: Multi-core 16-bit | Lightspeed Accelerated | Intel OpenCL 16-bit.

The NexGuard (JWT license) Watermark Filter requires a NexGuard Video Watermark license from NexGuard, as well as a NexGuard Connector Vantage license from Telestream (the NexGuard Vantage license enables both the video and audio watermark filters).

Note: Although the NexGuard Vantage license supports video and audio watermarks (ex. for use with standard NexGuard watermark filters), only video watermarking is currently supported for the NexGuard (JWT license) Watermark Filter.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

The watermark ID and preset name are typically provided by an upstream Notify action, configured with a NexGuard Notifier which communicates with NexGuard Manager to obtain these values, and pass them to the Conform action via variables. For details, see the help page for the Notify action NexGuard Notifier.

You can provide these values in these ways:

- Statically, by specifying them manually, which remain the same for every job
- Dynamically, via variables
- Using NexGuard Manager.

General

NexGuard Watermark ID. Specifies the payload ID that NexGuard should use to generate the watermark. If you aren't using NexGuard Manager or it is temporarily unavailable, provide the watermark ID statically or populate and select the variable.

If your preset name (key) is a clip mark key, the value range for watermark ID is 1-1024. If you supply a key larger than 1024, the job fails with an out of range error.

Preset Name. Specifies the preset name to use when NexGuard applies the watermark. Provide the name statically or dynamically. The preset name (key) is provided to you by Nagra when you obtain a license.

NexGuard Watermark Strength Specifies the level of watermarking to apply.

Note: Nagra recommends leaving the watermark strength level set to *Default* unless otherwise instructed. Application of modified values requires licensing updates and specific, case-by-case instructions from Nagra.

Watermark License String for Cloud Deployment

Disabled by default for execution on-premises. When enabled, allows specification of a license string for use in Cloud deployments. The license provided to you by NexGuard contains this license string.

Disabled by default for on premise deployments.

NexGuard(JWT license)Watermark Filter

The NexGuard (JWT license) Watermark Filter is an optional, licensed feature implementing the NexGuard Transcoder Plugin, which adds an indelible, invisible pattern to source video as a watermark so that content owners can protect content by identifying unique copies of their material.

Watermarking with the NexGuard Transcoder Plugin may be performed in on-premise workflows, and in transcoding actions operating in Cloud mode (using hybrid workflows). You can't execute the Notify action in Cloud mode, but you can execute it on-premises to interchange metadata with NexGuard Manager.

Note: If you haven't set up your Vantage domain for operating in Vantage Cloud, you should do so before using hybrid workflows. For Vantage Cloud and Vantage domain integration guidance, licensing, and details on using hybrid and hosted workflows in Vantage Cloud, refer to the Vantage Cloud User Guide on the Telestream web site.

Watermarking may also be performed in hosted workflows executing in Vantage Cloud—where the workflow is created and configured in Workflow Designer and then exported as a CWD file and then imported into Vantage Cloud for execution.

It isn't necessary to enable Cloud mode on the transcoding/media processing actions. The entire workflow (when imported) executes in Vantage Cloud and the Cloud mode settings are configured directly in Vantage Cloud, instead of the action itself.

Changes you make to the prototype workflow must be made within the limits of hosted workflow restrictions.

Note: Unlike the hybrid workflow requirement, you are not required to set up your Vantage domain for integration with Vantage Cloud to create and export hosted workflows. For Vantage Cloud and Vantage domain integration guidance, licensing, and limits and details on creating and configuring hybrid and hosted workflows, refer to the Vantage Cloud User Guide on the web site.
For comprehensive information about using NexGuard filters in Vantage, including suggested workflows, see the *NexGuard Integration Guide* on the Telestream web site.

The NexGuard (JWT license) Watermark Filter can only operate when you are using the Multi-core 16-bit or Lightspeed Accelerated video processor.

The NexGuard (JWT license) Watermark Filter requires a NexGuard Video Watermark license from NexGuard, as well as a NexGuard Connector Vantage license from Telestream (the NexGuard Vantage license enables both the video and audio watermark filters).

Note: Although the NexGuard Vantage license supports video and audio watermarks (ex. for use with standard Nexguard watermark filters), only video watermarking is currently supported for the NexGuard (JWT license) Watermark Filter.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

The watermark ID and key are typically provided by an upstream Notify action, configured with a NexGuard Notifier which communicates with NexGuard Manager to obtain these values, and pass them to the Flip64 action via variables. For details, see the help page for the Notify action NexGuard Notifier.

You can provide these values in these ways:

- Statically, by specifying them manually, which remain the same for every job
- Dynamically, via variables
- Using NexGuard Manager.

General

NexGuard Watermark ID. Specifies the payload ID that NexGuard should use to generate the watermark. If you aren't using NexGuard Manager or it is temporarily unavailable, provide the watermark ID statically or populate and select the variable.

If your preset name (key) is a clip mark key, the value range for watermark ID is 1-1024. If you supply a key larger than 1024, the job fails with an out of range error.

Preset Name. Specifies the preset name to use when NexGuard applies the watermark. Provide the name statically or dynamically. The preset name (key) is provided to you by Nagra when you obtain a license.

NexGuard Watermark Strength. Specifies the level of watermarking to apply.

Note: Nagra recommends leaving the watermark strength level set to *Default* unless otherwise instructed. Application of modified values requires licensing updates and specific, case-by-case instructions from Nagra.

Watermark License String for Cloud Deployment

Disabled by default for execution on-premises. When enabled, allows specification of a license string for use in Cloud deployments. The license provided to you by NexGuard contains this license string.

Disabled by default for on-premise deployments.

NexGuard Streaming Watermark Filter

The NexGuard Streaming Watermark Filter is an optional, licensed feature which implements the NexGuard Streaming Plugin, and adds an indelible, invisible pattern to source video as a watermark so that content owners can protect content by identifying unique copies of their material. This filter can be configured and enabled for use in Cloud mode in the Multiscreen action.

Note: For comprehensive information about using NexGuard filters in Vantage, including suggested workflows, see the *NexGuard Integration Guide* on the Telestream web site.

Watermarking with the NexGuard Transcoder Plugin may be performed in on-premise workflows, and in transcoding actions operating in Cloud mode (using hybrid workflows). You can't execute the Notify action in Cloud mode, but you can execute it on-premises to interchange metadata with NexGuard Manager.

Note: If you haven't set up your Vantage domain for operating in Vantage Cloud, you should do so before using hybrid workflows. For Vantage Cloud and Vantage domain integration guidance, licensing, and details on using hybrid and hosted workflows in Vantage Cloud, refer to the Vantage Cloud User Guide on the Telestream web site.

Watermarking may also be performed in hosted workflows executing in Vantage Cloud—where the workflow is created and configured in Workflow Designer—then exported as a CWD file and then imported into Vantage Cloud for execution.

It isn't necessary to enable Cloud mode on the transcoding/media processing actions. The entire workflow (when imported) executes in Vantage Cloud and the Cloud mode settings are configured directly in Vantage Cloud, instead of the action itself.

Changes you make to the prototype workflow must be made within the limits of hosted workflow restrictions.

Note: Unlike the hybrid workflow requirement, you are not required to set up your Vantage domain for integration with Vantage Cloud to create and export hosted workflows. For Vantage Cloud and Vantage domain integration guidance, licensing, and limits and details on creating and configuring hybrid and hosted workflows, refer to the Vantage Cloud User Guide on the web site.
For comprehensive information about using NexGuard filters in Vantage, including suggested workflows, see the *NexGuard Integration Guide* on the Telestream web site.

The NexGuard Streaming Watermark Filter can only operate when you are using the Multi-core 16-bit or Lightspeed Accelerated video processor.

The NexGuard Streaming Watermark Filter requires an on-premise Nagra JWT license to execute on-premises, and a cloud-based Nagra JWT license to execute in Vantage Cloud, as well as a NexGuard Connector Vantage license from Telestream.

Multiscreen Flip action workflows with NexGuard watermarking have the following limits/requirements:

- You can't watermark media in formats that don't support watermarking.

- Watermarking can't be performed with codecs being used in Direct-Convert mode; they must decode and re-encode the video.

- The minimum length of video for watermark detection varies by algorithm, as noted in your key name.
  - Algorithm 1 - 20 minute source required
  - Algorithm 2 - 10 minute source required
  - Algorithm 3 (live) and Algorithm 4(VOD) - 5 minute source required.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

General

NexGuard Watermark ID. Specifies the payload ID (0 or 1) that NexGuard should use to generate the watermark. Provide the watermark ID statically or populate and select the variable.

Preset Name. Specifies the preset name to use when NexGuard applies the watermark. Provide the name statically or dynamically. The preset name (key) is provided to you by Nagra when you obtain a license.

NexGuard Watermark Strength Specifies the level of watermarking to apply.

Note: Nagra recommends leaving the watermark strength level set to *Default* unless otherwise instructed. Application of modified values requires licensing updates and specific, case-by-case instructions from Nagra.

Watermark License String for Cloud Deployment

Disabled by default for on premise deployments.

Enable this control to execute in Vantage Cloud and supply a license string. Open the cloud license file provided by Nagra in a text editor: Select All > Copy > Paste the license string into the field. Alternatively, bind to a variable. For efficiency, you can create a variable in the Vantage Management Console, update it with the license string, and then assign the variable to this control. Do not use the cloud license when executing the transcode action on-premises.

Noise Reduction Filter

The Noise Reduction filter reduces video noise by applying a median filter to the entire source image. Noise reduction is generally used to remove fine noise such as film grain, to improve compression.

Window Size. Specifies the pixel dimensions to utilize. The noise reduction window value determines the number of neighboring pixels that will be utilized in the noise reduction process for each input pixel. A smaller window reduces some random noise and improves image compression. A larger window size removes more noise, but may blur the image or cause it to look pixelated.

Video File Overlay Filter

Use the Video File Overlay filter to overlay a video file frame by frame on the output video stream. You can specify the start time, frame location, scaling, and opacity. Audio (if any) is ignored.

The overlay file can be of any supported format that can be auto-decoded.

Note: Overlay video should ideally match the frame rate of the primary video stream. The overlay displays at the primary video rate. If it does not match, then it will display faster or slower than intended.

File Path. Specifies the fully-qualified path to the video file to use as an overlay.

Looping. Specifies that the file should be overlaid repeatedly, for the duration of the primary output video stream.

Overlay Left. Specifies the X or horizontal position of the overlay on the output frame, relative to the left edge of the frame.

Overlay Top. Specifies the Y or vertical position of the overlay on the output frame, relative to the top of the frame.

Opacity. Specifies the opacity of the overlay, in percent. 100% equals fully opaque (no original frame pixels display), and 0 equals fully transparent (no overlay pixels display).

Scaling Factor X | Scaling Factor Y. Specifies the X and Y scaling factor of the overlay on the output frame, relative to the top left corner of the overlay.

Overlay Start Time. Specifies the timecode in the output media where to insert the target video.

Video File Overlay Filter (Flip64)

Use the Video File Overlay filter in Flip64 to overlay a video file frame by frame on the output video stream. You can specify the start time, frame location, scaling, and opacity. Audio (if any) is ignored.

The overlay file can be of any supported format that can be auto-decoded.

Note: Overlay video should ideally match the frame rate of the primary video stream. The overlay displays at the primary video rate. If it does not match, then it will display faster or slower than intended.

File Path. Specifies the fully-qualified path to the video file to use as an overlay.

Looping. Specifies that the file should be overlaid repeatedly, for the duration of the primary output video stream.

Overlay Left. Specifies the X or horizontal position of the overlay on the output frame, relative to the left edge of the frame.

Overlay Top. Specifies the Y or vertical position of the overlay on the output frame, relative to the top of the frame.

Opacity. Specifies the opacity of the overlay, in percent. 100% equals fully opaque (no original frame pixels display), and 0 equals fully transparent (no overlay pixels display).

Scaling Factor X | Scaling Factor Y. Specifies the X and Y scaling factor of the overlay on the output frame, relative to the top left corner of the overlay.

Overlay Start Time (Inclusive). Specifies the timecode in the output media where to insert the target video.

Video Overlay Filter

The Video Overlay Filter burns video from the specified input video stream onto the output video, as specified by your settings.

You can overlay up to four video streams (one in each Video Overlay filter) during a transcode. You can adjust the frame size and location, as well as opacity. You can also specify the start time of the overlay operation.

Note: Overlaid video should ideally match the frame rate of the primary video stream. The overlay displays at the primary video rate. If it does not match, then it will display faster or slower than intended.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Overlay Left. Specifies the X or horizontal position of the overlay on the output frame, relative to the left edge of the frame.

Overlay Top. Specifies the Y or vertical position of the overlay on the output frame, relative to the top of the frame.

Opacity. Specifies the opacity of the overlay, in percent. 100% equals fully opaque (no original frame pixels display), and 0 equals fully transparent (no overlay pixels display).

Scaling Factor X | Scaling Factor Y. Specifies the X and Y scaling factor of the overlay on the output frame, relative to the top left corner of the overlay.

Overlay Start Time. Specifies the timecode in the output media where to start inserting the specified video stream.

Stream. Specifies the name of the Input video stream to use as an overlay.

Open Subtitle Overlay Filter

The Open Subtitle Overlay Filter inserts open (or burned-in) subtitles into the video. The subtitles are comprised of a sequence of PNG images with an associated XML document.

General

Screen Subtitle XML File. Specifies the fully-qualified path to and including the file name of the subtitle XML file (typically, a UNC path accessible to the Vantage service executing this action).

Start Timecode

Start Timecode. Specifies which type of timecode to utilize in this filter: Specify XML Timeline Start Timecode | Use Movie Start Timecode. When XML timecode is specified, specifies the time or timecode and rate of where the subtitle timeline begins (using only hours, minutes, and seconds).

Precision Dithering Filter

The Precision Dithering Filter determines how dithering is applied to the video. Precision dithering is selective, minute pixel color alteration or dithering - introducing visual noise to diminish the visual stair-stepping artifacts in a video frame.

Rounding Mode. Specifies the mode of the filter.

Resizing Filter

The Resizing Filter determines how the video frames are resized to fit into a different resolution.

General

Transform. Specifies the orientation of the video (None | Rotate 90 Degrees | Rotate 180 Degrees | Rotate 270 Degrees | Flip Horizontally | Flip Vertically).

Cropping and Padding

Cropping and padding can be performed automatically or manually.

Automatic

In automatic mode, the transcoder determines the aspect ratio of the input, and then (optionally) crops the original video, or pads it with letterboxing or curtains/pillars, to preserve the input aspect ratio in the output video.

For example, when HD video is converted to SD output with padding enabled, letterboxing is automatically added.

Use the Stretch option to disable cropping and padding. In Stretch mode, the aspect ratio is ignored and the input video is simply resized to match the size of the output frame.

When Changing Aspect Ratio. Specifies the action to take (Crop | Pad | Stretch), and optionally, check how to handle SD and HD video input frame sizes.

Output Aspect Ratio. Specifies the output aspect ratio (Automatic | 4:3 | 16:9 | 14:9).

Manual

In manual mode, the transcoder crops or pads the original video exactly as specified.

Crop and Pad Settings. Specifies the crop and pad settings and pad color.

Note: Crop specifies the number to pixels to remove at the *input* frame resolution. Pad specifies the number of pixels to add at the *output* resolution.

Resizing Algorithm

Resizing Algorithm. Specifies the type of resizing algorithm to use.

Bilinear resizing offers the fastest conversion, but the lowest quality.

Gaussian offers improved quality over Bilinear.

Lanczos offers the highest possible quality, with the slowest speed.

Generally, the Lanczos algorithm automatically tunes itself according to the type of resizing you are performing, but additional control is provided for difficult resizing situations.

For example, Preserve Detail may best be used when resizing from a smaller video frame size to a larger one, such as when converting from SD to HD frame sizes, if the Balanced approach causes too much smoothing during the resize.

Alternatively, Avoid Visual Artifacts may best be used when down-scaling from an HD frame size to an SD one, particularly if the original video has a lot of fine-grained noise that causes visual artifacts when down-scaled.

Rotation

Rotation. Rotates the frame clockwise from the input. Specifies 0 | 90 | 180 | 270 degrees. Cropping and Padding is applied as specified.

Vertical Blanking

Specifies the vertical blanking in the input (if any) for 486- or 512-line NTSC or 608-line PAL output, to control where the vertical blanking is located. Lines for vertical blanking are added or removed, depending on the number of input and output lines specified, independent of padding or cropping.

Saturation Filter

Placeholder

The Saturation filter controls the amount of color in the video by saturating the output video components. Saturation values range from -100% (no color) to 100% (5 times the normal saturation).

Sharpen Filter

The Sharpen filter increases the sharpness and detail of the video in a two step process:

First, an edge enhancement filter is applied to the entire source image, increasing contrast along edges. The window parameter determines the number of neighboring pixels used by the filter. Larger numbers result in stronger edge enhancement.

Second, the edge-enhanced image is mixed with the original image further controlling the effective sharpness. Larger mix amount values indicate that more sharpening should be applied.

Window Size. Specifies the size (in pixels) of the sharpen kernel to operate on, in pixels (a radius). A smaller kernel increases the degree of sharpening.

Mix Amount. Specifies to what degree the sharpened kernel should be blended back into the original image. A lower percentage (an increased percent of the original) creates less sharpening than a higher percentage (an increased percent of the enhanced frame).

Teletrax Watermark Filter

The Teletrax Watermark filter implements the 4C Insights Teletrax Watermarking Plug-In, which allows you to insert a Teletrax watermark into your media as it is being processed by a Vantage workflow for monitoring by the 4C Insights Teletrax Broadcast Monitoring Service. For information about the 4C Insights Teletrax product, see vendor documentation.

This filter is executed by the Multiscreen Vantage service.

Vantage Licensing Requirement. The use of the Teletrax Watermarking filter is an optional, licensed Vantage feature. Contact Telestream to obtain the license.

4C Teletrax Licensing. The Teletrax Watermarking Plug-In also requires a 4C Teletrax license. Please contact 4C Insights for the applicable license via email at support@teletrax.com.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

General

Duration. Specifies the duration of the watermarked video in HH:MM:SS format. Specify the frame rate (*fps*) or select *Time* and specify the second fraction expressed in thousandths of a second.

Customer ID. Specifies your 4C Insights Teletrax customer ID per your agreement with Teletrax. Optionally, it may be left blank.

Encodation Log File Name. Specifies the file name used for the Teletrax encodation log file (default: *encodation.log)*. This log file is stored in the *\Teletrax\Encodation* sub-directory of the installation directory. The name of this file can not be changed - the Teletrax system will not accept or process your log files by any other name.

For example: *C:\Program Files (x86)\Telestream\Vantage\Components\Multiscreen 7.1.0\x64\Teletrax\Encodation\encodation.log*.

At the conclusion of the watermark embedding process, the Watermarking Plug-In creates an encodation log that matches the watermark payload to the content metadata. The Watermarking Plug-In then forwards this encodation log to Teletrax for inclusion in the client Embedded Material list.

Content Processing Parameters

Content Processing Parameters. Specifies the EID content processing parameter set to use for this workflow. The items displayed in this list are defined in your Teletrax configuration file.

The parameter set is comprised of watermark configuration information for your EID(s), including FTP credentials and content metadata that you have set up with 4C Insights as part of your implementation. These values are added to the encodation logs during processing.

The Watermarking Plug-In generates this metadata in one of two ways. The metadata can be entered manually into the Teletrax Watermark filter fields directly. Alternatively, the metadata may be copied from the existing metadata associated with the source content. This information is what will be reported along with the airplay data.

Text Overlay Filter

When enabled, the Text Overlay Filter overlays text onto the video frames using the text and rendering options specified.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

General

Overlay Start Time (Inclusive) | Overlay End Time (Inclusive). Specifies the start and end time or timecode of the image overlay.

Fade-in Duration | Fade-out Duration. Specifies the in and out fade duration time or timecode. If set to Time and the value is zero, there is no fade - it is displayed (or stopped) instantly.\

Outline/Shadow

Outline/Shadow. When Create Outline or Shadow is selected, a shadow is created to the right and down for each character. When No Outline or Shadow is selected, the text is displayed normally.

Outline/Shadow Color. Click to display the color selector dialog where you can select the color to apply to the outline or shadow.

Width. Sets the width in pixels, of the outline or shadow.

Horizontal Offset. Sets the horizontal offset of the shadow or outline from the text characters in pixels.

Vertical Offset. Sets the vertical offset of the shadow or outline from the text characters in pixels.

Intensity. Specifies the intensity of the outline or shadow.

Text Display

Font Name. Select the name of the font to use when rendering text. The fonts listed are the ones available in your system.

Text to Display. Specifies the text to display.

Text Color. The text color (foreground) to use when rendering text.

Transparent Background. When enabled, background will be transparent.

Background Color. The color (background) to use when rendering text.

Font Size. Sets the font size in points. Default is 18 pts.

Bold. When enabled, renders text as bold.

Italics. When enabled, renders text as italicized.

Underline. When enabled, renders text as underlined.

Strikeout. When enabled, renders text with strikeout (strikethrough).

Opacity. Sets the opacity of the text as a percent where 100% is fully opaque and 0% is fully transparent. Default is 100.

Positioning

Overlay Left | Top. Specifies the X and Y coordinate of the text overlay frame, identifying the location of the top left corner of the overlay relative to the output frame origin.

Width | Height. Specifies the width and height of the overlay movie; values are measured in pixels within the output video.

Wrap and Fit

Wrap Text. When enabled, uses text wrapping to display text within the bounds of the text frame

Horizontal Alignment. Select horizontal alignment.

Vertical Alignment. Select horizontal alignment.

Teletrax Watermark Filter (Flip64)

The Teletrax Watermark filterin Flip64 implements the Teletrax Watermarking Plug-In, which allows you to insert a Teletrax watermark into your media as it is being processed by a Vantage workflow for monitoring by the Teletrax Broadcast Monitoring Service. For information about the Teletrax product, see vendor documentation.

This filter is executed by the Transcode Vantage service.

Vantage Licensing Requirement. The use of the Teletrax Watermarking filter is an optional, licensed Vantage feature. Contact Telestream to obtain the license.

Teletrax Licensing. The Teletrax Watermarking Plug-In also requires a Teletrax license. Please contact Teletrax for the applicable license.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

General

Duration. Specifies the duration of the watermarked video in timecode format. When disabled (default), the Teletrax Watermark filter automatically calculates the duration value. When enabled, then the duration of the source video must be entered in a timecode format or bound to a timecode variable which can be populated by a previous Analyze action. You should only enable this control when you want to supply the duration to the job, calculate it using an Analyze action, or need to utilize the duration in other actions downstream.

Customer Id. Specifies your Teletrax customer ID per your agreement with Teletrax. Optionally, it may be left blank.

Encodation Log File Name. Specifies the file name used for the Teletrax encodation log file (default: encodation.log). This log file is stored in the \Teletrax\Encodation sub-directory of the installation directory.

Content Processing Parameters

Specifies the EID content processing parameter set to use for this workflow. The items displayed in this list are defined in the Teletrax configuration file.

The parameter set is comprised of watermark configuration information for your EID(s), including FTP credentials and content metadata that you have set up with Teletrax as part of your implementation. These values are added to the encodation logs during processing.

The Watermarking Plug-In generates this metadata in one of two ways. The metadata can be entered manually into the Teletrax Watermark filter fields directly. Alternatively,

the metadata may be copied from the existing metadata associated with the source content. This information is what will be reported along with the airplay data.

If the Teletrax configuration file includes metadata for each Content processing parameter then the UI will show the appropriate fields to correspond with the Content processing parameter. These metadata fields can be bound to variables populated with the appropriate information or the metadata can be entered manually.

Time Code Burn-in Filter

The Timecode Burn-in filter burns the source media time code into the video output frame during transcoding. Timecode is burned into the video prior to any video processing. When performing a video resize as part of a transcode, the timecode will be burned into the image based on the source frame dimensions and then resized along with the video.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

X Position | Y Position. Specifies the top left corner of the text block, from the top left corner of the frame, in pixels.

Font Size. Specifies (in pixels) the height of the font.

Font Opacity. Specifies (in real numbers) the opacity of the font, where 0 is fully transparent and 100 is fully opaque.

Background Opacity. Specifies (in real numbers) the opacity of the background of the font region, where 0 is fully transparent and 100 is fully opaque.

User Data Filter

The User Data filter enables you to perform certain user data insertion operations when encoding the video stream.

User Data Filter. Check to enable one or more specific user data insertion operations.

Insert 608 Captions. Check to insert 608 captions if present in the source and if supported by the codec (MPEG2 for example). When checked, 608 captions from the source are inserted in the output as appropriate. If not supported by the codec, no insertion takes place, but encoding proceeds normally.

Insert 708 Captions. Check to insert 708 captions if present in the source and if supported by the codec (MPEG2 for example). When checked, 708 captions from the source are inserted in the output as appropriate. If not supported by the codec, no insertion takes place, but encoding proceeds normally.

Insert AFD. Specifies that the Active Format Description (AFD) data is to be inserted in the output video. The source for AFD data must be specified in the output ANC stream component, where you can specify an SD or HD profile or Use Source AFD.

Write Timecode. Specifies that the filter should write the timecode into the user data.

Allow Video Processor Bypass Filter

When Allow Video Processor Bypass Filter is checked, if no operations in the VPL are required, the action process is sped up by bypassing the VPL entirely.

Note: When you select a specific Video Processor for a given encoder, you must make sure that it is available and running in the domain or you can't process media. For example, if you enable the Lightspeed Accelerated Processor, a Lightspeed server (with the Lightspeed Service running) must be available.
If a Lightspeed server is not available (the server or the service is not running, no license is present, or the service is hung), by default, the task will automatically be processed on an available CPU-based transcoding service. However, if the VPL service or services are busy processing other tasks, the action will wait indefinitely until one becomes available, unless fallback rules are specified.
To verify that the required service is present, close the inspector. Right-click on the action and select Run On Rules to verify that a service exists that can service these particular actions. In the Run On Rules dialog, click Check Services (bottom left corner). Vantage will verify that the required service is available and advise you. If one is not available, Vantage reports that none of the services can execute this action. For assistance, contact your Vantage administrator

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Active Format Description Filter

The Active Format Description filter sets the Active Format Description (AFD) code in the output video for specifying how a program should be displayed in a playback device that does not use the same display aspect ratio the program was encoded with.

For more information about AFD, refer to ATSC A/53 Part 4 and SMPTE ST 016-3.

Active Format Description Profile

Active Format Description Profile. Specifies the (SD | HD | Source AFD) profiles list to use. When specifying SD or HD, select the appropriate profile. When specifying Source AFD, the AFD value from the source is transferred to the output.

Profile. Specifies the profile to use.

Ancillary Data Placement

Ancillary Data Placement. Specifies what method to use when placing data in ancillary data stream: Auto | Progressive | Interlaced. For Progressive and Interlaced, specify line numbers/fields, below:

Line Number (Progressive). Specifies the line number into which the VANC packets are inserted.

Field 1|2 Line Number (Interlaced). Specifies the field 1 and field 2 line number into which the VANC packets are inserted.

Active Format Description Filter

The Active Format Description filter sets the Active Format Description (AFD) code in the output video for specifying how a program should be displayed in a playback device that does not use the same display aspect ratio the program was encoded with.

For more information about AFD, refer to ATSC A/53 Part 4 and SMPTE ST 016-3.

Active Format Description Profile. Specifies the (SD | HD | Source AFD) profiles list to use. When specifying SD or HD, select the appropriate profile. When specifying Source AFD, the AFD value from the source is transferred to the output.

Profile. Specifies the profile to use.

Closed Caption Processing Filter

The Closed Caption Processing filter inserts closed caption ANC data into your output. 708 data is placed in Service 2. Note that some options are not supported in all actions.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Preserve Original 708 data (if exists). Check to disable caption transcoding to regenerate the 708 data. Otherwise, 708 data is regenerated from the 608 data.

Ignore Closed Caption Errors. Check to ignore 708 errors. (For example, out-of-spec, empty 708 captions placeholders). When unchecked, if Vantage encounters this problem, the workflow will fail with a reported error. Otherwise (when enabled), the output may have broken captions, but it will not be corrupted.

608 CC to 708 Services Mapping Count. Specifies services mapping.

Option 4 (default): Maps CC1 > Service 1, CC2 > Service 2, CC3 > Service 3, CC4 > Service 4.

Option 2: Maps CC1 > Service 1, CC2 > Service 2, CC3 > Service 2. Option 2 should not be used when both CC2 and CC3 are present.

Closed Caption Source Priority. Specifies the closed caption source priority. Select from menu options.

Closed Caption Processing Filter

The Closed Caption Processing filter inserts closed caption ANC data into your output.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Preserve Original 708 data (if exists). Check to disable caption transcoding to regenerate the 708 data. Otherwise, 708 data is regenerated from the 608 data.

Ignore Closed Caption Errors. Check to ignore 708 errors. (For example, out-of-spec, empty 708 captions placeholders). When unchecked, if Vantage encounters this problem, the workflow will fail with a reported error. Otherwise (when enabled), the output may have broken captions, but it will not be corrupted.

Content Advisory Filter

The Content Advisory filter enables embedding content advisory XDS data in the output.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

General.

Rep Rate (Required). Specifies the XDS content rating metadata in number of frames (default: 120).

Manually Set Content Advisory. Specifies the content advisory system to be inserted into ANC.

Rating. Specifies the rating for the system you specify.

Graphic Overlay (USTV only). Specifies one or more instances of graphic overlays for the rating you specify, with required settings for location on-frame, opacity, start and stop times, and fades.

Note: When you specify a graphic overlay and want to apply a fade-out, you must specify the Overlay End Time, or the fade-out will not be applied.

Direct Convert Settings Filter (Flip64)

When enabled, the Direct Convert Settings filter allows for the configuration of numerous settings specific to direct converts. Disabled by default.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Preserve Original Metadata Unchanged During Convert. When checked, original file metadata is passed through unchanged when performing direct converts. Unchecked by default.

Update MPEG-2 GOP Time Code During Direct Convert. When checked, MPEG-2 GOP timecode is updated based on settings specified in the Time Code Processing Filter. Unchecked by default.

Time Code Processing Filter

The Time Code Processing Filter controls how time code is propagated in the generated media for formats that support timecode.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Override. Specifies Use Source Time Code | Override Time Code | Anchor Frame.

Use Source Time Code - to use the time code detected in the source file.

- **Timecode Source Priority List**. (for Source Time Code only) When checked, select Add New Item to specify which time code in the source is retrieved and used. Unchecked by default.
  Timecode Source Priority. Select prioritized timecode(s) to use for the output. Multiple timecodes can be specified and sequence in UI (top to bottom) determines priority (highest to lowest priority). If none of the prioritized timecodes are found in the source file, default timecode from first frame of video is used.

Override Time Code - to use the time code specified in the Time Code field, which you must configure:

- **Time Code**. (for Override Time Code only) Specifies the time code to apply.
  You can specify drop-frame processing by selecting any element of the time code and the pressing the semi-colon key or the D key. Workflow Designer displays a semicolon between the second field and frame field to indicate that drop-frame processing is enabled. To return to normal (non-drop-frame) processing, press the colon key or the N key again.

Anchor Frame - to ensure that a source video frame other than the first frame contains a specific time code. When checked, specify the Source Time Code and Output Time Code parameters.

- **Source Time Code**. (for Anchor Frame only) Specifies the time code of a frame in the source which should become the anchor frame.
- **Output Time Code**. (for Anchor Frame only) Specifies the time code to use for the anchor frame.
  Example:
  Source Time Code 00:01:00:00 - Sets the frame appearing at 00:01:00:00 as the anchor frame.
  Output Time Code 01:00:00:00 - overrides the anchor frame time code. The first frame of video will be 00:59:00:00, so that when the anchor frame is reached one minute later, the time code is exactly 01:00:00:00.

Time Code Processing Filter

Time Code Processing Filter

Flip64 Action Video Processors

Video Processing Libraries

Multi-core 16-bit YCbCr 4:4:4:4 Processor

Lightspeed Accelerated 16-bit YCbCr 4:4:4:4 Processor

Intel OpenCL Video Processor

Multi-core 16-bit YCbCr 4:4:4:4 Processor

Select the Multi-core Video Processor when you are running Vantage on standard CPU-based servers. More specifically, when the action is being executed by a Vantage transcoding service executing on a CPU-based server. This video processor is implemented to work well on a wide variety of Intel-compatible CPUs.

To verify that the service is running, right-click on the action and select Run On Rules to verify that a service exists that can execute this action. In the Run On Rules dialog, click Check Services (bottom left corner) to verify that the required service is available. If one is not available, Vantage reports that none of the services can execute this action. For assistance, contact your Vantage administrator.

Lightspeed Accelerated 16-bit YCbCr 4:4:4:4 Processor

Select the Lightspeed-Accelerated Video Processor when you are running Vantage on GPU-based Lightspeed server and you have a Lightspeed license. More specifically, when the action is being executed by a Vantage transcoding service executing on a GPU-based, Lightspeed server.

To verify that the service is running, right-click on the action and select Run On Rules to verify that a service exists that can execute this action. In the Run On Rules dialog, click Check Services (bottom left corner) to verify that the required service is available. If one is not available, Vantage reports that none of the services can execute this action. For assistance, contact your Vantage administrator.

The Lightspeed-Accelerated Video Processor is implemented for high-performance, GPU processor usage, and only operates on a Lightspeed Vantage server. It provides the same capabilities as the Multi-core Video Processor, but is specifically designed to take full advantage of the GPUs present in the Lightspeed server, to ensure maximum performance and efficiency.

If your Vantage domain includes Lightspeed servers, you can select the Lightspeed Video Processor instead of the Multi-core Video Processor to speed job processing. When you run jobs through a workflow with a specific Video Processor, make sure that the Video Processor service is running. For example, if you select the Lightspeed Accelerated Processor, the Lightspeed Service running on a Lightspeed server must be available.

When you select the Lightspeed Video Processor for a given encoder, you must make sure that a Lightspeed server is available in your Vantage domain, or that you specify fallback rules to allow the use of the Multi-core Video Processor instead during times when all Lightspeed servers are busy or are unavailable.

If a Lightspeed server is not available, by default the action will automatically be processed on an available CPU-based transcoding service. However, if the Video Processor service(s) are available, but busy processing other tasks, the action will wait indefinitely until one becomes available, unless fallback rules are specified.

Intel OpenCL Video Processor

Select the Intel OpenCL Video Processor when you are running Vantage on Intel-based servers. More specifically, when the action is being executed by a Vantage transcoding service executing on an Intel-based server.

To verify that the service is running, right-click on the action and select Run On Rules to verify that a service exists that can execute this action. In the Run On Rules dialog, click Check Services (bottom left corner) to verify that the required service is available. If one is not available, Vantage reports that none of the services can execute this action. For assistance, contact your Vantage administrator.

The OpenCL Video Processor is implemented on the Intel OpenCL framework. This Video Processor performs more efficiently on compatible Intel CPU platforms than the Multi-Core Processor, which is implemented to work well on a wide variety of Intel-compatible CPUs.

File Systems

Vantage provides read and write access to a variety of file systems which are used to store media and associated files. Each file system has certain characteristics that control the functionality of Vantage access.

Some file systems are native: Windows, FTP, etc. Others (such as P2 and Omneon) are virtual (or logical) file systems designed specifically for media storage, and are implemented or represented upon various native file systems.

Note: Vantage stores all file paths as a URL, which it uses to reference both local and remote target directories. Although paths are stored in URL format, they are always displayed to the user in UNC or local (drive-letter) format, for ease of reading and use.

Amazon S3 (Simple Storage Service)

AMP File System

Aspera Enterprise Server File System

Aspera Open File System

Avid File System

Azure File System

Bindable File System

FTP File System

Generic S3 File System

Google Cloud File System

Grass Valley / K2 FTP File System

HTTP File System

MediaStream File System

Mijo FTP File System

Nexio (WANStreamer) File System

Omneon File System

Oracle File System

Pathfire ACP (Automation Connect Protocol) File System

P2 File System

Quantel ISA Gateway File System

SeaChange BML File System

SFTP File System

Windows File System

Amazon S3 (Simple Storage Service)

When an Amazon S3 service is specified, Vantage accesses the Amazon Web Service via the S3 Web services interface.

You can navigate, browse, and select buckets, but you cannot create or delete them. Bucket management must be performed using management tools from the vendor.

Note: If your AWS account is configured to use IAM (AWS Identity and Access Management) permissions, you must configure the policies properly based on your configuration of this action, so that Vantage can utilize the S3 system.
Please review the AWS IAM Policies for Vantage Users document, located on the Telestream web site at http://www.telestream.net/pdfs/technical/dat-AWS-IAM-Policies-for-Vantage-Users.pdf for recommended bucket, SNS, and SQS policy settings.

Configuration Settings

Configure the host connection settings and click Next to browse and select the target bucket.

Connection Information

Access Key ID. The access key ID for the AWS account, analogous to a user name.

Secret Access Key. The secret access key for the AWS account, analogous to a password.

Browse. Specifies All Buckets | Single Bucket.

All Buckets - the file system panel displays each bucket in the account, so that you can browse into any bucket.

Single Bucket - the objects in the bucket you specify are displayed, and you can not browse into other buckets above this bucket.

Region. Specifies *Auto-detect* or specifies a specific region as the geographic endpoint for the Web service.

Timeout. Optional time-out value (in seconds) for S3 HTTP requests (default 300 seconds).

Use HTTP Proxy. When checked, indicates that a proxy server should be used. Provide the proxy host name, port number, and credentials.

Proxy Host. When Use HTTP Proxy is enabled, specifies the name/IP address of the proxy host.

Proxy Port. When Use HTTP Proxy is enabled, specifies the proxy port number (default: 8080).

Provide Proxy Credentials. When checked, indicates that HTTP authentication should be used. Provide the user name and password.

Proxy User. When Provide Proxy Credentials is enabled, specifies the user name to use.

Proxy Password. When Authentication is enabled, specifies the password.

Use Transfer Acceleration. When checked, Amazon S3 Transfer Acceleration is enabled, to increase data transfer speed over long distances. To utilize this feature, the bucket must be configured to allow transfer acceleration. See https://docs.aws.amazon.com/AmazonS3/latest/user-guide/enable-transfer-acceleration.html.

Override upload filesize limit. The maximum upload size for open files. Closed files will ignore this setting (default 195 GB). Setting a very high value can negatively impact upload speed and increase memory usage.

Target Folder

When you click Next, Vantage attempts to connect to the target S3 system, using the current configuration. If successful, browse to select the target bucket or folder path. If the connection fails, correct the settings and try again.

Folder. Specifies the target bucket to monitor for new files.

AMP File System

When an AMP file system is specified, Vantage accesses the target directory on the associated network-accessible FTP server.

Advanced Media Protocol (AMP) is a protocol common to Grass Valley servers and equipment. AMP provides a view of a file system on a Grass Valley server which implements the AMP protocol.

AMP protocol is utilized for the interaction and control of a particular server while the file transmission is redirected to an FTP-based server. The AMP file system enables any Grass Valley server which implements AMP protocol to be utilized as a target of media operations in Vantage.

Note: The Grass Valley K2 FTP file system should be selected when delivering media to the FTP file system on a K2 server. The AMP File system should be selected when delivering media to a Profile XP.

Configuration Settings

Connection Information

Volume. Specifies the target volume, which must end with a colon (default: EXT:).

Host Name or IP Address for Device Control. Specifies the name or IP address of the device control server. Don't supply the protocol.

TCP Port. Specifies the TCP port (default:3811) the server is listening on.

Host Name or IP Address for File Transfer. Specifies the name or IP address of the file transfer server. Don't supply the protocol.

TCP Port. Specifies 21 as the TCP port the server is listening on. This value is fixed and can not be changed.

Folder

When you click Next, Vantage attempts to connect to the server, using the current configuration. If successful, browse the file system to select the target folder. If the connection fails, correct the settings and try again.

Folder. Specifies the target folder to monitor on the AMP server.

Aspera Enterprise Server File System

When an Aspera Enterprise Server is specified, Vantage accesses the target directory on the target server to retrieve, modify, and send files. Access to an Aspera Enterprise Server is enabled in actions where file system access is utilized, for monitoring, file transport, and delivery.

Configuration Settings

Complete the following configuration panels:

Connection Information

Host (Required). The hostname or IP address of the server. Don't supply the protocol.

SSH Port. Specifies the TCP port number (default: 33001). The TCP port is used for connecting to the SSH server and establish a standard SSH session to provide authentication and to initiate the transfer.

Fasp Port. Specifies the UDP port number (default: 33001). The UDP port is used for the data stream, which is associated with the faspcat or ascp process on both endpoints.

Target Rate. Specifies the maximum transfer rate (in kbits per second), assuming unconstrained bandwidth.

Mode. Specifies how the transfer will react under congestion (that is, how it shares the bandwidth). For a complete explanation, refer to the Aspera documentation at https://support.asperasoft.com/entries/20150612-Transfer-Policies-Explained.

User Credentials

Username (Required). Valid username for this server.

Auth Type: Select Password or SSH Key and configure the setting:

- **Password**. Valid password for the user logging on.
- **SSH Key**. Click Set Key to specify the key and configure the setting:
  - **Private Key**. Paste in the key or click Browse to select a key file.
  - **Passphrase**. Valid passphrase for the key.

Folder

When you click Next, Vantage attempts to connect to the server, using the current configuration. If successful, browse the file system to select the target folder. If the connection fails, correct the settings and try again.

Folder. Specifies the target folder to monitor on the Aspera server.

Aspera Open File System

When an Aspera High-Speed Transfer Server is specified, Vantage accesses the specified directory on the target server to retrieve, modify, and send files. Access to an Aspera High-Speed Transfer Server is enabled in actions where file system access is utilized, for monitoring, file transport, and delivery. This implementation is optimized to tolerate intermittent network failures during large file transfer operations and retain the data successfully delivered in the event of a failure.

This open implementation supports writing files from Vantage while they are still open - that is, while they are being written.

Note: Transport actions that are configured to use the Aspera Open file system (and the preceding action) should be configured to execute in Open Workflow mode.

Note: Utilization of the Aspera Open file system requires:
- a Vantage Aspera license
- Aspera High-Speed Transfer Server version 3.8 or later
- The server must be configured for token-based authorization
- The Node service must be enabled
- You must use a Node API username and password. You cannot use a Transfer user username and password.

For details on enabling and configuring the Node service, consult the Administration Guide for Aspera High-Speed Transfer Server 3.8 or later.

Configuration Settings

Connection Details

Host (Required). The hostname or IP address of the Aspera High-Speed Transfer server. For example, myshares.aspera.com.

Port. Specifies the TCP port number (default: 9091 for HTTP, 9092 for HTTPS). The TCP port is used for connecting to the server and establish a standard SSH session to provide authentication and to initiate the transfer.

Use HTTPS. When checked, specifies that the access method should be HTTPS instead of HTTP.

User (Required). Valid username for this server.

Password. Specifies the password assigned to the user name.

Specify SSH Key. When checked, utilizes an SSH key.

Set Key. Click to specify the key and the pass phrase:

Private Key. Paste in the key or click Browse to select a key file.

Passphrase. Valid pass phrase for the key.

Override Default Target Rate. Specifies the target data rate in kbps for these transfers.

Resume Timeout. (Default: 0 - disabled). When set to 1 or greater, specifies the amount of time (in minutes) to continue trying to resume before the action fails. If the action is able to resume, a new file is opened and media is transferred from the point of the previous disconnection.

For example, if Resume Timeout is set to 3 minutes and there is a network outage for 2 minutes, when the connection is restored the action will open a new file and resume sending data. However, if there is a network outage for 4 minutes (which is greater than 3), then the action will fail. Depending on the nature of the error, resuming a file transfer may not be possible.

When a transfer completes successfully, but with one or more resumed partial files, these file parts must to be manually re-assembled at the destination. Use these Windows and Linux command-line tools to re-assemble file parts:

Windows: `copy /b source-file.ext + source-file(2).ext output-file.ext`

Linux: `cat source-file.ext source-file(2).ext > output-file.ext`

Do Not Delete From This Location. When the action fails or when the job is stopped by the user and Do Not Delete is enabled, the nickname and its assets are NOT deleted by this action. Downstream Delete actions - if any - do not delete the asset on the server but do report Success. Thus, any partial files on the Aspera Enterprise Server are retained.

If the asset is registered in the catalog, this Do Not Delete state is also associated with the binder, preventing other workflows from deleting the asset on the Aspera server when the binder is removed from the catalog.

Folder

When you click Next, Vantage attempts to connect to the server, using the current configuration. If successful, browse the file system to select the target folder. If the connection fails, correct the settings and try again.

Folder. Specifies the target folder to monitor on the Aspera server.

Avid File System

The Avid facade provides an Avid-centric view of the hosted file system.The general purpose of a file system facade is to provide a view to the underlying file system as if it were native to a particular type of server - in this case, Avid.

Media that is processed by the Avid facade adopts certain characteristics based on the fact that it is being processed with the understanding that this file originated from an Avid editor. Specifically, the media references in a QuickTime movie file are verified (and repaired if necessary) by Vantage, to ensure that the file can be processed correctly by other Vantage components.

Azure File System

When a Microsoft Azure Blob Storage system is specified, Vantage accesses the target Blob container within a given Azure Storage Account to retrieve, modify, and send files. Access to an Azure Storage Account is enabled in actions where file system access is utilized, for monitoring, file transport, and delivery.

Azure Blob storage is managed with a Storage account created in the Azure Portal. Each account provides access keys which are displayed in the Storage Account > Settings pane. Both the account name and an account key are required for a connection in Vantage.

As an alternative to using the access key, an account-level Shared Access Signature (SAS) token can also be used for authentication. You can generate a SAS token in your Azure Portal (Storage Account > Settings > Shared access signature pane).

The account name, and either the Account key or a SAS token are required for a connection in Vantage.

Vantage treats the selected Azure Blob container as the root level in the folder hierarchy.

Configuration Settings

Account Information

Account Name. Specifies the name of the Azure Storage account, created in the Azure portal.

SAS Token. Specifies a storage account-level Shared Access Signature (SAS) token, generated in the Azure portal.

Account Key. Specifies the key associated with the Azure Storage account.

Container. Specifies the name of the Container located in the Azure Storage account. Enter the container name manually or click *Select* to log into the Azure Storage account container.

Bindable File System

When a *bindable* file system is specified, Vantage allows the location to be specified in a Path variable, rather than specifying a hard-coded, static path.

You can manually enter a path in the text field (which identifies the file system as Windows, FTP, or SFTP, for example). Click Browse and navigate and select the location, or click the green Browse button and select a variable.

This variable may specify any location Vantage can reference, as long as the path is fully and correctly formed. In the case of Windows, Vantage displays the location as a UNC or drive letter format, for readability. You can also specify certain paths as URLs.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Windows UNC Example: *\\w-MediaServer\HDMedia\, (where HDMedia is a folder on the machine w-MediaServer).*

Windows Drive Letter Example: *C:\HDMedia*

FTP Example: A folder named *Media* on an FTP server might have a URL of: *ftp://user:password@ftp.myCompany.net:21/Media/*, (where *user* is the username of an account allowing access to this FTP server and *password* is the password of the specified user account).

SFTP Example: *sftp://user:password@ftp.myCompany.com:22/Media/*, (where *user* is the username and *password* is the password of an account allowing attachment to the *Media* folder on the host *ftp.myCompany.net,* using SFTP).

FTP File System

When an FTP file system is specified, Vantage accesses the target directory on a network-accessible FTP server using FTP protocol.

When specified in Catch, Watch, or other file ingest actions, the action uses the connection to download media and related files from an FTP file system.

When specified in Copy, Move, or other file delivery actions, the action uses the connection to upload media and related files to an FTP file system.

Note: Some FTP servers may incorrectly report the status of a file upload operation as complete, even though the file is still being uploaded (and open). If your FTP-based Watch action exhibits evidence of a pre-mature job submission (that is, the file is submitted for processing prior to being fully uploaded and closed), you should adjust the polling interval and/or the number of scans to a larger value to ensure that the file is fully uploaded and closed before the Watch action submits the job.

Configuration Settings

Complete the following configuration panels:

Connection Information

Host. Specifies the target host, by name or IP address of the FTP server (*ftp.acmemedia.com* or *10.0.7.17*, for example).

TCP Port. Specifies the TCP port (default: 21) the server is listening on.

Timeout. Specifies the time limit (default: 30 seconds) to establish a connection to indicate the number of seconds to wait before aborting an FTP command. Setting this to a lower value will increase responsiveness when the FTP server is offline. If timeout errors occur while the server is online, then setting this to a higher value may solve the problem.

Passive Mode (for firewall compatibility). Vantage operates in passive mode, initiating both the command and data connection.

Secure Connection (SSL/TLS). Establishes a secure connection using SSL/TLS. Vantage does not validate the authenticity of the server's certificate.

Implicit SSL Secure Connection. Establishes a secure connection using the Implicit SSL/TLS method. Vantage does not validate the authenticity of the server's certificate.

Transmit NOOP. Vantage sends the server a null command, to keep the connection alive and avoid a time out. Adjust the interval as necessary.

Credentials

User Name. Specifies the authorized user name (or anonymous, if supported).

Password. Specifies the password assigned to the user name.

Use Anonymous Login. Uses anonymous login (if permitted), instead of using a specific username and password. If checked, the username 'Anonymous' is used, and no password is verified. It is a common practice however, to supply an identifying email address in the Password field.

Proxy Information

Proxy. Connects to the FTP server through a proxy server. Select the proxy profile that you want to use to connect. When *proxyUser@remoteHost* is selected, supply login and password in the provided fields.

Vantage does not support FTP SOCKS proxies. Two proxy methods are supported:

1. remoteUser@remoteHost (no proxy authentication). Vantage connects to the proxy with user as *FTPuser@FTPhost:FTPport* without providing a password. The proxy server immediately connects to the FTP server, authenticating with the username provided.

2. proxyUser@remoteHost (requires authentication to the proxy server). Vantage connects to the proxy with user as *proxyUser@FTPhost:FTPport*, and provides the password for the proxy User account. The proxy server opens a connection to the FTP server, and Vantage logs in again, using the FTP credentials.

When a proxy is specified, the required fields are enabled.

Host. Specifies the host name or IP address of the FTP proxy server.

TCP/IP Port. Specifies the port number used to connect to the proxy server. Default: 21.

User Name. Specifies the authorized user name (or anonymous, if supported).

Password. Specifies the password assigned to the user name.

Folder

When you click Next, Vantage attempts to connect to the server, using the current configuration. If successful, browse the FTP file system to select the target folder. If the connection fails, correct the settings and try again.

Folder. Specifies the target folder to monitor on the FTP server.

Generic S3 File System

When a Generic S3 file system is specified, Vantage accesses an S3-compatible storage system via a web services interface.

In addition to accessing third-party S3 storage systems, the Generic S3 File System component can also be used to access Amazon cloud storage. For example, you could specify some query and its parameters that is not available in the Vantage implementation of the Amazon AWS S3 file system.

You can navigate, browse, and select buckets and folders, but you cannot create or delete them. Bucket management must be performed using management tools from the vendor.

Configuration Settings

The Connection panel configuration fields are linked to make it easier to create the properly-formed URL and maintain flexibility. For basic use, complete the Server, Access Key ID, Secret Access Key, and Path fields. Note that as you enter your information, the Generic S3 URL field is auto-formatted (the Secret Access Key data is hidden).

For advanced use, you can manually enter the entire URL in the Generic S3 URL field. You can enter parameters that are not in the panel as a source field (for example, the timeout value) directly in the URL field; this provides the broadest possible use. If you enter or edit data in the Generic S3 URL field for linked parameters, the source field associated with the parameter is also updated to reflect your changes.

Connection Information

Generic S3 URL. The URL that identifies the S3 system, including the protocol and all parameters. The protocol is supplied automatically and can not be changed.

Server. The full name of the S3 endpoint. For example, *amazonaws.com*.

Access Key. The access key for the account, analogous to a user name.

Secret Key. The secret access key for the account, analogous to a password.

Path. Specifies the path on the S3 system. Leave this field blank to auto-populate the path in the next panel or enter it manually (for example: /telestream/SierraHD/).

Use HTTPS. When checked, uses an HTTPS connection type along with any custom port specification. Default is unchecked.

Use Live Read for Upload to Backblaze. When checked, the workflow (in Open mode) can ingest content being written to the target Backblaze S3 storage by an external system, while it is still uploading. Note that Backblaze charges a fee this feature. You can utilize the Live Read feature in Copy, Deploy, Capture actions, and Bindable File System use.

When utilized as a destination in actions that support Vantage Folder Addresses (such as Copy and Deploy), the workflow writes to the target Backblaze Generic S3 storage in a manner than enables other systems to perform an open read operation.

Target Folder

When you click Next, Vantage attempts to connect to the target S3 system, using the current configuration. If successful, browse to select the target bucket or folder path. If the connection fails, correct the settings and try again.

Folder. Specifies the target bucket or target folder path to monitor for new files.

Google Cloud File System

When a Google Cloud file system is specified, Vantage accesses Google Cloud Storage via a Web services interface.

Configuration Settings

Complete the following configuration panels:

Connection Information

Use this panel to enter connection information for Google Cloud Storage.

Bucket ID. Specifies the Google Cloud Storage bucket identifier.

Credential. Click Set Key to supply your key for this bucket. This credential is a Google Cloud Storage service credential, which must be created through the GCS portal.

Target Folder

When you click Next, Vantage attempts to connect to the specified bucket. If successful, select the target folder. If the connection fails, correct the settings and try again.

Folder. Specifies the target folder to monitor on the Google Cloud system.

Grass Valley / K2 FTP File System

When a Grass Valley / K2 FTP file system is specified, Vantage accesses the target server using FTP protocol. The Login value *movie* connects to the gxf bin. The Login value *mxfmovie* connects to the mxf bin.

Note: The Grass Valley K2 FTP file system should be selected when delivering media to the FTP file system on the K2 server. The AMP File system should be selected when delivering media to the Profile XP.

Configuration Settings

Host

Host. Specifies the name or IP address of the FTP server (*ftp.acmemedia.com* or *10.0.7.17*, for example).

TCP Port. Specifies the TCP port (default: 21) the server is listening on.

Credentials

User Name. Specifies the authorized user name (or anonymous, if supported).

Password. Specifies the password assigned to the user name.

Folder

When you click Next, Vantage attempts to connect to the server, using the current configuration. If successful, browse the FTP file system to select the target folder.

If the connection fails, correct the settings and try again.

HTTP File System

When an HTTP file system is specified, Vantage accesses the target directory on a network-accessible HTTP (Web) server using HTTP protocol. Vantage supports Anonymous login as an option.

Vantage only accesses HTTP file systems in read-only mode.

Configuration Settings

HTTP Server

Host. Specifies the name or IP address of the HTTP server (telestream.net or 10.0.7.17, for example). Don't supply the protocol.

TCP Port. Specifies the TCP port (default: 80) the server is listening on.

Credentials

User Name. Specifies the authorized user name (or anonymous, if supported).

Password. Specifies the password assigned to the user name.

Use Anonymous Login. Uses anonymous login (if permitted), instead of using a specific username and password. If checked, the username 'Anonymous' is used, and no password is verified. It is a common practice however, to supply an identifying email address in the Password field.

When you click Next, Vantage attempts to connect to the server, using the current configuration.

Folder

If successful, browse the HTTP file system to select the target folder. If the connection fails, correct the settings and try again.

Folder. Specifies the folder to monitor.

MediaStream File System

When a MediaStream file system is specified, Vantage accesses the target directory on a network-accessible server you specify.

Configuration Settings

MediaStream Server

Host. Specifies the name or IP address of the server (mss1001 or 10.73.2.3, for example). Don't supply the protocol.

TCP Port. Specifies the TCP port (default:21) the server is listening on.

Credentials

User Name. Specifies the authorized user name (default: video_fs).

Password. Specifies the password assigned to the user name (default: .video_fs).

Mijo FTP File System

When a Mijo FTP file system is specified, Vantage accesses the target directory on a network-accessible Mijo FTP server using FTP protocol.

When specified in Mijo Catch actions, the connection is used to download media and related metadata from a Mijo FTP file system.

The Mijo FTP File System is not available for use in Copy, Move, or other file delivery actions.

Note: Only 2 files can be localized simultaneously from Mijo servers. Be sure to design your workflows to account for this limit.

Configuration Settings

Complete the following configuration panels:

Connection Information

Host. Specifies the target host, by name or IP address of the Mijo FTP server (ftp.acmemedia.com or 10.0.7.17, for example).

TCP Port. Specifies the TCP port (default: 21) the server is listening on.

Timeout. Specifies the time limit (default: 180 seconds) to establish a connection to indicate the number of seconds to wait before aborting an FTP command. Setting this to a lower value will increase responsiveness when the FTP server is offline. If timeout errors occur while the server is online, then setting this to a higher value may solve the problem.

Passive Mode (for firewall compatibility). Vantage operates in passive mode, initiating both the command and data connection.

Secure Connection (SSL/TLS). Establishes a secure connection using SSL/TLS. Vantage does not validate the authenticity of the server's certificate.

Transmit NOOP. Vantage sends the server a null command, to keep the connection alive and avoid a time out. Adjust the interval as necessary:

Interval. Specifies the NOOP execution interval, in seconds (default: 600).

Connection Information

User Name. Specifies the authorized user name (or anonymous, if supported).

Password. Specifies the password assigned to the user name.

Use Anonymous Login. Uses anonymous login (if permitted), instead of using a specific username and password. If checked, the username 'Anonymous' is used, and no password is verified. It is a common practice however, to supply an identifying email address in the Password field.

Proxy Connection Information

Proxy. Connects to the FTP server through a proxy server. Select the proxy profile that you want to use to connect. When proxyUser@remoteHost is selected, supply login and password in the provided fields.

Vantage does not support FTP SOCKS proxies. Two proxy methods are supported:

1. remoteUser@remoteHost (no proxy authentication). Vantage connects to the proxy with user as FTPuser@FTPhost:FTPport without providing a password. The proxy server immediately connects to the FTP server, authenticating with the username provided.

2. proxyUser@remoteHost (requires authentication to the proxy server). Vantage connects to the proxy with user as proxyUser@FTPhost:FTPport, and provides the password for the proxy User account. The proxy server opens a connection to the FTP server, and Vantage logs in again, using the FTP credentials.

When a proxy is specified, the required fields are enabled.

Host. Specifies the host name or IP address of the FTP proxy server.

TCP/IP Port. Specifies the port number used to connect to the proxy server. Default: 21.

User Name. Specifies the authorized user name (or anonymous, if supported).

Password. Specifies the password assigned to the user name.

Folder

When you click Next, Vantage attempts to connect to the server, using the current configuration. If successful, browse the FTP file system to select the target folder. If the connection fails, correct the settings and try again.

Folder. Specifies the target folder to monitor on the FTP server.

Pathfire ACP (Automation Connect Protocol) File System

When a Pathfire ACP file system is specified, Vantage accesses the Syndicated Content on a network-accessible Pathfire DMG server using the ACP protocol and presents it as a pseudo-file system in order to interact and operate in the Vantage domain.

When specified in Pathfire Catch actions, the connection is used to download media and related metadata from a Pathfire DMG system.

The Pathfire ACP File System does not support file delivery actions to the Pathfire DMG server.

Note: Only 2 files at a time can be localized from Pathfire servers into a Vantage domain. Be sure to design your system to account for this limit.

Configuration Settings

Host. Specifies the target host, by name or IP address of the Pathfire DMG server (TELESTREAM1500A or 10.0.4.81, for example).

TCP Port. Specifies the TCP port (default: 14543) the Pathfire DMG server is listening on.

Timeout. Specifies the maximum time (default: 30 seconds) to wait on a socket receiving data before giving up. Setting this to a lower value will increase responsiveness when the DMG server is offline. If timeout errors occur while the server is online, then setting this to a higher value may solve the problem at the expense of ACP commands taking longer to complete.

Transfer Location. The shared network location that the Pathfire DMG server delivers media to when localizing media files. The transfer location is typically an intermediate location that FlipLite (on the DMG server) will deliver to.

FlipLite Destination. The name of the FlipLite Destination that the Pathfire DMG server delivers media to when localizing media files.

Omneon File System

When an Omneon file system is specified, Vantage accesses the target directory on a network-accessible server using the file protocol you specify.

The Omneon file system-enabled Watch action can be used for all types of Omneon files - QuickTime reference, MXF reference, QuickTime self-contained, and MXF self-contained files. This Watch can also process files in situations where the reference file name does not match the names of its video and audio files, because it reads the reference file to determine the video and audio files.

Note: If you attempt to process input files that include a # character in a workflow, the job will fail and the references to the files are not presented correctly in the binder. For example, you attempt to transcode a QuickTime reference file to an Omneon QuickTime reference file.

Oracle File System

Vantage provides access to Oracle Cloud Infrastructure (OCI) Storage to support workflows that read/write files and monitor folders in OCI Storage for new files to process.

Vantage uses the Oracle API to interact with OCI storage and requires that you possess a private key to proceed.

The Vantage file browser starts at the bucket level. The Oracle account specified MUST have the capability to list buckets, which may be restricted by your Oracle account administrator.

Configuration

Region. (Required) Specifies the location where the Oracle system is hosted.

User ID. (Required) Specifies the Oracle User OCID.

Tenant ID. (Required) Specifies the OCID of the Oracle account tenancy.

Fingerprint. (Required) Specifies the Oracle API fingerprint of the public key added to the account used by Vantage for OCI Queue API access.

Namespace. (Required) Specifies is the OCI object storage namespace associated with the tenancy.

Private Key. (Required) An API key should be generated and added to the user's OCI account to authenticate API access. You can generate an API key in the OCI console or generate your own key (compliant with Oracle requirements) and upload it to the OCI console.

Click Set Key to display the Set Private Key dialog and import the key:

> **Set Private Key**. (Required) Click Browse for Key File to display the file browser dialog, then browse to and select the private key file. Click Open to copy the contents of the file into the Specify Service Account Private Key field, and click OK to close the dialog.

When Vantage successfully connects to the target storage, you can iterate through the folders in the Oracle file system. The root of the file system are the Oracle buckets. Select the folder to utilize for this address, and click Finish.

Add New Folder. If your account is not configured to list buckets, use this dialog to specify the bucket. Enter the bucket name - Vantage OCI file access is limited to the bucket specified. If required, modify the system you are targeting, then click Finish.

P2 File System

When a P2 file system is specified, Vantage accesses the target directory on the local computer or network server using Windows networking.

The P2 file system allows users to process media from their Panasonic P2 camera/memory drive/player/recorder or other P2 device. The Watch action can be configured to ingest from a directly-attached device, or by copying the CONTENT folder into the target local folder on the local computer or into a share folder on a network-accessible Windows server.

When used to ingest media, direct access to the P2 card is preferred, however you can copy the folders from any mounted CONTENT directory (AUDIO, CLIP, ICON, PROXY, VIDEO, VOICE) into the target folder being monitored. The CLIP directory should be copied last, because it has the XML files in it.

When a new XML file is detected in the monitored folder, a job is automatically submitted. Vantage uses the contents of the XML file to process the associated media files. Because the existence of a new XML file triggers job submission, the XML file should only be copied into the monitored folder after all the media files have been copied into the folder.

A P2 Watch action should only accept XML files, so the Accept Filename Pattern value should be*.xml*.

Quantel ISA Gateway File System

When a Quantel file system is specified, Vantage accesses the target directory on a network-accessible Quantel server using FTP protocol. When accessing a Quantel server, Vantage supports passive mode. Vantage also supports secure connections using TLS. The Pool ID is used to specify the folder where the media resides.

SeaChange BML File System

When a SeaChange BML file system is specified, this action accesses the root directory on the user-specified BML FTP server to transfer files. This file system may be utilized when ingesting and delivering media files in a workflow.

Note: When configured in a Watch action, Vantage accesses the root directory on the user-specified BML server to monitor for new files. When a new media file is detected in the monitored folder a job is automatically submitted for processing with this workflow.

Configuration Settings

Complete the following configuration panels:

Connection Information

Host. Specifies the name or IP address of the SeaChange server.

TCP Port. Specifies the port number used to connect to the proxy server. Default: 21.

FSI Port. Check when you are connecting to one of the FSI cards (typically, port 3 - card 4) on the BMLe. Doing so may require changing IP addresses used by the FSI card or the Vantage server.

You should also have jumbo frames enabled (Advanced settings). FSI cards are optimized for jumbo frames set at 9000 bytes. If jumbo frames are not enabled on all equipment along the route, transfer performance is significantly reduced.

Directory Server. The BML FTP server may or may not be configured to require a username and password. Check when the BMLe server has an optional Directory Server attached. Supply the credentials:

- **User Name**. Specifies the authorized user name (or anonymous, if supported). FSI connections typically use *anonymous* as the user name.
- **Password**. Specifies the password assigned to the user name.

SFTP File System

When an SFTP file system is specified, Vantage accesses the target directory for secure file transfer on a network-accessible server using SSH (Secure Shell) File Transfer protocol.

Configuration Settings

SSH Server Panel

Name or IP Address of SSH Server (Required). The hostname or IP address of the target server.

TCP Port. Specifies the SSH port number (default: 22). The TCP port is used for connecting to the SSH server and establish a standard SSH session to provide authentication and to initiate the transfer.

SSH User Credentials Panel

Username (Required). Valid username for this server.

Auth Type: Password. Valid password for the user logging on.

OR

Auth Type: SSH Key. Click Set Key to select a private SSH key.

Set Key

Private Key (Required). Paste in the key or click Browse to select a key file.

Passphrase. Valid pass phrase for the key.

Folder

When you click Next, Vantage attempts to connect to the server, using the current configuration. If successful, browse the FTP file system to select the target folder. If the connection fails, correct the settings and try again.

Folder. Specifies the target folder to monitor on the FTP server.

Nexio (WANStreamer) File System

The Vantage Nexio file system enables Vantage to interact with Harris Nexio (WANStreamer) servers. These servers implement an FTP-based protocol for allowing files to be placed onto the server or retrieved from the server.

The Nexio detector specifically deals with material from a Nexio server.

Configuration Settings

Host. Specifies the name or IP address of the Nexio (WanStreamer) server. Don't supply the protocol.

TCP Port. Specifies the TCP port (default:2098) the server is listening on.

MXF Mode. When checked, targets /MXF directory on specified Nexio file system. Unchecked by default.

Windows File System

When a Windows file system is specified, Vantage accesses the target directory on the local computer or network server using Windows networking.

You can access network servers in both workgroups and domains. The target directory on a network server must be configured as a share, and Vantage Workflow Designer must have access rights to it.

Note: If the server and share is not accessible by the username and password of Workflow Designer, you must use the Vantage Management Console to add an authorization entry under Settings and Options, identifying the hostname or IP address to specify the required username and password that Workflow Designer should use for authentication.

Windows file systems may be specified for ingesting source files (for example, in Watch, Catch, Dublist, Associate and other actions). They may also be specified when delivering files (Copy, Notify, Deliver, etc.) Regardless of the purpose, Vantage services require appropriate access.

Input File (Source) Selection

If you select a folder from the local computer via a drive letter path, a local path is used, and the folder and its files will not be accessible by Vantage domain services that are running on other computers. To provide access to this folder by distributed Vantage domain services, first configure the directory as a share, and use the share name in the UNC path. In this case of reading files (source), read rights are all that is required.

Output Directory (Destination) Selection

If you select a folder from the local computer via a drive letter path, a local path is used, and the folder will not accessible by Vantage domain services that are running on other computers. To provide access to this folder by distributed Vantage domain services, first configure the directory as a share, and use the share name in a UNC path. In this case of writing files (destination), write rights are required.

Multiscreen, Flip64, and IPTV Flip Action Components

Analysis Components

SSIMplus Analysis

Input Components

Auto Input

Auto Input (Multiscreen)

Flip Decoder Input

Flip Decoder Input (Multiscreen)

AC-3 Input

AC-3 Input (Multiscreen)

Auto Input Multiple Tracks (Multiscreen)

AVI Input

AVI Input (Multiscreen)

Camera Input

Camera Input (Multiscreen)

DFXP Input

DFXP Input (Multiscreen)

DV Input

DV Input (Multiscreen)

GXF Input

GXF Input (Multiscreen)

JPEG2000 GPU Accelerated Input

JPEG2000 GPU Accelerated Input (Multiscreen)

LXF Input

LXF Input (Multiscreen)

MPEG2 Elementary Stream Input

MPEG2 Program Stream Input

MPEG2 Program Stream Input (Multiscreen)

MPEG2 Transport Stream Input (Multiscreen)

MPEG2 Transport Stream Input (IPTV) (IPTV)

MPEG2 DVB Subtitles Input

MPEG-4 Input

MPEG-4 Input (Multiscreen)

MXF AS02 Input

MXF AS02 Input (Multiscreen)

MXF DCP Input

MXF DCP Input (Multiscreen)

MXF OP1a Input (IPTV)

MXF OP1a Input (Multiscreen)

QuickTime Input

QuickTime Input (Multiscreen)

SCC Input

Still Image Input

TIFO Input

TIFO Input (Multiscreen)

TTML/DFXP Input

TTML/DFXP Input (Multiscreen)

Wave Input

Wave Input (Multiscreen)

WebVTT Input (Multiscreen)

Y4M Input

Converter Components

Audio Mixer Converter

Dolby Vision Insert Converter (Multiscreen)

Tachyon Converter (Multiscreen)

Video Transcoder Components

Broadcast MPEG Transcoder

Low Bitrate MPEG-2 Transcoder

MainConcept H264 Transcoder (IPTV)

MainConcept H264 Transcoder (Multiscreen)

MainConcept MPEG-2 Transcoder

VP9 Transcoder

x264 Transcoder (IPTV)

x264 Transcoder (Multiscreen)

x265 Transcoder (IPTV)

x265 Transcoder (Multiscreen)

Lightspeed GPU H.264 Transcoder (Multiscreen)

Lightspeed GPU H.265 Transcoder (Multiscreen)

Lightspeed GPU H.264 Transcoder (IPTV)

Lightspeed GPU H265 Transcoder (IPTV)

Audio Transcoder Components

AAC Transcoder

AC-3 Transcoder

MPEG Audio Transcoder

AAC Transcoder (Multiscreen)

AC-3 Transcoder (Multiscreen)

DTS-HD Transcoder (Multiscreen)

MPEG Audio Transcoder (Multiscreen)

Opus Transcoder (Multiscreen)

PCM Transcoder

Adaptive Streaming Output Components

Adobe HDS Output

Fragmented MPEG-4 Variant (Adobe HDS)

Apple HLS Output

MPEG2 Transport Stream Variant (Apple HLS)

Audio Only Variant (Apple HLS)

CMAF Output

CMAF Video Presentation

CMAF Audio Presentation

CMAF Subtitle Presentation

CMAF TTML Reference File Presentation

CMAF WebVTT Presentation

I-Frame Only Variant (Apple HLS)

WebVTT Variant (Apple HLS)

Fragmented MPEG-4 Variant (Apple HLS)

ATS Output

MPEG2 Transport Stream (ATS)

Microsoft Smooth Streaming Output

Fragmented MPEG-4 Variant (Microsoft HSS)

MPEG DASH Output

MPEG2 Simple Profile (MPEG DASH)

MPEG-4 On-Demand Profile (MPEG DASH)

Main Profile (MPEG DASH)

Live Profile (MPEG DASH)

WebM (MPEG DASH)

DVB MPEG-DASH Profile (MPEG DASH)

Output Components

Elementary Video Stream Output

Keyframe Output

Keyframe Output (Multiscreen)

Manzanita Output

Matroska Output

MPEG DASH Output

MPEG-4 Output (IPTV)

MPEG-4 Output (Multiscreen)

QuickTime Output

Syntactic Output (IPTV)

Syntactic Output (Multiscreen)

TIFO Output

Y4M Output

SSIMplus Analysis

The SIMMplus component compares the media segments in the package with the same video in the input file, to determine which segments meet or exceed the QoE value specified, and reports the results.

Note: The SIMMplus Analysis component is only capable of analyzing Apple HLS packages.

Delete. To delete this input, click the X icon in the upper right corner.

Input Toolbar Icons

Plus Sign. Adds a SIMMplus input to this action (one permitted).

Analysis Component Optimize Settings

These controls display only when the Analysis panel is selected.

Allow Cross-resolution Optimization. When checked, optimization is permitted between variants with different video resolutions. For example, a segment from a 1280x720 variant can be substituted with a segment from a 640 x 360 variant.

Generate Optimize Result Attachment. Check to generate the XML file containing the results of QoE analysis and supply a nickname or fully-qualified path. Use this feature to store the file containing the QoE optimization analysis results for potential future use or review or reference.

SSIMplus Details

Select the component to display the settings on the right.

General

Target Quality of Experience Index. (Range: 0-100). Specifies the target QoE value to used as the basis for package optimization. Segments with a target or higher index value are all considered to be of the same visual quality.

Segment Quality Estimation Method. Specifies the method by which QoE is determined: Lowest, Mean, or Median values (default: lowest).

Target Devices

Target Devices. Specifies All or Manual, where you select the devices to target for playing the package. When Manual is specified, a list of devices is displayed, which you can check to select.

Auto Input

The Auto Input component automatically determines which input component to use for each incoming file. Auto Input should also be used when ingesting Vantage Transcoding CML files. For configuration details, see the Flip64 CML Developer Guide available on the Telestream website.

For formats explicitly supported in this action (such as GXF or QuickTime), the file is automatically processed and decoded by the appropriate input component. Otherwise, it attempts to use the Flip Decode Input component to read the file and decode it.

Note: Auto Input supports one video track, and generates one audio stream. For input files that contain multiple audio tracks, the Auto Input consolidates the tracks into a single audio stream. For example, a QuickTime file with two mono audio tracks is presented as a single stereo audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action, and Telestream recommends using a meaningful name in the context of this workflow.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track or disable it if its the only one in the list.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action, and Telestream recommends using a meaningful name (such as *English* or *AC-3 5.1*) in the context of this workflow.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

Note: CML files with no specified audio track will return an error when used with Auto input even if **Generate Silence if Audio Track is Missing** checkbox is enabled.

Auto Input (Multiscreen)

The Auto Input component in Multiscreen automatically determines which input component to use for each incoming file. Auto Input should also be used when ingesting Vantage Transcoding CML files. For configuration details, see the Flip64 CML Developer Guide on the Telestream website.

For formats explicitly supported in this action (such as GXF or QuickTime), the file is automatically processed and decoded by the appropriate input component. Otherwise, it attempts to use the Flip Decode Input component to read the file and decode it.

Note: Auto Input supports one video track, and generates one audio stream. For input files that contain multiple audio tracks, the Auto Input consolidates the tracks into a single audio stream. For example, a QuickTime file with two mono audio tracks is presented as a single stereo audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action, and Telestream recommends using a meaningful name in the context of this workflow.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track or disable it if its the only one in the list.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action, and Telestream recommends using a meaningful name (such as *English* or *AC-3 5.1*) in the context of this workflow.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

Note: CML files with no specified audio track will return an error when used with Auto input even if **Generate Silence if Audio Track is Missing** checkbox is enabled.

Flip Decoder Input

The Flip Decoder Input component leverages the decoding capability of the Flip action to read files, using the same decode components as Transcode/Transcode Pro. Similar to the Flip action, it flattens and (where possible) decompresses all incoming audio channels and tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (if it already exists in the directory - otherwise you must manually enter the file name), or click Browse to select a variable.

General Details

These controls display only when the Input panel is selected.

Override Decoder. Check to use a specific decoder, specified by a GUID.

When checked, enter the GUID for the specific decoder or click Browse to assign a variable with the GUID. Optionally, check Always run Flip decoder in a separate process.

Always run Flip Decoder in a Separate Process. This applies only when the Flip decoder is running on the same machine as the Multiscreen decoder. Uncheck only when advised by Telestream Customer Service.

Media to Keep Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Audio 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

Note: CML files with no specified audio track will return an error when used with Auto input even if **Generate Silence if Audio Track is Missing** checkbox is enabled.

Flip Decoder Input (Multiscreen)

The Flip Decoder Input component in Multiscreen leverages the decoding capability of the Flip action to read files, using the same decode components as Transcode/ Transcode Pro. Similar to the Flip action, it flattens and (where possible) decompresses all incoming audio channels and tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/ readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (if it already exists in the directory - otherwise you must manually enter the file name), or click Browse to select a variable.

General Details

These controls display only when the Input panel is selected.

Override Decoder. Check to use a specific decoder, specified by a GUID.

When checked, enter the GUID for the specific decoder or click Browse to assign a variable with the GUID. Optionally, check Always run Flip decoder in a separate process.

Always run Flip Decoder in a Separate Process. This applies only when the Flip decoder is running on the same machine as the Multiscreen decoder. Uncheck only when advised by Telestream Customer Service.

Media to Keep Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Audio 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

AC-3 Input

Each AC-3 Input component reads one raw Dolby AC-3 or Dolby Enhanced AC-3 track from a raw AC-3 input file.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (if it already exists in the directory - otherwise you must manually enter the file name), or click Browse to select a variable.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action, and Telestream recommends using a meaningful name (such as *English* or *AC-3 5.1*) in the context of this workflow.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

AC-3 Input (Multiscreen)

Each AC-3 Input component in Multiscreen reads one raw Dolby AC-3 or Dolby Enhanced AC-3 track from a raw AC-3 input file.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (if it already exists in the directory - otherwise you must manually enter the file name), or click Browse to select a variable.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action, and Telestream recommends using a meaningful name (such as *English* or *AC-3 5.1*) in the context of this workflow.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

Auto Input Multiple Tracks (Multiscreen)

The Auto Input Multiple Tracks component in Multiscreen processes a wide variety of input file formats (similar to the default Auto input component) and allows the specification of multiple audio tracks on input.

Auto Input Multiple Tracks is not Open Workflow capable.

Auto Input Multiple Tracks supports one video stream, multiple audio tracks, and one ANC stream.

Specifies start of media. When checked, specifies mode to use for decoding media. Media Sample (default) | First Video Sample | First IFrame.

Ignore Missing Streams. When checked, outputs are created even if specified file inputs are not present at the time of job submission. Unchecked by default.

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Video Stream Settings

The video stream propagates the stream from the input file.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Audio Track Settings

The audio track propagates the tracks from the input file. Auto Input Multiple Tracks allows specification of individual audio input tracks.

Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the set.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1, Audio2, etc.*) in place. This track name should be unique within the action.

Details

The configuration panel displays on the right, when the audio track component is selected:

Language. When checked, overrides the language associated with this stream. If you are binding this control to a variable, the value in the text variable must exactly match one of the original language selections in the encoder.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

ANC Stream Settings

The ANC stream propagates ancillary data present in the source file. ANC data may consist of closed captions, VPIDs, AFD, timecode, Dolby E metadata, and even embedded audio, such as PCM.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

AVI Input

The AVI Input component supports DV25, DV50, DVCProHD, uncompressed YUV, and uncompressed PCM audio within an AVI container. It supports one video and one or more audio tracks per input file.

Note: The AVI Input does not support other AVI codecs installed on the system.

Delete. To delete this input, click the X icon immediately right of the nickname menu.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (if it already exists in the directory - otherwise you must manually enter the file name), or click Browse to select a variable.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Audio 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

AVI Input (Multiscreen)

The AVI Input component in Multiscreen supports DV25, DV50, DVCProHD, uncompressed YUV, and uncompressed PCM audio within an AVI container. It supports one video and one or more audio tracks per input file.

Note: The AVI Input does not support other AVI codecs installed on the system.

Delete. To delete this input, click the X icon immediately right of the nickname menu.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (if it already exists in the directory - otherwise you must manually enter the file name), or click Browse to select a variable.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Audio 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

DFXP Input

The DFXP (Distribution Format Exchange Format) Input component supports reading Distribution Format Exchange Format (DFXP) files.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Data Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

DFXP Input (Multiscreen)

The DFXP (Distribution Format Exchange Format) Input component for Multiscreen supports reading Distribution Format Exchange Format (DFXP) files.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Ignore Missing Streams. When checked, outputs are created even if specified file inputs are not present at the time of job submission. Unchecked by default.

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Data Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Camera Input

The Camera Input component supports reading camera files and converting their media into digital baseband.

This input component must be used when it is implemented in a workflow that processes supported camera files, and begins with a Camera Ingest origin action. This enables the action to properly identify and decode the camera files for transcoding.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Camera Input (Multiscreen)

The Camera Input component in Multiscreen supports reading camera files and converting their media into digital baseband.

This input component must be used when it is implemented in a workflow that processes supported camera files, and begins with a Camera Ingest origin action. This enables the action to properly identify and decode the camera files for transcoding.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

DV Input

The DV Input component supports reading raw (DV) files as defined by SMPTE 314M, SMPTE 370M, IEC 61834-2. Raw DV files are usually identified with a .dv or .dif file extension. A single output audio track is provided when the DV essence contains embedded audio.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

DV Input (Multiscreen)

The DV Input component in Multiscreen supports reading raw (DV) files as defined by SMPTE 314M, SMPTE 370M, IEC 61834-2. Raw DV files are usually identified with a .dv or .dif file extension. A single output audio track is provided when the DV essence contains embedded audio.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

GXF Input

The GXF Input component supports reading General Exchange Format (GXF) files as defined by SMPTE 360M. Audio input tracks are either mono PCM tracks, or AC-3 compressed audio. For GXF files with Dolby E, the Dolby E will be presented as two PCM tracks. The GXF Input supports simple clips only, and respects SOM/EOM frame markers.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.

After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.

If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

GXF Input (Multiscreen)

The GXF Input component in Multiscreen supports reading General Exchange Format (GXF) files as defined by SMPTE 360M. Audio input tracks are either mono PCM tracks, or AC-3 compressed audio. For GXF files with Dolby E, the Dolby E will be presented as two PCM tracks. The GXF Input supports simple clips only, and respects SOM/EOM frame markers.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.

After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.

If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

JPEG2000 GPU Accelerated Input

The JPEG2000 GPU Accelerated Input component supports GPU-accelerated JPEG2000 video decoding for media files. If no JPEG2000 video essence is detected, the action will fail.

JPEG2000 GPU Accelerated Input is not Open Workflow capable.

GPU-accelerated JPEG2000 decoding and encoding is a licensed option for your Vantage domain.

Auto Input supports one video stream, one audio track, and one ANC stream..

The JPEG2000 GPU Accelerated Input component is container-agnostic: it automatically determines which input component to use for each incoming file. For formats explicitly supported in this Flip action (such as GXF or QuickTime) it is automatically processed and decoded by the appropriate input component. Otherwise, it attempts to use the input components supported by the Flip action to read the file and decode the JPEG2000 video stream.

For input files that contain multiple audio tracks, the action decompresses the tracks if required, and consolidates the tracks into a single audio track and propagates it downstream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Stream Details

The video stream propagates the stream from the input file.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Audio Track Details

The audio track propagates the track - multiple tracks are automatically compressed into a single track - from the input file.

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display settings.

Language. Specifies the language of this track.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

Preserve Original Audio Tracks. When checked, The incoming audio tracks are passed directly to the output audio tracks, which must be configured as Direct Convert. This enables sources with multiple tracks to be passed through without having to use multiple audio tracks in the output container. (This can include multiple PCM audio tracks in conjunction with AAC and or AC3 tracks).

When Preserve Original Tracks is enabled, the Auto Input component does not blend all tracks into a single output track. In this case, the output tracks match the input tracks, with no blending. No filters or converters should be enabled.

JPEG2000 GPU Accelerated Input (Multiscreen)

The JPEG2000 GPU Accelerated Input component in Multsicreen supports GPU-accelerated JPEG2000 video decoding for media files. If no JPEG2000 video essence is detected, the action will fail.

JPEG2000 GPU Accelerated Input is not Open Workflow capable.

GPU-accelerated JPEG2000 decoding and encoding is a licensed option for your Vantage domain.

Auto Input supports one video stream, one audio track, and one ANC stream..

The JPEG2000 GPU Accelerated Input component is container-agnostic: it automatically determines which input component to use for each incoming file. For formats explicitly supported in this Flip action (such as GXF or QuickTime) it is automatically processed and decoded by the appropriate input component. Otherwise, it attempts to use the input components supported by the Flip action to read the file and decode the JPEG2000 video stream.

For input files that contain multiple audio tracks, the action decompresses the tracks if required, and consolidates the tracks into a single audio track and propagates it downstream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Stream Details

The video stream propagates the stream from the input file.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Audio Track Details

The audio track propagates the track - multiple tracks are automatically compressed into a single track - from the input file.

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display settings.

Language. Specifies the language of this track.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

Preserve Original Audio Tracks. When checked, The incoming audio tracks are passed directly to the output audio tracks, which must be configured as Direct Convert. This enables sources with multiple tracks to be passed through without having to use multiple audio tracks in the output container. (This can include multiple PCM audio tracks in conjunction with AAC and or AC3 tracks).

When Preserve Original Tracks is enabled, the Auto Input component does not blend all tracks into a single output track. In this case, the output tracks match the input tracks, with no blending. No filters or converters should be enabled.

ANC Stream Settings

The ANC stream propagates ancillary data present in the source file. ANC data may consist of closed captions, VPIDs, AFD, timecode, Dolby E metadata, and even embedded audio, such as PCM.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

LXF Input

The LXF Input component processes media which has originated on a Harris Nexio (Leitch) video server. LXF files may contain DV, DV50, MPEG, IMX or AVC-I video essence. LXF files may contain up to 16 channels of PCM audio, in a single track of audio data (with up to 16 channels).

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.

After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.

If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate, and specify the bit rate of the incoming track. Alternatively, click Browse and select a variable with the bit rate value specified in an upstream action.

This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. Alternatively, click Browse and select a variable with the bit rate value specified in an upstream action.

This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

LXF Input (Multiscreen)

The LXF Input component in Multiscreen processes media which has originated on a Harris Nexio (Leitch) video server. LXF files may contain DV, DV50, MPEG, IMX or AVC-I video essence. LXF files may contain up to 16 channels of PCM audio, in a single track of audio data (with up to 16 channels).

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.

After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.

If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate, and specify the bit rate of the incoming track. Alternatively, click Browse and select a variable with the bit rate value specified in an upstream action.

This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. Alternatively, click Browse and select a variable with the bit rate value specified in an upstream action.

This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

MPEG2 Elementary Stream Input

The MPEG2 Elementary Stream Input component supports reading MPEG2 video from MPEG2 Elementary Stream files. Each MPEG2 Elementary Stream Input supports one video track.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter or Overlay Video Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input, so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

MPEG2 Program Stream Input

The MPEG2 Program Stream Input component supports reading 1 video, 16 audio, and 5 data tracks from MPEG2 Program Stream files. Each input audio track should be either mono or stereo MPEG2 audio.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.
After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.
If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Container Settings

Always Create Outputs

When checked, outputs are created even if specified file inputs are not present at the time of job submission. Unchecked by default.

Media to Keep (Trim Filter)

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track (up to 16), check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

Data Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track (up to 5), check the track checkbox in the empty, untitled data track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the

action generates an error. If the source file contains more tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Data 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

MPEG2 Program Stream Input (Multiscreen)

The MPEG2 Program Stream Input component supports reading 1 video, 16 audio, and 5 data tracks from MPEG2 Program Stream files. Each input audio track should be either mono or stereo MPEG2 audio.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.
After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.
If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Container Settings

Ignore Missing Streams

When checked, outputs are created even if specified file inputs are not present at the time of job submission. Unchecked by default.

Media to Keep (Trim Filter)

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track (up to 16), check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

Data Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track (up to 5), check the track checkbox in the empty, untitled data track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the

action generates an error. If the source file contains more tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Data 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

MPEG2 Transport Stream Input (Multiscreen)

The MPEG2 Transport Stream Input component in Multiscreen supports reading MPEG2 or H.264 video, and PCM, MPEG2 or AC-3 audio, from an MPEG2 Transport Stream file. Each MPEG2 Transport Stream Input supports one video, 16 audio tracks, and 5 data tracks.

The MPEG2 Transport Stream Input component also supports reading DVB subtitles. DVB subtitle ANC tracks are contained in an MPEG2 TS file, generated from the Timed Text Flip action DVB Subtitles output or 3rd party systems. The Timed Text action can be an upstream action or in a separate, preceding Timed Text workflow where the job has been cataloged for further processing. These files do not contain audio or video; when used for DVB subtitling, disable the video and audio stream components.

This ANC track is used when creating a multiplexed DVB transport stream with video, audio, and subtitles in Manzanita format.

ETV packet tracks may also be contained in an MPEG2 TS file, which also typically contain video and audio. Enable one input data track for each ETV track in the file.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.
After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.
If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Container Settings

Ignore Missing Streams

When checked, outputs are created even if specified file inputs are not present at the time of job submission. Unchecked by default.

Media to Keep (Trim Filter)

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not

present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

Data Track Details

Use Data tracks to identify DVB tracks or ETV Subtitle tracks and propagate them to the output. When used for DVB subtitling, appropriately name each data track (*DVB*, for example), and disable the video and audio stream components. When used for ETV, create one data track for each ETV packet track and appropriately name each data track (*ETV 1*, for example).

Data Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, check the stream checkbox in the empty, untitled data stream to the right of the last active stream.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ETV 1*) in place. This name should be unique within the action.

Language. Specifies the language of this track.

MPEG2 Transport Stream Input (IPTV)

The MPEG2 Transport Stream Input component supports reading MPEG2 or H.264 video, and PCM, MPEG2 or AC-3 audio, from an MPEG2 Transport Stream file. Each MPEG2 Transport Stream Input supports one video, one or more audio tracks, and one or more data tracks.

The MPEG2 Transport Stream Input component also supports reading DVB subtitles. DVB subtitle ANC tracks are contained in an MPEG2 TS file, generated from the Timed Text Flip action DVB Subtitles output or 3rd party systems. The Timed Text action can be an upstream action or in a separate, preceding Timed Text workflow where the job has been cataloged for further processing. These files do not contain audio or video; when used for DVB subtitling, disable the video and audio stream components.

This ANC track is used when creating a multiplexed DVB transport stream with video, audio, and subtitles in the output.

ETV packet tracks may also be contained in an MPEG2 TS file, which also typically contain video and audio. Enable one input data track for each ETV track in the file.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.
After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.
If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or output, or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Select the stream to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming stream. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Track Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This name should be unique within the action.

Select the track to display track settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the track directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

Data Stream Details

Use Data tracks to identify ETV tracks or DVB Subtitle tracks and propagate them to Manzanita output.

When used for DVB subtitling, appropriately name 1 Data track (*DVB*, for example), and disable the video and audio stream components.

When used for ETV, create one data track for each ETV packet track and appropriately name each Data track (*ETV 1*, for example).

Data Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, check the stream checkbox in the empty, untitled data stream to the right of the last active stream.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ETV 1*) in place. This name should be unique within the action.

Language. Specifies the language of this track.

MPEG2 DVB Subtitles Input

The MPEG2 DVB Subtitles Input component supports reading MPEG2 or H.264 video, and PCM, MPEG2 or AC-3 audio, from an MPEG2 Transport Stream file. Each MPEG2 Transport Stream Input supports one video, one or more audio tracks, and one or more data tracks.

The MPEG2 DVB Subtitles Input component also supports reading DVB subtitles. DVB subtitle ANC tracks are contained in an MPEG2 TS file, generated from the Timed Text Flip action DVB Subtitles output or 3rd party systems. The Timed Text action can be an upstream action or in a separate, preceding Timed Text workflow where the job has been cataloged for further processing. These files do not contain audio or video; when used for DVB subtitling, disable the video and audio stream components.

This ANC track is used when creating a multiplexed DVB transport stream with video, audio, and subtitles in Manzanita format.

ETV packet tracks may also be contained in an MPEG2 TS file, which also typically contain video and audio. Enable one input data track for each ETV track in the file.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.
After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.
If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or output, or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Select the stream to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming stream. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Track Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This name should be unique within the action.

Select the track to display track settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the track directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Data Stream Details

Use Data tracks to identify ETV tracks or DVB Subtitle tracks and propagate them to Manzanita output.

When used for DVB subtitling, appropriately name 1 Data track (*DVB*, for example), and disable the video and audio stream components.

When used for ETV, create one data track for each ETV packet track and appropriately name each Data track (*ETV 1*, for example).

Data Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, check the stream checkbox in the empty, untitled data stream to the right of the last active stream.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ETV 1*) in place. This name should be unique within the action.

Language. Specifies the language of this track.

MPEG-4 Input

The MPEG-4 Input component supports reading MP4 files with H.264 video and PCM, AAC or Dolby E audio. Each MPEG-4 Input supports one video and one or more audio tracks.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.
After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.
If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

MPEG-4 Input (Multiscreen)

The MPEG-4 Input component in Multiscreen supports reading MP4 files with H.264 video and PCM, AAC or Dolby E audio. Each MPEG-4 Input supports one video and one or more audio tracks.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.
After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.
If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Ignore Missing Streams. When checked, outputs are created even if specified file inputs are not present at the time of job submission. Unchecked by default.

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You

specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

MXF AS02 Input

The MXF AS02 Input component supports reading DV, IMX, MPEG2, AVC-Intra, and JPEG2000 video with PCM and/or Dolby E audio from an MXF Application Specification-02 input file. Each MXF AS02 Input supports one video and one or more PCM audio tracks.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.
After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.
If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

MXF AS02 Input (Multiscreen)

The MXF AS02 Input component in Multiscreen supports reading DV, IMX, MPEG2, AVC-Intra, and JPEG2000 video with PCM and/or Dolby E audio from an MXF Application Specification-02 input file. Each MXF AS02 Input supports one video and one or more PCM audio tracks.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.
After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.
If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

MXF DCP Input

The MXF DCP Input component reads DCP packages containing Motion JPEG2000 video and PCM audio and decodes them. Each MXF DCP input supports one video stream and one or more audio tracks.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.
After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.
If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

MXF DCP Input (Multiscreen)

The MXF DCP Input component in Multiscreen reads DCP packages containing Motion JPEG2000 video and PCM audio and decodes them. Each MXF DCP input supports one video stream and one or more audio tracks.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.
After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.
If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

MXF OP1a Input (IPTV)

The MXF OP1a Input component supports reading DV, IMX, MPEG2, DNxHD, AVC-Intra, and JPEG2000 video with PCM and/or Dolby E audio from an MXF OP1a input file. Each MXF OP1a Input supports one video and one or more PCM audio tracks.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.
After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.
If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Container: MXF OP1a

These controls display only when the Input panel is selected.

Open File Support. Check to enable Open File support, indicating that you want to start transcoding this stream as soon as the file is opened and media is being written to it in real time. Click Browse to assign a true/false variable to control the use of this option, which must be set by an upstream action.

Open File Timeout. Specifies the maximum amount of time delay between the written and read portion of the file, as it is being written.

Media to Keep (Trim Filter)

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

MXF OP1a Input (Multiscreen)

The MXF OP1a Input component in Multiscreen supports reading DV, IMX, MPEG2, DNxHD, AVC-Intra, and JPEG2000 video with PCM and/or Dolby E audio from an MXF OP1a input file. Each MXF OP1a Input supports one video and one or more PCM audio tracks.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.
After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.
If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

QuickTime Input

The QuickTime Input component supports reading QuickTime MOV files with DV, IMX, ProRes, DNxHD or H.264 video, and PCM, AAC, and Dolby E audio. Each QuickTime Input supports one video and one or more audio tracks.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.
After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.
If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

The QuickTime Input supports reference files, provided that all reference files are in the same format. It does not support composited tracks or mixed formats.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

QuickTime Input (Multiscreen)

The QuickTime Input component in Multiscreen supports reading QuickTime MOV files with DV, IMX, ProRes, DNxHD or H.264 video, and PCM, AAC, and Dolby E audio. Each QuickTime Input supports one video and one or more audio tracks.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.
After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.
If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input tracks into a single audio stream.

The QuickTime Input supports reference files, provided that all reference files are in the same format. It does not support composited tracks or mixed formats.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

SCC Input

The SCC Input component supports reading sidecar SCC files (in SCC or XML files) for Closed Caption insertion by the selected transcoder component.

Closed captions are inserted into the output at the matching timecode of the input media. If the media timecode is later than the start of the SCC, the SCC Input component will keep reading captions, looking for a timecode equal to or greater than the current media timecode. If it cannot find one in the SCC file, no captions will be inserted.

The SCC Input component allows you to insert SCC captions at the desired location in the output when the timecodes are not in sync, by modifying the timecode of the output using the Time Code Processing Filter.

Here are some examples:

SCC file starts at a non-zero hour: For example, the SCC timecode is 01:00:12:22 and you want the SCC inserted at 00:00:12:22 time in the output, but the input timecode is 00:00:00:00. Enable the Time Code Processing Filter in the video transcoder, and set the timecode value to that of the SCC file (in this case, 01:00:00:00).

Input file starts at a non-zero hour: In this reverse example, the SCC timecode is 00:00:12:22, but the input timecode is 01:00:00:00. Enable the Time Code Processing Filter in the video transcoder, and set the timecode value to that of the SCC file (in this case, 00:00:00:00).

Midnight Rollover: In this example, SCC timecode starts at 00:00:12:22, and while the original timecode started at 00:00:00:00 (or had no timecode), a leader - 30 seconds worth - was inserted. You need to override the timecode to 23:59:30:00. At 23:59:59;29 + 1, the timecode will roll over to 00:00:00:00 and captions will still be inserted at 00:00:12:22.

Delete. To delete this input, click the X icon in the upper right corner.

SCC Input Component Settings

Source. Click Select to display the input source dialog where you specify the SCC file to process, by nickname or by file name.

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Data Track Details

Use a Data track to identify an SCC track and propagate it to Manzanita output.

Data Checkbox. Activates this track for processing. Uncheck to disable processing.

Track Name. Enter the name of the track to identify it for selection later. This name should be unique within the action.

Still Image Input

The Still Image Input component decodes one JPEG, BMP, PNG, TIFF, GIF, or TGA file and generates digital baseband video of the specified duration and frame rate.

The transcoder resizes the input file to the largest frame size that will fit in the output frame without changing the original aspect ratio. Bars or pillars (if required) are auto-filled with black.

The resulting video is passed on to the remaining stages of the transcode action just as any other decoded input file, for converter, transcoder, and output processing.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Still Image Input Settings

Configure the following control (or use the green browse button to bind this setting to a variable).

Duration. Specifies the duration and the frame rate to use for encoding the video clip.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

TIFO Input

The TIFO Input component supports reading DV, IMX, ProRes, and DNxHD video with PCM and/or Dolby E audio from a Telestream TIFO file.

TIFO Input is Open Workflow capable.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Settings

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Container Settings

Select the TIFO panel to display container settings in the right-hand panel.

Ignore Markin/Markout. When checked, uses the entire file, disregarding any mark-in and mark-out points. When unchecked, the media is trimmed to the mark-in and mark-out points, if present.

Open File Support. Check to enable Open File support, indicating that you want to start transcoding this stream as soon as the file is opened and media is being written to it in real time. Click Browse to assign a true/false variable to control the use of this option, which must be set by an upstream action.

Open File Timeout. Specifies the maximum amount of time delay between the written and read portion of the file, as it is being written.

End of Stream Read Margin. 0-64 MB (Default: 0). When using Open Workflows, creates a read buffer to compensate for some storage environment latency issues. The TIFO reader reads up to the "end of stream read margin" number of bytes behind the end of the file while it is growing. Once the file stops growing, it completes reading to the end of the file.

This is applicable in some storage environments where latencies can cause the TIFO reader to read erroneous data from near the end of the file because it has not yet been fully committed to disk.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

TIFO Input (Multiscreen)

The TIFO Input component in Multiscreen supports reading DV, IMX, ProRes, and DNxHD video with PCM and/or Dolby E audio from a Telestream TIFO file.

TIFO Input is Open Workflow capable.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Settings

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Detail Settings

Select the TIFO panel to display container settings in the right-hand panel.

Ignore Markin/Markout. When checked, uses the entire file, disregarding any mark-in and mark-out points. When unchecked, the media is trimmed to the mark-in and mark-out points, if present.

Open File Support. Check to enable Open File support, indicating that you want to start transcoding this stream as soon as the file is opened and media is being written to it in real time. Click Browse to assign a true/false variable to control the use of this option, which must be set by an upstream action.

Open File Timeout. Specifies the maximum amount of time delay between the written and read portion of the file, as it is being written.

End of Stream Read Margin. 0-64 MB (Default: 0). When using Open Workflows, creates a read buffer to compensate for some storage environment latency issues. The TIFO reader reads up to the "end of stream read margin" number of bytes behind the end of the file while it is growing. Once the file stops growing, it completes reading to the end of the file.

This is applicable in some storage environments where latencies can cause the TIFO reader to read erroneous data from near the end of the file because it has not yet been fully committed to disk.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

TTML/DFXP Input

The TTML/DFXP Input component ingests and processes Timed Text Markup Language (TTML) files, previously referred to as Distribution Format Exchange Profile (DFXP), one of the W3C standards regulating timed text on the Internet.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Settings

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name.

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Detail Settings

Select the TTML panel to display container settings in the right-hand panel.

There are no user-settable controls in this panel.

Data Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

There are no user-settable controls in this panel.

TTML/DFXP Input (Multiscreen)

The TTML/DFXP Input component in Multiscreen ingests and processes Timed Text Markup Language (TTML) files, previously referred to as Distribution Format Exchange Profile (DFXP), one of the W3C standards regulating timed text on the Internet.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Settings

Ignore Missing Streams. When checked, outputs are created even if specified file inputs are not present at the time of job submission. Unchecked by default.

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name.

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Detail Settings

Select the TTML panel to display container settings in the right-hand panel.

There are no user-settable controls in this panel.

Data Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

There are no user-settable controls in this panel.

Wave Input

The Wave Input component supports re0ading PCM audio from a Wave input file. Each Wave Input supports one audio track. Wave Input only supports PCM uncompressed audio, and reads the channel map if present in the file.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

Wave Input (Multiscreen)

The Wave Input component in Multiscreen supports reading PCM audio from a Wave input file. Each Wave Input supports one audio track. Wave Input only supports PCM uncompressed audio, and reads the channel map if present in the file.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

WebVTT Input (Multiscreen)

The WebVTT Input component supports reading web video text tracks from a file in VTT (.VTT) format. You ingest WebVTT files to present the web video text track directly to an output component. Each WebVTT Input supports one data track.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Ignore Missing Streams. When checked, outputs are created even if specified file inputs are not present at the time of job submission. Unchecked by default.

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name.

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Data Track Details

Data Checkbox. Activates this data stream for processing. Uncheck to disable processing.

Data Name. Enter the name of the data stream to identify it for selection in an output component, or leave the default value (for example, *Data 1*) in place. This stream name should be unique within the action.

Select the data stream to display settings.

Y4M Input

The Y4M Input component supports reading uncompressed YUV from a Y4M file. Each Y4M Input supports one video track.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming video track. This setting is only used when providing the stream directly to an output, bypassing transcoding. You specify the input stream bit rate to control how the output component should process the incoming audio. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Mixer Converter

The Audio Mixer Converter enables you to consolidate multiple tracks or channels from different tracks into a single track, re-organize channels in a new track, and perform audio channel mixing, combining multiple channels into a single, new channel.

Use of this converter requires that you know the composition of input audio tracks. Channels are numbered sequentially, beginning with the first channel in the first track as channel 1. For example, if Track 1 In has 2 channels and Track 2 In has 2 channels, then the first channel in Track 2 In is channel 3; the second channel in Track 2 In is 4. Thus, the first track in Track 3 In (if it were specified) would be channel 5, etc.

The audio requirements in the output depends upon your output audio codec settings and drives your input and converter configuration. For example, if you are encoding a stereo program, then you need a 1 and 2 (or Left and Right) channel. Alternatively, if you are encoding a program with a 5.1 configuration, then you need six channels: Left, Right, Center, Back Left, Back Right, and Low Frequency Effects (LFE).

Labeling channels using the Channel Assignment control in the Track Out configuration panel is only for use in the Output component to identify audio tracks per the standard of the codec you specify. For example, you should name the channels if you are creating 5.1 audio; if you are creating PCM audio, it would be of no value. You can also assign channel labels by creating variables upstream and assigning labels, then using the variables to assign labels dynamically instead of statically assigning them. To provide channel labels in the output audio, use the Channel Designation filter.

Multiple Track Consolidation Example

In this example, you have 2 separate tracks, each with a stereo pair in different languages. You want to create a single track with both languages in it:

- Add 2 Track Ins, and in each, select the Input Track to use. You are going to direct-convert the audio track in the output - you're not changing the encoding.

- In Track Out, you don't have to change the configuration, because each Output Channel defaults to a sequential input channel, beginning at 1. Channel Assignments are set to Not Assigned and you don't need labels.

Channel Re-organization Examples

In this example, suppose that your input audio track has 8 channels of PCM audio, with the first six channels representing a 5.1 English program, and the remaining two channels representing a stereo French program. If you want the output transcoder to encode only the French program, you should configure the filter as follows:

Example 1

Output Channel 1 : 7, Output Channel 2 : 8, Output Channel 3: no specified value (blank).

Creates a 2 channel output with 2 channels in French (1-2).

Example 2

Output Channel 1 : 7, Output Channel 2 : 8, Output Channel 3-8 : 0, Output Channel 9 : no specified value (blank)

Creates an 8 channel output with 2 channels in French (1-2) and 6 silent channels (3-8).

Example 3

Output Channel 1 : 7, Output Channel 2 : 8, Output Channel 3-4 : 0, Output Channel 5 : 1, Output Channel 6 : 2, Output Channel 7 : no specified value (blank).

Creates a 6 channel output with 2 channels in French (1-2) and 2 silent channels (3-4) and 2 channels in English (original channels 1-2 mapped to channels 5-6).

Automatic mixing of channels may be performed to create missing channels:

Mono Output: If you are creating a mono output, this should use the input channel designated as *Center*, if available. If no input channel is designated as *Center*, then Multiscreen Flip mixes the *Left* and *Right* channels (if they are available) to create a mono output.

Back Center Output: If you are creating a Back Center output, such as with 2/1 AC-3 or 3/1 AAC, then the *Back Left* and *Back Right* input channels are mixed to create this output channel.

Channel Mixing Example

In this example, you have a stereo pair in one file, and you want to add background music to it. The music is in a separate file with one track and 16 channels and you want the music from Channel 2:

- Add 2 Track Ins, and in each, select the Input Track to use. You're going to direct-convert the audio track in the output - you're not changing the encoding.

- In Track Out, configure Output Channel 1 with *1, 2, 4* or *1+2+4* (separate channels with plus signs or commas. Channel Assignments are set to Not Assigned and you don't need labels.

Both examples accomplish the same result: combining input channels 1, 2 and 4 into the output channel.

To change the volume of a channel in the mix, append a scale factor to the input channel, surrounding the scale factor in parenthesis. Here the music is reduced to 30% of its volume.

1+2+4 (0.3)

This example combines channels 1 and 2 at 100% and channel 3 at 30%, into the output channel.

Audio Track In Settings (up to 16 permitted)

Create a Track In in the Audio Mixer to identify all of the Input audio tracks you need to create your required output audio.

Checkbox. Activates this track for processing. Uncheck to disable the track. To add a new track, check the track checkbox in the empty, untitled track to the right of the last active track.

Name. Specifies the Input track to use for channel selection in your output.

Output Track Settings

Select the Output track to configure it.

Output Channels 1-32. Enter the channel number to use the green button to bind the channel name to an integer variable whose value has been dynamically set upstream.

For each output channel, enter the input channel number that should be assigned to the output channel. To combine multiple input channels in an output channel, indicate each channel in the field, separating the track numbers with commas or plus signs, including a real number to control volume, in parenthesis immediately following the channel number. \

To create a silent audio channel, enter a numeric zero (0). To indicate to the converter that processing should stop and no further output channels should be created, leave the field blank.

Channel 1-32 Assignment. Optionally, maps the selected channel to the desired function: Not Assigned | Left | Right | Center | Mono | Low Frequency Effects | Left Surround | Back Left | Right Surround | Back Right | Side Left | Left Total | Side Right | Right Total | Left Rear Surround | Right Rear Surround.

This setting is only used when your output is configured to encode audio in a format that uses channel labels as part of its standard.

Dolby Vision Insert Converter (Multiscreen)

The Dolby Vision Insert Converter in Multiscreen adds a Dolby Vision track in the Video stream consisting of the Dolby Vision metadata ingested by the Dolby Vision Metadata Input component, which is an optional, licensed feature.

This converter component is typically used in a workflow where an upstream Analyze action has extracted the Dolby Vision metadata from an MXF package and generated this XML file. This enables the Multiscreen action to insert the Dolby Vision metadata back into the Video stream in the output file, by means of the Dolby Vision Insert Converter in the Multiscreen action.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Video Track In Settings

The track identifies the Video input track to process.

Track Checkbox. Activates this input track for processing. Uncheck to disable it.

Track Name. Specifies the name of the track to decode from the Input component(s).

There are no input track configuration settings.

DoVi Track In Settings

The track identifies the Dolby Vision input track to insert into the ANC In track.

Track Checkbox. Activates this track for processing. Uncheck to disable it.

Track Name. Specifies the name of the Input track to insert.

There are no input track configuration settings.

Video Track Out Settings

The Video track identifies the output track to be added to the output file. It is comprised of the Video Track In plus the inserted DoVi Track In, for use by transcoder and output components in Multiscreen.

Checkbox. Activates this track for use downstream. Uncheck to disable the track.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *ANC 1 [Dolby Vision Insert]*) in place. This track name should be unique within the action.

Tachyon Converter (Multiscreen)

The Tachyon Converter in Multiscreen uses the Tachyon Video Processor and optionally, the Dark Energy Filter, to transcode the media to correct artifacts resulting from editing, Telecine, and tape pull-down. The Tachyon converter produces a new video stream from the source video stream.

Note: This is an optional, licensed feature. The Tachyon Converter and associated Dark Energy Filter are not supported in Cloud mode.

Convert Filter

Check to enable motion compensation and frame fate conversion features and configure these options.

General

The General section contains controls to determine how the Tachyon Video Processor and Dark Energy processes media. These are the common settings which are used by Tachyon and Dark Energy for creating the progressive video essence which all operations are performed on.

By checking both the *Motion Compensation* checkbox and any of the *Interlaced: Allow Insertion* choices covered in the next section (such as the *Allow Adaptive Insertion*), the Tachyon Video Processor automatically switches between the pixel-based and field-based output algorithms during processing, on a scene by scene basis, to provide the cleanest possible rendering:

Target for Video: 50i

- Scene 1 converted to 50i via Motion Compensation
- Scene 2 converted to 50i via Allow Adaptive
- Scene 3 converted to 50i via Allow Adaptive
- Scene 4 converted to 50i via Motion Compensation

This setting works for progressive outputs as well. Check *Progressive: Double Frames* and *Progressive: 4:6 Insertion* along with the *Motion Compensation* checkbox to achieve a smart resample output.

Adjust For Excessive Noise.

When video is transferred to tape, there are many factors which could introduce chroma noise which is pattern in nature, and highly color transient. Select *Adjust for Excessive Noise* to enable Tachyon to remove chroma noise during video analysis to achieve higher accuracy during inverse Telecine or pulldown removal.

This feature will not remove the chroma noise in the output. It is strictly an analysis tool.

Adjust for Cartoon/Anime.

Animations have many repeated frames/fields, so when there is a broken cadence situation, special care must be taken to ensure the video retains its original essence. This filter allows for retention of repeated frames/fields as appropriate. Check the *Adjust for Cartoon Anime* to enable this setting.

Allow Telecine/Pulldown Removal.

This filter is a multi-function feature for removing simple 3:2 pulldown patterns. The filter automatically detects when Telecine patterns (cadence) are broken, and detects advanced cadence patterns such as the common 2224 pattern.

The 2224 pattern refers to the rate at which fields are repeated. The images will all be progressive and will exhibit no combing, but rather, a duplicated frame every 4th frame. So for example, assume you are given 4 images, captured at 23.976:

0, 1, 2, 3

Since each frame has an upper and lower field, the images are duplicated into each field, following a 2 2 2 4 pattern. The resultant 29.97i frames, based on the 4 above frames would be as follows:

Upper Field	0	1	2	3	3
Lower Field	0	1	2	3	3
Repeat Rate	2	2	2	4	

Because *ALLOW TELECINE REMOVAL* uses the *Allow* terminology, it only invokes the pulldown removal when Tachyon detects the presence of a pattern or broken pattern on scene-by-scene basis within a file.

Accurate Telecine material is easy for many conversion products to fix, but there is a very large amount of footage which contains broken 2:3 cadence. Broken cadence occurs when the Telecine pattern that started at frame 00:00:00:00 does not carry through the entire video.

The normal frame pattern is i1, i2, p1, p2, p3, and it should repeat through the entire project with scene cuts landing anywhere in the image sequence:

Broken 2:3 cadence occurs when editors piece clips together and end scenes based on image content only and disregard image cadence:

When broken cadence is present, these common problems appear at scene transitions with other inverse Telecine technologies:

- Repeated frames
- Jump cuts
- Combing artifacts

With the Tachyon intelligent inverse Telecine analyzing each scene cut for correct 2:3 cadence, Tachyon automatically adjust the conversion algorithms and creates the missing field from motion data when necessary.

Telecine/Pulldown Removal: Increased Detection Sensitivity.

When pulldown is not achieved due to extremely broken cadence, or other factors such as highly mixed content or if chroma noise masks motion, the pulldown engine may fall back to de-interlacing rather than removing Telecine. For this reason a more sensitive pulldown pattern was created. This algorithm favors inverse Telecine, and with lower thresholds for triggering pulldown identification, the algorithm will maximize the number of progressive frames created. To invoke this more sensitive pulldown removal algorithm, check the *Telecine/Pulldown Removal: Increase Detection Sensitivity* box.

Telecine/Pulldown Removal: Residual Combing Removal.

If the images you are converting are composited 29.976, but the pulldown pattern was not adhered to when performing the composite, this setting is required to remove combing artifacts. It will also remove combing artifacts related to very poor 3:2 cadence.

This filter typically used when residual combing artifacts exist after pulldown has been removed. You may use both the A*llow Telecine/Pulldown Removal* and *Telecine/ Pulldown: Residual Combing Removal* together.

Force SD NTSC Colorspace.

Forces use of SD NTSC color space regardless of the video format.

Resize Mode. Select Add Black to Fit for letterbox/pillar-box methods for resolution changes or Stretch | Crop when changing the aspect ratio.

Input Frame Configuration. When source metadata pertaining to field dominance is known to be erroneous, select one of these options to override the metadata so Tachyon can process the file with the correct field order.

Output Frame Configuration. When generating output frames with an interlaced encoder, select from these options to determine how frames should be configured if poor quality is observed:

- *Use Encoder Settings* (honors the standard implemented directly in the encoder)

- *Progressive* (produce progressive frames)

- *Interlaced Upper Field First* (when using an interlaced codec, produces interlaced upper field first frames, overriding the standard if different)

- *Interlaced Lower Field First* (when using an interlaced codec, produces interlaced lower field first frames), overriding the standard if different.

Motion Compensation.

Turns on a phase correlation motion estimator to perform interpolated frame rate conversions. The Tachyon patented conversions invoke different settings in the algorithms based on the unique frame rate of each scene, as well as special fallback algorithms to prevent artifacts which would normally occur with other motion-compensation based solutions. You may also specify extreme motion compensation settings for frames with higher amounts of motion.

Motion Compensation: Amount. Specifies the amount of motion in the media. When placed in *Automatic*, Tachyon will automatically adjust the motion compensation block size, fallback amount, motion amount, and block size on a scene by scene basis. Manual override is implemented by selecting the setting desired.

Motion Compensation: Block Size. Specified the size of the block to be used in the motion estimator. Smaller block size use less detail for finding matches and should be used for scenes with complicated, non-linear motion, such as a rapid zoom-out. When placed in *Automatic*, Tachyon will automatically adjust the motion compensation block size, fallback amount, motion amount, and block size on a scene by scene basis. Manual override is implemented by selecting the setting desired.

Motion Compensation: Fallback Blend Area. Specified the size of the block to be used in the motion estimator. Smaller block size use less detail for finding matches and should be used for scenes with complicated, non-linear motion, such as a rapid zoom-out. When placed in *Automatic*, Tachyon will automatically adjust the motion compensation block size, fallback amount, motion amount, and block size on a scene by scene basis. Manual override is implemented by selecting the setting desired.

Interlaced Settings

These filters are for interlaced outputs only. Leaving them accidentally checked on will not impact a progressive output, but can produce unexpected results when creating frame rates when the target field rate is exactly double the source field rate.

Interlaced: Allow 2:2 Insertion (PSF). Creates a new series of frames which are based on duplicating the field an interlacing it into top/bottom field. Maintains film-look.

Interlaced: Allow 2:3 Telecine Insertion. Inserts a standard 2:3 Telecine pattern to 23.976p video stream to achieve a 29.97i frame rate

Interlaced: Allow Euro* Insertion. For field based conversion rather than pixel-based. This method is valid for 24.0p to 50i conversions only.

Interlaced: Allow Adaptive* Insertion. For field-based conversion rather than using pixel-based interpolation. This algorithm is designed for both integer and non-integer frame rate conversion targets—as long as one of them is a non-integer rate (23.976, 29.97, 59.94, etc.). This plug-in will create NTSC-PAL conversions clean of motion artifacts at the expense of possible slight stutter. Stutter is most noticeable with material that has smooth and uniform motion.

Note: These algorithms may cause a slight stutter based on the differential between the source and target frame rates when viewed on a progressive monitor. Please verify these outputs on a broadcast monitor. If these results prove to be unacceptable, perform the conversion using the Motion Estimator and uncheck Allow Adaptive Insertion.

Progressive: Double Frames. Repeats each progressive frame twice on output (motion rate is halved). This setting is used when you want to convert to high progressive frame rates (i.e. 50p/59.94p/60p) but want to preserve film qualities of the source (low motion rate, such as 24p).

Progressive: 4:6 Insertion. Takes a 23.976 pattern and applies a repeated frame pattern in a 4:6 ratio to create 59.94p. This 4:6 59.94p will play smoothly on a broadcast monitor.

Advanced Settings

Parameters

The Advanced Settings Parameters field enables execution of custom command line instructions and should only be used for debugging, when instructed by Customer Support. Contact Telestream Customer Support for details.

Dark Energy Filter

The Dark Energy Filter requires a Dark Energy license.

Vantage demuxes and decompresses the video file prior to handing the video to Dark Energy for processing. Dark Energy only works on video in the uncompressed state and does nothing to audio or closed caption data. Dark Energy will manipulate the images as appropriate, and return the uncompressed images to the transcoder for compression and muxing. While Dark Energy can correct cadence issues, it will not output a different frame rate than what the original file specified. .

The Dark Energy UI is comprised of several drop-down menu items, all of which can be placed into AUTO mode to obtain high quality results just by letting the intelligence in Dark Energy do its job. By *Enabling* Dark Energy and leaving all the drop-down boxes in the "Automatic" position, Dark Energy will automatically adjust the motion estimator and all other settings given the source and target raster sizes.

To enable these settings check the Dark Energy box. When enabled, all video will route through a set of Dark Energy algorithms and will automatically be incorporated into any existing Tachyon Video Processor processes.

These are the selections except for Texture Color:

Disable. Disables this particular feature.

Extra Low. This value is subtle and will be approximately 33% of the Auto setting.

Low. This value is moderate and will be approximately 66% of the Auto setting.

Medium. This is always recommended starting point, which is why it is the AUTO setting as well. This Medium setting was determined after years of processing images, so it is a very robust, very appropriate setting.

High. This is 50% greater than Medium.

Extra High. This is 2x the implementation of Medium.

Automatic. Automatically sets the level to Medium. Medium is a setting which will vary based on original raster and target raster. So while it is a general "catch all" place to start from, it gives you two choices higher and two choices lower to tailor the processing to meet your needs.

Power Spatial. Specifies how much noise is removed from the video. Lower amounts of denoise will potentially leave items which could turn into compression blocking, too high of a denoise setting could result in compression banding. It is best to start with the AUTO setting and determine if more or less noise reduction is needed after running a short test clip.

Sharpen Amount. Specifies how much sharpening happens during the denoise/image scaling process. If images are soft to begin with, the intelligence in Dark Energy will more than likely preserve the image, just at a different resolution. More sharpness may be needed in these cases.

If you increase the noise reduction amount, a correlating increase in the sharpness setting may be required. We advise running a couple of short test clips before running entire projects and libraries.

Texture Amount. Affects the amount of texture that is "virtually developed" into the image during rendering. This texture is not an overlay or a simple, repeating texture pattern. The grain is constructed using chaotic math theorems which results in texture/grain patterns that never repeat, and are always consistent.

Texture Amount is exactly that—how much image texture is desired on the output. For digitally acquired images (50i/60i) which are lacking warmth, an ideal workflow is to perform a frame rate conversion from 50i/60i to 24p using Tachyon (it will automatically generate the 180 degree shutter providing the appropriate amount of motion blur for the lower frame rate) and then add Image Texture with Dark Energy. The AUTO setting will set a broadcast specific amount of grain for the given target raster, so if you want a more pronounced texture look, increase this setting to High or Extra High.

Texture Size. This setting is analogous to film size. For HD images, Dark Energy will model a 35mm film grain size during the virtual render. For UHD images, Dark Energy leverages 70mm film grain size during the virtual render. Like other settings, the Auto will set the image texture size to the medium setting and then moving higher or lower will generate larger or smaller Image Texture structure.

Texture Color. If you are processing black/white video, set this value to Grayscale. Otherwise, for color images, select Color.

Chroma Noise Removal. When checked, removes most chroma spots/crawl that occur in older footage and poor quality 4:2:0/4:2:2 tape transfers. Unchecked by default.

Smooth Spatial Filter. If you are processing images with dot or pattern crawl, use this filter to reduce noise and prevent artifacts.

Basic Spatial Filter Wavelet-based filter that removes pattern noise often seen in SD digital footage.

Single Artifact Removal. Removes most dust, scratches, and digital dropouts if they occur in non adjacent frames.

Output Settings Filter

The Output Settings Filter is used to configure Tachyon Converter outputs. When enabled, the Tachyon Converter output will match the Frame Rate, Interlacing Mode and Frame Size as defined in the Output Settings Filter. When disabled (default), the Tachyon Converter output applies the Frame Rate, Interlacing Mode and Frame Size as specified for the codec selected in the Output Video Stream configuration.

Output Frame Rate. When enabled (default), specifies output frame rate to use for the Tachyon filter. Default rate is 29.97 fps. When disabled, default output frame rate is used.

Interlacing Mode. When enabled (default), specifies interlacing mode to use for the output from the Tachyon filter. Default mode is Interlaced Upper Field First. When disabled, default output interlacing mode is used.

Output Frame Width. Specifies output frame width in pixels. Default is 1920.

Output Frame Height. Specifies output frame height in pixels. Default is 1080.

Video Stream In Settings

The video stream identifies the input stream you specify for processing.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Specifies the name of the input stream you are processing.

Video Stream Out Settings

The video stream identifies the output stream for use downstream.

Checkbox. Activates this stream for use downstream. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1 [Tachyon Converter]*) in place. This track name should be unique within the action.

FrameFormer Converter (Multiscreen)

The FrameFormer converter is a licensed CPU based Framerate and Format Conversion solution from InSync Technology available in Multiscreen. Contact your Telestream sales and support team to obtain a license and for more details.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

InSync FrameFormer Converter Configuration

The configuration pane contains controls to determine how the InSync FrameFormer Converter processes media.

Video 1 (In). Activates this stream for processing. Uncheck to disable the stream.

Name. Specifies the name of the input stream you are using.

Video 1 (Out). Activates this stream for downstream processing.

Converter Filter

When checked, allows specification of Output Size, Frame Rate, Scan Type, and Aspect Ratio Conversion parameters. Unchecked by default.

Output Size

Specify output size (in pixels) as determined by input file resolution (default) or custom output size.

Frame Rate

Specify output framerate as determined by input file framerate (default), preset framerates, or custom framerates. Custom framerate values are indicated using a numerator and denominator.

Interlacing Mode

Specify mode (interlaced/progressive) as determined by input file scan type (default) or custom scan type. For interlaced outputs, select Interlaced Top Field First or Interlaced Bottom Field First.

Aspect Ratio Conversion

Specify no conversion (default), preset aspect ratios for conversion, or custom select scale, aspect, horizontal offset, and vertical offset. Custom aspect ratio values are indicated using a numerator and denominator

Cadence Filter

When checked, allows specification of input and output cadence modes. Unchecked by default.

Input Mode

Specify no cadence (default), auto, or a variety of fixed cadence patterns.

Output Mode

Specify no cadence (default), auto, or a variety of fixed cadence patterns.

For both Input Mode and Output Mode, fixed cadence patterns include:

2:2 Fixed 2:2 Cadence. This pattern has a phase count of two.

2:3 Fixed 2:3 cadence. This pattern has a phase count of five, typically termed AA, BB, BC, CD and DD.

2:3:3:2 Fixed 2:3:3:2 cadence. This pattern has a phase count of five, typically termed AA, BB, BC, CC and DD.

Broadcast MPEG Transcoder

This Broadcast MPEG Transcoder is implemented in the IPTV VOD action.

This transcoder encodes one video stream into one broadcast-quality MPEG video, using the MPEG codec.

There are three components in the transcoder: the large (main) panel is the transcoder itself. Inside the transcoder component, to the far left is the smaller, input stream panel (with the down arrow). To the right is the output stream panel (with the up arrow).

Select the transcoder component to view its details panel on the right and configure its settings and filters, as described under Transcoder Settings, immediately below.

Select the video/audio stream component to view its details panel on the right and configure its settings. You can edit the name of the stream by selecting its text. The name of the stream does not affect functionality or file naming; it simply identifies the stream for selection elsewhere.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Note: Transcoder Settings

Select the transcoder panel to configure these settings.

Resolution

Click the details icon to specify frame settings.

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Aspect Ratio. Specifies the display aspect ratio.

Processor. Specifies that, if pre-analysis is to be performed, it should be performed on a Lightspeed server utilizing the GPU for improved performance.

Allow Video Processor Bypass. Specifies that the video processor should be bypassed if the input and output stream properties are identical, effectively performing a direct-convert operation.

Input Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding. If the video stream does not need to be re-encoded, uncheck the box to pass the video stream through to output unchanged.

Input Video Stream Name. Specifies the input video stream being processed by this transcoder. The list of streams is determined by the video streams (and their names) defined in the Inputs component.

Output Video Stream Settings

Select the output video stream panel to configure it.

Codec. Specifies the MPEG2 codec is used for transcoding this media. Not changeable by user.

Video Settings

Bit Rate. Specifies the target bit rate for this stream, in kbps.

GOP Structure. Specifies the GOP structure for this stream, as a pattern of I frames, B frames, and P frames. I frame-only structures have lower visual quality but are suitable for editing. Longer GOP structures have higher visual quality and are best suited for playout.

GOP Configuration. Specifies the type of GOP structure: Open GOP or Closed GOP.

Start with I Frame. When checked, specifies that the GOP start with an I frame (display and coded order).

Motion Estimation Factor. Specifies the amount of motion estimating to be used when encoding this stream. A higher value increases encoding time and results in higher visual quality.

Profile. Specifies the MPEG profile.

Level. Specifies the MPEG level.

Chroma. Specifies the type of chroma subsampling.

Intra DC Precision. Specifies the amount of MPEG intra DC precision.

Video Buffer Verifier

The VBV Buffer Verifier is used by the MPEG2 encoder to ensure that video does not overflow or underflow the target bit rate. The VBV delay specifies how much time is allowed between the transmission of the first frame and its actual decode, which specifies the total buffer size. Larger values allows the encoder greater flexibility during encoding.

Video Buffer Verifier. Specifies whether to use default settings or manual settings.

VBV Buffer Size. When Specify VBV Settings is specified, this setting specifies the size of the VBV buffer in kbps.

VBV Delay. When Specify VBV Settings is specified, this setting specifies the maximum delay, in milliseconds.

Advanced Settings

Video Performance Settings. Specifies the video quality setting to be used for this stream. A higher value increases encoding time and results in higher visual quality.

Low Bitrate MPEG-2 Transcoder

This Low Bitrate MPEG-2 Transcoder is implemented in the IPTV Flip action.

The Low Bitrate MPEG-2 Transcoder component encodes one video stream into MPEG-2. This transcoder is designed primarily for producing MPEG-2 video at a lower bit rate than is common (for example, 1Mb SD video).

There are three components in the transcoder: the large (main) panel is the transcoder itself. Inside the transcoder component, to the far left is the smaller, input stream panel (with the down arrow). To the right is the output stream panel (with the up arrow).

Select the transcoder component to view its details panel on the right and configure its settings and filters, as described under Transcoder Settings, immediately below.

Select the video/audio stream component to view its details panel on the right and configure its settings. You can edit the name of the stream by selecting its text. The name of the stream does not affect functionality or file naming; it simply identifies the stream for selection elsewhere.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Note: Select the transcoder panel to configure it.

Transcoder Settings

Presets

Profile (--profile). Limits the profile of the encoded video stream. The *Not Set* option automatically selects the appropriate profile based upon your other encoder settings.

Level (--level). Sets the level flag in the encoded streams. If not specified, the encoder auto-detects the level.

Preset (--preset). Specifies predefined options that optimize the trade-off between encoding speed and compression efficiency - visual quality per bit in the stream. Faster presents improve performance at the expense of quality.

Tuning. Specifies the optimum setting to optimize encoding quality for a particular type of source content or encoding characteristics.

Command Line. For parameters that are not in the editor panel (those other than the more common Profile, Preset, and Tuning parameters, etc.), you can enter CLI commands to execute, to refine encoding options. The transcoder uses various algorithms, many of which use default values. These values can be changed as a command line interface command.

To enter multiple commands, separate them with spaces: `--ref 3 --bframes 3`, for example.

It is best practice to use long form commands for clarity; for example: `--bframe 5`. The use of short form (`-b 5`) commands is not recommended.

Analysis

Look Ahead (--rc -lookahead). Specify the number of frames that the encoder uses to predict more difficult areas to encode, and save bits for those sections. This setting is used for rate control, and effectively sets the VBV window. Range: 10 to 60.

IP Ratio (--ipratio). Specify the target average increase in the quantizer for I-frames compared to P-frames. Higher values increase the quality of I-frames generated. Range: 1 to 10.

Adaptive Quantization Strength (--aq -strength). Sets the strength of AQ bias toward low detail (flat) macroblocks.

Resolution

Width. Specifies the width of the output frame in pixels.

Height. Specifies the height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Aspect Ratio. Specifies the display aspect ratio.

Processor. Specifies that, if pre-analysis is to be performed, it should be performed on a Lightspeed server utilizing the GPU for improved performance.

Allow Video Processor Bypass. When selected, the video processor is bypassed if the input and output properties are identical.

Frame Type

Open GOP. When checked, specifies open GOP (--open-gop) and uses I frames instead of IDR frames and flags them as recovery points. When unchecked, specifies closed GOP.

Intra DC Precision. Specifies the Intra DC precision value.

Chroma. Specifies the type of chroma subsampling.

Early Skip Detection on P-frames. When checked, enables early skip detection on P-frames. If disabled, executes the command *no-fast-pskip*.

Threads. Specifies the number of threads used.

GOP Structure. Specifies the GOP structure for this stream, as a pattern of I frames, B frames, and P frames. I frame-only structures have lower visual quality but are suitable for editing. Longer GOP structures have higher visual quality and are best suited for playout. If the GOP structure is explicitly selected, that structure is forced in the encoder.

GOP Structure-Manual. Enables the following additional parameters (GOP Length, Scene Detection, B-frames), which the encoder implements as closely as possible.

GOP Length. Specifies the number of frames in a GOP. Default is 15, minimum is 1 and maximum is 1000.

Scene Detection Threshold (--scenecut). When checked, enables scene detection and specify the threshold for I-frame detection. The codec calculates a metric for every frame to determine how different it is from the previous frame. If the metric is lower than this value, a scene cut is detected.

Maximum B-frames (--bframes). Specifies the maximum number of consecutive B-frames between P-frames.

B-frame Placement Algorithm (--b -adapt). Specifies the adaptive B-frame placement decision algorithm. This setting controls how the codec decides between placing a P- or B-frame.

Disabled - Always pick B-frames.

Fast - Faster, speed slightly increases with higher maximum B-frames setting.

Optimal - Slower, speed significantly decreases with higher maximum B-frames setting.

Multi-pass

Statistics File. If you have a pre-existing multi-pass statistics file for the *identical input file*, supply the file by its fully-qualified (ideally, UNC) path. You can set the number of passes in the Settings > Required Passes control for all transcoders, and use the results from a previous transcode for each input file being transcoded, saving time and resources, while achieving improved video quality.

Input Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding. If the video stream does not need to be re-encoded, uncheck the box to pass the video stream through to output unchanged.

Input Video Stream Name. Specifies the input video stream being processed by this transcoder. The list of streams is determined by the video streams (and their names) defined in the Inputs component.

Output Video Stream Settings

Codec

Codec. Specifies the Low Bitrate MPEG2 codec is used for transcoding this media. Not changeable by user.

General

Lightspeed Pre-analysis. When checked, improves codec efficiency by performing preliminary analysis on the media before encoding, thus reducing transcode time.

Rate Control

Rate Control. Specifies Constant Quantizer | Constant Rate Factor | Average Bit Rate.

Configure the settings for your selection.

MainConcept H264 Transcoder

The MainConcept H264 Transcoder is implemented in the IPTV VOD action.

The MainConcept H264 Transcoder encodes one video stream into an H.264 video stream, using the MainConcept H264 codec.

There are three components in the transcoder: the large (main) panel is the transcoder itself. Inside the transcoder component, to the far left is the smaller, input stream panel (with the down arrow). To the right is the output stream panel (with the up arrow).

Select the transcoder component to view its details panel on the right and configure its settings and filters, as described under Transcoder Settings, immediately below.

Select the video/audio stream component to view its details panel on the right and configure its settings. You can edit the name of the stream by selecting its text. The name of the stream does not affect functionality or file naming; it simply identifies the stream for selection elsewhere.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Note: Transcoder Settings

Note: When a configuration file is used, the resolution settings must match the resolution file settings.

Resolution

Click the details icon to specify frame settings.

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Aspect Ratio. Specifies the display aspect ratio.

Processor. Specifies that, if pre-analysis is to be performed, it should be performed on a Lightspeed server utilizing the GPU for improved performance.

Allow Video Processor Bypass. When selected, the video processor is bypassed if the input and output properties are identical.

Input Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding. If the video stream does not need to be re-encoded, uncheck the box to pass the video stream through to output unchanged.

Input Video Stream Name. Specifies the input video stream being processed by this transcoder. The list of streams is determined by the video streams (and their names) defined in the Inputs component.

Output Video Stream Settings

Codec

Codec. Specifies the H264 codec or a configuration file import for encoding.

General (Configuration File Import Only)

Configuration File. When Configuration File Import is selected, provide the fully-qualified path to the file. Enter it manually, Browse to it, or click the green Browse button to select a variable which contains the path and file name.

Note: When a configuration file is used, the resolution settings must match the resolution file settings.

Video Settings (H264 Only)

Bit Rate. Specifies the target bit rate for this stream, in kbps.

IDR-frame Interval (GOP Length). Specifies the maximum interval between IDR frames. When set to 0, the encoder chooses its own spacing.

Enforce Max Frame Sizes. When checked, maximum frame sizes for I, P, and B frames are enforced.

Advanced Settings

Video Performance Settings. Specifies the video quality setting to be used for this stream. A higher value increases encoding time and results in higher visual quality.

H264 Encoder Version. Specifies Auto or the encoder version to utilize.

MainConcept H264 Transcoder (Multiscreen)

The MainConcept H264 Transcoder is implemented in the Multiscreen action.

The MainConcept H264 Transcoder encodes one video stream into an H.264 video stream, using the MainConcept H264 codec.

There are three components in the transcoder: the large (main) panel is the transcoder itself. Inside the transcoder component, to the far left is the smaller, input stream panel (with the down arrow). To the right is the output stream panel (with the up arrow).

Select the transcoder component to view its details panel on the right and configure its settings and filters, as described under Transcoder Settings, immediately below.

Select the video/audio stream component to view its details panel on the right and configure its settings. You can edit the name of the stream by selecting its text. The name of the stream does not affect functionality or file naming; it simply identifies the stream for selection elsewhere.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Note: Transcoder Settings

Note: When a configuration file is used, the resolution settings must match the resolution file settings.

Resolution

Click the details icon to specify frame settings.

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Aspect Ratio. Specifies the display aspect ratio.

Processor. Specifies that, if pre-analysis is to be performed, it should be performed on a Lightspeed server utilizing the GPU for improved performance.

Allow Video Processor Bypass. When selected, the video processor is bypassed if the input and output properties are identical.

Input Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding. If the video stream does not need to be re-encoded, uncheck the box to pass the video stream through to output unchanged.

Input Video Stream Name. Specifies the input video stream being processed by this transcoder. The list of streams is determined by the video streams (and their names) defined in the Inputs component.

Output Video Stream Settings

Codec

Codec. Specifies the H264 codec or a configuration file import for encoding.

General (Configuration File Import Only)

Configuration File. When Configuration File Import is selected, provide the fully-qualified path to the file. Enter it manually, Browse to it, or click the green Browse button to select a variable which contains the path and file name.

Note: When a configuration file is used, the resolution settings must match the resolution file settings.

Video Settings (H264 Only)

Bit Rate. Specifies the target bit rate for this stream, in kbps.

Video Performance Setting Specifies video quality for encodes. Higher values return higher quality outputs but slower transcodes.

IDR-frame Interval (GOP Length). Specifies the maximum interval between IDR frames. When set to 0, the encoder chooses its own spacing.

Enforce Max Frame Sizes. When checked, maximum frame sizes for I, P, and B frames are enforced.

MainConcept MPEG-2 Transcoder

The MainConcept MPEG-2 Transcoder is implemented in the IPTV VOD action.

This transcoder encodes one video stream into MPEG format, using the MainConcept MPEG2 codec.

There are three components in the transcoder: the large (main) panel is the transcoder itself. Inside the transcoder component, to the far left is the smaller, input stream panel (with the down arrow). To the right is the output stream panel (with the up arrow).

Select the transcoder component to view its details panel on the right and configure its settings and filters, as described under Transcoder Settings, immediately below.

Select the video/audio stream component to view its details panel on the right and configure its settings. You can edit the name of the stream by selecting its text. The name of the stream does not affect functionality or file naming; it simply identifies the stream for selection elsewhere.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Note: Transcoder Settings

Note: When a configuration file is used, the resolution settings must match the configuration file settings.

Resolution

Width. Select the width of the output frame in pixels using the arrows or the slider.

Height. Select the height of the output frame in pixels from the menu or the slider.

Frame Rate. Select the frame rate of the output in frames per second from the menu or the slider.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Aspect Ratio. Set the aspect ratio flag for the output from the menu.

Processor. Select which video processor to use for transcoding: Multi-core 16-bit YCbCr 4:4:4:4, or Lightspeed Accelerated 16-bit YCbCr 4:4:4:4. The Lightspeed video processor only operates on a Lightspeed Vantage server.

Allow Video Processor Bypass. When selected, the video processor is bypassed if the input and output properties are identical.

Input Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding. If the video stream does not need to be re-encoded, uncheck the box to pass the video stream through to output unchanged.

Input Video Stream Name. Specifies the input video stream being processed by this transcoder. The list of streams is determined by the video streams (and their names) defined in the Inputs component.

Output Video Stream Settings

Codec

Codec. Specifies MPEG2 | MPEG1 | Configuration File Import is used for encoding this media. Not changeable by user.

General (Configuration File Import Only)

Configuration File. When Configuration File Import is selected, provide the fully-qualified path to the file. Enter it manually, Browse to it, or click the green Browse button to select a variable which contains the path and file name.

Note: When a configuration file is used, the resolution settings must match the configuration file settings.

Video Settings (MPEG2 | MPEG1 only)

Bit Rate. Specifies the target bit rate for this stream, in kbps.

GOP Structure. Specifies the GOP structure for this stream, as a pattern of I frames, B frames, and P frames. I frame-only structures have lower visual quality but are suitable for editing. Longer GOP structures have higher visual quality and are best suited for playout.

GOP Configuration. Specifies the type of GOP structure: Open GOP or Closed GOP. Open GOP uses I frames instead of IDR frames that are flagged as recovery points.

Start with I Frame. When checked, specifies that the GOP start with an I frame (display and coded order).

Motion Estimation Factor. Specifies the amount of motion estimating to be used when encoding this stream. A higher value increases encoding time and results in higher visual quality.

Profile. Specifies the MPEG profile.

Level. Specifies the MPEG level.

Chroma (MPEG2 Only). Specifies the type of chroma subsampling.

Intra DC Precision (MPEG2 Only). Specifies the amount of MPEG intra DC precision.

Video Buffer Verifier (MPEG2 | MPEG1 only)

The VBV Buffer Verifier is used by the MPEG2 encoder to ensure that video does not overflow or underflow the target bit rate. The VBV delay specifies how much time is allowed between the transmission of the first frame and its actual decode, which specifies the total buffer size. Larger values allows the encoder greater flexibility during encoding.

Video Buffer Verifier. Specifies whether to use default settings or manual settings.

VBV Buffer Size. When Specify VBV Settings is specified, this setting specifies the size of the VBV buffer in kbps.

VBV Delay. When Specify VBV Settings is specified, this setting specifies the maximum delay, in milliseconds.

Advanced Settings

Video Performance Settings. Specifies the video quality setting to be used for this stream. A higher value increases encoding time and results in higher visual quality.

MPEG Encoder Version. Specifies Auto or the encoder version to utilize.

There are three components in the transcoder: the large (main) panel is the transcoder itself. Inside the transcoder component, to the far left is the smaller, input stream panel (with the down arrow). To the right is the output stream panel (with the up arrow).

Select the transcoder component to view its details panel on the right and configure its settings and filters, as described under Transcoder Settings, immediately below.

Select the video/audio stream component to view its details panel on the right and configure its settings. You can edit the name of the stream by selecting its text. The name of the stream does not affect functionality or file naming; it simply identifies the stream for selection elsewhere.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

VP9 Transcoder

The VP9 Transcoder component encodes an incoming video stream in VP9 format, in various supported profiles (levels).

There are three components in the transcoder: the large (main) panel is the transcoder itself. Inside the transcoder component, to the far left is the smaller, input stream panel (with the down arrow). To the right is the output stream panel (with the up arrow).

Select the transcoder component to view its details panel on the right and configure its settings and filters, as described under Transcoder Settings, immediately below.

Select the video/audio stream component to view its details panel on the right and configure its settings. You can edit the name of the stream by selecting its text. The name of the stream does not affect functionality or file naming; it simply identifies the stream for selection elsewhere.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Note: Transcoder Settings

Levels

Levels. Specifies the frame size and frame speed at which to encode the video.

General

Frame Rate. Specifies the number of frames to display per second; disable to use source frame rate.

Threads Control. Specifies the number of parallel threads to use for processing.

Speed Control. Specifies the relationship between encoding speed and quality. 0 = slowest, highest quality; 4 = fastest, lowest quality.

Tile Columns. Specifies the tile-columns encoding setting used by the decoder.

Frame Parallel. Specifies the frame-parallel encoding setting used by the decoder.

Resolution

Width. Specifies the width of the encoded image, in pixels.

Height. Specifies the height of the encoded image, in pixels.

Processor. Select which video processor to use for transcoding: Multi-core 16-bit YCbCr 4:4:4:4, or Lightspeed Accelerated 16-bit YCbCr 4:4:4:4. The Lightspeed Video Processor only operates on a Lightspeed Vantage server.

Allow Video Processor Bypass. Specifies that the video processor should be bypassed if the input and output stream properties are identical, effectively performing a direct-convert operation.

Rate Control

Rate Control. Specifies the rate control method to use. Where appropriate, specify target rates or quality.

Input Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Select the name of the input stream to transcode. This list is populated from the video/audio streams that have been added to the Inputs component.

Output Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1 or Audio 1*) in place.

Codec

Codec. Specifies VP9; no other choices are provided.

x264 Transcoder (IPTV)

This x264 Transcoder is implemented in the IPTV VOD Flip action.

This x264 Transcoder encodes one video stream into H.264 format, using the x264 codec.

There are three components in the transcoder: the large (main) panel is the transcoder itself. Inside the transcoder component, to the far left is the smaller, input stream panel (with the down arrow). To the right is the output stream panel (with the up arrow).

Select the transcoder component to view its details panel on the right and configure its settings and filters, as described under Transcoder Settings, immediately below.

Select the video/audio stream component to view its details panel on the right and configure its settings. You can edit the name of the stream by selecting its text. The name of the stream does not affect functionality or file naming; it simply identifies the stream for selection elsewhere.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Note: Transcoder Settings

Resolution

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Aspect Ratio. Specifies the display aspect ratio.

Processor. Specifies the video processor to use for this transcoding task. Lightspeed processing is a licensed option and only is performed on a Lightspeed server.

Allow Video Processor Bypass. Specifies that the video processor should be bypassed if the input and output stream properties are identical, effectively performing a direct-convert operation.

Presets

Profile (--profile). Specifies the profile, offering different quality levels ranging from consumer (Baseline and Main) to broadcast and professional levels (High, High 10, and High 4:2:2). Select the profile to use (or *Not Set*) from the menu:

Baseline - Creates H.264 Baseline Profile output with 8-bit sampling, for consumer applications.

Main - Creates H.264 Main Profile output with 8-bit sampling, for consumer applications.

High - Creates H.264 High Profile output with 8-bit sampling, for broadcast/professional level applications.

High 10 - Creates H.264 High 10 Profile output with 10-bit sampling, for broadcast/professional level applications.

High 4:2:2 - Creates H.264 High 4:2:2 Profile output with 10-bit sampling and 4:2:2 chroma subsampling, for broadcast/professional level applications.

Not Set - Automatically selects the appropriate H.264 profile based upon your other encoder settings.

Level (--level). Sets the level flag in the encoded streams. If not specified, the encoder auto-detects the level.

Preset. Specifies the preset setting, which trades encoding speed for visual quality.

Tuning. Specifies the tuning setting, which optimizes encoding quality for a particular type of source content.

Command Line. For parameters that are not in the editor panel (those other than the more common Profile, Preset, and Tuning parameters, etc.), you can enter CLI commands to execute, to refine encoding options. The transcoder uses various algorithms, many of which use default values. These values can be changed as a command line interface command.

To enter multiple commands, separate them with spaces: `--ref 3 --bframes 3`, for example.

It is best practice to use long form commands for clarity; for example: `--bframe 5`. The use of short form (`-b 5`) commands is not recommended.

Disable Encoding Settings SEI. When checked, the encoder does not include Supplemental Enhancement Information (SEI) during encoding. This removes an SEI

message describing x264 encoding settings that can make the file unreadable in some applications. When unchecked, the encoder includes SEI.

Analysis

Look Ahead (--rc -lookahead). Specify the number of frames that the encoder uses to predict more difficult areas to encode, and save bits for those sections. This setting is used for rate control, and effectively sets the VBV window.

IP Ratio (--ipratio). Specify the target average increase in the quantizer for I-frames compared to P-frames. Higher values increase the quality of I-frames generated.

Adaptive Quantization Strength (--aq -strength). Sets the strength of AQ bias toward low detail (flat) macroblocks.

Frame Type

Max IDR Frame Interval (GOP Length) (--keyint). Specifies the maximum distance between IDR frames.

Fixed IDR-frame Interval (GOP Length). Specifies the fixed interval between IDR frames. Vantage maintains this count, and when hit, inserts an IDR frame independent of any other IDR frame insertion.

Open GOP. When checked, uses I frames instead of IDR frames and flags them as recovery points (--open-gop). The -keyint parameter uses the value specified in IDR Frame Interval when enabled. When disabled, --keyint is -1.

Scene Detection Threshold (--scenecut). When checked, enables scene detection and specifies the threshold for I-frame detection and IDR frame insertion. x264 calculates a metric for every frame to determine how different it is from the previous frame. If the metric is lower than this value, a scene cut is detected. Range: 1 to 100.

Maximum B-frames (--bframes). Specifies the maximum number of consecutive B-frames between P-frames.

B-frame Placement Algorithm (--b -pyramid). Specifies the adaptive B-frame placement decision algorithm. This setting controls how x264 decides between placing a P- or B-frame.

Disabled - Always pick B-frames.

Fast - Faster, speed slightly increases with higher maximum b-frames setting.

Optimal - Slower, speed significantly decreases with higher maximum b-frames setting.

B-Frame Reference Pyramid (--b -pyramid). Allows the use of B-frames as references for other frames. Without this setting, frames can only reference I- or P-frames. Although I/P-frames are more valued as references because of their higher quality, B-frames can also be useful. B-frames designated as references will get a quantizer halfway between P-frames and normal B-frames. You need to use at least two B-frames before B-pyramid will work.

If you're encoding for Blu-ray, use *None* or *Strict*.

None - Do not allow B-frames to be used as references.

Strict - Allow one B-frame per mini-GOP to be used as reference; enforces restrictions imposed by the Blu-ray standard.

Normal - allow numerous B-frames per mini-GOP to be used as references.

Reference Frames (--ref). Specifies the maximum number of frames that a frame can reference. More reference frames provide better quality, because the encoder has more frames in which to find similarities, but increases CPU utilization.

Video Format (--videoformat). Specifies the format of the incoming media, before decoding and re-encoding.

Color Primaries (--colorprim). Specifies color primaries for converting to RGB.

Transfer Characteristics (--transfer). Specifies the opto-electronics to use (the gamma curve to use for correction).

Color Matrix (--colormatrix). Specifies the matrix coefficient used in deriving the luma and chroma from the RGB primaries.

IDR Frame Insertion CML Path. Specifies the fully-qualified path to the CML file that defines the IDR frame timecode insertions, using the Segment element and keyframe attribute. For example, in an application where you are performing downstream ad insertion, you can programmatically insert IDR frames where segments begin to ensure they cleanly decode if the ads and promos immediately preceding the segment are replaced. For details, see the Segment topic in the Post Producer Developer Guide.

Multi-pass

Statistics File. If you have a pre-existing multi-pass statistics file for the *identical input file*, supply the file by its fully-qualified (ideally, UNC) path. You can set the number of passes in the Multi-Pass Settings > Required Passes control for all transcoders, and use the results from a previous transcode for each input file being transcoded, saving time and resources, while achieving improved video quality.

Input Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding. If the video stream does not need to be re-encoded, uncheck the box to pass the video stream through to output unchanged.

Input Video Stream Name. Specifies the input video stream being processed by this transcoder. The list of streams is determined by the video streams (and their names) defined in the Inputs component.

Output Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1 or Audio 1*) in place.

Codec

Codec. Specifies the x264 codec.

General

Lightspeed Pre-analysis. Check to perform Lightspeed pre-analysis on this stream. This is most applicable at higher bit rates and resolutions.

Rate Control

Rate Control. Select the type of rate control to apply to this encoding process. Then specify the appropriate settings, based on the type of rate control you chose.

x264 Transcoder (Multiscreen)

This x264 Transcoder is implemented in the Multiscreen Flip action.

This x264 Transcoder encodes one video stream into H.264 format, using the x264 codec.

There are three components in the transcoder: the large (main) panel is the transcoder itself. Inside the transcoder component, to the far left is the smaller, input stream panel (with the down arrow). To the right is the output stream panel (with the up arrow).

Select the transcoder component to view its details panel on the right and configure its settings and filters, as described under Transcoder Settings, immediately below.

Select the video/audio stream component to view its details panel on the right and configure its settings. You can edit the name of the stream by selecting its text. The name of the stream does not affect functionality or file naming; it simply identifies the stream for selection elsewhere.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Transcoder Settings

Resolution

Click the details icon to specify frame settings.

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Processor. Specifies the video processor to use for this transcoding task. Lightspeed processing is a licensed option and only is performed on a Lightspeed server.

Allow Video Processor Bypass. When checked, specifies that the video processor should be bypassed if the input and output stream properties are identical, effectively performing a direct-convert operation. Checked by default.

Lightspeed Codec. When checked, utilizes Lightspeed GPU for improved performance. Unchecked by default.

Note: The Lightspeed Codec feature is not supported in Cloud mode.

Aspect Ratio. Specifies the display aspect ratio.

Presets

Profile (--profile). Specifies the profile. Profiles offer different quality levels ranging from consumer (Baseline and Main) to broadcast and professional levels (High, High 10, and High 4:2:2). Lower levels use 8-bits per sample processing. High 10 provides 10-bits per sample processing, and High 4:2:2 adds 4:2:2 chroma subsampling to 10-bit processing. The *Not Set* option automatically selects the appropriate H.264 profile based on your other encoder settings.

Preset (--preset). Specifies the preset setting, which trades encoding speed for visual quality.

Tuning (--tune). Specifies the tuning setting, which optimizes encoding quality for a particular type of source content.

Command Line. For encoding parameters that are not implemented via controls in the editor panel (those other than the more common Profile, Preset, and Tuning parameters, etc.), you can enter CLI commands to refine encoding options. For example, use the *--level* command to specify a custom level value rather than the auto detected level. Only CLI commands specifically for setting encoding options are executed. The transcoder uses various algorithms, many of which use default values. These values can be changed as a command line interface command.

Note: CLI commands take precedence over user interface controls. If you enter a CLI command that is represented in the user interface, the CLI command will be executed. Telestream recommends using user interface controls whenever possible unless CLI commands are required.

To enter multiple commands, separate them with spaces: `--ref 3 --bframes 3`, for example.

It is best practice to use long form commands for clarity; for example: `--bframe 5`. The use of short form (`-b 5`) commands is not recommended.

Disable Encoding Settings SEI. When checked, the encoder does not include Supplemental Enhancement Information (SEI) during encoding. This removes an SEI message describing x264 encoding settings that can make the file unreadable in some applications. When unchecked, the encoder includes SEI.

Analysis

Click the details icon to specify analysis settings.

Look Ahead (--rc -lookahead). Specify the number of frames that the encoder uses to predict more difficult areas to encode, and save bits for those sections. This setting is used for rate control, and effectively sets the VBV window. Range: 10 to 60.

IP Ratio (--ipratio). Specify the target average increase in the quantizer for I-frames compared to P-frames. Higher values increase the quality of I-frames generated. Range: 1 to 10.

Frame Type

Click the details icon to display and specify frame type settings.

Fixed IDR-frame Interval (GOP Length). Specifies the fixed interval between IDR frames. Vantage maintains this count, and when hit, inserts an IDR frame independent of any other IDR frame insertion.

Max IDR-frame Interval (GOP Length) (--keyint). Specifies the maximum distance between IDR frames. The interval count resets whenever any IDR frame insertion occurs. Range: 1 to 1000.

Scene Detection Threshold (--scenecut). When checked, enables scene detection and specifies the threshold for I-frame detection and IDR frame insertion. x264 calculates a metric for every frame to determine how different it is from the previous frame. If the metric is lower than this value, a scene cut is detected.

Maximum B-frames (--bframes). Specifies the maximum number of consecutive B-frames between P-frames.

B-frame Placement Algorithm (--b -pyramid). Specifies the adaptive B-frame placement decision algorithm. This setting controls how x264 decides between placing a P- or B-frame.

Disabled - Always pick B-frames.

Fast - Faster, speed slightly increases with higher maximum b-frames setting.

Optimal - Slower, speed significantly decreases with higher maximum b-frames setting.

B-Frame Reference Pyramid (--b -pyramid). Allows the use of B-frames as references for other frames. Without this setting, frames can only reference I- or P-frames. Although I/P-frames are more valued as references because of their higher quality, B-frames can also be useful. B-frames designated as references will get a quantizer halfway between P-frames and normal B-frames. You need to use at least two B-frames before B-pyramid will work.

If you're encoding for Blu-ray, use *None* or *Strict*.

None - Do not allow B-frames to be used as references.

Strict - Allow one B-frame per mini-GOP to be used as reference; enforces restrictions imposed by the Blu-ray standard.

Normal - allow numerous B-frames per mini-GOP to be used as references.

Reference Frames (--ref). Specifies the maximum number of frames that a frame can reference. More reference frames provide better quality, because the encoder has more frames in which to find similarities, but increases CPU utilization.

IDR-Frame Insertion CML Path. Specifies the fully-qualified path to the CML file that defines the IDR frame timecode insertions, using the Segment element and keyframe attribute. For example, in an application where you are performing downstream ad insertion, you can programmatically insert IDR frames where segments begin to ensure they cleanly decode if the ads and promos immediately preceding the segment are replaced. For details, see the Segment topic in the Post Producer Developer Guide.

HDR Metadata

Manually add HDR metadata to output files without entering x264 command-line options. HDR metadata is added as SEI messages into the bitstream for use by downstream players to accurately display the High Dynamic Range video.

Add SMPTE 2086 Master Display Metadata. Check to enable insertion of the master display HDR metadata values from the controls in this panel.

Master Display X | Y Coordinates for Red | Green | Blue | White Point. specify the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Add CTA-861.3 Content Light Level Metadata. When checked, inserts CTA-861.3 message with Content Light Level Metadata.

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Filters

A variety of user configurable filters are available for the x264 codec in Multiscreen. Refer to individual filter manual pages for configuration details.

Input Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding. If the video stream does not need to be re-encoded, uncheck the box to pass the video stream through to output unchanged.

Input Video Stream Name. Specifies the input video stream being processed by this transcoder. The list of streams is determined by the video streams (and their names) defined in the Inputs component.

Output Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1 or Audio 1*) in place.

Codec

Codec. Specifies the x264 codec.

General

Lightspeed Pre-analysis. Check to perform Lightspeed pre-analysis on this stream. This is most applicable at higher bit rates and resolutions.

Rate Control

(--qp |--crf | --bitrate) Select the type of rate control to apply to this encoding process then specify the appropriate settings, based on the type of rate control you chose.

Constant Quantizer.

Quantizer (--qp). Specifies the quantizer value, where 0 is lossless.

Constant Rate Factor.

Rate Factor (--crf). Specifies the constant rate factor.

Constrained (Capped) CRF

Rate Factor (--crf). Specifies the constant rate factor.

VBV Maximum Rate (--vbv-maxrate). Specifies the maximum rate at which the VBV buffer should refill, in kbps.

VBV Buffer Size (--vbv-bufsize). Specifies the size of the VBV buffer, in kbits.

HRD compliance. For CBR streams, specifies HRD information and packs the bitstream to the specified bit rate (--nal-hrd cbr). For VBR streams, specifies HRD information (--nal-hrd vbr). Requires VBV Maximum Rate, VBV Buffer Size, and VBV Initial Fill to be specified.

Average Bit Rate.

Target Bit Rate (--bitrate). Specifies the target rate for this stream, in kbps.

VBV Maximum Rate (--vbv-maxrate). Specifies the maximum rate at which the VBV buffer should refill, in kbps.

VBV Buffer Size (--vbv-bufsize). Specifies the size of the VBV buffer, in kbits.

VBV Initial Fill (--vbv-init). Specifies how full the buffer should be, before playback starts, expressed as a percentage of the buffer size. (Initial fill is calculated as vbv-init * vbv-bufsize).

HRD compliance. For CBR streams, specifies HRD information and packs the bitstream to the specified bit rate (--nal-hrd cbr). For VBR streams, specifies HRD information (--nal-hrd vbr). Requires VBV Maximum Rate, VBV Buffer Size, and VBV Initial Fill to be specified.

Constant Bit Rate.

Target Bit Rate (--bitrate). Specifies the target rate for this stream, in kbps.

Buffer Delay (--vbv-bufsize). Modifies the VBV buffer in seconds, for an equivalent window size (that is, the VBV buffer is the same as the bitrate for a 1-second window)

HRD compliance. For CBR streams, specifies HRD information and packs the bitstream to the specified bit rate (--nal-hrd cbr). For VBR streams, specifies HRD information (--nal-hrd vbr). Requires VBV Maximum Rate, VBV Buffer Size, and VBV Initial Fill to be specified.

x265 Transcoder (IPTV)

This x265 Transcoder is implemented specifically for the IPTV action. This Transcoder encodes one video stream into H.265 format, using the x265 codec.

For an x.265 reference, see the web site x265.readthedocs.org/en/default/.

There are three components in the transcoder: the large (main) panel is the transcoder itself. Inside the transcoder component, to the far left is the smaller, input stream panel (with the down arrow). To the right is the output stream panel (with the up arrow).

Select the transcoder component to view its details panel on the right and configure its settings and filters, as described under Transcoder Settings, immediately below.

Select the video/audio stream component to view its details panel on the right and configure its settings. You can edit the name of the stream by selecting its text. The name of the stream does not affect functionality or file naming; it simply identifies the stream for selection elsewhere.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Note: Transcoder Settings

Resolution

Click the details icon to specify frame settings.

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Aspect Ratio. Specifies the display aspect ratio.

Processor. Specifies that, if pre-analysis is to be performed, it should be performed on a Lightspeed server utilizing the GPU for improved performance.

Allow Video Processor Bypass. Specifies that the video processor should be bypassed if the input and output stream properties are identical, effectively performing a direct-convert operation.

Multi-pass

Statistics File. If you have a pre-existing multi-pass statistics file for the *identical input file*, supply the file by its fully-qualified (ideally, UNC) path. You can set the number of passes in the Settings > Required Passes control for all transcoders, and use the results from a previous transcode for each input file being transcoded, saving time and resources, while achieving improved video quality.

Presets

Profile (--profile). Specifies the profile, offering different quality levels ranging from consumer (Baseline and Main) to broadcast and professional levels (High, High 10, and High 4:2:2). Select the profile to use (or *Not Set*) from the menu:

Baseline - Creates H.264 Baseline Profile output with 8-bit sampling, for consumer applications.

Main - Creates H.264 Main Profile output with 8-bit sampling, for consumer applications.

High - Creates H.264 High Profile output with 8-bit sampling, for broadcast/professional level applications.

High 10 - Creates H.264 High 10 Profile output with 10-bit sampling, for broadcast/professional level applications.

High 4:2:2 - Creates H.264 High 4:2:2 Profile output with 10-bit sampling and 4:2:2 chroma subsampling, for broadcast/professional level applications.

Not Set - Automatically selects the appropriate H.264 profile based upon your other encoder settings.

Level (--level). Sets the level flag in the encoded streams. If not specified, the encoder auto-detects the level.

Preset. Specifies the preset setting, which trades encoding speed for visual quality.

Tuning. Specifies the tuning setting, which optimizes encoding quality for a particular type of source content.

Command Line. For parameters that are not in the editor panel (those other than the more common Profile, Preset, and Tuning parameters, etc.), you can enter CLI commands to execute, to refine encoding options. The transcoder uses various algorithms, many of which use default values. These values can be changed as a command line interface command.

To enter multiple commands, separate them with spaces: `--ref 3 --bframes 3`, for example.

It is best practice to use long form commands for clarity; for example: `--bframe 5`. The use of short form (`-b 5`) commands is not recommended.

Analysis

Click the details icon to specify analysis settings.

Lightspeed Pre-analysis. When checked, improves codec efficiency by performing preliminary analysis on the media before encoding, thus reducing transcode time.

Look Ahead (--rc -lookahead). Specify the number of frames that the encoder uses to predict more difficult areas to encode, and save bits for those sections. This setting is used for rate control, and effectively sets the VBV window.

IP Ratio (--ipratio). Specify the target average increase in the quantizer for I-frames compared to P-frames. Higher values increase the quality of I-frames generated.

Adaptive Quantization Strength (--aq -strength). Sets the strength of AQ bias toward low detail (flat) macroblocks.

Frame Type

Click the details icon to display and specify frame type settings.

Max IDR Frame Interval (GOP Length) (--keyint). Specifies the maximum distance between IDR frames.

Fixed IDR-frame Interval (GOP Length). Specifies the fixed interval between IDR frames. Vantage maintains this count, and when hit, inserts an IDR frame independent of any other IDR frame insertion.

Open GOP. When checked, uses I frames instead of IDR frames and flags them as recovery points.

Scene Detection Threshold (--scenecut). When checked, enables scene detection and specify the threshold for I-frame detection. x264 calculates a metric for every frame to determine how different it is from the previous frame. If the metric is lower than this value, a scene cut is detected.

Maximum B-frames (--bframes). Specifies the maximum number of consecutive B-frames between P-frames.

Adaptive B-frame Scheduling (--b-adapt). Specifies the adaptive B frame scheduling algorithm.

B-Frame Reference Pyramid (--b -pyramid). Allows the use of B-frames as references for other frames. Without this setting, frames can only reference I- or P-frames. Although I/P-frames are more valued as references because of their higher quality, B-frames can also be useful. B-frames designated as references will get a quantizer halfway between P-frames and normal B-frames. You need to use at least two B-frames before B-pyramid will work.

Disabled - Do not allow B-frames to be used as references.

Enabled - Allows B-frames to be used as references.

Not Set - The *Not Set* option automatically selects the appropriate setting based upon your other encoder settings.

Reference Frames (--ref). Specifies the maximum number of frames that a frame can reference. More reference frames provide better quality, because the encoder has more frames in which to find similarities, but increases CPU utilization.

IDR-Frame Insertion CML Path. Specifies the fully-qualified path to the CML file that defines the IDR frame timecode insertions, using the Segment element and keyframe attribute. For example, in an application where you are performing downstream ad insertion, you can programmatically insert IDR frames where segments begin to ensure they cleanly decode if the ads and promos immediately preceding the segment are replaced. For details, see the Segment topic in the Post Producer Developer Guide.

Video Format (--videoformat). Specifies the format of the incoming media, before decoding and re-encoding.

Color Primaries (--colorprim). Specifies color primaries for converting to RGB.

Transfer Characteristics (--transfer). Specifies the opto-electronics to use (the gamma curve to use for correction).

Alternative/Preferred Transfer Characteristics (--colormatrix). When enabled, adds SEI indicating the alternative/preferred opto-electronics transfer characteristics.

Color Matrix (--colormatrix). Specifies the matrix coefficient used in deriving the luma and chroma from the RGB primaries.

HDR Metadata

Manually add HDR metadata to output files without entering x265 command-line options. HDR metadata is added as SEI messages into the HEVC bitstream for use by downstream players to accurately display the High Dynamic Range video.

Add SMPTE 2086 Master Display Metadata. Check to enable insertion of the master display HDR metadata values from the controls in this panel.

Master Display X | Y Coordinates for Red | Green | Blue | White Point. specify the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Add CTA-861.3 Content Light Level Metadata. When checked, inserts CTA-861.3 message with Content Light Level Metadata.

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Input Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding. If the video stream does not need to be re-encoded, uncheck the box to pass the video stream through to output unchanged.

Input Video Stream Name. Specifies the input video stream being processed by this transcoder. The list of streams is determined by the video streams (and their names) defined in the Inputs component.

Output Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1 or Audio 1*) in place.

Codec

Codec. Specifies the x265 codec for encoding.

Rate Control

Rate Control. Select the type of rate control to apply to this encoding process. Then specify the appropriate settings, based on the type of rate control you chose.

x265 Transcoder (Multiscreen)

This x265 Transcoder is implemented specifically for the Multiscreen action. This Transcoder encodes one video stream into H.265 format, using the x265 codec.

For an x.265 reference, see the web site x265.readthedocs.org/en/default/.

There are three components in the transcoder: the large (main) panel is the transcoder itself. Inside the transcoder component, to the far left is the smaller, input stream panel (with the down arrow). To the right is the output stream panel (with the up arrow).

Select the transcoder component to view its details panel on the right and configure its settings and filters, as described under Transcoder Settings, immediately below.

Select the video/audio stream component to view its details panel on the right and configure its settings. You can edit the name of the stream by selecting its text. The name of the stream does not affect functionality or file naming; it simply identifies the stream for selection elsewhere.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Note: Transcoder Settings

Resolution

Click the details icon to specify frame settings.

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Aspect Ratio. Specifies the display aspect ratio.

Processor. Specifies that, if pre-analysis is to be performed, it should be performed on a Lightspeed server utilizing the GPU for improved performance.

Allow Video Processor Bypass. Specifies that the video processor should be bypassed if the input and output stream properties are identical, effectively performing a direct-convert operation.

Frame Type

Click the details icon to display and specify frame type settings.

IDR Frame Interval (GOP Length) (--keyint). Specifies the maximum distance between IDR frames.

Open GOP. When checked, uses I frames instead of IDR frames and flags them as recovery points.

Scene Detection Threshold (--scenecut). When checked, enables scene detection and specify the threshold for I-frame detection. x264 calculates a metric for every frame to determine how different it is from the previous frame. If the metric is lower than this value, a scene cut is detected.

Maximum B-frames (--bframes). Specifies the maximum number of consecutive B-frames between P-frames.

Adaptive B-frame Scheduling (--b-adapt). Specifies the adaptive B frame scheduling algorithm.

B-frame Placement Algorithm (--b -pyramid). Specifies the adaptive B-frame placement decision algorithm. This setting controls how x264 decides between placing a P- or B-frame.

Disabled - Always pick B-frames.

Fast - Faster, speed slightly increases with higher maximum b-frames setting.

Optimal - Slower, speed significantly decreases with higher maximum b-frames setting.

B-Frame Reference Pyramid (--b -pyramid). Allows the use of B-frames as references for other frames. Without this setting, frames can only reference I- or P-frames. Although I/P-frames are more valued as references because of their higher quality, B-frames can also be useful. B-frames designated as references will get a quantizer halfway between P-frames and normal B-frames. You need to use at least two B-frames before B-pyramid will work.

If you're encoding for Blu-ray, use *None* or *Strict*.

None - Do not allow B-frames to be used as references.

Strict - Allow one B-frame per mini-GOP to be used as reference; enforces restrictions imposed by the Blu-ray standard.

Normal - allow numerous B-frames per mini-GOP to be used as references.

Reference Frames (--ref). Specifies the maximum number of frames that a frame can reference. More reference frames provide better quality, because the encoder has more frames in which to find similarities, but increases CPU utilization.

Video Format (--videoformat). Specifies the format of the incoming media, before decoding and re-encoding.

Color Primaries (--colorprim). Specifies color primaries for converting to RGB.

Transfer Characteristics (--transfer). Specifies the opto-electronics to use (the gamma curve to use for correction).

Color Matrix (--colormatrix). Specifies the matrix coefficient used in deriving the luma and chroma from the RGB primaries.

Presets

Profile (--profile). Specifies the profile, offering different quality levels ranging from consumer (Baseline and Main) to broadcast and professional levels (High, High 10, and High 4:2:2). Select the profile to use (or *Not Set*) from the menu:

Baseline - Creates H.264 Baseline Profile output with 8-bit sampling, for consumer applications.

Main - Creates H.264 Main Profile output with 8-bit sampling, for consumer applications.

High - Creates H.264 High Profile output with 8-bit sampling, for broadcast/professional level applications.

High 10 - Creates H.264 High 10 Profile output with 10-bit sampling, for broadcast/professional level applications.

High 4:2:2 - Creates H.264 High 4:2:2 Profile output with 10-bit sampling and 4:2:2 chroma subsampling, for broadcast/professional level applications.

Not Set - Automatically selects the appropriate H.264 profile based upon your other encoder settings.

Level (--level). Sets the level flag in the encoded streams. If not specified, the encoder auto-detects the level.

Preset. Specifies the preset setting, which trades encoding speed for visual quality.

Tuning. Specifies the tuning setting, which optimizes encoding quality for a particular type of source content.

Command Line. For parameters that are not in the editor panel (those other than the more common Profile, Preset, and Tuning parameters, etc.), you can enter CLI commands to execute, to refine encoding options. The transcoder uses various

algorithms, many of which use default values. These values can be changed as a command line interface command.

To enter multiple commands, separate them with spaces: `--ref 3 --bframes 3`, for example.

It is best practice to use long form commands for clarity; for example: `--bframe 5`. The use of short form (`-b 5`) commands is not recommended.

Analysis

Click the details icon to specify analysis settings.

Look Ahead (--rc -lookahead). Specify the number of frames that the encoder uses to predict more difficult areas to encode, and save bits for those sections. This setting is used for rate control, and effectively sets the VBV window.

IP Ratio (--ipratio). Specify the target average increase in the quantizer for I-frames compared to P-frames. Higher values increase the quality of I-frames generated.

(For IPTV Flip actions only) Adaptive Quantization Strength (--aq -strength). Sets the strength of AQ bias toward low detail (flat) macroblocks.

HDR Metadata

Manually add HDR metadata to output files without entering x265 command-line options. HDR metadata is added as SEI messages into the HEVC bitstream for use by downstream players to accurately display the High Dynamic Range video.

Add SMPTE 2086 Master Display Metadata. Check to enable insertion of the master display HDR metadata values from the controls in this panel.

Master Display X | Y Coordinates for Red | Green | Blue | White Point. specify the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Add CTA-861.3 Content Light Level Metadata. When checked, inserts CTA-861.3 message with Content Light Level Metadata.

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Input Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding. If the video stream does not need to be re-encoded, uncheck the box to pass the video stream through to output unchanged.

Input Video Stream Name. Specifies the input video stream being processed by this transcoder. The list of streams is determined by the video streams (and their names) defined in the Inputs component.

Output Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1 or Audio 1*) in place.

Codec

Codec. Specifies the x265 codec for encoding.

Rate Control

(--qp |--crf | --bitrate) Select the type of rate control to apply to this encoding process then specify the appropriate settings, based on the type of rate control you chose.

Constant Quantizer.

Quantizer (--qp). Specifies the quantizer value, where 0 is lossless.

Constant Rate Factor.

Rate Factor (--crf). Specifies the constant rate factor.

Constrained (Capped) CRF

Rate Factor (--crf). Specifies the constant rate factor.

VBV Maximum Rate (--vbv-maxrate). Specifies the maximum rate at which the VBV buffer should refill, in kbps.

VBV Buffer Size (--vbv-bufsize). Specifies the size of the VBV buffer, in kbits.

HRD compliance. For CBR streams, specifies HRD information and packs the bitstream to the specified bit rate (--nal-hrd cbr). For VBR streams, specifies HRD information (--nal-hrd vbr). Requires VBV Maximum Rate, VBV Buffer Size, and VBV Initial Fill to be specified.

Average Bit Rate.

Target Bit Rate (--bitrate). Specifies the target rate for this stream, in kbps.

VBV Maximum Rate (--vbv-maxrate). Specifies the maximum rate at which the VBV buffer should refill, in kbps.

VBV Buffer Size (--vbv-bufsize). Specifies the size of the VBV buffer, in kbits.

VBV Initial Fill (--vbv-init). Specifies how full the buffer should be, before playback starts, expressed as a percentage of the buffer size. (Initial fill is calculated as vbv-init * vbv-bufsize).

HRD compliance. For CBR streams, specifies HRD information and packs the bitstream to the specified bit rate (--nal-hrd cbr). For VBR streams, specifies HRD information (--nal-hrd vbr). Requires VBV Maximum Rate, VBV Buffer Size, and VBV Initial Fill to be specified.

Constant Bit Rate.

Target Bit Rate (--bitrate). Specifies the target rate for this stream, in kbps.

Buffer Delay (--vbv-bufsize). Modifies the VBV buffer in seconds, for an equivalent window size (that is, the VBV buffer is the same as the bitrate for a 1-second window)

HRD compliance. For CBR streams, specifies HRD information and packs the bitstream to the specified bit rate (--nal-hrd cbr). For VBR streams, specifies HRD information (--nal-hrd vbr). Requires VBV Maximum Rate, VBV Buffer Size, and VBV Initial Fill to be specified.

Lightspeed GPU H.264 Transcoder (Multiscreen)

This transcoder is implemented in the Multiscreen action.

This implementation of the Lightspeed GPU H.264 codec encodes one video stream into Advanced Video Coding (H.264) video compression format, utilizing the NVIDIA GPU in Lightspeed G5 and later servers.

Note: Interlacing is not supported for RTX 4000 GPUs.

Note: Lightspeed G7, G8, and G10 servers utilize NVIDIA GPUs which support H.264/H.265 encoding with B frames for higher quality encodes. HEVC B-Frame encoding is not supported for Lightspeed G6 servers. Setting B-Frame value to 0 allows for HEVC encoding on Lightspeed G6 servers. Only the RTX4000 and A4000 GPUs, utilized in the G7, G8, and G10) support B-frames for both AVC and HEVC.

Note: HEVC B-Frame encoding is not supported for Legacy Lightspeed G6 servers. Setting B-Frame value to 0 allows for HEVC encoding on Legacy Lightspeed G6 servers.

There are three components in the transcoder: the large (main) panel is the transcoder itself. Inside the transcoder component, to the far left is the smaller, input stream panel (with the down arrow). To the right is the output stream panel (with the up arrow).

Select the transcoder component to view its details panel on the right and configure its settings and filters, as described under Transcoder Settings, immediately below.

Select the video/audio stream component to view its details panel on the right and configure its settings. You can edit the name of the stream by selecting its text. The name of the stream does not affect functionality or file naming; it simply identifies the stream for selection elsewhere.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Resolution

Click the details icon to specify frame settings.

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used. Checked by default.

GPU Device Index. When enabled, allows specification of GPU to use for encoding. Disabled by default (uses default GPU device).

Aspect Ratio. Specifies the display aspect ratio.

Presets

Profile (--profile). Limits the profile of the encoded video stream. The *Auto* option (default) automatically selects the appropriate profile based upon your other encoder settings.

Preset (--preset). Specifies predefined options that optimize the trade-off between encoding speed and compression efficiency - visual quality per bit in the stream. Faster presents improve performance at the expense of quality.

Tuning. Specifies the optimum setting to optimize encoding quality for a particular type of source content or encoding characteristics.

Multi Pass. Specifies the optimum setting to optimize encoding quality for a particular type of source content or encoding characteristics.

- Disabled. Single pass transcode is performed.

- 2-Pass Quarter Resolution. The transcode executes twice consecutively, and reduces the output resolution by 1/2 vertically and 1/2 horizontally. This can reduce overall transcode time because there are fewer pixels to calculate.

- 2-Pass Full Resolution. The transcode executes twice consecutively at full resolution. This will double transcode time but increases quality.

Advanced Settings. For parameters that are not in the editor panel (those other than the more common Profile, Preset, and Tuning parameters, etc.), you can enter CLI commands to execute, to refine encoding options. The transcoder uses various algorithms, many of which use default values. These values can be changed as a command line interface command. See NVENC Advanced Settings for details.

Frame Type

Max IDR Frame Interval (GOP Length) (--keyint). When checked, specifies the maximum distance between IDR frames. Checked by default.

Scene Detection. When checked, enables key frame insertion at scene cuts. Unchecked by default.

Maximum B-frames (--bframes). Specifies the maximum number of consecutive B-frames between P-frames.

Maximum Reference Frames (--ref). When checked, specifies the maximum number of frames that a frame can reference. More reference frames provide better quality, because the encoder has more frames in which to find similarities, but increases CPU utilization. Unchecked by default.

Color Primaries (--colorprim). Specifies color primaries for converting to RGB.

Transfer Characteristics (--transfer). Specifies the opto-electronics to use (the gamma curve to use for correction).

Color Matrix (--colormatrix). Specifies the matrix coefficient used in deriving the luma and chroma from the RGB primaries.

Analysis

Adaptive Quantization Strength (--aq -strength). When checked, sets the strength of AQ bias toward low detail (flat) macroblocks. Unchecked by default.

Look Ahead (--rc-lookahead). Specify the number of frames that the encoder uses to predict more difficult areas to encode, and save bits for those sections. This setting is used for rate control, and effectively sets the VBV window.

Input Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding. If the video stream does not need to be re-encoded, uncheck the box to pass the video stream through to output unchanged.

Input Video Stream Name. Specifies the input video stream being processed by this transcoder. The list of streams is determined by the video streams (and their names) defined in the Inputs component.

Output Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1 or Audio 1*) in place.

Lightspeed GPU H.265 Transcoder (Multiscreen)

This transcoder is implemented in the Multiscreen action.

This implementation of the Lightspeed GPU H265 codec encodes one video stream into High Efficiency Video Coding (HEVC/H.265) video compression format, utilizing the NVIDIA GPU in Lightspeed G5 and later servers.

Lightspeed G8 and G10 servers utilize NVIDIA GPUs which support H264/H265 encoding with B frames for higher quality encodes.

There are three components in the transcoder: the large (main) panel is the transcoder itself. Inside the transcoder component, to the far left is the smaller, input stream panel (with the down arrow). To the right is the output stream panel (with the up arrow).

Select the transcoder component to view its details panel on the right and configure its settings and filters, as described under Transcoder Settings, immediately below.

Select the video/audio stream component to view its details panel on the right and configure its settings. You can edit the name of the stream by selecting its text. The name of the stream does not affect functionality or file naming; it simply identifies the stream for selection elsewhere.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Resolution

Click the details icon to specify frame settings.

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used. Checked by default.

GPU Device Index. When enabled, allows specification of GPU to use for encoding. Disabled by default (uses default GPU device).

Aspect Ratio. Specifies the display aspect ratio.

Presets

Profile (--profile). Limits the profile of the encoded video stream. The *Auto* option (default) automatically selects the appropriate profile based upon your other encoder settings.

Preset (--preset). Specifies predefined options that optimize the trade-off between encoding speed and compression efficiency - visual quality per bit in the stream. Faster presents improve performance at the expense of quality.

Tuning. Specifies the optimum setting to optimize encoding quality for a particular type of source content or encoding characteristics.

Multi Pass. Specifies the optimum setting to optimize encoding quality for a particular type of source content or encoding characteristics.

- Disabled. Single pass transcode is performed.

- 2-Pass Quarter Resolution. The transcode executes twice consecutively, and reduces the output resolution by 1/2 vertically and 1/2 horizontally. This can reduce overall transcode time because there are fewer pixels to calculate.

- 2-Pass Full Resolution. The transcode executes twice consecutively at full resolution. This will double transcode time but increases quality.

Advanced Settings. For parameters that are not in the editor panel (those other than the more common Profile, Preset, and Tuning parameters, etc.), you can enter CLI commands to execute, to refine encoding options. The transcoder uses various algorithms, many of which use default values. These values can be changed as a command line interface command. See NVENC Advanced Settings for details.

Frame Type

Max IDR Frame Interval (GOP Length) (--keyint). When checked, specifies the maximum distance between IDR frames. Checked by default.

Scene Detection. When checked, enables key frame insertion at scene cuts. Unchecked by default.

Maximum B-frames (--bframes). Specifies the maximum number of consecutive B-frames between P-frames.

Maximum Reference Frames (--ref). When checked, specifies the maximum number of frames that a frame can reference. More reference frames provide better quality, because the encoder has more frames in which to find similarities, but increases CPU utilization. Unchecked by default.

Color Primaries (--colorprim). Specifies color primaries for converting to RGB.

Transfer Characteristics (--transfer). Specifies the opto-electronics to use (the gamma curve to use for correction).

Color Matrix (--colormatrix). Specifies the matrix coefficient used in deriving the luma and chroma from the RGB primaries.

Analysis

Adaptive Quantization Strength (--aq -strength). When checked,sets the strength of AQ bias toward low detail (flat) macroblocks. Unchecked by default.

Look Ahead (--rc-lookahead). Specify the number of frames that the encoder uses to predict more difficult areas to encode, and save bits for those sections. This setting is used for rate control, and effectively sets the VBV window.

Input Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding. If the video stream does not need to be re-encoded, uncheck the box to pass the video stream through to output unchanged.

Input Video Stream Name. Specifies the input video stream being processed by this transcoder. The list of streams is determined by the video streams (and their names) defined in the Inputs component.

Output Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1 or Audio 1*) in place.

Lightspeed GPU H.264 Transcoder (IPTV)

This transcoder is implemented in the IPTV VOD action.

This implementation of the Lightspeed GPU H.264 codec encodes one video stream into Advanced Video Coding (H.264) video compression format, utilizing the NVIDIA GPU in Lightspeed G5 and later servers.

Lightspeed G8 and G10 servers utilize NVIDIA GPUs which support H264/H265 encoding with B frames for higher quality encodes.

Note: Interlacing is not supported for RTX 4000 GPUs.

Note: Lightspeed G7, G8, and G10 servers utilize NVIDIA GPUs which support H.264/H.265 encoding with B frames for higher quality encodes. HEVC B-Frame encoding is not supported for Lightspeed G6 servers. Setting B-Frame value to 0 allows for HEVC encoding on Lightspeed G6 servers. Only the RTX4000 and A4000 GPUs, utilized in the G7, G8, and G10) support B-frames for both AVC and HEVC.

Note: There are three components in the transcoder: the large (main) panel is the transcoder itself. Inside the transcoder component, to the far left is the smaller, input stream panel (with the down arrow). To the right is the output stream panel (with the up arrow).

Select the transcoder component to view its details panel on the right and configure its settings and filters, as described under Transcoder Settings, immediately below.

Select the video/audio stream component to view its details panel on the right and configure its settings. You can edit the name of the stream by selecting its text. The name of the stream does not affect functionality or file naming; it simply identifies the stream for selection elsewhere.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Resolution

Click the details icon to specify frame settings.

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used. Checked by default.

GPU Device Index. When enabled, allows specification of GPU to use for encoding. Disabled by default (uses default GPU device).

Aspect Ratio. Specifies the display aspect ratio.

Presets

Profile (--profile). Limits the profile of the encoded video stream. The *Auto* option (default) automatically selects the appropriate profile based upon your other encoder settings.

Preset (--preset). Specifies predefined options that optimize the trade-off between encoding speed and compression efficiency - visual quality per bit in the stream. Faster presents improve performance at the expense of quality.

Tuning. Specifies the optimum setting to optimize encoding quality for a particular type of source content or encoding characteristics.

Multi Pass. Specifies the optimum setting to optimize encoding quality for a particular type of source content or encoding characteristics.

Advanced Settings. For parameters that are not in the editor panel (those other than the more common Profile, Preset, and Tuning parameters, etc.), you can enter CLI commands to execute, to refine encoding options. The transcoder uses various algorithms, many of which use default values. These values can be changed as a command line interface command. See NVENC Advanced Settings for details.

Frame Type

Max IDR Frame Interval (GOP Length) (--keyint). When checked, specifies the maximum distance between IDR frames. Checked by default.

Scene Detection. When checked, enables key frame insertion at scene cuts. Unchecked by default.

Maximum B-frames (--bframes). Specifies the maximum number of consecutive B-frames between P-frames.

Maximum Reference Frames (--ref). When checked, specifies the maximum number of frames that a frame can reference. More reference frames provide better quality, because the encoder has more frames in which to find similarities, but increases CPU utilization. Unchecked by default.

Color Primaries (--colorprim). Specifies color primaries for converting to RGB.

Transfer Characteristics (--transfer). Specifies the opto-electronics to use (the gamma curve to use for correction).

Color Matrix (--colormatrix). Specifies the matrix coefficient used in deriving the luma and chroma from the RGB primaries.

Analysis

Adaptive Quantization Strength (--aq -strength). When checked, sets the strength of AQ bias toward low detail (flat) macroblocks. Unchecked by default.

Look Ahead (--rc-lookahead). Specify the number of frames that the encoder uses to predict more difficult areas to encode, and save bits for those sections. This setting is used for rate control, and effectively sets the VBV window.

Input Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding. If the video stream does not need to be re-encoded, uncheck the box to pass the video stream through to output unchanged.

Input Video Stream Name. Specifies the input video stream being processed by this transcoder. The list of streams is determined by the video streams (and their names) defined in the Inputs component.

Output Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1 or Audio 1*) in place.

Lightspeed GPU H265 Transcoder (IPTV)

This transcoder is implemented in the IPTV VOD action.

This implementation of the Lightspeed GPU H265 codec encodes one video stream into High Efficiency Video Coding (HEVC/H.265) video compression format, utilizing the NVIDIA GPU in Lightspeed G5 and later servers.

Lightspeed G8 and G10 servers utilize NVIDIA GPUs which support H264/H265 encoding with B frames for higher quality encodes.

There are three components in the transcoder: the large (main) panel is the transcoder itself. Inside the transcoder component, to the far left is the smaller, input stream panel (with the down arrow). To the right is the output stream panel (with the up arrow).

Select the transcoder component to view its details panel on the right and configure its settings and filters, as described under Transcoder Settings, immediately below.

Select the video/audio stream component to view its details panel on the right and configure its settings. You can edit the name of the stream by selecting its text. The name of the stream does not affect functionality or file naming; it simply identifies the stream for selection elsewhere.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Resolution

Click the details icon to specify frame settings.

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used. Checked by default.

GPU Device Index. When enabled, allows specification of GPU to use for encoding. Disabled by default (uses default GPU device).

Aspect Ratio. Specifies the display aspect ratio.

Presets

Profile (--profile). Limits the profile of the encoded video stream. The *Auto* option (default) automatically selects the appropriate profile based upon your other encoder settings.

Preset (--preset). Specifies predefined options that optimize the trade-off between encoding speed and compression efficiency - visual quality per bit in the stream. Faster presents improve performance at the expense of quality.

Tuning. Specifies the optimum setting to optimize encoding quality for a particular type of source content or encoding characteristics.

Multi Pass. Specifies the optimum setting to optimize encoding quality for a particular type of source content or encoding characteristics.

Advanced Settings. For parameters that are not in the editor panel (those other than the more common Profile, Preset, and Tuning parameters, etc.), you can enter CLI commands to execute, to refine encoding options. The transcoder uses various algorithms, many of which use default values. These values can be changed as a command line interface command. See NVENC Advanced Settings for details.

Frame Type

Max IDR Frame Interval (GOP Length) (--keyint). When checked, specifies the maximum distance between IDR frames. Checked by default.

Scene Detection. When checked, enables key frame insertion at scene cuts. Unchecked by default.

Maximum B-frames (--bframes). Specifies the maximum number of consecutive B-frames between P-frames.

Maximum Reference Frames (--ref). When checked, specifies the maximum number of frames that a frame can reference. More reference frames provide better quality, because the encoder has more frames in which to find similarities, but increases CPU utilization. Unchecked by default.

Color Primaries (--colorprim). Specifies color primaries for converting to RGB.

Transfer Characteristics (--transfer). Specifies the opto-electronics to use (the gamma curve to use for correction).

Color Matrix (--colormatrix). Specifies the matrix coefficient used in deriving the luma and chroma from the RGB primaries.

Analysis

Adaptive Quantization Strength (--aq -strength). When checked,sets the strength of AQ bias toward low detail (flat) macroblocks. Unchecked by default.

Look Ahead (--rc-lookahead). Specify the number of frames that the encoder uses to predict more difficult areas to encode, and save bits for those sections. This setting is used for rate control, and effectively sets the VBV window.

Input Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding. If the video stream does not need to be re-encoded, uncheck the box to pass the video stream through to output unchanged.

Input Video Stream Name. Specifies the input video stream being processed by this transcoder. The list of streams is determined by the video streams (and their names) defined in the Inputs component.

Output Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1 or Audio 1*) in place.

AAC Transcoder

The AAC Transcoder component encodes an audio program into one or more Advanced Audio Coding (AAC) audio streams. This transcoder supports LC and HE AAC V1 and V2, and can simultaneously generate one or more AAC versions of a program at different bit rates.

Note: When collapsed, transcoder components provide a summary of configuration details in the title of the component.

Delete. To delete this transcoder, click the X icon at the far right of the panel.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Transcoder Settings

Select the AAC transcoder to display its filter configuration panels on the right.

Input Audio Stream Settings

One stream is present by default; add new streams for encoding into the output by clicking on the checkbox in the unnamed stream to the right of the last named stream.

Add and check the streams which contribute to the program that you want to encode. For example, you may have two input mono audio streams, one for Left and one for Right. Alternatively, you might have a single audio stream that will be the source for the entire program.

Select each audio stream to display its configuration panels on the right.

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Select the name of the input stream to transcode.

Input Video Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding. If the video stream does not need to be re-encoded, uncheck the box to pass the video stream through to output unchanged.

Input Video Stream Name. Specifies the input video stream being processed by this transcoder. The list of streams is determined by the video streams (and their names) defined in the Inputs component.

Output Audio Stream Settings

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place.

Select an output stream to display the encoding details below.

Note: Some encoding parameters are set as part of the transcode, others as part of the stream. This allows a single transcoder to create multiple bit rates quickly in a single pass.

Language. When enabled, overrides the language associated with this audio stream. NOTE: If variable binding is utilized, the value in the Text variable must exactly match one of the original language selections in the encoder.

Codec Details

Profile. Select the profile for this output stream from the menu.

Channel Configuration. Select the channel configuration for this output stream from the menu.

Note: This choice affects what output channel designations (such as *Left* or *Center*) are required; these designations may affect how you set up the Channel Map Filter on the input stream(s).

Target Bit Rate. Select the target bit rate for this output stream from the menu.

AC-3 Transcoder

Dolby Digital (AC-3) is a flexible audio compression format that supports up to 8 channels of audio, based on the codec you utilize. The most common usage of AC-3 is in 2.0 (stereo) mode, and 5.1 and 7.1 (surround sound) mode.

The AC-3 Transcoder component encodes one or more audio tracks (on the left - up to 16) into one audio stream (specified on the right) using the elementary stream AC-3 or EAC-3 codec, creating either Dolby AC-3 or Dolby E-AC-3 output.

AC-3 supports a variety of encoded metadata information, including:

- General information such as copyright and production information

- Information to help consumer devices optimize decoding, such as the Extended Bit Field parameters, which are used for downmixing.

In 5.1 mode, EAC-3 supports five discrete channels of audio typically configured as Left (L), Right (R), Center (C), Left Surround (Ls), Right Surround (Rs), and a sixth channel of audio allocated for low-frequency effects (Lfe).

In 7.1 mode, EAC-3 supports seven channels of audio typically configured as Left (L), Right (R), Center (C), Left Surround (Ls), Right Surround (Rs), Left Rear Surround (LRS), and Right Rear Surround (RRS), and an eighth channel of audio allocated for low-frequency effects (Lfe).

Note: When collapsed, transcoder components provide a summary of configuration details in the title bar of the component.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Transcoder Settings

Select the AC-3 Transcoder to configure its tracks, specify the codec and configure it, and to enable and configure optional filters.

Input tracks are displayed on the left (noted by a down arrow) side of the transcoder; the output track (as indicated by an up arrow) is displayed on the right.

Input Audio Stream Settings

On the left, select the input tracks which contribute to the program that you want to decode, and configure filters.

For example, you may have two input mono audio tracks, one for Left and one for Right. Alternatively, you might have a single AC-3 audio track that will be the input for the entire program:

Track Checkbox. Activates/deactivates this track for decoding.

Track Name. Specifies the input track to transcode.

To add a new input track, check the track checkbox in the empty, untitled audio track to the right of the last active track. You can add up to 16 input tracks.

Select an input track to display filters.

Output Audio Track Settings

Select the track to encode it for output, and configure the codec:

Track Checkbox. Activates/deactivates this track for encoding.

Track Name. Enter the name of the encoded, output track to identify it for selection in the output component, or leave the default value (for example, *Audio 1*) in place.

Select the output track to display the encoding details and codec.

Language. When enabled, overrides the language associated with this audio stream. NOTE: If variable binding is utilized, the value in the Text variable must exactly match one of the original language selections in the encoder.

Codec Settings

Codec. Specifies the codec to use for encoding this output track: AC-3 | EAC-3. Configure the codec and optional filters.

Hover over a control to display tooltips.

Channel Configuration

Controls vary by codec.

Channel Configuration. Specifies the audio channel layout for the stream, including selections for variations of 1+1, Mono, Stereo, 3/0, 2/1, 3/1, 2/2, 3/2, and 3/4.

Bit Rate. Sets the encoded bit rate.

SDK Version. Specifies the encoder being utilized.

Bitstream Mode. Specifies the type of audio service: Complete main | Music and effects | Visually impaired | Hearing impaired | Dialogue | Commentary | Emergency | Karaoke/Voice over.

90 Degree Phase Shift. Applies 90-degree phase shift to the surround channels for Dolby Surround Pro Logic or Logic II decoder.

3 dB Surround Attenuation. Attenuates surround channels 3 dB before encoding. This feature allows a choice between theatrical and consumer mixing levels (DVD or TV studios). Consumer mixing levels make all five main channels the same, whereas, theatrical mixing calibrates surround channels 3 dB lower than the front channels.

Enable LFE low-pass filter. Applies a 120 Hz eighth order low pass filter to the LFE input before encoding. This filter removes frequencies above 120 Hz that would cause aliasing when decoded.

A/D Converter Type. Allows marking audio that has passed through an A/D stage.

Stereo Downmix Preference. Selects the preferred downmix method for a decoder that has stereo outputs.

Dolby Surround Mode. Indicated whether the bitstream contains information that was encoded in Dolby Surround.

Lt/Rt Center Mix Level. Selects the level shift to the center when adding to the left and right outputs during a downmix to a left/right output.

Lt/Rt Surround Mix Level. Selects the level shift applied to the surround channels when adding to the left and right channels during a downmix to a left/right output.

Lo/Ro Center Mix Level. Selects the level shift applied to the center channel when adding to the left and right channels during a downmix to a Lo/Ro output.

Lo/Ro Surround Mix Level. Selects the level shift applied to the surround channels when adding to the left and right channels during a downmix to a Lo/Ro output.

Surround EX Mode. Indicates if the stream was encoded using Dolby EX.

Dolby Digital Parameters

Dialog Normalization. Sets the audio level of dialog for use by Dolby Digital decoders. The range is 1-31 dB, with -24dB as the default.

DRC Line Mode Profile. Specifies the Dynamic Range Control for Line Mode: None | Film Standard | Film Light | Music Standard | Music Light | Speech.

DRC RF Mode Profile. Specifies the Dynamic Range Control for RF Mode: None | Film Standard | Film Light | Music Standard | Music Light | Speech.

Audio Production Info

Audio Production Info. Specifies Available | Not Available. When available:

Room Type. Sets final mixing equalization for small or large rooms.

Mixing Level. Sets calibration level and maximum Sound Pressure Level (SPL) for a single channel. Ranges from 80 to 111 dB, with 105 dB as the default.

Content Parameters

Copyright Protected. Check to indicate copyright protected audio.

Original Bitstream. Check to indicate that the audio bitstream is the master version.

Filters

Check to enable and configure optional filters.

MPEG Audio Transcoder

The MPEG Audio Transcoder component encodes channels from one or more input audio streams (on the left) into an output stream (specified on the right) using the MPEG1 Audio codec.

Input streams are displayed on the left (noted by a down arrow) side of the transcoder; output streams (as indicated by an up arrow) are displayed on the right.

Note: When collapsed, transcoder components provide a summary of configuration details in the title bar of the component.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Transcoder Settings

Select the MPEG Audio Transcoder to enable and configure the following filters.

Input Audio Stream Settings

Select the streams which contribute to the program that you want to encode. For example, you may have two input mono audio streams, one for Left and one for Right. Alternatively, you might have a single MPEG audio stream that will be the source for the entire program:

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Select the name of the input stream to transcode.

Output Audio Stream Settings

Select the stream to configure the following settings:

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place.

Select the output stream to configure the encoding details below.

Language. When enabled, overrides the language associated with this audio stream. NOTE: If variable binding is utilized, the value in the Text variable must exactly match one of the original language selections in the encoder.

Codec. MPEG1 is specified in the menu, and cannot be changed.

Channel Configuration. Select the number and the layout of the audio channels you are encoding, from the menu.

Note: This choice affects what output channel designations (such as *Left* or *Center*) are required; these designations may affect how you set up the Channel Map Filter on the input stream(s).

Bit Rate. Specify the bit rate for the stream. Or, click Browse to select an Integer variable which contains the bit rate value from an upstream action.

AAC Transcoder (Multiscreen)

The AAC Transcoder component encodes an audio program into one or more Advanced Audio Coding (AAC) audio streams. This transcoder supports LC and HE AAC V1 and V2, and can simultaneously generate one or more AAC versions of a program at different bit rates.

Note: When collapsed, transcoder components provide a summary of configuration details in the title of the component.

Delete. To delete this transcoder, click the X icon at the far right of the panel.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Transcoder Settings

Select the AAC transcoder to display its configuration details in the panels directly under Transcoder: AAC, on the right.

Select each audio stream to display its configuration details in the panels directly under Transcoder: AAC, on the right. Input streams are displayed on the left (noted by a down arrow) side of the transcoder; output streams (as indicated by an up arrow) are displayed on the right.

Certain parameters (such as sample rate) are set for all bit rates being generated; these parameters are set in the AAC Transcoder configuration panels. For other parameters, select the individual audio streams to configure them.

Input Audio Stream Settings

Select the streams which contribute to the program that you want to encode. For example, you may have two input mono audio streams, one for Left and one for Right. Alternatively, you might have a single AC-3 audio stream that will be the source for the entire program:

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Select the name of the input stream to transcode.

Output Audio Stream Settings

Select the stream to configure the following settings:

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place.

Select an output stream to display the encoding details below.

Note: Some encoding parameters are set as part of the transcode, others as part of the stream. This allows a single transcoder to create multiple bit rates quickly in a single pass.

Select an output stream to display the encoding details below.

Language. When enabled, overrides the language associated with this audio stream. NOTE: If variable binding is utilized, the value in the Text variable must exactly match one of the original language selections in the encoder.

Language Code. When enabled, overrides the language associated with this audio stream with the language represented by the 3 letter ISO 639-3 language code entered. NOTE: This parameter overrides the Language name selection.

Codec Details

Profile. Select the profile for this output stream from the menu.

Channel Configuration. Select the channel configuration for this output stream from the menu.

Note: This choice affects what output channel designations (such as *Left* or *Center*) are required; these designations may affect how you set up the Channel Map Filter on the input stream(s).

Target Bit Rate. Select the target bit rate for this output stream from the menu.

AC-3 Transcoder (Multiscreen)

Dolby Digital (AC-3) is a flexible audio compression format that supports up to 8 channels of audio, based on the codec you utilize. The most common usage of AC-3 is in 2.0 (stereo) mode, and 5.1 and 7.1 (surround sound) mode.

The AC-3 Transcoder component encodes one or more audio tracks (on the left - up to 16) into one audio stream (specified on the right) using the elementary stream AC-3 or EAC-3 codec, creating either Dolby AC-3 or Dolby E-AC-3 output.

AC-3 supports a variety of encoded metadata information, including:

- General information such as copyright and production information

- Information to help consumer devices optimize decoding, such as the Extended Bit Field parameters, which are used for downmixing.

In 5.1 mode, EAC-3 supports five discrete channels of audio typically configured as Left (L), Right (R), Center (C), Left Surround (Ls), Right Surround (Rs), and a sixth channel of audio allocated for low-frequency effects (Lfe).

In 7.1 mode, EAC-3 supports seven channels of audio typically configured as Left (L), Right (R), Center (C), Left Surround (Ls), Right Surround (Rs), Left Rear Surround (LRS), and Right Rear Surround (RRS), and a sixth channel of audio allocated for low-frequency effects (Lfe).

Note: When collapsed, transcoder components provide a summary of configuration details in the title bar of the component.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Transcoder Settings

Select the AC-3 Transcoder to configure its tracks, specify the codec and configure it, and to enable and configure optional filters.

Input tracks are displayed on the left (noted by a down arrow) side of the transcoder; output tracks (as indicated by an up arrow) are displayed on the right.

Input Audio Track Settings

On the left, select the input tracks which contribute to the program that you want to decode, and configure filters.

For example, you may have two input mono audio tracks, one for Left and one for Right. Alternatively, you might have a single AC-3 audio track that will be the input for the entire program:

Track Checkbox. Activates/deactivates this track for decoding.

Track Name. Specifies the input track to transcode.

To add a new input track, check the track checkbox in the empty, untitled audio track to the right of the last active track. You can add up to 16 input tracks.

Select an input track to display filters.

Output Audio Track Settings

Select the track to encode for output, and configure the codec:

Track Checkbox. Activates/deactivates this track for encoding.

Track Name. Enter the name of the encoded, output track to identify it for selection in the output component, or leave the default value (for example, *Audio 1*) in place.

To add a new output track, check the track checkbox in the empty, untitled audio track to the right of the last active track. You can add up to 4 output tracks.

Select an output track to display the encoding details and codec.

Language. When enabled, overrides the language associated with this audio stream. NOTE: If variable binding is utilized, the value in the Text variable must exactly match one of the original language selections in the encoder.

Language Code. When enabled, overrides the language associated with this audio stream with the language represented by the 3 letter ISO 639-3 language code entered. NOTE: This parameter overrides the Language name selection.

Codec Settings

Codec. Specifies the codec to use for encoding this output track: AC-3 | EAC-3. Configure the codec and optional filters.

Hover over a control to display tooltips.

Channel Configuration

Controls vary by codec.

Channel Configuration. Specifies the audio channel layout for the stream, including selections for variations of 1+1, Mono, Stereo, 3/0, 2/1, 3/1, 2/2, 3/2, and 3/4.

Bit Rate. Sets the encoded bit rate.

SDK Version. Specifies the encoder being utilized.

Bitstream Mode. Specifies the type of audio service: Complete main | Music and effects | Visually impaired | Hearing impaired | Dialogue | Commentary | Emergency | Karaoke/Voice over.

90 Degree Phase Shift. Applies 90-degree phase shift to the surround channels for Dolby Surround Pro Logic or Logic II decoder.

3 dB Surround Attenuation. Attenuates surround channels 3 dB before encoding. This feature allows a choice between theatrical and consumer mixing levels (DVD or TV studios). Consumer mixing levels make all five main channels the same, whereas, theatrical mixing calibrates surround channels 3 dB lower than the front channels.

Enable LFE low-pass filter. Applies a 120 Hz eighth order low pass filter to the LFE input before encoding. This filter removes frequencies above 120 Hz that would cause aliasing when decoded.

A/D Converter Type. Allows marking audio that has passed through an A/D stage.

Stereo Downmix Preference. Selects the preferred downmix method for a decoder that has stereo outputs.

Dolby Surround Mode. Indicated whether the bitstream contains information that was encoded in Dolby Surround.

Lt/Rt Center Mix Level. Selects the level shift to the center when adding to the left and right outputs during a downmix to a left/right output.

Lt/Rt Surround Mix Level. Selects the level shift applied to the surround channels when adding to the left and right channels during a downmix to a left/right output.

Lo/Ro Center Mix Level. Selects the level shift applied to the center channel when adding to the left and right channels during a downmix to a Lo/Ro output.

Lo/Ro Surround Mix Level. Selects the level shift applied to the surround channels when adding to the left and right channels during a downmix to a Lo/Ro output.

Surround EX Mode. Indicates if the stream was encoded using Dolby EX.

Dolby Digital Parameters

Dialog Normalization. Sets the audio level of dialog for use by Dolby Digital decoders. The range is 1-31 dB, with -24dB as the default.

DRC Line Mode Profile. Specifies the Dynamic Range Control for Line Mode: None | Film Standard | Film Light | Music Standard | Music Light | Speech.

DRC RF Mode Profile. Specifies the Dynamic Range Control for RF Mode: None | Film Standard | Film Light | Music Standard | Music Light | Speech.

Audio Production Info

Audio Production Info. Specifies Available | Not Available. When available:

Room Type. Sets final mixing equalization for small or large rooms.

Mixing Level. Sets calibration level and maximum Sound Pressure Level (SPL) for a single channel. Ranges from 80 to 111 dB, with 105 dB as the default.

Content Parameters

Copyright Protected. Check to indicate copyright protected audio.

Original Bitstream. Check to indicate that the audio bitstream is the master version.

Filters

Check to enable and configure optional filters.

DTS-HD Transcoder (Multiscreen)

DTS-HD Master Audio utilizes a lossless compression codec containing a lossy DTS Digital core, thus allowing for bit-to-bit representation of the original movie's master soundtrack.

DTS-HD Master Audio supports variable bit rates up to 24.5 Mbit/s. The format supports a maximum of 192 kHz sampling frequency and 24-bit depth samples from 2 to 5.1 channels, and 96 kHz/24bit resolution up to 7.1 channels. DTS-HD Master Audio is capable of virtually any number of discrete channels.[

As a 3D audio delivery format, a DTS:X encoded DTS-HD Master Audio stream is able to contain up to 7.1 channels as well as nine objects and its associated metadata at 96 kHz/24 bit.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration

Codec. Specifies the codec to be utilized. DTS HD is the only selection.

Target Bit Rate. Specifies the average encoded target bit rate in kbps for this output track.

Format. Specifies the byte order for use by the encoder.

MPEG Audio Transcoder (Multiscreen)

The MPEG Audio Transcoder component encodes channels from one or more input audio streams (on the left) into an output stream (specified on the right) using the MPEG1 Audio codec.

Input streams are displayed on the left (noted by a down arrow) side of the transcoder; output streams (as indicated by an up arrow) are displayed on the right.

Note: When collapsed, transcoder components provide a summary of configuration details in the title bar of the component.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Transcoder Settings

Select the MPEG Audio Transcoder to enable and configure the following filters.

Input Audio Stream Settings

Select the tracks which contribute to the program that you want to encode. For example, you may have two input mono audio tracks, one for Left and one for Right. Alternatively, you might have a single MPEG audio track that will be the source for the entire program:

Stream Checkbox. Activates/deactivates this track for encoding.

Stream Name. Select the name of the input track to transcode.

Output Audio Stream Settings

Select the stream to configure the following settings:

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place.

Select the output stream to configure the encoding details below.

Language. When enabled, overrides the language associated with this audio stream. NOTE: If variable binding is utilized, the value in the Text variable must exactly match one of the original language selections in the encoder.

Codec. MPEG1 is specified in the menu, and cannot be changed.

Channel Configuration. Select the number and the layout of the audio channels you are encoding, from the menu.

Note: This choice affects what output channel designations (such as *Left* or *Center*) are required; these designations may affect how you set up the Channel Map Filter on the input stream(s).

Bit Rate. Specify the bit rate for the stream. Or, click Browse to select an Integer variable which contains the bit rate value from an upstream action.

Opus Transcoder (Multiscreen)

The Opus Transcoder component encodes channels from one or more input audio tracks (on the left) into one or more output tracks (specified on the right) using the OPUS Audio codec.

Opus is an open-source, highly-versatile audio codec intended for interactive speech and music transmission over the Internet, as well as storage and streaming applications. It is standardized as RFC 6716.

Note: When collapsed, transcoder components provide a summary of configuration details in the title bar of the component.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Transcoder Settings

Select the Opus Transcoder to display and configure the filters implemented in this transcoder.

Input tracks are displayed on the left (noted by a down arrow) side of the transcoder; output tracks (as indicated by an up arrow) are displayed on the right.

Input Audio Stream Settings

Select the tracks which contribute to the program that you want to encode. To add new tracks, check the checkbox in the blank audio track just to the right of the last existing track.

For example, you may have two input mono audio streams, one for Left and one for Right. Alternatively, you might have a single AC-3 audio stream that will be the source for the entire program:

Track Checkbox. Activates/deactivates this track for encoding.

Track Name. Select the name of the input track to transcode.

Output Audio Stream Settings

Check the output tracks you want added to the program. To add new tracks, check the checkbox in the blank audio track just to the right of the last existing track.

Select the track to configure the following settings:

Track Checkbox. Activates/deactivates this stream for encoding.

Track Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place.

Select the output stream to configure the encoding details below.

Language. When enabled, overrides the language associated with this audio stream. NOTE: If variable binding is utilized, the value in the Text variable must exactly match one of the original language selections in the encoder.

Codec

Codec. Specifies the codec to be utilized. Opus is the only selection.

Complexity. Specifies the maximum computational complexity to utilize.

Channel Configuration. Select the number and the layout of the audio channels you are encoding, from the menu.

Note: This choice affects what output channel designations (such as *Left* or *Center*) are required; these designations may affect how you set up the Channel Map Filter on the input stream(s).

Target Bit Rate. Specifies the target bit rate for this track, in kbps.

PCM Transcoder

The PCM Transcoder component encodes channels from one or more input audio streams (on the left) into an output stream (specified on the right) using the Pulse Code Modulated (PCM) codec. This codec generates uncompressed digital audio at the specified sample rate and bit depth.

Note: When collapsed, transcoder components provide a summary of configuration details in the title bar of the component.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Transcoder Settings

Select the PCM Transcoder to enable and configure the Dolby E Decoding Filter and the Sample Rate Filter.

Input streams are displayed on the left (noted by a down arrow) side of the transcoder; output streams (as indicated by an up arrow) are displayed on the right.

Input Audio Stream Settings

Select the streams which contribute to the program that you want to encode. For example, you may have two input mono audio streams, one for Left and one for Right. Alternatively, you might have a single AC-3 audio stream that will be the source for the entire program:

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Select the name of the input stream to transcode.

Output Audio Stream Settings

Select the stream to configure the following settings:

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place.

Select the output stream to configure the encoding details below.

Language. When enabled, overrides the language associated with this audio stream. NOTE: If variable binding is utilized, the value in the Text variable must exactly match one of the original language selections in the encoder.

Channel Configuration. Select the number and the layout of the audio channels you are encoding, from the menu.

Note: This choice affects what output channel designations (such as *Left* or *Center*) are required; these designations may affect how you set up the Channel Map Filter on the input stream(s).

Format. Select the byte encoding method for the encoded audio stream, from the menu.

PCM Transcoder

The PCM Transcoder component encodes channels from one or more input audio streams (on the left) into an output stream (specified on the right) using the Pulse Code Modulated (PCM) codec. This codec generates uncompressed digital audio at the specified sample rate and bit depth.

Note: When collapsed, transcoder components provide a summary of configuration details in the title bar of the component.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Transcoder Settings

Select the PCM Transcoder to enable and configure the filters.

Input streams are displayed on the left (noted by a down arrow) side of the transcoder; output streams (as indicated by an up arrow) are displayed on the right.

Input Audio Stream Settings

Select the streams which contribute to the program that you want to encode. For example, you may have two input mono audio streams, one for Left and one for Right. Alternatively, you might have a single AC-3 audio stream that will be the source for the entire program:

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Select the name of the input stream to transcode.

Output Audio Stream Setting

Select the stream to configure the following settings:

Stream Checkbox. Activates/deactivates this stream for encoding.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place.

Select the output stream to configure the encoding details below.

Channel Configuration. Select the number and the layout of the audio channels you are encoding, from the menu.

Note: This choice affects what output channel designations (such as *Left* or *Center*) are required; these designations may affect how you set up the Channel Map Filter on the input stream(s).

Format. Select the byte encoding method for the encoded audio stream, from the menu.

Adobe HDS Output

The Adobe HDS Output component generates a package compatible with Adobe HTTP Dynamic Streaming playback. It generates fragmented MP4 media files, with an F4F extension, and supporting manifest files containing indexing information about the fragments within each file. to generate an MP4-based adaptive bitrate package in Adobe HTTP Dynamic Streaming format.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Outputs Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/ readability purposes. Alternatively, use drag-and-drop: select an output and drag it to its new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

General Details

Output Location. Click Output Location and select from these choices:

- Available Vantage Store: Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Vantage Store/Folder*: Write the package to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on

Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Package Name. Displays the Filename Pattern Editor and specifies the pattern for the package you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Click the menu to select the nickname (or enter it manually) for this new package file.

Delete. Click the X icon on the right to delete the output from this action.

Adobe HDS Output Details

Select the output to display details.

Fragment Duration. Specify the minimum duration of each fragment in seconds (or type the value manually). This value specifies the smallest possible duration of each downloadable video fragment within the output F4F file.

Encryption. Check to enable encryption, and specify the following settings:

General

Key Identifier. Enter the unique key identifier. This may be provided from an upstream action by selecting a variable via Browse. If this field is left blank, a key identifier is automatically generated, and placed in the HDS package.

Key Seed. Enter the Base 64 secret value used to generate the encryption key.

Encryption Key. Enter the Base 64 secret value used to encrypt the media.

Key URI. Enter the key request URL (pattern: *http://mydomain.com:80*). This URL is provided as part of the HDS package, so that the player knows where to ask for the decryption key.

Preroll Duration. Specify the duration of the unencrypted header of the file, in seconds (or type the value manually). Value:0 - 60 seconds.

Adobe Flash Access

Common Key File. Enter the fully-qualified path (for example, *99.99.99.99\Encyption_Info\EXDRM\com_key.bin*) to the file containing the common encryption key.

Transport Certificate. Enter the fully-qualified path (for example, *99.99.99.99\Encyption_Info\EXDRM\trans-cert.der*) to the file containing a DER-encoded X.509 public key certificate.

License Server Certificate. Enter the fully-qualified path (for example, *99.99.99.99\Encyption_Info\EXDRM\lic_svr_cert.der*) to the file containing a DER-encoded X.509 public key certificate.

Packager Credentials. Enter the fully-qualified path (for example, *99.99.99.99\Encyption_Info\EXDRM\pack_cert.pfx*) to the file containing a PKCS#12 public key certificate and associated private key.

Packager Password. Enter the fully-qualified path (for example, *99.99.99.99\Encyption_Info\EXDRM\pack_cert.pfx*) to the file containing a PKCS#12 public key certificate and associated private key.

Policy File. Enter the fully-qualified path (for example, *99.99.99.99\Encyption_Info\EXDRM\pol.xml*) to the file containing the license policy.

Fragmented MPEG-4 Variant (Adobe HDS)

Select Fragmented MPEG-4 from the Variants menu (the Plus icon) to add fragmented MPEG-4 segments to the package.

To delete this variant, click the X icon to the right of the variant panel.

Enter Variant Name. Enter the name of this variant. This name will be used as a suffix to the base file name when generating files for the variant. For example, if the program name is *ShowName* and this variant name *is _600Kb* then the output F4F file will be named *ShowName_600Kb.f4f*.

Variant Details

Container

Disable. When checked, this variant is disabled. While you can manually disable or enable the variant, the significant application is the ability to enable or disable the variant at run-time, use a Boolean variable.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the name of the video stream to include in this variant. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Select the stream to display stream settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Renditions allow grouping of like streams. For example, streams which all include the same language audio and subtitles.

Default Rendition. Check to indicate that the client should play this rendition by default.

Audio Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to delete the stream, or disable processing if this is the only stream in the list.

To add a new stream, check the stream checkbox in the empty, untitled audio stream to the right of the last active stream.

Stream Name. Select the name of the audio stream to include in this variant. For Direct Convert, select a stream from the Input component. For transcoded audio, select a stream from a Transcoder component.

Select the stream to display stream settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Renditions allow grouping of like streams. For example, streams which all include the same language audio and subtitles.

Default Rendition. Check to indicate that the client should play this rendition by default.

Apple HLS Output

The Apple HLS Output component generates a package compatible with Apple HTTP Live Streaming (HLS) playback.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Outputs Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/ readability purposes. Alternatively, use drag-and-drop: select an output and drag it to its new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

General Details

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store:* Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Vantage Store/Folder*: Write the package to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Package Name. Displays the Filename Pattern Editor and specifies the pattern for the for the top level m3u8 file that is created with the HLS package you are creating. Default: Base Name.

The default naming scheme utilizes these rules:

- Use the variant name as the folder name when all media streams under the variant are written to one container.

- Use the variant name as the folder name when there is only one media stream under the variant.

- Use the stream name as the folder name when each media stream under the variant is written to a separate container in a different folder.

Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Click the menu to select the nickname (or enter it manually) for this new package file.

Delete. Click the X icon on the right to delete the output from this action.

Apple HLS Output Details

General

Specify Apple HLS package settings.

Add Non Standard Codec to Media. When checked, adds an optional codec property to audio lines in the m3u8 manifest. Unchecked by default.

Segment Duration. Specify the maximum duration of each segment in seconds (or type the value manually). Value: 3 - 60 seconds.

Segments Rounding Mode. Specify mode for determining segment size based on GOP size. This mode is used in conjunction with Segment Duration settings.

- *Average*. (default) Results in segments with an averaged length. For example, if GOP size is 2 seconds and a Segment Duration of 3 seconds is selected, a 2-4-2-4 sequence of segments (measured in seconds) will result in 3 second segments.

- *Round Up*. Round up segment length to next I Frame (end of GOP). For example, if GOP size is 2 seconds and a Segment Duration of 3 seconds is selected, segments will be rounded up to 4 seconds.

Start Segments on Keyframe. Must be checked when the video is passed to a downstream ABR Optimize action or ABR Optimize action workflow for subsequent processing.

Media Token

Specify a variety of media token options to create unique output naming patterns within output packages.

Note: Configurable Media Token options vary based on output being created. See drop down list of available tokens for supported types.

For Apple HLS Packages, the following may be configured using Media Tokens:

HLS Primary Playlist

HLS Playlist

Intermuxed Media File

Video File

Audio File

Subtitle File

Encryption

Check to enable encryption, and specify the following settings:

Key Identifier. Enter the unique Base64 encoded 16 byte array key identifier.

Key Seed. Enter the Base64 encoded 16 byte array value used to generate the encryption key.

Encryption Key. Enter the Base64 encoded 16 byte array value used to encrypt the media.

Key URI Mode. Select the method used to generate the key URI, from the menu.

Key URI. Enter the key request URL. This URL is used by the player to request the decryption key.

Preroll Duration. Specify the duration of the unencrypted header of the file, in seconds (or type the value manually). Value: 0 - 60 seconds.

Digital Rights Management (DRM)

DRM provides encryption for copyright protection. To implement DRM encryption, specify the following settings:

DRM. Select No DRM Provider | Verimatrix.

- *Server URL:* When you select Verimatrix, the Server URL field allows you to specify a URL for an encryption key server. The server supplies encryption keys for use in encrypting the video stream.

- *Key Rotation:* You can set the time interval for Key Rotation to ensure fresh keys are used periodically for encryption safety.

- *Create Key File:* When checked, provides encryption keys in a file for use in subsequent video processing, such as by the ABR Optimize action.

Manifest

HLS video consists of multiple video segments contained in variant video streams streamed at different rates by an HTTP server. Each stream is accompanied by an associated text manifest file. Receiving players use the manifest files to discover which streams are available and actively switch at segment boundaries to choose the stream that provides the best viewing experience for the current network conditions.

Up to 8 manifest files can be supplied for each HLS package.

- *Name:* Specify the name of the manifest file to accompany the video stream. An additional checkbox lets you include the video stream name in the manifest file.

MPEG2 Transport Stream Variant (Apple HLS)

The MPEG-2 Transport Stream variant is the primary mechanism for delivering video and audio for Apple HLS playback. This variant will create an M3U8 manifest file for the variant, and then either one large TS file containing all fragments for the variant (if HTTP byte requests are enabled), or a number of small TS files each containing a segment (if HTTP byte requests are disabled). The variant will be placed in its own sub-folder.

To delete this variant, click the X icon to the right of the variant panel.

Enter Variant Name. Enter the name of this variant. Some players display the variant name to the end user.

Default. When multiple variants added, select to indicate that this variant should be the default stream used during playback.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Variant Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

HTTP Byte Range Requests. Check to enable HTTP byte range requests. This feature is supported in version 4 (iOS V5.0) or higher playlists. When selected, the HLS Output creates a single Transport Stream file (*.ts) for each variant. HTTP byte range requests are used by the player to download individual segments.

When deselected, a separate Transport Stream file (*.ts) file is created for each segment. The player downloads each segment as an individual file.

Accurate Segment Durations. Check to enable floating point segment duration values. This feature is supported in HLS version 2 (iOS V3.2) or higher playlists.

When enabled, each segment accurately reports its duration to the player; when disabled the segment will be rounded to the nearest integer. Accurate segment durations improve seeking in long programs, particularly with 29.97 or 23.976 frame rates.

Container

Disable. When checked, this variant is disabled. While you can manually disable or enable the variant, the significant application is the ability to enable or disable the variant at run-time, use a Boolean variable.

Insert DVB AU. Check to use Adaption Field Private Data to enable trick mode.

SCTE-35 Data Range. When checked, enables generation of SCTE-35 data range tags in output manifest.

Video Stream Details

Stream Checkbox. Activates this stream for processing and inclusion in this variant. Uncheck to disable.

Stream Name. Select the name of the video stream to include in this variant. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Select the stream to display stream settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar variants, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Auto Select Rendition. Check to indicate that the client can automatically play this rendition if it matches the current playback environment.

Video PID. Specifies the PID (default: 481) to use for this stream (16-8190).

Audio Stream Details

Stream Checkbox. Activates this stream for processing and inclusion in this variant. Uncheck to disable processing.

Stream Name. Select the name of the audio stream to include in this variant. For Direct Convert, select a stream from the Input component. For transcoded audio, select a stream from a Transcoder component.

Select the stream to display stream settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar variants, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Auto Select Rendition. Check to indicate that the client can automatically play this rendition if it matches the current playback environment.

Audio PID. Specifies the PID (default: 482) to use for this stream (16-8190).

Language Code. Select the Language Code option to use for the associated stream. Options are Pass Through (default) | Select from ISO 639 List | Manual.

Data Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the name of the data stream to include in this variant.

Select the stream to display stream settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar variants, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Auto Select Rendition. Check to indicate that the client can automatically play this rendition if it matches the current playback environment.

Subtitle PID. Specifies the PID (default: 483) to use for this track (16-8190).

Audio Only Variant (Apple HLS)

The Audio Only variant allows playback of only audio through Apple HLS, with an optional poster image that displays during the audio playback.

To delete this variant, click the X icon to the right of the variant panel.

Enter Variant Name. Enter the name of this variant. Some players display this variant name to the end user.

Default. Select to indicate that this variant should be the default stream used.

Variant Details

HTTP Byte Range Requests. Check to enable HTTP byte range requests. This feature is supported in HLS version 2 (iOS V3.2) or higher playlists. When selected, the HLS Output creates a single (.ts) Transport Stream file for each variant. HTTP byte range requests are used by the player to download individual fragments.

When deselected, multiple files are created for each variant, one file per fragment. The player downloads each fragment as an individual file.

Accurate Segment Durations. Activates floating point segment duration values. This feature is enabled in version 2 (iOS V3.2) or higher playlists.

When enabled, each segment accurately reports its duration to the player; when disabled the segment will be rounded to the nearest integer. Accurate segment durations improve seeking in long programs, particularly with 29.97 or 23.976 frame rates.

Container

Disable. When checked, this variant is disabled. While you can manually disable or enable the variant, the significant application is the ability to enable or disable the variant at run-time, use a Boolean variable.

Poster Image File. Enter the fully qualified path (for example, *\\Img_Server_7\\Multirate\Posters\MtBlanc.png*) to (or click Browse to navigate and select) the PNG or JPEG image file attached to each segment. This poster image may be used by the player when playing the audio-only variant. If this field is left blank, the variant will not contain a poster image.

Audio Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to delete the stream, or disable processing if this is the only stream in the list.

Stream Name. Select the name of the audio stream to include in this variant. For Direct Convert, select a stream from the Input component. For transcoded audio, select a stream from a Transcoder component.

Select the stream to display stream settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar variants, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Auto Select Rendition. Check to indicate that the client can automatically play this rendition if it matches the current playback environment.

Language Code. Select the Language Code option to use for the associated stream. Options are Pass Through (default) | Select from ISO 639 List | Manual.

I-Frame Only Variant (Apple HLS)

The I-Frame Only variant is used to support high-speed scrubbing, and is not generally used for end-user playback.

To delete this variant, click the X icon to the right of the variant panel.

Enter Variant Nickname. Enter the nickname of this variant.

Default. Select to indicate that this variant should be the default stream used.

Variant Details

HTTP Byte Range Requests. Check to enable HTTP byte range requests. This feature is supported in version 4 (iOS V5.0) or higher playlists.

Accurate Segment Durations. Activates floating point segment duration values. This feature is enabled in version 4 (iOS V5.0) or higher playlists.

When enabled, each segment accurately reports its duration to the player; when disabled the segment will be rounded to the nearest integer. Accurate segment durations improve seeking in long programs, particularly with 29.97 or 23.976 frame rates.

Container

Disable. When checked, this variant is disabled. While you can manually disable or enable the variant, the significant application is the ability to enable or disable the variant at run-time, use a Boolean variable.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the name of the video stream to include in this variant. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Select the stream to display stream settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar variants, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Auto Select Rendition. Check to indicate that the client can automatically play this rendition if it matches the current playback environment.

WebVTT Variant (Apple HLS)

The WebVTT variant is used to add WebVTT captions segments referenced by the HLS playlist to the Apple HLS output.

To delete this variant, click the X icon to the right of the variant panel.

Enter Variant Nickname. Enter the nickname of this variant.

Default. Select to indicate that this variant should be the default stream used.

Variant Details

HTTP Byte Range Requests. Check to enable HTTP byte range requests. This feature is supported in version 4 (iOS V5.0) or higher playlists.

Accurate Segment Durations. Activates floating point segment duration values. This feature is enabled in version 4 (iOS V5.0) or higher playlists.

When enabled, each segment accurately reports its duration to the player; when disabled the segment will be rounded to the nearest integer. Accurate segment durations improve seeking in long programs, particularly with 29.97 or 23.976 frame rates.

Container

Disable. When checked, this variant is disabled. While you can manually disable or enable the variant, the significant application is the ability to enable or disable the variant at run-time, use a Boolean variable.

Data Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the name of the web video text track data stream to include in this variant. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Select the stream to display stream settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar variants, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Auto Select Rendition. Check to indicate that the client can automatically play this rendition if it matches the current playback environment.

Fragmented MPEG-4 Variant (Apple HLS)

Select Fragmented MPEG-4 from the Variants menu (the Plus icon) to add fragmented MPEG-4 segments to the package.

To delete this variant, click the X icon to the right of the variant panel.

Note: If the GOP structure of the variants does not match, the media will pause repeatedly when played back. In order to make the GOP structure match, each variant must use the same keyframe interval and scene detection must be disabled. If these requirements are not met the package will exhibit repeated pauses during playback.

Enter Variant Nickname. Enter the nickname of this variant.

Variant Details

HTTP Byte Range Requests. Check to enable segmentURL@mediaRange attributes. When selected, the MPEG DASH Output creates a single Transport Stream file (*.ts) for each variant. HTTP byte range requests are used by the player to download individual segments.

When deselected, a separate Transport Stream file (*.ts) file is created for each segment. The player downloads each segment as an individual file.

Accurate Segment Durations. Check to enable floating point segment duration values - DASH SegmentTimeline elements.

When enabled, each segment accurately reports its duration to the player; when disabled the segment will be rounded to the nearest integer. Accurate segment durations improve seeking in long programs, particularly with 29.97 or 23.976 frame rates.

Container Settings

Disable. When checked, this variant is disabled. While you can manually disable or enable the variant, the significant application is the ability to enable or disable the variant at run-time, use a Boolean variable.

SCTE-35 Data Range. When checked, enables generation of SCTE-35 data range tags in output manifest.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

To add a new stream, check the stream checkbox in the empty, untitled video stream to the right of the last active stream.

Stream Name. Select the name of the video stream to include in this variant. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Select the stream to display stream settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar variants, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Auto Select Rendition. Check to indicate that the client should play automatically play this rendition if it matches the current playback environment.

Audio Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to delete the stream, or disable processing if this is the only stream in the list.

To add a new stream, check the stream checkbox in the empty, untitled audio stream to the right of the last active stream.

Stream Name. Select the name of the audio stream to include in this variant. For Direct Convert, select a stream from the Input component. For transcoded audio, select a stream from a Transcoder component.

Select the stream to display stream settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar variants, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Auto Select Rendition. Check to indicate that the client should play automatically play this rendition if it matches the current playback environment.

Language Code. Select the Language Code option to use for the associated stream. Options are Pass Through (default) | Select from ISO 639 List | Manual.

ATS Output

The ATS Output component generates a fully-compliant, continuous MPEG2 Transport Stream adaptive bitrate package in Adaptive Transport Stream (ATS) format.

ATS output packages may be re-encapsulated outside of Vantage by third-party segmenters to create HLS, DASH, or other types of ABR packages.

Key features:

- Non-Segmented Transport Stream Representations (single .ts file per representation).

- Encoder Boundary Points are included at every fragment boundary. EBPs are aligned with each of the other Representations in the Adaptation Set.

- No manifest or other playlists are created.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Outputs Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/ readability purposes. Alternatively, use drag-and-drop: select an output and drag it to its new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

General Details

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store:* Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Vantage Store/Folder*: Write the package to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Package Name. Displays the Filename Pattern Editor and specifies the pattern for the package you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Click the menu to select the nickname (or enter it manually) for this new package file.

Delete. Click the X icon on the right to delete the output from this action.

Adaptation Groups

ATS video consists of multiple video segments contained in multiple video streams played out at different rates by an HTTP server. Each stream is accompanied by an associated text manifest file. Receiving players use the manifest files to discover which streams are available and actively switch at segment boundaries to choose the stream that provides the best viewing experience for the current network conditions.

You can add up to 8 MPEG2 Simple Profile manifest files for each ATS package. Click the Plus icon in the toolbar to add a new adaptation group. (You can also select an adaptation group and re-arrange it in the list using the Up and Down arrows.)

- *Adaptation Group Name:* Specify the name for the group, used to identify the folder in the package that contains the media files.

ATS Output Details

General

Select the ATS Output panel to display details.

File fragments can contain multiple segments by setting the fragment duration to an integer multiple of the segment. For example, segment=60 and fragment=10.

Segment Duration. Specify the maximum duration of each segment in seconds (or type the value manually). Value: 1 - 60 seconds.

Fragment Duration. Specify the maximum duration of each fragment in seconds (or type the value manually). Value: 1 - 60 seconds.

Delete Manifest File. When checked, disables creation of the .mpd manifest file. Unchecked by default.

Media Token

Specify a variety of media token options to create unique output naming patterns within output packages.

Note: Configurable Media Token options vary based on output being created. See drop down list of available tokens for supported types.

For ATS Packages, the following may be configured using Media Tokens:

ATS Manifest

Intermuxed Media File

MPEG2 Transport Stream (ATS)

Select MPEG2 Transport Stream from the menu (the Plus icon) to add an MPEG2 Transport Stream representation to the package.

To delete this representation, click the X icon to the right of the panel.

Enter Adaption Group. Enter the practical name of this representation, for identification in the inspector. This value is not utilized in the output. You should enter a name even if it is not relevant - if left empty, the inspector displays an Invalid Configuration error when you save the action.

Default. (Only displays when multiple representations added.) Unused - the Default control is not utilized in ATS.

Details

Select the representation to display settings.

Container

Disable. When checked, this representation is disabled. While you can manually disable or enable the representation for all jobs, the significant application is the ability to enable or disable the representation on a job-by-job basis at run-time, using a Boolean variable.

Video Stream Details

Select the stream to display settings.

Stream Checkbox. Activates this stream for processing. Uncheck to delete the stream, or disable processing if this is the only stream in the list.

Stream Name. Select the name of the video stream to include. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Video PID (Default: 481). Select the PID to use for this stream (16-8190).

Audio Track Details

Select the track to display settings.

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track. Up to 16 audio tracks are permitted.

Track Name. Select the name of the audio track to include. For Direct Convert, select a stream from the Input component. For transcoded audio, select a stream from a Transcoder component.

Audio PID (Default: 482). Select the PID to use for this track (16-8190).

Data Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled data track to the right of the last active track. Up to 16 data tracks are permitted.

Track Name. Select the name of the ANC Data track to include.

Select the track to display settings.

Subtitle PID (Default: 498). Select the PID to use for this track (16-8190).

CMAF Output

The CMAF (Common Media Application Format) Output component creates a common set of MP4 segments/files which can be referenced by either an Apple HTTP Live Streaming playlist (HLS, .m3u8), or by an MPEG Dynamic Adaptive Streaming over HTTP manifest (DASH, .mpd).

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

CMAF Presentations Toolbar Icons

Up/Down Arrows. Moves the selected presentation up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a presentation and drag it to its new location in the list.

Details Arrow. Collapses or expands the presentation panels.

Plus Sign. Adds another presentation to this action.

General Details

Output Location. Click Output Location and select from these choices:

- Available Vantage Store: Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Vantage Store/Folder*: Write the package to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Package Name. Displays the Filename Pattern Editor and specifies the pattern for the media file you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Click the menu to select the nickname (or enter it manually) for this new file.

Delete. Click the X icon on the right to delete the output from this action.

CMAF Output Details

General

Specify CMAF package settings.

Add Non Standard Codec to Media. When checked, adds an optional codec property to audio lines in the m3u8 manifest. Unchecked by default.

Segment Start Index. Specifies the segment start index. Default is 1.

Segment Duration. Specifies (in seconds) the maximum duration of each media segment.

Fragment Duration. Specifies (in seconds) the maximum duration of each fragment segment.

SCTE-35 Binary Trigger. When checked, adds a SCTE-35 trigger in binary format to the manifest.

SCTE-35 XML Trigger. When checked, adds a SCTE-35 trigger in XML format to the manifest.

Media Token

Specify a variety of media token options to create unique output naming patterns within output packages.

Note: Configurable Media Token options vary based on output being created. See drop down list of available tokens for supported types.

For CMAF Packages, the following patterns may be configured with supported Media Tokens:

CMAF DASH Presentation

CMAF HLS Primary Playlist

CMAF HLS Playlist

Video File

Audio File

Subtitle File

CMAF Video Presentation

Select CMAF Video from the Presentations menu (the Plus icon) to add video segments to the package.

To delete this presentation, click the X icon to the right of the presentation panel.

Enter CMAF Presentation. Enter the name of this presentation. This name will be used as a suffix to the base file name when generating files for the presentation.

Presentation Details

HTTP Byte Range Requests. Check to enable segmentURL@mediaRange attributes. When selected, the CMAF Output creates a separate MP4 file (*.mp4) for each group. HTTP byte range requests are used by the player to download individual segments.

When deselected, a separate Transport Stream file (*.ts) file is created for each segment. The player downloads each segment as an individual file.

Accurate Segment Durations. Check to enable floating point segment duration values - SegmentTimeline elements.

When enabled, each segment accurately reports its duration to the player; when disabled the segment will be rounded to the nearest integer. Accurate segment durations improve seeking in long programs, particularly with 29.97 or 23.976 frame rates.

Container Settings

Expand to view configurable container options.

Segment List Describe Method. Specify method used for segment description. Segment List (default) | Segment Template Time | Segment Template Index.

Note: Certain Segment List Describe Methods are intended for use with certain Media Tokens specified at the package level.

SCTE-35 Data Range. When checked, enables generation of SCTE-35 data range tags in output manifest.

Role. Specifies the purpose, characteristics, and/or structural functions of media content components. Inserts the "Role" element in the MPD file under the AdaptationSet group for Video, Audio and Subtitle tracks per DASH-IF-IOP-v4.3. Select from pre-defined options in the dropdown menu.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

To add a new stream, check the stream checkbox in the empty, untitled video stream to the right of the last active stream.

Stream Name. Select the name of the video stream to include in this presentation. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Select the stream to display stream settings.

CEA 608/708 CC1 Language Code. Check to provide a language code for CC1. Specifies the ISO 639-3 3-letter language code.

CEA 608/708 CC2 Language Code. Check to provide a language code for CC2. Specifies the ISO 639-3 3-letter language code.

CMAF Audio Presentation

Select CMAF Audio from the Presentations menu (the Plus icon) to add audio segments to the package.

To delete this presentation, click the X icon to the right of the presentation panel.

Enter CMAF Presentation. Enter the name of this presentation. This name will be used as a suffix to the base file name when generating files for the presentation.

Presentation Details

HTTP Byte Range Requests. Check to enable segmentURL@mediaRange attributes. When selected, the CMAF Output creates a single Transport Stream file (*.ts) for each group. HTTP byte range requests are used by the player to download individual segments.

When deselected, a separate Transport Stream file (*.ts) file is created for each segment. The player downloads each segment as an individual file.

Accurate Segment Durations. Check to enable floating point segment duration values - SegmentTimeline elements.

When enabled, each segment accurately reports its duration to the player; when disabled the segment will be rounded to the nearest integer. Accurate segment durations improve seeking in long programs, particularly with 29.97 or 23.976 frame rates.

Container Settings

Expand to view configurable container options.

Segment List Describe Method. Specify method used for segment description. Segment List (default) | Segment Template Time | Segment Template Index.

Note: Certain Segment List Describe Methods are intended for use with certain Media Tokens specified at the package level.

Default Rendition. When checked, specifies that the client will play this rendition in HLS players unless otherwise indicated by the user at time of playback. Unchecked by default.

Auto Select Rendition. When checked, specifies that this rendition is automatically played in HLS players (in the absence of explicit user preference) because it matches the current playback environment, such as chosen system language. Unchecked by default.

Role. Specifies the purpose, characteristics, and/or structural functions of media content components. Inserts the "Role" element in the MPD file under the AdaptationSet group for Video, Audio and Subtitle tracks per DASH-IF-IOP-v4.3. Select from pre-defined options in the dropdown menu.

Accessibility. Specifies the degree to which the media presentation is available to as many users as possible. Inserts the "Accessibility" element in the MPD file under the AdaptationSet group for Audio and Subtitle tracks per DASH-IF-IOP-v4.3. Select from pre-defined options in the dropdown menu.

Audio Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

To add a new stream, check the stream checkbox in the empty, untitled audio stream to the right of the last active stream.

Stream Name. Select the name of the audio stream to include in this presentation. For Direct Convert, select a stream from the Input component. For transcoded audio, select a stream from a Transcoder component.

Select the stream to display stream settings.

Codec Validation. When checked, audio streams using codecs other than the one specified are blocked from inclusion in the output package. For example, if AC-3 is specified but AC-3 or AAC are detected, only the AC-3 stream will be passed to the output. Unchecked by default.

Audio PID. Select the PID to use for this audio stream. Range is16-8190. Default is 482.

Language Code. Select the Language Code option to use for the associated stream. Options are Pass Through (default) | Select from ISO 639 List | Manual.

CMAF Subtitle Presentation

Select CMAF Subtitle from the Presentations menu (the Plus icon) to add subtitle segments to the package.

When you add one or more CMAF Subtitle Presentations (one for each language you provide), the manifest (.mpd) file is updated to provide the information necessary for the player to play the subtitles, which are contained as timed text in MP4 files.

To delete this presentation, click the X icon to the right of the presentation panel.

Enter CMAF Presentation. Enter the name of this presentation. This name will be used as a suffix to the base file name when generating files for the presentation.

Presentation Details

HTTP Byte Range Requests. Check to enable segmentURL@mediaRange attributes. When selected, the CMAF Output creates a single Transport Stream file (*.ts) for each group. HTTP byte range requests are used by the player to download individual segments.

When deselected, a separate Transport Stream file (*.ts) file is created for each segment. The player downloads each segment as an individual file.

Accurate Segment Durations. Check to enable floating point segment duration values - SegmentTimeline elements.

When enabled, each segment accurately reports its duration to the player; when disabled the segment will be rounded to the nearest integer. Accurate segment durations improve seeking in long programs, particularly with 29.97 or 23.976 frame rates.

Container Settings

Expand to view configurable container options.

Segment List Describe Method. Specify method used for segment description. Segment List (default) | Segment Template Time | Segment Template Index.

Note: Certain Segment List Describe Methods are intended for use with certain Media Tokens specified at the package level.

Default Rendition. When checked, specifies that the client will play this rendition in HLS players unless otherwise indicated by the user at time of playback. Unchecked by default.

Auto Select Rendition. When checked, specifies that this rendition is automatically played in HLS players (in the absence of explicit user preference) because it matches the current playback environment, such as chosen system language. Unchecked by default.

Role. Specifies the purpose, characteristics, and/or structural functions of media content components. Inserts the "Role" element in the MPD file under the AdaptationSet group for Video, Audio and Subtitle tracks per DASH-IF-IOP-v4.3. Select from pre-defined options in the dropdown menu.

Accessibility. Specifies the degree to which the media presentation is available to as many users as possible. Inserts the "Accessibility" element in the MPD file under the AdaptationSet group for Audio and Subtitle tracks per DASH-IF-IOP-v4.3. Select from pre-defined options in the dropdown menu.

Data Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the name of the data stream to include in this presentation.

Select the stream to display stream settings.

Subtitle PID. Select the PID to use for this subtitle stream. Range is16-8190. Default is 498.

Language Code. Select the Language Code option to use for the associated stream. Options are Pass Through (default) | Select from ISO 639 List | Manual.

CMAF TTML Reference File Presentation

Select CMAF TTML Reference File from the Presentations menu (the Plus icon) to add CMAF TTTML Reference Files to the package.

To delete this presentation, click the X icon to the right of the presentation panel.

Enter CMAF Presentation. Enter the name of this presentation. This name will be used as a suffix to the base file name when generating files for the presentation.

Presentation Details

HTTP Byte Range Requests. Check to enable segmentURL@mediaRange attributes. When selected, the CMAF Output creates a single Transport Stream file (*.ts) for each group. HTTP byte range requests are used by the player to download individual segments.

When deselected, a separate Transport Stream file (*.ts) file is created for each segment. The player downloads each segment as an individual file.

Accurate Segment Durations. Check to enable floating point segment duration values - SegmentTimeline elements.

When enabled, each segment accurately reports its duration to the player; when disabled the segment will be rounded to the nearest integer. Accurate segment durations improve seeking in long programs, particularly with 29.97 or 23.976 frame rates.

Data Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the name of the data stream to include in this presentation.

Select the stream to display stream settings.

Subtitle PID. Select the PID to use for this subtitle stream. Range is16-8190. Default is 498.

Language Code. Select the Language Code option to use for the associated stream. Options are Pass Through (default) | Select from ISO 639 List | Manual.

CMAF WebVTT Presentation

Select CMAF WebVTT from the Presentations menu (the Plus icon) to add WebVTTsegments to the package.

To delete this presentation, click the X icon to the right of the presentation panel.

Enter CMAF Presentation. Enter the name of this presentation. This name will be used as a suffix to the base file name when generating files for the presentation.

Presentation Details

HTTP Byte Range Requests. Check to enable segmentURL@mediaRange attributes. When selected, the CMAF Output creates a single Transport Stream file (*.ts) for each group. HTTP byte range requests are used by the player to download individual segments.

When deselected, a separate Transport Stream file (*.ts) file is created for each segment. The player downloads each segment as an individual file.

Accurate Segment Durations. Check to enable floating point segment duration values - SegmentTimeline elements.

When enabled, each segment accurately reports its duration to the player; when disabled the segment will be rounded to the nearest integer. Accurate segment durations improve seeking in long programs, particularly with 29.97 or 23.976 frame rates.

Container Settings

Expand to view configurable container options.

Disable WebVTT Fragmentation. When checked, disables fragmentation of WebVTT files. Checked by default.

Default Rendition. When checked, specifies that the client will play this rendition in HLS players unless otherwise indicated by the user at time of playback. Unchecked by default.

Auto Select Rendition. When checked, specifies that this rendition is automatically played in HLS players (in the absence of explicit user preference) because it matches the current playback environment, such as chosen system language. Unchecked by default.

Data Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the name of the data stream to include in this presentation.

Select the stream to display stream settings.

Subtitle PID. Select the PID to use for this subtitle stream. Range is16-8190. Default is 498.

Language Code. Select the Language Code option to use for the associated stream. Options are Pass Through (default) | Select from ISO 639 List | Manual.

Elementary Video Stream Output

The Elementary Video Stream Output component generates a video-only package compatible with MPEG video playback.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Outputs Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/ readability purposes. Alternatively, use drag-and-drop: select an output and drag it to its new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

General Details

Output Location. Click Output Location and select from these choices:

- Available Vantage Store: Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the *Vantage User Guide* or the *Vantage Domain Management Guide*.

- *Vantage Store/Folder*: Write the package to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the *Vantage User Guide* or the *Vantage Domain Management Guide*.

- *Path*: Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit File Name. Displays the Filename Pattern Editor and specifies the pattern for the file that is created with the package you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Click the menu to select the nickname (or enter it manually) for this new package file.

Delete. Click the X icon on the right to delete the output from this action.

General Settings

File Extension. Select the file extension from the File Extension menu (es | h264 | h265 | hevc | m1v | m2v | yuv). Or, click the green - (minus) to bind the extension setting to a variable selected from a popup list of variables.

Keyframe Output

The Keyframe Output component generates one or multiple keyframe raster images in JPG format and saves them as an image file.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Outputs Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select an output and drag it to its new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

General Details

Output Location. Click Output Location and select from these choices:

- Available Vantage Store: Write the output to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the *Vantage User Guide* or the *Vantage Domain Management Guide*.

- *Vantage Store/Folder*: Write the output to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the *Vantage User Guide* or the *Vantage Domain Management Guide*.

- *Path*: Write the output to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit File Name. Displays the Filename Pattern Editor and specifies the pattern for the file that is created. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Click the menu to select the nickname (or enter it manually) for this new file or file set.

Delete. Click the X icon on the right to delete the output from this action.

General Settings

File Extension. Select the file extension from the menu (jpg | jpeg | png).

Frame Width. Specifies the width of the frame in pixels.

File Extension. Specifies the height of the frame in pixels.

Image Quality. Specifies the quality of the image in percentage.

Capture Mode

Capture Mode. Specifies capture mode for frames. (Single Keyframe | Repeating Keyframe | Scene Changes)

Capture Time. When Single Keyframe is selected, specifies the time where the frame should be captured.

Capture Interval. When Repeating Keyframe is selected, specifies the time between frame captures.

Minimum Interval. When Scene Changes is selected, indicates the minimum interval between keyframes.

Scene Change Sensitivity. When Scene Changes is selected, indicates the frequency of keyframe generation measured in percent. Higher values will generate more keyframes. Default is 50.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the name of the video stream to extract keyframes from. You can select from input, converter, or transcoder component video streams.

There are no user-settable controls for this video stream.

Keyframe Output (Multiscreen)

The Keyframe Output component in Multiscreen generates one or multiple keyframe raster images in JPG format and saves them as an image file.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Outputs Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/ readability purposes. Alternatively, use drag-and-drop: select an output and drag it to its new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

General Details

Output Location. Click Output Location and select from these choices:

- Available Vantage Store: Write the output to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the *Vantage User Guide* or the *Vantage Domain Management Guide*.

- *Vantage Store/Folder*: Write the output to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the *Vantage User Guide* or the *Vantage Domain Management Guide*.

- *Path*: Write the output to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit File Name. Displays the Filename Pattern Editor and specifies the pattern for the file that is created. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Click the menu to select the nickname (or enter it manually) for this new file or file set.

Delete. Click the X icon on the right to delete the output from this action.

General Settings

File Extension. Select the file extension from the menu (jpg | jpeg | png).

Frame Width. Specifies the width of the frame in pixels.

Frame Height. Specifies the height of the frame in pixels.

Image Quality. Specifies the quality of the image in percentage.

Capture Mode

Capture Mode. Specifies capture mode for frames. (Single Keyframe | Repeating Keyframe | Scene Changes)

Capture Time. When Single Keyframe is selected, specifies the time where the frame should be captured.

Capture Interval. When Repeating Keyframe is selected, specifies the time between frame captures.

Minimum Interval. When Scene Changes is selected, indicates the minimum interval between keyframes.

Scene Change Sensitivity. When Scene Changes is selected, indicates the frequency of keyframe generation measured in percent. Higher values will generate more keyframes. Default is 50.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the name of the video stream to extract keyframes from. You can select from input, converter, or transcoder component video streams.

There are no user-settable controls for this video stream.

Manzanita Output

The Manzanita Output component generates media in MPEG format using the Manzanita multiplexer.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Outputs Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select an output and drag it to its new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Manzanita Main Settings

Output Location. Click Output Location and select from these choices:

- Available Vantage Store: Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Vantage Store/Folder*: Write the package to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable to supply the location.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Package Name. Displays the Filename Pattern Editor and specifies the pattern for the media file you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for this new file.

Detailed Settings

To display these settings, select the Manzanita component - they display to the right of the component, directly below MultiPass Settings.

General Settings

File Extension. Select the file extension from the File Extension menu (ts | mpg | m2t). Or, click Browse to select a text variable which contains the extension string value.

Digital Program Insertion

Specifies Digital Program Insert: None | SCTE-35 XML.

When SCTE-35 XML is selected, specify these settings:

Manzanita SCTE-35 File. Specifies the nickname of an existing file, or the fully-qualified path to an input source file. If the File name is used, enter the path manually, or click Browse and navigate and select the location. Or, click the green Browse button and select a variable which supplies the path.

SCTE-35 PID. Specifies the PID value or click Browse to select an Integer variable which supplies the PID value.

BDAV Container Format

Specifies whether or not to use the BDAV container format, typically for producing random-access media for Blu-ray, DVD, hard drives, or solid-state memory cards. BDAV is used for Blu-ray and AVCHD format media. When BDAV container is selected, configure the time stamp options.

Timestamps allow reconstruction of constant rates (CBR) used for broadcast from variable bit rates used for transport. The standard MPEG-2 TS packet consists of a prefixed 4-byte header consisting of a 2-bit copy permission indicator and a 30-bit arrival timestamp. You can select whether or not to include the timestamp.

Time Stamp Precedes the Packet defaults to checked but may be unchecked to turn off the time stamp feature.

Time Stamp Size in Bits defaults to 32 bits but may be set to anything from 0-32 or assigned to a variable.

Time Stamp Size in Bytes defaults to 4 bytes, but may be set to anything from 0-8 bytes or assigned to a variable.

Time Stamp Byte Order defaults to Big endian but may also be set to Little endian.

Advanced Settings

Specifies advanced setting (Manual | Manzanita Configuration File).

Manzanita Configuration File. When Manzanita Configuration File is selected, provide the fully-qualified path to the file. Enter it manually, Browse to it, or click the green Browse button to select a variable which contains the path and file string. Also specify the error behavior, and error/warning threshold.

Manual. When Manual is selected, configure the appropriate options listed below. You can also supply these settings by specifying variables that have been set from an upstream action.

File Bit Rate defaults to 19,000,000 bits per second. If unchecked, the Multiplexer will use the minimum rate as computed from the sum of all maximum rates for elementary streams, data streams, PSI streams and necessary overhead.

PAT Rate defaults to 10.0 tables per second. This function specifies the repetition rate of the Program Association Table in the output stream. The PAT lists all programs in a transport stream, each of which is identified by a 16-bit Program Number.

PMT Rate defaults to 10.0 tables per second. This function specifies the repetition rate of the Program Map Table in the output stream. Each program listed in the PAT has a PMT (with PID) containing information about the program.

Transport ID defaults to 0. This function sets the ID number for this transport stream.

PAT Version defaults to 0. This function sets the version number of the Program Association Table.

Program Number defaults to 1. This sets the ID number of a specific program.

PMT PID defaults to 480. This sets the Packet ID used for the Program Map Table.

PCR PID defaults to unselected/zero. This specifies the Packet ID that carries the Program Clock Reference for this program. Set to the first video PID value if not specified.

Maximum PCR Interval defaults to 37 milliseconds. This function defines the maximum time between Program Clock References for this stream.

PCR on every PES header defaults to selected. This function determines if a PCR gets inserted on each PES header.

No Empty Adaptation Fields defaults to selected. This function forces the Multiplexer to avoid using zero length adaptation field video packets.

VBR Transport stream defaults to unselected. When selected, this function forces the Multiplexer to create a variable bit rate transport stream (no attempt is made to maintain the bit rate).

Error Behavior defaults to Fail on error. This function offers selections of Fail on error, Always complete, or Fail on warning or error.

Error/Warning Threshold defaults to 1 and ranges from 1 to 100. This function sets the number of errors or warnings that trigger a Fail on warning or error.

Treat Buffer Underflows/Overflows as Errors defaults to selected. When selected, buffer underflow or overflow warnings are treated as errors.

2-Pass Multiplexing corrects excessive bitrate fluctuations in the encoded stream resulting in video decoder underflow errors. The second pass is executed if the first pass fails. The green button allows binding the setting to a variable.

Generate Config File generates and places a Manzanita-compliant configuration file using the current UI settings into the same location as the muxed output. The file can be augmented and specified under Manzanita Configuration File in Advanced Settings. The green button allows binding the setting to a variable.

Null Stream Insertion

Specifies the setting (None | Null Stream).

Null Stream. When Null Stream is selected, supply the PID and bit rate values. You can also supply these by specifying a variable, which has been set from an upstream action.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the video stream that you want to use in this variant. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Video Stream Settings

Displays when the video stream is selected.

Video PID. Select the PID to use for this stream.

Insert DVB AU. Check to use Adaption Field Private Data to enable trick mode.

Quad Byte Alignment. Check to force the data preceding each picture to be quad-byte aligned.

Set Random Access Indicator. Check to set the random_access_indicator in every video transport packet.

Video Bit Rate. If unchecked, the video multiplexer will use the bit rate that is encoded in the elementary stream syntax. Check to supply an explicit value for VBR, which should only be specified if a rate other than the encoded value must be used to overcome out-of-spec bit rate fluctuations in an encoded stream.

Not Low Delay. This parameter is only applicable to H.264/AVC video elementary streams. Check to specify that this stream will not be a low_delay stream.

Descriptor 1 - 5. Check to specify that the sequence of hexadecimal (hex) data bytes in the associated text field should be included as descriptor data associated with this video elementary data stream in the PMT. For example, 0D 40 4D 41 4E 5A.

Video Bit Rate. Specifies Auto | As Encoded | As Specified (where you specify the bit-rate explicitly). When set the video bit rate to Auto, the Manzanita output component automatically calculates the bit rate for the video stream in the output file. When you set it to As Encoded, the output bit rate is set to video bit rate of the incoming video from the transcoder attached to it. If the rate is set to As Specified, the video stream bit rate is at the bit rate you manually specify.

Audio Track Details

Stream Checkbox. Activates this stream for processing. Uncheck to delete the stream, or disable processing if this is the only stream in the list.

To add a new stream, check the stream checkbox in the empty, untitled audio stream to the right of the last active stream.

Stream Name. Select the name of the audio stream to include in this variant. For Direct Convert, select a stream from the Input component. For transcoded audio, select a stream from a Transcoder component.

Track Settings

Audio PID. Select the PID to use for this track.

Language. When enabled, overrides the language associated with this audio stream. NOTE: If variable binding is utilized, the value in the Text variable must exactly match one of the original language selections in the encoder.

Language Code. When enabled, overrides the language associated with this audio stream with the language represented by the 3 letter ISO 639-3 language code entered. NOTE: This parameter overrides the Language name selection.

DVB AC-3 Descriptor. When checked, uses DVB AC-3 descriptors as appropriate.

Align AU to PES Header. When checked, specifies that every access unit in the audio stream is aligned to a PES header.

AUs Per PES Packet. Specifies the frequency of audio access units relative to the frequency of PES headers.

ATSC Buffer Model. Specifies that the ATSC buff model should be used for the audio stream.

Audio Bit Rate. When checked, specifies the audio data rate in bits per second. If unchecked, the multiplexer uses the bit rate that is encoded in the elementary stream syntax. An explicit value should be specified only when a rate other than the encoded value must be used to overcome out of spec bit rate fluctuations in the encoded stream.

Descriptor 1 - 5. Check to specify that the sequence of hexadecimal (hex) data bytes in the associated text field should be included as descriptor data associated with this video elementary data stream in the PMT. For example, 0D 40 4D 41 4E 5A.

Data Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the data stream that you want to use in the output file:

ETV Packet Propagation. Use one or more input data tracks from an MPEG2-TS input, connected to a Data track in a Manzanita output.

DVB Subtitle Muxing. Use a data track from a secondary MPEG2-TS input with ONLY the input Data track enabled, connected to a Data track in a Manzanita output.

The secondary TS file can either be generated from Timed Text Flip, or from a 3rd party system, and it will carry only the DVB subtitles stream.

SCC Closed Captioning. Use a data track from a secondary SCC input with the input Data track enabled, connected to a Data track in a Manzanita output.

Data Stream Settings

Note: Use the settings ONLY when the data stream is used for SCC Closed Captioning. For ETV and DVB, these settings do not apply.

ATSC A/53. When checked, embeds captions using the ATSC Digital Television Standard.

SCTE-20. When checked, embeds captions using the ANSI SCTE-20 Standard.

SCTE-20. When checked, embeds captions using the ANSI SCTE-20 Standard.

SEI User Data. When checked, embeds captions in the SEI User Data channel.

Use Telestream Media Framework. Check to perform 608>708 up-conversion using the Telestream Media Framework.

Matroska Output

The Matroska Output component generates a package compatible with Matroska video playback.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Outputs Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select an output and drag it to its new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

General Details

Output Location. Click Output Location and select from these choices:

- Available Vantage Store: Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the *Vantage User Guide* or the *Vantage Domain Management Guide*.

- *Vantage Store/Folder*: Write the package to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the *Vantage User Guide* or the *Vantage Domain Management Guide*.

- *Path*: Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit File Name. Displays the Filename Pattern Editor and specifies the pattern for the file that is created with the package you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Click the menu to select the nickname (or enter it manually) for this new package file.

Delete. Click the X icon on the right to delete the output from this action.

General Settings

File Extension. Specifies the file extension (mkv).

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the video stream that you want to use in this variant. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Video Stream Settings

No user-settable controls are available.

Audio Track Details

Stream Checkbox. Activates this stream for processing. Uncheck to delete the stream, or disable processing if this is the only stream in the list.

To add a new stream, check the stream checkbox in the empty, untitled audio stream to the right of the last active stream.

Stream Name. Select the name of the audio stream to include in this variant. For Direct Convert, select a stream from the Input component. For transcoded audio, select a stream from a Transcoder component.

Track Settings

No user-settable controls are available.

Microsoft Smooth Streaming Output

The Microsoft Smooth Streaming Output components (Legacy HSS or MSS) generate an adaptive bitrate package in Microsoft HTTP Smooth Streaming format.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Outputs Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/ readability purposes. Alternatively, use drag-and-drop: select an output and drag it to its new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

General Details

Output Location. Click Output Location and select from these choices:

- Available Vantage Store: Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Vantage Store/Folder*: Write the package to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green browse button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Package Name. Displays the Filename Pattern Editor and specifies the pattern for the package you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Click the menu to select the nickname (or enter it manually) for this new package file.

Delete. Click the X icon on the right to delete the output from this action.

Microsoft Smooth Streaming Output Details

General

Select either of the Microsoft Smooth Streaming Outputs to display details.

Fragment Duration. Specify the minimum duration of each fragment in seconds (or type the value manually).

Manifest Encoding. Select the file encoding for the manifest file from the menu.

Encryption (Legacy HSS ONLY). Check to enable encryption, and specify the following settings:

- Key Identifier. Enter the unique Base64 encoded 16 byte array key identifier.

- Key Seed. Enter the Base64 encoded 16 byte array value used to generate the encryption key.

- Encryption Key. Enter the Base64 encoded 16 byte array value used to encrypt the media.

- Key URI. Enter the key request URL. This URL is used by the player to request the decryption key.

Media Token (MSS Output ONLY)

Specify a variety of media token options to create unique output naming patterns within output packages.

Note: Configurable Media Token options vary based on output being created. See drop down list of available tokens for supported types.

For MSS Output Packages, the following may be configured using Media Tokens:

Client Manifest

Server Manifest

Intermuxed Media File

Video File

Audio File

Subtitle File

Fragmented MPEG-4 Variant (Microsoft HSS)

Select Fragmented MPEG-4 from the Variants menu (the Plus icon) to add fragmented MPEG-4 segments to the package.

To delete this variant, click the X icon to the right of the variant panel.

Note: If the GOP structure of the variants does not match, the media will pause repeatedly when played back. In order to make the GOP structure match, each variant you ingest or encode must use the same keyframe interval and scene detection must be disabled. If these requirements are not met the package will exhibit repeated pauses during playback.

Enter Variant Nickname. Enter the nickname of this variant.

Variant Details

Container

Disable. When checked, this variant is disabled. While you can manually disable or enable the variant, the significant application is the ability to enable or disable the variant at run-time, use a Boolean variable.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

To add a new stream, check the stream checkbox in the empty, untitled video stream to the right of the last active stream.

Stream Name. Select the name of the video stream to include in this variant. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Select the stream to display stream settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar variants, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Audio Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to delete the stream, or disable processing if this is the only stream in the list.

To add a new stream, check the stream checkbox in the empty, untitled audio stream to the right of the last active stream.

Stream Name. Select the name of the audio stream to include in this variant. For Direct Convert, select a stream from the Input component. For transcoded audio, select a stream from a Transcoder component.

Select the stream to display stream settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar variants, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Data Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to delete the stream, or disable processing if this is the only stream in the list.

Stream Name. Select the name of the data stream to include in this variant.

Select the stream to display stream settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar variants, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Language. Specifies the language to label this audio track.

Override Stream Name. Check to override the name of this stream name in the output ISMC and ISM manifest files. When empty, default naming conventions apply: "subtitle0", "subtitle1", "subtitle2", etc., incrementing for each additional subtitle stream.

MPEG DASH Output

The MPEG DASH Output component generates an MPEG-based adaptive bit rate package in Dynamic Adaptive Streaming over HTTP (DASH) format, with optional encryption.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Outputs Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/ readability purposes. Alternatively, use drag-and-drop: select an output and drag it to its new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Adaptation Groups

MPEG DASH video consists of multiple video segments contained in multiple video streams played out at different rates by an HTTP server. Each stream is accompanied by an associated text manifest file. Receiving players use the manifest files to discover which streams are available and actively switch at segment boundaries to choose the stream that provides the best viewing experience for the current network conditions.

You can add up to 8 manifest files for each DASH package. Click the Plus icon in the toolbar to add a new adaptation group of the specified type. (You can also select an adaptation group and re-arrange it in the list using the Up and Down arrows.)

- *Adaptation Group Name:* Specify the name for the group, used to identify the folder in the package that contains the media files.

MPEG DASH Output General Configuration

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store:* Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Vantage Store/Folder*: Write the package to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Package Name. Displays the Filename Pattern Editor and specifies the pattern for the package you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Click the menu to select the nickname (or enter it manually) for this new package file.

Delete. Click the X icon on the right to delete the output from this action.

MPEG DASH Output Details

General

Select the MPEG DASH Output panel to display the details configuration panel to the right.

Segment Start Index. Specifies the segment start index. Default is 1.

Segment Duration. Specify the maximum duration of each segment in seconds (or type the value manually).

Fragment Duration. Specify the maximum duration of each fragment in seconds (or type the value manually).

File fragments can contain multiple segments by setting the fragment duration to an integer multiple of the segment. For example, segment=60 and fragment=10.

Language Code Specifies two or three letter language code. Default is 3

SCTE-35 Binary Trigger. When checked, adds a SCTE-35 trigger in binary format to the manifest.

SCTE-35 XML Trigger. When checked, adds a SCTE-35 trigger in XML format to the manifest.

Media Token

Specify a variety of media token options to create unique output naming patterns within output packages.

Note: Configurable Media Token options vary based on output being created. See drop down list of available tokens for supported types.

For MPEG DASH Packages, the following may be configured using Media Tokens:

Dash Manifest

Intermuxed Media File

Video File

Audio File

Subtitle File

Encryption

Encryption. Check to enable Common Encryption (CENC). Common Encryption enables you to encode media with a single key, which can be decrypted by two systems: Microsoft PlayReady and Google Widevine.

General

Encryption Configuration. Specifies Received from DRM action | User Input.

Received from DRM Action

Select when you have implemented a DRM action upstream in the workflow to execute a script and generate a variable.

Message. Manually enter the output of the script (which is the same for every job) or specify a variable for run-time script execution where the output may change on each job.

User Input

Configure settings for each DRM system you want implemented.

- *Widevine DRM*: For use with Google Widevine. The key is stored in the remote Widevine system, and can be retrieved at play-time using the PSSH info and Key ID.

- *PlayReady DRM*. For use with Microsoft PlayReady. The key is stored by the remote PlayReady system, and can be retrieved at play-time using the Server URI contained in the encryption header data.

- *Clear Key DRM*: No Options. To be used for diagnostic purposes. Encrypts using a style compatible with online players where the key will not be hidden, and the player can obtain it without connecting to a server.

- *GPAC DRM*: No Options. To be used for diagnostic purposes. Encrypts using a style compatible for playback in GPAC/MP4Box.)

MPEG2 Simple Profile (MPEG DASH)

Select MPEG2 Simple Profile from the menu (the Plus icon) to add MPEG2 Simple Profile segments to the package.

To delete this group, click the X icon to the right of the panel.

Enter Adaption Group Name. Enter the nickname of this group.

Default. (Only displays when multiple adaptation groups added.) When selected, indicates that this group should be the default stream in an HLS or MPEG DASH playlist.

Details

HTTP Byte Range Requests. Check to enable segmentURL@mediaRange attributes. When selected, the MPEG DASH Output creates a single Transport Stream file (*.ts) for each group. HTTP byte range requests are used by the player to download individual segments.

When deselected, a separate Transport Stream file (*.ts) file is created for each segment. The player downloads each segment as an individual file.

Accurate Segment Durations. Check to enable floating point segment duration values - DASH SegmentTimeline elements.

When enabled, each segment accurately reports its duration to the player; when disabled the segment will be rounded to the nearest integer. Accurate segment durations improve seeking in long programs, particularly with 29.97 or 23.976 frame rates.

Container

Disable. When checked, this group is disabled. While you can manually disable or enable the group, the significant application is the ability to enable or disable the group at run-time, using a Boolean variable.

Video Stream Details

Select the stream to display stream settings.

Stream Checkbox. Activates this stream for processing. Uncheck to delete the stream, or disable processing if this is the only stream.

To add a new stream (max. 2 streams), check the checkbox in the empty stream.

Stream Name. Select the name of the video stream to include in this group. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar groups, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Audio Track Details

Select the track to display stream settings.

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track.

To add a new track (max. 2 tracks), check the track checkbox in the empty track.

Track Name. Select the name of the audio track to include in this group. For Direct Convert, select a track from the Input component. For transcoded audio, select a track from a Transcoder component.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar groups, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Language Code. Select the Language Code option to use for the associated stream. Options are Pass Through (default) | Select from ISO 639 List | Manual.

MPEG-4 On-Demand Profile (MPEG DASH)

Select MPEG-4 On-Demand Profile from the menu (the Plus icon) to add MPEG-4 On-Demand segments to the package.

To delete this group, click the X icon to the right of the panel.

Enter Adaptation Group Name. Enter the nickname of this group.

Default. (Only displays when multiple groups added.) When selected, indicates that this group should be the default stream in an HLS or MPEG DASH playlist.

Details

HTTP Byte Range Requests. Check to enable segmentURL@mediaRange attributes. When selected, the MPEG DASH Output creates a single MP4 file (*.mp4) for each group. HTTP byte range requests are used by the player to download individual segments.

When deselected, a separate MP4 file (*.mp4) file is created for each segment. The player downloads each segment as an individual file.

Accurate Segment Durations. Check to enable floating point segment duration values - DASH SegmentTimeline elements.

When enabled, each segment accurately reports its duration to the player; when disabled the segment will be rounded to the nearest integer. Accurate segment durations improve seeking in long programs, particularly with 29.97 or 23.976 frame rates.

Container

Disable. When checked, this group is disabled. While you can manually disable or enable the group, the significant application is the ability to enable or disable the adaption group dynamically at run-time on a job-by-job basis, using a Boolean variable.

Create Output in a Single Directory. This option should be checked for all adaptation groups or none of the adaptation groups. When checked, the MP4 file for each adaptation group is created in the package folder - a single, flat directory. When unchecked, each adaptation group's MP4 file is created in a separate subfolder.

Segment List Describe Method. Specify method used for segment description. Segment List | Segment Template Time | Segment Template Index | base URL (default).

Role. Specifies the purpose, characteristics, and/or structural functions of media content components. Inserts the "Role" element in the MPD file under the AdaptationSet group for Video, Audio and Subtitle tracks per DASH-IF-IOP-v4.3. Select from pre-defined options in the dropdown menu.

Accessibility. Specifies the degree to which the media presentation is available to as many users as possible. Inserts the "Accessibility" element in the MPD file under the

AdaptationSet group for Audio and Subtitle tracks per DASH-IF-IOP-v4.3. Select from pre-defined options in the dropdown menu.

For additional information on Role or Accessibility elements, refer to the specifications documents DASH-IF-IOP-v4.3 and ISO/IEC 23009-1.

Note: Accessibility elements serve a similar purpose, with respect to media content components, to Role elements but are specifically intended for accessibility.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the name of the video stream to include in this adaptation group. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Select the stream to display stream settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar group, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Track Name. Select the name of the audio track to include in this group. For Direct Convert, select a stream from the Input component. For transcoded audio, select a stream from a Transcoder component.

Select the stream to display track settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar groups, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Language Code. Select the Language Code option to use for the associated stream. Options are Pass Through (default) | Select from ISO 639 List | Manual.

Data Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

Track Name. Select the name of the data track to include in this group. For Direct Convert, select a stream from the Input component. Select the stream to display track settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar groups, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Segment Duration. When checked, overrides the package level segment duration value and applies the specified segment duration value to the data track. Unchecked by default.

Language Code. Select the Language Code option to use for the associated stream. Options are Pass Through (default) | Select from ISO 639 List | Manual.

Main Profile (MPEG DASH)

Select Main Profile from the menu (the Plus icon) to add segments to the package.

To delete this group, click the X icon to the right of the panel.

Enter Adaptation Group Name. Enter the nickname of this group.

Default. (Only displays when multiple groups added.) When selected, indicates that this group should be the default stream in an HLS or MPEG DASH playlist.

Details

HTTP Byte Range Requests. Check to enable segmentURL@mediaRange attributes. When selected, the MPEG DASH Output creates a single MP4 file (*.mp4) for each group. HTTP byte range requests are used by the player to download individual segments.

When deselected, a separate MP4 file (*.mp4) file is created for each segment. The player downloads each segment as an individual file.

Accurate Segment Durations. Check to enable floating point segment duration values - DASH SegmentTimeline elements.

When enabled, each segment accurately reports its duration to the player; when disabled the segment will be rounded to the nearest integer. Accurate segment durations improve seeking in long programs, particularly with 29.97 or 23.976 frame rates.

Container

Disable. When checked, this group is disabled. While you can manually disable or enable the group, the significant application is the ability to enable or disable the adaption group dynamically at run-time on a job-by-job basis, using a Boolean variable.

Create Output in a Single Directory. This option should be checked for all adaptation groups or none of the adaptation groups. When checked, the MP4 file for each adaptation group is created in the package folder - a single, flat directory. When unchecked, each adaptation group's MP4 file is created in a separate subfolder.

Segment List Describe Method. Specify method used for segment description. Segment List | Segment Template Time | Segment Template Index | base URL (default).

Role. Specifies the purpose, characteristics, and/or structural functions of media content components. Inserts the "Role" element in the MPD file under the AdaptationSet group for Video, Audio and Subtitle tracks per DASH-IF-IOP-v4.3. Select from pre-defined options in the dropdown menu.

Accessibility. Specifies the degree to which the media presentation is available to as many users as possible. Inserts the "Accessibility" element in the MPD file under the AdaptationSet group for Audio and Subtitle tracks per DASH-IF-IOP-v4.3. Select from pre-defined options in the dropdown menu.

For additional information on Role or Accessibility elements, refer to the specifications documents DASH-IF-IOP-v4.3 and ISO/IEC 23009-1.

Note: Accessibility elements serve a similar purpose, with respect to media content components, to Role elements but are specifically intended for accessibility.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the name of the video stream to include in this adaptation group. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Select the stream to display stream settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar group, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Track Name. Select the name of the audio track to include in this group. For Direct Convert, select a stream from the Input component. For transcoded audio, select a stream from a Transcoder component.

Select the stream to display track settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar groups, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Language Code. Select the Language Code option to use for the associated stream. Options are Pass Through (default) | Select from ISO 639 List | Manual.

Data Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

Track Name. Select the name of the data track to include in this group. For Direct Convert, select a stream from the Input component. Select the stream to display track settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar groups, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Segment Duration. When checked, overrides the package level segment duration value and applies the specified segment duration value to the data track. Unchecked by default.

Language Code. Select the Language Code option to use for the associated stream. Options are Pass Through (default) | Select from ISO 639 List | Manual.

Live Profile (MPEG DASH)

Select Live Profile from the menu (the Plus icon) to add segments to the package.

To delete this group, click the X icon to the right of the panel.

Enter Adaptation Group Name. Enter the nickname of this group.

Default. (Only displays when multiple groups added.) When selected, indicates that this group should be the default stream in an HLS or MPEG DASH playlist.

Details

HTTP Byte Range Requests. Check to enable segmentURL@mediaRange attributes. When selected, the MPEG DASH Output creates a single MP4 file (*.mp4) for each group. HTTP byte range requests are used by the player to download individual segments.

When deselected, a separate MP4 file (*.mp4) file is created for each segment. The player downloads each segment as an individual file.

Accurate Segment Durations. Check to enable floating point segment duration values - DASH SegmentTimeline elements.

When enabled, each segment accurately reports its duration to the player; when disabled the segment will be rounded to the nearest integer. Accurate segment durations improve seeking in long programs, particularly with 29.97 or 23.976 frame rates.

Container

Disable. When checked, this group is disabled. While you can manually disable or enable the group, the significant application is the ability to enable or disable the adaption group dynamically at run-time on a job-by-job basis, using a Boolean variable.

Create Output in a Single Directory. This option should be checked for all adaptation groups or none of the adaptation groups. When checked, the MP4 file for each adaptation group is created in the package folder - a single, flat directory. When unchecked, each adaptation group's MP4 file is created in a separate subfolder.

Segment List Describe Method. Specify method used for segment description. Segment List | Segment Template Time | Segment Template Index | base URL (default).

Role. Specifies the purpose, characteristics, and/or structural functions of media content components. Inserts the "Role" element in the MPD file under the AdaptationSet group for Video, Audio and Subtitle tracks per DASH-IF-IOP-v4.3. Select from pre-defined options in the dropdown menu.

Accessibility. Specifies the degree to which the media presentation is available to as many users as possible. Inserts the "Accessibility" element in the MPD file under the AdaptationSet group for Audio and Subtitle tracks per DASH-IF-IOP-v4.3. Select from pre-defined options in the dropdown menu.

For additional information on Role or Accessibility elements, refer to the specifications documents DASH-IF-IOP-v4.3 and ISO/IEC 23009-1.

Note: Accessibility elements serve a similar purpose, with respect to media content components, to Role elements but are specifically intended for accessibility.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the name of the video stream to include in this adaptation group. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Select the stream to display stream settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar group, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Track Name. Select the name of the audio track to include in this group. For Direct Convert, select a stream from the Input component. For transcoded audio, select a stream from a Transcoder component.

Select the stream to display track settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar groups, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Language Code. Select the Language Code option to use for the associated stream. Options are Pass Through (default) | Select from ISO 639 List | Manual.

Data Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

Track Name. Select the name of the data track to include in this group. For Direct Convert, select a stream from the Input component. Select the stream to display track settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar groups, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Segment Duration. When checked, overrides the package level segment duration value and applies the specified segment duration value to the data track. Unchecked by default.

Language Code. Select the Language Code option to use for the associated stream. Options are Pass Through (default) | Select from ISO 639 List | Manual.

WebM (MPEG DASH)

Select WebM from the menu (the Plus icon) to add WebM file segments to the package.

To delete this group, click the X icon to the right of the panel.

Enter Adaptation Group Name. Enter the nickname of this group.

Default. (Only displays when multiple groups added.) When selected, indicates that this group should be the default stream in an HLS or MPEG DASH playlist.

Details

HTTP Byte Range Requests. Check to enable segmentURL@mediaRange attributes. When selected, the MPEG DASH Output creates a single WebM file (*.webm) for each group. HTTP byte range requests are used by the player to download individual segments.

When deselected, a separate WebM file (*.webm) file is created for each segment. The player downloads each segment as an individual file.

Accurate Segment Durations. Check to enable floating point segment duration values - DASH SegmentTimeline elements.

When enabled, each segment accurately reports its duration to the player; when disabled the segment will be rounded to the nearest integer. Accurate segment durations improve seeking in long programs, particularly with 29.97 or 23.976 frame rates.

Container

Disable. When checked, this group is disabled. While you can manually disable or enable the group, the significant application is the ability to enable or disable the group at run-time, use a Boolean variable.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the name of the video stream to include in this group. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Select the stream to display stream settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar adaptation groups, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Track Name. Select the name of the audio track to include in this group. For Direct Convert, select a stream from the Input component. For transcoded audio, select a stream from a Transcoder component.

Select the stream to display track settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar groups, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

DVB MPEG-DASH Profile (MPEG DASH)

The DVB MPEG-DASH Profile adds DVB segments to the package. The DVB MPEG-DASH Profile supports EBU-TT-D (part of the DVB DASH specification) output. This group allows the user to use a TTML/DFXP Input to process data tracks and create an EBU-TT-D text track.

To delete this group, click the X icon to the right of the panel.

Enter Adaptation Group Name. Enter the nickname of this group.

Default. (Only displays when multiple groups are present.) When selected, indicates that this group should be the default stream in an MPEG DASH playlist.

Variant Details

HTTP Byte Range Requests. Check to enable segmentURL@mediaRange attributes. When selected, the MPEG DASH Output creates a single DVB file (*.dvb) for each group. HTTP byte range requests are used by the player to download individual segments.

When deselected, a separate DVB file is created for each segment. The player downloads each segment as an individual file.

Accurate Segment Durations. Check to enable floating point segment duration values - DASH SegmentTimeline elements.

When enabled, each segment accurately reports its duration to the player; when disabled the segment will be rounded to the nearest integer. Accurate segment durations improve seeking in long programs, particularly with 29.97 or 23.976 frame rates.

Container

Disable. When checked, this group is disabled. While you can manually disable or enable the group, the significant application is the ability to enable or disable the group at run-time, use a Boolean variable.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the name of the video stream to include in this group.

Select the stream to display stream settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar group, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Track Name. Select the name of the audio track to include in this group.

Select the stream to display track settings.

Rendition Group. Enter the name of the mutually exclusive group of renditions of which this is a member. Rendition groups allow similar group, such as those containing the same language audio or subtitles, to be grouped together.

Default Rendition. Check to indicate that the client should play this rendition by default.

MPEG-4 Output (IPTV)

The MPEG-4 Output component in IPTV generates a file in MPEG-4 format. MPEG-4 files can contain 1 video stream and up to 16 audio tracks.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Outputs Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/ readability purposes. Alternatively, use drag-and-drop: select an output and drag it to its new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

General Details

Output Location. Click Output Location and select from these choices:

- Available Vantage Store: Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Vantage Store/Folder*: Write the package to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename. Displays the Filename Pattern Editor and specifies the pattern for the media file you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for this new file.

Delete. Click the X icon on the right to delete the output from this action.

MPEG-4 Output Container Details

Select the MPEG-4 Output container to display details.

General

File Extension. Select the file extension for the file from the menu.

Advanced Audio Settings

Label as MP3. When checked, generated stream codec id will be mp3. Unchecked by default.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the video stream that you want to use in the output file. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track (max 16), check the checkbox in the empty, untitled audio track to the right of the last active track.

Track Name. Select the name of the audio track to include in this file. For Direct Convert, select a track from the Input component. For transcoded audio, select a track from a Transcoder component.

MPEG-4 Output (Multiscreen)

The MPEG-4 Output component in Multiscreen generates a file in MPEG-4 format. MPEG-4 files can contain 1 video stream and up to 16 audio tracks.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Outputs Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/ readability purposes. Alternatively, use drag-and-drop: select an output and drag it to its new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

General Details

Output Location. Click Output Location and select from these choices:

- Available Vantage Store: Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Vantage Store/Folder*: Write the package to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename. Displays the Filename Pattern Editor and specifies the pattern for the media file you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for this new file.

Delete. Click the X icon on the right to delete the output from this action.

MPEG-4 Output Container Details

Select the MPEG-4 Output container to display details.

General

File Extension. Select the file extension for the file from the menu.

Fast Start. Creates a fast start movie (moov atom located at the start of the file) that can play while it is still downloading.

Fill Box Size. Specifies the size of the 'free' box (in kB) that is placed after the moov box.

Suppress Edit List. When checked, suppresses the creation of the edit list. May be useful for consumers that do not properly interpret edit lists.

Extended size mdat. When checked, creates mdat atom chunks with an extended size. May be useful for consumers that to not properly interpret mdat chunks.

Trim audio to video duration. When checked, audio duration is trimmed to match video duration. Unchecked by default.

Advanced Settings

Encode as HEV1 (HEVC only). When checked, encodes MPEG 4 container using HEV 1 codec. Unchecked by default.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the video stream that you want to use in the output file. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track (max 16), check the checkbox in the empty, untitled audio track to the right of the last active track.

Track Name. Select the name of the audio track to include in this file. For Direct Convert, select a track from the Input component. For transcoded audio, select a track from a Transcoder component.

QuickTime Output

The QuickTime Output component generates an adaptive bitrate package in QuickTime (MOV) format. You can include one video stream and up to 16 audio tracks.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Outputs Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select an output and drag it to its new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

General Details

Output Location. Click Output Location and select from these choices:

- Available Vantage Store: Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Vantage Store/Folder*: Write the package to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename. Displays the Filename Pattern Editor and specifies the pattern for the media file you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for this new package file.

Delete. Click the X icon on the right to delete the output from this action.

QuickTime Output Details

Select the QuickTime Output panel to display details.

File Extension. Specifies the file extension (.mov) and is not changeable.

Fast Start. Creates a fast start movie (moov atom located at the start of the file) that can play while it is still downloading.

Insert 608 Closed Caption Track. Check to include a 608 caption track.

Insert 708 Closed Caption Track. Check to include a 708 caption track.

Insert a Timecode Track. Check to add a timecode track to the movie.

Enable CLAP atom. Check to enable the Apple Clean Aperture atom. This atom defines the pixel aspect ratio used during video capture and controls the cropping of edge artifacts.

Color Space. Specifies the color space to apply to the video.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the video stream that you want to use in the output file. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Audio Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to delete the stream, or disable processing if this is the only stream in the list.

To add a new stream, check the stream checkbox in the empty, untitled audio stream to the right of the last active stream.

Stream Name. Select the name of the audio stream to include in this group. For Direct Convert, select a stream from the Input component. For transcoded audio, select a stream from a Transcoder component.

Syntactic Output (IPTV)

This Syntactic Output component is implemented in the IPTV Flip action. The Syntactic Output component generates an MPEG video file in Syntactic format.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Outputs Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/ readability purposes. Alternatively, use drag-and-drop: select an output and drag it to its new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Syntactic Output Main Settings

These three settings display directly in the Syntactic Output component:

Output Location. Click Output Location and select from these choices:

- Available Vantage Store: Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Vantage Store/Folder*: Write the package to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename. Displays the Filename Pattern Editor and specifies the pattern for the media file you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for this new file.

General Settings

To display these settings, select the Syntactic component - they display to the right of the component, directly below MultiPass Settings.

File Extension. Specifies the file extension to be added to the output file name.

Program Map Table PID. Specifies the PID value to be used in the program map table.

Single Program Map Table. When checked, specifies that a single Program Map Table (PMT) and Program Association Table (PAT) should be inserted.

PSI Period. Specifies the repetition rate of the Program Specific Information in this transport stream, in milliseconds.

Initial PTS. Specifies the initial Presentation Time Stamp (PTS) value for this transport stream, in milliseconds.

PCR Offset. Specifies the Program Clock Reference (PCR) offset for this transport stream, in milliseconds.

Use Alternative Writer. When checked, specifies that a different writer should be used. Check only as directed by Telestream Technical Support.

Video Stream Main Settings

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the video stream that you want to use in the output file. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Video Stream Settings

Displays when the video stream is selected.

Video PID. Specifies the video PID to use for this stream.

Insert DVB AU. When checked, uses Adaption Field Private Data to enable trick mode.

Audio Track Main Settings

Stream Checkbox. Activates this stream for processing. Uncheck to delete the stream, or disable processing if this is the only stream in the list.

To add a new stream, check the stream checkbox in the empty, untitled audio stream to the right of the last active stream.

Stream Name. Select the name of the audio stream to include in this file.

Audio Track Details

Audio PID. Select the PID to use for this track.

Language. When enabled, overrides the language associated with this audio stream. NOTE: If variable binding is utilized, the value in the Text variable must exactly match one of the original language selections in the encoder.

Language Code. When enabled, overrides the language associated with this audio stream with the language represented by the 3 letter ISO 639-3 language code entered. NOTE: This parameter overrides the Language name selection.

Syntactic Output (Multiscreen)

This Syntactic Output component is implemented in the Multiscreen action. The Syntactic Output component generates an MPEG video file in Syntactic format.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Outputs Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select an output and drag it to its new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Syntactic Output Main Settings

Output Location. Click Output Location and select from these choices:

- Available Vantage Store: Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Vantage Store/Folder*: Write the package to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename. Displays the Filename Pattern Editor and specifies the pattern for the media file you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for this new file.

General Settings

File Extension. Specifies the file extension to be added to the output file name.

Program Map Table PID. Specifies the PID value to be used in the program map table.

Single Program Map Table. When checked, specifies that a single Program Map Table (PMT) and Program Association Table (PAT) should be inserted.

PSI Period. Specifies the repetition rate of the Program Specific Information in this transport stream, in milliseconds.

Initial PTS. Specifies the initial Presentation Time Stamp (PTS) value for this transport stream, in milliseconds.

PCR Offset. Specifies the Program Clock Reference (PCR) offset for this transport stream, in milliseconds.

Use Alternative Writer. When checked, specifies that a different writer should be used. Check only as directed by Telestream Technical Support.

Video Stream Main Settings

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the video stream that you want to use in the output file. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Video Stream Settings

Video PID. Specifies the video PID to use for this stream.

Insert DVB AU. When checked, uses Adaption Field Private Data to enable trick mode.

Audio Track Main Settings

Stream Checkbox. Activates this stream for processing. Uncheck to delete the stream, or disable processing if this is the only stream in the list.

To add a new stream, check the stream checkbox in the empty, untitled audio stream to the right of the last active stream.

Stream Name. Select the name of the audio stream to include in this file. For Direct Convert, select a stream from the Input component. For transcoded audio, select a stream from a Transcoder component.

Audio Track Details

Audio PID. Select the PID to use for this track.

Language. When enabled, overrides the language associated with this audio stream. NOTE: If variable binding is utilized, the value in the Text variable must exactly match one of the original language selections in the encoder.

TIFO Output

The TIFO Output component generates a file in Telestream Intermediate Format (TIFO) format. TIFO files support 1 video stream, and up to 16 audio tracks.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Outputs Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/ readability purposes. Alternatively, use drag-and-drop: select an output and drag it to its new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

General Details

Output Location. Click Output Location and select from these choices:

- Available Vantage Store: Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Vantage Store/Folder*: Write the package to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename. Displays the Filename Pattern Editor and specifies the pattern for the media file you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Click the menu to select the nickname (or enter it manually) for this new file.

TIFO Output Details

Select the TIFO Output to display details.

File Extension. Select the file extension for the package from the menu.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the name of the video stream to include in this file. For Direct Convert, select a stream from the Input component. For transcoded video, select a stream from a Transcoder component.

Audio Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to delete the stream, or disable processing if this is the only stream in the list.

To add a new stream, check the stream checkbox in the empty, untitled audio stream to the right of the last active stream.

Stream Name. Select the name of the audio stream to include in this file. For Direct Convert, select a stream from the Input component. For transcoded audio, select a stream from a Transcoder component.

Y4M Output

The Y4M Output component generates a YUV for MPEG output file, containing uncompressed YUV video. This output is primarily used for diagnosing the effects of video processing independent of H.264 encoding.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Outputs Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select an output and drag it to its new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

General Details

Output Location. Click Output Location and select from these choices:

- Available Vantage Store: Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Vantage Store/Folder*: Write the package to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename. Displays the Filename Pattern Editor and specifies the pattern for the media file you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Click the menu to select the nickname (or enter it manually) for this new file.

Delete. Click the X icon on the right to delete the output from this action.

Y4M Output Details

Select the Y4M Output to display details.

File Extension. Select the file extension for the file from the menu.

Video Stream Details

Stream Checkbox. Activates this stream for processing. Uncheck to disable processing.

Stream Name. Select the name of the video stream to include in this variant.

Flip64 Action Components

Input Components

Input Components

Abekas Input

Auto Input

Auto Input Multiple Tracks

Flip Input

AC-3 Input

AVI Input

Camera Input

CML Input

Dolby Atmos Input

Dolby Vision Metadata Input

DV Input

GXF Input

IAB Input (Flip64)

LXF Input

MPEG2 Elementary Stream Input

MPEG2 Program Stream Input

MPEG2 Transport Stream Input

MPEG-4 Input

MXF AS02 Input

Grass Valley Canopus Input

HDR10+ Metadata Input

JPEG2000 GPU Accelerated Input

MXF OP1a Input (Flip64)

QuickTime/MPEG-4 Input

R3D Input

SCC Input

Still Image Input

TIFO Input

TTML Input

Wave Input

Y4M Input

Converters

Converter Components

Audio Dynamics Compressor

Tachyon Converter (Flip64)

Tachyon Anchor Frame Converter

Alpha Extractor (Ross Abekas)

Audio Levels Converter (Flip64)

Audio Mixer Converter (Flip64)

Dolby Atmos Converter

Dolby E Decoder Converter

InSync FrameFormer Converter(Flip64)

HDR 10+ Insert Converter

Dolby Vision Insert Converter

IAB Converter

IAB to Atmos Converter

Media Expansion Converter

SCC Insert Converter

SMPTE 337m AC3 Decoder

SMPTE 337m AC3 Unwrapper

Output Components

Output Components

Audio

BWAV Output

Wave Output

MXF OP1a Audio Only Output

Digital Cinema Package (DCP) Output

Video

AVI Output

Ross Abekas Output

Elementary Streams Output

Harmonic Omneon Output

Keyframe Output

MPEG-2 Program Stream Output

MPEG-4 Output

IMF Output

IMF DPP Output

Matroska Output

MXF ARD_ZDF Output

MXF AS-02 Output

MXF AS-03 Output

MXF AS-10 French Shim Output

MXF AS-11 DPP HD Output

MXF AS-11 SD Output

MXF AS-11 X1 Output

MXF AS-11 X5 Output

MXF AS-11 X6 Output

MXF AS-11 X9 Output

MXF AVC Ultra Output

MXF OP1a Output

MXF RDD 25 AVC Proxy Output

MXF XAVC Output

MXF XDCAM Output

P2 Output

QuickTime Output

TIFO Output

WMV Output

MXF XAVC Output

MXF XDCAM Output

Input Components

An input component reads and parses a file in a specific media format. For example, an MPEG2 Transport Stream input is utilized if the format is an ISO 13818 Transport Stream. Input components allow you to define the characteristics which are associated with a particular file. In particular, the number of audio tracks and the presence of a video stream, plus an ANC stream or other data stream.

These streams are decoded as appropriate, then provided to any converters that are enabled, and then on to Output components you have enabled, for final processing.

Multiple inputs are permitted. You may need to supply an SCC file, for example, or you may need to access audio from a second file, or identify files for other specialized processing.

An Auto Input is provided by default. The Auto Input automatically identifies the incoming file format and employs the appropriate decoder to decompress the video into digital baseband. The Auto input supports a varying numbers of input audio tracks, and in some cases, consolidates PCM tracks into a single audio stream.

Other inputs should only be utilized when you have special video processing requirements that are not correctly handled by the auto-decoder. For example, the decoder provides settings or options you can configure to specify how to process this file format for your requirements.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear Icon > Convert to. Changes the input from one type to another. Alternatively, right-click and select the input. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrows. Moves the selected input up and down in the set, for organization/readability purposes. Alternatively, use drag-and-drop: select an input and drag it to its new location in the set.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds an input (multiple inputs are permitted).

Deleting an Input

To delete an input, click the X icon immediately right of the nickname menu in the panel.

Adding and Configuring Inputs

To add and configure inputs, follow these steps:

1. Add Inputs. Use the Add icon - the Plus sign button in the Input toolbar - to add inputs by container/media type. Typically you add either an Auto | Flip Decoder or specific video and audio decoders and

optional sidecar inputs. The Auto Decoder is added by default. You can also add other inputs for dealing with unusual or special cases.

2. Select the Source. Click Select to display the input source dialog, to specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

3. Configure each Video, Audio, ANC or Data Component. These are configured by default. Optionally, select each component and rename it for practical purposes, and configure it using the configuration panels to the right, as appropriate. See details below.

Configuring Video Streams

The video stream propagates the stream from the input file. Normally, the video stream is passed unaltered through to the next stage unless the track is disabled.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Configuring Audio Tracks

The audio track propagates the track from the input file. Normally, the audio track is passed through to the next stage unless the track is disabled.

Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the set.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If the source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This track name should be unique within the action.

Language. When checked, overrides the language associated with this stream. If you are binding this control to a variable, the value in the text variable must exactly match one of the original language selections in the encoder.

Configuring ANC Streams

The ANC stream propagates the ancillary data present in the source file. ANC data may consist of closed captions, VPIDs, AFD, timecode, Dolby E metadata, and even embedded audio, such as PCM. By default, the ANC stream passes the data unaltered through to the next stage, unless the stream is disabled.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

Abekas Input

The Abekas Input component decodes AVC-Intra and JPEG2000 media in Abekas .clip format. Pass-through of embedded alpha channels is supported. Abekas Input is not Open Workflow capable.

The Abekas Input component supports ingest of two video streams, 16 audio tracks, and one ANC stream.

Vantage Abekas Input component can decode these formats:

- 720p 50 Hz
- 720p 59.94 Hz
- 1080p 50 Hz
- 1080p 59.94 Hz
- 1080i 50 Hz
- 1080i 59.94 Hz

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Video Stream Settings

Two video streams are supported. The video stream propagates the stream from the input file.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Audio Track Settings

Sixteen audio streams are supported. The audio track propagates the track from the input file.

Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the set.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This track name should be unique within the action.

Details

The configuration panel displays on the right, when the audio track component is selected:

Language. When checked, overrides the language associated with this stream. If you are binding this control to a variable, the value in the text variable must exactly match one of the original language selections in the encoder.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. When the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

ANC Stream Settings

The ANC stream propagates ancillary data present in the source file. ANC data may consist of closed captions, VPIDs, AFD, timecode, Dolby E metadata, and even embedded audio, such as PCM.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

Auto Input

The Auto Input component is the default input. The Auto Input processes a wide variety of input file formats.

Auto Input is not Open Workflow capable.

Auto Input supports one video stream, one audio stream, and one ANC stream. For input files that contain multiple audio tracks, channels from all tracks are consolidated ordinally (starting with index 1) into a single audio track. For example, a QuickTime file with two mono audio tracks is presented as a single stereo audio track. A file with English, French, and Portuguese stereo tracks plus an uncompressed Dolby 5.1 track is presented as 12 channels, in track order. Use the Auto Input Multi Track input if control of individual audio tracks is desired.

Specifies start of media. When checked, specifies mode to use for decoding media. Media Sample (default) | First Video Sample | First I Frame.

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Video Stream Settings

The video stream propagates the stream from the input file.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Audio Track Settings

The audio track propagates the track - for Auto input, multiple tracks are automatically compressed into a single track - from the input file.

Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the set.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This track name should be unique within the action.

Details

The configuration panel displays on the right, when the audio track component is selected:

Language. When checked, overrides the language associated with this stream. If you are binding this control to a variable, the value in the text variable must exactly match one of the original language selections in the encoder.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. When the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

Preserve Original Audio Tracks. When checked, the incoming audio tracks are passed directly to the output audio tracks, which must be configured as Direct Convert. This enables sources with multiple tracks to be passed through without having to use multiple audio tracks in the output container. (This can include multiple PCM audio tracks in conjunction with AAC and or AC3 tracks).

When Preserve Original Audio Tracks is enabled, the Auto Input component does not blend all tracks into a single output track. In this case, the output tracks match the input tracks, with no blending. No filters or converters should be enabled.

Note: If Preserve Original Audio Tracks is enabled and the target encoder doesn't support any of the original track types, for example a source has 8 discrete mono tracks while wav outputs just support one common track for all channels, jobs will fail.

ANC Stream Settings

The ANC stream propagates ancillary data present in the source file. ANC data may consist of closed captions, VPIDs, AFD, timecode, Dolby E metadata, and even embedded audio, such as PCM.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

Auto Input Multiple Tracks

The Auto Input Multiple Tracks component processes a wide variety of input file formats (similar to the default Auto input component) and allows the specification of multiple audio tracks on input.

Auto Input Multiple Tracks is not Open Workflow capable.

Auto Input Multiple Tracks supports one video stream, multiple audio tracks, and one ANC stream.

Specifies start of media. When checked, specifies mode to use for decoding media (*Media Sample (default)* | *First Video Sample* | *First I Frame*).

Ignore Missing Streams. When checked, outputs are created even if specified file inputs are not present at the time of job submission. Unchecked by default.

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Video Stream Settings

The video stream propagates the stream from the input file.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Audio Track Settings

The audio track propagates the tracks from the input file. Auto Input Multiple Tracks allows specification of individual audio input tracks.

Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the set.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1, Audio2, etc.*) in place. This track name should be unique within the action.

Details

The configuration panel displays on the right, when the audio track component is selected:

Language. When checked, overrides the language associated with this stream. If you are binding this control to a variable, the value in the text variable must exactly match one of the original language selections in the encoder.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

ANC Stream Settings

The ANC stream propagates ancillary data present in the source file. ANC data may consist of closed captions, VPIDs, AFD, timecode, Dolby E metadata, and even embedded audio, such as PCM.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Camera Input

The Camera Input component supports reading camera files supported by Camera Ingest, which is an optional, licensed feature.

Camera Input is not Open Workflow capable.

This input component must be used in a workflow that processes supported camera files, and begins with a Camera Ingest origin action. This enables the Flip64 action to properly identify and decode the camera files for transcoding.

Camera input supports one video stream and one or more audio tracks, plus an ANC stream.

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

General

Use SMIL SOM Timecode. Check when required (for example, when transcoding XAVC and XAVC-S clips), to obtain the SOM timecode from the SMIL file.

R3D Parameters

Use Half Resolution Decode Mode. Check to speed decode processing and consume less memory.

Use Lightspeed Acceleration if Available. Causes the codec to use GPU acceleration on a Lightspeed server in the domain, if available.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Video Stream Settings

The video stream propagates the stream in the input file.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Audio Track Settings

The audio track propagates the track from the input file.

Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the set. To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If the source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This track name should be unique within the action.

Language. When checked, overrides the language associated with this stream. If you are binding this control to a variable, the value in the text variable must exactly match one of the original language selections in the encoder.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

ANC Stream Settings

The ANC stream propagates ancillary data present in the source file. ANC data may consist of closed captions, VPIDs, AFD, timecode, Dolby E metadata, and even embedded audio, such as PCM.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

CML Input

The CML Input component decodes the media referenced in the CML file. CML Input is implemented in Flip64 to support Open workflows.

The CML Input component supports ingest of one video stream, one audio track, and one ANC stream.

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Configuration

Open File Support. Check to enable Open File support, indicating that you want to start transcoding this stream as soon as the file is opened and media is being written to it in real time.

Open File Timeout. Specifies the maximum amount of time (in seconds) permitted to determine that the file has stopped growing before assuming that file is finished being written and is closed.

Video Stream Settings

One video stream is supported. The video stream propagates the stream identified in the input CML file.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Audio Track Settings

One audio stream is supported. The audio track propagates the track from the input file.

Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the set.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This track name should be unique within the action.

Details

The configuration panel displays on the right, when the audio track component is selected:

Language. When checked, overrides the language associated with this stream. If you are binding this control to a variable, the value in the text variable must exactly match one of the original language selections in the encoder.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. When the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

ANC Stream Settings

The ANC stream propagates ancillary data present in the source file. ANC data may consist of closed captions, VPIDs, AFD, timecode, Dolby E metadata, and even embedded audio, such as PCM.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

Dolby Atmos Input

The Dolby Atmos Input component supports ingesting Dolby Atmos mastering audio sources, used for the purpose of encoding to DD+JOC and/or downmixing using the Dolby Atmos converter.

The following input formats are supported in the Dolby Atmos Input component:

DAMF Dolby Atmos Master Format (DAMF) used by Dolby content creation tools in studios and post-production suites.

ADM BWF (Audio Descriptive Model Broadcast WAV Format) DAMF alternative which is not proprietary to Dolby. This single broadcast WAV file has an XML data chunk at the beginning of the file containing the *.atmos* and *.atmos.metadata* information.

IAB/IMF (Immersive Audio Bitstream for IMF) Frame based representation of the DAMF in a single file, which is specified for IMF (Interoperability Mastering Format). IMF mastering tools can import and export IAB/MXF and master to IMF. IAB/IMF is an *.mxf* file with interleaved PCM and metadata. Dolby Atmos does not support DCI (Digital Cinema Initiative) content.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Atmos Settings

The Atmos track propagates the Dolby Atmos audio track in the input file.

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

File Nickname - to attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

File Name - to attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Checkbox. Activates this track for propagation. Uncheck to disable the track.

Name. Specifies the track to identify it for selection. Enter a practical name or leave the default value (for example, *Atmos 1*) in place. This stream name should be unique within the action.

Container

Prepend Silence. When checked allows specification of the amount of silence to add to the beginning of the stream. Default is unchecked.

Media to Keep. When checked, activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it. Unchecked by default. These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00:00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

-**Add New Item**. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

-**Media Start Time**. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

-**Media End Time**. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

-**Use Source Media Video Timing**. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Dolby Vision Metadata Input

The Dolby Vision Metadata Input component supports ingesting a Dolby Vision metadata file, which is an optional, licensed feature.

Dolby Vision Metadata Input is not Open Workflow capable.

This input component is typically used in a workflow where an upstream Analyze action has extracted the Dolby Vision metadata from an MXF package and generated this XML file. This enables the Flip64 action to insert the Dolby Vision metadata back into the ANC stream in out the output file, by means of the Dolby Vision Insert Converter in the Flip64 action.

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

File Nickname - to attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

File Name - to attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

DoVi Stream Settings

The DoVi stream propagates the metadata in the input file.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *DoVi 1*) in place. This stream name should be unique within the action.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions

independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

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Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

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Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Grass Valley Canopus Input

The Grass Valley Canopus input is an optional, licensed decoder for decoding Grass Valley Canopus HQ and HQX files. MXF, MOV, and AVI containers are supported for decoding.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear Icon > Convert to. Changes the input from one type to another. Alternatively, right-click and select the input. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrows. Moves the selected input up and down in the set, for organization/readability purposes. Alternatively, use drag-and-drop: select an input and drag it to its new location in the set.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds an input (multiple inputs are permitted).

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name.

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name).

Media to Keep Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00:00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Specifies the offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Specifies the offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Track Details

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Select the track to display stream settings.

Language. Specifies the language of this track. Disabled by default.

Generate Silence if the Audio Track is Missing. When enabled, the track is created with silence if there is no source track in the input file. When disabled, if there is no source track in the input the job fails. If an audio track is present, it is processed normally. Default is disabled.

A transcoder is required to create these silent tracks in the output container.

Preserve Original Audio Tracks. When enabled, the incoming audio tracks are passed directly to the output audio tracks, which must be configured as Direct Convert. This enables sources with multiple tracks to be passed through without having to use multiple audio tracks in the output container. (This can include multiple PCM audio tracks in conjunction with AAC and or AC3 tracks).

ANC Stream Settings

The ANC stream propagates ancillary data present in the source file. ANC data may consist of closed captions, VPIDs, AFD, timecode, Dolby E metadata, and even embedded audio, such as PCM.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

HDR10+ Metadata Input

The HDR10+ Metadata Input implements an optional, licensed input for the extraction of HDR10+ metadata from a source JSON file for use by the HDR10+ Insert Converter.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear Icon > Convert to. Changes the input from one type to another. Alternatively, right-click and select the input. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrows. Moves the selected input up and down in the set, for organization/readability purposes. Alternatively, use drag-and-drop: select an input and drag it to its new location in the set.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds an input (multiple inputs are permitted).

Media to Keep Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00:00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

HDR10+ Stream Settings

The HDR10+ stream propagates HDR10+ metadata present in the source file.

Checkbox. When checked, activates this stream for extraction of HDR10+ metadata for use in subsequent converters or output streams.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

IAB Input (Flip64)

The IAB (Immersive Audio Bitstream) Input component processes IAB/MXF files for generating an IMF Package or for conversion to other audio formats. IAB Input supports one IAB track.

IAB/IMF is an MXF file with interleaved audio and metadata. The IAB Input supports DCI (Digital Cinema Initiative) content.

Container

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

File Nickname - to attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

File Name - to attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

IAB Track Checkbox. Activates this track for propagation in the output. Uncheck to disable the track.

Name. Specifies the track to identify it for selection. Enter a practical name or leave the default value (for example, *Atmos 1*) in place. This stream name should be unique within the action.

Media to Keep

When checked, activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it. Unchecked by default.These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00:00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

- **Add New Item**. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

- **Media Start Time**. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

- **Media End Time**. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

- **Use Source Media Video Timing**. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

File Nickname - to attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

File Name - to attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Checkbox. Activates this track for propagation. Uncheck to disable the track.

Name. Specifies the track to identify it for selection. Enter a practical name or leave the default value (for example, *Atmos 1*) in place. This stream name should be unique within the action.

IAB Track

There are no user-configurable settings for the IAB track.

JPEG2000 GPU Accelerated Input

The JPEG2000 GPU Accelerated Input component supports GPU-accelerated JPEG2000 video decoding for media files. If no JPEG2000 video essence is detected, the action will fail.

JPEG2000 GPU Accelerated Input is not Open Workflow capable.

GPU-accelerated JPEG2000 decoding and encoding is a licensed option for your Vantage domain.

Auto Input supports one video stream, one audio track, and one ANC stream..

The JPEG2000 GPU Accelerated Input component is container-agnostic: it automatically determines which input component to use for each incoming file. For formats explicitly supported in this Flip action (such as GXF or QuickTime) it is automatically processed and decoded by the appropriate input component. Otherwise, it attempts to use the input components supported by the Flip action to read the file and decode the JPEG2000 video stream.

For input files that contain multiple audio tracks, the action decompresses the tracks if required, and consolidates the tracks into a single audio track and propagates it downstream.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

General Input Details

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name. You attach files either for transcoding or for use by the Insert Video Filter, Overlay Video Filter, Insert Audio Filter or Overlay Audio Filter.

Note: Even when attaching a file for use by a filter, you must use the appropriate input (for example, AC-3 Input for attaching AC-3 files), so that the file can be properly decoded to provide access to the stream(s).

To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Media to Keep (Trim Filter) Details

These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Media to Keep. Activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Stream Details

The video stream propagates the stream from the input file.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Audio Track Details

The audio track propagates the track - multiple tracks are automatically compressed into a single track - from the input file.

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display settings.

Language. Specifies the language of this track.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

Preserve Original Audio Tracks. When checked, The incoming audio tracks are passed directly to the output audio tracks, which must be configured as Direct Convert. This enables sources with multiple tracks to be passed through without having to use multiple audio tracks in the output container. (This can include multiple PCM audio tracks in conjunction with AAC and or AC3 tracks).

ANC Stream Settings

The ANC stream propagates ancillary data present in the source file. ANC data may consist of closed captions, VPIDs, AFD, timecode, Dolby E metadata, and even embedded audio, such as PCM.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

JPEG XS Input

The JPEG XS Input component is an optional, licensed decoder for ingesting and decoding JPEG XS encoded video files.

Container

Media to Keep. When checked, activates the Trim Filter, which enables you to add one or more trim operations. If the edit panel is closed, click the disclosure triangle to display it. Unchecked by default.These controls display only when the Input panel is selected.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00:00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

-**Add New Item**. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

-**Media Start Time**. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

-**Media End Time**. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

-**Use Source Media Video Timing**. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media.

Video Stream Details

The video stream propagates the stream from the input file.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, Video 1) in place. This stream name should be unique within the action.

Audio Track Details

The audio track propagates the track - multiple tracks are automatically compressed into a single track - from the input file.

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source

file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example *Audio 1*) in place. This stream name should be unique within the action.

Select the track to display settings.

Language. Specifies the language of this track.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

Preserve Original Audio Tracks. When checked, The incoming audio tracks are passed directly to the output audio tracks, which must be configured as Direct Convert. This enables sources with multiple tracks to be passed through without having to use multiple audio tracks in the output container. (This can include multiple PCM audio tracks in conjunction with AAC and or AC3 tracks).

ANC Stream Settings

The ANC stream propagates ancillary data present in the source file. ANC data may consist of closed captions, VPIDs, AFD, timecode, Dolby E metadata, and even embedded audio, such as PCM.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

MXF OP1a Input

The MXF OP1a Input component supports decoding video and audio from an MXF OP1a input file. Each MXF OP1a Input supports one video stream and one or more PCM audio tracks, plus an ANC stream.

Note: MXF OP1a Input is Open Workflow capable. The MXF Op1a decoder supports open workflows, but only with files created by Capture.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.
After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.
If you expect to have a wide variety of input files, consider using the Auto Input or the Flip Input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input PCM tracks into a single audio stream.

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Configuration

Open File Support. Check to enable Open File support, indicating that you want to start transcoding this stream as soon as the file is opened and media is being written to it in real time. Click Browse to assign a True/False variable.

Open File Timeout. Specifies the maximum amount of time to wait after the file has stopped growing before assuming that file is finished being written and is closed.

Fix Incorrect EditUnitByteCount. Check to have the MXF OP1a reader attempt to fix files that have an incorrect EditUnityByteCount, that does not match the actual edit unit size in the partition.

Ignore MXF Roll Out. Check to NOT trim the file at the tail rollout if the package duration is shorter than the container duration.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Video Stream Settings

The video stream propagates the stream in the input file.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

There are no user-configurable controls for the Video Stream.

Audio Track Settings

The audio track propagates the track from the input file.

Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the set. To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If the source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This track name should be unique within the action.

Language. When checked, overrides the language associated with this stream. If you are binding this control to a variable, the value in the text variable must exactly match one of the original language selections in the encoder.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally. A transcoder is required to create these silent tracks in the output container.

Preserve Original Audio Tracks. When checked, the incoming audio tracks are passed directly to the output audio tracks, which must be configured as Direct Convert. When you enable this control, you should only have one Audio track in your input. This enables sources with multiple tracks to be passed through without having to use multiple audio tracks in the output container. (This can include multiple PCM audio tracks in conjunction with AAC and or AC3 tracks).

Note: If Preserve Original Audio Tracks is enabled and the target encoder doesn't support any of the original track types, the job will fail. For example, a source has 8 discrete mono tracks while WAV output only supports one common track for all channels.

ANC Stream Settings

The ANC stream propagates ancillary data present in the source file. ANC data may consist of closed captions, VPIDs, AFD, timecode, Dolby E metadata, and even embedded audio, such as PCM.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

There are no user-configurable controls for the ANC Stream.

QuickTime/MPEG-4 Input

The QuickTime/MPEG-4 Input component supports reading QuickTime MOV files with DV, IMX, ProRes, DNxHD or H.264 video, and PCM, AAC, and Dolby E audio. Each QuickTime Input supports one video stream and one or more audio tracks, plus an ANC stream.

QuickTime/MPEG-4 Input is Open Workflow capable.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.
After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.
If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input PCM tracks into a single audio stream.

QuickTime/MPEG-4 Input supports reference files, provided that all reference files are in the same format. It does not support composited tracks or mixed formats.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Container Configuration

Open File Support. Check to enable Open File support, indicating that you want to start transcoding this stream as soon as the file is opened and media is being written to it in real time.

Open File Timeout. Specifies the maximum amount of time to wait after the file has stopped growing before assuming that file is finished being written and is closed.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Video Stream Settings

The video stream propagates the stream in the input file.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Audio Track Settings

The audio track propagates the track from the input file.

Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the set. To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If the source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This track name should be unique within the action.

Language. When checked, overrides the language associated with this stream. If you are binding this control to a variable, the value in the text variable must exactly match one of the original language selections in the encoder.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally. A transcoder is required to create these silent tracks in the output container.

Preserve Original Audio Tracks. When checked, the incoming audio tracks are passed directly to the output audio tracks, which must be configured as Direct Convert. When you enable this control, you should only have one Audio track in your input. This enables sources with multiple tracks to be passed through without having to use multiple audio tracks in the output container. (This can include multiple PCM audio tracks in conjunction with AAC and or AC3 tracks).

Note: If Preserve Original Audio Tracks is enabled and the target encoder doesn't support any of the original track types, for example a source has 8 discrete mono tracks while wav outputs just support one common track for all channels, jobs will fail.

ANC Stream Settings

The ANC stream propagates ancillary data present in the source file. ANC data may consist of closed captions, VPIDs, AFD, timecode, Dolby E metadata, and even embedded audio, such as PCM.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

R3D Input

The R3D Input component supports reading REDCODE RAW (R3D) files. Each R3D Input supports one video stream and one or more audio tracks, plus an ANC stream.

R3D Input is not Open Workflow capable.

Note: This input provides you a high degree of control over how tracks in the source file are mapped to audio streams. For each input track that you want to use in your source file, you should create a track in the input.
After configuring the input, you should ensure that your source files have the necessary tracks. For example, if you configure your input for four tracks, and your source file only has two, then the transcode may not work as you expect.
If you expect to have a wide variety of input files, consider using the Auto input or the Flip Decoder input. These inputs offer less control, but support varying numbers of input tracks, and in some cases, consolidate input PCM tracks into a single audio stream.

Use Half Resolution Decode Mode. Speeds decode processing, consumes less memory.

Use Lightspeed Acceleration if Available. Causes the codec to use GPU acceleration on a Lightspeed server in the domain, if available.

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Video Stream Settings

The video stream propagates the stream in the input file.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Audio Track Settings

The audio track propagates the track from the input file.

Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the set. To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If the source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This track name should be unique within the action.

Language. When checked, overrides the language associated with this stream. If you are binding this control to a variable, the value in the text variable must exactly match one of the original language selections in the encoder.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

ANC Stream Settings

The ANC stream propagates ancillary data present in the source file. ANC data may consist of closed captions, VPIDs, AFD, timecode, Dolby E metadata, and even embedded audio, such as PCM.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

SCC Input

The SCC Input component supports reading Scenarist Closed Caption files for Closed Caption Insertion using the SCC Insert Converter.

SCC Input is not Open Workflow capable.

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Data Stream Settings

The Data stream propagates the closed caption data present in the source file.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

Still Image Input

The Still Image Input component decodes one JPEG, BMP, PNG, TIFF, GIF, or TGA file and generates digital baseband video of the specified duration and frame rate.

JPEG2000 Still Image Input is not Open Workflow capable.

The transcoder resizes the input file to the largest frame size that will fit in the output frame without changing the original aspect ratio. Bars or pillars (if required) are auto-filled with black.

The resulting video is passed on to the remaining stages of the transcode action just as any other decoded input file, for converter, transcoder, and output processing.

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration Details

Configure the following control (or use the green browse button to bind this setting to a variable).

Duration. Specifies the duration and the frame rate to use for encoding the video clip.

Video Stream Settings

The video stream propagates the stream in the input file.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Audio Track Settings

The audio track is generated with silence for the duration of the file.

Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the set. To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If the source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This track name should be unique within the action.

TIFO Input

The TIFO Input component supports reading video, audio, and ANC data from Telestream TIFO file. Each TIFO Input provides one video stream and one or more audio tracks, plus an ANC stream.

TIFO Input is Open Workflow capable.

Ignore Markin/Markout. When checked, uses the entire file, disregarding any mark-in and mark-out points. When unchecked, the media is trimmed to the mark-in and mark-out points, if present.

Open File Support. Check to enable Open File support, indicating that you want to start transcoding this stream as soon as the file is opened and media is being written to it in real time.

Open File Timeout. Specifies the maximum amount of time to wait after the file has stopped growing before assuming that file is finished being written and is closed.

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Video Stream Settings

The video stream propagates the stream in the input file.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Audio Track Settings

The audio track propagates the track from the input file.

Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the set. To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If the source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This track name should be unique within the action.

Language. When checked, overrides the language associated with this stream. If you are binding this control to a variable, the value in the text variable must exactly match one of the original language selections in the encoder.

Generate Silence if the Audio Track is Missing. When checked, the track is created with silence if there is no source track in the input file. when the source track is not present in the input, if unchecked, the action will fail. If an audio track is present, it is processed normally.

A transcoder is required to create these silent tracks in the output container.

Preserve Original Audio Tracks. When checked, the incoming audio tracks are passed directly to the output audio tracks, which must be configured as Direct Convert. When you enable this control, you should only have one Audio track in your input. This enables sources with multiple tracks to be passed through without having to use multiple audio tracks in the output container. (This can include multiple PCM audio tracks in conjunction with AAC and or AC3 tracks).

Note: If Preserve Original Audio Tracks is enabled and the target encoder doesn't support any of the original track types, the job will fail. For example, a source has 8 discrete mono tracks while WAV output only supports one common track for all channels.

ANC Stream Settings

The ANC stream propagates ancillary data present in the source file. ANC data may consist of closed captions, VPIDs, AFD, timecode, Dolby E metadata, and even embedded audio, such as PCM.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

TTML Input

The TTML Input component supports reading Timed Text Markup Language caption/subtitle files and placing the content into an IMF package.

TTML Input is not Open Workflow capable.

Source. Click Select to display the input source dialog and specify the file to process, by nickname or by a unique file name. You can only use an input nickname one time in a given action.

To attach a file by nickname (which is typical), select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

To attach a file by file name, manually enter the fully-qualified path and file name, click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name), or click Browse to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Data Stream Settings

The Data stream propagates the caption/subtitle data present in the source file.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

Language. When checked, overrides the language associated with this stream. If you are binding this control to a variable, the value in the text variable must exactly match one of the original language selections in the encoder.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions

independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Media to Keep

Enables you to add one or more trim operations to the associated input file.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Converter Components

A Converter component performs specialized processing on streams prior to passing them on for encoding and other filter processing. Typically, converters are intended for dealing with streams as a whole, rather than bit-level manipulation of the baseband media. For example, the Tachyon converter can be employed to perform sophisticated motion compensation on video; audio mixing and audio level adjustment can be applied to your audio tracks as needed, or audio levels adjusted. Or, Dolby E decoding and media expansion can be performed.

They are also intended to make overall processing more efficient; eliminating the need for iterative decoding and encoding to apply certain stream conversions.

Streams are processed by converters serially, as determined by the ordinal position of each converter in the set. Execution begins with the first or top converter, and proceeds down through each converter in the set to the last. The specified streams are processed as specified, and then passed to Output components for processing.

Some converters require special licensing.

Converter Toolbar Icons

Gear Icon > Duplicate. Duplicates the selected converter. This saves you the effort of creating and configuring another converter when you just want to add another input stream for processing by the same converter.

Up/Down Arrows. Moves the selected converter up and down the set, for execution purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the set.

Details Arrow. Collapses or expands the converter panels.

Plus Sign. Adds another converter to this action.

Deleting a Converter

To delete a converter component, click the X icon immediately right of the nickname menu in the panel.

Adding and Configuring Converters

To add and configure converters, follow these steps:

1. Add a Converter. Use the Add icon (the Plus sign in the toolbar) to add converters you want to use. If you are using multiple converters, you must organize them from top to bottom (using the up/down arrows in the toolbar) in the order you want them to process your media. For example, if your input has Dolby E audio, you should decode the audio before re-mixing it.

2. Name and Configure each Video, Audio, or ANC Input Component. Select each component in the converter. Check it to use it, then select the input stream and configure it using the configuration panels to the right. (Not all converters require configuration.)

Checkbox. When checked, each video/audio/ANC stream is processed and then the converter propagates the stream to the next processor component. Disable the input component if it is not used in the output.

To add a new track (if permitted), check the track checkbox in the empty, untitled audio track to the right of the last active track.

Name. Select the name of the input stream to convert, or leave the default value (for example, *Video 1*) in place. The list of stream names displayed in Converter and Output components is comprised of the streams specified here in the Input components.

3. Name and Configure each Video, Audio, or ANC Output Component. Select each component in the converter. Enable it to use it, then select the input stream and configure it using the configuration panels to the right. (Not all converters require configuration.)

The video and audio components propagate the stream to the next converter component (or-if last-to the output component), unless the stream is disabled.

The ANC stream propagates ancillary data present in the media stream. ANC data may consist of closed captions, VPIDs, AFD, timecode, Dolby E metadata, and even embedded audio, such as PCM. The ANC stream propagates the stream to the next converter component (or-if last-to the output component), unless the stream is disabled.

Audio Dynamics Compressor

The Audio Dynamics Compressor in Flip64 allows you to dynamically compress the dynamic range of the first 8 channels of audio in output files.

Track In Settings

The track identifies the input track to process.

Track. Activates this track for processing. Uncheck to disable it.

Track Name. Specifies the audio track to decode from the Input component(s).

There are no input track configuration settings.

Track Out Settings

The track identifies the output track for use downstream. Select the track to display configuration settings in the panel on the right.

Manual Output Gain Adjustment. When checked, specifies the gain adjustment value in dBFS. Unchecked by default.

Attack Duration. Specifies the time (in milliseconds) it takes for full signal compression after exceeding the threshold.

Release Duration. Specifies the time (in milliseconds) it takes for the signal to go from a compressed state back to an original, non-compressed state.

Compression Ratio. Specifies the compression ratio applied to the signal.

Threshold. Specifies the threshold (in dBFS) at which compression is engaged.

Knee Radius. Specifies the knee radius (in dBFS) when transitioning from uncompressed to compressed.

Tachyon Converter (Flip64)

The Tachyon Converter in Flip64 uses the Tachyon Video Processor and optionally, the *Convert Filter*, *Dark Energy Filter*, and *Output Settings Filter* to transcode the media to correct artifacts resulting from editing, Telecine, and tape pull-down. The Tachyon converter produces a new video stream from the source video stream.

The Tachyon Converter also implements the *Tachyon Anchor Frame Converter* for use in setting specific anchor frames in the ANC stream.

The Tachyon Converter is an optional, licensed feature and requires a Tachyon license. Contact Customer Service for details.

Configuring the Video In Stream

The video stream propagates the stream from the input file.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Configuring the ANC In Stream

The ANC stream propagates the ancillary data present in the source file. ANC data may consist of closed captions, VPIDs, AFD, timecode, Dolby E metadata, and even embedded audio, such as PCM.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

Configuring the Video Out Stream

The video out stream when checked, propagates it to the output component.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Specifies the output stream to use in this stream, for propagation to Ross Abekas.clip output components.

Configuring the ANC Out Stream

The ANC stream propagates the ancillary data present to the output component. ANC data may consist of closed captions, VPIDs, AFD, timecode, Dolby E metadata, and even embedded audio, such as PCM.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1*) in place. This stream name should be unique within the action.

Convert Filter

Convert Filter. Check to enable motion compensation and frame fate conversion features and configure these options:

General

The General section contains controls to determine how the Tachyon Video Processor processes media. These are the common settings which are used by Tachyon for creating the progressive video essence which all operations are performed on.

By checking both the *Motion Compensation* checkbox and any of the *Interlaced: Allow Insertion* choices covered in the next section (such as the *Allow Adaptive Insertion*), the Tachyon Video Processor automatically switches between the pixel-based and field-based output algorithms during processing, on a scene by scene basis, to provide the cleanest possible rendering:

Target for Video: 50i

- Scene 1 converted to 50i via Motion Compensation
- Scene 2 converted to 50i via Allow Adaptive
- Scene 3 converted to 50i via Allow Adaptive
- Scene 4 converted to 50i via Motion Compensation

This setting works for progressive outputs as well. Check *Progressive: Double Frames* and *Progressive: 4:6 Insertion* along with the *Motion Compensation* checkbox to achieve a smart resample output.

Adjust For Excessive Noise. When video is transferred to tape, there are many factors which could introduce chroma noise which is pattern in nature, and highly color transient. Select *Adjust for Excessive Noise* to enable Tachyon to remove chroma noise during video analysis to achieve higher accuracy during inverse Telecine or pulldown removal.

This feature will not remove the chroma noise in the output. It is strictly an analysis tool.

Adjust for Cartoon/Anime. Animations have many repeated frames/fields, so when there is a broken cadence situation, special care must be taken to ensure the video retains its original essence. This filter allows for retention of repeated frames/fields as appropriate. Check the *Adjust for Cartoon Anime* to enable this setting.

Allow Telecine/Pulldown Removal. This filter is a multi-function feature for removing simple 3:2 pulldown patterns. The filter automatically detects when Telecine patterns (cadence) are broken, and detects advanced cadence patterns such as the common 2224 pattern.

The 2224 pattern refers to the rate at which fields are repeated. The images will all be progressive and will exhibit no combing, but rather, a duplicated frame every 4th frame. For example, assume you are given 4 images, captured at 23.976:

0, 1, 2, 3

Since each frame has an upper and lower field, the images are duplicated into each field, following a 2 2 2 4 pattern. The resultant 29.97i frames, based on the 4 above frames would be as follows:

Upper Field	0	1	2	3	3
Lower Field	0	1	2	3	3
Repeat Rate	2	2	2	4	

Because *ALLOW TELECINE REMOVAL* uses the *Allow* terminology, it only invokes the pulldown removal when Tachyon detects the presence of a pattern or broken pattern on scene-by-scene basis within a file.

Accurate Telecine material is easy for many conversion products to fix, but there is a very large amount of footage which contains broken 2:3 cadence. Broken cadence occurs when the Telecine pattern that started at frame 00:00:00:00 does not carry through the entire video.

The normal frame pattern is i1, i2, p1, p2, p3, and it should repeat through the entire project with scene cuts landing anywhere in the image sequence:

Broken 2:3 cadence occurs when editors piece clips together and end scenes based on image content only and disregard image cadence:

When broken cadence is present, these common problems appear at scene transitions with other inverse Telecine technologies:

- Repeated frames
- Jump cuts
- Combing artifacts

With the Tachyon intelligent inverse Telecine analyzing each scene cut for correct 2:3 cadence, Tachyon automatically adjust the conversion algorithms and creates the missing field from motion data when necessary.

Telecine/Pulldown Removal: Increased Detection Sensitivity. When pulldown is not achieved due to extremely broken cadence, or other factors such as highly mixed content or if chroma noise masks motion, the pulldown engine may fall back to de-interlacing rather than removing Telecine. For this reason a more sensitive pulldown pattern was created. This algorithm favors inverse Telecine, and with lower thresholds for triggering pulldown identification, the algorithm will maximize the number of progressive frames created. To invoke this more sensitive pulldown removal algorithm, check the *Telecine/Pulldown Removal: Increase Detection Sensitivity* box.

Telecine/Pulldown Removal: Residual Combing Removal. If the images you are converting are composited 29.976, but the pulldown pattern was not adhered to when performing the composite, this setting is required to remove combing artifacts. It will also remove combing artifacts related to very poor 3:2 cadence.

This filter typically used when residual combing artifacts exist after pulldown has been removed. You may use both the A*llow Telecine/Pulldown Removal* and *Telecine/Pulldown: Residual Combing Removal* together.

Force SD NTSC Colorspace. Forces use of SD NTSC color space regardless of the video format. Configure these controls:

Input Frame Configuration. When source metadata pertaining to field dominance is known to be erroneous, select one of these options to override the metadata so Tachyon can process the file with the correct field order.

Output Frame Configuration. When generating output frames with an interlaced encoder, select from these options to determine how frames should be configured if poor quality is observed:

- *Use Encoder Settings* (honors the standard implemented directly in the encoder)

- *Progressive* (produce progressive frames)

- *Interlaced Upper Field First* (when using an interlaced codec, produces interlaced upper field first frames, overriding the standard if different)

- *Interlaced Lower Field First* (when using an interlaced codec, produces interlaced lower field first frames), overriding the standard if different.

Motion Compensation. Turns on a phase correlation motion estimator to perform interpolated frame rate conversions. The Tachyon patented conversions invoke different settings in the algorithms based on the unique frame rate of each scene, as well as special fallback algorithms to prevent artifacts which would normally occur with other motion-compensation based solutions. You may also specify extreme motion compensation settings for frames with higher amounts of motion. Configure these controls:

Motion Compensation: Amount. Specifies the amount of motion in the media. When placed in *Automatic*, Tachyon will automatically adjust the motion compensation block size, fallback amount, motion amount, and block size on a scene by scene basis. Manual override is implemented by selecting the setting desired.

Motion Compensation: Block Size. Specifies the size of the block to be used in the motion estimator. Smaller block size use less detail for finding matches and should be used for scenes with complicated, non-linear motion, such as a rapid zoom-out. When placed in *Automatic*, Tachyon will automatically adjust the motion compensation block size, fallback amount, motion amount, and block size on a scene by scene basis. Manual override is implemented by selecting the setting desired.

Motion Compensation: Fallback Blend Area. Specifies the region size for blending fallback for frames in the motion estimator. Smaller block size use less detail for finding matches and should be used for scenes with complicated, non-linear motion, such as a rapid zoom-out. When placed in *Automatic*, Tachyon will automatically adjust the motion compensation block size, fallback amount, motion amount, and block size on a scene by scene basis. Manual override is implemented by selecting the setting desired.

Extreme Motion Compensation: Amount. Specifies the amount of motion compensation for frames with higher amounts of motion. When placed in *Automatic*, Tachyon will automatically adjust the motion compensation block size, fallback amount, motion amount, and block size on a scene by scene basis. Manual override is implemented by selecting the setting desired.

Extreme Motion Compensation: Block Size. Specifies the size of the block to be used for frames with higher amounts of motion. Smaller block size use less detail for finding matches and should be used for scenes with complicated, non-linear motion, such as a rapid zoom-out. When placed in *Automatic*, Tachyon will automatically adjust the motion compensation block size, fallback amount,

motion amount, and block size on a scene by scene basis. Manual override is implemented by selecting the setting desired.

Extreme Motion Compensation: Fallback Blend Area. Specifies the region size for blending fall-back for frames with higher amounts of motion. Smaller block size use less detail for finding matches and should be used for scenes with complicated, non-linear motion, such as a rapid zoom-out. When placed in *Automatic*, Tachyon will automatically adjust the motion compensation block size, fallback amount, motion amount, and block size on a scene by scene basis. Manual override is implemented by selecting the setting desired.

Interlaced Settings

These filters are for interlaced outputs only. Leaving them accidentally checked on will not impact a progressive output, but can produce unexpected results when creating frame rates when the target field rate is exactly double the source field rate.

Interlaced: Allow 2:2 Insertion (PSF). Creates a new series of frames which are based on duplicating the field an interlacing it into top/bottom field. Maintains film-look.

Interlaced: Allow 2:3 Telecine Insertion. Inserts a standard 2:3 Telecine pattern to 23.976p video stream to achieve a 29.97i frame rate

Interlaced: Allow Euro* Insertion. For field based conversion rather than pixel-based. This method is valid for 24.0p to 50i conversions only.

Interlaced: Allow Adaptive* Insertion. For field-based conversion rather than using pixel-based interpolation. This algorithm is designed for both integer and non-integer frame rate conversion targets—as long as one of them is a non-integer rate (23.976, 29.97, 59.94, etc.). This creates NTSC-PAL conversions clean of motion artifacts at the expense of possible slight stutter. Stutter is most noticeable with material that has smooth and uniform motion.

Note: These algorithms may cause a slight stutter based on the differential between the source and target frame rates when viewed on a progressive monitor. Please verify these outputs on a broadcast monitor. If these results prove to be unacceptable, perform the conversion using the Motion Estimator and uncheck Allow Adaptive Insertion.

Progressive: Double Frames. Repeats each progressive frame twice on output (motion rate is halved). This setting is used when you want to convert to high progressive frame rates (i.e. 50p/59.94p/60p) but want to preserve film qualities of the source (low motion rate, such as 24p).

Progressive: 4:6 Insertion. Takes a 23.976 pattern and applies a repeated frame pattern in a 4:6 ratio to create 59.94p. This 4:6 59.94p will play smoothly on a broadcast monitor.

Resize Mode

Select Add Black to Fit (default) for letterbox/pillar-box methods for resolution changes or Stretch | Crop when changing the aspect ratio.

Stretch Mode. When you select Stretch mode, configure pad and crop settings to customize output.

Advanced Settings

Parameters

Parameters. When checked, the Advanced Settings Parameters field enables execution of custom command line instructions and should only be used for debugging, when instructed by Customer Support. Contact Telestream Customer Support for details.

Deterministic Mode

Deterministic Mode. When checked, the Source Duration specified is the number of input frames that will result in the number of Output Duration frames specified. This is useful when the rounding used for converted durations is not as expected. Telestream recommends adjusting the output frames by + or - 1 only.

Source Duration. Source duration (in frames) of input source.

Output Duration. Output duration (in frames).

Note: If Deterministic Mode is enabled, using the Anchor Frame option in a Time Code Processing Filter for an output ANC stream is not supported. In this case, anchor frame settings will be ignored.

Note: If the Tachyon Output Settings Filter is enabled (see below), the output frames value must be calculated for the frame rate specified in the Tachyon Output Settings filter. If the Tachyon Output Settings Filter is not enabled, output frames should be calculated based on output frame rate of your Flip64 output.

Dark Energy Filter

The Dark Energy Filter requires a Dark Energy license.

Vantage de-muxes and decompresses the video file prior to handing the video to Dark Energy for processing. Dark Energy only works on video in the uncompressed state and does nothing to audio or closed caption data. Dark Energy will manipulate the images as appropriate, and return the uncompressed images to the transcoder for compression and muxing. While Dark Energy can correct cadence issues, it will not output a different frame rate than what the original file specified.

The Dark Energy UI is comprised of several drop-down menu items, all of which can be placed into AUTO mode to obtain high quality results just by letting the intelligence in Dark Energy do its job. By *Enabling* Dark Energy and leaving all the drop-down boxes in the "Automatic" position, Dark Energy will automatically adjust the motion estimator and all other settings given the source and target raster sizes.

To enable these settings check the Dark Energy box. When enabled, all video will route through a set of Dark Energy algorithms and will automatically be incorporated into any existing Tachyon Video Processor processes.

These are the selections except for Texture Color:

Disable. Disables this particular feature.

Extra Low. This value is subtle and will be approximately 33% of the Auto setting.

Low. This value is moderate and will be approximately 66% of the Auto setting.

Medium. This is always recommended starting point, which is why it is the AUTO setting as well. This Medium setting was determined after years of processing images, so it is a very robust, very appropriate setting.

High. This is 50% greater than Medium.

Extra High. This is 2x the implementation of Medium.

Automatic. Automatically sets the level to Medium. Medium is a setting which will vary based on original raster and target raster. So while it is a general "catch all" place to start from, it gives you two choices higher and two choices lower to tailor the processing to meet your needs.

Power Spatial. Specifies how much noise is removed from the video. Lower amounts of denoise will potentially leave items which could turn into compression blocking, too high of a denoise setting could result in compression banding. It is best to start with the AUTO setting and determine if more or less noise reduction is needed after running a short test clip.

Sharpen Amount. Specifies how much sharpening happens during the denoise/image scaling process. If images are soft to begin with, the intelligence in Dark Energy will more than likely preserve the image, just at a different resolution. More sharpness may be needed in these cases.

If you increase the noise reduction amount, a correlating increase in the sharpness setting may be required. We advise running a couple of short test clips before running entire projects and libraries.

Texture Amount. Affects the amount of texture that is "virtually developed" into the image during rendering. This texture is not an overlay or a simple, repeating texture pattern. The grain is constructed using chaotic math theorems which results in texture/grain patterns that never repeat, and are always consistent.

Texture Amount is exactly that—how much image texture is desired on the output. For digitally acquired images (50i/60i) which are lacking warmth, an ideal workflow is to perform a frame rate conversion from 50i/60i to 24p using Tachyon (it will automatically generate the 180 degree shutter providing the appropriate amount of motion blur for the lower frame rate) and then add Image Texture with Dark Energy. The AUTO setting will set a broadcast specific amount of grain for the given target raster, so if you want a more pronounced texture look, increase this setting to High or Extra High.

Texture Size. This setting is analogous to film size. For HD images, Dark Energy will model a 35mm film grain size during the virtual render. For UHD images, Dark Energy leverages 70mm film grain size during the virtual render. Like other settings, the Auto will set the image texture size to the medium setting and then moving higher or lower will generate larger or smaller Image Texture structure.

Texture Color. If you are processing black/white video, set this value to Grayscale. Otherwise, for color images, select Color.

Chroma Noise Removal. When checked, removes most chroma spots/crawl that occur in older footage and poor quality 4:2:0/4:2:2 tape transfers. Unchecked by default.

Smooth Spatial Filter. If you are processing images with dot or pattern crawl, use this filter to reduce noise and prevent artifacts.

Basic Spatial Filter Wavelet-based filter that removes pattern noise often seen in SD digital footage.

Single Event Artifact Removal. Removes most dust, scratches, and digital dropouts if they occur in non adjacent frames.

Output Settings Filter

The Output Settings Filter is used to configure Tachyon Converter outputs. When enabled, the Tachyon Converter output will match the Frame Rate, Interlacing Mode and Frame Size as defined in the Output Settings Filter. When disabled (default), the Tachyon Converter output applies the Frame Rate, Interlacing Mode and Frame Size as specified for the codec selected in the Output Video Stream configuration.

Output Frame Rate. When enabled (default), specifies output frame rate to use for the Tachyon filter. Default rate is 29.97 fps. When disabled, default output frame rate is used.

Interlacing Mode. When enabled (default), specifies interlacing mode to use for the output from the Tachyon filter. Default mode is Interlaced Upper Field First. When disabled, default output interlacing mode is used.

Output Frame Width. Specifies output frame width in pixels. Default is 1920.

Output Frame Height. Specifies output frame height in pixels. Default is 1080.

Tachyon Anchor Frame Converter

Check to enable the Tachyon Anchor Frame Converter, so that you can set a specific source video frame as an anchor frame, other than the first frame. The frame must be identified by a specific time code. When checked, specify the Source Time Code and Output Time Code parameters:

Source Time Code. Specifies the time code including frame rate, of a frame in the source which should become the new anchor frame.

Output Time Code. Specifies the time code including frame rate, to use for the new anchor frame in the output.

Example:

Source Time Code `00:01:00:00` - Sets the frame appearing at 00:01:00:00 as the anchor frame.

Output Time Code `01:00:00:00` - overrides the anchor frame time code in the output. The first frame of output video will be set to `00:59:00:00`, so that when the anchor frame is reached one minute later, the time code is exactly `01:00:00:00`.

Alpha Extractor (Ross Abekas)

The Alpha Extractor converter (for use with Ross Abekas.clip outputs) allows for pass-through of embedded alpha channel present in QuickTime files in the following codecs: Animation, ProRes and DNXHD.

Video In

Select the stream to display its configuration panels (if any).

Checkbox. Activates this track for processing. Uncheck to disable the track.

Name. Specifies the input track to use in this track.

Video Out

Select the stream to display its configuration panels (if any) and filters on the right.

Checkbox. Activates this track for processing. Uncheck to disable the track.

Name. Specifies the output track to use in this track, for propagation to Ross Abekas.clip output components.

Audio Levels Converter (Flip64)

The Audio Levels Converter in Flip64 creates a new audio stream with audio level or loudness adjusted from the source. The converter accepts one input track and creates one output track in the stream.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

When using the Manual Gain Adjustment option, the output levels are adjusted by the specified amount.

When using the Loudness Adjustment option, loudness adjustment items can be added that allow automatic adjustment of groups of output channels. The Loudness Adjustment option is generally used in conjunction with variables generated by the Advanced Audio Measurement filter in the Analyze action.

Audio Track In Settings

Each audio track in identifies the input track you specify.

Checkbox. Activates this track for processing. Uncheck to disable the track.

Name. Specifies the input track to use in this track, for propagation to your output track.

Output Track Settings

Checkbox. Activates this track for propagation to downstream components. Uncheck to disable the track.

Name. Specifies the name of the output track, for selection in downstream components.

Select the Track Out to configure the stream.

Manual Master Gain Adjustment. When checked, specifies (in dB) the audio master gain adjustment to apply to the audio track.

Loudness Adjustment

Check to implement loudness adjustment.

Add New Item: Click to add a new audio channel entry - one for each channel or sets of channels you plan to process. The track should have WAV audio channels in them.

Apply To Channels. Specifies a comma-separated list of channels to which the loudness adjustment will be applied. For example: *1,2,3,4,5,6*. A range of channels can also be specified with a hyphen, so that *1-6* is functionally equivalent to *1,2,3,4,5,6*.

Source Loudness. Specifies the measured loudness of the channel(s). Typically this is bound to a Relative Gated Loudness variable generated by the Advanced Audio Measurement filter.

Target Loudness. Specifies the desired target loudness.

Apply Peak Limits. Check to use Peak Limiting. If unchecked, the Source Peak and Peak Limit parameters are ignored. When the peak limit option is checked, peak limiting may override the loudness correction in circumstances where a positive loudness adjustment is applied.

For example: If Source Loudness = -28dB and Target Loudness = -23dB then +5dB of loudness adjustment is required. If the Source Peak is -6dB and the Peak Limit is -3dB then applying a +5dB gain correction results in a peak of the output of -1dB, which is 2dB above the specified limit. In this case, only +3dB of loudness adjustment will be applied, ensuring that the peak does not exceed the specified limit. The loudness of the output in this case will not reach the required target of -23dB and will only be adjusted to -25dB.

Note: The peak limit is only applied in the case of a positive loudness adjustment. In the case that a negative loudness adjustment is required the peak limit parameters will be ignored.

Apply Peak Limits to Negative Gain. Check to apply peak limiting to negative gain. If unchecked, the Source Peak and Peak Limit parameters are ignored. When the peak limiting to negative gain option is checked, peak limiting may override the loudness correction in circumstances where a negative peak adjustment is applied. Unchecked by default.

Source Peak. Typically this parameter is bound to the True Peak variable generated by the Advanced Audio Measurement filter.

Peak Limit. The peak amplitude found in the source audio that should not be exceeded in the event of a positive loudness adjustment.

Use Dialog Based Measurement. When checked, Dialog Loudness is primarily used in place of Source Loudness to calculate the loudness adjustment. If Use Dialog Based Measurements is unchecked, the subsequent Dialog parameters in the interface are ignored.

Source Dialog Percentage. The percentage of dialog present in the source, typically this is bound to a Dialog Percentage variable generated by the Advanced Audio Measurement filter.

Minimum Dialog Threshold. If Source Dialog percentage is greater than the Minimum Dialog Threshold, then the Source Dialog Loudness is used in place of Source Loudness to calculate the required loudness adjustment. If Source Dialog percentage is less than the Minimum Dialog Threshold, then the Source Loudness is used.

Source Dialog Loudness. The loudness of the dialog in the source, typically this is bound to a Dialog Loudness variable generated by the Advanced Audio Measurement filter.

Audio Mixer Converter (Flip64)

The Audio Mixer Converter enables you to consolidate multiple tracks or channels from different tracks into a single track, re-organize channels in a new track, and perform audio channel mixing, combining multiple channels into a single, new channel.

Use of this converter requires that you know the composition of input audio tracks. Channels are numbered sequentially, beginning with the first channel in the first track as channel 1. For example, if Track 1 In has 2 channels and Track 2 In has 2 channels, then the first channel in Track 2 In is channel 3; the second channel in Track 2 In is 4. Thus, the first track in Track 3 In (if it were specified) would be channel 5, etc.

The audio requirements in the output depends upon your output audio codec settings and drives your input and converter configuration. For example, if you are encoding a stereo program, then you need a 1 and 2 (or Left and Right) channel. Alternatively, if you are encoding a program with a 5.1 configuration, then you need six channels: Left, Right, Center, Back Left, Back Right, and Low Frequency Effects (LFE).

Labeling channels using the Channel Assignment control in the Track Out configuration panel is only for use in the Output component to identify audio tracks per the standard of the codec you specify. For example, you should name the channels if you are creating 5.1 audio; if you are creating PCM audio, it would be of no value. You can also assign channel labels by creating variables upstream and assigning labels, then using the variables to assign labels dynamically instead of statically assigning them. To provide channel labels in the output audio, use the Channel Designation filter.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Multiple Track Consolidation Example

In this example, you have 2 separate tracks, each with a stereo pair in different languages. You want to create a single track with both languages in it:

- Add 2 Track Ins, and in each, select the Input Track to use. You are going to direct-convert the audio track in the output - you're not changing the encoding.

- In Track Out, you don't have to change the configuration, because each Output Channel defaults to a sequential input channel, beginning at 1. Channel Assignments are set to Not Assigned and you don't need labels.

Channel Re-organization Examples

In this example, suppose that your input audio track has 8 channels of PCM audio, with the first six channels representing a 5.1 English program, and the remaining two channels representing a stereo French program. If you want the output transcoder to encode only the French program, you should configure the filter as follows:

Example 1

Output Channel 1 : 7, Output Channel 2 : 8, Output Channel 3: no specified value (blank)

Creates a 2 channel output with 2 channels in French (1-2).

Example 2

Output Channel 1 : 7, Output Channel 2 : 8, Output Channel 3-8 : 0, Output Channel 9 : no specified value (blank)

Creates an 8 channel output with 2 channels in French (1-2) and 6 silent channels (3-8).

Example 3

Output Channel 1 : 7, Output Channel 2 : 8, Output Channel 3-4 : 0, Output Channel 5 : 1, Output Channel 6 : 2, Output Channel 7 : no specified value (blank)

Creates a 6 channel output with 2 channels in French (1-2) and 2 silent channels (3-4) and 2 channels in English (original channels 1-2 mapped to channels 5-6).

Automatic mixing of channels may be performed to create missing channels:

Mono Output: If you are creating a mono output, this should use the input channel designated as *Center*, if available. If no input channel is designated as *Center*, then Flip64 mixes the *Left* and *Right* channels (if they are available) to create a mono output.

Back Center Output: If you are creating a Back Center output, such as with 2/1 AC-3 or 3/1 AAC, then the *Back Left* and *Back Right* input channels are mixed to create this output channel.

Channel Mixing Example

In this example, you have a stereo pair in one file, and you want to add background music to it. The music track is in a separate file with one track and 16 channels and you want the music from Channel 2:

- Add 2 Track Ins, and in each, select the Input Track you are using. You're going to direct-convert the audio track to the output - you're not changing the encoding.

- In Track Out, configure the Output Channel 1 field with *1, 2, 4* or *1+2+4* (separate channels with plus signs or commas). Channel Assignments are set to Not Assigned and you don't need labels.

Both examples accomplish the same result: combining input channels 1, 2 and 4 into the output channel.

To change the volume of a channel in the mix, append a scale factor to the input channel, surrounding the scale factor in parenthesis. Here the sound is reduced to 30% of its volume.

1+2+4 (0.3)

This example combines channels 1 and 2 at 100% and channel 4 at 30%, into the output channel.

Audio Track In Settings (up to 16 permitted)

Create a Track In in the Audio Mixer to identify all of the Input audio tracks you need to create your required output audio.

Checkbox. Activates this track for processing. Uncheck to disable the track. To add a new track, check the track checkbox in the empty, untitled track to the right of the last active track.

Name. Specifies the Input track to use for channel selection in your output.

Output Track Settings

Select the Output track to configure it.

Output Channels 1-16 & 17-32. Enter the channel number to use the green button to bind the channel name to an integer variable whose value has been dynamically set upstream.

For each output channel you want to create, enter the input channel number that should be assigned to the output channel. To combine multiple input channels in an output channel, indicate each channel in the field, separating the track numbers with commas or plus signs, including a real number to control volume, in parenthesis immediately following the channel number(s).

To create a silent audio channel, enter a numeric zero (0). To indicate to the converter that processing should stop and no further output channels should be created, leave the field blank.

Channel 1-16 & 17-32 Assignment. Optionally, maps the selected channel to the desired function: Not Assigned | Left | Right | Center | Mono | Low Frequency Effects | Left Surround | Back Left | Right Surround | Back Right | Side Left | Left Total | Side Right | Right Total | Left Rear Surround | Right Rear Surround.

This setting is only used when your output is configured to encode audio in a format that uses channel labels as part of its standard.

Dolby Atmos Converter

The Dolby Atmos Converter renders Dolby Atmos master audio sources and down-mixes it to PCM Stereo, 5.1 Surround Sound, or 7.1 Surround Sound. This converter requires that you use a Dolby Atmos Input.

Atmos In Settings

The track identifies the input track to process.

Track Checkbox. Activates this track for processing. Uncheck to disable it.

Track Name. Specifies the audio track to decode from the Input component(s). The only valid selections are tracks from an Input Dolby Atmos file.

There are no input track configuration settings.

Track Out Settings

The track identifies the output track for use downstream. Select the track to display configuration settings in the panel on the right.

Track Checkbox. Activates this track for use downstream. Uncheck to disable the track.

Name. Specifies the name of the track to identify it for selection downstream (for example, *Stereo 1*) in place. The name should be unique within the action.

Output Configuration. Specifies the type of audio for the output track: Stereo | 5.1 | 7.1.

Dolby E Decoder Converter

The Dolby E Decoder Converter decodes the specified input audio track containing a Dolby E audio stereo pair, and generates a new audio track containing uncompressed audio. The number of output channels in the decoded track is based on the type of program stored in the original stereo pair, and can vary from 4 to 8 channels. This is typically in preparation for encoding the audio in an output component.

Audio Track In Settings

The track identifies the input track to process.

Track Checkbox. Activates this track for processing. Uncheck to disable it.

Track Name. Specifies the name of the track to decode from the Input component(s).

There are no input track configuration settings.

Audio Track Out Settings

The audio track identifies the output track for use downstream. Select the track to display configuration settings in the panel on the right.

Track Checkbox. Activates this track for processing. Uncheck to disable it.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1 [Media Expansion]*) in place. This track name should be unique within the action.

General

Language. Check and make a selection to specify the language of this track.

Dolby E Parameters

Dolby Detection Timeout. Specify how long (in seconds) the decoder will process the audio input for Dolby E audio in the stereo pair before determining it is not a Dolby E stereo pair.

Fail if Dolby E Not Found. When checked, causes the action to fail. Otherwise, continue, assuming the input audio is uncompressed PCM.

Dolby E Advanced Parameters

Dolby E Advanced Parameters. Select Not Enabled | Specify Parameters. When Specify Parameters is selected, configure this control.

Channel Pair. Select the input channel stereo pair that contains the Dolby E audio.

InSync FrameFormer Converter(Flip64)

The FrameFormer converter is a licensed CPU based frame rate and format conversion solution from InSync Technology in Flip64.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Video Stream In Settings

The video stream identifies the input stream you specify for conversion.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Specifies the name of the input stream you are using.

Video Stream Out Settings

The video stream identifies the output stream for use downstream.

Checkbox. Activates this stream for use downstream. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1 [InSync FrameFormer Converter]*) in place. This track name should be unique within the action.

Configuration

The configuration panel (on the right, when the Insync FrameFormer converter panel is selected) contains controls to determine how the InSync FrameFormer Converter processes media.

Convert Filter

Check to enable this filter and configure these controls:

General

Temporal Conversion Mode. Specify the conversion mode for the output material: Synchronize to Newest Sample | Linear Interpolation | Motion Compensated Interpolation.

Output Size

Output Size. Specify output size (in pixels): From Encoder Settings (input file resolution) | Custom Output size (specify the Output Width and the Output Height).

Frame Rate

Frame Rate. Specify the output frame rate: From Encoder Settings (input file frame rate | Custom Frame Rate (specify the numerator and denominator) |Preset frame rates as selected.

Interlace Mode

Interlacing Mode. Specify scan type (interlaced/progressive): From Encoder Settings (input file scan type) | Custom Interlace Scan Type. For interlaced outputs, select Interlacing Mode: Progressive | Interlaced Top Field First (TFF) | Interlaced Bottom Field First (BFF).

Aspect Ratio Conversion

Aspect Ratio Conversion. Specify None | Custom Aspect Ratio Conversion (and specify Scale, Aspect, H Offset, and V Offset) | Preset ratio conversion as selected.

Cadence Filter

Check to enable specification of input and output cadence modes. Unchecked by default.

Input Mode

Specify None (default) | Auto | Preset fixed cadence pattern as selected.

Output Mode

Specify None (default) | Preset fixed cadence pattern as selected.

For both Input Mode and Output Mode, fixed cadence patterns include:

2:2 Fixed 2:2 Cadence. This pattern has a phase count of two.

2:3 Fixed 2:3 cadence. This pattern has a phase count of five, typically termed AA, BB, BC, CD and DD.

2:3:3:2 Fixed 2:3:3:2 cadence. This pattern has a phase count of five, typically termed AA, BB, BC, CC and DD.

HDR 10+ Insert Converter

The HDR10+ Insert converter is an optional, licensed converter for inserting dynamic HDR10+ metadata. Typically used in conjunction with the HDR10+ Input.

HDR10+ In Settings

The HDR10+ In track identifies the input track you specify. Typically this is the output track from an HDR10+ Metadata decode.

Checkbox. When checked, activates this track for processing.

Name. Specifies the name of the input track you are using.

ANC In Settings

The ANC In track propagates the track in an input file for use in the output file.

Checkbox. When checked, activates this track for processing.

Name. Specifies the name of the input track you are using.

ANC Out Settings

The ANC track identifies the output track to be added to the output file. It is comprised of the ANC In track plus the inserted HDR10+ In track, for use downstream.

Checkbox. When checked, activates this track for processing.

Name. Specifies the name of the output track you are using.

Dolby Vision Insert Converter

The Dolby Vision Insert Converter adds a Dolby Vision track in the ANC stream consisting of the Dolby Vision metadata ingested by the Dolby Vision Metadata Input component, which is an optional, licensed feature.

This converter component is typically used in a workflow where an upstream Analyze action has extracted the Dolby Vision metadata from an MXF package and generated this XML file. This enables the Flip64 action to insert the Dolby Vision metadata back into the ANC stream in the output file, by means of the Dolby Vision Insert Converter in the Flip64 action.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

ANC Track In Settings

The track identifies the ANC input track to process.

Track Checkbox. Activates this input track for processing. Uncheck to disable it.

Track Name. Specifies the name of the track to decode from the Input component(s).

There are no input track configuration settings.

DoVi Track In Settings

The track identifies the Dolby Vision input track to insert into the ANC In track.

Track Checkbox. Activates this track for processing. Uncheck to disable it.

Track Name. Specifies the name of the Input track to insert.

There are no input track configuration settings.

ANC Track Out Settings

The ANC track identifies the output track to be added to the output file. It is comprised of the ANC Track In plus the inserted DoVi Track In, for use downstream.

Checkbox. Activates this track for use downstream. Uncheck to disable the track.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *ANC 1 [Dolby Vision Insert]*) in place. This track name should be unique within the action.

IAB Converter

The Immersive Audio Bitstream (IAB) Converter renders IAB-compatible master audio sources and down-mixes it to PCM Stereo, 5.1 Surround Sound, or 7.1 Surround Sound. This converter requires that you use an IAB Input.

IAB In Settings

The track identifies the input track to process.

Track Checkbox. Activates this track for processing. Uncheck to disable it.

Track Name. Specifies the audio track to decode from the Input component(s). The only valid selections are tracks from an Input Dolby Atmos file.

There are no input track configuration settings.

Track Out Settings

The track identifies the output track for use downstream. Select the track to display configuration settings in the panel on the right.

Track Checkbox. Activates this track for use downstream. Uncheck to disable the track.

Name. Specifies the name of the track to identify it for selection downstream (for example, *Stereo 1*) in place. The name should be unique within the action.

Output Configuration. Specifies the type of audio for the output track: Stereo | 5.1 | 7.1.

IAB to Atmos Converter

The IAB to Atmos Converter converter accepts an IAB stream from the IAB Input component, and converts the output to be used for encoding to DD+JOC (Dolby Atmos).

This converter supports IAB DCI format only.

There are no user-configurable settings.

Media Expansion Converter

The Media Expansion Converter allows you to insert up to four segments into an incoming video stream. You can optionally insert black/color frames, a still image or a separate video file, together with silence or audio, and ANC data.

Note: When inserting audio and/or video segments from a file, the source of the audio and video needs to have its own input component added and named, so that you can identify it and access it.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Insert Segment Filter (up to 4 permitted)

Insert point. Specifies where to insert a segment into the stream: Beginning | End | Timecode location. For Timecode, specify the timecode and frames per second (fps) or bind the value to a variable.

Duration of Segment. Specifies the duration that the inserted segment will last: From Audio | From Video | Timecode. The From Audio/Video selections use the length of the audio or video insert to determine the duration. For Timecode, specify the length of the inserted segment in timecode and frames per second (fps) or bind the value to a variable, set in an upstream action.

Note: When performing audio only media expansions, Telestream recommends using the Timecode option for Duration of Segment setting.

Video to Insert. Specifies the video source to insert: Black/color | Still image | Video.

- Black/Color - Specifies the color of the frames to insert.
- Still Image - Specifies the location of the image file by a fully-qualified UNC path.
- Video - Specifies the video stream from an input video stream.

Audio to Insert. Specifies the audio source to insert: Silence | Audio. If you select Audio, you must specify which input audio track to use.

ANC to Insert. Specifies the ANC source to insert: Blank | ANC. For ANC, choose the input ANC track to insert.

Note: Using the Media Expansion converter and adding beginning /ending bumpers while Direct Converting ProRes source files may lead to creation of very large uncompressed outputs. This does not occur if the same process is replicated using a CML or if the Media Expansion filter is removed. Consult Telestream Support Services or the Flip64 CML guide for details.

Video Stream In Settings

The video stream identifies the input stream you specify, into which you are inserting media.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Specifies the name of the input stream you are using.

Audio Track In Settings

The audio track identifies the input track you specify, into which you are inserting media.

Checkbox. Activates this track for processing. Uncheck to disable the track.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This track name should be unique within the action.

ANC In Settings

The ANC track propagates the track in the input file for use in the output file.

Checkbox. Activates this track for processing. Uncheck to disable it.

Name. Specifies the name of the input track you are using.

Video Stream Out Settings

The video stream identifies the output stream for use downstream.

Checkbox. Activates this stream for use downstream. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1 [Media Expansion]*) in place. This track name should be unique within the action.

Audio Track Out Settings

The audio track identifies the output track for use downstream.

Checkbox. Activates this track for processing. Uncheck to disable the track.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1 [Media Expansion]*) in place. This track name should be unique within the action.

ANC Stream Out Settings

The ANC stream identifies the output track for use downstream.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *ANC 1 [Media Expansion]*) in place. This stream name should be unique within the action.

SCC Insert Converter

The SCC Insert Converter is used to control the insertion of a specified input SCC stream.

Closed captions are inserted from the specified ANC stream or data input streams in the case of an SCC input file, into an output ANC stream, at the matching timecode of the input media. If the media timecode is later than the start of the SCC, the SCC Insert Converter will keep reading captions, looking for a timecode equal to or greater than the current media timecode. If it cannot find one in the SCC file, no captions will be inserted.

The SCC Insert Converter allows you to insert SCC captions at the desired location in the output when the timecodes are not in sync. This is done by modifying the timecode of the output using the Time Code Processing Filter found in the ANC Stream settings of the selected output container .

Here are some examples:

SCC file starts at a non-zero hour: For example, the SCC timecode is 01:00:12:22 and you want the SCC inserted at 00:00:12:22 time in the output, but the input timecode is 00:00:00:00. Enable the Time Code Processing Filter in the ANC output track, and set the timecode value to that of the SCC file (in this case, 01:00:00:00).

Input file starts at a non-zero hour: In this reverse example, the SCC timecode is 00:00:12:22, but the input timecode is 01:00:00:00. Enable the Time Code Processing Filter in the video transcoder, and set the timecode value to that of the SCC file (in this case, 00:00:00:00).

Midnight Rollover: In this example, SCC timecode starts at 00:00:12:22, and while the original timecode started at 00:00:00:00 (or had no timecode), a leader - 30 seconds worth - was inserted. You need to override the timecode to 23:59:30:00. At 23:59:59;29 + 1, the timecode will roll over to 00:00:00:00 and captions will still be inserted at 00:00:12:22.

ANC Input Stream Settings

Reads the ANC input metadata stream for captions, timecode, etc.

Checkbox. Activates this ANC stream as specified in the input. This allows you to preserve existing ANC data or insert new data (ex. via specified SCC Input). Uncheck to disable the stream.

Name. Specifies the ANC stream to use from the Inputs list.

Data Input Streams

Select one or more streams to configure. Multiple streams are permitted (ex. multiple SCC inputs for various languages).

Checkbox. Activates this data stream with SCC data for use in this converter. Uncheck to disable the stream. To add a new stream, check the stream checkbox in the empty, untitled stream to the right of the last active stream.

Name. Specifies the data stream to insert from the Input Data streams.

Start of Media Timecode Override. Check to override the starting timecode and enter the timecode to apply. If unchecked, the frame rate and starting timecode are derived from the input video stream.

Field. Specifies the field for SCC caption insertion.

ANC Output Stream Settings

Creates an output metadata stream for further use.

Checkbox. Activates this ANC stream with SCC data for use in this converter. Uncheck to disable the stream.

Name. Provides the output data stream a new name which can then be used when configuring the ANC stream in the output container.

SMPTE 337m AC3 Decoder

The SMPTE 337m AC3 Decoder converter processes a single incoming audio track, unwraps and decodes the first two channels of AC3 or EC3 audio, and outputs eight channels of PCM. For example, if source contains 5.1 audio, 6 output channels will contain audio per program and 2 will be silent.

Note: When extracting multiple audio tracks, an input component which allows the specification of multiple input audio tracks (ex. MXF input, Auto Input Multiple Tracks, etc.) must be used in conjunction with the audio mixer to create single track streams which can be directed to the SMPTE 337m AC3 Decoder.

Audio Track In Settings

The track identifies the input track to process.

Track Checkbox. Activates this track for processing. Uncheck to disable it.

Track Name. Specifies the name of the track to decode from the Input component(s).

There are no input track configuration settings.

Audio Track Out Settings

The audio track identifies the output track for use downstream. Select the track to display configuration settings in the panel on the right.

Track Checkbox. Activates this track for processing. Uncheck to disable it.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1 [Media Expansion]*) in place. This track name should be unique within the action.

SMPTE 337m AC3 Unwrapper

The SMPTE 337m AC3 Unwrapper converter processes a single incoming audio track and unwraps 2 channels of compressed AC3 or EC3 audio to AC3 or EC3 outputs. The number of output channels depends on channel configuration.

Note: When extracting multiple audio tracks, an input component which allows the specification of multiple input audio tracks (ex. MXF input, Auto Input Multiple Tracks, etc) must be used in conjunction with the audio mixer to create single track streams which can be directed to the SMPTE 337m AC3 Decoder.

Note: Outputs which utilize these unwrapped streams must be configured for Direct Convert.

Audio Track In Settings

The track identifies the input track to process.

Track Checkbox. Activates this track for processing. Uncheck to disable it.

Track Name. Specifies the name of the track to decode from the Input component(s).

There are no input track configuration settings.

Audio Track Out Settings

The audio track identifies the output track for use downstream. Select the track to display configuration settings in the panel on the right.

Track Checkbox. Activates this track for processing. Uncheck to disable it.

Name. Enter the name of the track to identify it for selection later, or leave the default value (for example, *Audio 1 [Media Expansion]*) in place. This track name should be unique within the action.

Output Components

An Output component transcodes or direct-converts each input stream according to the specified codec. It optionally applies standards conversion, adjusting frame rate and frame size and custom cadence adjustments as specified. You can also add color processing, overlays, image processing filters, and user data processing, plus a comprehensive suite of special-purpose filters.

The encoded media streams and tracks are written to the output file(s) in the specified container/file format. Up to four outputs may be specified.

Output Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the set, for organization/readability purposes. Alternatively, use drag-and-drop: select a component and drag it to its new location in the set.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action. Click to select the type of output you want to add.

Deleting an Output

Delete. To delete an output, click the X icon immediately right of the nickname menu.

Adding and Configuring Outputs

To add and configure outputs, follow these steps:

1. Add Outputs. Add (using the Add icon - Plus sign button - in the Output component toolbar) your outputs by container/media type. Add one output for each type of file you plan to generate.

2. Select the When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Browse button and select a variable which supplies the fully-qualified path.

3. Edit the Filename. Displays the Filename Pattern Editor and specifies the pattern for the file you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

4. Select the Media Nickname. Click the menu to select the nickname (or enter it manually) for this new file.

5. Configure the Output. Select the output and configure it using the configuration panels to the right, as appropriate.

Configuring Output Video Streams

The video stream propagates the stream to the specified codec unless the stream is disabled.

Checkbox. Activates this stream for processing. Uncheck to disable processing.

Name. Select the name of the input stream to process, or leave the default value (for example, *Video 1* or *Video 1<Converter Name>*) in place. The set of stream names is comprised of video streams specified in the input or converter components.

Select a stream to display its configuration panels (if any) on the right.

Configuring Output Audio Tracks

The audio track propagates the track to the specified codec unless the track is disabled.

Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the set.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Name. Select the name of the input or converter stream to process, or leave the default value (for example, *Audio 1* or *Audio 1<Converter Name>*) in place. The set of stream names is comprised of video streams specified in the input or converter components.

Select a track to display its configuration panels (if any) on the right.

Configuring Output ANC Streams

The ANC stream propagates the stream to the specified codec unless the stream is disabled.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Select the name of the input or converter stream to convert, or leave the default value (for example, *ANC 1* or *ANC 1<Converter Name>*) in place. The set of stream names is comprised of ANC streams specified in the input or converter components.

Select a stream to display its configuration panels (if any) on the right.

BWAV Output

The BWAV Output component direct-converts or encodes an audio track into Broadcast Wave audio file format, complying with the RIFF/Wave and EBU Tech 3285 specifications. PCM and MPEG1 audio formats are supported.

Select the track and then select the codec to configure it per your requirements.

Container Settings

File Extension. Specifies the file extension (default: wav).

The following metadata settings are optional. Full descriptions can be found in the Broadcast Wave specification (EBU TECH 3285), which is freely-available at the EBU Web site (www.ebu.ch).

Description | Originator | Originator Reference | Origination Date | Origination Time | UMID. Specifies the value of each of these metadata fields.

Loudness Value. Specifies the integrated loudness value of the output in LUFS.

Loudness Range. Specifies the maximum loudness range of the output in LU.

Max True Peak Level. Specifies the maximum true peak level of the output in dBTP.

Max Momentary Loudness. Specifies the maximum momentary loudness level of the output in LUFS.

Max Short Term Loudness. Specifies the maximum short term loudness level of the output in LUFS.

Coding History. Specifies the encoding history in free-form text.

Time Reference. Specifies the position of the first audio sample of a file when placed on a timeline.

Force BWAV to Conform to RF64. When enabled, forces BWAV to conform to the RF64 audio format even when the output file is under 4GB. Unchecked by default.

Enable Extensible WAV Format. When enabled, supports use of extensible wave format for multichannel audio. Unchecked by default.

Note: The Extensible WAV Format feature is used in conjunction with the Channel Designation Filter configured at the audio stream level. The Extensible WAV format utilizes a channel 'mask' which enforces a specific sequential channel layout. Channel specification in the Channel Designation Filter must follow this mask sequence. If the channels configured in the Channel Designation Filter do not match the order defined in the specification, the output will be automatically reordered to match the mask sequence.
For details, see https://docs.microsoft.com/en-us/windows-hardware/drivers/ddi/ksmedia/ns-ksmedia-waveformatextensible

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Audio Settings

Codec. Specifies Direct Convert or the codec to use for encoding the audio track.

Filters. Enable and configure filters as appropriate.

Wave Output

The Wave Output component direct-converts or encodes an audio track into Wave audio file format, which is compliant with the RIFF/Wave specification. Only PCM audio format is supported.

Audio Settings

Codec. Specifies Direct Convert or the codec to use for encoding the audio track.

Filters. Enable and configure filters as appropriate.

MXF OP1a Audio Only Output

The MXF OP1a Audio Only Output component generates an OP1a package containing a single audio track. These packages are compliant with SMPTE-377M and SMPTE-378M standards.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

Wrap Audio as BWF. When checked, wraps the audio as Broadcast Wave format (BWF).

Audio Track Settings

Codec. Specifies the PCM codec to use for encoding the audio track.

Number of Channels. Specifies the PCM codec to use for encoding the audio track.

Sample Rate. Specifies the PCM codec to use for encoding the audio track.

Format. Specifies the PCM codec to use for encoding the audio track.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

Digital Cinema Package (DCP) Output

The DCP (Digital Cinema Package) Output component creates MXF track files, compliant with SMPTE-428, SMPTE-429, and SMPTE-433 standards. It direct-converts/encodes a video stream using one of the available JPEG codecs and direct-converts/encodes up to 16 audio streams using the PCM codec. It supports one ANC track with data as specified.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

DCP Component Settings

Output Location. Click Output Location and select from these choices:

- Available Vantage Store: Write the file to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Vantage Store/Folder*: Write the file to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

Container Settings

Select the DCP Output component to display its configuration panel to the right.

General

CPL Name. Specifies the name of the CPL file.

Content Kind

Content Kind. Specifies Default. No other choices available.

Content Kind Type. Specifies selected keyword.

Package Directory

Package Directory Name. Specifies the name of the package directory.

Content Title

Content Title. Specifies the title of the content.

Content Version List

Add New Item. Adds a new version.

- **Content Version ID**. Free-form text, user supplied.
- **Content Version Label Text**. Free-form text, user supplied.

Video Settings

Select the Video component to display its configuration panel, to the right.

DCP Video Track Name. Specifies the name of the video track.

Codec. Specifies Direct Convert or the JPEG codec to use for encoding the video stream, and appropriate settings, by category.

Filters. Enable and configure filters as appropriate.

Audio Settings

To add additional audio tracks (16 are supported), check the empty track control to the right of the last active track.

DCP Video Track Name. Specifies the name of the audio track.

Codec. Specifies Direct Convert or the PCM codec to use for encoding the audio track.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

AVI Output

The AVI Output component in Flip64 allows for the creation of standard AVI files. This file format wraps and interleaves video and audio according to the specific output requirements specified in the included codecs.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

There are no configurable settings for this container.

Video Settings

Video Processor. Specifies which video processor and associated settings to use for transcoding.

Codec. Specifies codec to use for encoding the video stream, and appropriate settings, by category.

Filters. Enable and configure filters as appropriate.

Audio Settings

Codec. Specifies Direct Convert or the codec to use for encoding the audio track, and appropriate settings.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

Ross Abekas Output

The Ross Abekas Output component allows for the creation of Abekas MIRAclip media file formats with AVC Intra 100 and JPEG 2000 video essences and the Sequoia Audio format. Alpha channel propagation is also supported when used in conjunction with the Alpha Extractor converter. For configuration help and access to sample workflows, contact your Telestream support representative.

Note: ANC streams are not supported for Ross Abekas outputs.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Video Stream 1

The video stream propagates the stream from the converter.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1[Alpha Extractor]*) in place. This stream name should be unique within the action.

Note: The Alpha Extractor must be added as a Converter to create outputs with a valid Alpha channel. If an Alpha channel is not desired disable the alpha channel video track in the output.

Video Stream 2

The video stream propagates the stream from the input file. Normally, the video stream is passed unaltered through to the next stage unless the track is disabled.

Checkbox. Activates this stream for processing. Uncheck to disable the stream.

Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the action.

Supported Formats and Requirements

AVC Intra 100 and JPEG 2000 video essences are supported in a limited number of clip formats. For AVC Intra 100, a preconfigured list of video profiles are available. No additional configurations are required or permitted. For JPEG 2000 formats, there are specific configuration requirements. Please review the sample workflows available from your Telestream support team for examples of JPEG 2000 workflow configurations.

Note: Source Resolution, Field Order and Frame Rate must match Output Resolution, Field Order and Frame Rate. Any changes to Resolution, Field Order and Frame Rate need to be performed in a previous Flip64 action.

Note: The Resolution, Field Order and Frame Rate of the Alpha channel must match Output Resolution, Field Order and Frame Rate.

Note: AVC-I Outputs will not work with 1080i@25fps and 1080i@29.97fps source files with the alpha extractor. These sources do work if you disable the alpha extractor. These sources also work for JPEG2000 outputs with and without the alpha extractor.

Audio Track

Select the stream to display its configuration panels (if any) and filters on the right.

Codec. Specifies the codec to use for encoding the audio stream, and appropriate settings, by category.

Filters. Enable and configure filters as appropriate.

Elementary Streams Output

The Elementary Streams Output component direct-converts or encodes a video or audio stream using one of the available codecs. The streams are written as an elementary stream file with no container wrapper.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Video Stream

Select the stream to display its configuration panels (if any) and filters on the right.

Video Processor. Specifies which video processor to use for transcoding.

Codec. Specifies Direct Convert or the codec to use for encoding the video stream, and appropriate settings, by category.

Filters. Enable and configure filters as appropriate.

Audio Track

Select the stream to display its configuration panels (if any) and filters on the right.

ES Audio Track Name. When checked, allows specification of audio track name to override default name as determined from the source. Unchecked by default.

Audio File Name Suffix. When checked, allows specification of a value for override of the default track index suffix which is normally appended to the filename (filename_0, filename_1, etc.). Unchecked by default.

Note: If Audio File Name Suffix is checked and no value is entered in the field (left blank), no suffix will be appended.

SMPTE337m AC3/EC3 Wrap. When checked an AC3 or EC3 stream will be wrapped in an AES3 interface format as defined by the SMPTE 337m specification. Allows for wrapping of direct converted and transcoded audio to outputs with a .wav extension. If the input stream does not contain AC3 or EC3 audio, no wrapping will occur. Unchecked by default.

Codec. Specifies the codec to use for encoding the video stream, and appropriate settings, by category.

Filters. Enable and configure filters as appropriate.

ANC Settings

Select the stream to display its configuration panels (if any) and filters on the right.

Filters. Enable and configure filters as appropriate.

Harmonic Omneon Output

The Harmonic Omneon Output component direct-converts the video and audio or encodes it using one of the available codecs.
The Output component wraps the specified media in a QuickTime Reference movie files for use by Omneon Spectrum Servers.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

Insert a Timecode Track. Specifies type of timecode track to add to movie. Options are No Timecode Track | Timecode Track Hidden | Timecode Track Visible. Default is No Timecode Track.

Timecode Track Title. Specifies timecode track title if timecode track is present.

Video Settings

Processor. Specifies video processor, and associated settings, to use for transcoding.

Codec. Specifies Direct Convert or the codec, and associated settings, to use for encoding the video stream.

User Data Filter. Enable and configure filters as appropriate.

Audio Track Settings

Audio Track Name. When checked, allows specification of audio track name to override default name as determined from the source. Unchecked by default.

Audio File Name Suffix. When checked, allows specification of a value for override of the default track index suffix which is normally appended to the filename (filename_0, filename_1, etc.). Unchecked by default.

Note: If Audio File Name Suffix is checked and no value is entered in the field (left blank), no suffix will be appended.

Codec. Specifies Direct Convert or the codec, and associated settings, to use for encoding the audio track.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

Keyframe Output

The Keyframe Output component generates one or multiple keyframe raster images in PNG or JPG format and saves them as an image file.

General Settings

File Extension. Select the file extension from the menu as available.

Frame Width. Specifies the width of the frame in pixels.

Frame Height. Specifies the height of the frame in pixels.

Image Quality. Specifies the quality of the image in percentage.

Bit Depth. Specifies image bit depth. 8 by default. (PNG Only)

Preserve Alpha. When checked, alpha channel is preserved in outputs. Unchecked by default. (PNG Only)

Subsampling. Specify chroma subsampling scheme to use. Default is 4:2:0. (JPEG Only)

Add Time Code to File Name. When checked, appends the timecode of the keyframe to the filename instead of an index. If not checked (default), underscore index added to filename.

Use Source Video Timing. When checked, uses source time code (with proper frame rate and drop frame/non drop frame notation specified) to determine frame for capture. Unchecked by default.

Note: ANC track and associated Time Code Processing Filter must be enabled when using Add Time Code to File Name and Use Source Video Timing features or jobs will fail.

Capture Mode

Capture Mode. Specifies capture mode for frames. (Single Keyframe | Repeating Keyframe | Scene Changes)

Capture Time. When Single Keyframe is selected, specifies the time where the frame should be captured.

Capture Interval. When Repeating Keyframe is selected, specifies the time between frame captures.

Minimum Interval. When Scene Changes is selected, indicates the minimum interval between keyframes.

Scene Change Sensitivity. When Scene Changes is selected, indicates the frequency of keyframe generation measured in percent. Higher values will generate more keyframes. Default is 50.

MPEG-2 Program Stream Output

The MPEG-2 Program Stream output is designed for relatively reliable transmission methods or storage media, where the loss of data is unlikely.

The Output component wraps the specified media in the proper file format.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

General Settings

File Extension. Specifies output file name extension. Default is mpg.

Video Settings

Processor. Specifies which video processor to use for transcoding.

Codec. Specifies codec to use for encoding the video stream, and appropriate settings, by category.

Filters. Enable and configure filters as appropriate.

Audio Track Settings

Codec. Specifies the codec to use for encoding the audio track, and appropriate settings.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

MPEG-4 Output

The MPEG-4 Output component direct-converts the video and audio or encodes it using the one of the available codecs. MPEG-4 output files are compliant with the ISO/IEC 14496 specification. The component also supports ANC insertion.

The Output component wraps the specified media in the proper file format.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

Fast Start. Fast Start provides configuration options to enable viewers to begin playback of the media before the complete file has been downloaded from a Web server.

Rotation Metadata. Specifies rotation metadata to add to header of MP4 output. Default is None.

Trim audio to video duration. When checked, audio duration is trimmed to match video duration. Unchecked by default.

Suppress Edit Lists. When checked, output will not contain edit decision list metadata. Unchecked by default.

Insert Timecode Track. When checked, a QuickTime timecode track is added to the output file. Unchecked by default.

Video Settings

Processor. Specifies which video processor to use for transcoding.

Codec. Specifies Direct Convert or the codec to use for encoding the video stream, and appropriate settings, by category.

Filters. Enable and configure filters as appropriate.

Audio Track Settings

Language. When enabled, overrides the language associated with this audio stream. NOTE: If variable binding is utilized, the value in the Text variable must exactly match one of the original language selections in the encoder.

Language Code. When enabled, overrides the language associated with this audio stream with the language represented by the 3 letter ISO 639-3 language code entered. NOTE: This parameter overrides the Language name selection.

Codec. Specifies Direct Convert or the codec to use for encoding the audio track, and appropriate settings.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

IMF Output

The IMF Output component generates an Interoperable Master Format package conforming to the SMPTE ST-2067 Application 2E standard. This component creates *simple* IMF packages with a single, continuous video track.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

General

Conform to Frame Boundary. When checked, specifies that track durations written to the CPL are truncated as necessary, to ensure that the tracks align on a five-frame boundary.

Insert SMPTE 436 Ancillary Data. When checked, inserts a SMPTE 436 Ancillary Data Essence container.

Suppress Timeout Detection on Hashing. When checked, disables timeout detection on hashing. Unchecked by default.

Disable Hash Calculation. When checked, disables hash calculation for improved encode times. Unchecked by default.

Note: Disabled hash calculation will result in non-compliant IMF packages.

Generate Output Profile List (OPL). When checked, generates Output Profile List. Enabled by default.

Generate CPL. When checked, generates CPL (Composition Play List). Enabled by default.

CPL Name. Specifies name of CPL file if present.

Generate Packing List. When checked, generates Packing List. Enabled by default.

Generate Asset Map. When checked, generates Asset Map. Enabled by default.

Content Kind

Content Kind Type. Specifies the kind of work represented by the Composition.

Segmentation

Segmented Output. Specifies No Segmentation | Segmented Output, where audio, and video are separated into track files, and assembled into a CPL.

Segment Duration. When Segmented Output is enabled, specifies the duration of each segment, in minutes.

Do Not Segment Audio. When checked, audio tracks are not segmented.

Package Directory

Package Directory Name. Specifies directory to create containing all files from package. Blank by default (no directory is created).

Content Title

Content Title. Specifies the title for the composition.

Marker Sequences

Marker Sequence. When checked, allows specification of marker sequence labels and offsets in output CPL files. Typically this is used to specify FFOC and LFOC in a sequence along with offset values.

Sidecar Assets

Enables jobs to include sidecar assets files (SCC for example), create a sidecar asset map and include sidecar asset files containing information applicable to the composition in the output, per SMPTE 2067-9.

Sidecar Composition Map Name. Specifies the base name of the sidecar composition map XML file.

Sidecar Assets List. When checked, add one or more sidecar assets files and arrange them in the required order or delete them.

- **Add New Item**. Adds a new asset. For each asset, configure these controls:
  - **Path**. Specifies the fully-qualified path name, including file name. Manually enter or browse to identify the fully-qualified path including the source file name.
  - **Filename**. Optionally, specifies the new file name, which overrides the original source file name in the output.

HDR Metadata

Add SMPTE 2086 Master Display Metadata. When checked, specifies that track durations written to the CPL are truncated as necessary, to ensure that the tracks align on a five-frame boundary.

Master Display X | Y Coordinate for Red | Green |Blue. Specifies the X and Y coordinates for the red, green, and blue mastering display.

Master Display X | Y Coordinate for White Point. Specifies the X and Y coordinates for the white point mastering display.

Min. | Max Display Mastering Luminance. Specifies the nominal minimum and maximum display luminance of the mastering display as configured for the mastering process.

Add CTA-861.3 Content Light Level Metadata. When checked, enables the SEI message with CTA-861.3 Content Light Level Metadata (--max-cll).

MaxCLL. Maximum content light level, in cd/m2.

MaxFALL. Maximum frame average light level, in cd/m2.

Content Version List

When checked, allows specification of a list of content version elements in output CPL files. Typically this is used to specify House ID and associated values.

Video Settings

When checked, generates a video track from the selected input video stream for inclusion in the output media.

IMF Video Track Name. Specifies name of IMF video track.

Video Processor. Specifies which video processor to use for transcoding.

Codec. Specifies Direct Convert or the codec to use for encoding the video stream, and appropriate settings, by category.

User Data Filter. Enable and configure user data filters as appropriate.

Audio Track Settings

When checked, generates an audio track from the selected input audio stream for inclusion in the output media.

Language. When enabled, overrides the language associated with this audio stream. NOTE: If variable binding is utilized, the value in the Text variable must exactly match one of the original language selections in the encoder.

Spoken Language. When enabled, allows specification of the spoken language in the audio stream. This may be either the original language or a dubbed language.

MCA Content Title. Specifies Content Title. Blank by default generates value *Telestream Title*.

MCA Title Version. Specifies Title Version. Blank by default generates value *Telestream Title Version*.

MCA Audio Element Kind. Specify Audio Element Kind. Blank by default generates value *Telestream Audio Element Kind*.

MCA Audio Content Kind. Specify Audio Content Kind. Blank by default generates value *Telestream Audio Content Kind*.

IMF Audio Track Name. Specifies name of IMF audio track.

Audio Entry Point. Specifies audio entry point by frame value. Added as a tag in the audio sequence list.

Audio Source Duration. Specifies audio duration by total number of frames.Added as a tag in the audio sequence list.

Codec

Specifies Direct Convert or the PCM codec to use for encoding the audio track, and appropriate settings.

Filters

Enable and configure filters as appropriate.

ANC Settings

When checked, generates an ancillary data track from the selected input ANC track for inclusion in the output media.

Filters. Enable and configure filters as appropriate.

Data Settings (multiple permitted)

When checked, generates a data track from the selected data track for inclusion in the output media.

IMF DPP Output

The IMF DPP Output component generates an Interoperable Master Format package conforming to the SMPTE TSP 2121-1 standard. The available video codecs produce MXF wrapped ProRes or Direct Converts. This component can only create *simple* IMF packages with a single, continuous video track.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

General

Conform to Frame Boundary. When checked, specifies that track durations written to the CPL are truncated as necessary, to ensure that the tracks align on a five-frame boundary.

Insert SMPTE 436 Ancillary Data. When checked, inserts a SMPTE 436 Ancillary Data Essence container.

Suppress Timeout Detection on Hashing. When checked, disables timeout detection on hashing. Unchecked by default.

Disable Hash Calculation. When checked, disables hash calculation for improved encode times. Unchecked by default.

Note: Disabled hash calculation will result in non-compliant IMF packages.

Generate Output Profile List (OPL). When checked, generates Output Profile List. Unchecked by default.

Generate CPL. When checked, generates CPL (Composition Play List). Unchecked by default.

CPL Name. Specifies name of CPL file if present.

Generate Packing List. When checked, generates Packing List. Unchecked by default.

Generate Asset Map. When checked, generates Asset Map. Unchecked by default.

Content Kind

Content KInd Type. Specifies the kind of work represented by the Composition. See drop down for supported values.

Package Directory

Package Directory Name. Specifies directory to create containing all files from package. Blank by default (no directory is created).

Content Title

Content Title. Specifies the title for the composition.

Marker Sequences

When checked, allows specification of marker sequence labels and offsets in output CPL files. Typically this is used to specify FFOC and LFOC in a sequence along with offset values.

HDR Metadata

Add SMPTE 2086 Master Display Metadata. When checked, specifies that track durations written to the CPL are truncated as necessary, to ensure that the tracks align on a five-frame boundary.

Master Display X | Y Coordinate for Red | Green |Blue. Specifies the X and Y coordinates for the red, green, and blue mastering display.

Master Display X | Y Coordinate for White Point. Specifies the X and Y coordinates for the white point mastering display.

Min. | Max Display Mastering Luminance. Specifies the nominal minimum and maximum display luminance of the mastering display as configured for the mastering process.

Add CTA-861.3 Content Light Level Metadata. When checked, enables the SEI message with CTA-861.3 Content Light Level Metadata (--max-cll).

MaxCLL. Maximum content light level, in cd/m2.

MaxFALL. Maximum frame average light level, in cd/m2.

Content Version List

When checked, allows specification of a list of content version elements in output CPL files. Typically this is used to specify House ID and associated values.

Video Settings

When checked, generates a video track from the selected input video stream for inclusion in the output media.

IMF Video Track Name. Specifies name of IMF Video Track.

Video Processor. Specifies which video processor to use for transcoding.

Codec. Specifies IMF DPP constrained ProRes or Direct Convert codec to use for encoding the video stream, and appropriate settings, by category.

User Data Filter. Enable and configure user data filters as appropriate.

Audio Track Settings

When checked, generates an audio track from the selected input audio stream for inclusion in the output media.

Language. When enabled, overrides the language associated with this audio stream.

Note: NOTE: If variable binding is utilized, the value in the Text variable must exactly match one of the original language selections in the encoder.

MCA Content Title. Specify Content Title. Blank by default generates value of *Telestream Title*.

MCA Title Version. Specify Title Version. Blank by default generates value of *Telestream TitleVersion*.

MCA Audio Element Kind. Specify Audio Element Kind. Blank by default generates value of *Telestream Audio Element Kind*.

MCA Audio Content Kind. Specify Audio Content Kind. Blank by default generates value of *Telestream Audio Content Kind*.

IMF Audio Track Name. Specifies name of IMF Audio Track.

Codec. Specifies Direct Convert or the PCM codec to use for encoding the audio track, and appropriate settings.

Filters. Enable and configure filters as appropriate.

ANC Settings

When checked, generates an ancillary data track from the selected input ANC track for inclusion in the output media.

Filters. Enable and configure filters as appropriate.

Data Settings (multiple permitted)

When checked, generates a data track from the selected data track for inclusion in the output media.

Matroska Output

The Matroska Output component generates a package compatible with Matroska video playback.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

HDR Metadata

Add SMPTE 2086 Master Display Metadata. When checked, enables the SEI message with SMPTE 2086 master display metadata. Specify master display metadata values in the fields below.

Add CTA-861.3 Content Light Level Metadata. When checked, enables the SEI message with CTA-861.3 content light level metadata.

Maximum CLL. Specifies the maximum content light level.

Maximum FALL. Specifies the maximum frame average light level.

Add Metadata Tags

When checked, allows addition of container level metadata tags as name/value pairs. Unchecked by default.

Video Settings

Video Processor. Specifies which video processor to use for transcoding.

Codec. Specifies Direct Convert or the codec to use for encoding the video stream, and appropriate settings, by category.

User Data Filter. Enable and configure this filter as appropriate.

Audio Track Settings

Language. Specifies the language of this track.

Codec. Specifies Direct Convert or the PCM codec to use for encoding the audio track, and appropriate settings.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

MXF ARD_ZDF Output

ARDZDF is the specification for file interchange for German public broadcasters published by the IRT (Institut für Rundfunktechnik). There are two specifications: one for AVC Intra media and another for XDCAM HD media.

Video Settings

Processor. Specifies which video processor to use for transcoding.

Codec. Select the codec to use for encoding the video stream, and appropriate settings, by category.

Filters. Enable and configure filters as appropriate.

Audio Track Settings

Codec. Specifies the PCM codec to use for encoding the audio track, and appropriate settings.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

MXF AS-02 Output

The MXF AS-02 Output generates an AMWA AS-02-compliant MXF package. These packages are compliant with SMPTE-377M standard and AMWA MXF AS-02 MXF Versioning specification.

The AS-02 container is implemented specifically to support the AS-02 specification - its constraints and operational rules.

Depending upon the desired operating pattern, MXF support may require the use of actions (in addition to encode) in the workflow to translate metadata or to create packages that include MXF files.

Container Settings

Insert SMPTE 436 Ancillary Data Track. When checked, an ANC track for SMPTE 436 data is added to the output.

Video Settings

Processor. Specifies which video processor to use for transcoding.

Codec. Specifies Direct Convert or the codec to use for encoding the video stream, and appropriate settings, by category.

Filters. Enable and configure filters as appropriate.

Audio Track Settings

Codec. Specifies Direct Convert or the codec to use for encoding the audio track, and appropriate settings.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

MXF AS-03 Output

The MXF AS-03 Output generates an AMWA AS-03-compliant MXF package. These packages are compliant with SMPTE-377M standard and AMWA MXF AS-03 delivery specification.

Container Settings

Partition Duration. When checked, specifies the MXF partition duration in seconds.

Insert SMPTE 436 Ancillary Data. When checked, adds a SMPTE 436 ancillary data track.

AS03 Identifier Metadata Items. Specifies text string values for appropriate AS03 Identifier metadata items as listed.

Video Stream Settings

Processor. Specifies which video processor to use for transcoding.

Codec. Specifies Direct Convert or the codec to use for encoding the video stream, and appropriate settings, by category.

Filters. Enable and configure filters as appropriate.

Audio Track Settings

Codec. Specifies Direct Convert or the PCM codec to use for encoding the audio track, and appropriate settings.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

MXF AS-10 French Shim Output

The MXF AS-10 French Shim Output generates an AMWA AS-10-compliant MXF package. These packages are compliant with SMPTE-377M standard and AMWA MXF AS-10 delivery specification.

Container Settings

File Extension. Specify file extension. Default: mxf.

AS10 Identifier Metadata Items. Specifies text string values for appropriate AS10 Identifier metadata items as listed.

Common Spanning ID. Specify common spanning id. Default: 0.

Spanning Number. Specify spanning number. Range is 1-65535. Default: 1.

Cumulative Duration. Specify cumulative duration. Default: 0.

Video Stream Settings

Processor.

Specifies which video processor to use for transcoding.

Filters. Enable and configure filters as appropriate

Codec

Select the codec to use for encoding the video stream, and appropriate settings, by category. Options are French Shim (default) and Direct Convert.

General

Video Profile. Specify video profile.

Open GOP. When enabled, specifies Open GOP structure.

Video Quality. Specifies video quality. Range is 0-31. Default is 16.

SMPTE 328 Processing. Specifies type of SMPTE 328 Elementary Stream Editing Information (ESEI) processing to perform on User Bit metadata in a source file. Options are:

- Do Not Preserve (default). User bits are not preserved in the output file when the source file is transcoded.
- Preserve Original. User bits are preserved in the output file when the source file is transcoded. This includes SMPTE 328 timecode.
- Update Timecode. User bits are preserved in the output file when the source file is transcoded but the SMPTE 328 timecode is updated to the value of the timecode set in the Time Code Processing Filter found in the ANC stream.

Filters. Enable and configure filters as appropriate.

Audio Track Settings

Codec. Specifies codec to use for encoding the audio track, and appropriate settings.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

MXF AS-11 DPP HD Output

The MXF AS-11 DPP HD Output generates an AMWA AS-11-compliant MXF package. These packages are compliant with SMPTE-377M standard and AMWA MXF AS-11 delivery specification.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

Insert SMPTE 436 Ancillary Data. When checked, adds a SMPTE 436 ancillary data track.

Metadata File. Specifies the fully-qualified path to the metadata file.

Video Settings

Processor. Specifies video processor, and associated settings, to use for transcoding.

Codec. Specifies the codec, and associated settings, to use for encoding the video stream.

User Data Filter. Enable and configure filters as appropriate.

Audio Track Settings

Codec. Specifies the codec, and associated settings, to use for encoding the audio track.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

MXF AS-11 SD Output

The MXF AS-11 SD Output generates an AMWA AS-11-compliant MXF package. These packages are compliant with SMPTE-377M standard and AMWA MXF AS-11 delivery specification The AS11 SD container is implemented specifically to support the Program Contribution AS-11 constraints for use in SD media workflows.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

Insert SMPTE 436 Ancillary Data. When checked, adds a SMPTE 436 ancillary data track.

Video Settings

Processor. Specifies video processor, and associated settings, to use for transcoding.

Codec. Specifies the codec, and associated settings, to use for encoding the video stream.

User Data Filter. Enable and configure filters as appropriate.

Audio Track Settings

Codec. Specifies the codec, and any associated settings, to use for encoding the audio track.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

MXF AS-11 X1 Output

The MXF AS-11 X1 Output generates an AMWA AS-11-compliant MXF package. These packages are compliant with SMPTE-377M standard and AMWA MXF AS-11 delivery specification.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

Insert SMPTE 436 Ancillary Data. When checked, adds a SMPTE 436 ancillary data track.

Video Settings

Processor. Specifies video processor, and associated settings, to use for transcoding.

Codec. Specifies the codec, and associated settings, to use for encoding the video stream.

User Data Filter. Enable and configure filters as appropriate.

Audio Track Settings

Codec. Specifies the codec, and associated settings, to use for encoding the audio track.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

MXF AS-11 X5 Output

The MXF AS-11 X5 Output is used for delivery of finished commercials and promos. It is based on the AS-11 X1 profile. The MXF AS-11 X5 profile defines an MXF file format for the delivery of finished UHD Commercials & Promotions to UK Digital Production Partnership (DPP) broadcasters.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container

Insert SMPTE 436 Ancillary Data. When checked, adds a SMPTE 436 ancillary data track.

Video Settings

Processor. Specifies video processor, and associated settings, to use for transcoding.

Codec. Specifies the codec, and associated settings, to use for encoding the video stream.

User Data Filter. Enable and configure filters as appropriate.

Audio Track Settings

Codec. Specifies the codec, and associated settings, to use for encoding the audio track.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

MXF AS-11 X6 Output

The MXF AS-11 X6 Output is used for delivery of finished commercials and promos. It is based on the AS-11 X2 profile. The MXF AS-11 X6 profile defines an MXF file format for the delivery of finished UHD Commercials & Promotions to UK Digital Production Partnership (DPP) broadcasters.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container

Insert SMPTE 436 Ancillary Data. When checked, adds a SMPTE 436 ancillary data track.

Video Settings

Processor. Specifies video processor, and associated settings, to use for transcoding.

Codec. Specifies the codec, and associated settings, to use for encoding the video stream.

User Data Filter. Enable and configure filters as appropriate.

Audio Track Settings

Codec. Specifies the codec, and associated settings, to use for encoding the audio track.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

MXF AS-11 X9 Output

The MXF AS-11 X9 Output generates an AMWA AS-11-compliant MXF package. These packages are compliant with SMPTE-377M standard and AMWA MXF AS-11 delivery specification.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

Insert SMPTE 436 Ancillary Data. When checked, adds a SMPTE 436 ancillary data track.

Video Settings

Processor. Specifies video processor, and associated settings, to use for transcoding.

Codec. Specifies the codec, and associated settings, to use for encoding the video stream.

User Data Filter. Enable and configure filters as appropriate.

Audio Track Settings

Codec. Specifies the codec, and associated settings, to use for encoding the audio track.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

MXF AVC Ultra Output

The MXF AVC Ultra Output generates AVC Ultra video wrapped in an MXF file. AVC Ultra (LongG250) is a long-GOP alternative to AVC Intra. It is approximately 25 Mbit/s at High 10 bit with 4:2:2 chrominance sampling. Originally defined by Panasonic, AVC Ultra is a fully-compliant subset of the H.264/AVC specification. These files are compliant with the SMPTE-377M standard.

Container Settings

Create Panasonic Compliant Wrapper. When checked, creates Panasonic camera and deck compliant files and directory structures. Unchecked by default.

Note: When using the *Create Panasonic Compliant Wrapper* feature, verify that your file names are compliant with the Panasonic server file naming specifications. See *Panasonic AVC-Ultra File Naming Specifications* below.

Insert SMPTE 436 Ancillary Data. When checked, adds a SMPTE 436 ancillary data track. Unchecked by default.

Video Stream Settings

Processor. Specifies which video processor to use for transcoding.

Codec. Specifies Direct Convert or the codec to use for encoding the video stream, and appropriate settings, by category.

Filters. Enable and configure filters as appropriate.

Audio Track Settings

Codec. Specifies Direct Convert or the PCM codec to use for encoding the audio track, and appropriate settings.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

Panasonic AVC-Ultra File Naming Specifications

Per Panasonic specifications, naming rules for AVC-Ultra files are as follows:

- File name shall consist of eight characters and an extension.
- The file name shall be case-sensitive and expressed with upper case.

- The eight characters shall represent a Clip name and shall be structured as follows: The first three characters shall be the number such as `001` and shall be unique within the directory.
- The next two characters shall have a value of A to Z such as `AB`.
- The next character is an integer, and shall have a value of 0 to 9.
- The last two characters shall have a value of A to Z such as `CD` for a single Clip.
- When a Shot is composed of multiple Clips, the last two characters shall represent the Clip number starting with `00`. For example, if a Shot spans three Clips, the file names can be `001AB000`, `001AB001`, and `001AB002` respectively.
- All Clip names of the files contained in the same AVC-Ultra Clip Content shall be the same. This unique Clip name for each Clip can be used to link all the files contained in the same Clip Content.
- The extension of the AVC-Ultra essence file shall be *MXF*.
- The extension of the Clip Metadata file shall be *XML*.
- The extension of the Thumbnail file shall be *BMP*.
- The extension of the Proxy AV file shall be *MP4* or *MOV*.
- The extension of the Realtime Metadata file shall be *BIN*.

MXF OP1a Output

The MXF OP1a Output component generates an OP1a package. These packages are compliant with SMPTE-377M and SMPTE-378M standards.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

General

Partition Strategy. Select Automatic | Place Essence Container and Index Table in Head Partition, to suit your application.

Partition Duration. When checked, specifies the MXF partition duration in seconds.

Insert SMPTE 436 Ancillary Data. When checked, adds a SMPTE 436 ancillary data track.

Add First Frame Position to Metadata. When checked, adds the IndexStartPosition to the Material Package in the metadata. Unchecked by default.

Wrap Audio as BWF. When checked, wraps the audio as Broadcast Wave format (BWF).

Wrap Audio as D-10. When checked, wraps the audio as D-10 per SMPTE 331 M.

Audio Language Settings. When checked, extracts audio language tags from media.

Enable WAVE Essence. When checked, enables WAVE essence for creation of outputs compatible with an Avid MediaCentral | Asset Management system.

MXF Audio Sample Rate Value. Specifies MXF Audio sample rate as either default (typically source file sample rate) or forced sample rate matching audio or video sample rate.

Write Channel Labels. When enabled, output will show channel tags for the audio channels if the Channel Designation filter (found in the audio stream) is enabled and configured with channel tags assigned to the channels.

Color Primaries Signaling. Specifies the standard for color primaries signaling in the MXF container.

Transfer Function Signaling. Specifies the standard for transfer function signaling in the MXF container.

Color Matrix Signaling. Specifies the standard for color matrix signaling in the MXF container.

HDR Metadata

Manually add HDR metadata to output files without entering x264 command-line options. HDR metadata is added as SEI messages into the bitstream for use by downstream players to accurately display the High Dynamic Range video.

Add SMPTE 2086 Master Display Metadata. Check to enable insertion of the master display HDR metadata values from the controls in this panel.

Master Display X | Y Coordinates for Red | Green | Blue | White Point. specify the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Add CTA-861.3 Content Light Level Metadata. When checked, inserts CTA-861.3 message with Content Light Level Metadata.

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Video Stream Settings

Video Processor. Specifies which video processor to use for transcoding.

Codec. Specifies Direct Convert or the codec to use for encoding the video stream, and appropriate settings, by category.

Filters. Enable and configure filters as appropriate.

Audio Track Settings

Codec. Specifies Direct Convert or the PCM codec to use for encoding the audio track, and appropriate settings.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

MXF RDD 25 AVC Proxy Output

The MXF RDD-25 AVC Proxy Output component generates an MXF proxy file with H.264 video and AAC audio. These files are compliant with SMPTE-377M and SMPTE RDD 25 standards.

Container Settings

Insert SMPTE 436 Ancillary Data. When checked, adds a SMPTE 436 ancillary data track.

Video Settings

Processor. Specifies which video processor to use for transcoding.

Codec. Specifies the x264 (RDD25 Restricted) codec to use for encoding the video stream, and appropriate settings, by category.

Filters. Enable and configure filters as appropriate.

Audio Track Settings

Codec. Specifies the AAC (RDD25 Restricted codec) to use for encoding the audio track, and appropriate settings.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

P2 Output

QuickTime Output

The QuickTime Output component in Flip64 generates a file compatible with the Apple QuickTime File Format specification. QuickTime files may contain video and audio compressed using a wide variety of codecs.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

General

Fast Start. Creates a fast start movie (moov atom located at the start of the file) that can play while it is still downloading.

Header Compression. Check to compress the header file.

Insert 608 Closed Caption Track. Check to include a 608 caption track.

Insert 708 Closed Caption Track. Check to include a 708 caption track.

Insert a Timecode Track. Check to add a timecode track to the movie.

Timecode Track Title. Specify Timecode Track Title.

Color Space. Specifies the output file color space to apply.

Conform Aperture. QuickTime 7.1 and later supports four aperture display modes that allow you to properly display video with non-square pixels (such as DV video) in QuickTime Player and other applications that support these modes.

Select Disabled if you do not want to apply the QuickTime Aperture to your video.

The four aperture display modes in QuickTime are:

Classic - In this mode, content appears as it did in QuickTime 7 and earlier. The video track dimensions are respected. Classic displays the image without applying either the pixel aspect ratio or the clean aperture. The image is displayed using the track header dimensions, meaning the decompressed picture is scaled into the track header dimensions if the encoded dimensions are different.

Clean Aperture - The clean aperture is the region of video free from transition artifacts caused by the encoding of the video. This is the region of video that should be displayed. Both the clean aperture and the pixel aspect ratio settings are applied. The dimensions of the track are set to the clean aperture dimensions (set below), which are equal to the display dimensions (with conformed contents).

Production Aperture - Content may appear differently than in QuickTime 7. The video track is not cropped to the Clean aperture mode, but it is scaled according to the pixel aspect ratio. Use this option when you want to see all the pixels in your video, including the edges. Applies the pixel aspect ratio but not the clean aperture. The image is presented in the correct aspect ratio, but the extra pixels outside of

the image that exist in the source material will be presented. The track dimensions are equal to the result of applying the pixel aspect ratio.

Encoded Pixels - Content typically appears the same as in Classic aperture mode. The video track is not cropped to the Clean aperture mode and is not scaled according to the pixel aspect ratio. The encoded dimensions of the image description are displayed. This option is typically used to preview rendering (where you want all pixels) in a professional application. The encoded pixels are displayed intact in this mode.

Note. Clean Aperture should not be used in conjunction when you check Enable Clap Atom. Only one or the other should be used.

Enable CLAP atom. Check to enable the Apple Clean Aperture atom. This atom defines the pixel aspect ratio used during video capture and controls the cropping of edge artifacts.

Precision Width and Height. Select the resolution for the representation of the output video.

Trim audio to video duration. When checked, audio duration is trimmed to match video duration. Unchecked by default.

Aspect Ratio Mode

Use as appropriate, in conjunction with your Conform Aperture settings to configure the display or pixel aspect ratio in the QuickTime atom.

Aspect Ratio Mode. Specifies Display Aspect Ratio | Pixel Aspect Ratio.

Display | Pixel Aspect Ratio. Specifies the display aspect ratio or the pixel aspect ratio, per your Aspect Ratio setting.

HDR Metadata

Add SMPTE 2086 Master Display Metadata. When checked, enables the SEI message with SMPTE 2086 master display metadata. Specify master display metadata values in the fields below.

Add CTA-861.3 Content Light Level Metadata. When checked, enables the SEI message with CTA-861.3 content light level metadata.

Maximum CLL. Specifies the maximum content light level.

Maximum FALL. Specifies the maximum frame average light level.

Inset Override

When enabled, overrides the clean aperture settings, using these settings instead.

Left | Right | Top | Bottom. Specifies the inset from the edge, in pixels.

Video Settings

Processor. Specifies which video processor to use for transcoding.

Codec. Specifies Direct Convert or the codec to use for encoding the video stream.

Filters. Enable and configure filters as appropriate.

Audio Track Settings

Language. When enabled, overrides the language associated with this audio stream. NOTE: If variable binding is utilized, the value in the Text variable must exactly match one of the original language selections in the encoder.

Language Code. When enabled, overrides the language associated with this audio stream with the language represented by the 3 letter ISO 639-3 language code entered. NOTE: This parameter overrides the Language name selection.

Codec. Specifies the processor and the codec to use for encoding the audio track, and appropriate settings.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

TIFO Output

The TIFO Output component generates a file in Telestream Intermediate Format (TIFO) format, compliant with the Telestream Intermediary Format specification. TIFO is capable of containing video and audio compressed with a wide variety of codecs.

TIFO is typically used to enable Vantage Open Workflows, where the TIFO is a mezzanine file destined for another transcoder action downstream.

Container Settings

Version. Specifies the TIFO version to use. You should always select the latest version unless advised by Customer service.

Flush Period. When checked, writes all buffered media to disk at the specified interval, measured in milliseconds. Disabled by default.

HDR Metadata

Add SMPTE 2086 Master Display Metadata. When checked, enables the SEI message with SMPTE 2086 master display metadata. Specify master display metadata values in the fields below.

Add CTA-861.3 Content Light Level Metadata. When checked, enables the SEI message with CTA-861.3 content light level metadata.

Maximum CLL. Specifies the maximum content light level.

Maximum FALL. Specifies the maximum frame average light level.

Video Settings

Processor. Specifies which video processor to use for transcoding.

Codec. Specifies Direct Convert or the codec to use for encoding the video stream.

Filters. Enable and configure filters as appropriate.

Audio Track Settings

Codec. Specifies Direct Convert or the codec to use for encoding the audio track, and appropriate settings.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

WMV Output

The WMV Output component in Flip64 uses the Windows Media encoder to create ASF, WMV, and WMA files.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

General Settings

File Extension. Specify file extension for outputs.

Metadata

Set author, title, copyright, rating, description, etc. in the output file.

Video Settings

Video Processor. Specifies which video processor and associated settings to use for transcoding.

Codec. Specifies codec to use for encoding the video stream, and appropriate settings, by category.

Filters. Enable and configure filters as appropriate.

Audio Settings

Codec. Specifies the codec to use for encoding the audio track, and appropriate settings.

ANC Settings

Filters. Enable and configure filters as appropriate.

MXF XAVC Output

The XAVC Output component generates XAVC video wrapped in an MXF file. These files are compliant with the SMPTE-377M standard.

Container Settings

Partition Strategy. Specifies one of these settings to determine the MXF partition strategy:

- Automatic

- Place Essence Container and Index Table in Header Partition

- Place Essence Container and Index Table in Header Partition + RIP

- Place Essence Container and Index Table in Header Partition + Index Lead Essence + RIP

Partition Duration. When checked, sets the partition duration to the value specified, in seconds.

Insert SMPTE 436 Ancillary Data. When checked, adds a SMPTE 436 ancillary data track.

Timecode Type. Specifies Timecode Type.

Wrap Audio as BWF. When checked, wraps audio in a Broadcast Wave Format (BWF) wrapper.

Color Primaries Signaling. Overrides the color primaries signaling in the MXF container per the selected specification.

Transfer Function Signaling. Overrides the color transfer function signaling in the MXF container per the selected specification.

Video Settings

Processor. Specifies which video processor to use for transcoding.

Codec. Specifies the codec to use for encoding the video stream.

Filters. Enable and configure filters as appropriate.

Audio Track Settings (multiple permitted)

Codec. Specifies Direct Convert or the PCM codec to use for encoding the audio track, and appropriate settings.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

MXF XDCAM Output

The XDCAM Output component generates video XDCAM video wrapped in an MXF file. These files are compliant with the SMPTE-377M standard.

Note: When you are encoding XDCAM video in various formats for use on XDCAM hardware devices, you must use certain audio profiles to meet Sony specifications. This is only required when the video is planned for use on XDCAM hardware.
Permitted Video and Audio Profiles:

- XDCAM IMX - PCM 8 channel, 16-bit at 48 kHZ or 4 channel, 24-bit at 48 kHZ audio
- XDCAM EX - PCM 4 channel, 16-bit at 48 kHZ audio
- XDCAM HD - PCM 4 channel, 16-bit at 48 kHZ audio
- XDCAM HD422 - PCM 8 channel, 16-bit at 48 kHZ or 4 channel, 24-bit at 48 kHZ audio

Container Settings

Insert SMPTE 436 Ancillary Data. When checked, adds a SMPTE 436 ancillary data track.

MXF Minor Version. Specify minor format version. Default is Version 2 (result is Format Version of 1.2).

Add First Frame Position to Metadata. When checked, adds the IndexStartPosition to the Material Package in the metadata. Unchecked by default.

Write Channel Labels. When enabled, output will show channel tags for the audio channels if the Channel Designation filter (found in the audio stream) is enabled and configured with channel tags assigned to the channels.

Video Settings

Processor. Specifies which video processor to use for transcoding.

Codec. Specifies which video codec to use for encoding the video stream, and appropriate settings.

Filters. Enable and configure filters as appropriate.

Audio Track Settings (multiple permitted)

Codec. Specifies which audio codec to use for encoding the audio track, and appropriate settings.

Filters. Enable and configure filters as appropriate.

ANC Settings

Filters. Enable and configure filters as appropriate.

Flip64 Action

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x264 Codec

x264 (RDD25 Restricted) Codec

x265 Codec

Lightspeed GPU H.264 Codec (Flip64)

Lightspeed GPU H.265 Codec (Flip64)

Version 9 Codecs

Audio Direct Convert Codec

Direct conversion of audio is generally used when the input file has the same audio compression format as the requirements for the output file. Direct conversion preserves the original compressed audio in the new output file, without decoding or re-encoding the audio. As such, the source audio sample rate, bit rate, and other parameters are preserved.

There are no user-configurable settings for Direct Convert.

Avid Proxy Codec

The Avid Proxy audio codec makes MPEG-1 Layer 2 mono channel tracks at a bit rate of 96 kbps each and a sample rate of 48000 Hz. The number of channels can be bound to a variable and is a drop down list containing values of 2, 4, 6, 8, 10, 12 and 16. This audio codec is used in conjunction with the Avid H.264 Proxy video codec in Flip64.

Bit Rate. The encoded bit rate of the encoded audio stream. Set to 96 kbps.

Sample Rate. The sample rate of the encoded audio stream. Set to 48000 Hz.

Number of Channels. Specifies the number of mono channels for the encoded audio stream, resulting in a corresponding number of tracks. For example, if the Number of Channels is set to 4, then the output will have 4 tracks each with a mono channel of MPEG-1 Layer 2 audio.

AAC Codec

Advanced Audio Coding (AAC) is a lossy audio codec designed as the successor to the MPEG-1Layer 3 (MP3) standard. AAC is standardized within the MPEG-4 specification (ISO/IEC 14496-3) and the MPEG-2 specification (ISO/IEC 13818-7). It offers improved quality over MP3 at all bit rates and is supported on a range of consumer devices including mobile phones, gaming devices, and portable media players.

HE-AAC can encode up to 6 channels, and can handle parametric stereo as well as stereo. The Parametric Stereo option uses HE-AAC Version 2. All other profiles use Version 1. In parametric stereo, the data is encoded into one mono channel and can be transmitted at very low bit rates.

This AAC codec offers several encoding profiles:

- Low Complexity (AAC-LC) which is the simplest and most widely used
- High Efficiency (HE v1) which includes SBR (Spectral Band Replication)
- High Efficiency v2 (HE v2), which includes PS (Parametric Stereo).

Only the LC (Low Complexity) profiles support 96 kHZ sample rate - HE profiles do not.

Note: Not all encoders, nor all consumer devices, support profiles beyond AAC-LC.

Note: Not all target bitrate and sampling rate combinations are supported in AAC codec profiles.

Settings

Profile. Specifies the audio encoding profile for this output track.

Channel Configuration. Specifies the number and encoding layout of the encoded audio channels for this output track.

Note: This choice affects what output channel designations (such as *Left* or *Center*) are required; these designations may affect how you set up the Channel Map Filter on the input stream(s).

Target Bit Rate. Specifies the average encoded target bit rate in kbps for this output track.

Custom Bit Rate. When checked, overrides the Target Bit Rate value, and specifies the specific bit rate in kbps for this output track.

Sample Rate. Specifies the audio sampling rate in Hz for this output track.

AAC (RDD25 Restricted) Codec

The AAC (RDD25 Restricted) codec encodes AAC 16-bit audio at 64, 96 or 128Kbps using the MPEG-2 AAC LC profile, with a sample rate of 48kHz. It supports up to 8 stereo pairs.

Settings

Channel Configuration. Specifies the number and encoding layout of the encoded audio channels for this output track.

Note: This choice affects what output channel designations (such as *Left* or *Center*) are required; these designations may affect how you set up the Channel Map Filter on the input stream(s).

Target Bit Rate. Specifies the average encoded target bit rate in kbps for this output track.

Sample Rate. Specifies the audio sampling rate in Hz for this output track. Not user-configurable.

AC-3 Codec

Dolby Digital (AC-3) is a flexible audio compression format that supports up to six channels of audio. The most common usage of AC-3 is in 2.0 (stereo) mode and 5.1 (surround sound) mode.

AC-3 supports a variety of encoded metadata information, including:

- General information such as copyright and production information

- Information to help consumer devices optimize decoding, such as the Extended Bit Field parameters, which are used for downmixing.

In 5.1 mode, AC-3 supports five discrete channels of audio typically configured as Right Front (R), Center (C), Left Front (L), Right Rear Surround (RS), and Left Rear Surround (LS), and a sixth channel of audio allocated for low-frequency effects (LFE).

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Channel Configuration

Channel Configuration. Specifies the audio layout for the stream, including selections for variations of 1+1, Mono, Stereo, 3/0, 2/1, 3/1, 2/2, and 3/2.

The following controls are displayed ONLY in the 1+1, Mono, Stereo, 3/0, 2/1, and 3/1 configurations where they are appropriate.

Bit Rate. Sets the encoded bit rate.

SDK Version. Specifies the version of the SDK being utilized in this codec.

Bitstream Mode. Specifies the type of audio service: Complete main | Music and effects | Visually impaired | Hearing impaired | Dialogue | Commentary | Emergency | Karaoke/Voice over.

90 Degree Phase Shift. Applies 90-degree phase shift to the surround channels for Dolby Surround Pro Logic or Logic II decoder.

3 dB Attenuation. Attenuates surround channels 3 dB before encoding. This feature allows a choice between theatrical and consumer mixing levels (DVD or TV studios). Consumer mixing levels make all five main channels the same, whereas, theatrical mixing calibrates surround channels 3 dB lower than the front channels.

Enable LFE low-pass filter. Applies a 120 Hz eighth order low pass filter to the LFE input before encoding. This filter removes frequencies above 120 Hz that would cause aliasing when decoded.

The following controls are displayed ONLY in the 1+1, Mono, Stereo, 3/0, 2/1, and 3/1 configurations where they are appropriate.

A/D Converter Type. Allows marking audio that has passed through an A/D stage.

Stereo Downmix Preference. Selects the preferred downmix method for a decoder that has stereo outputs.

Lt/Rt Center Mix Level. Selects the level shift to the center when adding to the left and right outputs during a downmix to a left/right output.

Lt/Rt Surround Mix Level. Selects the level shift applied to the surround channels when adding to the left and right channels during a downmix to a left/right output.

Lo/Ro Center Mix Level. Selects the level shift applied to the center channel when adding to the left and right channels during a downmix to a Lo/Ro output.

Lo/Ro Surround Mix Level. Selects the level shift applied to the surround channels when adding to the left and right channels during a downmix to a Lo/Ro output.

Surround EX Mode. Indicates if the stream was encoded using Dolby EX.

Dolby Digital Parameters

Dialog Normalization. Sets the audio level of dialog for use by Dolby Digital decoders. The range is 1-31 dB, with -24dB as the default.

DRC Line Mode Profile. Specifies the Dynamic Range Control for Line Mode: None | Film Standard | Film Light | Music Standard | Music Light | Speech.

DRC RF Mode Profile. Specifies the Dynamic Range Control for RF Mode: None | Film Standard | Film Light | Music Standard | Music Light | Speech.

Audio Production Info

Room Type. Sets final mixing equalization for small or large rooms.

Mixing Level. Sets calibration level and maximum Sound Pressure Level (SPL) for a single channel. Ranges from 80 to 111 dB, with 105 dB as the default.

Content Parameters

Copyright Protected. Check to indicate copyright protected audio.

Original Bitstream. Check to indicate that the audio bitstream is the master version.

Dolby Atmos Codec

The Dolby Atmos immersive audio format utilizes a variety of coding techniques and encoders, such as Dolby Digital Plus with Joint Object Coding (DD+JOC), to encode Dolby Atmos audio content for use by numerous consumer devices.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Codec

Select the DD+JOC codec.

The DD+JOC encoder performs spatial coding to reduce the number of audio elements (up to 118 objects and ten bed channels) in the master file to a smaller number of clustered objects (up to 15 plus LFE, depending on the user-specified data rate).

General

Bit Rate. Set the encoded bitrate. Default is 448000 kbps.

Loudness

Integrated Level Gated Loudness. Specifies the average measured loudness in LKFS with level-gating.

Integrated Speech Gated Loudness. Specifies the average measured loudness in LKFS with speech-gating.

Integrated Loudness Gating. Specifies the loudness gate used for encoding. Valid options are:

- (-1) Invalid

- (0) Ungated

- (1) Speech Gated

- (2) Level Gated

Integrated Loudness. Specifies average measure loudness in LKFS.

Integrated Loudness Range. Specifies the integrated loudness range across the entire file.

True Peak. Specifies true peak loudness in the input file.

Note: Prior to encoding, loudness values must be generated using the Dolby Atmos Analysis filter in the Analyze action.

Dynamic Range Control

Line Mode Profile. Specifies the dynamic range control profile (compression curve and related parameters) to use when playing back content in Line mode. Film Light by default.

RF Mode Profile. Specifies the dynamic range control profile (compression curve and related parameters) to use when playing back content in RF mode. Film Light by default.

Downmix

Preferred Stereo Downmix. Specifies the method a channel-based decoder should use when downmixing the audio for playback.

Lo/Ro Center Mix Level. Specifies the level shift that a channel-based decoder should apply to the center channel when adding to the left and right channels while performing a Lo/Ro downmix. Default is -3.0 dB.

Lt/Rt Center Mix Level. Specifies the level shift a channel-based decoder should apply to the center channel when adding to the left and right channels while performing a Lt/Rt downmix. Default is -3.0 dB.

Lo/Ro Surround Mix Level. Specifies the level shift that a channel-based decoder should apply to the surround channels when adding to the left and right channels while performing a Lo/Ro downmix. Default is -3.0 dB.

Lt/Rt Surround Mix Level. Specifies the level shift a channel-based decoder should apply to the surround channels when adding to the left and right channels while performing an Lt/Rt downmix. Default is -3.0 dB.

Dolby E Codec

Dolby E is a flexible audio compression format that supports up to eight channels and handles multiple audio programs of multiple channels. It is designed to work with these video frame rates: 29.97, 25, 24, 30 and 23.98 fps.

Dolby E supports a variety of encoded metadata information, including:

- General information such as copyright and production information
- Audio production information and mix levels.
- Dialog Normalization.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Codec

Format. Specifies the byte format to utilize when writing the encoded media. Options are 16 Bit Dolby E and 20 bit Dolby E.

Frame Rate. Specifies Dolby E audio frame rate for synchronization with video frame rate. Default is 29.97.

SMPTE Timecode. Specifies timecode value for first frame in the stream.

Encoder Delay. When checked, aligns first sample of audio input to start of Dolby E output frame. Unchecked by default.

Insert Guard Band at Start. When checked, shifts the first Dolby E frame to the middle of the guard band padding to align with video frames. Checked by default.

Output Bits per Sample. Specifies bit depth of output audio stream.

Program Configuration

Specifies the desired output program configuration and parameters as allowed by the codec.

General.

Indicates selected Program Configuration. No configurable options.

Program Metadata.

Specifies program metadata. Depending on the codec and configuration selected, multiple program specific metadata configurations may be available.

Program Description. Specifies program description.

Dialog Normalization. Sets the audio level of dialog for use by Dolby Digital decoders. The range is 1-31 dB, with -27dB as the default.

Bitstream Mode. Specifies the type of audio service: Complete main | Music and effects | Visually impaired | Hearing impaired | Dialogue | Commentary | Emergency | Karaoke/Voice over.

DRC Line Compression Profile. Specifies the Dynamic Range Control for Line Mode: None | Film Standard | Film Light | Music Standard | Music Light | Speech.

DRC RF Compression Profile. Specifies the Dynamic Range Control for RF Mode: None | Film Standard | Film Light | Music Standard | Music Light | Speech.

Audio Production Info. Specifies Available | Not Available.

Room Type. Sets final mixing equalization for small or large rooms.

Audio Production Mixing Level. Sets calibration level and maximum Sound Pressure Level (SPL) for a single channel. Ranges from 80 to 111 dB, with 105 dB as the default.

Copyright Protected. When checked, indicates copyright protected audio. Checked by default.

Original Bitstream. When checked, indicates that the audio bitstream is the master version. Checked by default.

DC Highpass Filter. When checked, applies DC blocking 3Hz filter to input channels before encoding in order to prevent unwanted signals from being encoded. Unchecked by default.

Bandwidth Limiting Lowpass Filter. When checked, applies bandwidth limiting lowpass filter in order to limit the program material to the maximum bandwidth for the audio data rate being used. Unchecked by default.

A/D Converter Type. Allows marking of audio that has passed through an A/D stage.

Program ACMod

Specifies the number of channels encoded for use by Dolby Digital decoders. Available options vary based on channel configuration selected.

Dolby Surround Mode. Indicates whether the bitstream contains information that was encoded in Dolby Surround.

Enable LFE Channel. When checked, enables low frequency effects channel. Checked by default in applicable configurations.

Enable LFE low-pass filter. When checked, applies a 120 Hz eighth order low pass filter to the LFE input before encoding. This filter removes frequencies above 120 Hz that would cause aliasing when decoded. Unchecked

Stereo Downmix Preference. Selects the preferred downmix method for a decoder that has stereo outputs.

- **Lt/Rt Center Mix Level**. Selects the level shift to the center when adding to the left and right outputs during a downmix to a left/right output.
- **Lt/Rt Surround Mix Level.** Selects the level shift applied to the surround channels when adding to the left and right channels during a downmix to a left/right output.
- **Lo/Ro Center Mix Level**. Selects the level shift applied to the center channel when adding to the left and right channels during a downmix to a Lo/Ro output.
- **Lo/Ro Surround Mix Level**. Selects the level shift applied to the surround channels when adding to the left and right channels during a downmix to a Lo/Ro output.

Surround EX Mode. Indicates if the stream was encoded using Dolby EX.

90 Degree Phase Shift. When checked, applies 90-degree phase shift to the surround channels for Dolby Surround Pro Logic or Logic II decoder. Checked by default in applicable configurations.

3 dB Surround Attenuation. When checked, attenuates surround channels 3 dB before encoding. This feature allows a choice between theatrical and consumer mixing levels (DVD or TV studios). Consumer mixing levels make all five main channels the same, whereas, theatrical mixing calibrates surround channels 3 dB lower than the front channels. Unchecked by default.

DTS-HD Codec

DTS-HD Master Audio is a lossless compression codec containing a lossy DTS Digital core, thus allowing for bit-to-bit representation of the original movie's master soundtrack.

DTS-HD Master Audio supports variable bit rates up to 24.5 Mbit/s. The format supports a maximum of 192 kHz sampling frequency and 24-bit depth samples from 2 to 5.1 channels, and 96 kHz/24bit resolution up to 7.1 channels. DTS-HD Master Audio is capable of virtually any number of discrete channels.[

As a 3D audio delivery format, a DTS:X encoded DTS-HD Master Audio stream is able to contain up to 7.1 channels as well as nine objects and its associated metadata at 96 kHz/24 bit.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration

Target Bit Rate. Specifies the average encoded target bit rate in kbps for this output track.

Format. Specifies the byte order for use by the encoder.

Language. When enabled, overrides the language associated with this audio stream. NOTE: If variable binding is utilized, the value in the Text variable must exactly match one of the original language selections in the encoder.

DTS:X Codec

DTS:X is an object-based compression codec and successor to DTS HD. DTS:X can be used to create multi-dimensional sound environments.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Codec

Format. Specifies the byte format to utilize when writing the encoded media. Default is 24 Bit Little Endian.

LFKS. Specifies loudness (K-weighted) relative to full scale. Range -49 to 0. Default is 0.

Sync Mode. Specifies synchronization interval mode (seconds or frames) and value. Default is seconds with a value of zero.

T1CC Flag. When enabled, a Type One Certified Content flag will be set in the encoded audio. Disabled by default. Enabling or disabling the T1CC flag limits the number of input side channel configurations available. See Channel Configuration for details.

OTT Loudness Mode. Specifies OTT Loudness Mode. Default mode is Detect.

Channel Configuration. Specifies the input channel configuration mapped to a specific output. Default configuration is 5.1.

-5.1 input to 5.1 output (T1CC enabled or disabled)

-5.1.4 input to 5.1.4 output (T1CC enabled or disabled)

-6.1 input to 5.1.2 output (T1CC enabled ONLY)

-7.1.4 input to 5.1.4 output (T1CC disabled ONLY)

-12.1 input to 5.1.4 output (T1CC enabled ONLY)

Target Bit Rate. Specifies the target bit rate. Available options are constrained by selected Channel Configuration.

EAC-3 Codec

Dolby Digital Plus (EAC-3) is a flexible audio compression format that supports up to 8 channels of audio. The most common usage of EAC-3 is in 2.0 (stereo) mode and 5.1 and 7.1 (surround sound) mode.

EAC-3 supports a variety of encoded metadata information, including:

- General information such as copyright and production information

- Information to help consumer devices optimize decoding, such as the Extended Bit Field parameters, which are used for downmixing.

In 5.1 mode, EAC-3 supports five discrete channels of audio typically configured as Left (L), Right (R), Center (C), Left Surround (Ls), Right Surround (Rs), and a sixth channel of audio allocated for low-frequency effects (Lfe).

In 7.1 mode, EAC-3 supports seven channels of audio typically configured as Left (L), Right (R), Center (C), Left Surround (Ls), Right Surround (Rs), Left Rear Surround (LRS), and Right Rear Surround (RRS), and an eighth channel of audio allocated for low-frequency effects (Lfe).

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Hover over a control to display tooltips.

Channel Configuration

Controls vary by configuration.

Channel Configuration. Specifies the audio channel layout for the stream, including selections for variations of 1+1, Mono, Stereo, 3/0, 2/1, 3/1, 2/2, 3/2, and 3/4.

Bit Rate. Sets the encoded bit rate.

SDK Version. Specifies the encoder being utilized.

Bitstream Mode. Specifies the type of audio service: Complete main | Music and effects | Visually impaired | Hearing impaired | Dialogue | Commentary | Emergency | Karaoke/Voice over.

90 Degree Phase Shift. Applies 90-degree phase shift to the surround channels for Dolby Surround Pro Logic or Logic II decoder.

3 dB Surround Attenuation. Attenuates surround channels 3 dB before encoding. This feature allows a choice between theatrical and consumer mixing levels (DVD or TV studios). Consumer mixing levels make all five main channels the same, whereas, theatrical mixing calibrates surround channels 3 dB lower than the front channels.

Enable LFE low-pass filter. Applies a 120 Hz eighth order low pass filter to the LFE input before encoding. This filter removes frequencies above 120 Hz that would cause aliasing when decoded.

A/D Converter Type. Allows marking audio that has passed through an A/D stage.

Stereo Downmix Preference. Selects the preferred downmix method for a decoder that has stereo outputs.

Dolby Surround Mode. Indicated whether the bitstream contains information that was encoded in Dolby Surround.

Lt/Rt Center Mix Level. Selects the level shift to the center when adding to the left and right outputs during a downmix to a left/right output.

Lt/Rt Surround Mix Level. Selects the level shift applied to the surround channels when adding to the left and right channels during a downmix to a left/right output.

Lo/Ro Center Mix Level. Selects the level shift applied to the center channel when adding to the left and right channels during a downmix to a Lo/Ro output.

Lo/Ro Surround Mix Level. Selects the level shift applied to the surround channels when adding to the left and right channels during a downmix to a Lo/Ro output.

Surround EX Mode. Indicates if the stream was encoded using Dolby EX.

Dolby Digital Parameters

Dialog Normalization. Sets the audio level of dialog for use by Dolby Digital decoders. The range is 1-31 dB, with -24dB as the default.

DRC Line Mode Profile. Specifies the Dynamic Range Control for Line Mode: None | Film Standard | Film Light | Music Standard | Music Light | Speech.

DRC RF Mode Profile. Specifies the Dynamic Range Control for RF Mode: None | Film Standard | Film Light | Music Standard | Music Light | Speech.

Audio Production Info

Audio Production Info. Specifies Available | Not Available. When available:

Room Type. Sets final mixing equalization for small or large rooms.

Mixing Level. Sets calibration level and maximum Sound Pressure Level (SPL) for a single channel. Ranges from 80 to 111 dB, with 105 dB as the default.

Content Parameters

Copyright Protected. Check to indicate copyright protected audio.

Original Bitstream. Check to indicate that the audio bitstream is the master version.

PCM Codec

Pulse-code modulation (PCM) encoding is uncompressed audio, where the original audio waveform is sampled at regular intervals and stored as a series of numeric values.

While PCM does not use any compression method and thus does not suffer from lossy audio compression artifacts, information can be lost at lower sampling rates. For example, encoding PCM audio at 11kHz will lose higher-frequency audio information.

Number of Channels. Specifies Mono, Stereo, or specifies the number of channels to place in the track.

Sample Rate. Specifies the sample rate of the encoded audio stream.

Format. Specifies the byte format to utilize when writing the encoded media.

Number of channels per track. When enabled, specifies number of channels (1 or 2) per output audio track. Disabled by default.

Note: Number of channels per track feature is not available in all containers or may not be user configurable. See individual containers for feature support.

MPEG-1 Codec

MPEG-1 Layer 2 is part of the ISO/IEC 11172-3 standard and is a very common compression format for broadcast and cable-quality audio.

Channel Configuration. Specifies Mono or Stereo for the track.

Bit Rate. Sets the encoded bit rate of the encoded audio stream.

Sample Rate. Specifies the sample rate of the encoded audio stream.

Opus Codec

The Opus Transcoder component encodes channels from one or more input audio tracks (on the left) into one or more output tracks (specified on the right) using the OPUS Audio codec.

Opus is an open-source, highly-versatile audio codec intended for interactive speech and music transmission over the Internet, as well as storage and streaming applications. It is standardized as RFC 6716.

Complexity. Specifies the maximum computational complexity to utilize.

Channel Configuration. Specifies the number and the layout of the audio channels you are encoding.

Note: This choice affects what output channel designations (such as *Left* or *Center*) are required; these designations may affect how you set up the Channel Map Filter on the input stream(s).

Target Bit Rate. Specifies the target average bit rate for this track, in kbps.

Windows Media Audio (CBR) Codec

Flip64 supports the use of the Windows Media Audio (CBR) codec for WMV outputs.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one

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Codec

Select the codec to use. Only WMA CBR is supported.

Profile. Select a profile from the dropdown menu.

Bits per Sample. Indicates bits per audio sample. This is set to 16bits by defaul for all profiles and can not be modified.

Video Direct Convert Codec

Direct conversion of video is generally used when the input file has the same video compression format as the requirements for the output file. Direct conversion preserves the original compressed video in the new output file, without decoding or re-encoding the stream. As such, the source profile is preserved.

There are no user-configurable settings for Direct Convert.

AV1 (Beta) Codec

The AOMedia Video 1 (AV1) Codec in Flip64 is a royalty free open file format codec originally designed for video transmissions on the internet. The main goal of the AV1 codec is to reduce file size after compression without affecting quality.

Resolution

Width. Specifies the width of the output frame in pixels.

Height. Specifies the height of the output frame in pixels.

Frame Rate. Specifies the frame rate of the output in frames per second.

Aspect Ratio. Specifies the display aspect ratio.

Rate Control

Rate Control. Specifies the rate control method to use. Configure settings as supported by the method selected.

Note: Only Constant Quantizer (CQP) is supported.

Codec Configuration

Profile. Specifies the profile to use.

Note: Only Main Profile is supported. The output generated with this profile has a bit depth of 8 bits and a chroma subsampling of 4:2:0.

AVC Intra 50 Codec

The AVC Intra codec is an intra-frame HD video codec. Originally defined by Panasonic, it is a fully-compliant subset of the H.264/AVC specification. AVC Intra 50 is 50Mbit/s with 4:2:0 chrominance sampling and a reduced horizontal resolution.

Video Profile. Specifies the profile at which to encode the video stream.

Note: AVC Intra only supports Studio (Narrow) Range video. If your source has a video range of Full, you must enable the Color Space filter and verify that all options are set to Auto or, at a minimum, explicitly set the Output Video Range to 'Studio Range'. Failure to properly configure this filter may result in failed jobs.

AVC Intra 100 Codec

The AVC Intra codec is an intra-frame HD video codec. Originally defined by Panasonic, it is a fully-compliant subset of the H.264/AVC specification. AVC Intra 100 is 100Mbit/s with 4:2:2 chrominance sampling and full horizontal resolution.

Video Profile. Specifies the profile at which to encode the video stream.

Note: AVC Intra only supports Studio (Narrow) Range video. If your source has a video range of Full, you must enable the Color Space filter and verify that all options are set to Auto or, at a minimum, explicitly set the Output Video Range to 'Studio Range'. Failure to properly configure this filter may result in failed jobs.

AVC Intra 200 Codec

The AVC-Intra codec is a Panasonic-defined codec that is a fully-compliant subset of the H.264/AVC specification. It provides production-quality HD video at efficient bit rates, for full-resolution, 10-bit intra-frame only compression of high-quality HD video. AVC-Intra is primarily intended for editing and archiving applications.

AVC-Intra 200 is 200 mb/s 4:2:2 video at various frame rates and full horizontal resolution.

Video Profile. Specifies the profile of the video to encode.

Note: AVC Intra only supports Studio (Narrow) Range video. If your source has a video range of Full, you must enable the Color Space filter and verify that all options are set to Auto or, at a minimum, explicitly set the Output Video Range to 'Studio Range'. Failure to properly configure this filter may result in failed jobs.

Avid H.264 Proxy Codec (Flip64)

The Avid H.264 Proxy codec in Flip64 allows for the creation of various Avid proxies in a TIFO container similar to those created using a Capture action.

Video Profile. Select a pre-configured profile from the menu.

AVC Ultra Codecs

AVC Ultra is a collection of H.264/AVC specifications defined by Panasonic and carried in an MXF container. AVC Ultra includes AVC Intra and AVC LongG, both of which have a variety of HD profiles and are fully-compliant with the broader H.264/AVC specifications.

Additional details about the AVC-Ultra codec family can be found in the Panasonic overview document located at http://pro-av.panasonic.net/en/avc-ultra/AVC-ULTRAoverview.pdf.

Note: It is also valid for some of these codec profiles to be carried in MOV files, however this is not yet implemented in Flip64.
Three codec variations fall under the AVC-Ultra umbrella: AVC-Intra, AVC-LongG, and AVC-Proxy. AVC-Proxy is not currently supported.

Bitrates for the Intra and LongG profiles range from 6Mbit-440Mbit, sampling ranges from 4:2:0 to 4:4:4, bit depth ranges from 8-bit to 12-bit. Different profiles vary between CBR and VBR, and the supported frame rates vary depending on the profile used.

Video Profile. Specifies the profile to use when encoding this media.

Comprimato JPEG2000 Lossless Codec

The Comprimato JPEG2000 Lossless codec encodes the input video stream into one output video stream in JPEG2000 format, using the JPEG2000 codec in lossless mode. Comprimato-based ISO/ITU still image compression provides a fast and flexible solution for high-quality, wavelet-based compression.

JPEG-2000 is an intra-frame HD video codec specified by ISO/IEC 15444-1. It uses wavelet transformations to compress the image which results in high quality images in both lossy and lossless modes. JPEG 2000 offers higher compression ratios over standard JPEG video. It offers resolution, color, quality and position progression scalability, and also supports 4:2:2 and 4:4:4 chroma subsampling methods and bit depths up to 12-bit.

JPEG2000 Profile

JPEG2000 Profile. Specifies the JPEG2000 profile to encode with.

Operating Levels for IMF Profiles (shown for Broadcast and IMF profiles). Specifies the operating level.

Operating Sublevels for IMF Profiles (shown for IMF profiles). Specifies the operating sub-level.

Width | Height. Specifies the width and height of the output frame in pixels.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Pixel Format. Specifies the color space, chroma subsampling, and bit depth to use for encoding.

Aspect Ratio. Specifies the screen/pixel aspect ratio as encoded in the bitstream; can't be changed.

Frame Rate. Specifies the frame rate of the output in frames per second.

Tile Partition Width | Height. Specifies the tile partition width and height in pixels.

Precinct Width and Height. Specifies the precinct size.

Code Block Width and Height. Specifies the height and width (in pixels) of a code block to process.

Progression Order. Specifies the order of packet progression.

Number of Decomposition Levels. Specifies the number of discrete wavelet transform levels, or stages, to use.

Quality Layer. Specifies the quality layer value; can't be changed.

Quantization Coefficient. Specifies quality (0-100). If set toward the lower bound it reduces data correspondingly and quality decreases; if set to the upper bound it increases data and quality. However, the default value of 0 (zero) applies no coefficient (effectively disables the feature), resulting in the video being encoded at the full data rate.

TLM Markers. When checked, specifies that Tile Length Markers will be used.

EPH Markers. When checked, EPH marker segments are generated.

SOP (Start of Packet) Markers. When checked, Start of Packet marker segments are generated.

Compute Mode

Compute Mode. Specifies CUDA Mode | CPU Mode.

For CUDA Mode:

CUDA Memory Limit (MB). Specifies the CUDA memory limit in MB.

CUDA Tile Limit. Specifies the CUDA tile limit.

Encoder Queue Size. Specifies the encoder queue size.

For CPU Mode:

Encoding Mode. Specifies the mode that can speed up encoding, which can result in some precision trade-off.

Encoder Queue Size. Specifies the encoder queue size.

Comprimato JPEG2000 Lossy Codec

The Comprimato JPEG2000 Lossy codec encodes the input video stream into one output video stream in JPEG2000 format, using the JPEG2000 codec in lossy mode. Comprimato-based ISO/ITU still image compression provides a fast and flexible solution for high-quality, wavelet-based compression.

JPEG-2000 is an intra-frame HD video codec specified by ISO/IEC 15444-1. It uses wavelet transformations to compress the image which results in high quality images in both lossy and lossless modes. JPEG 2000 offers higher compression ratios over standard JPEG video. It offers resolution, color, quality and position progression scalability, and also supports 4:2:2 and 4:4:4 chroma subsampling methods and bit depths up to 12-bit.

JPEG2000 Profile

JPEG2000 Profile. Specifies the JPEG2000 profile to encode with.

Operating Levels for IMF Profiles (shown for Broadcast and IMF profiles). Specifies the operating level.

Operating Sublevels for IMF Profiles (shown for IMF profiles). Specifies the operating sub-level.

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. Specifies the frame rate of the output in frames per second.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Pixel Format. Specifies the color space, chroma subsampling, and bit depth to use for encoding.

Aspect Ratio. Specifies the screen/pixel aspect ratio as encoded in the bitstream; can't be changed.

Frame Rate. Specifies the frame rate of the output in frames per second.

Bit Rate. Specifies the bit rate of the output in bits per second.

Tile Partition Width. Specifies the tile partition width in pixels.

Tile Partition Height. Specifies the tile partition height in pixels.

Precinct Width and Height. Specifies the precinct size.

Code Block Width and Height. Specifies the height and width (in pixels) of a code block to process.

Progression Order. Specifies the order of packet progression.

Number of Decomposition Levels. Specifies the number of discrete wavelet transform levels, or stages, to use.

Quality Layer. Specifies the quality layer value; can't be changed.

Quantization Coefficient (Available only when the Comprimato JPEG2000 Lossy codec is selected). Specifies quality (0-100). If set toward the lower bound it reduces data correspondingly and quality decreases; if set to the upper bound it increases data and quality. However, the default value of 0 (zero) applies no coefficient (effectively disables the feature), resulting in the video being encoded at the full data rate.

TLM Markers. When checked, specifies that Tile Length Markers will be used.

EPH Markers. When checked, EPH marker segments are generated.

SOP (Start of Packet) Markers. When checked, Start of Packet marker segments are generated.

Compute Mode

Compute Mode. Specifies CUDA Mode | CPU Mode.

For CUDA Mode:

CUDA Memory Limit (MB). Specifies the CUDA memory limit in MB.

CUDA Tile Limit. Specifies the CUDA tile limit.

Encoder Queue Size. Specifies the encoder queue size.

For CPU Mode:

Encoding Mode. Specifies the mode that can speed up encoding, which can result in some precision trade-off.

Encoder Queue Size. Specifies the encoder queue size.

Comprimato JPEG2000 CPU Mode

The Comprimato JPEG2000 CPU codec in the Flip64 action encodes the input video stream into one output video stream in JPEG2000 format, using the JPEG2000 Lossless or JPEG2000 Lossy codec.

JPEG2000 is an intra-frame HD video codec specified by ISO/IEC 15444-1. It uses wavelet transformations to compress the image which results in high quality images in both lossy and lossless modes. JPEG2000 offers higher compression ratios over standard JPEG video. It offers resolution, color, quality and position progression scalability, and also supports 4:2:2 and 4:4:4 chroma subsampling methods and bit depths up to 12-bit.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Comprimato JPEG2000 CPU Mode Codec

Compression

Select the compression algorithm to use. Options are Lossy| Lossless.

Note: Available profiles below are based on the compression algorithm selected.

JPEG2000 Profile

Select the profile to use. Options include Profile-None | DCI (2K and 4K) | Broadcast | IMF (2K and 4K) | High-Throughput.

Note: All Profiles are pre-configured to meet certain common specifications. The Profile-None, Broadcast, and IMF profiles allow you to manually configure numerous profile parameters to meet your desired specification.

DCI Profiles

Digital Cinema Initiative profiles are for creation of material intended for 2K and 4K cinema projectors. The following options are configurable:

Frame Rate. When checked (default), allows specification of frame rate for display. When unchecked, source frame rate will be used. Options are 24fps | 48 fps.

Number of Decomposition Levels. Specifies the number of discrete wavelet transform levels, or stages, to use. For DCI 2K, range is 1-5 with 5 set as default. For DCI 4K, range is 1-6 with 6 set as default.

DCI Resolutions. Specify preset 2K and 4K resolutions.

DCI | IMF | Broadcast | High-Throughput | Profile-None Profiles

DCI profiles for digital cinema applications.

IMF (Interoperable Master Format) profiles for management and processing of multiple versions of material destined for various distribution channels. 2K and 4K profiles are supported.

Broadcast profiles are used for creation of broadcast quality outputs.

High-Throughput profile is a faster and more efficient version of JPEG 2000 that speeds encoding and decoding processes by an order of magnitude.

The following options are configurable:

Operating Levels for IMF Profiles (IMF and Broadcast Only). Specifies the operating level.

Operating Sublevels for IMF Profiles (IMF Only). Specifies the operating sublevel.

Width | Height. Specifies the width and height of the output frame in pixels.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Pixel Format. Specifies the color space, chroma subsampling, and bit depth to use for encoding.

Bit Depth. When checked, allows specification of bit depth. Unchecked by default.

Aspect Ratio. Specifies the screen/pixel aspect ratio as encoded in the bitstream. Default is As Encoded. This field is not user configurable.

Frame Rate. Specifies the frame rate of the output in frames per second.

Video Bit Rate. Specifies the video bit rate.

Tile Partition Width | Height. Specifies the tile partition width and height in pixels.

Precinct Width and Height. Specifies the precinct size.

Codeblock Width and Height. Specifies the height and width (in pixels) of a code block to process.

Progression Order. Specifies the order of packet progression.

Number of Decomposition Levels. Specifies the number of discrete wavelet transform levels, or stages, to use. For 2K and 4K profiles, range is 1-5 with 5 set as default.

Quality Layer. Specifies quality layer. Default is 1. This field is not user configurable.

Quantization Coefficient. Specifies quantization coefficient. Default value is 100.

TLM Markers. When checked, specifies that TLM (Tile Length Markers) will be used.

EPH Markers. When checked, EPH (End of Packet Header) marker segments are generated.

SOP Markers. When checked, SOP (Start of Packet) marker segments are generated.

Compute Mode Settings

Encoding Mode. Specifies the mode that can speed up encoding, which can result in some precision trade-off.

Encoder Queue Size. Specifies the encoder queue size. Default is 30.

Comprimato JPEG2000 CUDA Mode

The Comprimato JPEG2000 CUDA codec in the Flip64 action is an optional, licensed, GPU-enabled high-performance transcoder operating in CUDA mode. The Comprimato JPEG2000 CUDA codec encodes the input video stream into one output video stream in JPEG2000 format, using the JPEG2000 Lossless or JPEG2000 Lossy codec.

JPEG2000 is an intra-frame HD video codec specified by ISO/IEC 15444-1. It uses wavelet transformations to compress the image which results in high quality images in both lossy and lossless modes. JPEG2000 offers higher compression ratios over standard JPEG video. It offers resolution, color, quality and position progression scalability, and also supports 4:2:2 and 4:4:4 chroma subsampling methods and bit depths up to 12-bit.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Comprimato JPEG2000 CUDA Mode Codec

Compression

Select the compression algorithm to use. Options are Lossy| Lossless.

Note: Available profiles below are based on the compression algorithm selected.

JPEG2000 Profile

Select the profile to use. Options include Profile-None | DCI (2K and 4K) | Broadcast | IMF (2K and 4K).

Note: All Profiles are pre-configured to meet certain common specifications. The Profile-None, Broadcast, and IMF profiles allow you to manually configure numerous profile parameters to meet your desired specification.

Profile-None

Profile-None is a generic, user configurable profile.

DCI Profiles

Digital Cinema Initiative profiles for creation of material intended for 2K and 4K cinema projectors. The following options are configurable:

Frame Rate. When checked (default), allows specification of frame rate for display. When unchecked, source frame rate will be used. Options are 24fps | 48 fps.

Number of Decomposition Levels. Specifies the number of discrete wavelet transform levels, or stages, to use. For DCI 2K, range is 1-5 with 5 set as default. For DCI 4K, range is 1-6 with 6 set as default.

DCI Resolutions. Specify preset 2K and 4K resolutions.

DCI | IMF | Broadcast Profiles

DCI profiles for digital cinema applications.

IMF (Interoperable Master Format) profiles for management and processing of multiple versions of material destined for various distribution channels. 2K and 4K profiles are supported.

Broadcast profiles are used for creation of broadcast quality outputs.

The following options are configurable:

Operating Levels for IMF Profiles (IMF and Broadcast Only). Specifies the operating level.

Operating Sublevels for IMF Profiles (IMF Only). Specifies the operating sublevel.

Width | Height. Specifies the width and height of the output frame in pixels.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Pixel Format. Specifies the color space, chroma subsampling, and bit depth to use for encoding.

Bit Depth. When checked, allows specification of bit depth. Unchecked by default.

Aspect Ratio. Specifies the screen/pixel aspect ratio as encoded in the bitstream. Default is As Encoded. This field is not user configurable.

Frame Rate. Specifies the frame rate of the output in frames per second.

Video Bit Rate. Specifies the video bit rate.

Tile Partition Width | Height. Specifies the tile partition width and height in pixels.

Precinct Width and Height. Specifies the precinct size.

Codeblock Width and Height. Specifies the height and width (in pixels) of a code block to process.

Progression Order. Specifies the order of packet progression.

Number of Decomposition Levels. Specifies the number of discrete wavelet transform levels, or stages, to use. For 2K and 4K profiles, range is 1-5 with 5 set as default.

Quality Layer. Specifies quality layer. Default is 1. This field is not user configurable.

Quantization Coefficient. Specifies quantization coefficient. Default value is 100.

TLM Markers. When checked, specifies that TLM (Tile Length Markers) will be used.

EPH Markers. When checked, EPH (End of Packet Header) marker segments are generated.

SOP Markers. When checked, SOP (Start of Packet) marker segments are generated.

Compute Mode Settings

Codec Memory Limit. Specifies the mode that can speed up encoding, which can result in some precision trade-off.

Codec Tile Limit. Specifies the codec tile limit. Default is 0.

Encoder Queue Size. Specifies the encoder queue size. Default is 30.

DNxHD Codec

The DNxHD codec encodes video that complies with the SMPTE VC-3 standard. Avid DNxHD is a lossy, high-definition video codec. DNxHD provides near-uncompressed video quality with significantly lower bitrate requirements than true, uncompressed video.

Resolution

Resolution. Specifies the HD profile (frame size/interlaced or progressive/frame rate) to use for encoding this video stream.

Bit Rate. Specifies the associated bit rate of the output in Mbits per second.

DNxHR Codec

The DNxHR codec encodes video that complies with the SMPTE VC-3 standard. Avid DNxHR is a lossy, UHDTV post-production codec engineered for multi-generation compositing with reduced storage and bandwidth requirements. The codec was specifically developed for resolutions considered above FHD/1080p, including 2K, 4K and 8K resolution.

General

Quality. Specifies the Quality profile to use for encoding this video stream.

DNxHR can be set to the following profiles:

- DNX LB - Low Bandwidth (8-bit 4:2:2) Offline Quality
- DNX SQ - Standard Quality (8-bit 4:2:2) (suitable for delivery format)
- DNX HQ - High Quality (8-bit 4:2:2)
- DNX HQX - High Quality (10-bit 4:2:2) (UHD/4K Broadcast-quality delivery)
- DNX 444 - Finishing Quality (10-bit 4:4:4) (Cinema-quality delivery)
- DNX HQX 12 bit - High Quality (12-bit 4:2:2) (UHD/4K Broadcast-quality delivery)
- DNX 444 12 bit - Finishing Quality (12-bit 4:4:4) (Cinema-quality delivery).

Resolution

Width. Specifies the width of the frame in pixels.

Height. Specifies the height of the frame in pixels.

Frame Rate. Specifies the frame rate of the output in frames per second.

DV Codec

Digital Video (DV) is a common editing and camera format. It is standardized within IEC 61834 and SMPTE 314M. DV is an I-frame codec, and is generally encoded at 25 Mbps.

DV is usually encoded lower-field first for both PAL and NTSC material. In some cases, DV can support embedded audio and/or embedded captions. This behavior varies from container format to container format.

The primary difference between DV and DVCPRO is with PAL (625) encoding. With DV (IEC 61834), PAL material is color sub-sampled as 4:2:0, whereas with DVCPRO (SMPTE 314M), PAL material is color sub-sampled as 4:1:1. For NTSC (525) encoding, both DV and DVCPRO use 4:1:1 color sub-sampling.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Video Profile. Specifies the SD video profile (NTSC or PAL) to use for encoding this video stream. Default is NTSC (720x480).

Quality. Specifies the quality and bit rate of the DV or DVCPRO output in Mbps (Megabits per second). Default is DVCPRO 25 Mbps.

DVCPRO HD Codec

The DVCPRO HD codec (also known as DV100 or DVCPRO100) is an HD format encoded at 100Mbps. It is defined by the SMPTE 370M standard. DVCPRO HD is an I-frame based codec which makes it particularly suited for editing. It is widely supported by most major editing systems.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Video Profile. Specifies the configured HD profile (frame size/interlaced or progressive/frame rate) to use for encoding this video stream.

FFV1 Codec

The FFV1codec is a lossless intra-frame entropy coding video codec which uses either variable length or arithmetic coding. The FFV1 codec balances performance regarding speed and size and is often used for creation of archival content.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Width. Specifies the width of the output frame in pixels. 1920 by default.

Height. Specifies the height of the output frame in pixels. 1080 by default.

Frame Rate. Specifies the frame rate of the output in frames per second. 29.97 by default.

Interlace Mode. Specifies interlacing mode for the output. Default is progressive.

Format Type. Specifies the uncompressed data type. This includes YUV/RGB, subsampling, presence of Alpha channel, and bit depth.

Version. Specifies the FFV1 codec version to use. Default is 3.

Coder Type. Specifies the entropy coder type to use. Default is Range Coder (custom state transition table).

GOP Length. Specifies GOP Length. Default is 1 (recommended for archival use). Range is 1-12.

Threads. When checked, specifies number of CPU threads to use when processing. Unchecked by default. When unchecked, defaults to the number of CPU cores detected. Range is 1-64.

Slices. Specifies the number of slices to use when splitting each frame. This value has an effect on mutli-threading performance and file size with higher values resulting in improved performance but increased filesize. Default is 4.

Slice CRC. When checked, adds CRC (Cyclic Redundancy Check) value to each slice. This allows a decoder to detect errors in the bitstream rather than decoding broken slices. Unchecked by default.

Aspect Ratio. Specifies the screen/pixel aspect ratio as encoded in the bitstream. Default is As Encoded.

Grass Valley HQ Codec (Canopus)

The Grass Valley HQ codec (Canopus) is an optional, licensed intermediate codec for the creation of high resolution 8-bit video. MXF and Quicktime containers are supported.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

General

Compression Ratio Percentage. Specifies the compression ratio to use, as a percentage, when encoding this video stream. Set this value to limit frame sizes that may increase as a result of excessive noise in the video. For example, a value of 100% maintains the bitrate present before compression. Range is 4-100. Default is 40%.

Quantization Factor. Specifies the quantization scale to use, as a percentage. Smaller values produce higher quality images but at an increased data rate. Range is 0-18. Default is 4%.

Preserve Alpha. When enabled, alpha channel is preserved for sources with an alpha channel. Disabled by default.

Resolution

Frame Size. Specifies the width and height of the encoded image in pixels. Default is 1920x1080. Maximum value is 1920x1080.

Frame Rate. Specifies the frame rate of the output in frames per second. Default is 29.97.

Interlace Mode. Specifies the interlacing mode. Default is Interlaced Upper Field First.

Grass Valley HQX Codec (Canopus)

The Grass Valley HQX codec is an optional, licensed intermediate codec for the creation of high resolution 10-bit video. MXF and Quicktime containers are supported.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

General

Compression Ratio Percentage. Specifies the compression ratio to use, as a percentage, when encoding this video stream. Set this value to limit frame sizes that may increase as a result of excessive noise in the video. For example, a value of 100% maintains the bitrate present before compression. Range is 4-100. Default is 40%.

Quantization Factor. Specifies the quantization scale to use, as a percentage. Smaller values produce higher quality images but at an increased data rate. Range is 4-100. Default is 4%.

Preserve Alpha. When enabled, alpha channel is preserved for sources with an alpha channel. Disabled by default.

Resolution

Width. Specifies the width in pixels of the encoded image. Default is 1920. Maximum value is 8192.

Height. Specifies the height in pixels of the encoded image. Default is 1080. Maximum value is 8192.

Frame Rate. Specifies the frame rate of the output in frames per second. Default is 29.97.

Interlace Mode. Specifies the interlacing mode. Default is Interlaced Upper Field First.

HAP Codec

This set of codecs is implemented in the QuickTime container. HAP is a free, open source class of encoders intended for efficient, hardware-accelerated playback, commonly used in live visual performances, digital signage, and creative encoding. Movies that are encoded with HAP codecs are typically exported into standard QuickTime or AVI containers. Media encoded in HAP video format can be used with most popular media servers and VJ software.

General

HAP Type. Specifies the specific HAP codec to utilize.

Chunks. Specifies a chunk size (1-64) to optimize multi-threaded CPU utilization, for ultra-high resolution video on a particular hardware system. The number of chunks should not exceed the number of CPU cores on the target computer used for playback. For HD footage or smaller, set the chunk size to 1.

Resolution

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper Field First | Interlaced Lower Field First.

IMX Codec

The IMX codec encodes video that complies with the SMPTE 356M standard. IMX (also known as D-10) is MPEG-2 4:2:2 I-frame only video, with specific bitrates. Typically IMX is encoded at 30, 40 or 50 Mbs, and is used for SD material (particularly NTSC or PAL). Higher bitrates generally have higher quality.

IMX is supported natively by a wide range of editing systems.

Video Profile. Specifies the profile at which to encode the video stream.

JPEG XS Codec

The JPEG XS codec is an interoperable, visually lossless, low-latency and lightweight image and video coding system that targets mezzanine compression within any AV application.

Resolution

Width. Specifies the width of the output frame in pixels.

Height. Specifies the height of the output frame in pixels.

Frame Rate. Specifies the frame rate of the output in frames per second.

Aspect Ratio. Specifies the display aspect ratio.

Format Type. Specifies the uncompressed data type. This includes YUV/RGB, subsampling, presence of Alpha channel, and bit depth.

Rate Control

Rate Control. Specifies the rate control method to use. Configure settings as supported by method.

Codec Configuration

Profile. Specifies the profile to utilize and restricts the available encoder tools from the encoder.

Level. Specifies the level to utilize which restricts image dimensions and the pixel clock in the spatial domain.

Sublevel. Specifies the sublevel to utilize which restricts bandwidth of the compressed signal and limits the capacity of the transport channel.

Enable Lossless Encoding. When checked, enables lossless encoding.

MPEG2 Codec (Flip64)

The MPEG-2 (H.262 ITU) codec is a standard for the generic, lossy encoding of moving pictures - video and audio. MPEG-2 is typically used in digital television broadcasting and in producing media that conforms to the DVD video standard.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

General

Set Timecode in the GOP Header. When checked, allows the timecode for the file to be written into the GOP Header. Unchecked by default.

Note: *Set Timecode in the GOP Header* option is only supported for MXF OP1A containers.

Resolution

Width. Specifies the width of the output frame in pixels.

Height. Specifies the height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Aspect Ratio. Specifies the display aspect ratio.

Bitrate Control

Specifies Constant or Variable bitrate.

Bit Rate. Specifies the target bit rate for this stream, in kbps.

Minimum Bitrate. Specifies the minimum bit rate for this stream, in kbps. For Variable bitrate only.

Maximum Bitrate. Specifies the maximum bit rate for this stream, in kbps. For Variable bitrate only.

Video Settings

GOP Structure. Specifies the GOP structure for this stream, as a pattern of I frames, B frames, and P frames. I-frame-only structures have lower visual quality but are suitable for editing. Longer GOP structures have higher visual quality and are best suited for playout.

GOP Configuration. Specifies the type of GOP structure: Open GOP or Closed GOP.

Start with I-Frame. When checked, specifies that the GOP starts with an I-frame (display and coded order).

Motion Estimation Factor. Specifies the amount of motion estimating to be used when encoding this stream. A higher value increases encoding time and results in higher visual quality.

Video Performance Setting. Specifies the video quality setting to use when encoding this stream. A higher value increases encoding time and results in higher visual quality.

Profile. Specifies the MPEG profile.

Level. Specifies the MPEG level.

Chroma. Specifies the type of chroma subsampling.

Intra DC Precision. Specifies the amount of MPEG intra DC precision.

Video Buffer Verifier

VBV Buffer Verifier. Specifies whether to use default settings or manual settings. When Specify VBV Settings is selected, specify the following settings:

VBV Buffer Size. Specifies the size of the VBV buffer in kbps.

VBV Delay. Specifies the maximum delay, in milliseconds.

ProRes Codec

ProRes422 is a 10-bit compression format developed by Apple. It is primarily used for editing and archival purposes. The ProRes codec provides several options, including four bitrate (Quality) levels (SQ, HQ, LT, and Proxy), and can be used for NTSC and PAL SD in various profiles. Optionally, the chapter track can be preserved from the source, and used to create 608 or 708 captions.

If you are producing 23.976 or 24p video, you should create 708 captions, not 608.

General

Quality. Specifies the quality profile to utilize.

Resolution

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Aspect Ratio. Specifies the display aspect ratio.

Ross Xpression Codec

The Ross Xpression codec in Flip64 allows you to create high resolution outputs for use in sports stadiums and other public venues.

Note: A custom codec pack is required in order to use features of the Ross Xpression codec. Contact your Telestream or Ross support team for access to the codec pack installer.

Width. Specifies the width of the output frame in pixels.

Height. Specifies the height of the output frame in pixels.

Frame Rate. Specifies the frame rate of the output in frames per second.

Quality. Specifies the desired output quality. Range is 1-100 with 1 resulting in the lowest bitrate and quality outputs.

Output Alpha. When checked, preserves alpha channel if present or adds an alpha channel. Unchecked by default.

SHQ Codec

The SHQ codec is a proprietary codec for video recording and compression developed by NewTek. It is used for high-quality video editing and scrubbing and is also employed within NewTek's NDI network codec.

General

Codec Type. Specifies the specific codec to utilize: SHQ0 (420) | SHQ2 (422) | SHQ4 (444).

Resolution

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper Field First | Interlaced Lower Field First.

VP9 Codec

The VP9 codec encodes the incoming video stream in VP9 format, in various supported profiles (levels).

Levels

Levels. Specifies the frame size and frame speed at which to encode the video.

General

Frame Rate. Specifies the number of frames to display per second; disable to use source frame rate.

Threads Control. Specifies the number of parallel threads to use for processing.

Speed Control. Specifies the relationship between encoding speed and quality. 0 = slowest, highest quality; 4 = fastest, lowest quality.

Tile Columns. Specifies the tile-columns encoding setting used by the decoder.

Frame Parallel. Specifies the frame-parallel encoding setting used by the decoder.

Max Keyframe Distance. Specifies the maximum interval between keyframes.

Resolution

Width. Specifies the width of the encoded image, in pixels.

Height. Specifies the height of the encoded image, in pixels.

Rate Control

Rate Control. Specifies the rate control method to use. Where appropriate, specify target rates and/or quality.

XAVC HD Codec

This implementation of the XAVC HD codec generates video that is compatible with the H.264/MPEG-4 AVC standard. It supports HD-resolution video in various profiles.

Video Profile. Specifies the profile at which to encode the video stream.

Color Primaries Signaling. When checked, overrides the color primaries signaling in the MXF container per the selected specification.

Transfer Function Signaling. When checked, overrides the color transfer function signaling in the MXF container per the selected specification.

Color Matrix Signaling. When checked, overrides the color coefficients signaling in the MXF container per the selected specification.

XAVC HD Intra Codec

This implementation of the XAVC HD Intra codec generates video that is compatible with the H.264/MPEG-4 AVC standard. It supports HD-resolution intra-frame only compressed video in various profiles.

Video Profile. Specifies the profile at which to encode the video stream.

Color Primaries Signaling. When checked, overrides the color primaries signaling in the MXF container per the selected specification.

Transfer Function Signaling. When checked, overrides the color transfer function signaling in the MXF container per the selected specification.

Color Matrix Signaling. When checked, overrides the color coefficients signaling in the MXF container per the selected specification.

XAVC 4k Codec

This implementation of the XAVC 4k codec generates video that is compatible with the H.264/MPEG-4 AVC standard. It supports full-resolution, 10-bit, 4:2:2 and 4:2:0 4k video in various profiles.

Video Profile. Specifies the profile at which to encode the video stream.

Color Primaries Signaling. When checked, overrides the color primaries signaling in the MXF container per the selected specification.

Transfer Function Signaling. When checked, overrides the color transfer function signaling in the MXF container per the selected specification.

Color Matrix Signaling. When checked, overrides the color coefficients signaling in the MXF container per the selected specification.

XAVC 4k Intra Codec

This implementation of the XAVC 4k Intra codec generates video that is compatible with the H.264/MPEG-4 AVC standard. It supports full-resolution, 10-bit, 4:2:2 intra-frame only compressed 4k video in various profiles.

Video Profile. Specifies the profile at which to encode the video stream.

Color Primaries Signaling. When checked, overrides the color primaries signaling in the MXF container per the selected specification.

Transfer Function Signaling. When checked, overrides the color transfer function signaling in the MXF container per the selected specification.

Color Matrix Signaling. When checked, overrides the color coefficients signaling in the MXF container per the selected specification.

XAVC 4k Ultra Codec

This implementation of the XAVC Ultra codec generates video that is compatible with the H.264/MPEG-4 AVC standard. It supports full-resolution, 10-bit, 4:2:2 intra-frame only compressed 4k video in various profiles.

Video Profile. Specifies the profile at which to encode the video stream.

XDCAM EX Codec

The XDCAM EX codec generates video that is compatible with the XDCAM EX Specification: MPEG-2 4:2:0 1080 or 720, in various profiles.

Note: When you are encoding XDCAM video in various formats for use on XDCAM hardware devices, you must use certain audio profiles to meet Sony specifications. This is only required when the video is planned for use on XDCAM hardware.
Permitted Video and Audio Profiles:

- XDCAM IMX - PCM 8 channel, 16-bit at 48 kHZ or 4 channel, 24-bit at 48 kHZ audio
- XDCAM EX - PCM 4 channel, 16-bit at 48 kHZ audio
- XDCAM HD - PCM 4 channel, 16-bit at 48 kHZ audio
- XDCAM HD422 - PCM 8 channel, 16-bit at 48 kHZ or 4 channel, 24-bit at 48 kHZ audio

Video Profile. Specifies the profile at which to encode the video stream.

Video Quality. Specifies the video quality setting to use when encoding this stream. A higher value increases encoding time and results in higher visual quality.

SMPTE 328 Processing. Specifies type of SMPTE 328 Elementary Stream Editing Information (ESEI) processing to perform on User Bit metadata in a source file. Options are:

- *Do Not Preserve* (default). User bits are not preserved in the output file when the source file is transcoded.

- *Preserve Original.* User bits are preserved in the output file when the source file is transcoded. This includes SMPTE 328 timecode.

- *Update Timecode.* User bits are preserved in the output file when the source file is transcoded but the SMPTE 328 timecode is updated to the value of the timecode set in the Time Code Processing Filter found in the ANC stream.

Note: Available profiles and features are limited based on selected containers. See specific containers for supported profiles and features.

XDCAM HD Codec

The XDCAM HD codec generates video that is compatible with the XDCAM EX Specification: MPEG-2 4:2:0 1080 or 720, in various profiles.

Note: When you are encoding XDCAM video in various formats for use on XDCAM hardware devices, you must use certain audio profiles to meet Sony specifications. This is only required when the video is planned for use on XDCAM hardware. Permitted Video and Audio Profiles:

- XDCAM IMX - PCM 8 channel, 16-bit at 48 kHZ or 4 channel, 24-bit at 48 kHZ audio
- XDCAM EX - PCM 4 channel, 16-bit at 48 kHZ audio
- XDCAM HD - PCM 4 channel, 16-bit at 48 kHZ audio
- XDCAM HD422 - PCM 8 channel, 16-bit at 48 kHZ or 4 channel, 24-bit at 48 kHZ audio

Video Profile. Specifies the profile at which to encode the video stream.

Video Quality. Specifies the video quality setting to use when encoding this stream. A higher value increases encoding time and results in higher visual quality.

SMPTE 328 Processing. Specifies type of SMPTE 328 Elementary Stream Editing Information (ESEI) processing to perform on User Bit metadata in a source file. Options are:

- *Do Not Preserve* (default). User bits are not preserved in the output file when the source file is transcoded.

- *Preserve Original.* User bits are preserved in the output file when the source file is transcoded. This includes SMPTE 328 timecode.

- *Update Timecode.* User bits are preserved in the output file when the source file is transcoded but the SMPTE 328 timecode is updated to the value of the timecode set in the Time Code Processing Filter found in the ANC stream.

Note: Available profiles and features are limited based on selected containers. See specific containers for supported profiles and features.

XDCAM HD 4.2.2 Codec

The XDCAM HD 4.2.2 codec generates video that is compatible with the XDCAM 4.2.2 specification: MPEG-2 4.2.2 1080 or 720, in various profiles.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Video Profile. Specifies the profile at which to encode the video stream.

Note: When you are encoding XDCAM video in various formats for use on XDCAM hardware devices, you must use certain audio profiles to meet Sony specifications. This is only required when the video is planned for use on XDCAM hardware.

Permitted Video and Audio Profiles:

- XDCAM IMX - PCM 8 channel, 16-bit at 48 kHZ or 4 channel, 24-bit at 48 kHZ audio

- XDCAM EX - PCM 4 channel, 16-bit at 48 kHZ audio

- XDCAM HD - PCM 4 channel, 16-bit at 48 kHZ audio

- XDCAM HD422 - PCM 8 channel, 16-bit at 48 kHZ or 4 channel, 24-bit at 48 kHZ audio

Open GOP. When checked, uses I-frames instead of IDR frames and flags them as recovery points (--open-gop). The -keyint parameter uses the value specified in IDR Frame Interval when enabled. When disabled, --keyint is -1.

Video Quality. Specifies the video quality setting to use when encoding this stream. A higher value increases encoding time and results in higher visual quality.

SMPTE 328 Processing. Specifies type of SMPTE 328 Elementary Stream Editing Information (ESEI) processing to perform on User Bit metadata in a source file. Options are:

- *Do Not Preserve* (default). User bits are not preserved in the output file when the source file is transcoded.

- *Preserve Original.* User bits are preserved in the output file when the source file is transcoded. This includes SMPTE 328 timecode.

- *Update Timecode.* User bits are preserved in the output file when the source file is transcoded but the SMPTE 328 timecode is updated to the value of the timecode set in the Time Code Processing Filter found in the ANC stream.

Note: Available profiles and features are limited based on selected containers. See specific containers for supported profiles and features.

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x264 Codec

This implementation of this x264 codec encodes one video stream in H.264/MPEG-4 AVC format.

Rate Control

(--qp |--crf | --bitrate) Select the type of rate control to apply to this encoding process then specify the appropriate settings, based on the type of rate control you chose.

Constant Quantizer.

Quantizer (--qp). Specifies the quantizer value, where 0 is lossless.

Constant Rate Factor.

Rate Factor (--crf). Specifies the constant rate factor.

Constrained (Capped) CRF

Rate Factor (--crf). Specifies the constant rate factor.

VBV Maximum Rate (--vbv-maxrate). Specifies the maximum rate at which the VBV buffer should refill, in kbps.

VBV Buffer Size (--vbv-bufsize). Specifies the size of the VBV buffer, in kbits.

HRD compliance. For CBR streams, specifies HRD information and packs the bitstream to the specified bit rate (--nal-hrd cbr). For VBR streams, specifies HRD information (--nal-hrd vbr). Requires VBV Maximum Rate, VBV Buffer Size, and VBV Initial Fill to be specified.

Average Bit Rate.

Target Bit Rate (--bitrate). Specifies the target rate for this stream, in kbps.

VBV Maximum Rate (--vbv-maxrate). Specifies the maximum rate at which the VBV buffer should refill, in kbps.

VBV Buffer Size (--vbv-bufsize). Specifies the size of the VBV buffer, in kbits.

VBV Initial Fill (--vbv-init). Specifies how full the buffer should be, before playback starts, expressed as a percentage of the buffer size. (Initial fill is calculated as vbv-init * vbv-bufsize).

HRD compliance. For CBR streams, specifies HRD information and packs the bitstream to the specified bit rate (--nal-hrd cbr). For VBR streams, specifies HRD information (--nal-hrd vbr). Requires VBV Maximum Rate, VBV Buffer Size, and VBV Initial Fill to be specified.

Constant Bit Rate

Target Bit Rate (--bitrate). Specifies the target rate for this stream, in kbps.

Buffer Delay (--vbv-bufsize). Modifies the VBV buffer in seconds, for an equivalent window size (that is, the VBV buffer is the same as the bitrate for a 1-second window)

HRD compliance. For CBR streams, specifies HRD information and packs the bitstream to the specified bit rate (--nal-hrd cbr). For VBR streams, specifies HRD information (--nal-hrd vbr). Requires VBV Maximum Rate, VBV Buffer Size, and VBV Initial Fill to be specified.

Resolution

Click the details icon to specify frame settings.

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Aspect Ratio. Specifies the display aspect ratio.

Frame Type

Maximum IDR-frame Interval (GOP Length) (--keyint). Specifies the maximum distance between IDR frames.

Open GOP. When checked, uses I-frames instead of IDR frames and flags them as recovery points (--open-gop). The -keyint parameter uses the value specified in IDR Frame Interval when enabled. When disabled, --keyint is -1.

Scene Detection Threshold (--scenecut). When checked, enables scene detection and specify the threshold for I-frame detection. x264 calculates a metric for every frame to determine how different it is from the previous frame. If the metric is lower than this value, a scene cut is detected.

Maximum B-frames (--bframes). Specifies the maximum number of consecutive B-frames between P-frames.

B-frame Placement Algorithm (--b -pyramid). Specifies the adaptive B-frame placement decision algorithm. This setting controls how x264 decides between placing a P- or B-frame.

Disabled - Always pick B-frames.

Fast - Faster, speed slightly increases with higher maximum b-frames setting.

Optimal - Slower, speed significantly decreases with higher maximum b-frames setting.

B-Frame Reference Pyramid (--b -pyramid). Allows the use of B-frames as references for other frames. Without this setting, frames can only reference I- or P-frames. Although I/P-frames are more valued as references because of their higher quality, B-frames can also be useful. B-frames designated as references will get a quantizer halfway between P-frames and normal B-frames. At least two B-frames are required for a B-pyramid to work.

When you are encoding for Blu-ray, use *None* or *Strict*.

None - Do not allow B-frames to be used as references.

Strict - Allow one B-frame per mini-GOP to be used as reference; enforces restrictions imposed by the Blu-ray standard.

Normal - Allow numerous B-frames per mini-GOP to be used as references.

Reference Frames (--ref). Specifies the maximum number of frames that a frame can reference. More reference frames provide better quality, because the encoder has more frames in which to find similarities, but increases CPU utilization.

Number of Slices (--slices). Specifies the number of slices.

Video Format (--videoformat). Specifies the format of the incoming media, before decoding and re-encoding.

Color Primaries (--colorprim). Specifies color primaries for converting to RGB.

Transfer Characteristics (--transfer). Specifies the opto-electronics to use (the gamma curve to use for correction).

Color Matrix (--colormatrix). Specifies the matrix coefficient used in deriving the luma and chroma from the RGB primaries.

Presets

See the external community resource https://en.wikibooks.org/wiki/MeGUI/x264_Settings for configuration options.

Profile (--profile). Specifies the profile. Profiles offer different quality levels ranging from consumer (Baseline and Main) to broadcast and professional levels (High, High 10, and High 4:2:2). Lower levels use 8-bits per sample processing. High 10 provides 10-bits per sample processing, and High 4:2:2 adds 4:2:2 chroma subsampling to 10-bit processing. The *Not Set* option automatically selects the appropriate H.264 profile based on your other encoder settings.

Level (--level). Sets the level flag in the encoded streams. If not specified, the encoder auto-detects the level.

Preset (--preset). Specifies the preset setting, which trades encoding speed for visual quality.

Tuning (--tune). Specifies the tuning setting, which optimizes encoding quality for a particular type of source content.

Command Line. For encoding parameters that are not implemented via controls in the editor panel (those other than the more common Profile, Preset, and Tuning parameters, etc.), you can enter CLI commands to refine encoding options. Only CLI commands specifically for setting encoding options are executed. The transcoder uses various algorithms, many of which use default values. These values can be changed as a command line interface command.

Note: CLI commands take precedence over user interface controls. If you enter a CLI command that is represented in the user interface, the CLI command will be executed. Telestream recommends using user interface controls whenever possible unless CLI commands are required.

To enter multiple commands, separate them with spaces: `--ref 3 --bframes 3`, for example.

It is best practice to use long form commands for clarity; for example: `--bframe 5`. The use of short form (`-b 5`) commands is not recommended.

Disable Encoding Settings SEI. When checked, the encoder will not emit an SEI message with encoding settings.

Analysis

Lightspeed Pre-analysis. When checked, improves the x264 codec's efficiency by performing some preliminary analysis on the media before encoding, thus reducing transcode time.

Look Ahead (--rc -lookahead). Specify the number of frames that the encoder uses to predict more difficult areas to encode, and save bits for those sections. This setting is used for rate control, and effectively sets the VBV window.

IP Ratio (--ipratio). Specify the target average increase in the quantizer for I-frames compared to P-frames. Higher values increase the quality of I-frames generated.

Adaptive Quantization Strength (--aq -strength). Sets the strength of AQ bias toward low detail (flat) macroblocks.

HDR Metadata

Manually add HDR metadata to output files without entering x264 command-line options. HDR metadata is added as SEI messages into the bitstream for use by downstream players to accurately display the High Dynamic Range video.

Add SMPTE 2086 Master Display Metadata. Check to enable insertion of the master display HDR metadata values from the controls in this panel.

Master Display X | Y Coordinates for Red | Green | Blue | White Point. specify the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Add CTA-861.3 Content Light Level Metadata. When checked, inserts CTA-861.3 message with Content Light Level Metadata.

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Flip64 Action
x264 Codec

x264 (RDD25 Restricted) Codec

The x264 RDD25 Restricted codec creates a single H.264 stream constrained to meet the requirements of the SMPTE RDD 25 MXF Op1a proxy format. Video compression is compliant with the AVC Constrained Baseline profile, with no B-frames or forward temporal references. There is one SPS and one PPS for the duration of the stream.

Proxies are progressive encoded at variable bit rates between 0.6 and 6 Mbps and a width of 176 to 960 and height between 112 and 544 pixels in multiples of 16.

Rate Control

Target Bit Rate (--bitrate). Specifies the target bit rate (in kbps) for this stream .

VBV Maximum Rate (--vbv-maxrate). Specifies the maximum rate the VBV buffer should use for refilling.

VBV Buffer Size (--vbv-bufsize). Specifies the maximum size of the buffer, in kbps.

VBV Initial Fill (--vbv-init). Specifies how full the VBV buffer must be, before playback starts, expressed as a percentage of vbv-init * vbv-bufsize.

HRD Compliance. For CBR streams, specifies HRD information, and packs the bitstream to the specified bitrate (--nal-hrd cbr). For VBR streams, specifies HRD information (--nal-hrd vbr). Requires VBV Maximum Rate, VBV Buffer Size, and VBV Initial Fill to be specified.

Resolution

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Aspect Ratio. Specifies the display aspect ratio.

Frame Type

IDR Frame Interval (GOP Length) (--keyint). Specifies the maximum distance between IDR frames.

Open GOP (--open-gop). When checked, uses I-frames instead of IDR frames and flags them as recovery points. The keyint parameter uses the value specified in IDR Frame Interval when enabled. When disabled, keyint is -1.

Number of Slices (--slices). Specifies the number of slices.

x265 Codec

This implementation of the x265 codec encodes the video stream into High Efficiency Video Coding (HEVC/H.265) video compression format.

Rate Control

(--qp |--crf | --bitrate) Select the type of rate control to apply to this encoding process then specify the appropriate settings, based on the type of rate control you chose.

Constant Quantizer.

Quantizer (--qp). Specifies the quantizer value, where 0 is lossless.

Constant Rate Factor.

Rate Factor (--crf). Specifies the constant rate factor.

Constrained (Capped) CRF

Rate Factor (--crf). Specifies the constant rate factor.

VBV Maximum Rate (--vbv-maxrate). Specifies the maximum rate at which the VBV buffer should refill, in kbps.

VBV Buffer Size (--vbv-bufsize). Specifies the size of the VBV buffer, in kbits.

HRD compliance. For CBR streams, specifies HRD information and packs the bitstream to the specified bit rate (--nal-hrd cbr). For VBR streams, specifies HRD information (--nal-hrd vbr). Requires VBV Maximum Rate, VBV Buffer Size, and VBV Initial Fill to be specified.

Average Bit Rate.

Target Bit Rate (--bitrate). Specifies the target rate for this stream, in kbps.

VBV Maximum Rate (--vbv-maxrate). Specifies the maximum rate at which the VBV buffer should refill, in kbps.

VBV Buffer Size (--vbv-bufsize). Specifies the size of the VBV buffer, in kbits.

VBV Initial Fill (--vbv-init). Specifies how full the buffer should be, before playback starts, expressed as a percentage of the buffer size. (Initial fill is calculated as vbv-init * vbv-bufsize).

HRD compliance. For CBR streams, specifies HRD information and packs the bitstream to the specified bit rate (--nal-hrd cbr). For VBR streams, specifies HRD information (--nal-hrd vbr). Requires VBV Maximum Rate, VBV Buffer Size, and VBV Initial Fill to be specified.

Constant Bit Rate.

Target Bit Rate (--bitrate). Specifies the target rate for this stream, in kbps.

Buffer Delay (--vbv-bufsize). Modifies the VBV buffer in seconds, for an equivalent window size (that is, the VBV buffer is the same as the bitrate for a 1-second window)

HRD compliance. For CBR streams, specifies HRD information and packs the bitstream to the specified bit rate (--nal-hrd cbr). For VBR streams, specifies HRD information (--nal-hrd vbr). Requires VBV Maximum Rate, VBV Buffer Size, and VBV Initial Fill to be specified.

Resolution

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Aspect Ratio. Specifies the display aspect ratio.

Frame Type

Maximum IDR-frame Interval (GOP Length) (--keyint). Specifies the maximum distance between IDR frames.

Fixed IDR-frame Interval (GOP Length) (--keyint). Specifies the fixed distance between IDR frames.

Open GOP. When checked, uses I-frames instead of IDR frames and flags them as recovery points.

Scene Detection Threshold (--scenecut). When checked, enables scene detection and specify the threshold for I-frame detection. x264 calculates a metric for every frame to determine how different it is from the previous frame. If the metric is lower than this value, a scene cut is detected.

Maximum B-frames (--bframes). Specifies the maximum number of consecutive B-frames between P-frames.

Adaptive B-frame Scheduling (--b-adapt). Specifies the adaptive B frame scheduling algorithm.

B-Frame Reference Pyramid (--b -pyramid). Allows the use of B-frames as references for other frames. Without this setting, frames can only reference I- or P-frames. Although I/P-frames are more valued as references because of their higher quality, B-frames can also be useful. B-frames designated as references will get a quantizer halfway between P-frames and normal B-frames. You need to use at least two B-frames before B-pyramid will work.

Reference Frames (--ref). Specifies the maximum number of frames that a frame can reference. More reference frames provide better quality, because the encoder has more frames in which to find similarities, but increases CPU utilization.

IDR-frame Insertion CML Path. Specifies the fully-qualified (ideally UNC) path to the CML file containing manual IDR frame insertion positions.

Video Format (--videoformat). Specifies the format of the incoming media, before decoding and re-encoding.

Color Primaries (--colorprim). Specifies color primaries for converting to RGB.

Transfer Characteristics (--transfer). Specifies the opto-electronics to use (the gamma curve to use for correction).

Alternative/Preferred Transfer Characteristics (--transfer). When checked, adds the SEI specifying the alternative/preferred opto-electronics Transfer Characteristics.

Color Matrix (--colormatrix). Specifies the matrix coefficient used in deriving the luma and chroma from the RGB primaries.

Presets

For an h.265 reference, see the web site x265.readthedocs.org/en/default/.

Profile (--profile). Specifies the profile. Profiles offer different quality levels ranging from consumer (Baseline and Main) to broadcast and professional levels (High, High 10, and High 4:2:2). Lower levels use 8-bits per sample processing. High 10 provides 10-bits per sample processing, and High 4:2:2 adds 4:2:2 chroma subsampling to 10-bit processing. The *Not Set* option automatically selects the appropriate H.264 profile based on your other encoder settings.

Level (--level). Sets the level flag in the encoded streams. If not specified, the encoder auto-detects the level.

Preset (--preset). Specifies the preset setting, which trades encoding speed for visual quality.

Tuning (--tune). Specifies the tuning setting, which optimizes encoding quality for a particular type of source content.

Command Line. For encoding parameters that are not implemented via controls in the editor panel (those other than the more common Profile, Preset, and Tuning parameters, etc.), you can enter CLI commands to refine encoding options. Only CLI commands specifically for setting encoding options are executed. The transcoder uses various algorithms, many of which use default values. These values can be changed as a command line interface command. CLI commands take precedence - if you enter a CLI command that is represented in the user interface, the - Telestream suggests avoiding the use of CLI commands that are implemented in the inspector.

To enter multiple commands, separate them with spaces: `--ref 3 --bframes 3`, for example.

It is best practice to use long form commands for clarity; for example: `--bframe 5`. The use of short form (`-b 5`) commands is not recommended.

Analysis

Lightspeed Pre-analysis. When checked, improves the x264 codec's efficiency by performing some preliminary analysis on the media before encoding, thus reducing transcode time.

Look Ahead (--rc -lookahead). Specify the number of frames that the encoder uses to predict more difficult areas to encode, and save bits for those sections. This setting is used for rate control, and effectively sets the VBV window.

IP Ratio (--ipratio). Specify the target average increase in the quantizer for I-frames compared to P-frames. Higher values increase the quality of I-frames generated.

Adaptive Quantization Strength (--aq -strength). Sets the strength of AQ bias toward low detail (flat) macroblocks.

HDR Metadata

Add SMPTE 2086 Master Display Metadata (--master-display). When checked, enables the SEI message with SMPTE 2086 master display metadata. When checked, specify master display metadata values in the fields below.

Add CTA-861.3 Content Light Level Metadata (--master-display). When checked, enables the SEI message with CTA-861.3 content light level metadata.

Maximum CLL. Specifies the maximum content light level.

Maximum FALL. Specifies the maximum frame average light level.

Lightspeed GPU H.264 Codec (Flip64)

The Flip64 implementation of the Lightspeed GPU H.264 codec encodes one video stream into High Advanced Video Coding (H.264) video compression format, utilizing the NVIDIA GPU in Lightspeed G5 and later servers.

Note: Lightspeed G7, G8, and G10 servers utilize NVIDIA GPUs which support H.264/H.265 encoding with B frames for higher quality encodes. HEVC B-Frame encoding is not supported for Lightspeed G6 servers. Setting B-Frame value to 0 allows for HEVC encoding on Lightspeed G6 servers. Only the GPUs (RTX4000 and A4000 found in the G7, G8, and G10) will support B-frames for both AVC and HEVC.

Note: Interlacing is not supported for RTX 4000 GPUs.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Rate Control

(--qp |--crf | --bitrate) Select the type of rate control to apply to this encoding process then specify the appropriate settings, based on the type of rate control you chose.

Constant Quantizer

Quantizer (--qp). Specifies the quantizer value, where 0 is lossless.

Constant Rate Factor

Rate Factor (--crf). Specifies the constant rate factor.

Constrained (Capped) CRF

Rate Factor (--crf). Specifies the constant rate factor.

VBV Maximum Rate (--vbv-maxrate). Specifies the maximum rate at which the VBV buffer should refill, in kbps.

VBV Buffer Size (--vbv-bufsize). Specifies the size of the VBV buffer, in kbits.

Variable Bit Rate

Target Bit Rate (--bitrate). Specifies the target rate for this stream, in kbps.

Maximum Rate. Specifies the maximum bitrate of the encoded output in kbps.

HRD. When enabled, specifies HRD information and packs the bitstream to the specified bit rate (--nal-hrd cbr). For VBR streams, require VBV Buffer Size, and VBV Initial Fill to be specified.

Constant Bit Rate

Bit Rate (--bitrate). Specifies the bitrate for this stream, in kbps.

HRD. When enabled, specifies HRD information and packs the bitstream to the specified bit rate (--nal-hrd cbr). For VBR streams, require VBV Buffer Size, and VBV Initial Fill to be specified.

Resolution

Click the details icon to specify frame settings.

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used. Checked by default.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

GPU Device Index. When enabled, allows specification of GPU to use for encoding. Disabled by default (uses default GPU device).

Aspect Ratio. Specifies the display aspect ratio.

Presets

Profile (--profile). Limits the profile of the encoded video stream. The *Auto* option (default) automatically selects the appropriate profile based upon your other encoder settings.

Preset (--preset). Specifies predefined options that optimize the trade-off between encoding speed and compression efficiency - visual quality per bit in the stream. Faster presents improve performance at the expense of quality.

Tuning. Specifies the optimum setting to optimize encoding quality for a particular type of source content or encoding characteristics.

Multi Pass. Specifies the optimum setting to optimize encoding quality for a particular type of source content or encoding characteristics.

- Disabled. Single pass transcode is performed.

- 2-Pass Quarter Resolution. The transcode executes twice consecutively, and reduces the output resolution by 1/2 vertically and 1/2 horizontally. This can reduce overall transcode time because there are fewer pixels to calculate.

- 2-Pass Full Resolution. The transcode executes twice consecutively at full resolution. This will double transcode time but increases quality.

Advanced Settings. For parameters that are not in the editor panel (those other than the more common Profile, Preset, and Tuning parameters, etc.), you can enter CLI

commands to execute, to refine encoding options. The transcoder uses various algorithms, many of which use default values. These values can be changed as a command line interface command. See NVENC Advanced Settings for details.

Frame Type

Max IDR Frame Interval (GOP Length) (--keyint). When checked, specifies the maximum distance between IDR frames. Checked by default.

Scene Detection. When checked, enables key frame insertion at scene cuts. Unchecked by default.

Maximum B-frames (--bframes). Specifies the maximum number of consecutive B-frames between P-frames.

Maximum Reference Frames (--ref). When checked, specifies the maximum number of frames that a frame can reference. More reference frames provide better quality, because the encoder has more frames in which to find similarities, but increases CPU utilization. Unchecked by default.

Color Primaries (--colorprim). Specifies color primaries for converting to RGB.

Transfer Characteristics (--transfer). Specifies the opto-electronics to use (the gamma curve to use for correction).

Color Matrix (--colormatrix). Specifies the matrix coefficient used in deriving the luma and chroma from the RGB primaries.

Analysis

Adaptive Quantization (--aq -strength). When checked,sets the strength of AQ bias toward low detail (flat) macroblocks. Unchecked by default.

Lookahead (--rc-lookahead). Specify the number of frames that the encoder uses to predict more difficult areas to encode, and save bits for those sections. This setting is used for rate control, and effectively sets the VBV window.

Lightspeed GPU H.265 Codec (Flip64)

The Flip64 implementation of the Lightspeed GPU H.265 codec encodes one video stream into High Efficiency Video Coding (HEVC/H.265) video compression format, utilizing the NVIDIA GPU in Lightspeed G5 and later servers.

Note: Lightspeed G7, G8, and G10 servers utilize NVIDIA GPUs which support H.264/H.265 encoding with B frames for higher quality encodes. HEVC B-Frame encoding is not supported for Lightspeed G6 servers. Setting B-Frame value to 0 allows for HEVC encoding on Lightspeed G6 servers. Only the Turing and Ampere class GPUs (RTX4000 and A4000 found in the G7, G8, and G10) will support B-frames for both AVC and HEVC.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one

---

Rate Control

(--qp |--crf | --bitrate) Select the type of rate control to apply to this encoding process then specify the appropriate settings, based on the type of rate control you chose.

Constant Quantizer

Quantizer (--qp). Specifies the quantizer value, where 0 is lossless.

Constant Rate Factor

Rate Factor (--crf). Specifies the constant rate factor.

Constrained (Capped) CRF

Rate Factor (--crf). Specifies the constant rate factor.

VBV Maximum Rate (--vbv-maxrate). Specifies the maximum rate at which the VBV buffer should refill, in kbps.

VBV Buffer Size (--vbv-bufsize). Specifies the size of the VBV buffer, in kbits.

Variable Bit Rate

Target Bit Rate (--bitrate). Specifies the target rate for this stream, in kbps.

Maximum Rate. Specifies the maximum bitrate of the encoded output in kbps.

HRD. When enabled, specifies HRD information and packs the bitstream to the specified bit rate (--nal-hrd cbr). For VBR streams, require VBV Buffer Size, and VBV Initial Fill to be specified.

Constant Bit Rate

Bit Rate (--bitrate). Specifies the bitrate for this stream, in kbps.

HRD. When enabled, specifies HRD information and packs the bitstream to the specified bit rate (--nal-hrd cbr). For VBR streams, require VBV Buffer Size, and VBV Initial Fill to be specified.

Resolution

Click the details icon to specify frame settings.

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used. Checked by default.

GPU Device Index. When enabled, allows specification of GPU to use for encoding. Disabled by default (uses default GPU device).

Aspect Ratio. Specifies the display aspect ratio.

Presets

Profile (--profile). Limits the profile of the encoded video stream. The *Auto* option (default) automatically selects the appropriate profile based upon your other encoder settings.

Preset (--preset). Specifies predefined options that optimize the trade-off between encoding speed and compression efficiency - visual quality per bit in the stream. Faster presents improve performance at the expense of quality.

Tuning. Specifies the optimum setting to optimize encoding quality for a particular type of source content or encoding characteristics.

Multi Pass. Specifies the optimum setting to optimize encoding quality for a particular type of source content or encoding characteristics.

- Disabled. Single pass transcode is performed.

- 2-Pass Quarter Resolution. The transcode executes twice consecutively, and reduces the output resolution by 1/2 vertically and 1/2 horizontally. This can reduce overall transcode time because there are fewer pixels to calculate.

- 2-Pass Full Resolution. The transcode executes twice consecutively at full resolution. This will double transcode time but increases quality.

Advanced Settings. For parameters that are not in the editor panel (those other than the more common Profile, Preset, and Tuning parameters, etc.), you can enter CLI commands to execute, to refine encoding options. The transcoder uses various algorithms, many of which use default values. These values can be changed as a command line interface command. See NVENC Advanced Settings for details.

Frame Type

Max IDR Frame Interval (GOP Length) (--keyint). When checked, specifies the maximum distance between IDR frames. Checked by default.

Scene Detection. When checked, enables key frame insertion at scene cuts. Unchecked by default.

Maximum B-frames (--bframes). Specifies the maximum number of consecutive B-frames between P-frames.

Maximum Reference Frames (--ref). When checked, specifies the maximum number of frames that a frame can reference. More reference frames provide better quality, because the encoder has more frames in which to find similarities, but increases CPU utilization. Unchecked by default.

Color Primaries (--colorprim). Specifies color primaries for converting to RGB.

Transfer Characteristics (--transfer). Specifies the opto-electronics to use (the gamma curve to use for correction).

Color Matrix (--colormatrix). Specifies the matrix coefficient used in deriving the luma and chroma from the RGB primaries.

Analysis

Adaptive Quantization (--aq -strength). When checked,sets the strength of AQ bias toward low detail (flat) macroblocks. Unchecked by default.

Lookahead (--rc-lookahead). Specify the number of frames that the encoder uses to predict more difficult areas to encode, and save bits for those sections. This setting is used for rate control, and effectively sets the VBV window.

HDR Metadata

Manually add HDR metadata to output files without entering x265 command-line options. HDR metadata is added as SEI messages into the HEVC bitstream for use by downstream players to accurately display the High Dynamic Range video.

Add SMPTE 2086 Master Display Metadata. Check to enable insertion of the master display HDR metadata values from the controls in this panel.

Master Display X | Y Coordinates for Red | Green | Blue | White Point. specify the X and the Y coordinate for each color.

Minimum | Maximum Display Mastering Luminance. Specifies the minimum | maximum brightness of the mastering display in candelas per square meter as configured for the mastering process.

Add CTA-861.3 Content Light Level Metadata. When checked, inserts CTA-861.3 message with Content Light Level Metadata.

MaxCLL. Specifies the maximum content light level in cd/m2.

MaxFALL. Specifies the maximum frame average light level in cd/m2.

Version 9 Codecs

Flip64 supports the use of WMV Version 9 and Version 9 Advanced codecs. Select and configure the appropriate codec.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one

---

General Video Settings

Applicable for Version 9 and Version 9 advanced settings.

Width. Specifies the width of the output frame in pixels.

Height. Specifies the height of the output frame in pixels.

Frame Rate. Specifies the frame rate of the output in frames per second.

Video Quality. Specifies the video quality setting to use when encoding this stream. A higher value increases encoding time and results in higher visual quality.

Maximum Keyframe Spacing. Specifies the maximum interval between keyframes.

Video Complexity. Specifies the complexity profile to use for encoding the video.

Encoding Mode

Specify encoding mode to use. Options are One Pass CBR or One Pass VBR.

When using the CBR option, the bit rate remains fairly constant and close to the target bit rate over the course of the stream.

Video Bit Rate. (CBR Only) Specify constant bit rate used for encoding.

Buffer Window. (CBR Only) Specify pre-buffering time allowed before starting video playback.

Message Options

The Message options are implemented in the Message action, to enable workflows to communicate with personnel or system via various messaging systems, such as email.

Email Message

Email Message Settings

Email Message

The email message option enables you to generate an email (including attachments) that Vantage sends to the specified recipient when jobs are executed using this workflow.

Before configuring a Message action to send email, you must configure an email SMTP server, using the SMTP host settings in the Vantage Domain Console (Settings and Options > Email).

To configure the email message option, click Next.

Email Message Settings

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

From | To | Cc | Bcc | Subject | Message. To configure an email message with static text (for example, *VantageAdmin@acmecorp.com* in the From field) for each email generated, enter the appropriate text strings in the From, To, Cc, Bcc, Subject, and Message fields.

Add New Line. To add more message fields, click Add New Line. Green Up and Down Arrow buttons to the right of the lines enable you to adjust lines up and down in the body of the message, re-arranging them to suit your requirements.

Adding Tokens and Variables in a Subject/Message Field. In each of these fields, you can also insert one or more tokens or variables, and you can also insert them at any point in text in the field. To include a token in a field, place your cursor in the field or at any point in the text, and select the token from the Token menu. To include a variable, select Insert Variable from the Token menu.

The current value of the variable is inserted into the message field when the email is generated. If the variable has not been modified in the workflow, the default value (if any) is inserted. Otherwise, the current value is inserted.

HTML Format. Check to add message content in HTML format. When checked, you should not check the Style Sheet check box (below). The Style Sheet option has precedence over the HTML option.

When checked, you can add HTML-formatted text directly into the message field.

For example:

```
<H1>Hello World!</H1>
Here is some <i>italic text</i>.<br>
```

You can also pass a block of HTML-formatted text to the email action as a variable. The HTML-formatted text could be created using a Metadata Transform action that applies a style sheet to a Vantage label. The Transform would store the result as an attachment, then pass the attachment to a Metadata Populate which extracts the attachment contents into the text variable, which is inserted as a token into the Message field.

Metadata. Check to attach all available metadata labels to the email.

Priority. Specifies e-mail priority (Normal | Low | High).

Attachments. Check the attachments you want to attach to the email. The action displays the attachments that are available at this point in the workflow.

Media Files. Check the media files that you want to attach to the email. The action displays the files that are available at this point in the workflow.

Note: Exercise caution in attaching media files. Media files may be very large, and may be blocked by certain email systems.

Style Sheet. Check the Apply checkbox to supply an XSL style sheet to use when formatting the paragraphs in the message field and select the style sheet to use. (Style sheets must be specified in the Management Console.) When using a style sheet, you should not check the HTML check box (above). The Style Sheet option has precedence over the HTML option.

When checked, the content specified in the Message field becomes the parameters passed to the style sheet. The style sheet must specify the XSL match string 'VantageEmail' and the parameters to be matched must be named 'parameter1', 'parameter2', etc. These parameters will be matched to the message lines in the action definition (each message line is one parameter):

Example style sheet:

```
<?xml version="1.0"?>
<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/
Transform" version="1.0">
<xsl:template match="/VantageEmail">
<HTML>
<HEAD>
<TITLE>Telestream Vantage</TITLE>
</HEAD>
<BODY>
<H1>
<xsl:value-of select="parameter1"/>
</H1>
<DIV>This is parameter 2: <I><xsl:value-of
select="parameter2"/></I></DIV>
<DIV>This is parameter 3: <B><xsl:value-of
select="parameter3"/></B></DIV>
</BODY>
</HTML>
</xsl:template>
</xsl:stylesheet>
```

Metadata Conversion

Vantage provides several options for converting metadata from one form to another, for flexibility in utilizing metadata in workflows. These options include conversion among files, labels, and variables.

JSON Extractor

XML Extractor

Metadata Attachment-Attachment Converter Settings

Metadata Attachment-Label Converter

Metadata Attachment-Label Converter Settings

Metadata Label-Attachment Converter

Metadata Label-Attachment Converter Settings

Metadata Label-Label Converter

Metadata Label-Label Converter Settings

Populate File Variable From Item

Populate File Variable From Item Settings

Populate Item From File

Populate Item From File Settings

Populate Label From Variable

Populate Label From Variable Settings

Populate Variable From Attachment

Populate Variable From Attachment Settings

Populate Variable From Entire Label

Populate Variable From Entire Label Settings

Populate Variables From Label Parameters

Populate Variables From Label Parameters Settings

Populate Variables From System Information

Populate Variables From System Information Settings

XML Extractor

The XML Extractor should be selected when the input source content is in XML format.

The Extract action reports a status event for each extraction, and lists the variables that were extracted (or failures that occurred).

Input Source

Select one option for specifying the XML source:

Specify the Input Source Document

Specifies the input file or text string from which the values are to be extracted:

File Nickname. Specifies the file to analyze by nickname. The file must have been ingested by an upstream action and assigned a nickname. Use this option when the file changes for each job.

File Name. Manually enter or browse and select the fully-qualified path to the file. The Vantage Metadata service that executes this action must have access to the file location. Use this option when you want to assign a static file, which is used for every job. If you assign a variable, the variable must be assigned the fully-qualified path and file name in an upstream action and the file can change for each job.

Text String. Manually enter the static text string which does not change from job to job. Assign a variable when the string can change for each job. The variable must be assigned the string in an upstream action, such as a Notify action configured to communicate with an external system via Web services or a shell script.

Load a Sample Document

Click Load Sample to select a file to load for browsing and creating extractions.

Load Sample. Click to display a File Open dialog and select a sample production document.

Creating the Extractions

Scroll through the document and click on the node which contains the value required.

Next, click *Add New Item* in the Inspector window to add a new extraction specified by the path to the selected node in the sample window. (The sample path field is editable, and more advanced paths may be entered if required. This may be required, for example, if a path does not match a single node).

Add New Item. Adds a new extraction based on the node selection in the sample file. To delete a trim operation, click the X icon (upper right).

Path. Edit the path if required or assign a variable for the path, which must be set in an upstream action.

Variable. Select a variable from the menu to assign the data (and converting it as appropriate when possible) and pass it downstream for further use.

State to Emit if Extraction path is not located. Specifies the state (Success | Ignore | Failure) that this action should pass to downstream actions if one or more extractions fail.

State to Emit When Value Conversion Fails. Specifies the state (Success | Ignore | Failure) that this action should pass to downstream actions if a matched value can not be converted to the selected type of variable.

XML Extraction Guidance and Samples

This information helps you understand how the XPath navigates the content and identifies the specified node. For most implementations, the XPath auto-generated by selecting a node will suffice; in unusual instances where custom XPath programming is required to identify the single node that you are targeting, these examples may be of value.

The XPath syntax used in the Extract action is similar to standard XPath syntax, but because of how XPath requires referencing namespaces, the Extract action handles namespaces differently - namespaces are not required in Extract. The effect is that many node selection problems are easier to solve, but some standard XPath features do not work. If there is a conflict - for example, multiple nodes with the same node name in different namespaces - then a namespace prefix can be used, so that the namespace matches on the node with the same namespace prefix in the XML. This implies that the metadata documents processed by the workflow must have consistent namespace prefix declarations that match the configured XPaths.

In addition, standard XPath enables matching multiple nodes. In the context of the Extract action, only the value of the first match found is returned.

XPath Examples

In the following examples, this XML is used for evaluating each XPath:

```
<Content>
  <element1>
      <element2 name="one">text1</element2>
    <element2 name="two">text2</element2>
  </element1>
  <media name="XPath  Extraction  Example" start-track="1">
    <track id="1"  file="video1 filepath" SOM="00:01:30">
      <video>...</video>
    </track>
    <track id="2" file="video2  filepath" SOM="00:00:00">
      <video>...</video>
    </track>
    <track  id="3" file="English audio filepath" SOM="01:00:00">
      <audio  language="en">...</audio>
    </track>
    <track  id="4" file="French audio filepath" SOM="00:00:00">
      <audio language="fr">...</audio>
```

```
      <video>...</video>
    </track>
  </media>
</Content>
```

Basic Example. In this simple, basic example, the XPath returns the text value of the first instance of element2:

XPath `/Content/element1/element2`
returns `text1`

Returning a node attribute. This example matches on a specified attribute of the target node and returns the value of the specified attribute. (Typically attributes do not have a namespace, but if they do you need to reference the namespace prefix.)

XPath `/Content/element1/element2/@name`
returns `one`

Using a wild-card path separator: //. Any number of nodes with any name may occur between the current position and the following part. Using a wildcard path separator can be convenient for matching on a known node name which is unique in the document. In this example, the XPath matches the node with the first SOM attribute which is inside a *track* element and returns the SOM value:

XPath `//track/@SOM`
returns `00:01:30`

Matching [a simple condition]. An expression is used to filter which nodes may be matched to target a particular value. The simplest expression is positional (that is, only the nth node with the specific name is matched). In this example, the 2nd element2 node is matched, and the value of the name attribute is returned:

XPath `/Content/element1/element2[2]/@name`
returns `two`.

This is dependable, as long as the number of element2 nodes doesn't change from document to document.

Matching [a value condition]. If the number of nodes varies, it may be necessary to supply an attribute value to identify the correct note. This is more reliable than using the positional condition, and should be used when possible. In this example, the first track with an id value of 3 is matched and the track value is returned:

XPath `/Content/media/track[@id = "3"]/@file`
returns `English audio filepath`.

Advanced Examples

For certain kinds of structures, specifying a condition in a separate element from the desired attribute may be required. (For this example, both audio and video metadata are stored in a *track* element.)

Here, you want to identify the file path for the French audio file. The condition means "...has an *audio* element with a *language* attribute of the value `fr`".

XPath `/Content/media/track[audio/@language = "fr"]/@file`
returns `French audio filepath`.

In another example, you want to select the file path for the video file *start track*, referenced in the root element. The first condition is simply "has a *video* element" and the second condition is "contains an *id* attribute with the value of the node located at */Content/media/@start-track*".

The two conditions can be considered to have an AND relationship. If both conditions match on *track*, and it has a *file* attribute, then the value of that attribute is returned.

XPath `/Content/media/track[video][@id = /Content/media/@start-track]/@file`
returns `video1 filepath`

JSON Extractor

The JSON format Metadata Extractor should be selected when the input source content is in JSON format.

The syntax for JSON paths uses the built-in language (http://goessner.net/articles/JsonPath/index.html#e2).

For most implementations, the JSON paths auto-generated by selecting a node will suffice; in unusual instances where custom JSON programming is required to identify the node that you are targeting, these examples may be of value.

The Extract action reports a status event for each extraction, and lists the variables that were extracted (or failures that occurred).

Input Source

Select one option for specifying the XML source:

Specify the Input Source Document

Specifies the input file or text string from which the values are to be extracted:

File Nickname. Specifies the file to analyze by nickname. The file must have been ingested by an upstream action and assigned a nickname. Use this option when the file changes for each job.

File Name. Manually enter or browse and select the fully-qualified path to the file. The Vantage Metadata service that executes this action must have access to the file location. Use this option when you want to assign a static file, which is used for every job. If you assign a variable, the variable must be assigned the fully-qualified path and file name in an upstream action and the file can change for each job.

Text String. Manually enter the static text string which does not change from job to job. Assign a variable when the string can change for each job. The variable must be assigned the string in an upstream action, such as a Notify action configured to communicate with an external system via Web services or a shell script.

Load a Sample Document

Click Load Sample to select a file to load for browsing and creating extractions.

Load Sample. Click to display a File Open dialog and select a sample production document.

Creating the Extractions

Scroll through the document and click on the node which contains the value required.

Next, click *Add New Item* in the Inspector window to add a new extraction specified by the path to the selected node in the sample window. (The sample path field is editable,

and more advanced paths may be entered if required. This may be required, for example, if a path does not match a single node).

Add New Item. Adds a new extraction based on the node selection in the sample file. To delete a trim operation, click the X icon (upper right).

Path. Edit the path if required or assign a variable for the path, which must be set in an upstream action.

Variable. Select a variable from the menu to assign the data (and converting it as appropriate when possible) and pass it downstream for further use.

State to Emit if Extraction path is not located. Specifies the state (Success | Ignore | Failure) that this action should pass to downstream actions if one or more extractions fail.

State to Emit When Value Conversion Fails. Specifies the state (Success | Ignore | Failure) that this action should pass to downstream actions if a matched value can not be converted to the selected type of variable.

XML Extraction Guidance and Samples

XPath Examples

In the following examples, this JSON is used for evaluating each JSON path:

```
{
  "Content": {
    "element1": {
      "element2": [
          {
            "name": "one",
            "value": "text1"
          },
          {
            "name": "two",
            "value": "text2"
          }
        ]
     },
     "media": {
       "name": "XPath Extraction Example",
       "start-track": "1",
       "tracks": [
         {
           "id": "1",
           "file": "video1 filepath",
           "SOM": "00:01:30",
           "video": {
             "value":  "..."
           }
         },
       "tracks": [
         {
           "id": "2",
```

```
            "file": "video2 filepath",
            "SOM": "00:0o:00",
            "video": {
              "value": "..."
            }
          },
          {
            "id": "3",
            "file": "English audio filepath",
            "SOM": "01:00:00",
            "audio": {
              "language": "en",
              "value": "..."
            }
          },
          {
            "id": "4",
            "file": "French audio filepath",
            "SOM": "00:00:00",
            "audio": {
              "language": "fr",
              "value": "..."
            },
            "video": "..."
          }
        ]
      }
    }
  }
```

JSON Paths Examples

The JSON syntax used in the Extract action is similar to standard syntax, but because of the unique requirements of the Extract action, some modification is required before evaluating the JSON path.

For example, standard JSON syntax enables matching multiple nodes. In the context of the Extract action, only the value of the first match found is returned.

Property notation allows for selecting properties without the indexer. The auto-generated paths use property notation for navigating to properties on object, and the indexer notation for selecting a node of an array.

Syntax Components

Document root node: `$`. Indicates the root of the document. It can be referred to within predicates as well.

Current node: `@`. Refers to the current node. This is mostly useful for use in predicates.

Path wildcard: `..`. This fills the same purpose of `//` in XPath. It matches any node or child node from the current position in the document.

indexer: `[]`. This matches a child element if it does not contain a predicate. If it does contain a predicate, it filters the current node.

To select a property: `parent['child']`.

To select an array item (zero-based index): `parent[3]`.

To select the first child: `parent[*]`.

To select the last child: `parent[-1:]`.

Predicate `?()`. Contains a condition that must evaluate to true for the node to match. This is only used inside an indexer.

Examples

Each of these examples uses the sample JSON document:

Basic Example. In this simple, basic example, the XPath returns the text value of the first instance of element2:

JSONPath `$.Content.element1.element2[0]`

returns `text1`.

Returning a Node Attribute. This example matches on a specified attribute of the target node and returns the value of the specified attribute. (Typically attributes do not have a namespace, but if they do you need to reference the namespace prefix.)

JSONPath `$.Content.element1.element2[0].name`

returns `one`.

Using a Wildcard Path Separator. Any number of nodes with any name may occur between the current position and the following part. Using a wildcard path separator can be convenient for matching on a known node name which is unique in the document. In this example, the XPath matches the node with the first SOM attribute which is inside a track element and returns the SOM value:

JSONPath `$..SOM`

returns `00:01:30`.

Matching [a Simple Condition]. An expression is used to filter which nodes may be matched to target a particular value. The simplest expression is positional (that is, only the nth node with the specific name is matched). In this example, the 2nd element2 node is matched, and the value of the name attribute is returned:

JSONPath `$.Content.element1.element2[1].name`

returns `two`.

This is dependable, as long as the number of element2 nodes doesn't change from document to document.

Matching [a Value Condition]. If the number of nodes varies, it may be necessary to supply an attribute value to identify the correct note. This is more reliable than using

the positional condition, and should be used when possible. In this example, the first track with an id value of 3 is matched and the track value is returned:

JSONPath `$.Content.media.tracks[?(@.id == '3')].file`

returns `English audio filepath`.

Advanced Examples

For certain kinds of structures, specifying a condition in a separate element from the desired attribute may be required. (For this example, both audio and video metadata are stored in a track element.)

Here, you want to identify the file path for the French audio file. The condition means... *has an audio element with a language attribute of the value fr*.

JSONPath `$.Content.media.tracks[?(@.audio.language == 'fr')].file`

returns `French audio filepath`.

In another example, you want to select the file path for the video file start track, referenced in the root element. The first condition is simply ...*has a video element* and the second is ...*contains an id attribute with the value of the node located at /Content/media/@start-track*.

The two conditions are considered to have an AND relationship: If both conditions match on track, and it has a file attribute, then the value of that attribute is returned.

Metadata Attachment-Attachment Converter

The Attachment to Attachment converter uses an XSL style sheet to transform one attachment file into another attachment file.

Next. Displays the next inspector panel.

Metadata Attachment-Attachment Converter Settings

The Attachment to Attachment converter uses an XSL style sheet to transform one attachment file into another attachment file.

Style Sheet. Specifies the stylesheet to utilize for this conversion.

XSL style sheets can be created using a variety of XSL editors. You must add stylesheets to the Vantage domain database before they can be utilized in workflows. Stylesheets can be added to your Vantage domain using the Vantage Management Console (Vantage Domain > Workflow Design Items > Style Sheets).

Note: Each style sheet is generally used for one specific file type as input, and each specific label is used for a specific application. Example style sheets are available from Telestream - please visit the Telestream Web site.

When you add the stylesheet to the domain, it is made available to Workflow Designer. If the inspector is open when you add the stylesheet, you must close and re-open the inspector to access the new stylesheet.

Input Attachment. Specifies the input attachment by nickname. The file must be ingested into the workflow by a prior action (typically an associate) and assigned a nickname, to be available here.

Nickname for New Attachment. Specifies the nickname used to reference the new output file.

Output File Encoding. Specifies the character encoding on the output file from the list in the menu.

Encoding Fallback Mechanism. Specifies what the action should do when invalid characters are encountered during encoding.

Attachment Filename Pattern. Displays the Filename Pattern Editor. Type in filename or a portion of the filename, and use the drop-down menu on right side to select one or more tokens to insert to create the exact filename pattern you require for these jobs.

Tokens. Base Name (the full name of the file, including the extension), Variable (you select the variable to use), Date, and Time. The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of the Copy action. For example, if a Variable token ISCI is given the value 12H4JA678, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Next. Displays the next inspector panel.

Metadata Attachment-Label Converter

The Attachment to Label converter uses an XSL style sheet to transform an attachment file into a label that is added to the binder.

Next. Displays the next inspector panel.

Metadata Attachment-Label Converter Settings

The Attachment to Label converter uses an XSL style sheet to transform an attachment file into a label that is added to the binder.

Style Sheet. Specifies the stylesheet to utilize for this conversion.

XSL style sheets can be created using a variety of XSL editors. You must add stylesheets to the Vantage domain database before they can be utilized in workflows. Stylesheets can be added to your Vantage domain using the Vantage Management Console (Vantage Domain > Workflow Design Items > Style Sheets).

Note: Each style sheet is generally used for one specific file type as input, and each specific label is used for a specific application. Example style sheets are available from Telestream - please visit the Telestream Web site.

When you add the stylesheet to the domain, it is made available to Workflow Designer. If the inspector is open when you add the stylesheet, you must close and re-open the inspector to access the new stylesheet.

Input Attachment. Specifies the input attachment by nickname. The file must be ingested into the workflow by a prior action (typically an associate) and assigned a nickname, to be available here.

New Label. Specifies the new label to create.

Next. Displays the next inspector panel.

Metadata Label-Attachment Converter

The Label to Attachment converter uses an XSL style sheet to transform a label in the binder into an attachment file, which is then given a nickname and referenced by the binder.

Next. Displays the next inspector panel.

Metadata Label-Attachment Converter Settings

The Label to Attachment converter uses an XSL style sheet to transform a label in the binder into an attachment file, which is then given a nickname and referenced by the binder.

Style Sheet. Specifies the stylesheet to utilize for this conversion.

XSL style sheets can be created using a variety of XSL editors. You must add stylesheets to the Vantage domain database before they can be utilized in workflows. Stylesheets can be added to your Vantage domain using the Vantage Management Console (Vantage Domain > Workflow Design Items > Style Sheets).

Note: Each style sheet is generally used for one specific file type as input, and each specific label is used for a specific application. Example style sheets are available from Telestream - please visit the Telestream Web site.

When you add the stylesheet to the domain, it is made available to Workflow Designer. If the inspector is open when you add the stylesheet, you must close and re-open the inspector to access the new stylesheet.

Input Label. Specifies the label to transform.

Nickname for New Attachment. Specifies the nickname used to reference the new output file.

Output File Encoding. Specifies the character encoding on the output file from the list in the menu.

Encoding Fallback Mechanism. Specifies what the action should do when invalid characters are encountered during encoding.

Attachment Filename Pattern. Click to display the Filename Pattern Editor. Type in filename or a portion of the filename, and use the drop-down menu on right side to select one or more tokens to insert to create the exact filename pattern you require for these jobs.

Tokens: Base Name (the full name of the file, including the extension), Variable (you select the variable to use), Date, and Time. The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of the Copy action. For example, if a Variable token ISCI is given the value 12H4JA678, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Next. Displays the next inspector panel.

Metadata Label-Label Converter

The Label to Label converter uses an XSL style sheet to transform a label in the binder into another label.

Next. Displays the next inspector panel.

Metadata Label-Label Converter Settings

The Label to Label converter uses an XSL style sheet to transform a label in the binder into another label.

Style Sheet. Specifies the stylesheet to utilize for this conversion.

XSL style sheets can be created using a variety of XSL editors. You must add stylesheets to the Vantage domain database before they can be utilized in workflows. Stylesheets can be added to your Vantage domain using the Vantage Management Console (Vantage Domain > Workflow Design Items > Style Sheets).

Note: Each style sheet is generally used for one specific file type as input, and each specific label is used for a specific application. Example style sheets are available from Telestream - please visit the Telestream Web site.

When you add the stylesheet to the domain, it is made available to Workflow Designer. If the inspector is open when you add the stylesheet, you must close and re-open the inspector to access the new stylesheet.

Input Label. Specifies the label to transform.

New Label. Specifies the new label to create.

Next. Displays the next inspector panel.

Populate File Variable From Item

The Populate File Variable From Item option allows you to add a path variable to the job, which contains the fully-qualified path to a media file.

Populate File Variable From Item Settings

From Media Nickname. Select the nickname of the media file whose path you want to update the variable with.

To Path Variable. Specifies the path variable to be assigned the fully-qualified file name. Select <<Create New Variable>> to display the Create New Variable dialog.

Populate Item From File

The Populate Item from File option allows you to select a file and assign it a nickname, making it available to downstream actions in the workflow.

Next. Displays the next inspector panel.

Populate Item From File Settings

Select Media Version or Attachment Nickname. Select the nickname of the media or attachment. Because you have the option of selecting either a media version or an attachment, you can not create a variable in this action. If you need to create a variable, close this action. Create the variable for a media version or attachment as appropriate in the Management Console, then return to Workflow Designer and open this action inspector again to select the variable you just created.

Specify the File. Enter the fully-qualified path to the file, click Browse to navigate and select the file, or click Browse to select a path variable that contains the fully-qualified file name.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Populate Label From Variable

The Populate Label from Variable option allows you to select a label, and populate parameters in the label with selected variable values, which should be raw values (not encapsulated in XML).

Note: Variables and labels you plan to use in a workflow must be created prior to utilization. Variables may be created in the Vantage console or directly in Workflow Designer. To create a label, run the Vantage Management Console and select Templates > Metadata Labels to create and configure your label with the parameters you require. If you create labels or variables in the console, save your work, then re-open the inspector and continue.

Next. Displays the next inspector panel.

Populate Label From Variable Settings

New Label. Specifies the name used to reference the new label. The labels displayed in this list include default labels, plus labels you have created in the Vantage Management Console.

Parameter Values. Select each metadata label parameter you want to update, and click Browse and select the variable from the list.

Note: Labels you use in a workflow must be created prior to utilization. To create a label, run the Vantage Management Console and select Templates > Metadata Labels to create a label and configure it with the parameters you require. If you create labels or variables in the console, save your work, then re-open the action inspector and continue.
Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Next. Displays the next inspector panel.

Populate Variable From Attachment

The Populate Variable From Attachment option allows you to populate a text variable with the contents of an attachment file. This workflow must have a Watch or Associate action upstream, to provide the attachment file as the source.

Note: Variables and labels you plan to use in a workflow must be created prior to utilization. Variables may be created in the Vantage console or directly in Workflow Designer. To create a label, run the Vantage Management Console and select Templates > Metadata Labels to create and configure your label with the parameters you require. If you create labels or variables in the console, save your work, then re-open the inspector and continue.

Next. Displays the next inspector panel.

Populate Variable From Attachment Settings

To configure the Populate Variable From Attachment option, select the attachment you want to use, by nickname from the list. The file must have been associated with the workflow by a previous action (typically, a Watch or Associate action.)

Note: If there are no attachments listed, it is because you have not specified any attachments in a previous Watch or Associate action, or because the Populate action is not connected to the upstream Watch or Associate action.

Next, select the text variable you want to update with the contents of the attachment from the menu.

Next. Displays the next inspector panel.

Populate Variable From Entire Label

The Populate Variable from Label option allows you to populate a text variable with the entire contents of a label you are using in this workflow, in XML format. This workflow must have a label to use as the source. You can use the variables in downstream actions.

Note: Variables and labels you plan to use in a workflow must be created prior to utilization. Variables may be created in the Vantage console or directly in Workflow Designer. To create a label, run the Vantage Management Console and select Templates > Metadata Labels to create and configure your label with the parameters you require. If you create labels or variables in the console, save your work, then re-open the inspector and continue.

Next. Displays the next inspector panel.

Populate Variable From Entire Label Settings

To configure the Populate Variable from Entire Label option, select the label you want to use from the table. The labels displayed include default labels, plus labels you have created in the Vantage Management Console.

Next, select the text variable you want to update with the contents of the label, from the menu. You can use the text variable in downstream actions.

Next. Displays the next inspector panel.

Populate Variables From Label Parameters

The Populate Variable from Label option allows you to extract information from parameters in a label you are using in this workflow, and populate a variable with the value of the selected parameter in the label. This workflow must have a label to use as the source. You can use the variables in downstream actions.

Next. Displays the next inspector panel.

Populate Variables From Label Parameters Settings

To configure the Populate Metadata Variable from Label option, select the label you want to use from the menu. This label be part of a binder being used in this workflow. The labels displayed in this list include default labels, plus labels you have created.

Check each metadata label parameter you want to update a variable with, and select the variable you want to update from the value of the parameter. The type of variable you select must match the type of the parameter that you have selected.

Each parameter in a label is a specific type (integer, decimal, Boolean, text, etc.). For example, you cannot populate an integer variable from a Boolean label parameter.

Next. Displays the next inspector panel.

Populate Variables From System Information

The Populate Variable from System Information option allows you to select job-related information and populate variables for use downstream in the workflow.

For example, you can create a Notify action which calls a Web Service-based Web app and passes the job information to an external system. Or, you can use the variables to update a metadata label and save it as part of the workflow.

Note: Variables and labels you plan to use in a workflow must be created prior to utilization. Variables may be created in the Vantage console or directly in Workflow Designer. To create a label, run the Vantage Management Console and select Templates > Metadata Labels to create and configure your label with the parameters you require. If you create labels or variables in the console, save your work, then re-open the inspector and continue.

Next. Displays the next inspector panel.

Populate Variables From System Information Settings

To configure the Populate Variable from System Information option, check each item of system information you want to save in a variable, and then select the variable to use from the menu.

Note: Variables and labels you plan to use in a workflow must be created prior to utilization. Variables may be created in the Vantage console or directly in Workflow Designer. To create a label, run the Vantage Management Console and select Templates > Metadata Labels to create and configure your label with the parameters you require. If you create labels or variables in the console, save your work, then re-open the inspector and continue.

When you are done configuring the action, click Next, then click Finish to save the workflow and close the inspector.

Misc. Action Extensions

These man pages describe various features that are implemented in Vantage actions, but don't fit neatly in any other category.

Comma Separated Value (CSV) Report

Search Catalog by Name

Manual Job Submit

DPP XML File Validator

Managing Workorder Schemes

Input Source

Watch Action Logging

VOD

CableLabs Packager

VOD Packager Action

Comma Separated Value (CSV) Report

Review the default value of each variable before submitting the job. To change the value, select the variable and update the value in the text field at the bottom of the list.

Click OK to continue.

Submit Job Variables

To submit variables with a manually-submitted job, click the New icon (far left) in the toolbar. In the Variables list, select a variable. For multiple selections, use the option key or the shift key.

Review the default value of each variable before submitting the job. To change the value, select the variable and update the value in the text field at the bottom of the list

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Note: Variables and labels you plan to use in a workflow must be created prior to implementation. Variables may be created in the Vantage console or directly in Workflow Designer. To create a variable in Workflow Designer, click the menu and select Create New Variable.
To create a label, run the Vantage Management Console and select Templates > Metadata Labels to create and configure your label with the parameters you require. If you create labels or variables in the console, save your work, then re-open the inspector and continue.

Click OK to continue.

Search Catalog by Name

Settings

Binder Name. Enter the binder name to search for. Or, click Browse to select a variable which will supply the search string value.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Generate Variables

Binder Exists. Check to set a True or False value in the specified True/False variable, based on the results of the search. If a binder is found that matches the search criteria, the variable is set to True; if no binder is found, the variable is set to False.

To create a new variable, select Create New Variable at the top of the menu.

Manual Job Submit

To manually submit files to a workflow, follow these steps:

1. Select an active workflow from the Workflows panel.
2. Click the Submit Job button at the bottom of the window.
3. If you are submitting to a workflow with multiple origin actions, select the action that you want to start the job, and click Next.
4. For multi-file workflows, enter or click Browse and select the files to submit.
5. For single-file workflows, choose from these options to identify where the input file (or files, for starting multiple jobs at one time) is stored:

- Select the type of file system

OR

- Select a Vantage Folder - click the Browse button (...) to display the Vantage Folder Address Book.

1. To continue, click Next.
2. Select the file or files you want to submit (use Browse to navigate the file system). For single-file workflows, you can submit multiple files; each file starts a new job.
3. To continue, click Next.
4. To submit the job for processing, click Submit.

If you need to provide variables in this job, click Variables (bottom left corner of the Submit panel) and configure them before submitting the job.

Workflow Designer displays a dialog to advise you that the job or jobs were submitted.

DPP XML File Validator

The DPP XML File Validator processes DPP metadata in an XML file, to validate it against the currently supported DPP specification.

DPP XML File. Specifies the nickname of the DPP XML file to process.

Generate Variables.

Valid DPP Input. Check to generate a True/False variable, and select the variable to use.

Generate Report. Check to generate a report.

Attachment Nickname. Specifies the nickname of the report file.

Edit Filename Pattern. Specifies the output filename. Enter the complete filename or a portion of the filename, and use the drop-down menu on right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- Base Name (the name of the file, excluding the extension)
- Date
- Time
- Variable (you select the variable to use)

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if the Variable token House ID is given the value *12H4JA678*, wherever the token appears in the pattern it is replaced with *12H4JA678*.

Report Location. Specifies where to store the file.

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file to an available Vantage store or folder.

- *Vantage Store/Folder*: Write the file to a specific store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Misc. Action Extensions
DPP XML File Validator

Managing Workorder Schemes

Workorder schemes can be managed in the Vantage Management Console within the Fulfillment Schemes folder. Or, you can manage them directly in Workflow Designer, in the Workflow action inspector. You configure workorder schemes to specify how each job in a workorder file will be formatted, and to enable the Workorder origin action to correctly parse incoming workorders and start corresponding jobs.

You can specify fields for workorder schemes using the Add Field button. Use the button to add fields, and then click on each field to specify its parameters. The Workorder Index assigned to each field lets you specify the order of the fields, which will appear in workorder files as values separated by commas (CSV format).

The Skip Lines selector enables you to specify how many header rows, if any, to include.

Each field can be named, described, specified as a variable or UNC path value, and tagged with a qualifier to specify whether it consists of media, an attachment, or a variable.

Creating a New Workorder Scheme

To create a new Workorder scheme, do the following:

1. Click the *Create a new Workorder scheme* button (or right-click in the empty schemes list space and select New Workorder Scheme).
2. in the dialog, choose CSV to specify a Workorder scheme formatted in comma separated values (CSV).
3. Enter a scheme name in the Name field.
4. Enter a description of the scheme in the Description text box (this is optional).
5. Select Skip Lines to specify the number of lines to skip in parsing a workorder if you want to allow header text at the top of the workorder.
6. Click the Add Field button above the left corner of the Field Name. A New Field is created that you can modify later as explained in Creating Workorder Scheme Fields, below.
7. Click the Save button.

Renaming a Scheme

To rename a scheme, do the following:

1. Display the Workorder Schemes window.
2. Select the scheme to rename in the scheme list.
3. In the Name text box, enter a new name for the scheme.
4. Click the Save button.

Duplicating a Scheme

To duplicate a Workorder scheme, do the following:

1. Display the Workorder Schemes window.
2. Select the scheme to duplicate.
3. Click the Duplicate button (or right-click and select Duplicate).
4. In the Name text box, enter a name for the duplicate scheme.
5. In the Description field, enter a description for the scheme (optional).
6. Click the Save button.

Deleting a Scheme

To delete a Workorder scheme, do the following:

1. Display the Workorder Schemes window.
2. Select the configuration to delete. (Control-click or shift-click to select multiples.)
3. Click the Delete button (or right-click and select Delete).
4. When the confirmation dialog appears, click OK.

Creating Workorder Scheme Fields

You can set up Workorder Scheme field options below the field Name and Description. These options determine which data rows and fields in a particular type of Workorder are extracted and forwarded to the workflow and which are ignored. The following text shows a typical Workorder with data arranged in columns, each of which will be described and extracted by a field in your Workorder scheme.

```
Title, File, Text, SCC file, CML File

Riddick, \\machine\riddick.mov, Riddick,
\\machine\riddick.scc, \\machine\promo.cml

Poppins, \\machine\poppins.mov, Poppins,
\\machine\poppins.scc, \\machine\promo.cml
```

Field List

The field list shows the fields you create as part of a scheme. You can add fields as needed. Each field in a scheme is created and configured to extract data from a particular column in the Workorder when a Workorder is parsed.

Skip Lines—Enter the number of header lines to skip at the top of a file before Workorder parsing starts.

Add New Field—Click Add Field to add a new data field to extract from Workorders.

Delete Field—Click Delete Field to delete the highlighted field from the field list.

Field Name—Enter or change the name of the field.

Description—Enter or change the description of the field.

Value Type—Select the type of value to search for and extract from the field. Available values are listed below in Workorder Scheme Values.

Qualifier—Set to the type of field being extracted: Media, Attachment, or Variable. If Media or Attachment, the field is a pointer to a media or attachment file name or location path. If Variable, the field contains a value to be used in the variable.

Extraction Criteria, Workorder Index—Set this to the number of the field in relation to the other fields. Counting from the left, the first field is 1, followed by a comma, and the next field is 2, followed by a comma, and the next field is 3, and so on.

After entering your selections for each item described previously, click the Save button to save the field and scheme.

Workorder Scheme Values

The following list presents Value Type descriptions.

True/False—A true or false value

Integer Number—A signed 32-bit integer (decimals are rounded)

Size—A signed 64-bit integer (decimals are rounded)

Decimal Number—A double precision floating point decimal number

Date—A date specified according to local standards: MM/DD/YYYY or DD/MM/YYYY

Text—Any text string; use this when your data does not fit any other value type

Path—A valid Windows or UNC path. Must follow this pattern: *[Drive Letter]:*\ or this pattern: *Device**path*

Timecode—A video timecode value in this pattern: HH:MM:SS:FF@FR.

HH is hours, MM is minutes, SS is seconds, FF is the frame number, and @FR is the frame rate. Examples: 00:00:30:04 or 01:00:30;00@29.97 or 00:02:30:00@25. A frame rate of 29.97 is assumed if not specified

Mail Address—A valid email address consisting of an @ sign with a string before and after—email@domain. Example: name@telestream.net.

Testing Schemes

The Test button in the center of the Workorder Schemes window lets you test your schemes on actual Workorders to verify that the scheme works correctly. To test a scheme, do these steps:

1. Select a Workorder scheme in the scheme list.
2. Press the Test button.
3. Examine the Test Results display for a clean output.

4. Adjust each field of the scheme until a test produces a satisfactory output.

Duplicating a Workorder Scheme

When you duplicate a workorder scheme, a new scheme is created with a modified name. All other configuration settings in the duplicate scheme match those in the original format.

To duplicate a workorder scheme, do the following:

1. Display the Workorder Schemes window.
2. Select the workorder scheme to duplicate.
3. Click the Duplicate button, (or right-click and select Duplicate).
4. In the Name text box, enter a name for the duplicate scheme.
5. In the Description text box, enter a description for the duplicate scheme.
6. Make any other desired changes to the workorder scheme.
7. Click the Save button.

Refreshing the Workorder Schemes List

In the Workorder Schemes window, the Vantage Management Console displays the current list of workorder schemes. If another administrator adds or changes schemes, you need to refresh the display to see those changes.

To refresh the display, click the Refresh button.

Exporting and Importing Workorder Schemes

Vantage allows you to export workorder schemes to XML files, which you can then use to import again into the same or another Vantage domain.

To export one or all workorder schemes, do the following:

1. In the Workorder Schemes window, select the workorder scheme to export.
2. Click the Export button to export a single scheme, or select *Export all* from the Export button drop down menu. You can also right-click and select Export.
3. Use the file system dialog to save the exported schemes in the desired location.

The default file name is the scheme name, but you can change the file name.

Note: Changing the XML file name does not change the scheme name in the XML file.

To import a workorder scheme, do the following:

1. Click the Import button.
2. Use the file system dialog to locate and select the workorder scheme file to import, and then click Open.

Note: If you try to import a workorder scheme that is already in this Vantage domain, Vantage prompts you to cancel or confirm replacement.

Input Source

Use the Input Source dialog to identify the input file either by nickname or by a fully-qualified path name. Typically, for file encoding you select a file by nickname. You can optionally indicate that you want a specific (static) file to be used as input. This option is often used when you want to overlay a specific file (as a watermark), or you want to include a specific Wave file for a voice-over.

Often, you'll create one input to receive the incoming video from a Watch (or other origin) action, which you specify by its nickname. You can add a second input (configured with a File Name) to select a specific (and static) file that is added to the generated media - each time the workflow runs - regardless of the input media file being processed by the job.

When you use a nickname, the specific file is not known until run-time (each time the job runs); if you use a file name, you are identifying the specific file at design time - and each time the job runs, it uses the same file every time.

File Nickname. Specifies the file by nickname. This file must have been ingested and passed to this action from a previous, upstream action - Watch, for example.

File Name. Specifies the file by a fully-qualified path (manually | Browse | Variable).

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Watch Action Logging

Logging

The log includes information about why certain files were not submitted. A new file is created for each attempted job submission that failed.

Log Activity. To log activity on this action, check Log Activity and specify the fully-qualified path and directory where you want the action to write log files, optionally specifying a file name pattern (default file name: <date>.txt). You can manually enter the path or click Browse to navigate to the directory and select it.

Use of a share is recommended to avoid the log file being saved directly on the server where the Monitor service that executed the action is hosted. For example, //Vantage/WorkflowLogs/WatchActionLogs/. This is especially problematic in a multi-server domain with more than one Monitor service. Additionally, local files may not be network-accessible.

CableLabs Packager

Packages content and metadata for CableLabs distribution.

VOD Packager Action

The Packager action packages content and metadata in a manner specific to a given provider.

Notifiers

Notifiers are remote operations associated with the Notify action, which can be configured to communicate with other systems via communication methods including Web Services.

The Dump notifier is a special type of notifier which saves job information for debugging purposes.

Automation Notifier

Avid Production Web Services Settings

Avid Production Notifier

Avid Production Operation

BXF File Notifier

Cloud Notifier

NexGuard Notifier

Dolby DP600 Notifier

Dump Notifier

External Shell Notifier

HTTP Notifier

Invoke Notifier

MOB ID Notifier

Notification Settings

SeaChange MVL Notifier

Text/CSV Report Notifier

Web Service Notifier

Automation Notifier

The Automation notifier creates a notification file of the format specified by the Automation notification type you specify (see below). Selected fields are populated with metadata values extracted from the media file you specify or enter manually in the Automation configuration panel. The Automation notification file is written to a location specified by you, typically for ingest into an automation system or other system for further action.

Note: If a previous notification file with the same name exists in the target directory, it will be over-written without warning.

The name of the notification file that is generated is based on the filename associated with the Input File Nickname you specify. For example, if the Input File Nickname is set to *Original*, when the Automation Notify executes, if the Original version is pointing to *MyFile.mpg*, then the file generated (in the folder specified in Automation Output Path) will be named *MyFile.xml*.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Next. Displays the file configuration panel.

Input File Nickname. Specifies the nickname of the media file associated with the notification action. (Typically, the output media from a transcode action, intended for publication.)

Automation Output Path. Browse to select or manually enter the fully-qualified path where the notification file is to be written. Optionally, click the green Browse button to assign a variable to supply the path. The path must be writable by the Communicate service which executes this action.

Next. Displays the Automation configuration panel.

Select the Automation Notification Type. Specifies the notification scheme. For example: *Invenio*.

Notification Fields. For each field in the selected notification scheme, manually enter a hard-coded value or specify a variable which contains the extracted value from the ingested media file (Input File Nickname). The variable must have been set with the extracted value in an upstream action. If a field is left empty and no variable is specified, the field in the resulting notification file will also be empty.

Next. Displays the Save panel. Click Save to update the action and close the inspector.

Avid Production Web Services Settings

Use this panel to specify the Avid Production Web Services host and credentials, and test the settings and determine that the web services host is accessible.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.
Each of these settings can be assigned to a variable, for job-by-job control of their values. For example, you may want SD media to be sent to one Avid system, and HD media sent to another.

Details

Configure these controls to identify and log into the Avid Production web services host. You do not have to configure the host and successfully log in to configure this action, but you must provide the host and credentials before you can execute jobs with this action.

WS Host (Required). Specifies the URL or IP address of the Avid Production web services host. Optionally, click Browse to assign a variable.

TCP Port. Specifies the port number of the target web services host.

Username (Required). Specifies the authorized username to connect with.

Password. Specifies the password associated with the specified username.

Test Connection. Tests your web services host settings. If the settings are correct and the host is available, Vantage reports success. Otherwise, determine the problem and test the connection again.

Next. Displays the next inspector panel.

Avid Production Notifier

The Avid Production (Interplay) notifier performs selected automated tasks in the specified MediaCentral | Production Management system via web services.

Next. Displays the Avid Production Web Services inspector panel.

Avid Production Operation

Use this panel to specify which operation you want to perform, and configure it.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Details

Select the Avid Production Operation. Specifies the operation to perform. When you select an operation, Vantage displays the appropriate controls for the operation. Configure each control as appropriate.

Create Master Clip

Creates a new master asset in the Avid Production workgroup.

ASF Workgroup (Required). Specifies the Avid Service Framework Workgroup. This field is case-sensitive. For example: `AvidProduction305`.

Clip Name (Required). Specifies the name of the new clip.

Avid Production Folder (Required). Specifies the name of the folder where the new asset will be created. For example: Incoming Media/multi-high.

Tape (Required). Specifies the tape name to use. For example: multi-res.

Frame Rate. Specifies the time base and frame rate of the new clip.

Includes Video. Check to indicate that the new clip contains video.

Audio Tracks. Specifies the number of audio tracks the new clip will contain.

Master MOB ID. Specifies the Master MOB ID for the clip. If left empty a Master MOB ID is generated internally (Single-Res only).

Source MOB ID. Specifies the Source MOB ID for the clip. If left empty a Master MOB ID is generated internally (Single-Res only).

Add Metadata to Clip

Adds certain types of metadata to the master asset.

ASF Workgroup. Specifies the Avid Service Framework Workgroup. This field is case-sensitive. For example: `AvidProduction305`.

Master MOB ID. Specifies the Master MOB ID for the clip.

Add Metadata from Attachment. When checked, specifies that the locator and custom properties metadata is to be inserted from the attached XML file.

Here is an example of a metadata XML file, with one Entry and One locator specified:

```
<?xml version="1.0" encoding="UTF-8"?>
<Metadata>
<Entry>
<Tag>Avid Property Name</Tag>
<Value>Data for Property</Value>
</Entry>
<Locator>
<Label>Comment for Locator</Label>
<Color>Color for Locator</Color>
<Timecode>Timecode (rel.|abs.): hh:mm:ss:ff</Timecode>
<Username>username for WS Server </Username>
<Track>Valid video or audio track such as V1 or A1</Track>
</Locator>
</Metadata>
</xml>
```

User Properties

A collection of customer user properties for this clip.

Add New Item. Click Add New Item for each user property key/value pair you want to add.

Name. Specifies the string of the name of this key/value pair.

Value. Specifies the string of the value of this key/value pair.

Locators

A collection of color-coded labels to mark points of interests for this clip.

Insert Locators. When checked, indicates you want these locators added to the clip.

Add New Item. Click Add New Item for each locator you want to add, and configure the following set of controls.

Comments. Specifies the string of text that will display at this timecode.

Color. Specifies the color of the locator mark on the timecode.

Timecode. Specifies the timecode where the mark should display.

User Name. Specifies the user associated with this locator. If left blank, it will be auto-populated with the user configured to perform this action.

Track. Specifies the track associated with this locator. This should be in the form (track type) (track number) where track type is A for audio and V for video and track number is an integer. For example, A6 identifies audio track 6; V1 indicates video track 1.

Extract Clip Metadata

Extracts metadata from the master asset.

ASF Workgroup. Specifies the Avid Service Framework Workgroup. This field is case-sensitive. For example: `AvidProduction305`.

Master MOB ID. Specifies the Master MOB ID for the clip.

Output Attachment. Specifies the nickname of the new file created to contain the metadata that has been extracted. Use this nickname in downstream actions to save the file in a particular location or perform other file-related operations on it.

Set Headframe

Creates a headframe image from the specified headframe source.

ASF Workgroup. Specifies the Avid Service Framework Workgroup. This field is case-sensitive. For example: `AvidProduction305`.

Master MOB ID. Specifies the Master MOB ID for the clip.

Headframe Source. Specifies the nickname of the headframe file.

Open Locator

The Open Locator operation is capable of operating in an Open workflow or process existing, closed files. The ingested file (identified in the Metadata Source control), is a (potentially open, growing) text captions metadata file in CSV format, including optional profanity words marked. The Open Locator operation processes each caption set (as specified by the Locator Interval Window control) and generates Locator data for it. Next, the Notify action delivers the locator data to an existing asset, identified by its MOB ID, to the target workgroup.

Workgroup. Specifies the target Avid Service Framework workgroup. This string is case-sensitive. For example: `AvidProduction305`.

Master MOB ID. Specifies the Master MOB ID for the asset.

Metadata Source. Specifies the nickname of the text captions metadata CSV file that was ingested upstream in the workflow and assigned a nickname.

Locator Color. Specifies the color of the locator marker to display in Avid Interplay Access, for all locators except profanity markers.

User Name. Specifies the user associated with this locator.

Track. Specifies the track associated with this locator file, in the form <track type><track number>, where track type is the upper case letter A for audio track and V for video track, followed by an integer that identifies the track number. For example, A4 is audio track 4; V1 is video track 1.

Profanity Color. Specifies the color of a profanity locator marker in Avid Interplay Access.

Locator Window Interval. Specifies how many captions to group together in one locator. It specifies the span from the start time for each group of captions - in other words, each locator - in Avid Interplay Access. The larger the internal, the more captions

are grouped together in one locator before going to the next locator (or captions group). The value 0 specifies that locators should be added for each line of text, using their exact timecode.

Profanity User Property

Set User Property if Profanity Detected. When checked, specifies the user property to set when profanity is detected. Configure these controls:

Property Name (Required). Specifies the name of the property to set on a profanity marker.

Property Value (Required). Specifies the value of the property to set on the profanity marker.

Copy Clip

Duplicates the master asset.

ASF Workgroup. Specifies the Avid Service Framework Workgroup. This field is case-sensitive. For example: `AvidProduction305`.

Master MOB ID (Source). Specifies the Master MOB ID for the clip.

Destination Path. Specifies the name of the folder where the asset will be written. For example: Incoming Media/Mezzanine.

Preserve Master MOB ID (Source). When checked, preserves the Master MOB ID of the source in the copied asset. Unchecked by default.

Master MOB ID (copy). Specifies the Master MOB ID variable for the new clip.

Move Clip

Moves the master asset.

ASF Workgroup. Specifies the Avid Service Framework Workgroup. This field is case-sensitive. For example: `AvidProduction305`.

Master MOB ID (Source). Specifies the Master MOB ID for the clip.

Destination Path. Specifies the name of the folder where the asset will be written. For example: Incoming Media/Mezzanine.

Rename Clip

Allows renaming of assets.

ASF Workgroup. Specifies the Avid Service Framework Workgroup. This field is case-sensitive. For example: `AvidProduction305`.

Master MOB ID. Specifies the Master MOB ID for the clip.

Clip Directory. Specifies the name of the directory for the renamed clip.

New Name. New name for the clip.

Delete Clip

Deletes the master asset.

ASF Workgroup. Specifies the Avid Service Framework Workgroup. This field is case-sensitive. For example: `AvidProduction305`.

Master MOB ID (Source). Specifies the Master MOB ID for the clip.

Delete Media. When checked, specifies that the underlying media as well as the clip reference should be deleted.

Check in AAF File

Allows you to specify an AAF file for check in.

ASF Workgroup. Specifies the Avid Service Framework Workgroup. This field is case-sensitive. For example: `AvidProduction305`.

Destination Path. Specifies the folder where the new asset will be created.

AAF File. Specify the AAF file to check in.

Check in Graphic File

Allows you to specify an graphic file for check in.

ASF Workgroup. Specifies the Avid Service Framework Workgroup. This field is case-sensitive. For example: `AvidProduction305`.

Destination Path. Specifies the folder where the new asset will be created.

Graphic File. Specify the graphic file to check in.

BXF File Notifier

The BXF File notifier creates a SMPTE-2021-compatible BXF file for the target media file, and populates selected fields with metadata values extracted from the variables you specify (or have hard-coded). The BXF file is written to a location specified by you, typically for ingest into the BXF-compliant automation system.

Note: If a previous BXF file with the same name exists in the target directory, it will be over-written without warning.

The name of the BXF file that is generated is based on the filename associated with the Input File Nickname. For example, the Input File Nickname is set to *Original* and points to *MyFile.mpg*. Thus, the file generated (in the folder specified in BXF Output Path) will be named *MyFile.xml*.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Next. Displays the file configuration panel.

Input File Nickname. Specifies the nickname of the target media file. (Typically, the output media from a transcode action, intended for publication.)

BXF Output Path. Manually enter the fully-qualified path where the BXF file is to be written, click Browse to navigate and select the location, or click the green Browse button to assign a variable. The path must be writable by the Communicate service which executes this action.

Next. Displays the BXF configuration panel.

Select the BXF Manager Operation. Specifies the type of operation. Select Content Transfer.

BXF Fields. For each field in the BXF schema, manually enter a hard-coded value or specify a variable which contains the value for this field. The variable must have been set with the extracted value in an upstream action. If a field is left empty and no variable is specified, the BXF field in the resulting file will also be empty.

Next. Displays the Save panel. Click Save to update the action and close the inspector.

Cloud Notifier

The Cloud Notifier allows users to post notification messages at specific points in a Vantage workflow to various cloud aggregation endpoints.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Next. Displays the notifier configuration panel.

Notifier

Select which Notifier to use. The action displays the appropriate panel for configuration.

Amazon Simple Notification Service (SNS)

Access Key ID. (Required) Service account key.

Secret Access Key. (Required) Service account secret key which corresponds to Access Key ID.

Session Token. Authentication parameter required when using temporary credentials.

Topic ARN. (Required) Unique identifier (ARN) for the SNS topic.

Subject. (Required) Subject of message.

Message. (Required) Body of message.

Azure Event Grid Topic

Topic Endpoint. (Required) API endpoint address for a specific topic.

Topic Access Key. Authorization key for publishing events to the topic.

Subject. (Required) Publisher defined path to the event subject.

Event Type. (Required) Registered event types for this event source.

Data Version. Schema version of the data object as defined by the publisher. Default value is 1.

Data. Event data in the form of JSON or simple text.

Oracle Queue

Configure these controls when sending a message to the Oracle Queue service in Oracle Cloud. Obtain keys from your Oracle Queue administrator.

This feature utilizes the Oracle API, which requires configuration and user credentials to allow access. You can obtain values for these parameters from the OCI console, which requires an OCI account.

A queue must already exist to send it a message. Queue support must be enabled for the account to access the OCI Queues.

Region. (Required) Specifies the location where the Oracle system is hosted.

User ID. (Required) Specifies the Oracle User OCID.

Tenant ID. (Required) Specifies the OCID of the Oracle account tenancy.

Queue ID. (Required) Specifies the OCID of the target queue.

Fingerprint. (Required) Specifies the Oracle API fingerprint of the public key added to the account used by Vantage for OCI Queue API access.

Private Key. (Required) Oracle API private key added to the account used by Vantage for OCI Queue API access.

Message. (Required) Specifies the text contained in the body of the message sent to the queue.

Metadata Key and Metadata Value. Specifies optional parameters that allow a single metadata entry to be included in the message sent to the queue. Both parameters must be set to include metadata in the message. If either or both values are not set, metadata is not included in the message.

Next. Click Next to continue.

State to emit if notification Fails. (Required) Specifies the state to emit if this notification fails.

Next and Finish. Click Next and Finish to save this action's configuration and close the inspector.

NexGuard Notifier

The NexGuard Notifier supports the NexGuard Manager using either the REST interface or the SOAP (legacy) interface. Configuration panels differ, based on the interface you select.

Note: For information regarding installation and usage of NexGuard watermarking in Vantage, refer to the NexGuard Watermarking Integration Guide on the Telestream web site.

Using the REST Interface. The NexGuard Notifier is used to start an external job in NexGuard Manager to provide metadata about the media being watermarked, for entry in the NexGuard database. It is also used to update job status in NexGuard Manager, based on the success or failure of the watermarking process.

Using the SOAP Interface. The NexGuard Notifier is used to start an external job in NexGuard Manager and update it as appropriate, retrieve a watermark identifier from NexGuard Manager, and return information about the media which has been watermarked, for entry in the NexGuard database.

Example Prototype Workflow using the REST Interface

1. The first Notify action in the Vantage workflow is configured to notify NexGuard Manager that the Vantage workflow is starting a new watermarking job, by setting the NexGuard Manager operation to *Start Job*, and supplying a key and metadata as appropriate.
2. NexGuard Manager adds a new, external job record to the database and returns the key, a watermark ID (which will be inserted into the video during transcoding) and a watermark job ID, enabling the Vantage workflow to reference the job record to update its status.
3. The Vantage workflow executes the transcode action including watermarking using the NexGuard filter, using the watermark key and the watermark ID provided by NexGuard Manager.
4. The two parallel Notify actions, each following the transcode action, are configured to update the status in NexGuard Manager based on the results of the transcode action, using the *Update External Job* operation.
   Only one NexGuard Notify action reports the job status: If the action completes with *Success*, one Notify sends a *Finished* status. If the action completes with *Failure*, the other Notify sends an *Error* status.
5. NexGuard Manager updates its external job record with the status that the Notify action passed back to it.

Connection Information Panel

REST Interface. Specifies that you are connecting to NexGuard Manager using the REST API.

SOAP Interface (legacy). Specifies that you are connecting to NexGuard Manager using the SOAP API.

Host. Specifies the host name/IP address of the NexGuard Manager host.

Port. Specifies the TCP port that NexGuard Manager is using.

Username (REST only). Specifies the account user name used to log in.

Password (REST only). Specifies the password associated with the user name.

Test Connection. Click to test your NexGuard Manager host settings. If the settings are correct, Vantage reports success and you can continue. Otherwise, determine the problem and test the connection again. You can continue configuring the action, but connection must be successful to execute the workflow.

Proceed to the Rest Configuration Panel or the Soap Configuration Panel to continue configuration.

REST Configuration Panel

Select NexGuard Manager Operation. Specifies *Start Job* | *Update External Job* | *Select Key*.

Use *Start Job* in the first Notify action to notify NexGuard Manager that a Vantage transcoding workflow job has been started. Use *Update External Job* in Notify action pairs after the transcode action, to notify NexGuard Manager of the transcode-watermark operation status (Finished or Error) , identified by the Watermark Job ID returned from the *Start Job* Notify action. Use *Select Key* in the first Notify action to specify an alternate key to utilize, in the event of a transcode-watermark operation failure.

Start Job Operation

When *Start Job* is specified (typically, in the first Notify action, prior to the transcode-watermark action), specifies the job, key, and optional metadata for the media in this job, and which variables to generate.

Job

Work Order. Specifies the practical name of the Vantage job or media being transcoded.

Key. Specifies the name of the key, for use in a downstream Flip, Flip64, Conform or other transcoding action.

Note: The following fields in the Title, Customer, and Recipient sections can contain values already defined in the NexGuard Manager or new values, at which point those items will be created in the NexGuard Manager. If data is provided for Customer or Recipient that results in more than one match returned from the NexGuard Manager

that satisfies the criteria, then when a job is run, the Notify action will fail saying only a single match is allowed.

Title

Name. Specifies the title of the content being watermarked.

Customer

Last Name. Specifies the last name of the customer associated with the job.

First Name. Specifies the first name of the customer.

Organization. Specifies the organization.

Recipient

Last Name. Specifies the last name of the customer associated with the job.

First Name. Specifies the first name of the customer.

Organization. Specifies the organization.

Output Variables

Key Name. Generates the specified text variable, which contains the watermark key specified in the Key control above, to use in the transcoding action, which burns in the watermark based on this key. Bind this variable to the NexGuard Watermark Key field in the NexGuard Watermark Filter.

Key Label. Generates the specified text variable which contains the watermark key label specified in the Key control above, to use in the transcoding action, which burns in the watermark based on this key. Bind this variable to the Preset Name field in the NexGuard Watermark (JWT License) Filter.

Watermark Id. Generates the specified integer variable which is the watermark payload. Bind this variable to the NexGuard Watermark ID in the NexGuard Watermark filter.

Watermark Job Id. Generates the specified text variable which is the identifier of the job that was just started in the NexGuard Manager, for use downstream in additional Notify actions to update the status of this job.

Update External Job Operation

When *Update External Job* is selected (typically, after the transcode-watermark action completes), specified metadata, key, and status.

Job Id. Specifies a text variable - select the same variable as the one specified for the Job Id obtained from the Start Job Notify action.

Source. Specify a Source value. This value is passed to the NexGuard Manager Source field.

Destination. Specifies a Destination value. This value is passed to the NexGuard Manager Destination field.

Status. Specifies *Finished* | *Error*.

Update Watermark Key. When checked, specifies the updated watermark key using the key name or label. Unchecked by default.

Select Key

When *Select Key* is selected (typically due to a previous transcode-watermark action failure), specifies new key, key name, and key label to be utilized.

Key. Select watermark key for use by the transcoder.

Key Name. Specify variable to store watermark key name for selected key.

Key Label. Specify variable to store watermark key label for selected key.

SOAP (Legacy) Configuration Panel

Select the NexGuard Manager Operation. Specifies *Get Watermark ID* | *Submit Log*.

Get Watermark Id

When *Get Watermark Id* is specified (typically, in the first of two paired NexGuard Notify actions in a workflow), complete the following:

Device Id. Specifies the Device ID of the device on your Vantage server that hosts the Notify Service. Optionally, click Browse to select a variable to supply the device ID dynamically. You use the NexGuard Manager to specify a Device ID for this server.

Note: If you are communicating with the V2 NexGuard Manager via SOAP, then the Device ID is not used and it can be left at 0.

Results

Watermark Id. Generates the specified integer variable which is the watermark payload. Bind this variable to the NexGuard Watermark ID in the NexGuard Watermark filter.

Submit Log

When *Submit Log* is specified (typically, the second of two paired NexGuard Notify actions in a workflow), complete the following (optionally, click Browse to select the variables to supply these values dynamically):

Content. Specifies the values of the fields describing content metadata.

Job. Specifies the values of the fields describing the job work order details.

Video. Specifies the values of the fields describing the details about the video format.

Closed User Group. Specifies the values of the fields describing the Closed User Group.

Note: The device ID must be set to the value of the device ID of the Vantage server set in the Device Identifier (as specified by the NexGuard Manager) field above.
The watermark ID value must be bound to the variable generated from the Notify NexGuard Get Watermark ID action.

Dolby DP600 Notifier

The Dolby DP600 is a hardware-based audio platform that provides a file-based workflow solution for loudness correction, audio conversion, and up-mixing.

The DP600 Notifier is used in Vantage workflows to pass a file to the DP600 for processing, and wait for its return and subsequent utilization in the workflow.

You can send uncompressed AC3 in a single WAV file - the DP600 transcodes it to Dolby Digital and returns the new file. If no action occurs for 30 minutes, the process times out and the action fails.

The DP600 Notifier can be configured to specify a static or dynamic output file storage location. To create a dynamic, run-time-based file storage location, bind it to a variable to programmatically provide a location.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Initial Vantage Store Configuration

Before you can use the DP600 in Vantage, you must set up Vantage storage for use by the DP600.

Required Store Properties

Vantage storage utilized by the Communicate Service must have these properties:

- The store must be a share
- The DP600 must have read/write privileges
- There must be an Authorization (credentials) established for the store. These are passed to the DP600 for use when accessing the share.

Setting up Stores for DP600 Utilization

Follow these steps (referring to the Vantage Domain Management Guide and/or your IT or network administrator for details) to set up stores for use by DP600 workflows.

1. In the Vantage Management Console (Services > Communicate > Storage Tab), identify all stores that the Communicate Service (or services in an array) can utilize. If none are specified, all can be used.

2. In the Vantage Management Console (Storage > Vantage Stores), determine that the stores are all shares - or - select one or more that are shares (or you have configured as shares), and assign them to your Communicate Service.

3. In the Vantage Management Console (Settings and Options > Authorization), For each share that the Communicate Service is allowed to use, make sure that you have provided credentials for it.

DP600 Connection Information Panel

Use this panel to enter the connection information for the Dolby DP600 you are using to process the media.

DP600 Host Name or IP. Specifies the computer name or IP address of the device. Do not enter double slashes (//) in front of the computer name.

TCP Port. Specifies the TCP port of the device, if different than port 80.

Next. Click Next to display the next inspector panel.

If Vantage displays a Connection Failed dialog, determine the cause (incorrect DP600 computer name or IP address, incorrect port number, or server is offline, etc.) and remedy it, then try again.

DP600 Workorder Information Panel

Use this panel to enter the workorder information that specifies how to process the media.

Input File Nickname. Select to specify the file by nickname from the popup menu. This file must have been passed to this action from a previous, upstream action - Watch, for example.

File Name. Select to identify the file by a fully-qualified path, and specify (manually | Browse | Variable) the path and name of the file.

Output File Nickname. Specifies the nickname to assign the new output file from the DP600, which will be used by actions downstream for utilizing the output file.

Output Location. Specifies where to store the file(s).

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays)

or click Browse to navigate and select the location. Or, click the green Browse button and select a variable to supply the path dynamically.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Name. Specifies the workorder name (or select the variable that supplies it, if formatted in a previous action). This name is displayed in the DP600 Remote Client Workorder table.

Profile. Specifies the profile you want to use to process the file from the popup menu.

Next. Click Next to display the next inspector panel.

Finish. Click Finish to save your action and close the inspector.

Dump Notifier

The Dump Notifier writes an XML representation of the job to the local hard drive in a directory you select. The file name is a dynamically-generated GUID for this job, plus the XML extension. It is primarily used for diagnostic and debugging purposes.

Before you can use this action, you must configure it.

Click Next to configure this action by selecting the file system and directory for the dump folder.

External Shell Notifier

The External Shell notifier is used to invoke a command (for example, a program or batch file) using an external shell, and optionally, return the error code and results in a variable for processing downstream.

Note: The Notify action configured with this notifier is capable of running in open mode. To run the Notify action in open mode, right-click on the Notify action and select Workflow Mode > Open - the connector buttons display hollow to indicate open mode. (To learn how to enable open mode in the Vantage domain and individual workflows, see the Workflow Designer User Guide.)

The External Shell notifier is *not intended* to be used in an interactive manner. You must write and configure your functionality to run as part of a Vantage workflow—in a fully-automated manner.

For example:

- If you want the shell command result to be captured, specify "Wait for shell command to complete" in the Notify action.

- Do not use a pause command in a batch file. The process will hang indefinitely, waiting for a response to "Press any key to continue" that neither you nor the Vantage workflow can press.

- Make sure all read and write paths to files are fully-qualified, correct, and accessible by the program attempting to access or write the files.

- If over-writing a file, most programs ask for permission, which you can't grant interactively. If there is a command line flag to always overwrite, use it.

You can also specify a shell command and arguments explicitly (rather than using a batch file) if desired. In this case, each component of the command line arguments should be specified as a separate item with no spaces (unless part of a file path).

For example:

```
shell command: C:\Downloads\cliprog.exe
Argument: -i
Argument: (binding to "file_path")
Argument: -abc
Argument: 18
Argument: -out

Argument: "C:\Downloads\output_file.mpg"
```

Note: In order to launch a program with a user interface, the Vantage Message Service must be logged on as local system with the Allow Service to Interact with Desktop option enabled.
However, even when the Interact with Desktop option is enabled, some versions of

Windows (for example, Windows Server 2008) will not allow the External Shell to interact with the shell (like launching Notepad) for security reasons. In this case, the batch file or task will still run, but there will be no evidence that it did from the Desktop.

Executing Batch Files

When executing a batch file in a Vantage domain, the batch file must exist locally on the Vantage server. In a Vantage array, the file must exist locally on each Vantage server that has a Communicate service installed and could execute the batch file.

Note: Windows security precludes system level processes (such as Vantage services) from executing batch files which reside on UNC locations. Due to this limitation, the best practice is to copy the file to a local drive and reference its location. The location must be the same for all nodes in the Vantage domain. For example: C:\VantageScripts\XYZBatFile.bat. This path must be identical on each server in the domain which has the potential of executing this external shell notifier in the Notify action. Use Run-On rules if you need to constrain execution to a certain subset of nodes in your domain.

Receiving a Shell Script Result

A Notify action can receive the standard out result from an external shell script and store it in a Result variable for use downstream. A typical workflow might include a Receive action to receive a script file input; a Notify action to run the script, wait for the result, and place the result into a Result variable; and a second Notify action to accept the Result variable as an input to a text/CSV file and place the text/CSV output file in the desired location.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Details

External Shell Command. Specifies the command to be executed from the External Shell. Or, click Browse and select the BAT, EXE or COM file to run.

Wait for Shell Command to Complete. Forces the action to wait until the command has completed before continuing with the remaining actions in the workflow.

Timeout After. When Wait for Shell Command to Complete is checked, check to time out after the specified time.

Set State to Failure on Non-Zero Result Code or Timeout. When Wait for Shell Command to Complete is checked, check to time out after the specified time.

Error Level. Check to return the error code from the execution, and assign it to the selected integer variable. The error code returned is dependent on what was executed. This variable can be processed by downstream actions to control workflow processing or pass it to an external system.

Result. Check to return the console (stdout) output generated during execution, and store it in the selected Text variable. This variable can be processed by downstream actions to control workflow processing or pass the text to an external system.

Pass Command Line Arguments to the External Shell Command. Check to pass command line arguments to the command, then click Add New Item for each argument you want to pass.

Argument. Specifies the argument value. Optionally, click the green Browse button and select a variable to supply the argument value dynamically.

HTTP Notifier

The HTTP Notifier is used to invoke a POST | GET | PUT | DELETE | PATCH command on a remote HTTP or HTTPS server.

Note: The Notify action configured with this notifier is capable of running in open mode. To run the Notify action in open mode, right-click on the Notify action and select Workflow Mode > Open - the connector buttons display hollow to indicate open mode. (To learn how to enable open mode in the Vantage domain and individual workflows, see the Workflow Designer User Guide.)

The HTTP Notifier enables Vantage jobs to interact with a remote entity via HTTP or HTTPS protocol. The HTTP Notifier provides the ability to POST information to the entity or to GET information from the entity. The intent of this component is to enable quasi-native Vantage integration with a remote entity via HTTP/HTTPS.

You can also use PUT to create or update explicit URIs and DELETE to remove them.

The remote application exposes an endpoint (REST, for example) and the HTTP Notifier is utilized to interact with the endpoint (potentially passing variable values to the endpoint by mapping them to individual URI query parameters).

As an example, the HTTP Notifier can be used to provide job-based information to another system (such as media file processing status) or to obtain information from another system for use in the job (for example, metadata about the file being processed).

Ideally, responses to GET commands are reduced to their simplest structure, for decomposition and extraction of the required data, using the text processing functions available in Vantage.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value in a previous action or use the variable's default value. Click Browse to select the variable or create a new one to use.

Example

In this example, a REST URI is depicted: *http://mywebapp.mydomain.com/mediastatus?file=myfile.mpg*

This URI uses the GET method, and is assembled from these HTTP Notifier settings:

Host: *mywebapp.mydomain.com*

Port: *80* (default - left blank)

HTTP Method: *mediastatus*

Query String: (left blank)

Name: *file*

Value: *myfile.mpg*

Details

Method Type. Specifies the type of HTTP command (POST | GET | PUT | DELETE | PATCH) to be executed on the remote server.

Protocol Type. Specifies the protocol to use for this connection: (HTTP | HTTPS).

Encoding Type. Used only when POST | PUT is selected. Specifies the encoding type (text/xml | application/json | application/xml).

Request Body. For use only in POST | PUT commands; data to be delivered to the endpoint that is not represented in the query string. This requires knowledge of the exact structure of the HTTP query for the external system, and the specific purpose of the call.

Host Name. Remote host name or IP address to connect to. Do not pre-pend the URI with http://, or append the URI with an ending slash (/). Examples: *192.168.1.100* | *mywebserver.com* | *localhost*.

Port. Port to connect with (HTTP default: 80 | HTTPS default: 443). Example: *8676*.

Proxy Server. When checked, indicates that a proxy server should be used. Provide the proxy host name and port number.

Proxy Host Name. When Proxy Server is enabled, specifies the name of the proxy host.

Proxy Port. When Proxy Server is enabled, specifies the proxy port number.

HTTP Method. The portion of the command that identifies the endpoint - the method to invoke on the HTTP server. For example *mediastatus.php* or *MediaDBRest/UdpateMediaFileState*.

Timeout. How long to wait for the HTTP method to complete before giving up.

Set State. Indicates if a failure state should be emitted in the event of an HTTP error.

Enable Basic HTTP Authentication. When checked, indicates that HTTP authentication should be used - provide the user name and password:

User. When HTTP Authentication is enabled, specifies the user name to use.

Password. When HTTP Authentication is enabled, specifies the password.

Set HTTP Query String Arguments. Check to pass query arguments, then click Add New Item for each Name/Value pair you want to pass.

Add New Item. Add the Name/Value pairs to pass, and supply the values.

For example, *file* and *sierranevada.bears.38472.mpg* and *encoder* and *x264* generates the query string *file=sierranevada.bears.38472.mpg&encoder=x264*.

Set HTTP Header Values. Check to add any required header fields and values, then click Add New Item for each Name/Value pair you want to pass.

Add New Item. Add the Name/Value pairs to pass, and supply the values.

For example, Name = *Token* and Value = *egFEk8voVMKoTnRoWIx0SBzv0yjG6cHEID7waS* generates a Token field in the HTTP header, with the value of *egFEk8voVMKoTnRoWIx0SBzv0yjG6cHEID7waS*.

Generate Variables

Status Code. Check and assign a variable that holds the status code value returned by the HTTP request. This variable can be used in a downstream action to determine further processing.

Status Description. Check and assign a variable that holds the status description value returned by the HTTP request. This variable can be used in a downstream action to determine further processing.

HTTP Response. Check and assign a variable that holds the HTTP response string value returned by a successful HTTP request. For a POST, PUT or DELETE, an OK response is typically returned and doesn't need further processing. For a GET, the OK response includes the requested data, which must be parsed out for use in the workflow. This variable can be used in a downstream action to determine further processing.

Invoke Notifier

The Invoke Notifier enables a workflow with a Notify action to execute an external program or script by executing a custom CLI command which you've constructed, when the job runs. The Invoke Notifier is similar to the ExternalShell Notifier but provides more power, flexibility and the ability to ingest and generate Vantage nicknames and update Vantage variables dynamically, with values provided by the external script/program.

Note: The Notify action configured with this notifier is capable of running in open mode. To run the Notify action in open mode, right-click on the Notify action and select Workflow Mode > Open - the connector buttons display hollow to indicate open mode. (To learn how to enable open mode in the Vantage domain and individual workflows, see the Workflow Designer User Guide.)

When you submit a job, display the Job Status tab and open the status window for the Notify action to obtain real-time information about the job as it executes. The script can populate variables (configured in the Variables to Emit section of the Advanced Output inspector). As the script executes, it can update the XML schema file <Status> element with progress information and completion percentage, for example, and Workflow Designer displays this information in the action status window.

The Invoke Notifier uses a token editor for constructing the command. You can insert text strings, variables and a variety of tokens to build the command string. A read-only representation, updated in real time, of the user-modified command with color-coded tokens displays in the inspector.

When you manually stop a Notify action or if it fails for reasons not related to the underlying process exit code, the underlying process is terminated.

The Invoke notifier is *not intended* to execute scripts that operate in an interactive manner. You must write and configure the script to run as part of a Vantage workflow in a fully-automated manner.

For example:

- Do not use a pause command in a batch file. The process will hang indefinitely, waiting for a response to "Press any key to continue" that neither you nor the Vantage workflow can respond to.

- Make sure all read and write paths to files are fully-qualified, correct, and accessible by the program attempting to access or write the files.

- If over-writing a file, most programs ask for permission, which you can't grant interactively. If there is a command line flag to always overwrite, you must use it.

- The command line you submit is specified as a single token string modified with Vantage tokens. There are no separate shell commands or arguments, unlike the External Shell Notifier.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Executing Batch Files

When executing a batch file in a Vantage domain, the batch file must exist locally on the Vantage server where the Notify action is being executed. In a Vantage array, the file must exist locally on each Vantage server that has a Communicate service installed and may be called upon to execute it.

Note: Windows security precludes system level processes (such as Vantage services) from executing batch files which reside on UNC locations. Due to this limitation, the best practice is to copy the file to a local drive and reference its location. The location must be the same for all nodes in the Vantage domain. For example: C:\VantageScripts\XYZBatFile.bat. This path must be identical on each server in the domain which has the potential of executing the Invoke notifier in the Notify action. Use Run-On rules if you need to constrain execution to a certain subset of nodes in your domain.

Receiving a Shell Script Result

A Notify action can receive the standard out result from an external shell script and store it in a Result variable for use downstream. A typical workflow might include a Receive action to receive a script file input; a Notify action to run the script, wait for the result, and place the result into a Result variable; and a second Notify action to accept the Result variable as an input to a text/CSV file and place the text/CSV output file in the desired location.

Details

Enter Command Line to Execute an External Script or Program. Specifies the command to execute to invoke an external script or program, plus optional parameters represented by text or tokens. Enter text, and add tokens from the gear menu to configure the command line. The constructed command (with any added tokens) displays directly below the command line window for review.

For example: (VantageDomain) C:\powershell -File "D:\Vantage\Test Scripts\ProcessSchema.ps1" "Original" "XmlSchema".

Tokens. Select tokens to insert from the Gear menu. After inserting a token, click its More button to configure it. There are several Invoke-specific tokens:

Insert Input Nickname. Displays Input Selection dialog to specify the nickname:

Input Selection: Select or Create an Input File Nickname. Specify existing or new input nickname for inclusion as a token. This token contains the fully-qualified path for the file that the nickname represents. Only nicknames that represent a single file are valid. Multi-file packages (like an HLS sequence) are not supported.

Insert Output Nickname. Displays Input Selection dialog to specify the nickname, output location, and filename pattern:

Select or Create an Output File Nickname. Specify the output location and filename pattern in a manner similar to other Vantage outputs. This token contains the fully-qualified path for the file that the nickname represents. Only nicknames that represent a single file are valid. Outputs that contain multiple files are supported using the Advanced Output token.

Specify the Output Location. Specify Available Vantage Store | Vantage Store/ Folder | Path, and complete controls as appropriate.

Specify the Filename Creation Pattern for the Output File. Specify the string, including tokens, that defines the file name creation pattern for this file.

Insert Advanced Output. Specifies a well-understood schema which allows the external program/script to update the Nicknames, Variables, and Labels elements externally, for use by Vantage in real time. For example, you can supply a Nickname which corresponds to a multi- file set, or provide a variable and its value or metadata label, for use downstream in the workflow. The schema is represented as an XML file that describes the variables, labels, job message, and nicknames that will be manipulated by the script, not by Vantage.

Unlike other tokens, only a single instance of the Advanced Output token is permitted. The external script/program should update the schema XML file to populate the nickname's location and filename, and specify values for each variable and label. Vantage reads the updated schema file and utilizes the information to utilize

the variable and label values and create the input/output nickname in the workflow.

Here is the baseline schema without any nicknames, variables, or labels entered:

```
<VantageManifest>
  <Nicknames />
  <Variables />
  <Labels />
  <Errors>
    <Error message="" />
  </Errors>
  <Status message="" percent_complete="" />
</VantageManifest>
```

Schema File Nickname and Nicknames to Emit. Specify existing or new schema XML file nickname and output file nicknames for inclusion as a token. This token contains the output location and filename pattern in a manner similar to other Vantage outputs.

Select or Create an Output File Nickname. Specify the output location and filename pattern in a manner similar to other Vantage outputs. This token contains the fully-qualified path for the file that the nickname represents. Only nicknames that represent a single file are valid. Outputs that contain multiple files are supported using the Advanced Output token.

Specify the Output Location. Specify Available Vantage Store | Vantage Store/Folder | Path, and complete controls as appropriate.

Specify the Filename Creation Pattern for the Output File. Specify the string, including tokens, that defines the file name creation pattern for this file.

Variables to Emit. Click Add icon to specify variables to populate/update in the XML schema file.

Labels to Emit. Click Add icon to specify labels to populate/update in the XML schema file.

Test. Click Test to generate an XML file and display it for your review and to implement code in your script to provide values for each.

Insert Label. Specifies a label (serialized) to be passed to the script as an argument. Displays the Label Selection dialog; select the label to insert and click OK.

The argument string is serialized XML, encoded using Base 64 encoding and GZip compression. The resulting string can be decoded by standard web tools such as https://bugdays.com/gzip-base64 or with a small amount of .NET code (which can

also be executed via a Powershell script using Add-Type to execute a block of interpreted C#).

Insert Job Message. If populated by the script, this message displays (and is continuously updated) in the Notify action in the Job Status window while the invoked script is processing.

Timeout After. When checked, specify a time for Vantage to wait for the script/program to complete before timing out. Unchecked by default.

Set State to Failure on Non-Zero Result Code or Timeout. When checked, Vantage emits a failure state if the script or program's result code is not zero or if there is a timeout. Checked by default.

Display Command Line in Job Status/History Event Detail. When checked, the parsed command line displays in Job Status/History. Checked by default.

Note: If your command contains embedded passwords or other sensitive information, these are also displayed in the Job Status/History Event Detail window if the display option is checked. Telestream recommends unchecking this option if passwords or sensitive information may be exposed.

Check Input Files When Job Starts. When checked, the files represented by the Input Nickname tokens are tested to determine if they exist. If the files don't exist, the action fails with an error: The specified source file <filename> cannot be accessed.

There are situations where the file may not exist when the Notify action executes. In this case, uncheck this option to avoid job failure.

Error Level. Check to return the error code from the execution, and assign it to the selected Integer variable. The error code returned is dependent on what was executed. This variable can be processed by downstream actions to control workflow processing or pass it to an external system.

Result. Check to return the console (stdout) output generated during execution, and store it in the selected Text variable. This variable can be processed by downstream actions to control workflow processing or pass the text to an external system.

MOB ID Notifier

The MOB ID notifier is used to generate master and source MOB IDs and publish their value in the selected variable.

Note: The Notify action configured with this notifier is capable of running in open mode. To run the Notify action in open mode, right-click on the Notify action and select Workflow Mode > Open - the connector buttons display hollow to indicate open mode. (To learn how to enable open mode in the Vantage domain and individual workflows, see the Workflow Designer User Guide.)

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Details

Master MOB ID. When checked, generates a master MOB ID. Select the variable to update with the value of the generated MOB ID, for use in downstream actions.

Source MOB ID. When checked, generates a source MOB ID. Select the variable to update with the value of the generated MOB ID, for use in downstream actions.

Next and Finish. Click Next, then click Finish to save your action and close the inspector.

Notification Settings

Configure settings for various Notification types.

Details

State to Emit if the Notification Fails. Specifies the state to emit if a notification process fails. Failure is the default setting.

Next. Displays the next inspector panel.

SeaChange MVL Notifier

The SeaChange MVL notifier is used so that recently-generated and delivered content to the SeaChange MVL Server can be automatically ingested into the MVL system.

Before you can use this action, you must configure the inspector with the SeaChange MVL server settings.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Details

Input Media File Nickname (Required). Specifies the nickname of the file you want ingested into the MVL system.

Connect to MVL Hostname (Required). Specifies the host name of the MVL server you want to connect to.

Telnet Login (Required). Specifies the account to utilize for Telnet authentication.

Telnet Password. Specifies the password for the Telnet account you specify.

Import to MVL Hostname (Required). Specifies the name of the MVL host where this factory has sent the media.

MVL Local Media Path (Required). Specifies the fully-qualified path on the MVL host where the media is saved.

Version. Specifies the Version designation in the MVL (default: 0).

Options

Master Video. Specifies that this is a master video clip (default: yes).

Auto Archive. Specifies that this clip should be auto-archived (default: no).

Expiration Date. Date when the material expires.

Recording Date. Specifies the date when the material was created.

Description. Specifies the description for this media.

Code. Specifies the Code parameter specific to the MVL.

Value. Specifies the Value parameter specific to the MVL (default: 50).

Encoder Type. Specifies the type of encoder utilized to create the material.

Enable Manual Mode. When the media file already exists - it was not generated by some transcode action in this workflow - check this option to enable you to specify the

duration, frame rate, and bit rate manually; otherwise the duration, frame rate, and bit rate are automatically obtained from an upstream Flip action or other transcode action.

Duration (enabled when Enable Manual Mode checked). Specifies the duration in timecode format and frames per second.

Frame Rate (enabled when Enable Manual Mode checked). Specifies the frame rate in frames per second.

Bit Rate (enabled when Enable Manual Mode checked). Specifies the bit rate in bits per second.

Advanced Settings

Prompt. Character string that displays as a prompt from the SeaChange Telnet session.

DVL Import Path. Path on the SeaChange server where the Import command is located.

Login Prompt. Login prompt that the SeaChange server displays when requesting the Telnet session username.

Password Prompt. Password prompt that the SeaChange server displays when requesting the Telnet session password.

Timeout. Amount of time the SeaChange server will wait for a reply on the Telnet session before failing.

Text/CSV Report Notifier

The Text/CSV Report notifier provides the ability to produce column-based or comma-separated-value delimited reports from workflow variables.

The primary purpose of the Text/CSV Report notifier is to produce dublists that can be imported as appropriate into broadcaster automation systems (Harris/Louth, Encoda, Florical, Omnibus, etc.). The file produced by this notification contains a list of media that has been processed by TrafficManager and transferred to a broadcast server. Each item in the list typically contains the house identifier, the ISCI code and the location (server, file name, etc.) of the material.

Each time a job runs, the notifier accesses the current dublist file - or, if the filename is obsolete (based on your FileName Pattern settings), creates a new one. Then, it formats a new entry (based on the items you have specified), and adds the entry as a new row in the file, and closes it.

The format of the dublist (comma-separated or text - column-based) is controlled by selecting Column or CSV as the reporting scheme. The format of the dublist filename is determined by how you configure the Filename Pattern parameter. The Filename Pattern also determines when a new dublist file is created.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Details

Reporting Scheme. Specifies the type of report to generate:

Column-based Reporting Scheme-produces left-justified, fixed-width columns in the report file. If the item string is shorter than the specified column width, it will be padded with spaces. If it is too long, the string is truncated to the width of the column.

CSV Reporting Scheme-Delineates item strings using a comma. It uses the following formatting rules:

- If the entry contains doublequotes, each double quote will be escaped by adding another double-quote to it.

- If the entry contains commas, the entire string will be surrounded by double-quotes.

For example, consider the following text: *"Hello", world*. It will be converted to: *""""Hello"", world"*.

Column Titles. When checked, generates the first line at the start of each report file which contains the entry names. This improves the readability of the report document, but may be undesirable if the report is to be read by a program or automation system.

Location. Specifies the fully-qualified Windows file system server and folder (local or UNC path) where the report file is stored, which must be writable from any Vantage Communicate services which may execute this action.

Filename Pattern. Controls how often a new report file is generated, by selecting different date and time patterns so that the filename changes at the desired interval. When an existing report file of the same name is encountered by the action and the file is still current, the report will be appended. If none exists or the values in the pattern have changed (for example, a new day has occurred), a new report file will be created.- The file name should be based upon the same settings as used in the Flip action.

Note: Typically, you will either create one file per job (using the file name) or one report every hour, or every day, for example.

Edit Filename Pattern. The purpose of the filename pattern is to name the file appropriately, and to specify when a new file is to be created. When a token you have specified changes values, a new file is created.

For example, you add a Date token, and select DD-MM-YYYY. Thus, if the date, month, or year change, a new file will be created. If you add a Base Name or Variable, you are likely to create a new file for each job, because the name of the ingested file, or some variable you select, is likely to be different for each job. If you add a Time token and select HH (24 hour), you'll get a new file every hour - ending up with 24 dublists - provided a job runs at least once each hour.

Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. Then, click the token and select its format.

You can use the following tokens:

- Base Name (the root name of the file, excluding the extension)
- Date
- Time
- Variable (you select the variable to use)

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern, it is replaced with *12H4JA678*.

If the Column scheme is used, consider adding *.txt* as the file extension. If the CSV scheme is being used, it may be desirable to change the file extension to *.csv*.

Next. Click Next to continue to next panel.

Column Scheme | CSV Scheme. If you selected Column Scheme in the previous panel, use this panel to set up the columns in the report. If you selected CSV Scheme, use this panel to set up the comma-separated fields in the report.

Make sure that this control is (and remains) checked.

Add New Item. Click to add a new item to the report (from left to right), in either the Column Scheme or the CSV Scheme report type. A new item should be added for each column to be generated in the report, with a descriptive column name, and a column value bound to the desired workflow variable.

To delete an item, click the X in the upper right corner of the item panel.

You cannot re-arrange items. You must name each item and specify the correct variable in the ordinal position you want it to appear in the report.

Column Scheme.

When Column Scheme is selected, for each item, complete the following:

Column Name. When you have specified Column Titles, enter the string for this column value. Even if you did not specify Column Titles, entering a value here will help clarify the column intent. Or, bind the column to a variable.

Column Value. Typically, bind this column to a variable. If this is a static value (one that does not change from job to job), enter the static string.

Column Width. Specifies the number of characters (integer) permitted for this field. Or, bind it to a variable.

CSV Scheme.

When CSV Scheme is selected, for each item, complete the following:

Column Name. When you have specified Column Titles, enter the string for this column value. Even if you did not specify Column Titles, entering a value here will help clarify the column intent. Or, bind the column to a variable.

Column Value. Typically, bind this column to a variable. If this is a static value (one that does not change from job to job), enter the static string.

Variable Report Notifier

The Variable Report notifier generates a report for each specified variable each time a job is run, and saves it in a text file in a prescribed location for utilization external to Vantage.

When you run a job, existing reports in the same location and name as a new report being created are overwritten without warning. Optionally, configure the filename pattern to uniquify the file name for each job.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Details

Add a variable to the report list and select a location:

Add New Item. Click to add a new variable to the report list.

Use the Up and Down Arrows to re-order the selected item in the list, and click the X icon in the item upper right corner to delete it. In the context of the Variable Report, the variable order has no effect on output.

Configure Each Report Item

Variable. Specifies the variable that you want the report generated for.

Location. Specifies the location of the text file report.

Filename Pattern. Click to display the Filename Pattern Editor and configure the file creation pattern for these files.

Next. Displays the next inspector panel.

Notification Settings

State to Emit if the Notification Fails. Specifies the state to emit if a notification process fails. Failure is the default setting.

Next and Finish. Click Next and click Finish to save and close the inspector panel.

Web Service Notifier

The Web Service notify is a dynamic invocation of the specified Web app which implements a Web Service.

The Web Service notify enables you to select a service and method, and supply parameters (whose values may be supplied by variables) to the Web Service and also to receive parameters (whose values may be supplied to variables) in return.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Details

Web Service URL. Specifies URL that refers to the WSDL that the action should interact with. The action inspector interrogates the methods published in this service.

Web Service. Specifies the service to use from the list of published services in the table.

Web Service Method. Specifies the method to use from the list of published methods in the table.

Web Service Parameters - Input. Manually assign the value for each parameter in the method.

Web Service Parameters - Output. Specifies the variable to update from the output parameters, by selecting the variable from the list.

Notifiers
Web Service Notifier

Edit (Playlist) Action Components

The Chronicle, Colocate, Compose, Conform, and Tempo actions are all optional, licensed Post Producer features of Vantage.

Conform and Tempo Action Components

Chronicle Components

Generate Composition Chronicle

Video Transcoder Components

Comprimato JPEG2000 CPU Transcoder

Comprimato JPEG2000 CUDA Transcoder

DNxHD Transcoder

DNxHR Transcoder

IMX (D-10) Transcoder

JPEG2000 Transcoder

MainConcept AVC-Intra Transcoder

MPEG Transcoder

ProRes Transcoder

Uncompressed Transcoder

XAVC Transcoder

x264 Transcoder

x265 Transcoder

XDCAM HD Transcoder

Video Filters

HDR Colorspace Filter

Time Code Processing Filter

Content Advisory Filter (Multiscreen)

Content Advisory Filter (Tempo)

Video Codecs

Comprimato JPEG2000 Codec (Lossless Mode) (Tempo)

Comprimato JPEG2000 Codec (Lossless Mode) (Conform) (DEPRECATED?)

Comprimato JPEG2000 Codec (Lossy Mode) (Conform) (DEPRECATED?)

Comprimato JPEG2000 CPU Mode Codec (Conform)

Comprimato JPEG2000 CUDA Mode Codec (Conform)

DNxHD Codec

DNxHR Codec

JPEG 2000 Lossless Codec

JPEG 2000 Lossy Codec

AVC-Intra 50 Codec

AVC-Intra 100 Codec

AVC-Intra 200 Codec

MPEG2 Codec

MPEG-2 4:2:2P@HL Codec

MPEG-2 MP@HL Codec

ProRes Codec

Uncompressed Codec

XAVC HD Intra Codec

XAVC HD Codec

XAVC 4K Intra Codec

XAVC 4K Codec

x264 Codec

x265 Codec

MPEG-2 4:2:2P@HL Codec

Audio Transcoder Components

AAC Transcoder

AC-3 Transcoder

MPEG Audio Transcoder

PCM Transcoder

Audio Filters

Dolby E Decoding Filter

Sample Rate Filter

Channel Map Filter

Audio Codecs

AAC Codec

AC-3 | EAC-3 Codec

MPEG1 Layer II Audio Codec

PCM Audio Codec

ANC Filters

Active Format Description Filter

Output Components

MPEG-4 Output

MXF OP1a Output

Program Stream Output

QuickTime Output

TIFO Output

Processor Components

Advanced Title Processor Component

Comprimato Processor Component

Dolby E Decoder Processor

Video Processor Component

Chronicle Action

ADI DAI Marker Chronicler

Break List Report Chronicle

Canoe CSV Chronicler

SCTE-35 Chronicler

Colocate Action

Azure Colocator

Google Cloud Colocator

HTTP Colocator

S3 Colocator

Local Path Colocator

Compose Action

AN2 Composer

CML Composer

DCP Composer

EDL Composer

FCP 7 XML Composer

GraphicsFactory Composer

IMF Composer

Mediaflex Composer

QuickTime Reference Composer

Simple AAF Composer

Tempo Composer

Text File List Composer

Trigger Composer

TSEDL Composer

Generate Composition Chronicle

When checked, the action produces a post-rendered composition file specifically for the media rendered by this job. The new composition will contain timecodes where ambiguous timecodes were specified, and will contain new values where Vantage variables were specified. These as-run compositions can be processed by the Chronicle action to produce reports for use in ad insertion workflows.

Output Attachment Nickname. When checked, supply the attachment nickname, and optionally, edit the filename pattern.

Composition Chronicle Location. Specifies where to store the file.

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file to an available Vantage store or folder.

- *Vantage Store/Folder*: Write the file to a specific store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Comprimato JPEG2000 CPU Transcoder

The Comprimato JPEG2000 CPU Transcoder is implemented in Post Producer in the Conform and Tempo actions as an optional, licensed, GPU-enabled high-performance transcoder operating in CPU mode.

The Comprimato JPEG2000 CPU Transcoder direct-converts or decodes and re-encodes the input video stream into one output video stream in JPEG2000 format, using the Comprimato JPEG2000 Mode codec.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder, in actions where multiple transcoders are permitted. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click on the transcoder and select Duplicate.

Up and Down Arrows. Re-orders the selected stream.

Details Arrow. Expands or hides the transcoder details.

Plus Icon. Select a transcoder for this action. Only one video transcoder is permitted. You can add up to 16 audio transcoders.

Transcoder Details

Select the Comprimato JPEG2000 CPU Transcoder to configure its settings, and apply and configure filters. Inside the Transcoder panel is the video stream panel.

Note: Filters may not be implemented in all actions, and may be implemented differently in each action.

Video Stream Details

Select the video stream to configure its settings.

Stream Name. Specifies the name of the transcoder video stream that you want to present to the output component for inclusion in the encoded media file.

Codec. Specifies Comprimato JPEG2000 CPU Mode codec used to encode this video stream.

Comprimato JPEG2000 CUDA Transcoder

The Comprimato JPEG2000 CUDA Transcoder is implemented in Post Producer in the Conform and Tempo actions as an optional, licensed, GPU-enabled high-performance transcoder operating in CUDA mode.

The Comprimato JPEG2000 CUDA Transcoder direct-converts or decodes and re-encodes the input video stream into one output video stream in JPEG2000 format, using the Comprimato JPEG2000 CUDA Mode codec.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder, in actions where multiple transcoders are permitted. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click on the transcoder and select Duplicate.

Up and Down Arrows. Re-orders the selected stream.

Details Arrow. Expands or hides the transcoder details.

Plus Icon. Select a transcoder for this action. Only one video transcoder is permitted. You can add up to 16 audio transcoders.

Transcoder Details

Select the Comprimato JPEG2000 CUDA Transcoder to configure its settings, and apply and configure filters. Inside the Transcoder panel is the video stream panel.

Note: Filters may not be implemented in all actions, and may be implemented differently in each action.

Video Stream Details

Select the video stream to configure its settings.

Stream Name. Specifies the name of the transcoder video stream that you want to present to the output component for inclusion in the encoded media file.

Codec. Specifies Comprimato JPEG2000 CUDA Mode codec used to encode this video stream.

DNxHD Transcoder

This DNxHD Transcoder is implemented in the Conform and Tempo actions. The Avid DNxHD Transcoder encodes or direct-converts the input files specified in the Composition XML file into one output video stream in DNxHD format, using the DNxHD codec.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder, in actions where multiple transcoders are permitted. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click on the transcoder and select Duplicate.

Up and Down Arrows. Re-orders the selected stream.

Details Arrow. Expands or hides the transcoder details.

Plus Icon. Select a transcoder for this action. Only one video transcoder is permitted. You can add up to 16 audio transcoders.

Transcoder Details

Select the DNxHD Transcoder to apply and configure filters. Inside the Transcoder panel is the video stream panel.

Note: Filters may not be implemented in all actions, and may be implemented differently in each action.

Video Stream Details

Select the video stream to configure its settings.

Stream Name. Specifies the name of the transcoder video stream that you want to present to the output component for inclusion in the encoded media file.

Codec. Specifies the DNxHD codec, which is used to encode this video stream.

DNxHR Transcoder

This DNxHR Transcoder is implemented in the Conform action. The Avid DNxHR Transcoder encodes or direct-converts the input files specified in the Composition XML file into one output video stream in DNxHR format, using the DNxHR codec, configured for a specified profile.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder, in actions where multiple transcoders are permitted. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click on the transcoder and select Duplicate.

Up and Down Arrows. Re-orders the selected stream.

Details Arrow. Expands or hides the transcoder details.

Plus Icon. Select a transcoder for this action. Only one video transcoder is permitted. You can add up to 16 audio transcoders.

Transcoder Details

Select the DNxHR Transcoder to apply and configure filters. Inside the Transcoder panel is the video stream panel.

Note: Filters may not be implemented in all actions, and may be implemented differently in each action.

Resolution

Width. Specifies the width of the frame in pixels.

Height. Specifies the height of the frame in pixels.

Frame Rate. Specifies the frame rate in FPS. A minimum of 23.976 FPS is required to preserve ancillary data.

Video Stream Details

Select the video stream to configure its settings.

Stream Name. Specifies the name of the transcoder video stream that you want to present to the output component for inclusion in the encoded media file.

Codec. Specifies the DNxHR codec, which is used to encode this video stream.

IMX (D-10) Transcoder

This transcoder is implemented in the Tempo action. The IMX (D-10) Transcoder encodes or direct-converts the input file in D-10 (also known as IMX) - MPEG-2 4:2:2 I-frame only video, with specific bitrates, as specified by SMPTE 356M, using the IMX (D-10)codec. Typically, IMX is encoded at 30, 40 or 50 Mbit/sec, and used for NTSC/PAL SD media.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder, in actions where multiple transcoders are permitted. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click on the transcoder and select Duplicate.

Up and Down Arrows. Re-orders the selected stream.

Details Arrow. Expands or hides the transcoder details.

Plus Icon. Select a transcoder for this action. Only one video transcoder is permitted. You can add up to 16 audio transcoders.

Transcoder Settings

Select the IMX (D-10) Transcoder to configure its settings, and apply and configure filters. Inside the Transcoder panel is the video stream panel.

Note: Filters may not be implemented in all actions, and may be implemented differently in each action.

Video Stream Details

Select the video stream to configure its settings.

Stream Name. Specifies the name of the transcoder video stream that you want to present to the output component for inclusion in the encoded media file.

JPEG2000 Transcoder

This JPEG2000 Transcoder is implemented in the Conform and Tempo actions. The JPEG2000 transcoder encodes or direct-converts the input video stream into one output video stream in JPEG2000 format, using the JPEG2000 codec.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder, in actions where multiple transcoders are permitted. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click on the transcoder and select Duplicate.

Up and Down Arrows. Re-orders the selected stream.

Details Arrow. Expands or hides the transcoder details.

Plus Icon. Select a transcoder for this action. Only one video transcoder is permitted. You can add up to 16 audio transcoders.

Transcoder Details

Select the JPEG2000 Transcoder to configure its settings, and apply and configure filters. Inside the Transcoder panel is the video stream panel.

Note: Filters may not be implemented in all actions, and may be implemented differently in each action.

Resolution

Click the details icon to specify frame settings.

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Pixel Format. Specifies the color space, chroma subsampling, and bit depth to use for encoding.

Aspect Ratio. Specifies the screen/pixel aspect ratio to encode in the JPEG2000 bitstream.

Video Stream Details

Select the video stream to configure its settings.

Stream Name. Specifies the name of the transcoder video stream that you want to present to the output component for inclusion in the encoded media file.

Codec. Specifies the JPEG2000 Lossless | JPEG2000 Lossy codec used to encode this video stream.

MainConcept AVC-Intra Transcoder

This MainConcept AVC-Intra Transcoder is implemented in the Conform action. It supports the AVC-Intra 50, AVC-Intra 100, and AVC-Intra 200 codecs. Because these codecs produce a constrained format similar to XDCAM HD, resolution and bitrate are chosen by codec and profile in the stream.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder, in actions where multiple transcoders are permitted. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click on the transcoder and select Duplicate.

Up and Down Arrows. Re-orders the selected stream.

Details Arrow. Expands or hides the transcoder details.

Plus Icon. Select a transcoder for this action. Only one video transcoder is permitted. You can add up to 16 audio transcoders.

Transcoder Details

Select the MainConcept AVC-Intra Transcoder to apply and configure filters. Inside the Transcoder panel is the video stream panel.

Note: Filters may not be implemented in all actions, and may be implemented differently in each action.

Video Stream Details

Select the video stream to configure its settings.

Stream Name. Specifies the name of the transcoder video stream that you want to present to the output component for inclusion in the encoded media file.

Codec. Specifies the AVC-Intra codec used to encode this video stream.

MPEG Transcoder

This MPEG Transcoder is implemented in the Conform and Tempo actions. The MPEG transcoder decodes and re-encodes the input video stream into one output video stream in MPEG format, using the MPEG2 codec.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder, in actions where multiple transcoders are permitted. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click on the transcoder and select Duplicate.

Up and Down Arrows. Re-orders the selected stream.

Details Arrow. Expands or hides the transcoder details.

Plus Icon. Select a transcoder for this action. Only one video transcoder is permitted. You can add up to 16 audio transcoders.

Transcoder Details

Select the MPEG Transcoder to configure its settings and apply and configure filters. Inside the Transcoder panel is the video stream panel.

Resolution

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Aspect Ratio. Specifies the display aspect ratio.

Video Stream Details

Select the video stream to configure its settings.

Stream Name. Specifies the name of the transcoder video stream that you want to present to the output component for inclusion in the encoded media file.

Codec. Specifies the MPEG2 codec is used to encode the video stream.

Edit (Playlist) Action Components
MPEG Transcoder

ProRes Transcoder

This ProRes Transcoder is implemented in the Conform and Tempo actions. The ProRes transcoder decodes and re-encodes the input video stream into one output video stream using the ProRes codec.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder, in actions where multiple transcoders are permitted. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click on the transcoder and select Duplicate.

Up and Down Arrows. Re-orders the selected stream.

Details Arrow. Expands or hides the transcoder details.

Plus Icon. Select a transcoder for this action. Only one video transcoder is permitted. You can add up to 16 audio transcoders.

Transcoder Details

Select the ProRes Transcoder to configure its settings and apply and configure filters. Inside the Transcoder panel is the video stream panel.

Clean Aperture

Not Enabled: Select to disable the Clean Aperture tool.

Specify Inset: Select to specify Clean Aperture Display mode in the output (applying the visible region and pixel aspect ratio), and specify the region of video free from transition artifacts caused by encoding (edge encoding, VBI, etc.). This is the region of video that should be displayed.

Resolution

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Aspect Ratio. Specifies the display aspect ratio.

Video Stream Details

Select the video stream to configure its settings.

Stream Name. Specifies the name of the transcoder video stream that you want to present to the output component for inclusion in the encoded media file.

Codec. Specifies that the ProRes codec is used for transcoding this media.

Uncompressed Transcoder

This Uncompressed Transcoder is implemented in the Conform and Tempo actions. The Uncompressed Transcoder decodes the input video stream into one output video stream in Uncompressed format, using the Uncompressed codec.

Note: Filters may not be implemented in all actions, and may be implemented differently in each action.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder, in actions where multiple transcoders are permitted. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click on the transcoder and select Duplicate.

Up and Down Arrows. Re-orders the selected stream.

Details Arrow. Expands or hides the transcoder details.

Plus Icon. Select a transcoder for this action. Only one video transcoder is permitted. You can add up to 16 audio transcoders.

Transcoder Details

Select the Uncompressed Transcoder to configure its settings, and apply and configure filters. Inside the Transcoder panel is the video stream panel.

Note: Filters may not be implemented in all actions, and may be implemented differently in each action.

Decompressor

Click the details icon to specify decompressor settings.

Color Space. Select the color space to use when decompressing frames.

Resolution

Click the details icon to specify frame settings.

Width | Height. Select the width and height of the output frame in pixels.

Frame Rate. Check to select the frame rate of the output in frames per second.

Video Stream Details

Select the video stream to configure its settings.

Stream Name. Specifies the name of the transcoder video stream that you want to present to the output component for inclusion in the encoded media file.

Codec. Specifies the Uncompressed codec is used for transcoding this media. This control is not changeable by the user.

XAVC Transcoder

This XAVC Transcoder is implemented in the Conform action. The XAVC Transcoder generates XAVC video using level 5.2 of H.264/MPEG-4 AVC, which is the highest level supported by that video standard. XAVC can support 4K resolution (4096 x 2160 and 3840 x 2160) at up to 60 frames per second (fps).

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder, in actions where multiple transcoders are permitted. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click on the transcoder and select Duplicate.

Up and Down Arrows. Re-orders the selected stream.

Details Arrow. Expands or hides the transcoder details.

Plus Icon. Select a transcoder for this action. Only one video transcoder is permitted. You can add up to 16 audio transcoders.

Transcoder Details

Select the XAVC Transcoder to apply and configure filters. Inside the Transcoder panel is the video stream panel.

Note: Filters may not be implemented in all actions, and may be implemented differently in each action.

Video Stream Details

Select the video stream to configure its settings.

Stream Name. Specifies the name of the transcoder video stream that you want to present to the output component for inclusion in the encoded media file.

Codec. Specifies the codec that should be used to encode this video stream.

x264 Transcoder

This x264 Transcoder is implemented in the Conform and Tempo actions. The x264 transcoder encodes the input video stream into one output video stream in H.264 format, using the x264 codec.

There are three components in the transcoder: the large (main) panel is the transcoder itself. Inside the transcoder component, to the far left is the smaller, input stream panel (with the down arrow). To the right is the output stream panel (with the up arrow).

Select the transcoder component to view its details panel on the right and configure its settings and filters, as described under Transcoder Settings, immediately below.

Select the video/audio stream component to view its details panel on the right and configure its settings. You can edit the name of the stream by selecting its text. The name of the stream does not affect functionality or file naming; it simply identifies the stream for selection elsewhere.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Note: Transcoder Settings

Select the x264 Transcoder to configure its settings, apply and configure filters. Inside the Transcoder panel is the video stream panel.

Resolution

Width | Height. Specifies the width and height of the output frame in pixels.

Frame Rate. When checked, specifies the frame rate of the output in frames per second. When unchecked, the source frame rate is used.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Aspect Ratio. Specifies the display aspect ratio.

Presets

Profile (--profile). Specifies the profile, offering different quality levels ranging from consumer (Baseline and Main) to broadcast and professional levels (High, High 10, and High 4:2:2). Select the profile to use (or *Not Set*) from the menu:

Baseline - Creates H.264 Baseline Profile output with 8-bit sampling, for consumer applications.

Main - Creates H.264 Main Profile output with 8-bit sampling, for consumer applications.

High - Creates H.264 High Profile output with 8-bit sampling, for broadcast/professional level applications.

High 10 - Creates H.264 High 10 Profile output with 10-bit sampling, for broadcast/professional level applications.

High 4:2:2 - Creates H.264 High 4:2:2 Profile output with 10-bit sampling and 4:2:2 chroma subsampling, for broadcast/professional level applications.

Not Set - Automatically selects the appropriate H.264 profile based upon your other encoder settings.

Preset. Specifies the preset setting, which trades encoding speed for visual quality.

Tuning. Specifies the tuning setting, which optimizes encoding quality for a particular type of source content.

Command Line. For parameters that are not in the editor panel (those other than the more common Profile, Preset, and Tuning parameters, etc.), you can enter CLI commands to execute, to refine encoding options. The transcoder uses various algorithms, many of which use default values. These values can be changed as a command line interface command.

To enter multiple commands, separate them with spaces: `--ref 3 --bframes 3`, for example.

It is best practice to use long form commands for clarity; for example: `--bframe 5`. The use of short form (`-b 5`) commands is not recommended.

Analysis

Click the details icon to specify analysis settings.

Look Ahead (--rc-lookahead). Specify the number of frames that the encoder uses to predict more difficult areas to encode, and save bits for those sections. This setting is used for rate control, and effectively sets the VBV window. Range: 10 to 60.

IP Ratio (--ipratio). Specify the target average increase in the quantizer for I-frames compared to P-frames. Higher values increase the quality of I-frames generated. Range: 1 to 10.

Frame Type

IDR Frame Interval (GOP length) (--keyint). Specifies the maximum distance between IDR frames. The interval count resets whenever any IDR frame insertion occurs. Range: 1 to 1000.

Scene Detection Threshold (--scenecut). When checked, enables scene detection and specify the threshold for I-frame detection and IDR frame insertion. x264 calculates a metric for every frame to determine how different it is from the previous frame. If the metric is lower than this value, a scene cut is detected. Range: 1 to 100.

Maximum B-frames (--bframes). Specifies the maximum number of consecutive B-frames between P-frames. Range: 1 to 3.

B-frame Placement Algorithm. Specifies the adaptive B-frame placement decision algorithm. This setting controls how x264 decides between placing a P- or B-frame.

Disabled - Always pick B-frames.

Fast - Faster, speed slightly increases with higher maximum b-frames setting.

Optimal - Slower, speed significantly decreases with higher maximum b-frames setting.

B-Frame Reference Pyramid (--b-pyramid). Specifies the use of B-frames as references for other frames. Without this setting, frames can only reference I- or P-frames. Although I/P-frames are more valued as references because of their higher quality, B-frames can also be useful. B-frames designated as references will get a quantizer halfway between P-frames and normal B-frames. You need to use at least two B-frames before B-pyramid will work.

If you're encoding for Blu-ray, use *None* or *Strict*.

None - Do not allow B-frames to be used as references.

Strict - Allow one B-frame per mini-GOP to be used as reference; enforces restrictions imposed by the Blu-ray standard.

Normal - allow numerous B-frames per mini-GOP to be used as references.

Reference Frames (--ref). Specifies the maximum number of frames that a frame can reference. More reference frames provide better quality, because the encoder has more frames in which to find similarities, but increases CPU utilization. Range: 0 to 10.

Video Stream Details

Select the video stream to configure its settings.

Stream Name. Specifies the name of the transcoder video stream that you want to present to the output component for inclusion in the encoded media file.

Codec. Specifies the x264 codec is used for transcoding this media. This control is not changeable by the user.

x265 Transcoder

This x265 Transcoder is implemented in the Conform action. The x265 transcoder decodes and re-encodes the input video stream into one output video stream in H.265 format, using the x265/HEVC codec.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder, in actions where multiple transcoders are permitted. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click on the transcoder and select Duplicate.

Up and Down Arrows. Re-orders the selected stream.

Details Arrow. Expands or hides the transcoder details.

Plus Icon. Select a transcoder for this action. Only one video transcoder is permitted. You can add up to 16 audio transcoders.

Transcoder Details

Select the x265 Transcoder to configure its settings, apply and configure filters. Inside the Transcoder panel is the video stream panel.

Resolution

Click the details icon to specify frame settings.

Width. Specifies the width of the output frame in pixels.

Height. Specifies the height of the output frame in pixels.

Frame Rate. Check to select the frame rate of the output in frames per second. When unchecked, the source frame rate is utilized for the output.

Aspect Ratio. Specifies the display aspect ratio: 4:3 | 16:9 | As Encoded.

Presets

Profile (--profile). Specifies a specific bit depth and chroma subsampling, offering different quality levels (or *Not Set*):

Main - Creates output with 8-bit, 4:2:0 sampling, for consumer applications.

Main 10 - Creates output with 10-bit, 4:2:0 sampling, for consumer applications.

Main 10 Still Picture - Creates Main Profile, single still picture output.

Main 12 - Creates output with 8- to 12-bit 4:2:0 or 4:2:2 sampling.

Not Set - Automatically selects the appropriate profile based upon your other encoder settings.

Level (--level-idc). Specifies the level flag value to enforce minimum decoder requirement level. If not specified, the encoder auto-detects the level.

Preset (--preset). Specifies the preset setting, which trades encoding speed for compression efficiency - visual quality. Faster presets improves performance at the expense of quality.

Tuning (--tune). Specifies the tuning option to optimize encoding quality for a particular metric.

Command Line. For parameters that are not in the editor panel (those other than the more common Profile, Preset, and Tuning parameters, etc.), you can enter CLI commands to execute, to refine encoding options. The transcoder uses various algorithms, many of which use default values. These values can be changed as a command line interface command.

To enter multiple commands, separate them with spaces: `--ref 3 --bframes 3`, for example.

It is best practice to use long form commands for clarity; for example: `--bframe 5`. The use of short form (`-b 5`) commands is not recommended.

Analysis

Click the details icon to specify analysis settings.

Lightspeed Pre-analysis. When checked, improves the x265 codec's efficiency by performing some preliminary analysis on the media before encoding, thus reducing transcode time.

Look Ahead (--rc-lookahead). Specify the number of frames that the encoder uses to predict more difficult areas to encode, and save bits for those sections. This setting is used for rate control, and effectively sets the VBV window. Range: 10 to 60.

IP Ratio (--ipratio). Specify the target average increase in the quantizer for I-frames compared to P-frames. Higher values increase the quality of I-frames generated. Range: 1 to 10.

Adaptive Quantization Strength (--aq-strength). Sets the strength of AQ bias toward low detail (flat) macroblocks). Setting 0 disables AQ.

Frame Type

Click the details icon to specify slice decisions - frame type - settings.

Max IDR Frame Interval (GOP length) (--keyint). When checked, specifies the maximum distance between IDR frames. Range: 1 to 1000.

Fixed IDR Frame Interval (GOP length) (--keyint and --min-keyint). When checked, specifies the fixed interval between IDR frames by setting the --min-keyint equal to --keyint. Range: 1 to 1000.

Open GOP (--open-gop). When checked, specifies I-frames instead of IDR frames at --keyint (max IDR frame) intervals and flags them as recovery points.

Scene Detection Threshold (--scenecut). Check to enable scene detection and specify the threshold for I-frame detection. x265calculates a metric for every frame to determine how different it is from the previous frame. If the metric is lower than this value, a scene cut is detected. Range: 1 to 100.

Maximum B-frames (--bframes). Specify the maximum number of consecutive B-frames between P-frames. Range: 1 to 3.

Adaptive B-frame Scheduling (--b-adapt). Specifies the level of effort in determining adaptive B-frame placement.

B-Frame Reference Pyramid (--b-pyramid). When Enabled is specified, allows the use of B-frames as references for other frames. Without this setting, frames can only reference I- or P-frames. Although I/P-frames are more valued as references because of their higher quality, B-frames can also be useful. B-frames designated as references will get a quantizer halfway between P-frames and normal B-frames. You need to use at least two B-frames before B-pyramid will work.

Reference Frames (--ref). Maximum number of frames that a frame can reference. More reference frames provide better quality, because the encoder has more frames in which to find similarities, but increases CPU utilization.

Video Format (--videoformat). Specifies the format of the incoming media, before decoding and re-encoding.

Color Primaries (--colorprim). Specifies color primaries for converting to RGB.

Transfer Characteristics (--transfer). Specifies the opto-electronics to use (the gamma curve to use for correction).

Color Matrix (--colormatrix). Specifies the matrix coefficient used in deriving the luma and chroma from the RGB primaries.

Video Stream Details

Select the video stream to configure its settings.

Stream Name. Specifies the name of the transcoder video stream that you want to present to the output component for inclusion in the encoded media file.

Codec. Specifies the x265 codec is used for transcoding this media. This control is not changeable by the user.

Target Bit Rate (--bitrate). Specifies the target bit rate for this stream.

VBV Maximum Rate(--vbv-maxrate). Specifies the maximum rate the VBV buffer should use for refilling.

VBV Buffer Size(--vbv-bufsize). Specifies the maximum size of the buffer, in kbps.

VBV Initial Fill (--vbv-init). Specifies how full the VBV buffer must be, before playback starts, expressed as a percentage of vbv-init * vbv-bufsize.

HRD Compliance(--nal-hrd cbr | --nal-hrd vbr). For CBR streams, specifies HRD information, and packs the bitstream to the specified bitrate. For VBR streams, specifies HRD information. Requires VBV Maximum Rate, VBV Buffer Size, and VBV Initial Fill to be specified.

XDCAM HD Transcoder

This XDCAM HD Transcoder is implemented in the Conform and Tempo actions. The XDCAM HD transcoder decodes and re-encodes the input video stream into one output video stream in XDCAM HD format, using the MPEG-2 codec.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder, in actions where multiple transcoders are permitted. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click on the transcoder and select Duplicate.

Up and Down Arrows. Re-orders the selected stream.

Details Arrow. Expands or hides the transcoder details.

Plus Icon. Select a transcoder for this action. Only one video transcoder is permitted. You can add up to 16 audio transcoders.

Transcoder Details

Select the XDCAM HD Transcoder to apply and configure filters. Inside the Transcoder panel is the video stream panel.

Note: Filters may not be implemented in all actions, and may be implemented differently in each action.

Video Stream Details

Select the video stream to configure its settings.

Stream Name. Specifies the name of the transcoder video stream that you want to present to the output component for inclusion in the encoded media file.

Codec. Specifies which codec to use for transcoding this media.

HDR Colorspace Filter

The HDR Colorspace Filter specifies the color primary, transfer function, and color matrix specifications you want applied to the output video. This filter enables you to specify a different standard for each. This is especially useful when any input is in an HDR colorspace.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Output Color Primaries. Specifies the XYZ color primaries standard to utilize for the output.

Output Transfer Function. Specifies the standard for the color transfer function to utilize for the output.

Output Color Matrix. Specifies the standard for the YUV color matrix (coefficient signaling) to utilize for the output.

Output Video Range. Specifies *Studio Range* | *Full Range*.

Studio Range: Specifies that rescaling occurs in studio-band color range. When rescaling to the studio range, lighter colors will get darker and darker colors will get lighter.

Full Range: Specifies that rescaling occurs in full-band color range. When rescaling to the full range, lighter colors will get lighter and darker colors will get darker.

Time Code Processing Filter

The Time Code Processing Filter controls timecode in the generated media for formats that support timecode. Check to enable this filter and specify the settings.

Note: In Post Producer actions, if the transcoder detects timecode in the source(s) and the output container supports timecode (QuickTime or TIFO), then the timecode of the sources will be propagated to the output of the transcoder.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Override. Select Use CML Target Time Code | Override Time Code.

Use CML Target Time Code. In Post Producer actions, select to use the time code specified in the Target element of the CML. Not present in other actions.

Override Time Code. Select to use the time code specified in the Time Code field below, which you must configure.

Timecode. (For Override Time Code only) Specifies the time code to be applied.

You can specify drop-frame processing by selecting any element of the time code and the pressing the semi-colon key or the D key. Workflow Designer displays a semicolon between the second field and frame field to indicate that drop-frame processing is enabled. To return to normal (non-drop-frame) processing, press the colon key or the N key again.

Content Advisory Filter

The Content Advisory filter enables you to insert content advisory XDS data into your output, and optionally, customize the content rating system, as set up in the Advisory element in the source CML. The Composition being submitted for processing must contain a valid Advisory element.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

See the Post Producer Developer Guide for full details regarding the implementation of content rating using the Advisory element.

General.

Rep Rate (Required). Specifies the XDS content rating metadata in number of frames (default: 120).

Custom Ratings Graphics (Optional). Specifies the partial root folder path from the server, up to the folder to the custom ratings type folder. If left empty, the standard ratings graphic, if specified in the CML, is used. The Advisory element in the CML must have *customtype* and *customrating* attributes with appropriate string values. These values are used for XDS insertion and for identifying the location and name of graphics file for the overlay.

These three values are concatenated to produce the fully-qualified path and filename of the custom graphic to use in the overlay: <server and path> + <folder name of rating type>+<filename of the rating>.

For example.

Custom Ratings Graphics (in the Content Advisory filter) = "\\pluto\media\RatingSystems"

customtype (in the Advisory element of the CML) = "MyBrandRatingSystem"

customrating (in the Advisory element of the CML) = "KidsOnly.png"

These three strings are concatenated into \\pluto\media\RatingSystems\MyBrandRatingSystem\KidsOnly.png, which identifies the overlay.

Content Advisory Type.

Advisory Elements. Specifies that the advisory data is in the Advisory element in the composition being processed. Can not be changed by user.

Content Advisory Filter

The Content Advisory filter enables you to insert content advisory XDS data into your output.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

General.

Rep Rate (Required). Specifies the XDS content rating metadata in number of frames (default: 120).

Content Advisory Type.

Advisory Elements. Specifies that the advisory data is in the Advisory element in the composition being processed. Can not be changed by user.

Comprimato JPEG2000 Codec (Lossless Mode)

The Comprimato JPEG2000 Codec is an optional, licensed feature for GPU-enabled encoding on Lightspeed servers in a Vantage domain, executing in CPU or CUDA mode, depending on the transcoder being used. The Comprimato JPEG2000 codec is intended primarily for M&E and geo-spatial imaging applications, providing ultra real-time image compression using the JPEG 2000 standard.

JPEG2000 Profile

JPEG2000Profile. Specifies the operating level for IMF profiles.

Operating Levels for IMF Profiles (Broadcast and IMF profiles only). Specifies the operating level for IMF profiles.

Operating Sublevels for IMF Profiles (IMF profiles only). Specifies the operating level for IMF profiles.

Width | Height. Specifies the width and height of the output frame in pixels.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Pixel Format. Specifies the color space, chroma subsampling, and bit depth to use for encoding.

Aspect Ratio. Specifies the screen/pixel aspect ratio as encoded in the bitstream; can not be changed.

Frame Rate. Specifies the frame rate of the output in frames per second.

Tile Partition Width | Height. Specifies the tile partition width and height in pixels.

Precinct Width and Height. Specifies the precinct size.

Code Block Width and Height (Profile-None | Broadcast and IMF profiles only). Specifies the height and width (in pixels) of a code block to process.

Progression Order. Specifies the order of packet progression.

Resolution Count. Specifies the number of discrete wavelet transform levels, or stages, to use.

Quality Layer. Specifies the quality layer value; can not be changed.

Quantization Coefficient. Specifies quality (0-100). If set toward the lower bound it reduces data correspondingly and quality decreases; if set to the upper bound it increases data and quality. However, the default value of 0 (zero) applies no coefficient (effectively disables the feature), resulting in the video being encoded at the full data rate.

TLM Markers. When checked, specifies that Tile Length Markers will be used.

EPH Markers. When checked, EPH marker segments are generated.

SOP (Start of Packet) Markers. When checked, Start of Packet marker segments are generated.

Compute Mode

Compute Mode. Specifies CUDA Mode | CPU Mode, depending on the transcoder in which it is being used.

For CUDA Mode:

CUDA Memory Limit (MB). Specifies the CUDA memory limit in MB.

CUDA Tile Limit. Specifies the CUDA tile limit.

Encoder Queue Size. Specifies the encoder queue size.

For CPU Mode:

Encoding Mode. Specifies the mode that can speed up encoding, which can result in some precision trade-off.

Encoder Queue Size. Specifies the encoder queue size.

Comprimato JPEG2000 CPU Mode Codec

The Comprimato JPEG2000 CPU codec in the Conform action encodes the input video stream into one output video stream in JPEG2000 format, using the JPEG2000 Lossless or JPEG2000 Lossy codec.

JPEG2000 is an intra-frame HD video codec specified by ISO/IEC 15444-1. It uses wavelet transformations to compress the image which results in high quality images in both lossy and lossless modes. JPEG2000 offers higher compression ratios over standard JPEG video. It offers resolution, color, quality and position progression scalability, and also supports 4:2:2 and 4:4:4 chroma subsampling methods and bit depths up to 12-bit.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Comprimato JPEG2000 CPU Mode Codec

Compression

Select the compression algorithm to use. Options are Lossy| Lossless.

Note: Available profiles below are based on the compression algorithm selected.

JPEG2000 Profile

Select the profile to use. Options include Profile-None | DCI (2K and 4K) | Broadcast | IMF (2K and 4K).

Note: All Profiles are pre-configured to meet certain common specifications. The Profile-None, Broadcast, and IMF profiles allow you to manually configure numerous profile parameters to meet your desired specification.

DCI Profiles

Digital Cinema Initiative profiles for creation of material intended for 2K and 4K cinema projectors.

Frame Rate. When checked (default), allows specification of frame rate for display. When unchecked, source frame rate will be used. Options are 24fps | 48 fps.

Number of Decomposition Levels. Specifies the number of discrete wavelet transform levels, or stages, to use. For DCI 2K, range is 1-5 with 5 set as default. For DCI 4K, range is 1-6 with 6 set as default.

DCI Resolutions. Specify preset 2K and 4K resolutions.

IMF, Broadcast, and Profile-None Profiles

IMF (Interoperable Master Format) profiles for management and processing of multiple versions of material destined for various distribution channels. 2K and 4K profiles are supported.

Broadcast profiles are used for creation of broadcast quality outputs.

Profile-None is a generic, user configurable profile.

Operating Levels for IMF Profiles (IMF and Broadcast Only). Specifies the operating level.

Operating Sublevels for IMF Profiles (IMF Only). Specifies the operating sub-level.

Width | Height. Specifies the width and height of the output frame in pixels.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Pixel Format. Specifies the color space, chroma subsampling, and bit depth to use for encoding.

Bit Depth. When checked, allows specification of bit depth. Unchecked by default.

Aspect Ratio. Specifies the screen/pixel aspect ratio as encoded in the bitstream. Default is As Encoded. This field is not user configurable.

Frame Rate. Specifies the frame rate of the output in frames per second.

Video Bit Rate. Specifies the video bit rate.

Tile Partition Width | Height. Specifies the tile partition width and height in pixels.

Precinct Width and Height. Specifies the precinct size.

Code Block Width and Height. Specifies the height and width (in pixels) of a code block to process.

Progression Order. Specifies the order of packet progression.

Number of Decomposition Levels. Specifies the number of discrete wavelet transform levels, or stages, to use. For 2K and 4K profiles, range is 1-5 with 5 set as default.

Quality Layer. Specifies quality layer. Default is 1. This field is not user configurable.

Quantization Coefficient. Specifies quantization coefficient. Default value is 100.

TLM Markers. When checked, specifies that TLM (Tile Length Markers) will be used.

EPH Markers. When checked, EPH (End of Packet Header) marker segments are generated.

SOP Markers. When checked, SOP (Start of Packet) marker segments are generated.

Compute Mode Settings

Encoding Mode. Specifies the mode that can speed up encoding, which can result in some precision trade-off.

Encoder Queue Size. Specifies the encoder queue size. Default is 30.

Comprimato JPEG2000 CUDA Mode Codec

The Comprimato JPEG2000 CUDA codec in the Conform action is an optional, licensed, GPU-enabled high-performance transcoder operating in CUDA mode. The Comprimato JPEG2000 CUDA codec encodes the input video stream into one output video stream in JPEG2000 format, using the JPEG2000 Lossless or JPEG2000 Lossy codec.

JPEG2000 is an intra-frame HD video codec specified by ISO/IEC 15444-1. It uses wavelet transformations to compress the image which results in high quality images in both lossy and lossless modes. JPEG2000 offers higher compression ratios over standard JPEG video. It offers resolution, color, quality and position progression scalability, and also supports 4:2:2 and 4:4:4 chroma subsampling methods and bit depths up to 12-bit.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Comprimato JPEG2000 CUDA Mode Codec

Compression

Select the compression algorithm to use. Options are Lossy| Lossless.

Note: Available profiles below are based on the compression algorithm selected.

JPEG2000 Profile

Select the profile to use. Options include Profile-None | DCI (2K and 4K) | Broadcast | IMF (2K and 4K).

Note: All Profiles are pre-configured to meet certain common specifications. The Profile-None, Broadcast, and IMF profiles allow you to manually configure numerous profile parameters to meet your desired specification.

DCI Profiles

Digital Cinema Initiative profiles for creation of material intended for 2K and 4K cinema projectors. The following options are configurable:

Frame Rate. When checked (default), allows specification of frame rate for display. When unchecked, source frame rate will be used. Options are 24fps | 48 fps.

Number of Decomposition Levels. Specifies the number of discrete wavelet transform levels, or stages, to use. For DCI 2K, range is 1-5 with 5 set as default. For DCI 4K, range is 1-6 with 6 set as default.

DCI Resolutions. Specify preset 2K and 4K resolutions.

IMF, Broadcast, and Profile-None Profiles

IMF (Interoperable Master Format) profiles for management and processing of multiple versions of material destined for various distribution channels. 2K and 4K profiles are supported.

Broadcast profiles are used for creation of broadcast quality outputs.

Profile-None is a generic, user configurable profile.

The following options are configurable:

Operating Levels for IMF Profiles (IMF and Broadcast Only). Specifies the operating level.

Operating Sublevels for IMF Profiles (IMF Only). Specifies the operating sub-level.

Width | Height. Specifies the width and height of the output frame in pixels.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Pixel Format. Specifies the color space, chroma subsampling, and bit depth to use for encoding.

Bit Depth. When checked, allows specification of bit depth. Unchecked by default.

Aspect Ratio. Specifies the screen/pixel aspect ratio as encoded in the bitstream. Default is As Encoded. This field is not user configurable.

Frame Rate. Specifies the frame rate of the output in frames per second.

Video Bit Rate. Specifies the video bit rate.

Tile Partition Width | Height. Specifies the tile partition width and height in pixels.

Precinct Width and Height. Specifies the precinct size.

Code Block Width and Height. Specifies the height and width (in pixels) of a code block to process.

Progression Order. Specifies the order of packet progression.

Number of Decomposition Levels. Specifies the number of discrete wavelet transform levels, or stages, to use. For 2K and 4K profiles, range is 1-5 with 5 set as default.

Quality Layer. Specifies quality layer. Default is 1. This field is not user configurable.

Quantization Coefficient. Specifies quantization coefficient. Default value is 100.

TLM Markers. When checked, specifies that TLM (Tile Length Markers) will be used.

EPH Markers. When checked, EPH (End of Packet Header) marker segments are generated.

SOP Markers. When checked, SOP (Start of Packet) marker segments are generated.

Compute Mode Settings

Codec Memory Limit. Specifies the mode that can speed up encoding, which can result in some precision trade-off.

Codec Tile Limit. Specifies the codec tile limit. Default is 0.

Encoder Queue Size. Specifies the encoder queue size. Default is 30.

Comprimato JPEG2000 Codec (Lossy Mode)

The Comprimato JPEG2000 Codec is an optional, licensed feature for GPU-enabled encoding on Lightspeed servers in a Vantage domain, executing in CPU or CUDA mode, depending on the transcoder being used. The Comprimato JPEG2000 codec is intended primarily for M&E and geo-spatial imaging applications, providing ultra real-time image compression using the JPEG 2000 standard.

JPEG2000 Profile

JPEG2000Profile. Specifies the operating level for IMF profiles.

Operating Levels for IMF Profiles (Broadcast and IMF profiles only). Specifies the operating level for IMF profiles.

Operating Sublevels for IMF Profiles (IMF profiles only). Specifies the operating level for IMF profiles.

Width | Height. Specifies the width and height of the output frame in pixels.

Interlace Mode. Specifies interlacing: Progressive | Interlaced Upper | Interlaced Lower.

Pixel Format. Specifies the color space, chroma subsampling, and bit depth to use for encoding.

Aspect Ratio. Specifies the screen/pixel aspect ratio as encoded in the bitstream; can not be changed.

Frame Rate. Specifies the frame rate of the output in frames per second.

Video Bit Rate. Specifies the bit rate of the output in bits per second.

Tile Partition Width | Height. Specifies the tile partition width and height in pixels.

Precinct Width and Height. Specifies the precinct size.

Code Block Width and Height (Profile-None | Broadcast and IMF profiles only). Specifies the height and width (in pixels) of a code block to process.

Progression Order. Specifies the order of packet progression.

Resolution Count. Specifies the number of discrete wavelet transform levels, or stages, to use.

Quality Layer. Specifies the quality layer value; can not be changed.

Quantization Coefficient. Specifies quality (0-100). If set toward the lower bound it reduces data correspondingly and quality decreases; if set to the upper bound it increases data and quality. However, the default value of 0 (zero) applies no coefficient (effectively disables the feature), resulting in the video being encoded at the full data rate.

TLM Markers. When checked, specifies that Tile Length Markers will be used.

EPH Markers. When checked, EPH marker segments are generated.

SOP (Start of Packet) Markers. When checked, Start of Packet marker segments are generated.

Compute Mode

Compute Mode. Specifies CUDA Mode | CPU Mode, depending on the transcoder in which it is being used.

For CUDA Mode:

CUDA Memory Limit (MB). Specifies the CUDA memory limit in MB.

CUDA Tile Limit. Specifies the CUDA tile limit.

Encoder Queue Size. Specifies the encoder queue size.

For CPU Mode:

Encoding Mode. Specifies the mode that can speed up encoding, which can result in some precision trade-off.

Encoder Queue Size. Specifies the encoder queue size.

Comprimato JPEG2000 Codec (Lossy Mode)

The Comprimato JPEG2000 Codec is an optional, licensed feature for GPU-enabled encoding on Lightspeed servers in a Vantage domain, executing in CPU or CUDA mode, depending on the transcoder being used. The Comprimato JPEG2000 codec is intended primarily for M&E and geo-spatial imaging applications, providing ultra real-time image compression using the JPEG 2000 standard.

Advanced Settings

Advanced Settings. Check to include advanced settings and open the panel to configure these settings.

Multi Component Transformation. Specifies that multi-component transformation should be utilized.

Start of Packet Markers. When checked, Start of Packet marker segments are generated.

EPH Markers. When checked, EPH marker segments are generated.

Quantization Coefficient. Specifies quality (0-100). If set toward the lower bound it reduces data correspondingly and quality decreases; if set to the upper bound it increases data and quality. However, the default value of 0 (zero) applies no coefficient (effectively disables the feature), resulting in the video being encoded at the full data rate.

CUDA Devices. Specifies the number of CUDA devices to utilize.

CUDA Memory Limit (MB). Specifies the CUDA memory limit in MB.

CUDA Tile Limit. Specifies the CUDA tile limit.

CUDA Queue Size. Specifies the encoder queue size.

DCI Mode

DCI Mode. You can not produce a Digital Cinema Initiative (DCI)-compliant package in this implementation of the codec. Configure these settings:

Tile Width. Specifies the tile partition width in pixels.

Tile Height. Specifies the tile partition height in pixels.

Precinct Size. Specifies the precinct size to process.

Code Block Size. Specifies the height and width (in pixels) of a code block to process.

Packet Progression. Specifies the order of packet progression.

Number of DWT Levels. Specifies the number of discrete wavelet transform levels, or stages, to use.

TLM Markers. When checked, specifies that Tile Length Markers will be used.

Comprimato JPEG2000 Codec (Lossless Mode)

The Comprimato JPEG2000 Codec is an optional, licensed feature for GPU-enabled encoding on Lightspeed servers in a Vantage domain, executing in CPU or CUDA mode, depending on the transcoder being used. The Comprimato JPEG2000 codec is intended primarily for M&E and geo-spatial imaging applications, providing ultra real-time image compression using the JPEG 2000 standard.

Advanced Settings

Advanced Settings. Check to include advanced settings and open the panel to configure these settings.

Multi Component Transformation. Specifies that multi-component transformation should be utilized.

Start of Packet Markers. When checked, Start of Packet marker segments are generated.

EPH Markers. When checked, EPH marker segments are generated.

Number of CUDA Devices. Specifies the number of CUDA devices to utilize.

CUDA Memory Limit (MB). Specifies the CUDA memory limit in MB.

CUDA Tile Limit. Specifies the CUDA tile limit.

CUDA Queue Size. Specifies the encoder queue size.

DCI Mode

DCI Mode. Specifies whether or not to produce a Digital Cinema Initiative (DCI) package: DCI None | DCI 2K | DCI 4K. Select the mode for this codec and configure the settings:

DCI None

Tile Width. Specifies the tile partition width in pixels.

Tile Height. Specifies the tile partition height in pixels.

Precinct Size. Specifies the precinct size to process.

Code Block Size. Specifies the height and width (in pixels) of a code block to process.

Packet Progression. Specifies the order of packet progression.

Number of DWT Levels. Specifies the number of discrete wavelet transform levels, or stages, to use.

TLM Markers. Specifies the number of discrete wavelet transform levels, or stages, to use.

DCI 2K

Number of DWT Levels. Specifies the number of discrete wavelet transform levels, or stages, to use.

DCI 4K

Number of DWT Levels. Specifies the number of discrete wavelet transform levels, or stages, to use.

DNxHD Codec

The DNxHD (Digital Nonlinear Extensible High Definition) codec is a lossy, high-definition video post-production codec engineered for multi-generation compositing with reduced storage and bandwidth requirements. It is an implementation of SMPTE VC-3 standard. The DNxHD codec was developed by Avid Technology, Inc.

Resolution. Specifies the HD type and frame rate for this action.

Bit Rate. Specifies the bit rate of the output in Mb per second.

DNxHR Codec

The DNxHR (Digital Nonlinear Extensible High Resolution) codec is a lossy, UHDTV post-production video codec engineered for multi-generation compositing with reduced storage and bandwidth requirements. The DNxHR codec was developed by Avid Technology, Inc.

The resolution can be set arbitrarily, but generally conforms to HD or 2K 1080p, UHD or 4K 2160p. The framerate can also be set arbitrarily, but note that a minimum of 23.976 FPS is required to preserve ancillary data.

DNxHR can be set to the following profiles:

- DNX LB - Low Bandwidth (8-bit 4:2:2) Offline Quality
- DNX SQ - Standard Quality (8-bit 4:2:2) (suitable for delivery format)
- DNX HQ - High Quality (8-bit 4:2:2)
- DNX HQX - High Quality (10-bit 4:2:2) (UHD/4K Broadcast-quality delivery)
- DNX 444 - Finishing Quality (10-bit 4:4:4) (Cinema-quality delivery)
- DNX HQX 12 bit - High Quality (12-bit 4:2:2) (UHD/4K Broadcast-quality delivery)
- DNX 444 12 bit - Finishing Quality (12-bit 4:4:4) (Cinema-quality delivery)

Resolution

Width. Specifies the width of the frame in pixels.

Height. Specifies the height of the frame in pixels.

Frame Rate. Specifies the frame rate of the output in frames per second.

JPEG 2000 Lossless Codec

The Comprimato JPEG2000 Lossless codec encodes the input video stream into one output video stream in JPEG2000 format, using the JPEG2000 codec in lossless mode. Comprimato-based ISO/ITU still image compression provides a fast and flexible solution for high-quality, wavelet-based compression.

JPEG-2000 is an intra-frame HD video codec specified by ISO/IEC 15444-1. It uses wavelet transformations to compress the image which results in high quality images in both lossy and lossless modes. JPEG 2000 offers higher compression ratios over standard JPEG video. It offers resolution, color, quality and position progression scalability, and also supports 4:2:2 and 4:4:4 chroma subsampling methods and bit depths up to 12-bit.

Number of Threads. Specifies the number of threads to use for encoding this stream. Each thread encodes a single frame in parallel with other threads. More threads reduces total elapsed time.

Start of Packet Markers. When checked, Start of Packet marker segments are generated.

EPH Markers. When checked, EPH marker segments are generated.

Profile. Specifies the JPEG2000 profile to encode with.

Number of DWT Levels. Specifies the number of discrete wavelet transform levels, or stages, to use.

Code Block Size. Specifies the height and width (in pixels) of a code block to process.

Packet Progression. Specifies the order of packet progression.

Precinct Size. Specifies the precinct size to process.

Number of Quality Layers. Specifies the number of quality layers (levels) to utilize during encoding.

Use Frame Size to Set Tile Partition. When checked, the frame size is used to set the tile partition width and height, which is required for certain profiles.

Tile Width. When Use Frame Size not checked, specifies the tile partition width in pixels.

Tile Height. When Use Frame Size not checked, specifies the tile partition height in pixels.

JPEG 2000 Lossy Codec

The Comprimato JPEG2000 Lossy codec encodes the input video stream into one output video stream in JPEG2000 format, using the JPEG2000 codec in lossy mode. Comprimato-based ISO/ITU still image compression provides a fast and flexible solution for high-quality, wavelet-based compression.

JPEG-2000 is an intra-frame HD video codec specified by ISO/IEC 15444-1. It uses wavelet transformations to compress the image which results in high quality images in both lossy and lossless modes. JPEG 2000 offers higher compression ratios over standard JPEG video. It offers resolution, color, quality and position progression scalability, and also supports 4:2:2 and 4:4:4 chroma subsampling methods and bit depths up to 12-bit.

Target Bit Rate. Specifies the target average encoded bit rate in bps.

Number of Threads. Specifies the number of threads to use for encoding this stream. Each thread encodes a single frame in parallel with other threads. More threads reduces total elapsed time.

Start of Packet Markers. When checked, Start of Packet marker segments are generated.

EPH Markers. When checked, EPH marker segments are generated.

Profile. Specifies the JPEG2000 profile to encode with.

Number of DWT Levels. Specifies the number of discrete wavelet transform levels, or stages, to use.

Code Block Size. Specifies the height and width (in pixels) of a code block to process.

Packet Progression. Specifies the order of packet progression.

Precinct Size. Specifies the precinct size to process.

Number of Quality Layers. Specifies the number of quality layers (levels) to utilize during encoding.

Use Frame Size to Set Tile Partition. When checked, the frame size is used to set the tile partition width and height, which is required for certain profiles.

Tile Width. When Use Frame Size not checked, specifies the tile partition width in pixels.

Tile Height. When Use Frame Size not checked, specifies the tile partition height in pixels.

AVC-Intra 50 Codec

The AVC-Intra codec is a Panasonic-defined codec that is a fully-compliant subset of the H.264/AVC specification. It provides production-quality HD video at efficient bit rates, for full-resolution, 10-bit intra-frame only compression of high-quality HD video. AVC-Intra is primarily intended for editing and archiving applications.

AVC-Intra 50 is 50 mb/s 4:2:0 video at various frame rates, where frames are horizontally scaled by 3/4 (1920x1080 is scaled to 1440x1080. 1280x720 is scaled to 960x720).

Video Profile. Specifies the profile of the video to encode.

AVC-Intra 100 Codec

The AVC-Intra codec is a Panasonic-defined codec that is a fully-compliant subset of the H.264/AVC specification. It provides production-quality HD video at efficient bit rates, for full-resolution, 10-bit intra-frame only compression of high-quality HD video. AVC-Intra is primarily intended for editing and archiving applications.

AVC-Intra 100 is 100 mb/s 4:2:2 video at various frame rates and full horizontal resolution.

Video Profile. Specifies the profile of the video to encode.

AVC-Intra 200 Codec

The AVC-Intra codec is a Panasonic-defined codec that is a fully-compliant subset of the H.264/AVC specification. It provides production-quality HD video at efficient bit rates, for full-resolution, 10-bit intra-frame only compression of high-quality HD video. AVC-Intra is primarily intended for editing and archiving applications.

AVC-Intra 200 is 200 mb/s 4:2:2 video at various frame rates and full horizontal resolution.

Video Profile. Specifies the profile of the video to encode.

IMX Codec

The IMX (D-10) codec encodes video that complies with the SMPTE 356M standard. IMX (also known as D-10) is MPEG-2 4:2:2 I-frame only video, with specific bitrates. Typically IMX is encoded at 30, 40 or 50 Mbs, and is used for SD material (particularly NTSC or PAL). Higher bitrates generally have higher quality.

IMX is supported natively by a wide range of editing systems.

Video Profile. Specifies the profile at which to encode the video stream.

Aspect Ratio. Specifies the screen/pixel aspect ratio to encode in the bitstream.

MPEG2 Codec

The MPEG-2 (H.262 ITU) codec is a standard for the generic, lossy encoding of moving pictures - video and audio. MPEG-2 is typically used in digital television broadcasting and in the DVD video standard.

Video Settings

Bit Rate. Specifies the video bit rate, in kbps.

GOP Structure. Specifies how to encode the GOP structure sequence pattern, selected from the menu, as a collection of I-, B-, and P-frames. I-frame only GOP structures typically have lower visual quality, but are acceptable for editing; longer GOP structures typically improve quality and are best suited for playout purposes.

GOP Structure Override. When checked, the GOP structure pattern is ignored and the structure is referenced by M and N: the number of frames and distance between I/P frames is used instead.

Maintain GOP Structure. When checked, ensures that the MPEG GOP length is preserved when performing a direct conversion of long-GOP MPEG in a stream conditioning workflow where black frames are added.

Number of Frames in GOP (N). Specifies the number of frames (as N) or distance between two full images (I-frames); the GOP size. Default: 15.

Distance Between I/P Frames (M). Specifies the distance (as M) between two anchor frames (I or P). Default: 3.

For the example, with M=3, N=12, the GOP structure is IBBPBBPBBPBBI.

GOP Configuration. Specifies the GOP configuration, open or closed, from the menu.

Start with I Frame. Specifies that the GOP should begin with an I-frame.

Motion Estimation Factor. Specifies (1-100) how much motion to estimate when encoding the video stream. A higher number results in higher visual quality, with longer encode time.

Video Performance Setting. Specifies (0-15) the Video Quality setting to use when encoding the video stream. A higher number results in higher visual quality, with longer encode time.

Optimize for Low Bit Rate. Specifies to the MPEG2 compressor to optimize the stream for a low bit rate.

Profile. Specifies the type of MPEG profile to use (High | Main | 4:2:2).

Level. Specifies the type of MPEG level to use (High Level | High 1440 | Main Level).

Chroma. Specifies the resolution of chroma data (4:2:2 | 4:2:0).

Intra DC Precision. Specifies (1-9) the MPEG Intra DC precision.

Video Buffer Verifier

Video Buffer Verifier. Select Do Not Specify VBV Settings | Specify VBV Settings and configure the VBV buffer size and VBV Delay.

MPEG2 Codec

The MPEG-2 (H.262 ITU) codec is a standard for the generic, lossy encoding of moving pictures - video and audio. MPEG-2 is typically used in digital television broadcasting and in the DVD video standard.

Video Settings

Bit Rate. Specifies the video bit rate, in kbps.

GOP Structure. Specifies how to encode the GOP structure sequence pattern, selected from the menu, as a collection of I-, B-, and P-frames. I-frame only GOP structures typically have lower visual quality, but are acceptable for editing; longer GOP structures typically improve quality and are best suited for playout purposes.

GOP Structure Override. When checked, the GOP structure pattern is ignored and the structure is referenced by M and N: the number of frames and distance between I/P frames is used instead.

Number of Frames in GOP (N). Specifies the number of frames (as N) or distance between two full images (I-frames); the GOP size. Default: 15.

Distance Between I/P Frames (M). Specifies the distance (as M) between two anchor frames (I or P). Default: 3.

For the example, with M=3, N=12, the GOP structure is IBBPBBPBBPBBI.

GOP Configuration. Specifies the GOP configuration, open or closed, from the menu.

Start with I Frame. Specifies that the GOP should begin with an I-frame.

Motion Estimation Factor. Specifies (1-100) how much motion to estimate when encoding the video stream. A higher number results in higher visual quality, with longer encode time.

Video Performance Setting. Specifies (0-15) the Video Quality setting to use when encoding the video stream. A higher number results in higher visual quality, with longer encode time.

Profile. Specifies the type of MPEG profile to use (High | Main | 4:2:2).

Level. Specifies the type of MPEG level to use (High Level | High 1440 | Main Level).

Chroma. Specifies the resolution of chroma data (4:2:2 | 4:2:0).

Intra DC Precision. Specifies (1-9) the MPEG Intra DC precision.

Video Buffer Verifier

Video Buffer Verifier. Select Do Not Specify VBV Settings | Specify VBV Settings and configure the VBV buffer size and VBV Delay.

MPEG-2 4:2:2P@HL Codec

The MPEG-2 4:2:2P@HL codec encodes video streams into 4:2:2@HL quality HD video in both 720 and 1080 interlaced and progressive CBR format video at various frame rates.

Video Profile. Specifies the profile to use when encoding the video.

GOP Structure. Specifies the GOP structure to use when encoding the video.

MPEG-2 MP@HL Codec

The MPEG-2 MP@HL codec encodes video streams into 4:2:0 HD video in 1080 interlaced and progressive CBR and VBR format video at various frame rates.

Video Profile. Specifies the profile to use when encoding the video.

GOP Structure. Specifies the GOP structure to use when encoding the video.

ProRes Codec

Apple ProRes is a lossy video compression format developed by Apple, Inc. for use in post-production.

Quality. Specifies the quality (chroma subsampling and preset bitrate) to use when encoding the output media.

Uncompressed Codec

The Uncompressed codec decompresses previously-compressed video frames into uncompressed, baseband digital video, using the color space specified. It is commonly used by video cameras, and video recording devices.

There are no user-configurable settings.

XAVC HD Intra Codec

This implementation of the XAVC HD Intra codec generates video that is compatible with the H.264/MPEG-4 AVC standard. It supports HD-resolution intra-frame only compressed video in various profiles.

Video Profile. Specifies the profile at which to encode the video stream.

XAVC HD Codec

This implementation of the XAVC HD codec generates video that is compatible with the H.264/MPEG-4 AVC standard. It supports HD-resolution video in various profiles.

Video Profile. Specifies the profile at which to encode the video stream.

XAVC 4K Intra Codec

This implementation of the XAVC 4k Intra codec generates video that is compatible with the H.264/MPEG-4 AVC standard. It supports full-resolution, 10-bit, 4:2:2 intra-frame only compressed 4k video in various profiles.

Video Profile. Specifies the profile at which to encode the video stream.

Use Constrained Bytes per GOP. When checked, applies CBG, encoding the video stream at a constant bit rate.

XAVC 4K Codec

This implementation of the XAVC 4k codec generates video that is compatible with the H.264/MPEG-4 AVC standard. It supports full-resolution, 10-bit, 4:2:2 and 4:2:0 4k video in various profiles.

Video Profile. Specifies the profile at which to encode the video stream.

x264 Codec

The x264 codec encodes video streams into the H.264/MPEG-4 AVC compression format, and is released under the terms of the GNU GPL.

The x264 codec support features necessary for many different applications, such as television broadcast, Blu-ray low-latency video applications, and web video. x264 forms the core of many web video services, including YouTube, Facebook, Vimeo, and Hulu.

General

Lightspeed Pre-analysis. When checked, improves the x264 codec's efficiency by performing some preliminary analysis on the media before encoding, thus reducing transcode time.

Rate Control

Rate Control. Select Constant Quantizer | Constant Rate Factor | Average Bit Rate.

Configure the settings for your selection.

Constant Quantizer (QP Mode)

Quantizer. Specifies the amount of data loss (compression) to achieve. Lower numbers result in less compression and improved visual quality; conversely, higher numbers results in better compression at the expense of visual quality.

Constant Rate Factor (CRF Mode)

Rate Factor. Specifies a constant rate factor in single-pass encoding, using an average quantizer over the duration. Usually, derives better compression over Constant Quantizer, with similar subjective quality.

Average Bit Rate (ABR Mode)

Target Bit Rate (--bitrate). Specifies the target bit rate for this stream.

VBV Maximum Rate (--vbv-maxrate). Specifies the maximum rate the VBV buffer should use for refilling.

VBV Buffer Size (--vbv-bufsize). Specifies the maximum size of the buffer, in kbps.

VBV Initial Fill (--vbv-init). Specifies how full the VBV buffer must be, before playback starts, expressed as a percentage of vbv-init * vbv-bufsize.

x265 Codec

This implementation of the x265 codec encodes one video stream into High Efficiency Video Coding (HEVC/H.265) video compression format.

Rate Control

Rate Control. Specifies Constant Quantizer | Constant Rate Factor | Average Bit Rate | Constant Bit Rate.

Configure the settings for the rate control you specify:

Constant Quantizer (QP Mode)

Quantizer. Specifies the amount of data loss (compression) to achieve. Lower numbers result in less compression and improved visual quality; conversely, higher numbers results in better compression at the expense of visual quality.

Constant Rate Factor (CRF Mode)

Rate Factor. Specifies a constant rate factor in single-pass encoding, using an average quantizer over the duration. Usually, derives better compression over Constant Quantizer, with similar subjective quality.

Average Bit Rate (ABR Mode)

Target Bit Rate (--bitrate). Specifies the target bit rate for this stream.

VBV Maximum Rate (--vbv-maxrate). Specifies the maximum rate the VBV buffer should use for refilling.

VBV Buffer Size (--vbv-bufsize). Specifies the maximum size of the buffer, in kbps.

VBV Initial Fill (--vbv-init). Specifies how full the VBV buffer must be, before playback starts, expressed as a percentage of vbv-init * vbv-bufsize.

HRD Compliance(--nal-hrd cbr | --nal-hrd vbr). For CBR streams, specifies HRD information, and packs the bitstream to the specified bitrate. For VBR streams, specifies HRD information. Requires VBV Maximum Rate, VBV Buffer Size, and VBV Initial Fill to be specified.

Constant Bit Rate (CBR Mode)

Bit Rate (--bitrate). Specifies the target bit rate for this stream.

Buffer Delay (--vbv-bufsize). Specifies how to modify the VBV buffer size for an equivalent window size, so that the VBV buffer is the same as the bit rate for a 1-second window.

AAC Transcoder

The AAC Transcoder decodes and re-encodes one input audio track into one AAC audio track.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder, in actions where multiple transcoders are permitted. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click on the transcoder and select Duplicate.

Up and Down Arrows. Re-orders the selected stream.

Details Arrow. Expands or hides the transcoder details.

Plus Icon. Select a transcoder for this action. Only one video transcoder is permitted. You can add up to 16 audio transcoders.

Transcoder Details

Select the AAC Transcoder to apply and configure filters. Inside the Transcoder panel is the audio track panel.

Audio Track Details

Select the audio track to configure its settings.

Stream Name. Specifies the name of the transcoder audio track that you want to present to the output component for inclusion in the encoded media file.

Language. Check to specify a given language for this track.

Codec. Specifies the AAC codec for transcoding this audio track.

AC-3 Transcoder

AC-3 (Dolby Digital) is a flexible audio compression format that supports up to six channels of audio. The most common usage of AC-3 is in 2.0 (stereo) mode and 5.1 (surround sound) mode.

The AC-3 Transcoder decodes and re-encodes one input audio track into one AC-3 audio track.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder, in actions where multiple transcoders are permitted. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click on the transcoder and select Duplicate.

Up and Down Arrows. Re-orders the selected stream.

Details Arrow. Expands or hides the transcoder details.

Plus Icon. Select a transcoder for this action. Only one video transcoder is permitted. You can add up to 16 audio transcoders.

Transcoder Details

Select the AC-3 Transcoder to apply and configure filters. Inside the Transcoder panel is the audio track panel.

Audio Track Details

Select the audio track to configure its settings.

Stream Name. Specifies the name of the transcoder audio track that you want to present to the output component for inclusion in the encoded media file.

Language. Check to specify a given language for the track.

Codec. Specifies the AC-3 | EAC-3 codec for transcoding this audio track.

MPEG Audio Transcoder

This MPEG Audio Transcoder is implemented in the Conform and Tempo actions. The MPEG Audio Transcoder decodes and re-encodes MPEG1 Layer 2 audio from one audio track into another single output track using the MPEG1 Audio codec.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click and select Duplicate.

Up/Down Arrows. Moves the selected transcoder up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop: select a transcoder and drag it to its new location in the list.

Details Arrow. Collapses or expands the transcoder panels.

Plus Sign. Adds a new video or audio transcoder of the specified type.

Transcoder Details

Select the MPEG Audio Transcoder to apply and configure filters. Inside the Transcoder panel is the audio track panel.

Audio Track Details

Select the audio track to configure its settings.

Stream Name. Specifies the name of the transcoder audio track that you want to present to the output component for inclusion in the encoded media file.

Language. Specifies the language of this track.

Codec. Specifies the MPEG1 codec to encode this audio track.

PCM Transcoder

This PCM Transcoder is implemented in the Conform and Tempo actions. The PCM Transcoder decodes and re-encodes channels from one audio track into one output track using the Pulse Code Modulated (PCM) codec. This codec generates uncompressed digital audio at the specified sample rate and bit depth.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Transcoder Toolbar Icons

Gear > Duplicate. Duplicates the selected transcoder, in actions where multiple transcoders are permitted. This saves you the effort of configuring a new transcoder when you just want to change a few parameters. Alternatively, right-click on the transcoder and select Duplicate.

Up and Down Arrows. Re-orders the selected stream.

Details Arrow. Expands or hides the transcoder details.

Plus Icon. Select a transcoder for this action. Only one video transcoder is permitted. You can add up to 16 audio transcoders.

Transcoder Details

Select the PCM Transcoder to apply and configure filters. Inside the Transcoder panel is the audio track panel.

Audio Track Details

Select the audio track to configure its settings.

Stream Name. Specifies the name of the transcoder audio track that you want to present to the output component for inclusion in the encoded media file.

Language. Specifies the language of this track.

Codec. Specifies the PCM codec to encode this audio track.

Dolby E Decoding Filter

Note: This filter should not be used when you define audio tracks in the CML as Dolby E and then down-mix them to stereo. In this case, the input to the transcoder is the down-mixed stereo pairs, not the Dolby E tracks.

Check to enable the Dolby E Decoding Filter and configure it.

Dolby E decoding is performed on an audio stereo pair. The Channel Map Filter should be used to determine which input channels within the input track represent the Left and Right portions of the Dolby E audio.

For example, if you have an input audio track containing 8 PCM audio channels, and Dolby E is present on channels 7 and 8, then you should configure the Channel Map Filter as follows:

Channel 7: Left

Channel 8: Right

Channel Configuration. Dolby E may contain up to four individual programs. The Channel Configuration filter allows you to indicate which Dolby E configuration is expected, and to select which programs should be encoded in this Transcoder.

Selections include 7.1, 5.1, variations of 5.1 plus 2.0, and variations of dual (2x) and quad (4x) stereo 2.0.

Sample Rate Filter

Check to enable the Sample Rate Filter and configure it.

Sample Rate. Check Sample Rate Filter to specify the sample rate of the incoming audio track.

Channel Map Filter

Note: Audio channel mapping is not necessary if one audio transcoder is used and the input and output channels maintain a one-to-one relationship.
If your output channels do not maintain a one-to-one relationship with your source channels or you are using multiple audio transcoders to create multiple audio channels, you must use the Channel Map Filter to specify the relationship between inputs and outputs.

The Channel Map Filter enables you to provide labels for audio channels within an output audio track or to associate each input channel with an output channel.

The MPEG, AAC and AC3 audio transcoders enable you to assign labels, and assume a specific channel order: Left, Right, Center, LFE, Left Surround, Right Surround.

The PCM transcoder simply uses an indexed order of 1-32. The Channel Map Filter enables you to set up a matrix of input channels to output channels as channel numbers. For PCM, each routing pair must be unique; splitting a given input channel to multiple outputs is not permitted.

If the source channels are not in the required order, the Channel Map filter must be applied to specify how the source channels should be mapped.

Mixing is not supported in this filter, and attempting to assign the same output label to more than one source channel will result in an error. Channel mixing can be accomplished in the CML source document; refer to the Post Producer Developer's Guide for more details.

As an example of how to use the Channel Map Filter, suppose that your input audio track has 8 channels of PCM audio, with the first six channels representing a 5.1 English program, and the remaining two channels representing a stereo French program. If you want a stereo transcoder to encode just the French program, you should configure the Channel Map Filter as follows:

Channel 1: Not Used

Channel 2: Not Used

Channel 3: Not Used

Channel 4: Not Used

Channel 5: Not Used

Channel 6: Not Used

Channel 7: Left

Channel 8: Right

This configuration indicates that Channel 7 is the Left channel of your program, and Channel 8 is the Right channel of your program.

Channel 1-32. Check the channel to include it in the output, and assign the input channel to associate with it.

AAC Codec

The AAC codec compresses audio into AAC-compliant audio stream. AAC is a lossy audio compression standard, the successor of the MP3 format. AAC generally achieves better sound quality than MP3 at similar bit rates. AAC is an ISO and IEC standard, as part of the MPEG-2 and MPEG-4 specifications.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Codec Details

Profile. Specifies the profile for this track.

Channel Configuration. Specifies the channel configuration for this track.

Note: This choice affects which output channel designations (such as *Left* or *Center*) are required; these designations may affect how you set up the Channel Map Filter on the input tracks.

Target Bit Rate. Specifies the target bit rate for this track.

AAC Codec

The AAC codec compresses audio into AAC-compliant audio stream. AAC is a lossy audio compression standard, the successor of the MP3 format. AAC generally achieves better sound quality than MP3 at similar bit rates. AAC is an ISO and IEC standard, as part of the MPEG-2 and MPEG-4 specifications.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Codec Details

General

Target Bit Rate. Specifies the target bit rate for this track.

Profile

Profile. Specifies the profile for this track.

Channel Configuration. Specifies the channel configuration for this track.

Note: This choice affects which output channel designations (such as *Left* or *Center*) are required; these designations may affect how you set up the Channel Map Filter on the input tracks.

AC-3 | EAC-3 Codec

AC-3 (Dolby Digital) is a flexible audio compression format that supports up to six channels of audio. The most common usage of AC-3 is in 2.0 (stereo) mode and 5.1 (surround sound) mode.

EAC-3 (Dolby Digital Plus or Enhanced AC-3) improves AC-3, including a wider data rate range (32kbit/s to 1024kbit/s), and improved compression.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Codec Details

Channel Configuration

Many of these controls only apply to certain configurations. Apply as appropriate.

Channel Configuration. Specifies the channel configuration for encoding this audio track.

Bit Rate. Specifies the bit rate at which to encode the audio.

SDK Version. Displays the version of the SDK being utilized.

Bitstream Mode. Specifies the intent or application/purpose of this audio track.

90 Degree Phase Shift. Applies a 90 degree phase shift to the surround channels. This is required when the output file is being decoded by a Dolby Sound Pro Logic or Pro Logic II decoder.

3 dB Surround Attenuation. Attenuates the surround channels by 3db before encoding.

Enable LFE Low-Pass Filter. Enables the LFE low-pass filter.

A/D Converter Type. Select Standard | HDCD. Allows audio that has passed through an A/D conversion stage to be marked as such.

The following controls are displayed as appropriate, depending on the channel configuration specified:

Dolby Surround Mode. Indicates whether the bitstream contains information that was encoded in Dolby Surround.

Stereo Downmix Preference. Indicates the preferred downmix method for a decoder that has stereo outputs.

Left/Right Center Mix Level. Indicates the level shift applied to the center channel when adding to the left and right outputs during a downmix to a Lt/Rt output.

Left/Right Surround Mix Level. Indicates the level shift applied to the surround channel when adding to the left and right outputs during a downmix to a Lt/Rt output.

Lo/Ro Center Mix Level. Indicates the level shift applied to the center channel when adding to the left and right outputs during a downmix to a Lo/Ro output.

Lo/Ro Surround Mix Level. Indicates the level shift applied to the surround channel when adding to the left and right outputs during a downmix to a Lo/Ro output.

Surround EX Mode. Indicates whether the audio track was encoded using Dolby EX.

Dolby Digital Parameters

Dialog Normalization. Represents the volume level of dialog in the audio track which can be used by a Dolby Digital decoder. This aids the decoder in matching volume between program sources.

DRC Line Mode Profile. Specifies the type of dynamic range control for line mode.

DRC RF Mode Profile. Specifies the type of dynamic range control for RF mode.

Audio Production Info

Audio Production Info. Select Not Available | Available. When Available is specified, allows original production information to be provided with the audio track. Specify the following:

Room Type. Specifies the type of equalization used during the final mixing of the project.

Mixing Level. Specifies the calibration level and the maximum SPL (Sound Pressure Level) for a single channel.

Content Parameters

Copyright Protected. When checked, specifies that the encoded bitstream is copyright protected.

Original Bitstream. When checked, specifies that the encoded bitstream is the master version. Otherwise, it is considered a copy.

MPEG1 Layer II Audio Codec

The MPEG1Layer II (MP2) Audio codec compresses an audio stream into an MPEG1 Layer II-compliant audio steam.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Codec Details

Channel Configuration. Select the number and the layout of the audio channels you are encoding, from the menu.

Note: This choice affects which output channel designations (such as *Left* or *Center*) are required; these designations may affect how you set up the Channel Map Filter on the input track(s).

Bit Rate. Specify the bit rate for the track.

PCM Audio Codec

The PCM audio codec generates uncompressed digital audio at the specified sample rate and bit depth.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Codec Details

Channel Configuration. Specifies the audio channel profile.

Format. Specifies the bit depth and byte orientation.

PCM Audio Codec

The PCM audio codec generates uncompressed digital audio at the specified sample rate and bit depth. Channels may be remapped in order to provide a specific configuration to the codec.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Codec Details

Channel Configuration. Specifies the audio channel profile.

Format. Specifies the bit depth and byte orientation.

Channel 1... 32 Assignment Tag. Select a label from the menu to associate it with a given channel, and pass it to downstream actions via the specified variable.

Active Format Description Filter

The Active Format Description filter sets the Active Format Description (AFD) code in the output video for specifying how a program should be displayed in a playback device that does not use the same display aspect ratio the program was encoded with.

For more information about AFD, refer to ATSC A/53 Part 4 and SMPTE ST 016-3.

Active Format Description Profile

Active Format Description Profile. Specifies the (SD | HD) profiles list to display. When specifying SD or HD, select the appropriate profile:

Profile. Specifies the SD or HD profile to use.

MPEG-4 Output

MPEG-4 Output is implemented in the Conform action and the Tempo action. The MPEG-4 Output generates MPEG-4 format media files.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Output Settings

Multiple components may comprise the output: the large panel is the container. Inside the container, arranged from the left are the smaller, video stream and (potentially many) audio track panels.

These settings display directly in the Output component:

Output Location. Specifies where to store the file(s).

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename. Displays the Filename Pattern Editor. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the Output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for this new file.

Output Details

File Extension. Specifies the file extension for this output file (mp4 | m4v).

Video Stream Details

Select the video stream to enable and configure its settings.

Stream Checkbox. Activates this stream for processing. Uncheck if you do not want the video stream encoded in the output file.

Stream Name. Specifies the transcoder video stream that you want to include in the output file.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Track Name. Specifies the transcoder audio track that you want to include in this output file.

MXF OP1a Output

The MXF OP1a Output component generates an OP1a package. These packages are compliant with SMPTE-377M and SMPTE-378M standards.

Delete. To delete this transcoder, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Output Settings

Multiple components may comprise the output: the large panel is the container. Inside the container, arranged from the left are the smaller, video stream and (potentially many) audio track panels.

These settings display directly in the Output component:

Output Location. Specifies where to store the file(s).

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename. Displays the Filename Pattern Editor. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the Output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.
- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for this new file.

Output Details

General

Partition Strategy. Select partition strategy to suit your application. Default setting is Automatic.

Partition Duration. When checked, specifies the MXF partition duration in seconds.

Insert SMPTE 436 Ancillary Data. When checked, adds a SMPTE 436 ancillary data track.

Wrap Audio as BWF. When checked, wraps the audio as Broadcast Wave format (BWF).

Audio Language Settings. When checked, extracts audio language tags.

Enable WAVE Essence. When checked, enables WAVE essence for creation of outputs compatible with an Avid Media Central | Production Management system.

HDR Metadata

Add SMPTE 2086 Master Display Metadata. When checked, enables the SEI message with SMPTE 2086 master display metadata. Specify master display metadata values in the fields below.

Add CTA-861.3 Content Light Level Metadata. When checked, enables the SEI message with CTA-861.3 content light level metadata.

Maximum CLL. Specifies the maximum content light level.

Maximum FALL. Specifies the maximum frame average light level.

Video Stream Details

Select the video stream to enable and configure its settings.

Stream Checkbox. Activates this stream for processing. Uncheck if you do not want the video stream encoded in the output file.

Stream Name. Specifies the transcoder video stream that you want to include in the output file.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Track Name. Specifies the transcoder audio track that you want to include in this output file.

Program Stream Output

Program Stream Output is implemented in the Tempo action.

The MPEG-2 Program Stream container is specified by ISO/IEC 13818 Part 1. It is designed for relatively reliable transmission methods or storage media, where the loss of data is unlikely.

Multiple components may comprise the output: the large panel is the container. Inside the container, arranged from the left are the smaller, video stream and (potentially many) audio track panels.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Output Settings

Multiple components may comprise the output: the large panel is the container. Inside the container, arranged from the left are the smaller, video stream and (potentially many) audio track panels.

Output Location. Specifies where to store the file(s).

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location.

- *Collision Resolution*: When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename. Displays the Filename Pattern Editor. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the Output you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.

- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Specifies the nickname (selected from menu or entered manually) for this new file.

Output Details

File Extension. Specifies the file extension for this output file (mpg).

Video Stream Details

Select the video stream to enable and configure its settings.

Stream Checkbox. Activates this stream for processing. Uncheck if you do not want the video stream encoded in the output file.

Stream Name. Specifies the transcoder video stream that you want to include in the output file.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Track Name. Specifies the transcoder audio track that you want to include in this output file.

QuickTime Output

QuickTime Output is implemented in the Conform action.

Multiple components may comprise the output: the large panel is the container. Inside the container, arranged from the left are the smaller, video stream and (potentially many) audio track panels.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Output Settings

Multiple components may comprise the output: the large panel is the container. Inside the container, arranged from the left are the smaller, video stream and (potentially many) audio track panels.

Output Location. Specifies where to store the file(s).

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Displays the Filename Pattern Editor. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the encoder you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.

- *Time:* Select the format to use by clicking on the token in the pattern field.
- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for this new file.

Output Details

File Extension. Specifies the file extension of the output file (mov).

Fast Start. Check to enable Fast Start, a QuickTime feature that enables users to watch the movie as it's being downloaded (long before the whole movie has been downloaded) from a standard web server, when using HTTP download. Fast Start is not used for real-time streaming servers. Fast Start works well for short-form movies where file size is limited. It ensures high-quality playback regardless of the users' Internet connection speeds, though those with slower connections will wait longer before media starts to play.

Insert 608 Closed Caption Track. Check to include a 608 caption track.

Insert 708 Closed Caption Track. Check to include a 708 caption track.

Insert a Timecode Track. Check to add a timecode track to the movie.

Enable CLAP atom. Enables the QuickTime Clean Aperture atom.

Color Space. Specifies the color space to use when decompressing frames.

Video Stream Details

Select the video stream to enable and configure its settings.

Stream Checkbox. Activates this stream for processing. Uncheck if you do not want the video stream encoded in the output file.

Stream Name. Specifies the transcoder video stream that you want to include in the output file.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Track Name. Specifies the transcoder audio track that you want to include in this output file.

Edit (Playlist) Action Components
QuickTime Output

TIFO Output

TIFO Output is implemented in the Conform and Tempo actions. Select TIFO Output from the Outputs menu (the Plus icon) to generate a file in Telestream Intermediate Format (TIFO) format. TIFO files support 1 video stream and up to 32 audio tracks.

Multiple components may comprise the output: the large panel is the container. Inside the container, arranged from the left are the smaller, video stream and (potentially many) audio track panels.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Output Settings

Multiple components may comprise the output: the large panel is the container. Inside the container, arranged from the left are the smaller, video stream and (potentially many) audio track panels.

Output Location. Specifies where to store the file(s).

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Displays the Filename Pattern Editor. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- *Base Name*: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the encoder you choose.

- *Date:* Select the format to use by clicking on the token in the pattern field.
- *Time:* Select the format to use by clicking on the token in the pattern field.
- *Variable*: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for this new file.

Output Details

General

Version. Specifies the TIFO version. Version 3 is the original implementation, which does not have a duration value in the header. Version 4 adds a duration value to the output, and Version 5 adds an EOF (end of file) marker. Select for compatibility.

HDR Metadata

Add SMPTE 2086 Master Display Metadata. When checked, enables the SEI message with SMPTE 2086 master display metadata. Specify master display metadata values in the fields below.

Add CTA-861.3 Content Light Level Metadata. When checked, enables the SEI message with CTA-861.3 content light level metadata.

Maximum CLL. Specifies the maximum content light level.

Maximum FALL. Specifies the maximum frame average light level.

Video Stream Details

Select the video stream to enable and configure its settings.

Stream Checkbox. Activates this stream for processing. Uncheck if you do not want the video stream encoded in the output file.

Stream Name. Specifies the transcoder video stream that you want to include in the output file.

Audio Track Details

Track Checkbox. Activates this track for processing. Uncheck to delete the track, or disable processing if this is the only track in the list.

To add a new track, check the track checkbox in the empty, untitled audio track to the right of the last active track.

Track Name. Specifies the transcoder audio track that you want to include in this output file.

Advanced Title Processor Component

The Post Producer Titler Engine for Post Producer is implemented in the Conform action via the Advanced Title Processor component. The Post Producer Titler Engine is an optional, licensed feature of Vantage. A Post Producer license is also required to use the Post Producer Titler Engine.

The Titler Engine provides quick and easy implementation of animated text and transitions in a composition, including rendering of 2D/3D animated title sequences. The Titler Engine implements NewBlueFX Titler Pro, which integrates into major NLEs including Adobe Premiere Creative Cloud, enabling editors to create high-quality title sequences.

Post Producer Titler Engine integration increases automation flexibility with the user of variables. For example, you can create a title in your NLE, and, instead of entering static text for single-use, you can provide a Vantage variable, for multiple-use from the same title.

The Titler Engine can be used in workflows starting with a Workorder action, to submit multiple jobs at one time with the same source video, but different input parameters for each output file you want rendered. For example, you can create show promo variants for *Tomorrow*, *Tonight*, and *Next*. You could also create multiple language localizations.

You can add one advanced titler template per workflow. The composition must reference the nbtitle template(s) as sources.

In operation, the user adds and names a template to provide the desired effect, and supplies the text and graphics as input parameters in the specified file.

To configure the Advanced Title Processor, select the component to view its details panel on the right and configure its settings, as described below.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Delete. To delete this processor, click the X icon in the upper right corner.

Processor Settings

Variables Input File. Browse to or enter the fully-qualified path to the CSV file that contains the values required for the title(s).

Comprimato Processor Component

Comprimato decoding for a JPEG2000 source file in Conform is enabled by a Comprimato Processor.

The template name that you specify must be specified in the CML. Add/edit the Processor element in the Source element. For example:

```
<Processor template="Comprimato_accel" />
```

To configure the Comprimato Processor, select the component to view its details panel on the right and configure its settings, as described below.

Delete. To delete this processor, click the X icon in the upper right corner.

Processor Details

Enter Template Name. Enter the template name as appropriate, and use the same name in the CML Processor element with a template attribute.

Processor Settings

CUDA Device Number. Specifies the CUDA device number.

CUDA Memory Limit (MB). Specifies the CUDA memory limit in MB.

CUDA Tile Limit. Specifies the CUDA tile limit.

Decoder Queue Size. Specifies the decoder queue size.

Dolby E Decoder Processor

The Dolby E Decoder Processor in Conform is an optional licensed feature that decodes input audio containing a Dolby E audio stereo pair, and generates new uncompressed output audio. The number of output channels in the decoded audio is based on the type of program stored in the original stereo pair, and can vary from 4 to 8 channels. This is typically in preparation for encoding the audio in an output component.

Delete. To delete this processor, click the X icon in the upper right corner.

Video Processor Component

This Video Processor is implemented in the Conform and Tempo actions.

The purpose of the Video Processor template is to specify on a source-by-source basis how to decode input files that have specific media processing requirements such as frame rate conversion, Telecine or inverse-Telecine processing.

For each video processor template you require, you add a new Video Processor component. Name the processor template and configure it.

In each Composition file you're processing, specify the processor template that you want to use. To do this, add a Processor element to the Source element, supplying the template name, as shown in the example below.

Note: Processor templates are NOT applied unless a Processor element is specifically added to the Source element of a given file by name in the composition being processed by this action.

```
<?xml version="1.0" encoding="utf-8"?>
<Composition>
  <Source identifier="1">
    <File location="\\share\path\speed_racer.mov" />
      <Processor template="ProcessorTemplate1" />
  </Source>
...
</Composition>
```

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Delete. To delete this processor, click the X icon in the upper right corner.

Processor Settings

Select the video processor to enable and configure the filters to apply to the output.

Enter Template Name. Enter the unique name for this video processor. This string is the value supplied in the Processor element template attribute (see example above).

Resizing Filter

Check to enable this filter, and specify the settings.

Resizing Algorithm. Select the type of resizing algorithm to use.

Bilinear - Bilinear resizing offers the fastest conversion, but the lowest quality.

Gaussian - Gaussian resizing offers improved quality over Bilinear.

Lanczos - Lanczos resizing offers the highest possible quality.

Generally, the Lanczos algorithm automatically tunes itself according to the type of resizing you are performing, but additional control (Detail Sensitivity) is provided for difficult resizing situations.

For example, *Preserve Details* may best be used when resizing from a smaller video frame size to a larger one, such as when converting from SD to HD frame sizes, if the *Balanced* approach causes too much smoothing during the resize.

Alternatively, *Avoid Visual Artifacts* may best be used when down-scaling from an HD frame size to an SD one, particularly if the original video has a lot of fine-grained noise that causes visual artifacts when down-scaled.

ADI DAI Marker Chronicler

The ADI DAI Marker Chronicler is implemented in the Chronicle action.

The ADI DAI Marker Chronicler adds DAI information to the specified ADI file.

Delete. To delete this chronicler, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Chronicler Settings

ADI Source File. Specifies the fully-qualified network (UNC) path to the file to be updated.

Enable Post Roll. When checked, enables the inclusion of a post-roll entry in the timing data in the ADI source file.

Timing Mode. Specifies the time-code of the chronicle file.

Authenticated ... Ad Content ID. Specifies the metadata values.

Break List Report Chronicle

The Break List Report Chronicle is implemented in the Chronicle action.

The Break List Report Chronicle produces a CSV text file containing entries for each segment in the input file.

Delete. To delete this chronicle, click the X icon in the upper right corner.

Note: Controls with a Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Chronicler Settings

Include Report Header. When checked, a header row is added to the break list report.

Report Time Format. Specifies the format of time values included in each break row.

Brightcove requires the break time to be reported in whole seconds. For Brightcove, select Integer seconds.

Canoe CSV Chronicler

The Canoe CSV Chronicler is implemented in the Chronicle action. The Canoe CSV Chronicler ingests a post-rendered Composition XML file (generated by the Conform action after rendering the media file) by nickname, and converts it to a Canoe CSV file for ad insertion.

Select the Canoe CSV Chronicler to view its details panel on the right and configure its settings, as described below.

Delete. To delete this chronicler, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

General

Force Local Column Headers. When checked, adds Local roll columns to a CSV, regardless if local segments exist in the chronicle: Action, Provider_Ext_Ref, Provider_ID, Asset_ID, Asset_Name, Lead_Black, Pre-Roll, Mid-Roll, Post-Roll, Pre-Roll_Local, Mid-Roll_Local, and Post-Roll_Local.

Asset Metadata Source

Specifies the source from which to retrieve the asset metadata: Asset Variables.

Asset Variables

Displays bindable text fields that will be used to populate the columns of the associated headers of the Canoe/BlackArrow CSV file.

Provider. Sets the name that is used to populate the Provider column.

Provider ID. Sets the name that is used to populate the Provider ID column.

Asset ID. Sets the name that is used to populate the Asset ID column.

Asset Name. Sets the name that is used to populate the Asset Name column.

Output Time Format

Time Format. Specifies one of four time reporting options, relative to media that starts at frame/time 0:

Time- (default) legacy time in HH:MM:SS.SSS format. For example: 00:00:00.000.

Timecode - non-drop timecode in HH:MM:SS:FF format. For example: 00:00:00:00.

Drop-frame Timecode - drop-frame timecode in HH:MM:SS;FF format. For example: 00:00:00;00.

Frames - Ordinal number of starting frame, expressed as an integer with a base of zero. For example: 0.

SCTE-35 Chronicler

The SCTE-35 Chronicler is implemented in the Chronicle action.

The SCTE-35 Chronicler ingests a post-rendered Composition XML file (generated by the Conform action after rendering the media file) by nickname, and converts it to a SCTE-35 file for ad insertion in Manzanita systems.

There are no user-configurable controls for the SCTE-35 Chronicler.

Delete. To delete this chronicler, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Azure Colocator

The Azure Colocator enables the Colocate action to ingest media files from an Azure account, which are specified as URLs in the CML. It localizes the media to the location specified in the Output Location, and produces a copy of the CML, where the URLs have been converted to paths to the localized media files.

Delete. To delete this colocator, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Colocator Settings

Select the Colocator to configure its settings.

Account Name. Specifies the account name (access key ID) to use.

Account Key. Specifies the account key for this account.

Timeout. Specifies the amount of time (in seconds) to wait for Azure responses to a request, before terminating.

Google Cloud Colocator

The Google Cloud Colocator enables the Colocate action to ingest media files from a Google Cloud account, which are specified as URLs in the CML. It localizes the media to the location specified in the Output Location, and produces a copy of the CML, where the URLs have been converted to paths to the localized media files.

Delete. To delete this colocator, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Colocator Settings

Select the Colocator to configure its settings.

Bucket ID. Specifies the Google Cloud Storage bucket identifier.

Credential. Specifies the Google Cloud Storage service credential, which must be created through the GCS portal.

Timeout. Specifies the amount of time (in seconds) to wait for AWS responses to a request, before terminating.

HTTP Colocator

The HTTP Colocator enables the Colocate action to ingest media files from a Web server, which are specified as URLs in the CML. It localizes the media to the location specified in the Output Location, and produces a copy of the CML, where the URLs have been converted to paths to the localized media files.

Delete. To delete this colocator, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Colocator Settings

Select the Colocator to configure its settings.

User Name. Enter the user name used to log on.

Password. Enter the authorized password for the user name you are using.

S3 Colocator

The S3 Colocator enables the Colocate action to access media files from an Amazon S3 server that are specified as an S3 URL in the CML. It localizes the media to the location specified in the Output Location, and produces a copy of the CML, where each URL has been converted to a path to the localized media file.

Select the S3 Component to view its details panel on the right and configure its settings, as described below.

Delete. To delete this colocator, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Colocator Settings

Select the Colocator to configure its settings.

Access Key ID. Specifies the access key (user name) used to log on to the AWS account.

Secret Access Key. Enter the authorized password for the user name you are using.

Timeout. Enter the number of seconds to wait for a response from the system before disconnecting.

Use Transfer Acceleration. When checked, Amazon S3 Transfer Acceleration is enabled, to increase data transfer speed over long distances. To utilize this feature, the bucket must be configured to allow transfer acceleration. See https://docs.aws.amazon.com/AmazonS3/latest/user-guide/enable-transfer-acceleration.html.

Local Path Colocator

The Local Path Colocator enables the Colocate action to translate non-Windows path strings to Windows path strings using a simple search and replace algorithm, using user-specified search and replace strings. This component does NOT move files.

Select Local Path when you are exporting projects from Final Cut Pro or other Mac OS NLEs into Vantage for conversion to CML with a Compose action. After conversion to CML, the Colocator action should be used to convert the file paths.

The exported XML file often has MacOS paths (*//volume/folder1/folder2/mediafile.mov*, for example). You can map this drive to a Windows drive using SMB, and set up a search and replace operation like this:

Source Path: *//volume/folder1/folder2*

Target Path: *X:\folder1\folder2* (where X is the drive letter you mapped the drive to).

Select the Local Path Colocator to view its details panel on the right and configure its settings, as described below.

Delete. To delete this colocator, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Colocator Settings

Select the Colocator to configure its settings.

Source Path. Enter the path string to search for in the CML.

Target Path. Enter the replacement path string.

Prepend Target Path to Locations Without a Source Path. When checked, any Source or Sequence Image file name or token that does not include a fully-qualified path will be pre-pended with the string in the Target Path field to create a fully-qualified path and file name. If unchecked, only paths that contain the value of Source Path will replace the path specified in the Target Path field.

CML Composer

The CML Composer is implemented in the Compose action.

The CML Composer enables you to automatically resolve variables and nicknames in an input CML from a VOD Portal submission to generate an output CML capable of being rendered and encoded in a Conform action.

In addition, an SD media source can be redefined as HD output, or an HD source can be redefined as SD output, using crop and mask settings in the Source element as appropriate, to produce HD output from SD input or SD output from HD input.

The two CML documents are intended to be routed to different Conform actions with SD and HD output specifications.

This feature enables content production networks to deliver three copies of an asset to a distribution network—Mezzanine, SD, and HD—where each file must have the same DAI configuration and playlist.

You can also add or modify the Subtitle element in a Source for closed-caption processing.

Assumptions:

- All source files are HD and will be adjusted identically.
- All files referenced in the input CML source are of the same framerate, resolution and aspect ratio.
- Graphics overlays will not be adjusted.
- No source videos will be used as PIP overlays.

Delete. To delete this composer, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Composer Settings

Select the Composer to configure its settings.

General

Resolve Variables. When checked, all variables and nicknames are resolved in the generated CML, so that it can be rendered and encoded in a Conform action:

For example, this source contains media nickname tokens defined in a workorder, plus a variable for title text:

```
<Source identifier="1">
<File location="{$#S3_base_path}{$$filename}" />
</Source>
<Title>{$$Title_text}</Title>
```

The modified CML Composer output is:

```
<Source identifier="1">
<File location="s3://base_path/test.mov" />
<Processor template="Default_Processor" />
</Source>
<Title>Replacement Text</Title>
```

Letterbox

When checked, creates a frame in the larger output in which to display the source, at the specified mask dimensions and color. Units may be specified as integers pixels (px), integer or real number percent (%), or integer or real number ratio (no unit identifier). Typically used during SD/HD conversions

Centercut

When checked, creates a centercut clip from the larger source in the output, at the specified crop dimensions of the input frame. Units may be specified as integers pixels (px), integer or real number percent (%), or integer or real number ratio (no unit identifier). Typically used during HD/SD conversions.

Closed Captions and Subtitles

Closed Captions. When checked, preserves closed captions.

Preserve Original 708 data (if Exists). When checked, disables caption transcoding to regenerate the 708 data. Otherwise, 708 data is regenerated from the 608 data.

DCP Composer

The DCP Composer is implemented in the Compose action.

The DCP Composer enables you to convert a DCP file into a Post Producer composition (CML) file for utilization in Post Producer workflows.

DCP (Digital Cinema Package) is a specification for a collection of digital files used to store and convey digital cinema (DC) audio, image, and data streams along with associated metadata to enable standard interchange and automated creation of downstream distribution packages.

DCP Composition packages include several different files (XML (Composition Play Lists), media, etc.).

When a DCP file is being converted to a composition, the XML file is processed by the Compose action. The Compose action locates the XML file name and media file names and converts it to CML.

Delete. To delete this composer, click the X icon in the upper right corner.

EDL Composer

The EDL Composer is implemented in the Compose action.

The EDL Composer enables you to convert a specifically-formatted EDL file from a Harris Velocity system into a Post Producer composition (CML) file.

The EDL Composer, when used in conjunction with the Canoe CSV Chronicler in the Chronicle action, will additionally output a Canoe-compliant CSV file for ad availability reporting.

When you submit an EDL to a workflow with a Compose action with an EDL Composer, a Conform action, and a Chronicle action with a Canoe Chronicler, the following tasks are performed:

1. In the Compose action, the EDL Composer creates a CML file that references the timecodes from the ingested EDL playlist. It also adds splice instructions to the segments that have the trigger strings (as described below.)

2. An as-run CML is produced when Conform concludes, which records the actual timecodes used. Note that they will be cumulatively higher than the source timecodes in the case of MPEG2 stream conditioning, which should maintain a constant GOP length if the CML adds an edit point within a GOP.

3. The Canoe CSV Chronicler parses the as-run CML and produces a CSV file with headers and timecode formatting suitable for submission to Canoe for pitching ads in VOD programs.

Delete. To delete this composer, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Composer Settings

Select the Composer to configure its settings.

General

Frame Rate. Specifies the frame rate of the media described in the EDL file.

Break Clip Name. Specifies the string that will signal an ad break. Default: `BLACK 15 FRAMES.nxclip`.

Local Clip Name. Specifies the string that will signal a local ad break. Default: `BLACK Local.nxclip`.

Break and Local Clip Name. Specifies the string that will signal an ad break that begins or ends with a local ad break. Default: `BLACK 15 and Local.nxclip`.

EDL Style. When checked, specifies the Canoe CSV configuration style to use. The selection controls the column where the ad ranges are reported in the Canoe CSV file.

When unchecked (default), an ad break is signaled by a zero length splice trigger; used for ad insertion. When checked, an ad break is signaled by the timecode range indicated by a pair of break events, as set in the fields above; used for ad replacement.

- *Pre, Mid+, Post*: The first ad range is reported in the Pre-Roll column, all middle ranges are reported in the Mid-Roll column, and the last ad range is reported in the Post-Roll column.

- *Mid+, Post*: All middle ranges are reported in the Mid-Roll column, and the last ad range is reported in the Post-Roll column.

- *Mid+*: All ad ranges are reported in the Mid-Roll column.

- *Lead, Pre, Mid+*: Lead_Black range is not created from triggers in the EDL. Instead, it is implicitly the range from the first frame of video to the last frame before pre-roll. The first range is grouped in the pre-roll column, and the remaining ad ranges are grouped in the mid-roll column.

Centercut

Centercut. When checked, creates a centercut clip from the original in the output, at the specified crop dimensions of the input frame. Typically used during SD/HD conversions.

Letterbox

Letterbox. When checked, creates a frame in the output in which to display the input, at the specified mask dimensions. Typically used during SD/HD conversions.

Closed Captions and Subtitles

Close Captions. When checked, preserves closed captions.

Preserve Original 708 Data (if Exists). When checked, disables caption transcoding to regenerate the 708 data. Otherwise, 708 data is regenerated from the 608 data.

FCP 7 XML Composer

The Final Cut Pro XML Composer is implemented in the Compose action. The Final Cut Pro XML Composer enables you to convert Final Cut Pro (XMEML) files into a CML file.

Note: Apple Final Cut Pro Version 7 or greater is required to export sequences compatible for conversion to Post Producer compositions.

Delete. To delete this composer, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Composer Settings

Select the Composer to configure its settings.

General

Source Folder. Check to search and replace paths in the XMEML file with Vantage-accessible (typically, UNC paths to shares) paths in the CML, and manually enter or Browse and select the fully-qualified path to the files.

The UNC path must be fully-qualified down to but excluding the file, and must be accessible for reading by Vantage services. If the path is to a server that is different from the host of the Vantage service processing this action, it must be a share.

All file paths in the source file will be replaced with the path specified; thus, all files must be in the same folder.

If all files are NOT in the same folder, uncheck this option and use the Colocate action with a Local Path option, to specify a search and replace pair. Use one Colocate action for each folder your media is located in.

Remove Edits on Tokenized Audio Segments. Check to specify that clips identified by a token - {$$filenameasvariable}.ext - will not have the in/out points applied. For example, in your template you specify some long material which you have trimmed up in Final Cut Pro, to define the sequence. It is not clear if the substituted media is going to be the right length according to the timeline or is going to be the same length as the untrimmed media and require the same trimmed points.

Remove Edits on Tokenized Video Segments. Check to specify that clips identified by a token - {$$filenameasvariable}.ext - will not have the in/out points applied. For example, in your template you specify some long material which you have trimmed up in Final Cut Pro, to define the sequence. It is not clear if the substituted media is going

to be the right length according to the timeline or is going to be the same length as the untrimmed media and require the same trimmed points.

Preserve Image Aspect Ratio. Check to preserve the overlay image aspect ratio.

Direct Convert. Specifies that the source video should be identified as suitable for direct convert processing in the CML.

Pre-roll Clip

Add New Item. Click to specify the bumper file to add to the head of the composition and specify the Item Path.

Item Path. Specify the input source by selecting one option and configuring it:

- *File Nickname*: Specify the nickname, from the menu.
- *File Name*: Specify the fully-qualified path to and including the filename.

Post-roll Clip

Add New Item. Click to specify the trailer file to add to the tail of the composition and specify the Item Path.

Item Path. Specify the input source by selecting one option and configuring it:

- *File Nickname*: Specify the nickname, from the menu.
- *File Name*: Specify the fully-qualified path to and including the filename.

Closed Captions and Subtitles

Close Captions. Check to preserve closed captions.

Preserve Original 708 data (if Exists). Check to disable caption transcoding to regenerate the 708 data. Otherwise, 708 data is regenerated from the 608 data.

GraphicsFactory Composer

The GraphicsFactory Composer is implemented in the Compose action.

The GraphicsFactory Composer enables you to convert a specifically-formatted GraphicsFactory template file into a Post Producer composition (CML) file.

Note: The use of the GraphicsFactory composer requires a GraphicsFactory license; GraphicsFactory template files are created using the GraphicsFactory Template Creator program.

The resulting CML file can be used in a Conform action to render the video.

Delete. To delete this composer, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Composer Settings

Select the Composer to configure its settings.

Start Fill Duration. When checked, specifies the duration in timecode and fps for any fill to be included in the output file before the start of the media.

End Fill Duration. When checked, specifies the duration in timecode and fps for any fill to be included in the output file after the end of the media.

Source 0 File. Specifies the main media asset file, when Source 0 tag field is empty.

Source 0 Tag. Specifies the nickname for the main asset file. Alternatively, leave empty and supply the file in the Source 0 File field.

IMF Composer

The IMF Composer is implemented in the Compose action.

The IMF Composer enables you to convert an IMF file into a Post Producer composition (CML) file for utilization in Post Producer workflows.

IMF (Interoperable Master Format) is a specification for an interoperable set of master files and associated metadata to enable standard interchange and automated creation of downstream distribution packages. IMF Composition packages include several different files (PKL, CPL (Composition Play Lists), media, etc.).

When an IMF file is being converted to a composition, the PKL file is processed by the Compose action. The Compose action locates the CPL file name and media file names and converts it to CML.

Delete. To delete this composer, click the X icon in the upper right corner.

Note: Controls with a Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Composer Settings

Fallback Folder. When checked, specifies the fully-qualified path to a folder to search for IMF assets that are not in the same folder as the CPL source file.

Folder Recursion Levels. When checked, specifies how many directory levels (0-3) to ascend relative to a CPL submission folder to search for IMF package assets that are not in the submission folder.

A value of zero indicates that only sub-directories of the submission directory are searched. Otherwise, after ascending the specified number of directory levels, that directory and all of its subfolders are searched.

Mediaflex Composer

The Mediaflex Composer is implemented in the Compose action. The Mediaflex Composer converts a Mediaflex XML file into a Post Producer composition (CML) file for utilization in Post Producer workflows.

Delete. To delete this composer, click the X icon in the upper right corner.

Note: Controls with a Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Composer Settings

Lead Black

Lead Black Clip. When checked, specifies the file to use for a lead black clip. Specify the file nickname if the file was ingested or generated by the workflow; otherwise, specify the file by fully-qualified path or browse to locate and select the file.

Pre-roll Clips

Add New Item. Click to add up to 5 pre-roll clips (bumpers) to include in the playlist.

For each item, specify the Item Path.

Item Path. Specify the input source by selecting one option and configuring it:

- *File Nickname*: Specify the nickname, from the menu.
- *File Name*: Specify the fully-qualified path to and including the filename.

Post-roll Clips

Add New Item. Click to add up to 5 post-roll clips (trailers) to include in the playlist.

Item Path. Specify the input source by selecting one option and configuring it:

- *File Nickname*: Specify the nickname, from the menu.
- *File Name*: Specify the fully-qualified path to and including the filename.

Letterbox

Letterbox. When checked, creates a frame in the output in which to display the input, at the specified mask dimensions. Typically used during SD/HD conversions.

When you enable the Letterbox option, complete the controls for setting values for inserting curtains and letterbox masks into the output. These values cause the source to be resized to fit within the defined masked regions at the output resolution.

Centercut

Centercut. When checked, complete the controls for crop settings that are applied to the source content to select a region from the center of the frame. The selected region is resized to fill the output frames at the output resolution settings.

QuickTime Reference Composer

The QuickTime Reference Composer is implemented in the Compose action.

The QuickTime Reference Composer enables you to submit a QuickTime reference file (typically created by exporting a sequence from an Avid system,) and the QuickTime Reference composer will convert it to a CML file for use in a downstream Conform action.

Note: This conversion should not be performed if closed captions are required, since the QuickTime reference file itself will not contain captions.

Delete. To delete this composer, click the X icon in the upper right corner.

Letterbox

Note: You can set the values to 0% for left and top, and 100% for right and bottom respectively to avoid potential rendering issues when performing a direct conversion from QuickTime Reference sources.

Letterbox. When checked, creates a frame within the larger output frame in which to display the source. The Letterbox option resizes the source frame (which may have already been cropped) to fill the mask frame. The space beyond the mask (typically pillars or bars) is filled with the fill color specified.

Letterbox is commonly used for filling space when converting content of 4x3 aspect ratio to output with a 16x9 aspect ratio. It is also commonly used in conjunction with a Centercut.

The mask frame is defined relative to the dimensions of the output frame. Positive values originate from the top, left corner. Negative values originate from the bottom, right corner.

The mask values can be specified in integers and real numbers as a ratio (no unit designator), fractions (in brackets - {}), percent (%), or pixels (px). Pixels are useful if the output resolution is constant for all output. Percent (or ratio) is useful if the aspect ratio remains constant, but the resolution is likely to change.

Mask Left. Specifies the distance from the left edge of the output frame to the right where the left edge of the input frame should be, between which to apply the mask color. For example, 0 = no mask. 12.5% means 12.5% of the horizontal frame dimension from the left edge of the frame.

Mask Top. Specifies the distance from the top edge of the output frame downward where the top edge of the input frame should be, between which to apply the mask color. For example, 240px means 240 pixels from the top down in the frame.

Mask Right. Specifies the distance from the right edge of the output frame left where the right edge of the input frame should be, between which to apply the mask color. To apply a mask here, it must be a negative number. For example, 1 or

100% = no mask. -12.5% means create a mask in 12.5% of the horizontal frame dimension from the right edge of the frame.

Mask Bottom. Specifies the distance from the bottom edge of the output frame upward where the bottom edge of the input frame should be, between which to apply the mask color. For example, -240px means 240 pixels from the bottom up in the frame.

Color. Specifies the color as keywords or hex RGB values. Color keywords are defined in MDN Web Docs (See https://developer.mozilla.org/en-US/docs/Web/CSS/color_value). RGB values are presented in 0xRRGGBB format. For example: "#A2A4A6".

Centercut

When checked, crops the input (makes the frame smaller) to remove material from the input frame before creating an output frame (optionally, with a mask). Cropping is performed on the source, creating a frame in the larger output in which to display the source.

The left and top edge origins are at 0, 0 pixels; the right and bottom edge origins are the dimensional width and height of the frame. Top and left adjustments values are in relation to the origin; bottom and right adjustments are relative to the bottom right corner. Positive values are downward or to the right; negative values are upward or to the left.

The mask values can be specified in integers and real numbers as a ratio (no unit designator), fractions (in brackets - {}), percent (%), or pixels (px). Pixels are useful if the output resolution is constant for all output. Percent (or ratio) is useful if the aspect ratio remains constant, but the resolution is likely to change.

Crop Left. Specifies the amount of material to remove from the left edge of the input frame. For example, 0 = no crop. 12.5% means 12.5% of the horizontal frame dimension from the left edge of the frame.

Crop Top. Specifies the amount of material to remove from the top edge of the input frame. For example, 240px means crop 240 pixels from the top of the frame.

Crop Right. Specifies the amount of material to remove from the right edge of the input frame.To crop the right side, it must be a negative number. For example, 1 or 100% = no mask. -12.5% means create a mask in 12.5% of the horizontal frame dimension from the right edge of the frame.

Crop Bottom. Specifies the amount of material to remove upward from the bottom edge of the input frame. To crop the bottom, it must be a negative number For example, -240px means crop 240 pixels from the bottom of the frame.

Simple AAF Composer

The Simple AAF Composer is implemented in the Compose action.

The Simple AAF Composer enables you to convert a Simple AAF file into a CML file.

The Simple AAF Composer detects the sequence start time from the source AAF and adds the value to the Target element of the CML, in this form:

```
<Composition>
...
  <Target>
    <Timecode type="source" time="00:28:45:00@29.97" />
  </Target>
...
</Composition>
```

Note: In order to use the timecode specified in the CML from AAF file, the override control in the Time Code Processing filter in the Conform action must be set to Use CML Target Timecode.

Delete. To delete this composer, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Composer Settings

General

Source Folder. Check to search and replace paths in the CML file created by the Simple AAF Composer with Vantage-accessible (typically, UNC paths to shares) paths. Manually enter or Browse and select the fully-qualified path to the files.

The UNC path must be fully-qualified down to but excluding the file, and must be accessible for reading by Vantage services. If the path is to a server that is different from the service processing this action, it must be a share.

All file paths in the source file will be replaced with the path specified; thus, all files must be in the same folder.

If all files are NOT in the same folder, uncheck this option and use the Colocate action with a Local Path option, to specify a search and replace pair. Use one Colocate action for each folder your media is located in.

Direct Convert. Check to specify in the CML that the media is suitable for direct-conversion.

Closed Captions and Subtitles

Closed Captions. When checked, preserves closed captions.

Preserve Original 708 data (if Exists). When checked, disables caption transcoding to regenerate the 708 data. Otherwise, 708 data is regenerated from the 608 data.

Tempo Composer

The Tempo Composer enables you to create a Tempo-compliant CML file, optionally using an Analysis Result file from an upstream Analysis action, for ingest and processing by a Tempo action or Tempo-bCloudased workflow.

Delete. To delete this composer, click the X icon in the upper right corner.

This Action/Component is Cloud capable. Actions placed into Cloud mode are executed remotely in the cloud provider and region defined in the Cloud panel. For additional details, refer to the Vantage Cloud User Guide.

Analysis

Analysis Result. Check to ingest an Analysis XML file, either by nickname (the file must have been ingested by an upstream action) or by file name. Manually enter the fully-qualified path or click Browse to navigate and select the file. The file must be accessible to the Vantage service executing this action.

Preserve and Re-time Captions

Preserve and Re-time Captions. When checked, preserves and re-times closed captions.

Use Subtitle/Caption File. You can optionally supply subtitle/captions as a separate subtitle/caption file. When checked, configure these controls:

Subtitle/Caption File. Click Browse to navigate and select the file. The file must be accessible to the Vantage service executing this action.

Subtitle/Caption Offset Sign. Specifies plus or minus to control adding or subtracting the offset value specified in Subtitle/Caption Offset.

Subtitle/Caption Offset. Specifies the offset time value for where to start utilizing the caption file.

Set Timecode

Set Timecode At. Specifies the temporal location in the source, program, or output file to use when setting the starting timecode value.

Timecode. For all options except Preserve Source Timecode, you manually specify the starting value of the timecode to utilize. For Preserve Source Timecode, no value is required.

Re-Time

Re-time. Specifies how to re-time the media: Set Total Duration | Increase Duration By | Decrease Duration By.

Set Total Duration

Duration. Specifies the duration value to use.

Increase Duration By | Decrease Duration By

Amount. Specifies the time at FPS value to use.

Segments

Segments. Specifies how the segments are generated. There are three modes of operation: Single Segment | CSV | Typical.

Single Segment

Single Segment mode is typically used to process short commercial spots and normalize them by dropping leading slate and leading and trailing black, creating a single output segment. When no Analyze Result file is supplied, the composer creates a single active segment that spawns the entire clip. Configure these options:

Max Resulting Duration. Specifies the maximum duration of the resulting segment before re-timing. Above this threshold, the action will fail.

Min Active Segment to Consider. When checked, specifies the minimum duration of a segment (detected by the upstream Analyze action) to be considered active (utilized in re-timing). Below this threshold, it is ignored; useful for flash frames or audio blips during black segments that separate color bars, slates and active segments, for example.

Check Minimum Resulting Duration. When checked, specifies the minimum active segments duration. This may be used to verify that the resulting single active segment is not shorter than the expected length.

Don't Process if Longer | Shorter By At Most. When checked, Tempo automatically adjusts the total duration (as specified in the Re-time control) to match the active segment duration, after slate/color bars/black removal if it is longer than the total duration by at most | at least the specified amount.

In these situations, the resulting CML will set the active segment as "fixed" with the total duration re-timing automatically adjusted to be the same as actual active segment duration. This is to handle the case where the "normalized" program duration is within an expected tolerance - for example, a second or two of the typical duration - and it is acceptable to not re-time it to the exact total re-time duration set.

NOTE: When this feature is enabled, all video processing features (re-timing, cadence detection, modulation, etc.) are disabled.

CSV

Specifies the input source to a CSV file that defines the segments to be used by Tempo Composer.

The file format is as follows:

[start timecode], [end timecode], [segment type], [comment]

Where:

- start timecode is the inclusive time code of the first segment frame

- end timecode is the exclusive time code of the last segment frame

- segment types:

- - ignore (propagated unchanged and IS NOT part of the program)

- - fixed (propagated unchanged but IS part of the program)

- - variable (re-timed and is part of the program)

Example:

```
00:58:59;28@29.97, 00:59:30;00@29.97, ignore, color
bars
00:59:30;00@29.97, 01:00:00;00@29.97, ignore, slate
01:00:00;00@29.97, 01:09:50;00@29.97, retime, active
segment
01:09:50;00@29.97, 01:10:00;00@29.97, fixed, black
01:10:00;00@29.97, 01:19:50;00@29.97, retime, active
segment
01:19:50;00@29.97, 01:20:00;00@29.97, fixed, black
01:20:00;00@29.97, 01:40:00;00@29.97, retime, active
segment
```

Configure these options:

File Nickname. Specifies the nickname of the CSV file. Must have been ingested by an upstream action.

File Name. Specifies the fully-qualified path to the CSV file. Must be accessible to the service executing this action. Manually enter the path and filename or Browse and select the file.

Typical

Typical mode provides the most flexible method of creating a composition that meets your processing requirements and provides the most settings and options. When selected, you specify how you want color bars, slate, active segments, and last segments processed.

Color Bars | Slate

Configure

Specifies that you will specify how to process these segments.

Check Min Duration. When checked, specifies the minimum duration of this segment. Below this threshold, the action will fail.

Check Max Duration. When checked, specifies the maximum duration of this segment. Above this threshold, the action will fail.

Segment is Part of Program. Specifies Preserve | Re-time.

Remove

Specifies that this segment type should not be propagated to the output:

Check Min Duration. When checked, specifies the minimum duration of this segment. Below this threshold, the action will fail.

Check Max Duration. When checked, specifies the maximum duration of this segment. Above this threshold, the action will fail.

Ignore

Specifies that this segment type should not be recognized as color bars or a slate and treated as an active segment. There are no options to configure.

Active Segments

Start Timecode. When checked, specifies the start timecode to be applied to this segment.

Min Segment to Consider. When checked, specifies the minimum duration of a separate segment to be created in the output. Below this threshold, it is ignored; useful for flash frames or audio blips during black segments that separate color bars, slates and active segments, for example.

Black Frames

Configure

Specifies that you will specify how to process black frames between active segments:

Min Duration. When checked, specifies the minimum duration of black frames between active segments. Below this threshold, the black frames are considered part of the active segments and re-timed.

Part of Program. When checked, specifies that black frames should be considered in calculating the total running time of the media.

Ignore

Specifies that these types of segments are to be ignored when re-timing the media and considered to be part of active segments.

Last Segment

Configure

Specifies that you will specify how to process the last segment, which will generally be black frames.

Force Duration. When checked, specifies the mandatory duration of the last segment.

Check Min Duration. When checked, specifies the minimum duration of this segment. Below this threshold, the action will fail.

Check Max Duration. When checked, specifies the maximum duration of this segment. Above this threshold, the action will fail.

Segment is Part of Program. When checked, specifies that this segment should be processed according to your selection: Preserve | Re-time.

Preserve

Specifies that this segment should not be re-timed.

Re-time

Specifies that this segment should be re-timed.

Remove

Specifies that segments should not be propagated to the output.

Force Duration. When checked, specifies the mandatory duration of the last segment.

Check Min Duration. When checked, specifies the minimum duration of this segment. Below this threshold, the action will fail.

Check Max Duration. When checked, specifies the maximum duration of this segment. Above this threshold, the action will fail.

Ignore

Specifies that the segment should not to be considered a separate entity, but rather to be part of the last active segment. There are no options to configure.

Text File List Composer

The Text File List Composer is implemented in the Compose action.The Text File List Composer enables you to convert a Text file containing a list of file paths into a Post Producer composition (CML) file.

Delete. To delete this composer, click the X icon in the upper right corner.

Trigger Composer

The Trigger Composer is implemented in the Compose action.

The Trigger Composer is designed to use the SCTE trigger event types and times to create CML that brackets the program start, end, and ad spots within the show, producing a log of the ad timing in ad replacement workflows (Canoe, OTT, etc.).

During conversion, you can also enable insertion of keyframe segments, manually add bumpers and trailers, perform centercuts and letterbox formatting during SD/HD conversion, and specify how to handle closed captioning and subtitles.

You can create compositions from trigger files in two modes:

Ancillary Time Code Mode

When your trigger source is ancillary timecode, you submit the MXF file, and the Compose action uses the SCTE-104 triggers in the 436M track of the MXF file to create stream-conditioned VOD output with a Chronicle action that logs ad insertion points.

SCTE Triggers Mode

When your trigger source is SCTE triggers you submit a DAI Analysis Trigger XML file instead of a video file. You use an Analysis action configured with the Dynamic Ad Insertion Analysis component to generate the DAI Analysis Trigger XML file. The DAI component extracts the SCTE 104 and 35 formatted trigger data from the source file submitted to the Analysis action.

Delete. To delete this composer, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Composer Settings

General

Insert Keyframe. When checked, Black frames are automatically added to segments to maintain the GOP length if the CML sets an out point within a GOP.

Trigger Source

Trigger Source. Specifies Ancillary Timecode | SCTE Triggers.

Ancillary Timecode: When Ancillary Timecode is specified, the input file must be an MXF file with proprietary triggers.

For Ancillary Timecode processing, configure the following optional controls:

Local Head Edit Offset. When checked, creates an offset in CML from the local break trigger in point detected in the source file.

Local Tail Edit Offset. When checked, creates an offset in CML from the local break trigger out point detected in the source file.

Break Head Edit Offset. When checked, creates an offset in CML from the ad break ad trigger in point detected in the source file.

Break Tail Edit Offset. When checked, creates an offset in CML from the ad break ad trigger out point detected in the source file.

Overlap Tolerance. When checked, specifies the time within which overlapping triggers are assumed to have the same timecode.

SCTE Triggers: SCTE triggers are derived from the SCTE-104 track of the source file. For SCTE Triggers, the input file must be a DAI Analysis Trigger XML file, created from the Analysis action Dynamic Ad Insertion Analysis component.

For SCTE Triggers processing, complete the following optional controls:

SCTE Custom Rules. When checked, specifies an optional, manually-created SCTE Rules XML file with custom rules that override the default trigger parsing rules in the Trigger composer.

Local Head Edit Offset. When checked, creates an offset in CML from the local break trigger in point detected in the source file.

Local Tail Edit Offset. When checked, creates an offset in CML from the local break trigger out point detected in the source file.

Break Head Edit Offset. When checked, creates an offset in CML from the ad break ad trigger in point detected in the source file.

Break Tail Edit Offset. When checked, creates an offset in CML from the ad break ad trigger out point detected in the source file.

Lead Black

Lead Black Clip. When checked, specifies the file to use for a lead black clip. Specify the file nickname if the file was ingested or generated by the workflow upstream and has a nickname; otherwise, specify the file by file name and browse to locate and select the file to enter the fully-qualified path.

Lead Black should conform to the requirements of the DAI system. For example, Cable DAI expects a 5 second duration of the Lead Black segment.

Note: A pre-roll Ad break is not automatically added to the CSV file following the lead black segment.

Pre-roll Clips

Add New Item. Click to add up to 5 pre-roll clips to include in the playlist.

For each item, specify the Item Path.

Item Path. Specify the input source by selecting one option and configuring it:

- *File Nickname*: Specify the nickname, from the menu.
- *File Name*: Specify the fully-qualified path to and including the filename.

Post-roll Clips

Add New Item. Click to add up to 5 post-roll clips to include in the playlist.

Item Path. Specify the input source by selecting one option and configuring it:

- *File Nickname*: Specify the nickname, from the menu.
- *File Name*: Specify the fully-qualified path to and including the filename.

Letterbox

Letterbox. When checked, creates a frame in the output in which to display the input, at the specified mask dimensions. Typically used during SD/HD conversions.

When you enable the Letterbox option, complete the controls for setting values for inserting curtains and letterbox masks into the output. These values cause the source to be resized to fit within the defined masked regions at the output resolution.

Closed Captions and Subtitles

Closed Captions. When checked, preserves closed captions.

Preserve Original 708 data (if Exists). When checked, disables caption transcoding to regenerate the 708 data. Otherwise, 708 data is regenerated from the 608 data.

Centercut

Centercut. When checked, complete the controls for crop settings that are applied to the source content to select a region from the center of the frame. The selected region is resized to fill the output frames at the output resolution settings.

TSEDL Composer

The TSEDL Composer is implemented in the Compose action.

The Telestream TSEDL Composer enables you to convert a Telestream TSEDL file into a CML file.

This composer should be used when you are creating TSEDL files manually or programmatically, with EDL content that conforms to the Telestream TSEDL specification.

Select the Telestream TSEDL Composer to view its details panel on the right and configure its settings, as described below.

Delete. To delete this composer, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Composer Settings

Edit In/Out Points. Specify if the edit points are mark elements or timecode elements.

Frame Rate. Enter the specified frame rate of the media describe in the TSEDL file.

Edit (Playlist) Action Components
TSEDL Composer

Publishers

These man pages describe publishing features that are implemented in Vantage actions to add/update content in various third-party media management platforms.

Frame.io Connector

Frame.io Create Asset (Interactive) Publisher

Frame.io Create Asset (Programmatic) Publisher

Stanza Connector

Stanza Create Project

Stanza Convert Speech to Captions (Local)

Stanza Export Program

iconik Connector Topics

Create Placeholder

Add File to Placeholder

Add Time-Based Metadata

Retrieve Time-Based Metadata

Create Asset Relationship

Assign Asset To Collection

Create New Package Asset

Retrieve Asset Metadata

Update Asset Metadata

Add File to Asset

Generate Approval Request

Retrieve File

Share an Asset

Mimir Topics

Create an Item

Upload Attachment

Upload to an Item

Update Item Details

Get Item Details

Update Logging Data

Frame.io Connector Man Pages

Frame.io Create Asset (Interactive) Publisher

The Frame.io Create Asset (Interactive) Publisher mode allows for direct submission of media to Frame.io for publication via a Vantage workflow containing a configured Frame.IO action. Parameters such as Team, Project, and Folder name are specified based on the end user names that appear in the Frame.io web application. For more details, see the *Up and Running* section of the *Integrating Vantage with Frame.IO* application note available on the Telestream website.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration

Authentication Panel

Bearer Token. Authentication token created using your Frame.io account. See the *Obtaining a Frame.io Bearer Token* section of the *Integrating Vantage with Frame.IO* application note for requirements.

Use Proxy. Check to use a proxy server and configure these controls:

Proxy Host. Specifies the proxy server domain name | IP address.

Proxy Port (Default: 80). Specifies the port that the proxy server is listening on.

Proxy Host Requires Authentication. Check when the proxy server requires credentials and configure these controls.

Proxy Username. Specifies an authorized user ID.

Proxy Password. Specifies the password associated with the user ID.

Next. Click Next to continue to next panel.

Team Panel

Select Team. Select the Team name from list provided by Frame.io.

Next. Click Next to continue to next panel.

Project Panel

Select Target Project. Select the target Project name from list provided by Frame.io.

Next. Click Next to continue to next panel.

Folder Panel

Select Folder. Folder (or subfolder) name via Browse button from list provided by Frame.io.

Next. Click Next to continue to next panel.

Media Publication Panel

Media to Publish. Vantage nickname of Media to publish to Frame.io.

Specify Name. When checked, allows you to override the name of the input file when asset is published to Frame.io. Unchecked by default.

Specify Asset Properties. When checked, allows specification of key / value pairs for assets being published to Frame.io. Unchecked by default.

Click Add New Item and configure pairs. Each key / value pair item contains metadata fields for the name and associated value for the pair.

Next. Click Next to continue to next panel.

Variables Panel

Generate Variables. Check to generate a variety of Vantage variables relevant to your Frame.io configuration for use in downstream actions in the workflow: Asset Name | Folder Name | Project Name | Team Name | Account Name | Asset Identifier. A review URL variable may also be generated for distribution to other team members for comment and collaboration on an asset.

Next and Finish. Click Next and Finish to save the configuration and close the inspector.

Frame.io Create Asset (Programmatic) Publisher

The Frame.io Create Asset (Programmatic) Publisher mode allows a Vantage workflow containing a configured Frame.IO action to upload files, either from a custom program or larger web services based system. Parameters such as Teams, Project, and Folder name utilize UUIDs as acquired from the Frame.io SDK. For more details, see the *Using Frame.io Workflows in Programmatic Mode* section of the *Integrating Vantage with Frame.IO* application note available on the Telestream website.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration

Authentication Panel

Bearer Token. Authentication token created using your Frame.io account. See the see the *Obtaining a Frame.io Bearer Token* section of the *Integrating Vantage with Frame.IO* application note for requirements.

Team ID. (Required) Team UUID as provided in the Frame.io web application.

Project ID. (Required) Project UUID as provided in the Frame.io web application.

Folder ID. (Required) Folder UUID as provided in the Frame.io web application.

Use Proxy. Check to use a proxy server and configure these controls:

- **Proxy Host**. Specifies the proxy server domain name | IP address.
- **Proxy Port** (Default: 80). Specifies the port that the proxy server is listening on.

Proxy Host Requires Authentication. Check when the proxy server requires credentials and configure these controls.

- **Proxy Username**. Specifies an authorized user ID.
- **Proxy Password**. Specifies the password associated with the user ID.

Next. Click Next to continue to next panel.

Media Publication Panel

Media to Publish. Vantage nickname of Media to publish to Frame.io.

Specify Name. When checked, allows you to override the name of the input file when asset is published to Frame.io. Unchecked by default.

Specify Asset Properties. When checked, allows specification of key / value pairs for assets being published to Frame.io. Unchecked by default.

Click Add New Item and configure pairs. Each key / value pair item contains metadata fields for the name and associated value for the pair.

Next. Click Next to continue to next panel.

Variables Panel

Generate Variables. Check to generate a variety of Vantage variables relevant to your Frame.io configuration for use in downstream actions in the workflow: Asset Name | Folder Name | Project Name | Team Name | Account Name | Asset Identifier. A review URL variable may also be generated for distribution to other team members for comment and collaboration on an asset.

Next and Finish. Click Next and Finish to save the configuration and close the inspector.

Stanza Connector Man Pages

Stanza Create Project

Use the Create Project action to create a new Stanza project (and associated program) in Stanza. Optionally, you can pre-load the project with a video file and/or a subtitle file provided by Vantage. The ID of the newly created project + program may be exported as variables so they can be utilized by subsequent actions.

Create Project enables you to optionally perform speech-to-captions and/or export a program after the project has been created. You can perform all three tasks in a single workflow.

For example, create a new project with an associated video file, automatically generate captions from the audio using Stanza AI, and then export those captions to a completed caption file. In another example, you can use Create Project to convert a caption file from one type to another: Perform Create Project, provide a subtitle file, then perform Export Program to export the captions as a different type of caption file.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration Parameters

Any video or subtitle file that you use in Stanza must have a Project created for it. A Project is a container for one or more programs, which represent subtitle tracks

(languages or variants). Creating a Stanza project always creates the first Program for you, so any action that creates a new project will return both a Project ID and a Program ID.

Since Projects can contain multiple Programs, and some functions target a specific Program, subsequent Stanza functions that follow the Stanza action require the Program ID in order to target that specific program with an action.

Project Name (Required). Enter the name of the Stanza project to create.

Media to Publish. When checked, select the media file to publish to Stanza using a media nickname and configure the Caption Processing (see below) controls after completing this panel.

Sidecar File. When checked, allows specification of an associated subtitle or caption sidecar file for use in Stanza using a media nickname. Unchecked by default.

Deadline. When checked, allows you to specify a review deadline for a project. Unchecked by default.

Language (Default: en). Specifies the two-letter language code (ISO-639-1) for the project.

Captioning Mode (Default: CEA-608). Specifies the rules mode to use when checking the captions in the project.

Maximum Line Count (Default: 4). Specifies the maximum number of lines per caption. Set to 0 (zero) to disable checking in Stanza.

Maximum Line Length (Default: 32). Specifies the maximum number of characters per line. Set to 0 (zero) to disable checking in Stanza.

Minimum Duration. (Default: 0.6). Specifies the minimum caption time duration in seconds. Set to 0 (zero) to disable checking in Stanza.

Maximum Duration. (Default: 10). Specifies the maximum caption time duration in seconds. Set to 0 (zero) to disable checking in Stanza.

Maximum CPS (Default: 25.0). Specifies the maximum number of characters per second. Set to 0 (zero) to disable checking in Stanza.

Generate Variables

Program ID. Check to generate a text variable that contains the program ID associated with the project just created, and specify the variable to use, publishing it for use in downstream actions.

Project ID. Check to generate a text variable that contains the project ID just created, and specify the variable to use, publishing it for use in downstream actions.

Caption Processing

Convert Speech to Captions generates captions from the audio using Stanza AI.

Caption Processing. Select one:

- Convert Speech to Captions (Local) - generates captions from the audio using Stanza AI. See *Convert Speech to Captions (Local)*.

- Extract Embedded Captions - extracts embedded 608, 708, or Teletext captions. See *Extract Embedded Captions*.

- None - Does not perform any caption processing.

Convert Speech to Captions (Local)

Convert Speech to Captions generates captions from the audio using Stanza AI.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Model (Default: Base). Select from these options: Tiny (fastest) | Base (default) | Small | Medium | LargeV2 (best) | LargeV3 (experimental). Smaller models are faster but less accurate. LargeV2 is the recommended model for the highest accuracy for most languages.

Language (Default: en). Specifies the two-letter language code (ISO-639-1) for the project.

Track Number (Default: 0). When checked, specifies the track number of the target audio track.

Selected Channels. Integer; multiples separated by a comma. Optionally, specify the channel(s) to convert. For example: 7 or 1,2,4. Stanza starts counting tracks and channels from zero.

If neither Track Number or Selected Channels is set:

- Files with multiple tracks of PCM mono (for example, MXF with 8 mono PCM tracks): a mix-down of all audio tracks

- For any other audio layout: a mix-down of all channels from the first audio track in the file (track 0)

If Track Number N is specified, but not Selected Channels:

- A mix-down of all channels from audio track N

If Track Number N and Selected Channels are both specified:

- A mix-down of Specified Channels from audio track N

Prompt. Provide words or phrases that are likely to be spoken in the audio as hints to the model which can improve recognition results. The words may be entered in any format - they may be separated by spaces, commas or new lines with no effect on the result.

Translate. When checked, Stanza translates non-English speech to English text.

Refine Timing. When checked, causes Stanza to use Telestream's Auto Time Stamp technology to provide enhanced word-level timing accuracy, at the expense of slightly slower processing time. Operative in English, Spanish, French, German, and Portuguese.

Is Offsetted. When checked, offset the results by the video timecode track. For example, if the video start time code is 01:00:00:00, then this causes a spoken word to begin one second after the start of the video to have a timecode of 01:00:01:00.

Mark In. When checked, specify the starting time code where speech-to-captions conversion should start in this file. When unchecked, speech-to-captions conversion starts at the beginning of the file.

Mark Out. When checked, specify the ending time code where speech-to-captions conversion should stop. When unchecked, speech-to-captions conversion stops at the end of the file.

Next. Click Next to continue.

Extract Embedded Captions

Skip Video Data. Check to skip video data processing.

Channel. Select the 608 channel, 708 service or Teletext page from the menu:

- 608 - CC1- CC4.

- 708 - Service 1- Service 6.

- Teletext - Enable to specify a page number. Otherwise, the first available page is used. When selected, specify the page value:

  Specify Teletext Page. Specify a page number (range 100 - 899).

Next and Finish. Click Next and Finish to save the configuration and close the inspector.

Export Program

Note: This panel only displays when you select Convert Speech to Captions (Local) in the Caption Processing panel.

Export SCC. Check to export the program as an SCC file and configure these controls:

Frame Rate. Specifies the frame rate of the file.

Drop Frame. Check to specify that this file uses drop frame timecode.

Options. Optionally, specify advanced settings such as V-Chip settings or channel mapping, etc.

SCC File. Optionally, specify the nickname for the exported SCC file. This is useful when you want to utilize the file downstream or store it with the job catalog entry.

Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to

select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Export Location (Required). Specifies the fully-qualified path where the SCC file should be written.

Export TTML. Check to export the program as a TTML file and configure these controls:

Profile (Default: Basic). Specifies the profile specification from the menu options.

Language (Default: en). Specifies the two-letter language code (ISO-639-1) from the menu options.

Time Format (Default: Default). Specifies the time format from the menu options.

Set Frame Rate (Default: 29.97). When enabled, specifies the frame rate from the menu options.

Set Aspect Ratio (Default: 16:9 (1.78:1)). When enabled, specifies the aspect ratio from the menu options.

TTML File. Optionally, specify the nickname for the exported TTML file. This is useful when you want to utilize the file downstream or store it with the job catalog entry.

Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable

token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Export Location (Required). Specifies the fully-qualified path where the TTML file should be written.

Next and Finish. Click Next, then click Finish to save the action and close the inspector.

Stanza Connection Settings

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Connection Settings

Stanza Host (Required). Specify the Stanza host server name or IP address.

Stanza Port (Required; default: 7000). Specify Stanza host's address port. Click the Test button to verify connectivity to the Stanza server. Click Next to continue.

Authenticate Stanza. Check to authenticate Stanza API utilization using the supplied credentials:

> **Username**. Username credential required to access the Stanza server at the specified address.
>
> **Password**. Password required to access the Stanza server using the specified address.

Test. After configuring the action to connect to your target Stanza server, click Test to connect and verify credentials. If the connection fails, update the values and retry.

Next. Click Next to continue.

Stanza Convert Speech to Captions (Local)

Convert Speech to Captions targets an existing Stanza Project + Program (for example, one created by a prior Stanza action) and generates captions from the audio using Stanza AI. If you don't already have a Stanza project created for the associated media file, use the Create Project option instead - it also can be configured to perform speech-to-captions.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their value. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration Parameters

Program ID (Required). Specifies the target program ID for this action.

Project ID (Required). Specifies the project ID associated with the target program.

Model (Default: Base). Select from these options: Tiny (fastest) | Base (default) | Small | Medium | LargeV2 (best) | LargeV3 (experimental). Smaller models are faster but less accurate. LargeV2 is the recommended model for the highest accuracy for most languages.

Language (Default: en). Specifies the two-letter language code (ISO-639-1) for the project.

Track Number (Default: 0). When checked, specifies the track number of the target audio track.

Selected Channels. Integer; multiples separated by a comma. Optionally, specify the channel(s) to convert. For example: 7 or 1,2,4. Stanza starts counting tracks and channels from zero.

If neither Track Number or Selected Channels is set:

- Files with multiple tracks of PCM mono (for example, MXF with 8 mono PCM tracks): a mix-down of all audio tracks

- For any other audio layout: a mix-down of all channels from the first audio track in the file (track 0)

If Track Number N is specified, but not Selected Channels:

- A mix-down of all channels from audio track N

If Track Number N and Selected Channels are both specified:

- A mix-down of Specified Channels from audio track N

Prompt. Provide words or phrases that are likely to be spoken in the audio as hints to the model which can improve recognition results. The words may be entered in any

format - they may be separated by spaces, commas or new lines with no effect on the result.

Translate. When checked, Stanza translates non-English speech to English text.

Refine Timing. When checked, causes Stanza to use Telestream's Auto Time Stamp technology to provide enhanced word-level timing accuracy, at the expense of slightly slower processing time. Operative in English, Spanish, French, German, and Portuguese.

Is Offsetted. When checked, offset the results by the video timecode track. For example, if the video start time code is 01:00:00:00, then this causes a spoken word to begin one second after the start of the video to have a timecode of 01:00:01:00.

Mark In. When checked, specify the starting time code where speech-to-captions conversion should start in this file. When unchecked, speech-to-captions conversion starts at the beginning of the file.

Mark Out. When checked, specify the ending time code where speech-to-captions conversion should stop. When unchecked, speech-to-captions conversion stops at the end of the file.

Next and Finish. Click Next and Finish to save the configuration and close the inspector.

Stanza Export Program

Export Program targets an existing Stanza Project + Program and instructs Stanza to export a completed program to a caption file. If you don't already have a completed Stanza project + program, use the Create Project option instead to option to export your program.

Export Program

Program ID (Required). Specifies the target Stanza Program ID.

Project ID (Required). Specifies the target Stanza Project ID.

Export SCC. Check to export the program as an SCC file and configure these controls:

Frame Rate. Specifies the frame rate of the file.

Drop Frame. Check to specify that this file uses drop frame timecode.

Options. Optionally, specify advanced settings such as V-Chip settings or channel mapping, etc.

SCC File. Optionally, specify the nickname for the exported SCC file. This is useful when you want to utilize the file downstream or store it with the job catalog entry.

Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.
- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.
- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Export Location (Required). Specifies the fully-qualified path where the SCC file should be written.

Export TTML. Check to export the program as a TTML file and configure these controls:

Profile (Default: Basic). Specifies the profile specification from the menu options.

Language (Default: en). Specifies the two-letter language code (ISO-639-1) from the menu options.

Time Format (Default: Default). Specifies the time format from the menu options.

Set Frame Rate (Default: 29.97). When enabled, specifies the frame rate from the menu options.

Set Aspect Ratio (Default: 16:9 (1.78:1)). When enabled, specifies the aspect ratio from the menu options.

TTML File. Optionally, specify the nickname for the exported TTML file. This is useful when you want to utilize the file downstream or store it with the job catalog entry.

Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.
- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.
- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Export Location (Required). Specifies the fully-qualified path where the TTML file should be written.

Next and Finish. Click Next and Finish to save the configuration and close the inspector.

Stanza Publisher Legalize Captions

The Legalize Caption feature processes the file and converts any illegal characters and reformats characters and lines to conform to 608 caption export specifications, ensuring that the export will succeed. This feature only performs properly on content generated by Stanza version 2.5 or later.

Configuration Parameters

Program ID (Required). Specifies the target program ID for this action.

Project ID (Required). Specifies the project ID associated with the target program.

Next and Finish. Click Next and Finish to save the configuration and close the inspector.

Publishers
Stanza Publisher Legalize Captions

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Add File to Asset

Use the Add File to Asset operation to upload a new file from an on-prem location or add a link to a new file on a cloud platform to an existing asset (not a *placeholder*). Files may be one of three types: Subtitles | Format | Proxy. One file of each type may be added per action.

The asset must already exist in iconik: You can create an asset externally - directly in iconik - or you can create one using the Create New Package Asset operation in a previous iconik action.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Authentication Credentials

Note: The iconik Connector provides Vantage the authorization to utilize the buckets registered in the Iconik account.

Credentials are required for authentication, and the operations which are available in the inspector are based on the operations authorized by the iconik credentials this action is using.

If authentication fails, Vantage displays an error: "Unable to proceed, the specific application credentials to not appear to be valid".

Click OK to dismiss the dialog. Verify your iconik server's IP address or domain name, application token and application ID and try again. Configuration can not continue until Vantage connects to your iconik system.

Server (Required; default: app.iconik.io). Specifies the iconik server's IP address or domain name.

Application Token (Required). Specifies the authentication token that is used by Vantage to connect.

Application ID (Required). Specifies the application ID that is specified for Vantage integration.

Next. Click Next to continue configuration. Vantage attempts to authenticate your application token and connect using the specified application ID.

Asset Details

Asset ID. ID of the asset to which you want to add a file. Manually enter the ID or click the green Browse button to assign a variable whose value is the asset ID, updated from a previous action in the workflow.

Adding a New Format

Check to add a new file of type Format and configure these controls:

Enter the name for the Format (Required). Specifies the format name to display in iconik.

Format Media Nickname (Required). Specifies the nickname of the media file(s) to upload (on-prem) or link (cloud-based) to the asset, entered manually or selected from the list.

Storage for New Format (Required). Specifies the name of the cloud store where to write the media. This list of stores is the available stores in the iconik system for the specified account.

Media File Checksum. When checked, specifies the checksum generated upstream for the file, such as an MD5, SHA-1 or SHA-256 hash from the Analyze action configured in File Properties.

Adding New Subtitle Media

Check to add a new file of type Subtitle and configure these controls.

Subtitle Nickname (Required). Specifies the nickname of the file(s) to upload to the asset, entered manually or selected from the list.

Subtitle Language. Specifies the language of the subtitle.

Storage for New Subtitle (Required). Specifies the name of the cloud store where to write the media. This list of stores is the available stores in the iconik system for the specified account.

Closed Caption. Check to enable closed captioning.

Create Transcription. Check to generate a transcription, via speech to text.

Adding Proxy Media

Check to add a new file of type Proxy and configure these controls.

The only file format supported for proxy uploading is MP4. The file name must be *.mp4 or the job will fail. You can only add one proxy per asset. If the asset already has a proxy and the workflow attempts to upload another one without Delete existing Proxy enabled, then the action will not change the proxy.

Proxy Media Nickname (Required). Specifies the nickname of the file(s) to upload to the asset, entered manually or selected from the list.

Storage for New Proxy (Required). Specifies the name of the cloud store where to write the media. This list of stores is the available stores in the iconik system for the specified account.

Delete Existing Proxy. Check to delete the current proxy attached to the asset, if one exists. If the proxy has not yet been generated in iconik for this asset, setting this option to *true* will abort the iconik proxy generation job on the queue.

Generate Variables

Proxy Generated. Check to generate a Boolean variable to indicate whether the proxy was successfully generated or not, and pass it downstream for use in other actions in the workflow.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Add File to Placeholder

Use the Add File to Placeholder operation to upload files (identified by their nickname) from an on-prem location or add a link to the file on a cloud platform, in the specified format, to a cloud store and placed in an existing placeholder in the iconik system.

Note: Adding a cloud-based file requires that you create a Vantage address in the Domain Management console to identify the platform, and provide credentials and a path to the bucket. You can submit a job that uses cloud-based media via the API or in Workflow Designer, manually submit a job using the Submit Job button.

You should ensure that the placeholder ID corresponds to an existing placeholder. If it is not a valid ID, then this action will fail. Typically, you would have created a placeholder directly in iconik or you would have created one in Vantage using the Create Placeholder operation, prior to performing this operation.

You should also ensure that the target storage is active in iconik; storage may have its state changed in iconik after this action has been created and configured. An upload which can not complete due to an invalid store causes the action to fail.

As a result of successfully executing the Add File to Placeholder operation, the placeholder will be changed to an asset in iconik and the file will be associated with the asset. This means that once this action executes successfully with a given Asset ID (representing a placeholder); it may never be executed again with the same ID since that asset is no longer a placeholder.

To add additional files to a newly-converted asset, utilize the Add File to Asset operation.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration

Authentication Credentials

Note: The iconik Connector provides Vantage the authorization to utilize the buckets registered in the Iconik account.
Credentials are required for authentication, and the operations which are available in the inspector are based on the operations authorized by the iconik credentials this action is using.
If authentication fails, Vantage displays an error: "Unable to proceed, the specific application credentials to not appear to be valid".

Click OK to dismiss the dialog. Verify your iconik server's IP address or domain name, application token and application ID and try again. Configuration can not continue until Vantage connects to your iconik system.

Server (Required; default: app.iconik.io). Specifies the iconik server's IP address or domain name.

Application Token (Required). Specifies the authentication token that is used by Vantage to connect.

Application ID (Required). Specifies the application ID that is specified for Vantage integration.

Next. Click Next to continue configuration. Vantage attempts to authenticate your application token and connect using the specified application ID.

Asset Details

Placeholder ID (Required). Specifies the ID of an existing placeholder.

New Format Name (Required). Specifies the asset name to identify the new media format. This name displays in iconik under Files > MEDIA FORMATS.

Media File to Add (Required). Specifies the nickname of the media file to upload (on-prem) or link (cloud-based) to the asset, which was assigned when the media was ingested or created in a previous action in the workflow.

Media File Checksum. When checked, specifies the checksum generated upstream for the file, such as an MD5, SHA-1 or SHA-256 hash from the Analyze action configured in File Properties.

Storage (Required). Specifies the name of the cloud store where to write the media. This list of stores is the available stores in the iconik system for the specified account.

Next. Click Next to continue configuration.

Generate Variables

Asset Name. Check to generate a text variable with the value of the New Format Name, and pass it downstream for use in other actions in the workflow.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Add Time-Based Metadata

Use the Add Time-Based Metadata to associate a series of segment metadata (time-based metadata) with a specified asset based on a specific view.

Since time-based metadata is highly dynamic - any number of segments can be annotated within a given asset and repeated entries of these fields may be made at different points (markers) in the timeline of the asset - you can construct a definition at runtime that enables multiple dynamic metadata entries when the action is executed at a later point in time.

Consider a view defined in iconik named *Segment Demo*, with two fields: Player Name and Position. When you are entering time-based metadata in iconik for a given asset, you select the desired view (in this example, *Segment Demo*). iconik displays the fields for data entry at a selected point in the timeline, represented by white and red markers in the scrubber.

Note: If a metadata field in iconik is writable and a Vantage action is configured to set the value for this field, Vantage jobs based on this configuration continue to be able to set its value if the metadata field is modified to be read-only.
If you change the privileges of an iconik metadata field that is used or set by Vantage, it is your responsibility to update iconik actions in affected workflows.

Authentication Credentials

Note: The iconik Connector provides Vantage the authorization to utilize the buckets registered in the Iconik account.

Credentials are required for authentication, and the operations which are available in the inspector are based on the operations authorized by the iconik credentials this action is using.

If authentication fails, Vantage displays an error: "Unable to proceed, the specific application credentials to not appear to be valid".

Click OK to dismiss the dialog. Verify your iconik server's IP address or domain name, application token and application ID and try again. Configuration can not continue until Vantage connects to your iconik system.

Server (Required; default: app.iconik.io). Specifies the iconik server's IP address or domain name.

Application Token (Required). Specifies the authentication token that is used by Vantage to connect.

Application ID (Required). Specifies the application ID that is specified for Vantage integration.

Next. Click Next to continue configuration. Vantage attempts to authenticate your application token and connect using the specified application ID.

Time-Based Metadata Details

Asset ID (Required). Specifies the ID of the target asset.

Segment Data Source (Required). Specifies the nickname of the XML file that contains the metadata fields and values for each segment, in a schema that matches the specified metadata view. See the IconikTimeBased Metadata Schema topic below for schema specification and an example.

You may use style sheet transforms or similar to convert label-based data or other structured Vantage metadata into IconikTimeBased format.

Select the Desired Metadata View for the Asset (default: None). Specifies the view that defines the fields of time-based metadata to be added to the asset. When you select a specific metadata view, Vantage retrieves the fields and displays them for review.

Fields for View <Specified View>. Vantage queries iconik and displays the fields for the selected view.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

IconikTimeBased Metadata Schema

This schema must be used (and proper capitalization is required) to add time-based metadata to an asset, and contained in the XML file specified as the Segment Data Source.

Root element: <*IconikTimeBased*>

The root element many contain one or more child <*Segment*> elements.

Each <*Segment*> element contains one of each of these attributes:

- *color*: specified as the hex color value. For example, `color="#cc2e3b"`

- *timecode_start*: specifies the timecode start value, in the form HH:MM:SS.MMM or HH:MM:SS:FF@FPS.

- *timecode_end*: specifies the timecode end value, in the form HH:MM:SS.MMM or HH:MM:SS:FF@FPS.

Notice that the timecode's Seconds value (SS.MMM) may be specified in seconds and milliseconds to the thousandths instead of providing a frame value. You can also specify the frame value, but you must include the frame rate(SS:FF@FPS). For example, `timecode_start="00:00:37.028"` or `timecode_start="00:00:37:01@30"`.

If the data is at a single point in time, set *timecode_end* equal to *timecode_start*. Otherwise the data represents the span between the start and end timecodes. If the *timecode_end* is not equal to or larger than the *timecode_start*, then the end value is ignored and the *timecode_start* is duplicated in the *timecode_end*. Failure to supply correct timecodes may lead to action failure or issues that must be addressed in iconik directly.

The <*Segment*> element contains a <*Field*> element which correspond to each field defined in the desired view.

Each <Field> element shall consist of two attributes:

- *field_name*: The field name exactly as it exists in iconik - no spaces are permitted.

- *field_value*: The desired metadata value for the field name. If a newline character is required, the
 character sequence should be used.

When a field contains a URL or tag field, the <*Segment*> must contain JSON definition. See example below.

Example XML Metadata File

Here is an example XML file:

```
<IconikTimeBased>
  <Segment color="#cc2e3b" timecode_start="00:00:36:00@30"
timecode_end="00:00:36:00@30">
    <Field field_name="PlayerName" field_value="Red Foo"/>
    <Field field_name="Position" field_value="Pitcher"/>
  </Segment>
  <Segment color="" timecode_start="00:00:10.000"
timecode_end="00:00:10.000">
    <Field field_name="PlayerName" field_value="Joe Dirt"/>
    <Field field_name="Position" field_value="Catcher"/>
  </Segment>
</IconikTimeBased>
```

Metadata Contains URL / Tag Fields Example

When a field contains a URL or tag field for time-based metadata, the segment data XML must contain a JSON blob for the URL or tag in the *field_value* attribute. Here is an example:

```
<IconikTimeBased>
  <Segment color="#008080" timecode_start="00:00:15.116"
timecode_end="00:00:20.099">
    <Field field_name="URL" field_value='{"field_values":
[{"score":1,"value":"https://www.telestream.net/
"},{"score":1,"value":"https://www.telestream.com/vantage/
"}]}' />
    <Field field_name="TagCloud"
field_value='{"field_values":
[{"score":1,"value":"Bicycle"},{"score":1,"value":"Boating"}
]}' />
  </Segment>
```

```
</IconikTimeBased>
```

Assign Asset To Collection

Use the Assign Asset to Collection operation to associate the specified asset with a collection and generate specific information about the newly-created asset.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration

Authentication Credentials

Note: The iconik Connector provides Vantage the authorization to utilize the buckets registered in the Iconik account.
Credentials are required for authentication, and the operations which are available in the inspector are based on the operations authorized by the iconik credentials this action is using.
If authentication fails, Vantage displays an error: "Unable to proceed, the specific application credentials to not appear to be valid".
Click OK to dismiss the dialog. Verify your iconik server's IP address or domain name, application token and application ID and try again. Configuration can not continue until Vantage connects to your iconik system.

Server (Required; default: app.iconik.io). Specifies the iconik server's IP address or domain name.

Application Token (Required). Specifies the authentication token that is used by Vantage to connect.

Application ID (Required). Specifies the application ID that is specified for Vantage integration.

Next. Click Next to continue configuration. Vantage attempts to authenticate your application token and connect using the specified application ID.

Asset and Collection Details

Asset ID (Required). Specifies the ID of the target asset.

Interactive. Specifies that you want to retrieve the collections from iconik and browse to select the target collection.

> **Collection**. When Interactive is selected, Click the Browse button to the right of the Collection field to query iconik and display the collections. Browse the collections and select the target collection.

Programmatic. Specifies that the target collection is identified by ID.

Collection ID. When Programmatic is selected, manually enter the collection ID, obtained externally from the iconik system or click the green Browse button to select a variable which holds the collection ID, assigned the value from a previous action in the workflow.

Generate Variables

Asset Identifier. Check to generate a text variable with the value of the asset ID, and pass it downstream for use in other actions in the workflow.

Collection Identifier. Check to generate a text variable with the value of the collection ID, and pass it downstream for use in other actions in the workflow.

Collection Name. Check to generate a text variable with the value of the collection name, and pass it downstream for use in other actions in the workflow.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Create Asset Relationship

Use the Create Asset Relationship to create a new relationship between existing assets, identified by the ID of the assets.

Vantage can only create relationships between two assets per action. To create a relationship between one asset and two or more other assets, add an iconik action for each new relationship. For example, if you want one asset to be related to three other assets, add three iconik actions to the workflow, where each of these establishes a single relationship.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration

Authentication Credentials

Note: The iconik Connector provides Vantage the authorization to utilize the buckets registered in the Iconik account.
Credentials are required for authentication, and the operations which are available in the inspector are based on the operations authorized by the iconik credentials this action is using.
If authentication fails, Vantage displays an error: "Unable to proceed, the specific application credentials to not appear to be valid".
Click OK to dismiss the dialog. Verify your iconik server's IP address or domain name, application token and application ID and try again. Configuration can not continue until Vantage connects to your iconik system.

Server (Required; default: app.iconik.io). Specifies the iconik server's IP address or domain name.

Application Token (Required). Specifies the authentication token that is used by Vantage to connect.

Application ID (Required). Specifies the application ID that is specified for Vantage integration.

Next. Click Next to continue configuration. Vantage attempts to authenticate your application token and connect using the specified application ID.

Asset and Collection Details

Asset ID (Required). Specifies the ID of the target asset, entered manually or via a variable that holds the asset ID, updated in a previous action in the workflow.

Related Asset ID (Required). Specifies the ID of the asset to establish the relationship with, entered manually or via a variable that holds the asset ID, updated in a previous action in the workflow.

Select the Desired Relationship for the Assets (Required). Select the type of relationship to establish.

Generate Variables

Asset Name. Check to generate a text variable with the value of the asset name, and pass it downstream for use in other actions in the workflow.

Related Asset Name. Check to generate a text variable with the value of the related asset identifier, and pass it downstream for use in other actions in the workflow.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Create New Package Asset

Use the Create New Package Asset operation to create a new package asset of the format specified in iconik and optionally, upload a local (on-prem) IMF package or provide a link to the package in cloud storage. Note that cloud-based media must be in storage that is registered in iconik. To create the package asset, you provide it a Vantage nickname, which may be used to reference the package asset downstream in the workflow.

If the package is not in the expected format, the action does not create the package asset, and reports an error. The operation create a single file set in iconik and all files contained in the package are added to that file set, where the files associated with the same file set are handled as a single entity. Thus, when the package is downloaded, all files in the set are included in the download.

Note: You can submit a job that uses cloud-based media via the API or in Workflow Designer, manually submit a job using the Submit Job button.

You should ensure that the target storage is active in iconik; storage may have its state changed in iconik after this action has been created and configured. An upload which can not complete due to an invalid store causes the action to fail.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration

Authentication Credentials

Note: The iconik Connector provides Vantage the authorization to utilize the buckets registered in the Iconik account.
Credentials are required for authentication, and the operations which are available in the inspector are based on the operations authorized by the iconik credentials this action is using.
If authentication fails, Vantage displays an error: "Unable to proceed, the specific application credentials to not appear to be valid".
Click OK to dismiss the dialog. Verify your iconik server's IP address or domain name, application token and application ID and try again. Configuration can not continue until Vantage connects to your iconik system.

Server (Required; default: app.iconik.io). Specifies the iconik server's IP address or domain name.

Application Token (Required). Specifies the authentication token that is used by Vantage to connect.

Application ID (Required). Specifies the application ID that is specified for Vantage integration.

Next. Click Next to continue configuration. Vantage attempts to authenticate your application token and connect using the specified application ID.

Create New Package Asset

New Asset Name (Required). Specifies the name you want to assign the new package asset, entered manually or via a variable that holds the asset name, updated in a previous action in the workflow.

Media Package to Add (Required). Specifies the nickname of the package to upload (on-prem) or link (cloud-based) to the asset, entered manually or selected from the list.

Package Format (Required). Specifies IMF package format - not changeable by user.

Package Format Name. Package format name to use in iconik to associate files in package. If no package format name is specified, then the value of Package Format (IMF) is used.

Media Checksum. When checked, specifies the checksum generated upstream for the file, such as an MD5, SHA-1 or SHA-256 hash from the Analyze action configured in File Properties.

Note: Alternatively, you can specify any unique string that enables you to search for the asset with the string - a calculated file checksum is not required.

Storage (Required). Specifies the name of the cloud store where to write the media. This list of stores is the available stores in the iconik system for the specified account.

Specify Collection. Optionally, specifies the collection to assign the new package asset.

> **Interactive**. Specifies that you want to retrieve the collections from iconik - browse to select the target collection.
>
> **Collection**. When Interactive is selected, Click the Browse button to the right of the Collection field to query iconik and display the collections. Browse the collections and select the target collection.
>
> **Programmatic**. Specifies that the target collection is identified by ID.
>
> **Collection ID**. When Programmatic is selected, manually enter the collection ID, obtained externally from the iconik system or click the green Browse button to select a variable which holds the collection ID, assigned the value from a previous action in the workflow.

Generate Variables

Asset Identifier. Check to generate a text variable with the value of the asset ID, and pass it downstream for use in other actions in the workflow.

Collection Identifier. Check to generate a text variable with the value of the collection ID and pass it downstream for use in other actions in the workflow.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Create New Asset

Use the Create New Asset operation to create a new asset in iconik and optionally, upload local (on-prem) media or provide a link to media stored in cloud storage. Note that cloud-based media must be in a storage that is registered in iconik. To create the asset, you provide it a Vantage nickname, which may be used to reference the asset downstream in the workflow.

Note: You can submit a job that uses cloud-based media via the API or in Workflow Designer, manually submit a job using the Submit Job button.

You should ensure that the target storage is active in iconik; storage may have its state changed in iconik after this action has been created and configured. An upload which can not complete due to an invalid store causes the action to fail.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration

Authentication Credentials

Note: The iconik Connector provides Vantage the authorization to utilize the buckets registered in the Iconik account.
Credentials are required for authentication, and the operations which are available in the inspector are based on the operations authorized by the iconik credentials this action is using.
If authentication fails, Vantage displays an error: "Unable to proceed, the specific application credentials to not appear to be valid".
Click OK to dismiss the dialog. Verify your iconik server's IP address or domain name, application token and application ID and try again. Configuration can not continue until Vantage connects to your iconik system.

Server (Required; default: app.iconik.io). Specifies the iconik server's IP address or domain name.

Application Token (Required). Specifies the authentication token that is used by Vantage to connect.

Application ID (Required). Specifies the application ID that is specified for Vantage integration.

Next. Click Next to continue configuration. Vantage attempts to authenticate your application token and connect using the specified application ID.

Create New Asset

New Asset Name (Required). Specifies the name you want to assign the new asset, entered manually or via a variable that holds the asset name, updated in a previous action in the workflow.

Media File to Add (Required). Specifies the nickname of the media file to upload (on-prem) or link (cloud-based) to the asset, entered manually or selected from the list.

Media File Checksum. When checked, specifies the checksum generated upstream for the file, such as an MD5, SHA-1 or SHA-256 hash from the Analyze action configured in File Properties.

Storage (Required). Specifies the name of the cloud store where to write the media. This list of stores is the available stores in the iconik system for the specified account.

Specify Collection. Optionally, specifies the collection to assign the new asset.

> **Interactive**. Specifies that you want to retrieve the collections from iconik - browse to select the target collection.
>
> **Collection**. When yous select Interactive, click the Browse button to the right of the Collection field to query iconik and display the collections. Browse the collections and select the target collection.
>
> **Programmatic**. Specifies that the target collection is identified by ID.
>
> **Collection ID**. When you select Programmatic, manually enter the collection ID, obtained externally from the iconik system or click the green Browse button to select a variable which holds the collection ID, assigned the value from a previous action in the workflow.

Generate Variables

Asset Identifier. Check to generate a text variable with the value of the asset ID, and pass it downstream for use in other actions in the workflow.

Collection Identifier. Check to generate a text variable with the value of the collection ID and pass it downstream for use in other actions in the workflow.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Create Placeholder

Use the Create Placeholder operation to create a new asset in iconik without uploading media, assigning it a name.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration

Authentication Credentials

Note: The iconik Connector provides Vantage the authorization to utilize the buckets registered in the Iconik account.
Credentials are required for authentication, and the operations which are available in the inspector are based on the operations authorized by the iconik credentials this action is using.
If authentication fails, Vantage displays an error: "Unable to proceed, the specific application credentials to not appear to be valid".
Click OK to dismiss the dialog. Verify your iconik server's IP address or domain name, application token and application ID and try again. Configuration can not continue until Vantage connects to your iconik system.

Server (Required; default: app.iconik.io). Specifies the iconik server's IP address or domain name.

Application Token (Required). Specifies the authentication token that is used by Vantage to connect.

Application ID (Required). Specifies the application ID that is specified for Vantage integration.

Next. Click Next to continue configuration. Vantage attempts to authenticate your application token and connect using the specified application ID.

Asset Details

Placeholder Name (Required). Specifies the name you want to assign the new asset, entered manually or via a variable that holds the asset name, updated in a previous action in the workflow.

Specify Collection. Optionally, specifies the collection to assign the new asset.

Interactive. Specifies that you want to retrieve the collections from iconik - browse to select the target collection.

Collection. When you select Interactive, Click the Browse button to the right of the Collection field to query iconik and display the collections. Browse the collections and select the target collection.

Programmatic. Specifies that the target collection is identified by ID.

Collection ID. When you select Programmatic, manually enter the collection ID, obtained externally from the iconik system or click the green Browse button to select a variable which holds the collection ID, assigned the value from a previous action in the workflow.

Generate Variables

Asset Name. Check to generate a text variable with the value of the asset name, and pass it downstream for use in other actions in the workflow.

Asset Identifier. Check to generate a text variable with the value of the asset ID, and pass it downstream for use in other actions in the workflow.

Collection Name. Check to generate a text variable with the value of the collection name, and pass it downstream for use in other actions in the workflow.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Generate Approval Request

Use the Generate Approval Request operation to trigger the generation of an approval request email for the specified metadata view in iconik.

Executing this action results in the iconik MAM sending the same approval request email that is sent due to user-initiated approval requests. The request does not originate from Vantage.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Authentication Credentials

Note: The iconik Connector provides Vantage the authorization to utilize the buckets registered in the Iconik account.
Credentials are required for authentication, and the operations which are available in the inspector are based on the operations authorized by the iconik credentials this action is using.
If authentication fails, Vantage displays an error: "Unable to proceed, the specific application credentials to not appear to be valid".
Click OK to dismiss the dialog. Verify your iconik server's IP address or domain name, application token and application ID and try again. Configuration can not continue until Vantage connects to your iconik system.

Server (Required; default: app.iconik.io). Specifies the iconik server's IP address or domain name.

Application Token (Required). Specifies the authentication token that is used by Vantage to connect.

Application ID (Required). Specifies the application ID that is specified for Vantage integration.

Next. Click Next to continue configuration. Vantage attempts to authenticate your application token and connect using the specified application ID.

Asset Details

Asset ID (Required). ID of the asset that you want approved. Manually enter the ID or click the green Browse button to assign a variable whose value is the asset ID, updated from a previous action in the workflow.

Specify the Metadata View for the Approval Request (default: None). Select the metadata view to approve, from the list.

Specify the Reviewers. Check the iconik users that you want as reviewers of this request.

External Reviewers. Email address of external reviewers, separated by comma.

Require All Reviewers Approval. Check to require approval of all reviewers for this request to be approved.

Message. Specifies the message that accompanies this request. The message field is a single line text without returns. To create a custom, multi-line entry; use the Construct action to create a multi-line string and bind this field to the variable generated by the Construct action.

Custom Title. Specifies the title for this approval request.

Link Expires (Required). Specifies the deadline for approval - select from the calendar picker or enter it manually.

Allow Download. Check to enable reviewers to download the media file.

Allow Download Proxy. Check to enable reviewers to download the proxy file.

Allow Custom Actions. Check to enable reviewers to perform custom actions.

Allow Comments. Check to enable reviewers to enter comments.

Approve Comments. Check to enable reviewers to approve comments.

View Transcriptions. Check to allow reviewers to view transcriptions.

Password. Check to require a password for approval, and specify the password required.

Generate Variables

Asset Name. Check to generate a text variable with the value of the asset name, and pass it downstream for use in other actions in the workflow.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Retrieve Asset Metadata

Use the Retrieve Asset Metadata operation to retrieve the metadata from an existing asset in iconik, for use in the workflow.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Authentication Credentials

Note: The iconik Connector provides Vantage the authorization to utilize the buckets registered in the Iconik account.
Credentials are required for authentication, and the operations which are available in the inspector are based on the operations authorized by the iconik credentials this action is using.
If authentication fails, Vantage displays an error: "Unable to proceed, the specific application credentials to not appear to be valid".
Click OK to dismiss the dialog. Verify your iconik server's IP address or domain name, application token and application ID and try again. Configuration can not continue until Vantage connects to your iconik system.

Server (Required; default: app.iconik.io). Specifies the iconik server's IP address or domain name.

Application Token (Required). Specifies the authentication token that is used by Vantage to connect.

Application ID (Required). Specifies the application ID that is specified for Vantage integration.

Next. Click Next to continue configuration. Vantage attempts to authenticate your application token and connect using the specified application ID.

Asset Details

Asset ID. ID of the asset whose metadata you want to retrieve. Manually enter the ID or click the green Browse button to assign a variable whose value is the asset ID, updated from a previous action in the workflow.

Select the Metadata View to be Retrieved (default: None). Optionally, select the metadata view to be retrieved, from the list.

Fields for View <Specified View>. Vantage queries iconik and displays the fields for the selected view. Check the fields that you want retrieved and specify the variable to

hold the value. The action publishes each variable for use in downstream actions in the workflow.

Generate Variables

Asset Name. Check to generate a text variable with the value of the asset name, and pass it downstream for use in other actions in the workflow.

Asset Identifier. Check to generate a text variable with the value of the asset ID, and pass it downstream for use in other actions in the workflow.

Raw Json Metadata. Check to generate a text variable with the value of the retrieved metadata in JSON format, and pass it downstream for use in other actions in the workflow.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Retrieve File

Use the Retrieve File operation to access iconik media so it is added to the job for file operations downstream, such as Copy.

For example, you want to download the file to your local Vantage system: use a Copy action in the workflow to copy the file locally. Or, you want to immediately trigger a Vantage Cloud transcode job; use the Cloud action to perform the task.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Authentication Credentials

Note: The iconik Connector provides Vantage the authorization to utilize the buckets registered in the Iconik account.
Credentials are required for authentication, and the operations which are available in the inspector are based on the operations authorized by the iconik credentials this action is using.
If authentication fails, Vantage displays an error: "Unable to proceed, the specific application credentials to not appear to be valid".
Click OK to dismiss the dialog. Verify your iconik server's IP address or domain name, application token and application ID and try again. Configuration can not continue until Vantage connects to your iconik system.

Server (Required; default: app.iconik.io). Specifies the iconik server's IP address or domain name.

Application Token (Required). Specifies the authentication token that is used by Vantage to connect.

Application ID (Required). Specifies the application ID that is specified for Vantage integration.

Next. Click Next to continue configuration. Vantage attempts to authenticate your application token and connect using the specified application ID.

Asset Details

Asset ID (Required). ID of the asset whose whose file you want to retrieve. Manually enter the ID or click the green Browse button to assign a variable whose value is the asset ID, updated from a previous action in the workflow.

Retrieving a Format

Check to retrieve a pre-signed URL identifying the file of type Format and configure these controls:

Enter the name of the Format to Retrieve (Required). Specifies the format name to retrieve.

Nickname of Newly Created Version (Required). Specifies the nickname assigned to the pre-signed URL to the file you have just copied from iconik, entered manually or selected from the list.

Retrieving Subtitles

Check to retrieve a pre-signed URL identifying the type of type Subtitle and configure these controls.

Enter the name of the Subtitle to Retrieve (Required). Specifies the subtitle name to retrieve.

Nickname of Newly Created Version (Required). Specifies the nickname assigned to the pre-signed URL to the attachment file you have just copied from iconik, entered manually or selected from the list.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Retrieve Time-Based Metadata

Use the Retrieve Time-based Metadata operation to retrieve the metadata from an existing asset in iconik, for use in the workflow. The action optionally emits the time-based metadata as either JSON and/or XML attachment file(s) based on its configuration.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Authentication Credentials

Note: The iconik Connector provides Vantage the authorization to utilize the buckets registered in the Iconik account.
Credentials are required for authentication, and the operations which are available in the inspector are based on the operations authorized by the iconik credentials this action is using.
If authentication fails, Vantage displays an error: "Unable to proceed, the specific application credentials to not appear to be valid".
Click OK to dismiss the dialog. Verify your iconik server's IP address or domain name, application token and application ID and try again. Configuration can not continue until Vantage connects to your iconik system.

Server (Required; default: app.iconik.io). Specifies the iconik server's IP address or domain name.

Application Token (Required). Specifies the authentication token that is used by Vantage to connect.

Application ID (Required). Specifies the application ID that is specified for Vantage integration.

Next. Click Next to continue configuration. Vantage attempts to authenticate your application token and connect using the specified application ID.

Asset Details

Asset ID. ID of the asset whose metadata you want to retrieve. Manually enter the ID or click the green Browse button to assign a variable whose value is the asset ID, updated from a previous action in the workflow.

Select the Metadata View to be Retrieved (default: None). Optionally, select the metadata view to be retrieved, from the list.

Attachments to Generate

XML Attachment | JSON Attachment. Check Enable in either tabbed panel to generate an XML file and/or a JSON file containing the time-based metadata.

Complete these fields for each type of attachment to generate:

Time-based Metadata Attachment Nickname. Specifies the nickname of the file for use downstream, entered manually or selected from the list.

Edit Filename Pattern. Displays the Filename Pattern Editor and specifies the pattern for the file you are creating. Default: Base Name. Use the menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- Base Name: The base name of the file, excluding the extension. The extension on the resulting file name is determined by the output you choose.

- Date: Select the format to use by clicking on the token in the pattern field.

- Time: Select the format to use by clicking on the token in the pattern field.

- Variable: Select the variable to use or create a new one, and click OK.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value 12H4JA678, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Output Location. Specifies where to store the file.

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Variable button and select a variable which contains the fully-qualified path.

Collision Resolution. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Generate Variables

Asset Name. Check to generate a text variable with the value of the asset name, and pass it downstream for use in other actions in the workflow.

Asset Identifier. Check to generate a text variable with the value of the asset ID, and pass it downstream for use in other actions in the workflow.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Share an Asset

Use the Share an Asset operation to direct the specified iconik asset to share, and what permissions you grant the share recipients.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Authentication Credentials

Note: The iconik Connector provides Vantage the authorization to utilize the buckets registered in the Iconik account.
Credentials are required for authentication, and the operations which are available in the inspector are based on the operations authorized by the iconik credentials this action is using.
If authentication fails, Vantage displays an error: "Unable to proceed, the specific application credentials to not appear to be valid".
Click OK to dismiss the dialog. Verify your iconik server's IP address or domain name, application token and application ID and try again. Configuration can not continue until Vantage connects to your iconik system.

Server (Required; default: app.iconik.io). Specifies the iconik server's IP address or domain name.

Application Token (Required). Specifies the authentication token that is used by Vantage to connect.

Application ID (Required). Specifies the application ID that is specified for Vantage integration.

Next. Click Next to continue configuration. Vantage attempts to authenticate your application token and connect using the specified application ID.

Asset Details

Asset ID (Required). ID of the asset that you want to share. Manually enter the ID or click the green Browse button to assign a variable whose value is the asset ID, updated from a previous action in the workflow.

Specify the Metadata View for the Share (default: None). Optionally, select the metadata view to share, from the list.

Specify the Users to Share With. Check the iconik users that you want to share this asset with.

External Share. Email address of external share recipients, separated by comma.

Message. Specifies the message that accompanies this request. The message field is a single line text without returns. To create a custom, multi-line entry; use the Construct action to create a multi-line string and bind this field to the variable generated by the Construct action

Custom Title. Specifies the title for this share operation.

Link Expires (Required). Specifies the date when sharing automatically terminates - select from the calendar picker or enter it manually.

Allow Download. Check to enable share recipients to download the media file.

Allow Download Proxy. Check to enable share recipients to download the proxy file.

Allow Custom Actions. Check to enable share recipients to perform custom actions.

Allow Comments. Check to enable share recipients to enter comments.

Approve Comments. Check to enable share recipients to approve comments.

View Transcriptions. Check to allow share recipients to view transcriptions.

Password. Check to require a password for sharing, and specify the password required.

Generate Variables

Asset Name. Check to generate a text variable with the value of the asset name, and pass it downstream for use in other actions in the workflow.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Update Asset Metadata

Use the Update Asset Metadata operation to update the metadata of a specified asset.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Authentication Credentials

Note: The iconik Connector provides Vantage the authorization to utilize the buckets registered in the Iconik account.
Credentials are required for authentication, and the operations which are available in the inspector are based on the operations authorized by the iconik credentials this action is using.
If authentication fails, Vantage displays an error: "Unable to proceed, the specific application credentials to not appear to be valid".
Click OK to dismiss the dialog. Verify your iconik server's IP address or domain name, application token and application ID and try again. Configuration can not continue until Vantage connects to your iconik system.

Server (Required; default: app.iconik.io). Specifies the iconik server's IP address or domain name.

Application Token (Required). Specifies the authentication token that is used by Vantage to connect.

Application ID (Required). Specifies the application ID that is specified for Vantage integration.

Next. Click Next to continue configuration. Vantage attempts to authenticate your application token and connect using the specified application ID.

Asset Details

Asset ID. ID of the asset whose metadata you want to update. Manually enter the ID or click the green Browse button to assign a variable whose value is the asset ID, updated from a previous action in the workflow.

Select the Desired Metadata View for the Asset (default: None). Optionally, select the metadata view to update, from the list.

Fields for View <Specified View>. Vantage queries iconik and displays the fields for the selected view. Check the fields that you want updated and specify the variable that holds the value.

Some field types, such as *URL* and *Tag cloud* fields must be manipulated in Vantage using RAW JSON. Therefore, the field must updated with RAW JSON that has been constructed manually, with a Construct action, or externally in some other program.

URL and Tag Cloud Fields Example. Here are JSON input examples:

URL Field Example:

```
[
  {
    "label":"some url",
    "value":"http://mybucket/myfolder/myfile.jpg"
  },
  {
    "label":"some other url",
    "value":"http://someotherserver/myfolder/myfile.jpg"
  }
]
```

OR

```
[{"label":"some url","value":"http://mybucket/myfolder/
myfile.jpg"},{"label":"some other url","value":"http://
someotherserver/myfolder/myfile.jpg"}]
```

Tag Cloud Field Example:

```
[
  {
    "score":1,
    "value":"My Tag 1"
  },
  {
    "score":1,
    "value":"My Tag 2"
  }
]
```

OR

```
[{"score":1,"value":"My Tag 1"},{"score":1,"value":"My Tag
2"}]
```

Generate Variables

Asset Name. Check to generate a text variable with the value of the asset name, and pass it downstream for use in other actions in the workflow.

Asset Identifier. Check to generate a text variable with the value of the asset ID, and pass it downstream for use in other actions in the workflow.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Publishers
Update Asset Metadata

Mimir Man Pages

Create an Item

Use the Create an Item operation to create a new item in Mimir and optionally upload a file. Mimir generates an item ID, and - if a file is being uploaded - automatically processes and stores the high-resolution asset, creating a proxy version for preview and editing, and enriches it with AI-generated metadata such as transcriptions, translations, and facial recognition for enhanced search effectiveness.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration

File Uploads

File to Upload. Check to upload a file. When checked, select the nickname of the file to upload identified from a previous action or create a new nickname. If you create a new nickname but do not assign it to the ingested file in a previous action, Vantage will detect the error and you won't be able to activate the workflow.

Media Type. Specifies the type of media being uploaded.

Item Visibility

Visible To. Specifies which types of users in your organization can see this item. When you select Selected Groups..., configure these controls:

- **Administrator**. Check to enable administrators to see the item.
- **Organization**. Check to enable the organization to see the item.

Analytics for Item

When selected, Mimir uses AI-based processes to perform these tasks and update the item as appropriate:

Transcribe. Check to perform transcription, and configure these controls:

- **Language**. Specifies the language the source is being transcribed into.
- **Channel**. Check the channels to transcribe.

Detect Faces. Check to perform face detection.

Detect Celebrities. Check to perform celebrity-based face detection.

Detect Labels. Check to perform label detection.

Target

Target Upload Location. When File to Upload is checked, specifies the location that is the target for the upload. These locations are managed in the Mimir System Settings, and retrieved by Vantage when you enter the API key for use in this action.

Target Folder. Specifies the folder in which to store the file. Click Browse to fetch the folders and display them in the Mimir Folder Browser for selection.

Continue

Next. Click Next to continue configuration.

Vantage queries Mimir to obtain a list of forms, as configured in the Mimir account's System Settings. The Mimir account is determined by the API key used.

Type. The top level metadata form assigned to the Item. Click Browse to fetch the folders in the upload location and display them in the Mimir Folder Browser for selection.

Metadata Values. Display a form and check the metadata you want populated, and supply the value. Certain metadata fields must be completed to continue.

Continue

Next. Click Next to continue configuration.

Click Next to continue configuration.

Generate Variables

Item Name. Check to generate a Text variable to populate it with the item name, and pass it downstream for use in other actions in the workflow. [Common] is the name for the default built-in form for item metadata.

Item Identifier. Check to generate a Text variable to populate it with the auto-generated item identifier, and pass it downstream for use in other actions in the workflow.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Upload Attachment

Use the Upload Attachment operation to upload a file to an item, which was previously ingested into the workflow.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration

Item ID. Specifies the ID of the item to which you are uploading the attachment file. Manually enter the ID or click the green Browse button to assign a variable whose value is the item ID.

Attachment to Upload. Select the nickname of the file to upload, which has been ingested from a previous action or create a new nickname. If you create a new nickname but do not assign it to the ingested file in a previous action, Vantage will detect the error and you won't be able to activate the workflow.

Filename. Specifies the name to assign the file in Mimir, which must be a unique attachment name for that item in Mimir.

Language. Specifies the two-letter language code of the file, if applicable. May be left blank.

Next. Click Next to display the next panel.

Generate Variables

Item Name. Check to generate a Text variable to populate it with the item name, and pass it downstream for use in other actions in the workflow. [Common] is the name for the default built-in form for item metadata.

Item Identifier. Check to generate a Text variable to populate it with the auto-generated item identifier, and pass it downstream for use in other actions in the workflow.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Upload to an Item

Use the Upload to an Item operation to upload a primary media file that has been ingested into the workflow to an item in Mimir.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Item ID. Specifies the ID of the item for which you want to obtain details. Manually enter the ID or click the green Browse button to assign a variable whose value is the item ID.

File to Upload. Select the nickname of the file to upload, which has been ingested from a previous action or create a new nickname. If you create a new nickname but do not assign it to the ingested file in a previous action, Vantage will detect the error and you won't be able to activate the workflow.

Target Upload Location. When File to Upload is checked, specifies the location that is the target for the upload. These locations are managed in the Mimir System Settings, and retrieved by Vantage when you enter the API key for use in this action.

Generate Variables

Proxy Generated. Check to generate a Boolean variable to indicate whether the proxy was successfully generated or not, and pass it downstream for use in other actions in the workflow.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Update Item Details

Use the Update Item Details operation to modify the metadata values of an item in Mimir.

When you enter the API key and click Next, Vantage connects to the Target Mimir system and retrieves the forms, displaying them in the first panel.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration

Item ID. Specifies the ID of the target item you are updating.

Type. The top level metadata form assigned to the Item. Click Browse to fetch the folders in the upload location and display them in the Mimir Folder Browser for selection.

Open the individual form panels to display associated metadata and supply the new value to apply.

Generate Variables

Item Name. Check to generate a Text variable to populate it with the item name, and pass it downstream for use in other actions in the workflow.

Item Identifier. Check to generate a Text variable to populate it with the auto-generated item identifier, and pass it downstream for use in other actions in the workflow.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Get Item Details

Use the Get Item Details operation to retrieve selected metadata about the specified item.

The item must already exist in your Mimir MAM: You can create an item externally - directly in Mimir - or you can create one using the Create Item operation in a previous Mimir action in this or other Vantage workflow.

When you enter the API key and click Next, Vantage connects to the Target Mimir system and retrieves the forms, displaying them in the Metadata Forms control.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration

Item ID. Specifies the ID of the item for which you want to obtain details. Manually enter the ID or click the green Browse button to assign a variable whose value is the item ID.

Browse the metadata forms organized by panel, and, for each metadata you want to retrieve and assign to a variable check the control and then supply a variable to update and generate for use downstream.

Next. Click Next to display the next panel.

File Download Nicknames

All nicknames are populated with a pre-signed URL or file path, based on the storage location in Mimir.

Primary Nickname. Check to specify the nickname of the main file asset of the item.

Proxy Media Nickname. Check to specify the nickname of the proxy file.

VTT File Nickname. Check to specify the nickname of the VTT file - the caption file created by the Mimir Translation option, provided that you have selected it.

Translation VTT File Nickname. Check to specify the nickname of the translation VTT file.

Next. Click Next to display the next panel.

Generate Variables

Item Name. Check to generate a Text variable to populate it with the item name, and pass it downstream for use in other actions in the workflow. [Common] is the name for the default built-in form for item metadata.

Item Identifier. Check to generate a Text variable to populate it with the item identifier, and pass it downstream for use in other actions in the workflow.

Raw JSON Output. Check to generate a Text variable to populate it with the raw JSON-formatted details output and pass it downstream for use in other actions in the workflow.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Update Logging Data

Use the Update Logging Data operation to create a log entry and add timed (time-based) metadata items about an item. The data must be in properly-formed JSON format.

For information about the required JSON format, read the Mimir documentation: Update Timed Metadata of an Item. Note that the JSON format for updating timed metadata is not the same as the format that is returned by Get Item Details.

If you send Mimir invalid metadata - for example, an invalid form ID or field ID - it is ignored without warning.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration

Item ID. Specifies the ID of the item for which you want to provide a log entry. Manually enter the ID or click the green Browse button to assign a variable whose value is the item ID.

Logging Data Source. Specify Attachment | Text.

Select *Attachment* when the timed data is in a JSON file that you have ingested in the workflow as an attachment, and configure this control:

> **Logging Data Attachment**. Specifies the nickname of the attachment ingested in the workflow.

Select *Text* when you are providing the JSON-formatted content as text, and configure this control:

> **Logging Data**. Enter the JSON-formatted metadata as a string. Use this field when you want to programmatically build the payload, and enter the text or specify a variable which was updated with the text upstream in the workflow.

Next. Click Next to display the next panel.

Generate Variables

Item Name. Check to generate a Text variable to populate it with the item name, and pass it downstream for use in other actions in the workflow.

Item Identifier. Check to generate a Text variable to populate it with the item identifier, and pass it downstream for use in other actions in the workflow.

Complete the Action

Next and Finish. Click Next and click Finish to save the action.

Binding Variables

Return

Variables provide powerful flexibility in improving workflow design and execution.

When you *bind* (or assign) a variable to a field or parameter that provides information to an action, you are replacing a static value (a manually entered value or value selected from a list) that never changes - with a dynamic value - one that changes at run time depending on external influences - media files or attachments that are ingested, time of job run, upstream actions in the workflow, etc.

You can also bind - assign a variable to an output field or parameter - thus, dynamically assigning some value to a parameter in an action, then publishing it for use in actions downstream as input.

In fact, variables must be output (that is a value is assigned) before they can be input (extracting the value for utilization).

When this action executes the value of the variable is used in the specified field/parameter, which typically varies from job to job. Be certain that the variable you use has a default value, or it has been set to a value in a prior action or by the job itself.

When you bind a variable to a field/parameter, the field/parameter is populated with ONLY THE VALUE of the bound variable. Thus, if you have manually entered a static value, when you bind a variable the static text you entered is deleted and the field/parameter is initially populated with the default value of the variable (replacing any current value the user may have entered). During run-time, if a new value is set for the variable (while the job is processing) the new value is be propagated to the field.

A green border displays to indicate an active binding. When a field/parameter has an active binding, the tooltip indicates the variable that is bound and providing the value.

There are two ways you can set a default value, which is used in cases where the variable is not set when the workflow runs:

1. Set the value you want (for example, a default text message) as the default value of the variable (using the console), then bind the variable.
2. Set the field/parameter value after creating the binding.

Variables are created and managed in the Vantage console (select Templates > Variables). The variable you plan to use must be created prior to configuring this action.

To unbind a variable from a parameter, click Browse and click Unbind.

Binding Variables

Timed Text Flip Action Components

Input Components

890 Input

Auto Input

Cheetah CAP Input

DCP Input

DVB Subtitles (TS) Input

DVB Teletext (TS) Input

EBU-STL Input

IMF Subtitles Input

Lambda CAP Input

MCC Input

Media Input

PAC Subtitles Input

SCC Input

Spruce STL (text only) Input

SRT Input

TTML/DFXP Input

WebVTT Input

Output Components

DVB Subtitles Output

DVB Teletext Output

EBU-STL Output

MCC Output

MCC Output (Timed Text Conform)

Plain Text Output

Same as Source Output

SCC Output

SCC Output (Timed Text Conform)

Spruce STL Output

SRT Output

Subtitle Overlay Output

Teletext OP42 VBI Overlay Output

Teletext OP47 MXF Output

TTML Output

IMSC TTML Output (Timed Text Conform)

WebVTT Output

890 Input

The 890 file format is a legacy subtitle format from 1989 which is still in use for subtitle interchange and subtitles for archived content. The current release supports .890 subtitle files encoded using the following languages or alphabets:

- Latin/Roman alphabet

- Cyrillic

- Hebrew

- Double byte Unicode-based languages such as Chinese

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

Subtitle Slate Removal

When checked, the first slate/subtitle in the source is ignored. Subsequent outputs will not include this slate/subtitle.

Only When Slate Contains Keyword. When checked, slates will only be removed if they contain the specified keyword. Note: This control is not case sensitive so specifying TITLE, Title, or title will result in the removal of slates that contain the word 'title'.

Only When Slate Contains at Least X Lines. When checked, only slates that contain the specified number of lines or greater will be removed. For example, a file with a slate containing 3 lines is submitted to a workflow where this control has been set to 4 lines. The slate will not be removed because it doesn't meet the threshold of at least 4 lines. However, a file with a slate of 5 lines submitted to the same workflow will have the slate removed because it meets or exceeds the value of at least 4 lines specified in the control.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Input Settings

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name.

Note: When attaching a file to process with an output component, you must use the appropriate input (for example, SCC Input for attaching SCC files), so that the file can be properly decoded to provide access to the stream(s).

- *File Nickname*. To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

- *File Name*. To attach a file by file name, manually enter the fully-qualified path and file name, or click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name). You can also click the green Browse button to select a variable which supplies the fully-qualified path to the file dynamically.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Timed Text 1*) in place. This stream name should be unique within the inputs.

Language. When enabled, override the language parameter of this track with the selection. NOTE: If you are binding this control to a variable, the text value must exactly match one of the original language selections in the encoder.

Auto Input

The Auto input component in the Timed Text Flip action is used to ingest a variety of caption and subtitle sidecar file types without explicitly declaring the type.

Note: The Auto input in Timed Text Flip only supports the ingest of caption and subtitle sidecar files. Submission of other file types such as media with embedded captions results in expected job failures.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Input Settings

Source. Specifies the input source file to process, by nickname or by file name.

- *File Nickname*. To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

- *File Name*. To attach a file by file name, manually enter the fully-qualified path and file name, or click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name).

Container Settings

General

Always Create Outputs. When checked, outputs are created even if specified file inputs are not present at the time of job submission. Unchecked by default.

Note: If Always Create Outputs is checked and File Nickname is specified as input source but the specified File Nickname is not present at the time of job submission, job failures will occur. Therefore, Telestream recommends using only the File Name input option when this feature is enabled.

Subtitle Slate Removal

When checked, the first slate/subtitle in the source is ignored. Subsequent outputs will not include this slate/subtitle.

Only When Slate Contains Keyword. When checked, slates will only be removed if they contain the specified keyword. Note: This control is not case sensitive so specifying TITLE, Title, or title will result in the removal of slates that contain the word 'title'.

Only When Slate Contains at Least X Lines. When checked, only slates that contain the specified number of lines or greater will be removed. For example, a file with a slate containing 3 lines is submitted to a workflow where this control has been set to 4 lines. The slate will not be removed because it doesn't meet the threshold of at least 4 lines. However, a file with a slate of 5 lines submitted to the same workflow will have the slate removed because it meets or exceeds the value of at least 4 lines specified in the control.

Media to Keep

When checked, allows you to add one or more trim operations to the associated input file. Unchecked by default.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Timed Text 1*) in place. This stream name should be unique within the inputs.

Language. When enabled, override the language parameter of this track with the selection. NOTE: If you are binding this control to a variable, the text value must exactly match one of the original language selections in the encoder.

Cheetah CAP Input

The Cheetah CAP format is a common subtitle/caption file format for broadcast media. It was developed by Cheetah International. This format supports a single track per file.

The Cheetah CAP input component enables you to convert Cheetah CAP caption files into other formats.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Input Settings

Source. Click *Select* to display the input source dialog where you specify the file to process, by nickname or by file name.

Note: When attaching a file to process with an output component, you must use the appropriate input (for example, SCC Input for attaching SCC files), so that the file can be properly decoded to provide access to the track.

- *File Nickname*. To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

- *File Name*. To attach a file by file name, manually enter the fully-qualified path and file name, or click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name). You can also click the green Browse button to select a variable which supplies the fully-qualified path to the file dynamically.

Timed Text Track Settings

Select the Timed Text track to change its settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Timed Text 1*) in place. This stream name should be unique within the inputs.

Language. Select to override the language label tag associated with this track, then choose the language label that will appear in the video player for this track. This does not change the language in this track, but only identifies it.

Note: If you are binding this control to a variable, the text value must exactly match one of the original language selections in the encoder.

DCP Input

The DCP Subtitle input supports subtitle files conforming to SMPTE 428-7 "Digital Cinema Distribution Master" and also DCI Interop compatible subtitles for digital cinema. The DCP Subtitle files can be either standalone XML documents or MXF-wrapped. For MXF-wrapped DCP subtitles, submit only the subtitle track file, not the DCP package.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

Subtitle Slate Removal

When checked, the first slate/subtitle in the source is ignored. Subsequent outputs will not include this slate/subtitle.

Only When Slate Contains Keyword. When checked, slates will only be removed if they contain the specified keyword. Note: This control is not case sensitive so specifying TITLE, Title, or title will result in the removal of slates that contain the word 'title'.

Only When Slate Contains at Least X Lines. When checked, only slates that contain the specified number of lines or greater will be removed. For example, a file with a slate containing 3 lines is submitted to a workflow where this control has been set to 4 lines. The slate will not be removed because it doesn't meet the threshold of at least 4 lines. However, a file with a slate of 5 lines submitted to the same workflow will have the slate removed because it meets or exceeds the value of at least 4 lines specified in the control.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Input Settings

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name.

Note: When attaching a file to process with an output component, you must use the appropriate input (for example, SCC Input for attaching SCC files), so that the file can be properly decoded to provide access to the stream(s).

- *File Nickname*. To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

- *File Name*. To attach a file by file name, manually enter the fully-qualified path and file name, or click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name). You can also click the green Browse button to select a variable which supplies the fully-qualified path to the file dynamically.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Timed Text 1*) in place. This stream name should be unique within the inputs.

Language. When enabled, override the language parameter of this track with the selection. NOTE: If you are binding this control to a variable, the text value must exactly match one of the original language selections in the encoder.

DVB Subtitles (TS) Input

The DVB Subtitle (TS) input allows you to convert DVB bitmap subtitles into a Subtitle Overlay with alpha channel for the purpose of creating burn-in subtitles. This input can only be configured with the Subtitle Overlay output. DVB subtitles are bitmap images and cannot be converted back to text-based formats such as closed captions, Teletext, or sidecar files.

When outputting a Subtitle Overlay, you can configure the width and height of the overlay via the Subtitle Style filter settings. If the original DVB subtitle bitmaps were generated for a different screen size, they will be stretched or shrunk to match the output width and height settings. Note that other Subtitle Style settings such as font, font size, color, background color, margins, and so on, will have no effect on the look of DVB Subtitle inputs.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Digital Noise in Demo Mode

For non-licensed users, digital noise (snow) is added to the picture as a restriction.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Input Settings

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name.

Note: When attaching a file to process with an output component, you must use the appropriate input (for example, SCC Input for attaching SCC files), so that the file can be properly decoded to provide access to the stream(s).

- *File Nickname*. To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

- *File Name*. To attach a file by file name, manually enter the fully-qualified path and file name, or click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name). You can also click the green Browse button to select a variable which supplies the fully-qualified path to the file dynamically.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Timed Text 1*) in place. This stream name should be unique within the inputs.

Language. Select to override the language label tag associated with this track, then choose the language label that will appear in the video player for this track. This does not change the language in this track, but only identifies it.

Note: If you are binding this control to a variable, the text value must exactly match one of the original language selections in the encoder.

DVB Teletext (TS) Input

The DVB Teletext (TS) input enables you to convert DVB Teletext subtitles into other caption and subtitle formats. A source with DVB Teletext can contain multiple tracks (PIDs), and each track can contain multiple languages on different page numbers. To select multiple tracks, add additional Timed Text tracks to the input (Timed Text 1, Timed Text 2, and so on).

To decode the Teletext you must also configure the Teletext page number for the language you want to decode from the selected track. The page number is configured via the "Caption Channel Source" parameter on the output, not the input.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Input Settings

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name.

Note: When attaching a file to process with an output component, you must use the appropriate input (for example, SCC Input for attaching SCC files), so that the file can be properly decoded to provide access to the stream(s).

- *File Nickname*. To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

- *File Name*. To attach a file by file name, manually enter the fully-qualified path and file name, or click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name). You can also click the green Browse button to select a variable which supplies the fully-qualified path to the file dynamically.

Container Settings

Always Create Outputs. When checked, outputs are created even if specified file inputs are not present at the time of job submission. Unchecked by default.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Note: Multiple tracks can be specified each associated with a unique PID (packet identifier) for use in configuring output file channel sources.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Timed Text 1*) in place. This stream name should be unique within the inputs.

Language. Select to override the language label tag associated with this track, then choose the language label that will appear in the video player for this track. This does not change the language in this track, but only identifies it.

Note: If you are binding this control to a variable, the text value must exactly match one of the original language selections in the encoder.

EBU-STL Input

EBU-STL (.STL) is the subtitle data exchange format widely used in Europe. The format can contain both Teletext (Closed Subtitle) data as well as Open Subtitle information for overlay burn-in of text into media files. EBU-STL Teletext information can have up to 40 characters per line of text, including spaces, and supports Latin, Hebrew, Arabic, Greek, and Cyrillic alphabets.

Both Teletext and Open Subtitle data can be used by Timed Text Flip to create a subtitle overlay graphic file for burn-in subtitles. If the STL file contains only Latin characters it can be converted to CEA-608/708 formats, such as SCC, by the Timed Text Flip action. If non-Latin characters are present, the action will indicate an error during conversion to a CEA-608/708 format.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

General

Frame Rate Override. Enable and select a frame rate to override the default EBU STL frame rate as specified in the file header. When enabled, allows specification of a custom value from the drop down menu.

Ignore Header Start Timecode. When enabled, the Timed Text Flip action ignores the Start of Program (TCP) and First Cue Timecode (TCF) values in the EBU-STL header.

Treat Chevrons as Italics. When enabled, < and > chevrons will be treated as start and stop italics commands rather than actual text characters.

Subtitle Slate Removal

When checked, the first slate/subtitle in the source is ignored. Subsequent outputs will not include this slate/subtitle.

Only When Slate Contains Keyword. When checked, slates will only be removed if they contain the specified keyword. Note: This control is not case sensitive so specifying TITLE, Title, or title will result in the removal of slates that contain the word 'title'.

Only When Slate Contains at Least X Lines. When checked, only slates that contain the specified number of lines or greater will be removed. For example, a file with a slate containing 3 lines is submitted to a workflow where this control has been set to 4 lines. The slate will not be removed because it doesn't meet the threshold of at least 4 lines.

However, a file with a slate of 5 lines submitted to the same workflow will have the slate removed because it meets or exceeds the value of at least 4 lines specified in the control.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Input Settings

Source. Specifies the file to process, by nickname or by file name.

Note: When attaching a file to process with an output component, you must use the appropriate input (for example, SCC Input for attaching SCC files), so that the file can be properly decoded to provide access to the stream(s).

- *File Nickname*. To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

- *File Name*. To attach a file by file name, manually enter the fully-qualified path and file name, or click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name). You can also click the green Browse button to select a variable which supplies the fully-qualified path to the file dynamically.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Timed Text 1*) in place. This stream name should be unique within the inputs.

Language. Do not use. This control is active, but its settings have no affect on the output. The language specified in the PAC file is passed directly to the output.

IMF Subtitles Input

The IMF Subtitles Input ingests a CPL (Composition Play List) file, and reads the TTML timed text tracks from the referenced MXF package. Configure the number of timed text tracks to match the source file, and then select which track you want to extract subtitles from.

Note: Only submit CPL (composition playlist) files. If you submit an MXF file, the job fails.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

Subtitle Slate Removal

When checked, the first slate/subtitle in the source is ignored. Subsequent outputs will not include this slate/subtitle.

Only When Slate Contains Keyword. When checked, slates will only be removed if they contain the specified keyword. Note: This control is not case sensitive so specifying TITLE, Title, or title will result in the removal of slates that contain the word 'title'.

Only When Slate Contains at Least X Lines. When checked, only slates that contain the specified number of lines or greater will be removed. For example, a file with a slate containing 3 lines is submitted to a workflow where this control has been set to 4 lines. The slate will not be removed because it doesn't meet the threshold of at least 4 lines. However, a file with a slate of 5 lines submitted to the same workflow will have the slate removed because it meets or exceeds the value of at least 4 lines specified in the control.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Input Settings

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name.

Note: When attaching a file to process with an output component, you must use the appropriate input (for example, SCC Input for attaching SCC files), so that the file can be properly decoded to provide access to the stream(s).

- *File Nickname*. To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

- *File Name*. To attach a file by file name, manually enter the fully-qualified path and file name, or click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name).

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Timed Text 1*) in place. This stream name should be unique within the inputs.

Language. When enabled, override the language parameter of this track with the selection. NOTE: If you are binding this control to a variable, the text value must exactly match one of the original language selections in the encoder.

Lambda CAP Input

Lambda CAP is a subtitle file format popular for Japanese subtitles. It supports Japanese text including:

- Mixed horizontal/vertical text layouts
- Top/bottom (horizontal text) and left/right (vertical text) positioning
- Embedded horizontal text within vertical layouts ("tate-chu-yoko")
- Ruby text annotations ("furigana")

and several other special character features unique to Japanese subtitles.

The Timed Text Flip action can use a Lambda CAP input source file to create various outputs, such as Subtitle Overlay graphics, WebVTT, TTML, and SRT sidecar subtitle files. Lambda CAP cannot be converted to closed captioning formats such as .SCC or .MCC files since Japanese characters and formatting are not supported by CEA-608/708 closed captions.

- *Subtitle Overlay*. When outputting to a Subtitle Overlay, all the features of Lambda CAP are supported. The text will be rendered using the font and style settings applied via the Subtitle Style filter on the Subtitle Overlay output, or a default font style if the Subtitle Style filter is disabled.

- *WebVTT*. When outputting to WebVTT, Ruby text and vertical layouts are supported, but tate-chu-yoko is currently not supported by the WebVTT specification.

- *TTML*. When outputting to TTML, currently only the basic text is supported. Features such as Ruby text are planned to be supported in the future TTML2 specification.

- *SRT*. When outputting to SRT, only the basic text is supported.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

Subtitle Slate Removal

When checked, the first slate/subtitle in the source is ignored. Subsequent outputs will not include this slate/subtitle.

Only When Slate Contains Keyword. When checked, slates will only be removed if they contain the specified keyword. Note: This control is not case sensitive so specifying TITLE, Title, or title will result in the removal of slates that contain the word 'title'.

Only When Slate Contains at Least X Lines. When checked, only slates that contain the specified number of lines or greater will be removed. For example, a file with a slate containing 3 lines is submitted to a workflow where this control has been set to 4 lines. The slate will not be removed because it doesn't meet the threshold of at least 4 lines. However, a file with a slate of 5 lines submitted to the same workflow will have the slate removed because it meets or exceeds the value of at least 4 lines specified in the control.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Input Settings

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name.

Note: When attaching a file to process with an output component, you must use the appropriate input (for example, SCC Input for attaching SCC files), so that the file can be properly decoded to provide access to the stream(s).

- *File Nickname*. To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

- *File Name*. To attach a file by file name, manually enter the fully-qualified path and file name, or click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name). You can also click the green Browse button to select a variable which supplies the fully-qualified path to the file dynamically.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Timed Text 1*) in place. This stream name should be unique within the inputs.

Language. When enabled, override the language parameter of this track with the selection. NOTE: If you are binding this control to a variable, the text value must exactly match one of the original language selections in the encoder.

MCC Input

The MCC (MacCaption VANC data) file format is capable of containing both CEA-608 and CEA-708 caption data. This includes multiple languages within 608/708 as different services, such as CC1 or CC3, and Service 1 through 6. In addition, MCC files can contain data in multiple frame rates such as 23.976fps, 24fps, 25fps, 30fps, 59.94fps, 60fps, and 29.97fps drop frame and non-drop frame.

When selecting MCC as an input file type, the user can expect to map CEA-608/708 into Same as Source output files. MCC conversions to SCC will only pass-through the CEA-608 since SCC files do not contain CEA-708 data. When converting to TTML output from MCC input, the TTML will be created based on the SMPTE 2052 standard.

MCC can be used as an input format to create a subtitle overlay, however it is important to note that, by default, Timed Text Flip will use the CEA-608 CC1 portion of the MCC file to generate the subtitle graphics.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Input Settings

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name.

Note: When attaching a file to process with an output component, you must use the appropriate input (for example, SCC input for attaching SCC files), so that the file can be properly decoded to provide access to the stream(s).

- *File Nickname*. To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

- *File Name*. To attach a file by file name, manually enter the fully-qualified path and file name, or click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name). You can also click the green button to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Timed Text 1*) in place. This stream name should be unique within the inputs.

Language. When enabled, override the language parameter of this track with the selection. NOTE: If you are binding this control to a variable, the text value must exactly match one of the original language selections in the encoder.

Media Input

The Media input component in the Timed Text Flip action is used to accept input source video file formats such as GXF, MXF, MOV, MP4, TS, and MPEG-2. This component will either extract caption data from video files or select input video files to use for the Same as Source Output component.

Note: The Media input component should only be used with *video* files and cannot be used with caption or subtitle files.

When Media input is used for caption data extraction, the action will extract CC1 in CEA-608 and Service 1 in CEA-708 by default. Extraction from the media source will happen automatically when an output is added and set to extract data from the Media Timed Text stream.

When extracting CEA-608 and CEA-708 data the action will scan the file for caption data in the user data track, or VBI. Once the data has been found, the action can create the desired output file format.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Input Settings

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name.

Note: When attaching a file to process with an output component, you must use the appropriate input (for example, SCC input for attaching SCC files), so that the file can be properly decoded to provide access to the stream(s).

- *File Nickname*. To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

- *File Name*. To attach a file by file name, manually enter the fully-qualified path and file name, or click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name). You can also click the green button to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Video Track Settings

Select a Video track to change its settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Video 1*) in place. This stream name should be unique within the inputs.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming stream. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Audio Track Settings

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, enable the track checkbox in the empty, untitled audio track to the right of the last active track. Up to 32 tracks are supported.

Note: The number of tracks that should be utilized is indicated by the number of *active* input tracks you specify. If a source file has fewer tracks than you specify, the action generates an error. If the source file contains more audio tracks than you specify, the additional tracks are ignored and processing proceeds normally.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Audio 1*) in place. This stream name should be unique within the inputs.

Select the track to display stream settings.

Language. When enabled, override the language parameter of this track with the selection. NOTE: If you are binding this control to a variable, the text value must exactly match one of the original language selections in the encoder.

Bit Rate. Check Bit Rate to specify the bit rate of the incoming stream. You specify the input stream bit rate to control how the output component should process the incoming stream. If not set, the output component attempts to measure the actual bit rate of the stream, but it may not be accurate.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Timed Text 1*) in place. This stream name should be unique within the inputs.

Language. When enabled, override the language parameter of this track with the selection. NOTE: If you are binding this control to a variable, the text value must exactly match one of the original language selections in the encoder.

Container

Always Create Outputs. When checked, outputs are created even if specified file inputs are not present at the time of job submission. Start timecode will default to 00:00:00:00. Unchecked by default.

Skip Reading Video Samples. When checked, captions are read only from metadata. Check this option to speed up reading the source file, when the captions are available in the metadata such as Quicktime CC tracks. Uncheck this option when reading source files containing caption data that is part of the video essence, such as VBI, MPEG-2 user data, H.264/HEVC SEI data, OP47 Teletext, etc.

Ignore Media Timecode. When checked, source media timecode will be ignored. Unchecked by default.

Generate Variables

Allows generation of variables for use in caption detection.

CC Present in Essence. When checked, detects 708 captions in source video essence. Unchecked by default.

Non-empty CC Present in Essence. When checked, detects actual 708 captions (non-empty) in source video essence. Unchecked by default.

CC Present in Container. When checked, detects 708 captions in source container. Unchecked by default.

Non-empty CC Present in Container. When checked, detects actual 708 captions (non-empty) in source video container. Unchecked by default.

PAC Subtitles Input

PAC Subtitles (.PAC) is a subtitle data exchange format widely used in Europe. The format contains subtitle information which can be used by Timed Text Flip to create subtitle overlays as well as caption and subtitle files, such as MCC, SRT, WebVTT, etc.

The Character Set utilized in the input PAC file must be specified manually or specified by using a variable. If the PAC file contains only Latin characters it can be converted to CEA-608/708 formats, such as SCC, by the Timed Text Flip action. If non-Latin characters are present, the action will indicate an error during conversion to a CEA-608/708 format.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

General

Character Set. Specifies the character set used by PAC files that will be processed by the Timed Text Flip action. The character set can not be automatically determined from the source PAC file. The default setting is Latin and supports PAC files containing English, Spanish, French, German, and other languages that are generally written with the "Latin 1" character set.

For Portuguese PAC files, be sure to select the Portuguese-specific Character Set option for full character and diacritic support.

For Serbian Cyrillic PAC files, be sure to select Serbian Cyrillic-specific Character Set option for full character and diacritic support.

If using PAC files containing another language, such as Japanese, select the matching character set from this menu.

Frame Rate Override. Enable and select a frame rate to override the default PAC frame rate. PAC files are read by default at 30 fps.

Subtitle Slate Removal

When checked, the first slate/subtitle in the source is ignored. Subsequent outputs will not include this slate/subtitle.

Only When Slate Contains Keyword. When checked, slates will only be removed if they contain the specified keyword. Note: This control is not case sensitive so specifying TITLE, Title, or title will result in the removal of slates that contain the word 'title'.

Only When Slate Contains at Least X Lines. When checked, only slates that contain the specified number of lines or greater will be removed. For example, a file with a slate containing 3 lines is submitted to a workflow where this control has been set to 4 lines. The slate will not be removed because it doesn't meet the threshold of at least 4 lines. However, a file with a slate of 5 lines submitted to the same workflow will have the slate removed because it meets or exceeds the value of at least 4 lines specified in the control.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Input Settings

Source. Specifies the input source file to process, by nickname or by file name.

Note: When attaching a file to process with an output component, you must use the appropriate input (for example, SCC Input for attaching SCC files), so that the file can be properly decoded to provide access to the stream(s).

- *File Nickname*. To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

- *File Name*. To attach a file by file name, manually enter the fully-qualified path and file name, or click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name).

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Timed Text 1*) in place. This stream name should be unique within the inputs.

Language. Do not use. This control is active, but its settings have no affect on the output. The language specified in the PAC file is passed directly to the output.

SCC Input

An SCC file is the Scenarist Closed Captioning format developed to author DVD video discs with CEA-608 caption data. This file format is also used by transcode mechanisms, such as Vantage Transcode Pro and IPTV VOD, to insert caption data into a variety of media file types.

The SCC file does not contain any CEA-708 data. Therefore, a CEA-608 to CEA-708 conversion must occur when using SCC data for HD media formats that require both 608 and 708 data. SCC files support Latin alphabet characters as specified in CEA-608 and cannot contain caption data for non-Latin languages such as Arabic, Hebrew, Cyrillic, and Japanese.

SCC files are intended to support NTSC video frame rates such as 29.97fps. When selecting SCC as an input option, Timed Text Flip can only read service channel CC1 from the caption data found inside the SCC files. Sometimes an SCC input and output operation may be used in Timed Text Flip just to modify the frame rate or starting timecode from the original SCC.

The Timed Text Flip action can use SCC files to generate any output type.

Note: SCC files also contain all of the positioning and text formatting that TV closed captioning supports including pop-on, paint-on, and roll-up. This formatting is preserved when MCC, SCC, Subtitle Overlay, and Same as Source are selected as an output. However, SRT and WebVTT currently only support pop-on formatting and positioning.

When selecting SCC as an input, along with a video media source, take note of the Timed Text Stream Name that is assigned to the SCC file. In the Timed Text Stream settings for the SCC input, Timed Text Flip will have assigned a name and number to that stream. "Timed Text 1" for example may appear, while a different input may have "Timed Text 2". When selecting an output to use for the SCC input, set the output Timed Text Stream setting so it is the same as the SCC input, for example "Timed Text 1". You can change the input Timed Text Stream names to be whatever you want.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/ readability purposes. Alternatively, use drag-and-drop to select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Input Settings

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name.

Note: When attaching a file to process with an output component, you must use the appropriate input (for example, SCC input for attaching SCC files), so that the file can be properly decoded to provide access to the stream(s).

- *File Nickname*. To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

- *File Name*. To attach a file by file name, manually enter the fully-qualified path and file name, or click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name). Alternatively, click the green Browse button to select a variable which supplies the fully-qualified path dynamically.

Frame Rate Override. Enable and select a frame rate to override the default SCC frame rate. SCC files are read by default at 29.97 drop-frame (when using semicolons in the timecode) and 29.97 non drop-frame (when using colons in the timecode).

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Timed Text 1*) in place. This stream name should be unique within the inputs.

Language. Select to override the language label tag associated with this track, then choose the language label that will appear in the video player for this track. This does not change the language in this track, but only identifies it.

Note: If you are binding this control to a variable, the text value must exactly match one of the original language selections in the encoder.

Spruce STL (text only) Input

A Spruce STL (Spruce Technologies) file is the subtitle format designed to work with Spruce DVD authoring systems, and later DVD Studio Pro 2.0 and above. This file format is a text file that can support a variety of languages and is intended to be used for subtitling purposes. The Spruce STL file format can be used for subtitle overlay graphic generation by the Timed Text Flip action for burn-in subtitling. It can also be used to convert to other compatible subtitle formats such as EBU-STL and SRT.

The Spruce STL format supports text positioning on the screen. However, since DVDs only support SD NTSC material, all Spruce STL files are set up for SD workflows. That includes positioning and font size. For HD workflows the STL file must be modified or overridden by Timed Text Flip parameters.

This format is supported in Timed Text Flip as a text-only input option. The Spruce STL with corresponding TIFF files is not supported.

Spruce STL files can contain non-Latin characters, so caution should be taken when selecting Spruce STL as an input source if the intended output contains CEA-608 data, such as an SCC file.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

Subtitle Slate Removal

When checked, the first slate/subtitle in the source is ignored. Subsequent outputs will not include this slate/subtitle.

Only When Slate Contains Keyword. When checked, slates will only be removed if they contain the specified keyword. Note: This control is not case sensitive so specifying TITLE, Title, or title will result in the removal of slates that contain the word 'title'.

Only When Slate Contains at Least X Lines. When checked, only slates that contain the specified number of lines or greater will be removed. For example, a file with a slate containing 3 lines is submitted to a workflow where this control has been set to 4 lines. The slate will not be removed because it doesn't meet the threshold of at least 4 lines. However, a file with a slate of 5 lines submitted to the same workflow will have the slate removed because it meets or exceeds the value of at least 4 lines specified in the control.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Input Settings

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name.

Note: When attaching a file to process with an output component, you must use the appropriate input (for example, SCC Input for attaching SCC files), so that the file can be properly decoded to provide access to the stream(s).

- *File Nickname*. To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

- *File Name*. To attach a file by file name, manually enter the fully-qualified path and file name, or click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name). You can also click the green Browse button to select a variable which supplies the fully-qualified path to the file dynamically.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Timed Text 1*) in place. This stream name should be unique within the inputs.

Language. When enabled, override the language parameter of this track with the selection. NOTE: If you are binding this control to a variable, the text value must exactly match one of the original language selections in the encoder.

SRT Input

An SRT file is the SubRip subtitle format. This file format is a text file that can support a variety of languages and is intended to be used for subtitling purposes. The SRT file format can be used for subtitle overlay graphic generation by the Timed Text Flip action for burn-in subtitling.

The SRT format does not support text positioning on the screen and so, by default, video players will render the subtitle text as bottom center on the screen. If subtitle positioning is critical, users are encouraged to consider the WebVTT (.VTT) format as an input file for subtitling and captioning.

SRT files can contain non-Latin characters, so caution should be taken when selecting SRT as an input source if the intended output contains CEA-608 data, such as an SCC file.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

Subtitle Slate Removal

When checked, the first slate/subtitle in the source is ignored. Subsequent outputs will not include this slate/subtitle.

Only When Slate Contains Keyword. When checked, slates will only be removed if they contain the specified keyword. Note: This control is not case sensitive so specifying TITLE, Title, or title will result in the removal of slates that contain the word 'title'.

Only When Slate Contains at Least X Lines. When checked, only slates that contain the specified number of lines or greater will be removed. For example, a file with a slate containing 3 lines is submitted to a workflow where this control has been set to 4 lines. The slate will not be removed because it doesn't meet the threshold of at least 4 lines. However, a file with a slate of 5 lines submitted to the same workflow will have the slate removed because it meets or exceeds the value of at least 4 lines specified in the control.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Input Settings

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name.

Note: When attaching a file to process with an output component, you must use the appropriate input (for example, SCC input for attaching SCC files), so that the file can be properly decoded to provide access to the stream(s).

- *File Nickname*. To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

- *File Name*. To attach a file by file name, manually enter the fully-qualified path and file name, or click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name). You can also click the green button to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Timed Text 1*) in place. This stream name should be unique within the inputs.

Language. Select to override the language label tag associated with this track, then choose the language label that will appear in the video player for this track. This does not change the language in this track, but only identifies it.

Note: If you are binding this control to a variable, the text value must exactly match one of the original language selections in the encoder.

TTML/DFXP Input

TTML (Timed Text Markup Language) is an XML file format which contains timing, text, and positioning. This format is also referred to as DFXP format. This format is standardized by W3C (www.w3.org).

Other formats, such as SMPTE 2052, are compatible with the TTML input in the Timed Text Flip action. For this action, the TTML input can be converted to a Subtitle Overlay, a caption file type, and embedded into source media. Therefore, since the contents of a TTML can include non-supported character sets that cannot be converted to CEA-608, conversions from TTML to SCC, MCC, and Same as Source should be done with caution.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

General

Always Create Outputs. When checked, outputs are created even if specified file inputs are not present at the time of job submission. Unchecked by default.

Subtitle Slate Removal

When checked, the first slate/subtitle in the source is ignored. Subsequent outputs will not include this slate/subtitle.

Only When Slate Contains Keyword. When checked, slates will only be removed if they contain the specified keyword. Note: This control is not case sensitive so specifying TITLE, Title, or title will result in the removal of slates that contain the word 'title'.

Only When Slate Contains at Least X Lines. When checked, only slates that contain the specified number of lines or greater will be removed. For example, a file with a slate containing 3 lines is submitted to a workflow where this control has been set to 4 lines. The slate will not be removed because it doesn't meet the threshold of at least 4 lines. However, a file with a slate of 5 lines submitted to the same workflow will have the slate removed because it meets or exceeds the value of at least 4 lines specified in the control.

Media to Keep

When checked, allows you to add one or more trim operations to the associated input file. Unchecked by default.

Note: The timecode fields in a default window may display only a portion of the time code (for example, 00 : 00). To display the entire field, grab the panel border on the left and resize it wider, or resize the entire window to make it wider. The timecode field displays HH:MM:SS:FF, plus an FPS control.

Add New Item. Adds a new trim operation. Configure the trim points or click Browse to assign a variable which contains the value assigned from an upstream action. Each trim operation functions independently of other operations. All start times are from the beginning of the clip. To delete a trim operation, click the X icon (upper right).

Media Start Time. Offset to the start (inclusive) of the kept section of the input media. The frame prior to this time and all prior frames are trimmed. Select FPS from the menu.

Media End Time. Offset to the end (exclusive) of the kept section of the input media. This frame and all subsequent frames are trimmed. Select FPS from the menu.

Use Source Media Video Timing. When checked, the media start time and media end time parameters are based on the container-level start timecode of the input media. When this checkbox is unchecked, all start and end timecodes assume that the first frame of video has a timecode of 00:00:00:00.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Input Settings

Source: Click Select to display the input source dialog where you specify the file to process, by nickname or by file name.

Note: When attaching a file to process with an output component, you must use the appropriate input (for example, SCC input for attaching SCC files), so that the file can be properly decoded to provide access to the stream(s).

- *File Nickname*. To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

- *File Name*. To attach a file by file name, manually enter the fully-qualified path and file name, or click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name). You can also click the green button to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Timed Text 1*) in place. This stream name should be unique within the inputs.

Language. Select to override the language label tag associated with this track, then choose the language label that will appear in the video player for this track. This does not change the language in this track, but only identifies it.

Note: If you are binding this control to a variable, the text value must exactly match one of the original language selections in the encoder.

WebVTT Input

WebVTT (.VTT) is the Web Video Text Tracks format and is similar to the more simplified SRT subtitle file format. However, the VTT file can contain advanced text formatting and positioning information to emulate TV closed captioning. This is critical so that text does not obstruct important information on the screen, such as lower third graphics.

Timing in WebVTT is represented in milliseconds and does not follow TV frame rate specifications. Therefore, to use WebVTT files for TV broadcast, a conversion must be made to match 23.98fps, 25fps, 29.97fps, and so on.

The Timed Text Flip action can use a WebVTT input source file to create various outputs, such as Subtitle Overlay graphics or an SCC caption file. WebVTT is not limited to Latin alphabet characters and can include a variety of characters that are not supported by the CEA-608 specification. If a non-supported character set is found when converting WebVTT to CEA-608 file types, such as SCC, the action will indicate an error during the conversion.

Choosing WebVTT as an input file type to create a Subtitle Overlay output is ideal, since Timed Text Flip supports the various positioning and character sets that are found in WebVTT.

Delete. To delete this input, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Container Settings

Subtitle Slate Removal

When checked, the first slate/subtitle in the source is ignored. Subsequent outputs will not include this slate/subtitle.

Only When Slate Contains Keyword. When checked, slates will only be removed if they contain the specified keyword. Note: This control is not case sensitive so specifying TITLE, Title, or title will result in the removal of slates that contain the word 'title'.

Only When Slate Contains at Least X Lines. When checked, only slates that contain the specified number of lines or greater will be removed. For example, a file with a slate containing 3 lines is submitted to a workflow where this control has been set to 4 lines. The slate will not be removed because it doesn't meet the threshold of at least 4 lines. However, a file with a slate of 5 lines submitted to the same workflow will have the slate removed because it meets or exceeds the value of at least 4 lines specified in the control.

Input Toolbar Icons

Gear > Convert to. Changes the input from one type to another. Alternatively, right-click and select the format from the list. This saves you the effort of re-configuring an input when you just want to change the input container/format.

Up/Down Arrow. Moves the selected input up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select a component and drag it to its new location in the list.

Details Arrow. Collapses or expands the input panels.

Plus Sign. Adds another input to this action.

Input Settings

Source. Click Select to display the input source dialog where you specify the file to process, by nickname or by file name.

Note: When attaching a file to process with an output component, you must use the appropriate input (for example, SCC input for attaching SCC files), so that the file can be properly decoded to provide access to the stream(s).

- *File Nickname*. To attach a file by nickname, select the nickname of the file from the menu. The file must have been ingested or created by an upstream action in the workflow.

- *File Name*. To attach a file by file name, manually enter the fully-qualified path and file name, or click Browse to navigate and select the file (which may not yet exist in the directory, so you must manually enter the file name). You can also click the green button to select a variable which has been created in an upstream action and contains the fully-qualified path to the file.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

Stream Name. Enter the name of the stream to identify it for selection later, or leave the default value (for example, *Timed Text 1*) in place. This stream name should be unique within the inputs.

Language. Select to override the language label tag associated with this track, then choose the language label that will appear in the video player for this track. This does not change the language in this track, but only identifies it.

Note: If you are binding this control to a variable, the text value must exactly match one of the original language selections in the encoder.

Timed Text Flip Action Components
WebVTT Input

DVB Subtitles Output

The DVB Subtitles Output creates a Transport Stream (TS) containing a DVB-compatible 720 x 576 subtitle track for PAL applications. This TS file does not contain any video or audio - only the subtitle graphics generated by the Timed Text Flip action.

All supported video, caption, and subtitle files in Timed Text Flip can be converted to subtitle graphics using this component. The resulting TS file can be used with Vantage IPTV Flip to create the final multiplexed DVB transport stream containing video, audio, and subtitles.

You can optionally enable closed caption/subtitle retiming, closed caption/subtitle frame rate conversion, and subtitle style options.

The resolution parameter should be set to the video resolution size desired for delivery.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Output Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select an output and drag it to a new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Output Settings

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the package to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click the green Browse button to select a variable which supplies the fully-qualified path dynamically.

- *Collision Resolution*. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for the new file.

Delete. Click the X icon on the right to delete the output from this action.

Filter Settings

Select the output component panel to configure the settings.

General

Stream PID. Sets the PID (Packet ID) of the subtitle track in the transport stream. When adding multiple subtitle tracks to the same video, each subtitle track must have a unique PID.

Language. Sets the language tag encoded in the Program Map Table (PMT) of the transport stream. This language tag will be visible to DVB receivers and allows users to select which language of subtitles to display.

Type. Sets the type of descriptor, per Table 26 of ETSI EN 300 468. Select Normal or SDH for hard of hearing, and the aspect ratio you want.

Color Depth. Sets the color depth. DVB Subtitles supports 4 color, 16 color, and 256 color modes. The default is 16, which provides a good balance between bit rate and quality. 256 color mode gives better quality, especially on subtitles containing multiple colors, anti-aliased edges, or drop shadow, at the expense of a slightly higher bit rate and more stringent decoder requirements. 4 color mode uses less bandwidth but has a very limited color palette.

DVB Page Number. Sets the page number. The default is 0, and the range is 0 to 65535. This sets the internal page ID number of the DVB subtitle track. You may need to change this page number if required by the broadcaster or when you plan to insert multiple languages of subtitles into a program.

DVB Ancillary Page Number. This option should be left at 0 (default) for most users. Change this option only if your TV network or set top box requires a different DVB ancillary page number to be set.

Caption Channel Source. Sets the caption channel of the source. The default is CC1, and the range is CC1 to CC4 (CEA-608), Service 1 to Service 6 (CEA-708), or Teletext. If your source is a closed caption file such as SCC, MCC, or video with embedded CEA-608/708 captions or Teletext, this setting controls which caption channel is converted to DVB subtitles. If the source does not contain CEA-608/708 captions, or Teletext respectively, then this setting has no effect.

Teletext Accurate Decoding Mode. When checked, Teletext is decoded more closely to a reference hardware decoder. This includes stretched text in double-mode. Unchecked by default.

Teletext Decoding Options

When enabled, allows specification of various Teletext decoding parameters.

Page. Specify Teletext page to decode or leave at default setting of 0 to auto decode first detected page.

Character Set. Specify character set to use or leave at Default setting to auto detect character set from page headers if available. If no character set is detected, Latin will be used.

National Option Subset. Specify national option character subset to use when decoding Latin character Teletext or leave at Default setting to auto detect character subset from page headers if available. If no character subset is detected, English will be used.

Closed Caption/Subtitle Retiming

Check to activate options to modify the timing of the closed captions or subtitles.

Retime Rate. The rate factor to apply to caption/subtitle event times to realign or change synchronization. 100% matches the original speed. Use greater than 100% to make captions/subtitles slower than the original speed (appear later). Use less than 100% to make captions/subtitles faster than the original speed (appear sooner).

One example of when to use Retime Rate is when captions or subtitles are drifting out of sync as the video program length increases. Often, this drift of captions and subtitles is caused by drop frame to non-drop frame video conversion, which results in 3.6 seconds of captioning text timing change per hour (3.6 seconds early or late at the one-hour mark). This is caused by the difference between 30.0fps and 29.97fps, or 24.0fps and 23.976fps. To fix this problem, add or subtract 0.1% from 100%, depending on the timing of the text being early or late as it corresponds to the video.

- Captions or subtitles are appearing too early: Increase the time code by 0.1% (1.001/1.000). Enter 100.1% for the Retime Rate.

- Captions or subtitles are appearing too late: Decrease the time code by 0.1% (1.000/1.001). Enter 99.9% for the Retime Rate.

Rate Applies From. This option only works if the Retime Rate is set to something other than 100%. The Retime Rate applies starting from the time set in the Rate Applies From field. Also, if a program starts at a non-zero time, such as 1 hour (01:00:00;00), and you want to preserve this start time even after caption retiming, set this field to the program start time.

For example, if your media has a tape-based start time of 01:00:00:00 and you want to apply a retime rate (speed up or slow down) but you want the starting time code to remain pinned at 01:00:00:00 even after retiming, set this field to 01:00:00:00.

Time Offset. Time code value to add to, or subtract from, each caption or subtitle time code. To subtract, enable the Negative Offset option.

For example, if an SCC file starts at 01:00:00;00 and you want to adjust the start time to 00:00:00;00 for Internet delivery, set this Time Offset to 01:00:00;00, and select the Negative Offset checkbox.

Negative Offset. When enabled, the specified Time Offset is subtracted from each of the caption/subtitle time codes, instead of added.

Ripple Timecode. Time code value to add or subtract from all caption or subtitle time codes, without affecting the media start/stop time. To subtract, enable Negative Ripple.

Negative Ripple. When enabled, the specified Ripple Timecode is subtracted from all caption/subtitle time codes, instead of added.

Starting Timecode. Modifies the starting timecode of the output. Use when the starting timecode of the input timed text does not begin at 0 (zero). The options are:

- *First Frame of Input*. This will generate an output file that starts at the same frame as the input caption/subtitle file. This option is useful when creating a subtitle overlay from a caption or media file that already has the correct starting time code.

Note: Most subtitle sidecar file formats consider their first frame to be the starting time of the first subtitle, which could be several seconds or more after the start of the media file. If you want to make a subtitle overlay file from a sidecar subtitle file, so that the overlay starts at the same frame as an associated media file, you should use the Specified Timecode option.

- *Nearest Hour to Zero.* This option will attempt to zero-out the start time of the actual program by ignoring the hours portion of the source start time, as well as ignoring any pre-roll or slate which typically lasts for 2-3 minutes before the start of the program. For example, a source that starts at 00:58:30:00 typically contains pre-roll such that the actual program starts at 01:00:00:00. Using this "Nearest Hour to Zero" option results in an output file where 00:00:00:00 in the output aligns with the start of the actual program (01:00:00:00 in this example), as opposed to aligning with the start of the pre-roll. This option is useful if your sources have a mix of inconsistent or unknown starting timecodes, and you want them all to be output with a consistent starting timecode that aligns with the program start time of the associated media file.

This option should be used with caution on sources that have time-of-day timecode and where the recording may have been started on minutes 57 to 59 of any given hour. These first few minutes will appear to be pre-roll, so the output will be trimmed to start at the next hour mark. If those first few minutes contain actual program content then this may not be the desired result.

Note: If you want your output time to consistently start at 01:00:00:00 instead of zero, you can combine the Nearest Hour to Zero option with the "Time Offset" option, and have the Time Offset set to add a 01:00:00:00 offset.

- *Specified Timecode.* Select this option to use the values set in the Specified Starting Timecode fields. This option is useful when processing a sidecar file that already has correct timecode overall, but you want to add to or trim from the start time, such as when adding or removing a pre-roll segment.

Specified Starting Timecode. The output media will start with the timecode values specified in these fields, when Specified Timecode is selected for the Starting Timecode option.

Closed Caption/Subtitle Frame Rate Conversion

Check to enable this filter and use these options to modify the frame rate of the captions/subtitles without changing the relative timing.

Note: If the video frame rate is also being changed, that change must happen in a separate action.

Output Frame Rate. Select the output frame rate for the caption/subtitle.

Drop Frame. When enabled, Drop Frame time code mode is used when the output is 29.97 or 59.94 fps. Drop Frame mode is not used for any other frame rate, even if enabled.

Subtitle Style

Check to manually specify subtitle style options. When selected, all default settings are applied unless you modify them. When unselected, all options are either default or

auto-set based on the output frame size. All text formatting and positioning will be preserved from caption and subtitle data input files.

Size

Width | Height. Specifies the width and height of the output subtitle overlay in pixels. Use this option when you want to override the size coming from the input movie, or when there is no input movie to determine the size.

Caution: The maximum DVB Subtitle resolution is 1920x1080. Attempting UHD or 4K resolutions may create invalid outputs.

Font

Font Name. Select the name of the font to use when rendering subtitles. Select (default) to use the font specified in the source file. The fonts listed are the ones available on your system.

Font Unit. Specifies the unit of measurement - percent (%) or pixels (px).

Font Scale/Size. Based on selection of Font Unit, specifies the percent (scale) or pixels (size) of font size as a real number. Percent adjusts the scale of the output size relative to the original font size specified in the source file. Pixels sets the font size as an absolute value, in pixels. The range for both is 4 to 300, and the default percent is 100.

Force Bold. When checked, sets all output text to bold. This can help improve font legibility, especially for thin fonts or smaller frame sizes.

Drop Shadow. When checked, adds user-configurable drop shadow effects to the text. When checked, configure these controls:

- **Angle**. Positioning of shadow in degrees. Range 0-360. Default 315.
- **Blur Radius**. Radius of blur in pixels. Range 0-32. Default 0.
- **Distance**. Distance of shadow from edge of character as a percentage of the font size. Range 0-100. Default 5.
- **Opacity**. Transparency of drop shadow in percentage with 100 being fully opaque. Range 0-100. Default 100.
- **Color**. Color of shadow. Default Black (000000).

Text Color Override. When enabled, the color specified below in Text Color is used, instead of the text color specified by the source file.

Text Color. The text (foreground) color to use when rendering subtitles. This is only active when Text Color Override is enabled.

Text Outline Override. When enabled, the color specified below in Text Outline Color is used, instead of the text outline color specified by the source file.

Text Outline Color. The text outline color to use when rendering subtitles. This is only active when Text Outline Override is enabled.

Text Outline Thickness. Select the text outline thickness to use, as a percent of font size. The range is from 0 to 25 percent. This is only active when Text Outline Override is enabled.

Secondary Font

Note: Secondary font overrides only apply to subtitle file formats that have the capability to flag certain subtitles as "secondary subtitles". Currently, this feature is only supported for PAC files.

Font Name. Select the name of the font to use when rendering subtitles. Select (default) to use the font specified in the source file. The fonts listed are the ones available in your system.

Font Unit. Specifies the unit of measurement - percent (%) or pixels (px).

Font Scale/Size. Based on selection of Font Unit, specifies the percent (scale) or pixels (size) of font size as a real number. Percent adjusts the scale of the output size relative to the original font size specified in the source file. Pixels sets the font size as an absolute value, in pixels. The range for both is 4 to 300, and the default percent is 100.

Text Color Override. When enabled, the color specified below in Text Color is used, instead of the text color specified by the source file.

Text Color. The text (foreground) color to use when rendering subtitles. This is only active when Text Color Override is enabled.

Text Outline Override. When enabled, the color specified below in Text Outline Color is used, instead of the text outline color specified by the source file.

Text Outline Color. The text outline color to use when rendering subtitles. This is only active when Text Outline Override is enabled.

Text Outline Thickness. Select the text outline thickness to use, as a percent of font size. The range is from 0 to 25 percent. This is only active when Text Outline Override is enabled.

Background Boxes

Background Color Override. When enabled, the color and opacity specified in Background Color and Background Opacity is used, instead of the background color and opacity specified by the source file.

Note: Source files with 608/708 closed captions usually set the background box to black with 100% opacity. If you want to change this, enable Background Color Override and set the color and opacity to your desired values.

Background Color. When checked, the specified color is used to draw subtitle background boxes. When unchecked, the background color (if any) is taken from the source file instead.

Background Opacity. The percent of opacity for the background color. 0 percent is transparent and 100% is completely opaque. Background Color Override must be enabled for this opacity value to take effect.

Background Applies To. Select All Subtitles | Subtitle With Backgrounds | Subtitles Without Backgrounds.

Specifies which subtitles the background color applies to: all subtitles, only those with an existing background specified in the source file, or only those without an existing background specified in the source file.

Background Padding. Select Default | Full Stripe | No Padding to determine how padding (if any) should be applied.

- *Default*: Background box padded by 1 em left and right.

- *Full Stripe*: Background box padded horizontally, the full width of the frame.

- *No Padding*: No padding is applied - background box is truncated left and right at the edge of the text.

Safe Area Margins

Top | Bottom | Left | Right Margin. Allows you to set the percent of margin from the top, bottom, left, or right edge of the screen. The default is 10%, which is the typical amount for a title safe margin.

When greater than 10% is set, the text on the screen is rendered farther away from the edge of the screen. When less than 10% is set, the text on the screen is rendered closer to the edge of the screen.

For HD letter-boxed content a combination of default Left and Right 10% settings, and a greater than 10% Top and Bottom setting can be used to achieve the desired margins.

Snap to Top Margin | Snap to Bottom Margin:

- When both of these options are unchecked (default), subtitle vertical positions are preserved from the source file, relative to the specified margins.

- When Snap to Bottom is checked and Snap to Top is not, then all subtitles will be moved to align with the bottom margin.

- When Snap to Top is checked and Snap to Bottom is not, then all subtitles will be moved to align with the top margin.

- When both options are checked, subtitles on the upper half of the screen will be moved to the top margin, and subtitles on the lower half of the screen will be moved to the bottom margin.

Note: Unlike formats that have an implicit defined title-safe margin area, some subtitle formats such as TTML and WebVTT use explicit horizontal and vertical positioning to achieve a title-safe area margin-like effect. Timed Text Flip can not always determine if a given position setting is intended to respect a particular safe-area margin, or is simply an intended positioning effect. Therefore, the type of

positioning often used in formats such as TTML and WebVTT may not always be modified by the "Safe Area Margins" settings in Timed Text Flip.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates a track for processing. Uncheck a track to disable processing.

Stream Name. Select the input Timed Text Stream that you want to use as the source for the output file.

DVB Teletext Output

The DVB Teletext output creates a transport stream file containing a DVB-compatible teletext track.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Output Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select an output and drag it to a new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Output Settings

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the package to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click the green Browse button to select a variable which supplies the fully-qualified path dynamically.

- *Collision Resolution*. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for the new file.

Delete. Click the X icon on the right to delete the output from this action.

Filter Settings

Select the output component panel to configure the available settings.

General

Stream PID. Sets the PID (Packet ID) of the subtitle track in the transport stream. When adding multiple subtitle tracks to the same video, each subtitle track must have a unique PID.

Language. Sets the language tag encoded in the Program Map Table (PMT) of the transport stream. This language tag will be visible to DVB receivers and allows users to select which language of subtitles to display. Overrides the language tag associated with this subtitle stream.

Teletext Type. Sets the type of DVB Teletext descriptor, per Table 70 of ETSI EN 300 468. Select *Teletext subtitle page* for normal output, or *Teletext subtitle page for hearing impaired people* (SDH/hard of hearing).

Caption Channel Source. Sets the caption channel of the source. The default is CC1, and the range is CC1 to CC4 (CEA-608), Service 1 to Service 6 (CEA-708), and Teletext. If your source is a closed caption file such as SCC, MCC, or video with embedded CEA-608/708 captions or Teletext, this setting controls which caption channel is converted to DVB subtitles. If the source does not contain CEA-608/708 captions, or Teletext respectively, then this setting has no effect.

Teletext Decoding Options

When enabled, allows specification of various Teletext decoding parameters.

Page. Specify Teletext page to decode or leave at default setting of 0 to auto decode first detected page.

Character Set. Specify character set to use or leave at Default setting to auto detect character set from page headers if available. If no character set is detected, Latin will be used.

National Option Subset. Specify national option character subset to use when decoding Latin character Teletext or leave at Default setting to auto detect character subset from page headers if available. If no character subset is detected, English will be used.

Closed Caption/Subtitle Retiming

Check to activate options to modify the timing of the closed captions or subtitles.

Retime Rate. The rate factor to apply to caption/subtitle event times to realign or change synchronization. 100% matches the original speed. Use greater than 100% to make captions/subtitles slower than the original speed (appear later). Use less than 100% to make captions/subtitles faster than the original speed (appear sooner).

One example of when to use Retime Rate is when captions or subtitles are drifting out of sync as the video program length increases. Often, this drift of captions and subtitles is caused by drop frame to non-drop frame video conversion, which results in 3.6 seconds of captioning text timing change per hour (3.6 seconds early or late at the one-hour mark). This is caused by the difference between 30.0fps and 29.97fps, or 24.0fps and 23.976fps. To fix this problem, add or subtract 0.1% from 100%, depending on the timing of the text being early or late as it corresponds to the video.

- Captions or subtitles are appearing too early: Increase the time code by 0.1% (1.001/1.000). Enter 100.1% for the Retime Rate.

- Captions or subtitles are appearing too late: Decrease the time code by 0.1% (1.000/1.001). Enter 99.9% for the Retime Rate.

Rate Applies From. This option only works if the Retime Rate is set to something other than 100%. The Retime Rate applies starting from the time set in the Rate Applies From field. Also, if a program starts at a non-zero time, such as 1 hour (01:00:00;00), and you want to preserve this start time even after caption retiming, set this field to the program start time.

For example, if your media has a tape-based start time of 01:00:00:00 and you want to apply a retime rate (speed up or slow down) but you want the starting time code to remain pinned at 01:00:00:00 even after retiming, set this field to 01:00:00:00.

Time Offset. Time code value to add to, or subtract from, each caption or subtitle time code. To subtract, enable the Negative Offset option.

For example, if an SCC file starts at 01:00:00;00 and you want to adjust the start time to 00:00:00;00 for Internet delivery, set this Time Offset to 01:00:00;00, and select the Negative Offset checkbox.

Negative Offset. When enabled, the specified Time Offset is subtracted from each of the caption/subtitle time codes, instead of added.

Ripple Timecode. Time code value to add or subtract from all caption or subtitle time codes, without affecting the media start/stop time. To subtract, enable Negative Ripple.

Negative Ripple. When enabled, the specified Ripple Timecode is subtracted from all caption/subtitle time codes, instead of added.

Starting Timecode. Modifies the starting timecode of the output. Use when the starting timecode of the input timed text does not begin at 0 (zero). The options are:

- *First Frame of Input*. This will generate an output file that starts at the same frame as the input caption/subtitle file. This option is useful when creating a subtitle overlay from a caption or media file that already has the correct starting time code.

Note: Most subtitle sidecar file formats consider their first frame to be the starting time of the first subtitle, which could be several seconds or more after the start of the media file. If you want to make a subtitle overlay file from a sidecar subtitle file, so that the overlay starts at the same frame as an associated media file, you should use the "Specified Timecode" option.

- *Nearest Hour to Zero*. This option will attempt to zero-out the start time of the actual program by ignoring the hours portion of the source start time, as well as ignoring any pre-roll or slate which typically lasts for 2-3 minutes before the start of the program. For example, a source that starts at 00:58:30:00 typically contains pre-roll such that the actual program starts at 01:00:00:00. Using this "Nearest Hour to Zero" option results in an output file where 00:00:00:00 in the output aligns with the start of the actual program (01:00:00:00 in this example), as opposed to aligning with the start of the pre-roll. This option is useful if your sources have a mix of inconsistent or unknown starting timecodes, and you want them all to be output with a consistent starting timecode that aligns with the program start time of the associated media file.

This option should be used with caution on sources that have time-of-day timecode and where the recording may have been started on minutes 57 to 59 of any given hour. These first few minutes will appear to be pre-roll, so the output will be trimmed to start at the next hour mark. If those first few minutes contain actual program content then this may not be the desired result.

Note: If you want your output time to consistently start at 01:00:00:00 instead of zero, you can combine the "Nearest Hour to Zero" option with the "Time Offset" option, and have the Time Offset set to add a 01:00:00:00 offset.

- *Specified Timecode*. Select this option to use the values set in the Specified Starting Timecode fields. This option is useful when processing a sidecar file that already has

correct timecode overall, but you want to add to or trim from the start time, such as when adding or removing a pre-roll segment.

Specified Starting Timecode. The output media will start with the timecode values specified in these fields, when "Specified Timecode" is selected for the Starting Timecode option.

Closed Caption/Subtitle Frame Rate Conversion

Check to enable this filter and use these options to modify the frame rate of the captions/subtitles without changing the relative timing.

Note: If the video frame rate is also being changed, that change must happen in a separate action.

Output Frame Rate. Select the output frame rate for the caption/subtitle.

Drop Frame. When enabled, Drop Frame time code mode is used when the output is 29.97 or 59.94 fps. Drop Frame mode is not used for any other frame rate, even if enabled.

Teletext Encoding Options

Enable this section to configure the Teletext encoding settings. If disabled, all settings are set to the default. Please refer to your TV station's delivery requirements to select the appropriate Teletext settings.

Teletext Page. The Teletext Subtitle Page value should be set to the standard magazine "8". This is the first digit in the parameter, so a setting of 801 will indicate magazine 8 and page 01. Typical values are either 801 or 888. The range is 100 to 899. The default is 888.

VBI Line Field 1. Configures the VBI line used for field 1 Teletext data. Selecting "0" will disable VBI field 1 Teletext output. The range is 0-22. The default is 21.

VBI Line Field 2. Configures the VBI line used for field 2 Teletext data. Selecting "0" will disable VBI field 2 Teletext output. The range is 0-335. The default is 334.

Filler Type. The Filler Type controls what gets encoded into the spaces between the subtitle “bursts”. The default is Packet 31 Test Data, and the other options are Null Page Headers, and None (No Filler). Inserting a constant stream of Packet 31 ‘ExtTest’ data between subtitles keeps TVs at a constant gain rate, ensuring accurate reception and display of subtitles. The default is Packet 31.

The options are:

- Packet 31

- Null Page Headers

- None (no filler)

Character Set. Selects the Teletext character set used for encoding subtitle text. Please refer to the Teletext specification for the characters that are available for each set. Any characters in the input which are not available in the selected Teletext character set will be replaced by a blank space. The default is Latin.

The options are:

- Latin

- Cyrillic-1 (Serbian/Croatian)

- Cyrillic-2 (Russian/Bulgarian)

- Cyrillic-3 (Ukrainian)

- Greek

- Hebrew

- Arabic

National Option Character Subset. This setting only applies when the Character Set option is set to "Latin". The Teletext specification defines several supplemental character subsets for use in different regions. Please refer to the Teletext specification for the characters that are available for each subset. Any characters in the input subtitles which are not supported by the selected Character Set, plus the selected National Option Character Subset, will be replaced by a blank space. The default is English.

The options are:

- English

- Portuguese/Spanish

- French

- German

- Italian

Double Height Mode. Double Height refers to the size of the characters. Selecting this option will result in a bigger font size for the text when viewed with a Teletext decoder on a broadcast TV monitor. The default is Enabled.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates a track for processing. Uncheck a track to disable processing.

Stream Name. Select the input Timed Text Stream that you want to use as the source for the output file.

EBU-STL Output

The EBU-STL output creates EBU-STL sidecar subtitle files, a common subtitle exchange format, which conforms to the EBU Tech 3264 specification. This format supports limited vertical and horizontal positioning and formatting of the subtitles.

Note: The EBU-STL specification only officially supports creating STL files at 30 (29.97) fps and 25 fps. Attempting to convert sources at other frame rates to EBU-STL may result in the job failing or an output file which is not fully spec compliant. To ensure a successful conversion, you can enable the Frame Rate Conversion filter and specify either 25 fps or 29.97 fps to force the output to be spec compliant.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Output Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select an output and drag it to a new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Output Settings

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the package to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click the green Browse button to select a variable which supplies the fully-qualified path dynamically.

- *Collision Resolution*. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for the new file.

Delete. Click the X icon on the right to delete the output from this action.

Container Settings

Select the output component panel to configure the container settings.

General

Character Set. Select one of the character sets allowed by the EBU-STL specification. Any characters in the source subtitles which are not available in the selected set will be replaced by a space. Please refer to the Tech 3264 specification for a list of characters supported by each option. The default is Latin.

- *Latin*

- *Latin/Cyrillic*

- *Latin/Arabic*

- *Latin/Greek*

- *Latin/Hebrew*

Language Code. Specifies one of the language codes defined in the EBU-STL specification. Refer to the Tech 3264 specification for the list of language codes. Default: English (9).

Display Standard. Select one of the display standards allowed by the EBU-STL specification. Each standard has some limitations defined by the specifications. The default is Teletext Level 1.

- *Teletext Level 1*. This standard supports attributes such as double height characters and changing the foreground and background colors, but not italics or underline. This setting is recommended for delivering subtitles that will be embedded into video as Teletext data.

- *Open Subtitling*. This standard supports italics and underlined text attributes, but not changing the foreground or background colors. This setting is recommended for general interchange of subtitles.

Double Height Mode. This setting only applies when the Display Standard is set to Teletext Level 1, and has no effect when the display standard is set to Open Subtitling. Double Height refers to the size of the characters. Selecting this option will result in a bigger font size for the text when viewed with a Teletext decoder on a broadcast TV monitor. The default is Enabled.

Caption Channel Source. Sets the caption channel of the source. The default is CC1, and the range is CC1 to CC4 (CEA-608), Service 1 to Service 6 (CEA-708), and Teletext. If your source is a closed caption file such as SCC, MCC, or video with embedded CEA-608/708 captions or Teletext, this setting controls which caption channel is converted to EBU-STL subtitles. If the source does not contain CEA-608/708 captions, or Teletext respectively, then this setting has no effect.

Header Code Page. Select one of the page values allowed by the EBU-STL specification.

Time Code Status (TCS). Specifies TCS header value.

Time Code Start of Program (TCP). Specifies TCP header value. This is the time code of the first frame of the recorded video signal which is intended for transmission.

Justification Mode. Specify justification mode for EBU STL outputs. When set to default, files created in open subtitles mode will be L/R/C justified whereas files made in teletext mode will not be justified and will use grid based positioning.

Force Center. When checked, forces all subtitles to be centered. Unchecked by default.

Disk Format Code. Specify disk format code (DFC) for output. When set to Default, the value applied will be either the source frame rate or frame rate conversion rate (if enabled).

Note: Only STL25 and STL30 are officially supported by the EBU-STL specification.

Teletext Decoding Options

When enabled, allows specification of various Teletext decoding parameters.

Page. Specify Teletext page to decode or leave at default setting of 0 to auto decode first detected page.

Character Set. Specify character set to use or leave at Default setting to auto detect character set from page headers if available. If no character set is detected, Latin will be used.

National Option Subset. Specify national option character subset to use when decoding Latin character Teletext or leave at Default setting to auto detect character subset from page headers if available. If no character subset is detected, English will be used.

Closed Caption/Subtitle Retiming

Check to activate options to modify the timing of the closed captions or subtitles.

Retime Rate. The rate factor to apply to caption/subtitle event times to realign or change synchronization. 100% matches the original speed. Use greater than 100% to make captions/subtitles slower than the original speed (appear later). Use less than 100% to make captions/subtitles faster than the original speed (appear sooner).

One example of when to use Retime Rate is when captions or subtitles are drifting out of sync as the video program length increases. Often, this drift of captions and subtitles is caused by drop frame to non-drop frame video conversion, which results in 3.6 seconds of captioning text timing change per hour (3.6 seconds early or late at the one-hour mark). This is caused by the difference between 30.0fps and 29.97fps, or 24.0fps and 23.976fps. To fix this problem, add or subtract 0.1% from 100%, depending on the timing of the text being early or late as it corresponds to the video.

- Captions or subtitles are appearing too early: Increase the time code by 0.1% (1.001/1.000). Enter 100.1% for the Retime Rate.

- Captions or subtitles are appearing too late: Decrease the time code by 0.1% (1.000/1.001). Enter 99.9% for the Retime Rate.

Rate Applies From. This option only works if the Retime Rate is set to something other than 100%. The Retime Rate applies starting from the time set in the Rate Applies From field. Also, if a program starts at a non-zero time, such as 1 hour (01:00:00;00), and you want to preserve this start time even after caption retiming, set this field to the program start time.

For example, if your media has a tape-based start time of 01:00:00:00 and you want to apply a re-time rate (speed up or slow down) but you want the starting time code to remain pinned at 01:00:00:00 even after retiming, set this field to 01:00:00:00.

Time Offset. Time code value to add to, or subtract from, each caption or subtitle time code. To subtract, enable the Negative Offset option.

For example, if an SCC file starts at 01:00:00;00 and you want to adjust the start time to 00:00:00;00 for Internet delivery, set this Time Offset to 01:00:00;00, and select the Negative Offset checkbox.

Negative Offset. When enabled, the specified Time Offset is subtracted from each of the caption/subtitle time codes, instead of added.

Ripple Timecode. Time code value to add or subtract from all caption or subtitle time codes, without affecting the media start/stop time. To subtract, enable Negative Ripple.

Negative Ripple. When enabled, the specified Ripple Timecode is subtracted from all caption/subtitle time codes, instead of added.

Starting Timecode. Modifies the starting timecode of the output. Use when the starting timecode of the input timed text does not begin at 0 (zero). The options are:

- *First Frame of Input*. This will generate an output file that starts at the same frame as the input caption/subtitle file. This option is useful when creating a subtitle overlay from a caption or media file that already has the correct starting time code.

Note: Most subtitle sidecar file formats consider their first frame to be the starting time of the first subtitle, which could be several seconds or more after the start of the media file. If you want to make a subtitle overlay file from a sidecar subtitle file, so that the overlay starts at the same frame as an associated media file, you should use the Specified Starting Timecode option.

- *Nearest Hour to Zero*. This option will attempt to zero-out the start time of the actual program by ignoring the hours portion of the source start time, as well as ignoring any pre-roll or slate which typically lasts for 2-3 minutes before the start of the program. For example, a source that starts at 00:58:30:00 typically contains pre-roll such that the actual program starts at 01:00:00:00. Using this "Nearest Hour to Zero" option results in an output file where 00:00:00:00 in the output aligns with the start of the actual program (01:00:00:00 in this example), as opposed to aligning with the start of the pre-roll. This option is useful if your sources have a mix of inconsistent or unknown starting timecodes, and you want them all to be output with a consistent starting timecode that aligns with the program start time of the associated media file.

This option should be used with caution on sources that have time-of-day timecode and where the recording may have been started on minutes 57 to 59 of any given hour. These first few minutes will appear to be pre-roll, so the output is trimmed to start at the next hour mark. If those first few minutes contain actual program content then this may not be the desired result.

Note: If you want your output time to consistently start at 01:00:00:00 instead of zero, you can combine the "Nearest Hour to Zero" option with the "Time Offset" option, and have the Time Offset set to add a 01:00:00:00 offset.

- *Specified Timecode*. Select this option to use the values set in the Specified Starting Timecode fields. This option is useful when processing a sidecar file that already has

correct timecode overall, but you want to add to or trim from the start time, such as when adding or removing a pre-roll segment.

Specified Starting Timecode. The output media will start with the timecode values specified in these fields, when Specified Timecode is selected for the Starting Timecode option.

Closed Caption/Subtitle Frame Rate Conversion

Check to enable this filter and use these options to modify the frame rate of the captions/subtitles without changing the relative timing.

Note: If the video frame rate is also being changed, that change must happen in a separate action.

Output Frame Rate. Select the output frame rate for the caption/subtitle.

Drop Frame. When enabled, Drop Frame time code mode is used when the output is 29.97 or 59.94 fps. Drop Frame mode is not used for any other frame rate, even if enabled.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates a track for processing. Uncheck a track to disable processing.

Stream Name. Select the input Timed Text Stream that you want to use as the source for the output file.

MCC Output

MCC is a file format that stands for MacCaption VANC data file, and contains a representation of the VANC data found within a media file. This data file can include all CEA-608 and CEA-708 closed caption data including multiple channels of languages.

This format is designed to also support CEA-708 caption data and provide accurate frame-rate timing, unlike the older SCC file which only supports one field of CEA-608. In addition, MCC also supports V-CHIP, XDS, and Active Format Description (AFD) data.

This file format can be exported by Timed Text Flip to be used in many transcoding applications that require caption data embedding into media. All the necessary data is present to create a caption data track, such as SMPTE-436M; and contains user data that can be added to media, such as MPEG-2. The MCC file format can be created to support multiple frame rates such as 23.98 fps, 24 fps, 25fps, 29.97fps, 50fps, and 59.94 fps, with relevant header information.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Not all configuration options listed below may be available for use with the Timed Text Conform action.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Output Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select an output and drag it to a new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Output Settings

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the package to any available store, selected dynamically at run-time. Use this component typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the package to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click the green Browse button to select a variable which supplies the fully-qualified path dynamically.

- *Collision Resolution*. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for the new file.

Delete. Click the X icon on the right to delete the output from this action.

Configuration Details

Select the output component panel to configure the available settings.

General

Encode 708 in 16x9 Wide Mode. When checked, 708 data is encoded in 16x9 wide mode, also known as 42 column mode. Captions still occupy a 4x3 region of the frame, but the frame is padded and displays centered on a 16x9 frame.

Reformat Roll-up Captions to Pop-on. When checked, individual roll-up lines will be combined into pop-on captions containing 1-4 lines. Unchecked by default.

Closed Caption/Subtitle Retiming

Check to activate options to modify the timing of the closed captions or subtitles.

Retime Rate. The rate factor to apply to caption/subtitle event times to realign or change synchronization. 100% matches the original speed. Use greater than 100% to make captions/subtitles slower than the original speed (appear later). Use less than 100% to make captions/subtitles faster than the original speed (appear sooner).

One example of when to use Retime Rate is when captions or subtitles are drifting out of sync as the video program length increases. Often, this drift of captions and subtitles is caused by drop frame to non-drop frame video conversion, which results in 3.6 seconds of captioning text timing change per hour (3.6 seconds early or late at the one-hour mark). This is caused by the difference between 30.0fps and 29.97fps, or 24.0fps and 23.976fps. To fix this problem, add or subtract 0.1% from 100%, depending on the timing of the text being early or late as it corresponds to the video.

- Captions or subtitles are appearing too early: Increase the time code by 0.1% (1.001/1.000). Enter 100.1% for the Retime Rate.

- Captions or subtitles are appearing too late: Decrease the time code by 0.1% (1.000/1.001). Enter 99.9% for the Retime Rate.

Rate Applies From. This option only works if the Retime Rate is set to something other than 100%. The Retime Rate applies starting from the time set in the Rate Applies From field. Also, if a program starts at a non-zero time, such as 1 hour (01:00:00;00), and you want to preserve this start time even after caption retiming, set this field to the program start time.

For example, if your media has a tape-based start time of 01:00:00:00 and you want to apply a retime rate (speed up or slow down) but you want the starting time code to remain pinned at 01:00:00:00 even after retiming, set this field to 01:00:00:00.

Time Offset. Time code value to add to, or subtract from, each caption or subtitle time code. To subtract, enable the Negative Offset option.

For example, if an SCC file starts at 01:00:00;00 and you want to adjust the start time to 00:00:00;00 for Internet delivery, set this Time Offset to 01:00:00;00, and select the Negative Offset checkbox.

Negative Offset. When enabled, the specified Time Offset is subtracted from each of the caption/subtitle time codes, instead of added.

Ripple Timecode. Time code value to add or subtract from all caption or subtitle time codes, without affecting the media start/stop time. To subtract, enable Negative Ripple.

Negative Ripple. When enabled, the specified Ripple Timecode is subtracted from all caption/subtitle time codes, instead of added.

Starting Timecode. Modifies the starting timecode of the output. Use when the starting timecode of the input timed text does not begin at 0 (zero). The options are:

- *First Frame of Input*. This will generate an output file that starts at the same frame as the input caption/subtitle file. This option is useful when creating a subtitle overlay from a caption or media file that already has the correct starting time code.

Note: Most subtitle sidecar file formats consider their first frame to be the starting time of the first subtitle, which could be several seconds or more after the start of the media file. If you want to make a subtitle overlay file from a sidecar subtitle file, so that the overlay starts at the same frame as an associated media file, you should use the "Specified Timecode" option.

- *Nearest Hour to Zero*. This option will attempt to zero-out the start time of the actual program by ignoring the hours portion of the source start time, as well as ignoring any pre-roll or slate which typically lasts for 2-3 minutes before the start of the program. For example, a source that starts at 00:58:30:00 typically contains pre-roll such that the actual program starts at 01:00:00:00. Using this "Nearest Hour to Zero" option results in an output file where 00:00:00:00 in the output aligns with the start of the actual program (01:00:00:00 in this example), as opposed to aligning with the start of the pre-roll. This option is useful if your sources have a mix of inconsistent or unknown starting timecodes, and you want them all to be output with a consistent starting timecode that aligns with the program start time of the associated media file.

This option should be used with caution on sources that have time-of-day timecode and where the recording may have been started on minutes 57 to 59 of any given hour. These first few minutes will appear to be pre-roll, so the output will be trimmed to start at the next hour mark. If those first few minutes contain actual program content then this may not be the desired result.

Note: If you want your output time to consistently start at 01:00:00:00 instead of zero, you can combine the "Nearest Hour to Zero" option with the "Time Offset" option, and have the Time Offset set to add a 01:00:00:00 offset.

- *Specified Timecode*. Select this option to use the values set in the Specified Starting Timecode fields. This option is useful when processing a sidecar file that already has correct timecode overall, but you want to add to or trim from the start time, such as when adding or removing a pre-roll segment.

Specified Starting Timecode. The output media will start with the timecode values specified in these fields, when "Specified Timecode" is selected for the Starting Timecode option.

Closed Caption/Subtitle Frame Rate Conversion

Check to enable this filter and use these options to modify the frame rate of the captions/subtitles without changing the relative timing.

Note: If the video frame rate is also being changed, that change must happen in a separate action.

Output Frame Rate. Select the output frame rate for the caption/subtitle.

Drop Frame. When enabled, Drop Frame time code mode is used when the output is 29.97 or 59.94 fps. Drop Frame mode is not used for any other frame rate, even if enabled.

XDS/V-Chip Encoding Options

Use these settings to enable and select V-chip ratings, set an XDS program name, or select a Copy Generation Management System (CGMS) setting to encode.

Only specify valid combinations of ratings and content flags. For example, Violence (V) should not be enabled for TV-G or TV-Y rated programs.

Note: When running in DEMO mode (license impaired mode), V-chip and XDS settings in outputs with embedded closed captions may be overridden with random values.

V-chip. Select one of the V-chip ratings to encode:

- *Pass Through*. Select Pass Through to preserve the V-chip rating from the caption source (if any).

- *None*. Do not encode any V-chip ratings. This will delete any rating present in the source.

- *TV-Y*. Programs aimed at children from ages 2 to 6.

- *TV-Y7*. Programs aimed at children age 7 and above.

- *TV-G*. General audience (all ages).

- *TV-PG*. Parental guidance suggested.

- *TV-14*. Parents cautioned for children under 14 years of age.

- *TV-MA*. Mature audience, age 17 or older.

Select from the following optional V-chip content flags to encode:

- *V/FV*. Violence (TV-PG, TV-14, TV-MA) / Fantasy Violence (TV-Y7).

- *S*. Sexual situations (TV-PG, TV-14, TV-MA).

- *L*. Adult language (TV-PG, TV-14, TV-MA).

- *D*. Sexually suggestive dialog (TV-PG, TV-14).

XDS Program Name. Enable the checkbox and enter the XDS program name to encode, or leave blank to encode no XDS program name. When left blank, any program name present in the source is deleted. When disabled, the XDS program name (if present) will pass through unchanged from the caption source to the output. A valid XDS program name consists of 2 to 32 ASCII printable characters.

CGMS. Select and choose the Copy Generation Management System (CGMS) setting to encode. When disabled, a CGMS setting (if present) will pass through unchanged from the caption source to the output. Select from these setting options:

- Copying is permitted without restriction

- One generation of copies may be made

- No copying is permitted

Note: Please refer to the CGMS specification for more details on the following APS and ASB options.

APS. Select the CGMS Analog Protection System (APS) setting to encode. This setting is ignored unless CGMS is enabled and set to "No copying is permitted". Select from these setting options:

- No APS

- PSP On; Split Burst Off

- PSP On; 2 line Split Burst On

- PSP On; 4 line Split Burst On

Analog Source Bit (ASB). Select to enable the CGMS Analog Source Bit (ASB). This setting is ignored if CGMS is not enabled.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates a track for processing, or to create additional tracks. Uncheck a Timed Text track to disable processing.

To add a new track, enable the track checkbox in the empty, untitled Timed Text track to the right of the last active track.

Stream Name. Select the input Timed Text Stream that you want to use as the source for the output file.

MCC Output (Timed Text Conform)

MCC is a file format that stands for MacCaption VANC data file, and contains a representation of the VANC data found within a media file. This data file can include all CEA-608 and CEA-708 closed caption data including multiple channels of languages.

This format is designed to also support CEA-708 caption data and provide accurate frame-rate timing, unlike the older SCC file which only supports one field of CEA-608.

This file format can be used in many transcoding applications that require caption data embedding into media. All the necessary data is present to create a caption data track, such as SMPTE-436M; and contains user data that can be added to media, such as MPEG-2. The MCC file format can be created to support multiple frame rates such as 23.98 fps, 24 fps, 25fps, 29.97fps, 50fps, and 59.94 fps, with relevant header information.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Output Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/ readability purposes. Alternatively, use drag-and-drop to select an output and drag it to a new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Output Settings

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the package to any available store, selected dynamically at run-time. Use this component typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the package to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click the green Browse button to select a variable which supplies the fully-qualified path dynamically.

- *Collision Resolution*. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for the new file.

Delete. Click the X icon on the right to delete the output from this action.

Container Settings

To configure container options for each output file, select it. The controls display in the details panel to the right.

Set Output Start Time.

When unchecked (default), a zero-based start timecode is specified in the output. Check to specify a starting output time and configure these options:

Starting Timecode Mode. Select *Specified Timecode* | *Use CML Target Timecode*.

Specified Timecode. The value you specify is transferred to the output. This is similar to ripple timecode; to a zero value, the amount of time specified is added.

Use CML Target Timecode. The value is transferred from the CML to the output. If the CML does not have a timecode, the default, zero-based timecode is used.

Specified Starting Timecode. When *Specified Timecode* is selected, enter the starting timecode and framerate.

Plain Text Output

The Plain Text output generates a .txt file.

You can optionally enable teletext decoding setting, closed caption/subtitle retiming, and closed caption/subtitle frame rate conversion.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Output Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select an output and drag it to a new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Output Settings

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the package to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click the green Browse button to select a variable which supplies the fully-qualified path dynamically.

- *Collision Resolution*. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for the new file.

Delete. Click the X icon on the right to delete the output from this action.

Container Settings

Select the output component panel to configure the available settings.

General

Caption Channel Source. Sets the caption channel of the source. The default is CC1, and the range is CC1 to CC4 (CEA-608), Service 1 to Service 6 (CEA-708), and Teletext. If your source is a closed caption file such as SCC, MCC, or video with embedded CEA-608/708 captions or Teletext, this setting controls which caption channel is converted to the subtitle overlay. If the source does not contain CEA-608/708 captions, or Teletext respectively, then this setting has no effect.

Timecode. Specifies the types of timecode to include in the output.

Timecode Format. Specifies the format of the timecode to include in the output.

Line Delimiters. Specifies the line delimiter to use between subtitle lines in the text output.

Teletext Decoding Options

When enabled, allows specification of various Teletext decoding parameters.

Page. Specify Teletext page to decode or leave at default setting of 0 to auto decode first detected page.

Character Set. Specify character set to use or leave at Default setting to auto detect character set from page headers if available. If no character set is detected, Latin will be used.

National Option Subset. Specify national option character subset to use when decoding Latin character Teletext or leave at Default setting to auto detect character subset from page headers if available. If no character subset is detected, English will be used.

Closed Caption/Subtitle Retiming

Check to activate options to modify the timing of the closed captions or subtitles.

Retime Rate. The rate factor to apply to caption/subtitle event times to realign or change synchronization. 100% matches the original speed. Use greater than 100% to make captions/subtitles slower than the original speed (appear later). Use less than 100% to make captions/subtitles faster than the original speed (appear sooner).

One example of when to use Retime Rate is when captions or subtitles are drifting out of sync as the video program length increases. Often, this drift of captions and subtitles is caused by drop frame to non-drop frame video conversion, which results in 3.6 seconds of captioning text timing change per hour (3.6 seconds early or late at the one-hour mark). This is caused by the difference between 30.0fps and 29.97fps, or 24.0fps and 23.976fps. To fix this problem, add or subtract 0.1% from 100%, depending on the timing of the text being early or late as it corresponds to the video.

- Captions or subtitles are appearing too early: Increase the time code by 0.1% (1.001/1.000). Enter 100.1% for the Retime Rate.

- Captions or subtitles are appearing too late: Decrease the time code by 0.1% (1.000/1.001). Enter 99.9% for the Retime Rate.

Rate Applies From. This option only works if the Retime Rate is set to something other than 100%. The Retime Rate applies starting from the time set in the Rate Applies From field. Also, if a program starts at a non-zero time, such as 1 hour (01:00:00;00), and you want to preserve this start time even after caption retiming, set this field to the program start time.

For example, if your media has a tape-based start time of 01:00:00:00 and you want to apply a re-time rate (speed up or slow down) but you want the starting time code to remain pinned at 01:00:00:00 even after retiming, set this field to 01:00:00:00.

Time Offset. Time code value to add to, or subtract from, each caption or subtitle time code. To subtract, enable the Negative Offset option.

For example, if an SCC file starts at 01:00:00;00 and you want to adjust the start time to 00:00:00;00 for Internet delivery, set this Time Offset to 01:00:00;00, and select the Negative Offset checkbox.

Negative Offset. When enabled, the specified Time Offset is subtracted from each of the caption/subtitle time codes, instead of added.

Ripple Timecode. Time code value to add or subtract from all caption or subtitle time codes, without affecting the media start/stop time. To subtract, enable Negative Ripple.

Negative Ripple. When enabled, the specified Ripple Timecode is subtracted from all caption/subtitle time codes, instead of added.

Starting Timecode. Modifies the starting timecode of the output. Use when the starting timecode of the input timed text does not begin at 0 (zero). The options are:

- *First Frame of Input*. This will generate an output file that starts at the same frame as the input caption/subtitle file. This option is useful when creating a subtitle overlay from a caption or media file that already has the correct starting time code.

Note: Most subtitle sidecar file formats consider their first frame to be the starting time of the first subtitle, which could be several seconds or more after the start of the media file. If you want to make a subtitle overlay file from a sidecar subtitle file, so that the overlay starts at the same frame as an associated media file, you should use the "Specified Timecode" option.

- *Nearest Hour to Zero*. This option will attempt to zero-out the start time of the actual program by ignoring the hours portion of the source start time, as well as ignoring any pre-roll or slate which typically lasts for 2-3 minutes before the start of the program. For example, a source that starts at 00:58:30:00 typically contains pre-roll such that the actual program starts at 01:00:00:00. Using this "Nearest Hour to Zero" option results in an output file where 00:00:00:00 in the output aligns with the start of the actual program (01:00:00:00 in this example), as opposed to aligning with the start of the pre-roll. This option is useful if your sources have a mix of inconsistent or unknown starting timecodes, and you want them all to be output with a consistent starting timecode that aligns with the program start time of the associated media file.

This option should be used with caution on sources that have time-of-day timecode and where the recording may have been started on minutes 57 to 59 of any given hour. These first few minutes will appear to be pre-roll, so the output will be trimmed to start at the next hour mark. If those first few minutes contain actual program content then this may not be the desired result.

Note: If you want your output time to consistently start at 01:00:00:00 instead of zero, you can combine the "Nearest Hour to Zero" option with the "Time Offset" option, and have the Time Offset set to add a 01:00:00:00 offset.

- *Specified Timecode*. Select this option to use the values set in the Specified Starting Timecode fields. This option is useful when processing a sidecar file that already has correct timecode overall, but you want to add to or trim from the start time, such as when adding or removing a pre-roll segment.

Specified Starting Timecode. The output media will start with the timecode values specified in these fields, when "Specified Timecode" is selected for the Starting Timecode option.

Closed Caption/Subtitle Frame Rate Conversion

Check to enable this filter and use these options to modify the frame rate of the captions/subtitles without changing the relative timing.

Note: If the video frame rate is also being changed, that change must happen in a separate action.

Output Frame Rate. Select the output frame rate for the caption/subtitle.

Drop Frame. When enabled, Drop Frame time code mode is used when the output is 29.97 or 59.94 fps. Drop Frame mode is not used for any other frame rate, even if enabled.

Same as Source Output

The Same as Source output is a function in the Timed Text Flip action that can embed CEA-608/708 captioning data into incoming video media files. This includes many typical video file types such as MXF, MPEG-2, MP4, TS, and MOV. Before adding a Same as Source output you typically should add a Media input and select the video source file for that input. Also add a caption/subtitle input source when you want to add captions or subtitles to the video.

To configure a Same as Source output, the user can select three input streams:

- *Video*. Select the video stream name, which comes from a Media input.

- *Audio*. Select the audio stream name to use.

- *Timed Text*. Select the input stream name for a caption file input type that is in the Timed Text Flip action, such as SCC or MCC. Other caption and subtitle input types such as SRT and WebVTT can also be used but are not recommended since they can sometimes contain illegal characters out of the CEA-608 specification. Only CC1 in CEA-608 and Service 1 in CEA-708 will be added to output files using the Same as Source component.

The Same as Source output will, by default, add CEA-608/708 caption data to source videos in the following protocols:

- MXF OP1a source files will add a SMPTE 436M data track containing CDP (caption distribution packets).

- MOV source files will add a QuickTime closed caption track containing CDP (caption distribution packets).

- MPEG-2 Program or Transport Streams will add user data A/53 within the essence.

- H.264 MP4 or Transport Streams with user data A/72 (also known as SEI).

Note: MPEG-2 Transport Streams will have a generic multiplexing configuration and are not CableLabs compliant. For custom multiplexing configurations and CableLabs compliance please use the optional Vantage IPTV VOD action.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Output Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select an output and drag it to a new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Output Settings

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the package to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click the green Browse button to select a variable which supplies the fully-qualified path dynamically.

- *Collision Resolution*. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date:;* The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time;* The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for the new file.

Delete. Click the X icon on the right to delete the output from this action.

Container

Select the output component panel to configure the available settings.

General

Caption Track. Select the type of caption track to output, 608 or 708.

Start Timecode. Set a container start timecode and frame rate for the output. This timecode is not related to the subtitle timing.

Encode 708 in 16x9 Wide Mode. When checked, 708 data is encoded in 16x9 wide mode, also known as 42 column mode. Captions still occupy a 4x3 region of the frame, but the frame is padded and displays centered on a 16x9 frame.

Reformat Roll-up Captions to Pop-on. When checked, individual roll-up lines will be combined into pop-on captions containing 1-4 lines. Unchecked by default.

Closed Caption/Subtitle Retiming

Check to activate options that modify the timing of the closed captions or subtitles.

Retime Rate. The rate factor to apply to caption/subtitle event times to realign or change synchronization. 100% matches the original speed. Use greater than 100% to make captions/subtitles slower than the original speed (appear later). Use less than 100% to make captions/subtitles faster than the original speed (appear sooner).

One example of when to use Retime Rate is when captions or subtitles are drifting out of sync as the video program length increases. Often, this drift of captions and subtitles is caused by drop frame to non-drop frame video conversion, which results in 3.6 seconds of captioning text timing change per hour (3.6 seconds early or late at the one-hour mark). This is caused by the difference between 30.0fps and 29.97fps, or 24.0fps and 23.976fps. To fix this problem, add or subtract 0.1% from 100%, depending on the timing of the text being early or late as it corresponds to the video.

- Captions or subtitles are appearing too early: Increase the time code by 0.1% (1.001/1.000). Enter 100.1% for the Retime Rate.

- Captions or subtitles are appearing too late: Decrease the time code by 0.1% (1.000/1.001). Enter 99.9% for the Retime Rate.

Rate Applies From. This option only works if the Retime Rate is set to something other than 100%. The Retime Rate applies starting from the time set in the Rate Applies From field. Also, if a program starts at a non-zero time, such as 1 hour (01:00:00;00), and you want to preserve this start time even after caption retiming, set this field to the program start time.

For example, if your media has a tape-based start time of 01:00:00:00 and you want to apply a retime rate (speed up or slow down) but you want the starting time code to remain pinned at 01:00:00:00 even after retiming, set this field to 01:00:00:00.

Time Offset. Time code value to add to, or subtract from, each caption or subtitle time code. To subtract, enable the Negative Offset option.

For example, if an SCC file starts at 01:00:00;00 and you want to adjust the start time to 00:00:00;00 for Internet delivery, set this Time Offset to 01:00:00;00, and select the Negative Offset checkbox.

Negative Offset. When enabled, the specified Time Offset is subtracted from each of the caption/subtitle time codes, instead of added.

Ripple Timecode. Time code value to add or subtract from all caption or subtitle time codes, without affecting the media start/stop time. To subtract, enable Negative Ripple.

Negative Ripple. When enabled, the specified Ripple Timecode is subtracted from all caption/subtitle time codes, instead of added.

Starting Timecode. Modifies the starting timecode of the output. Use when the starting timecode of the input timed text does not begin at 0 (zero). The options are:

- *First Frame of Input*. This will generate an output file that starts at the same frame as the input caption/subtitle file. This option is useful when creating a subtitle overlay from a caption or media file that already has the correct starting time code.

Note: Most subtitle sidecar file formats consider their first frame to be the starting time of the first subtitle, which could be several seconds or more after the start of the media file. If you want to make a subtitle overlay file from a sidecar subtitle file, so that the overlay starts at the same frame as an associated media file, you should use the "Specified Timecode" option.

- *Nearest Hour to Zero*. This option will attempt to zero-out the start time of the actual program by ignoring the hours portion of the source start time, as well as ignoring any pre-roll or slate which typically lasts for 2-3 minutes before the start of the program. For example, a source that starts at 00:58:30:00 typically contains pre-roll such that the actual program starts at 01:00:00:00. Using this "Nearest Hour to Zero" option results in an output file where 00:00:00:00 in the output aligns with the start of the actual program (01:00:00:00 in this example), as opposed to aligning with the start of the pre-roll. This option is useful if your sources have a mix of inconsistent or unknown starting timecodes, and you want them all to be output with a consistent starting timecode that aligns with the program start time of the associated media file.

This option should be used with caution on sources that have time-of-day timecode and where the recording may have been started on minutes 57 to 59 of any given hour.

These first few minutes will appear to be pre-roll, so the output will be trimmed to start at the next hour mark. If those first few minutes contain actual program content then this may not be the desired result.

Note: If you want your output time to consistently start at 01:00:00:00 instead of zero, you can combine the "Nearest Hour to Zero" option with the "Time Offset" option, and have the Time Offset set to add a 01:00:00:00 offset.

- *Specified Timecode*. Select this option to use the values set in the Specified Starting Timecode fields. This option is useful when processing a sidecar file that already has correct timecode overall, but you want to add to or trim from the start time, such as when adding or removing a pre-roll segment.

Specified Starting Timecode. The output media will start with the timecode values specified in these fields, when "Specified Timecode" is selected for the Starting Timecode option.

Closed Caption/Subtitle Frame Rate Conversion

Check to enable this filter and use these options to modify the frame rate of the captions/subtitles without changing the relative timing.

Note: If the video frame rate is also being changed, that change must happen in a separate action.

Output Frame Rate. Select the output frame rate for the caption/subtitle.

Drop Frame. When enabled, Drop Frame time code mode is used when the output is 29.97 or 59.94 fps. Drop Frame mode is not used for any other frame rate, even if enabled.

XDS/V-Chip Encoding Options

Use these settings to enable and select V-chip ratings, set an XDS program name, or select a Copy Generation Management System (CGMS) setting to encode.

Only specify valid combinations of ratings and content flags. For example, Violence (V) should not be enabled for TV-G or TV-Y rated programs.

Note: When running in DEMO mode (license impaired mode), V-chip and XDS settings in outputs with embedded closed captions may be overridden with random values.

V-chip. Select one of the V-chip ratings to encode:

- *Pass Through*. Select Pass Through to preserve the V-chip rating from the caption source (if any).

- *None*. Do not encode any V-chip ratings. This will delete any rating present in the source.

- *TV-Y*. Programs aimed at children from ages 2 to 6.

- *TV-Y7*. Programs aimed at children age 7 and above.

- *TV-G*. General audience (all ages).

- *TV-PG*. Parental guidance suggested.

- *TV-14*. Parents cautioned for children under 14 years of age.

- *TV-MA*. Mature audience, age 17 or older.

Select from the following optional V-chip content flags to encode:

- *V/FV*. Violence (TV-PG, TV-14, TV-MA) / Fantasy Violence (TV-Y7).

- *S*. Sexual situations (TV-PG, TV-14, TV-MA).

- *L*. Adult language (TV-PG, TV-14, TV-MA).

- *D*. Sexually suggestive dialog (TV-PG, TV-14).

XDS Program Name. Enable the checkbox and enter the XDS program name to encode, or leave blank to encode no XDS program name. When left blank, any program name present in the source is deleted. When disabled, the XDS program name (if present) will pass through unchanged from the caption source to the output. A valid XDS program name consists of 2 to 32 ASCII printable characters.

CGMS. Select and choose the Copy Generation Management System (CGMS) setting to encode. When disabled, a CGMS setting (if present) will pass through unchanged from the caption source to the output. Select from these setting options:

- Copying is permitted without restriction

- One generation of copies may be made

- No copying is permitted

Note: Please refer to the CGMS specification for more details on the following APS and ASB options.

APS. Select the CGMS Analog Protection System (APS) setting to encode. This setting is ignored unless CGMS is enabled and set to "No copying is permitted". Select from these setting options:

- No APS

- PSP On; Split Burst Off

- PSP On; 2 line Split Burst On

- PSP On; 4 line Split Burst On

Analog Source Bit (ASB). Select to enable the CGMS Analog Source Bit (ASB). This setting is ignored if CGMS is not enabled.

Container Settings

When checked, allows specification of various container settings. Unchecked by default.

Use AS11 Specification for MXF Output. When checked, MXF output will be written in AS11 mode with a KAG size of 1 versus the default of 512. Unchecked by default.

Video Track Settings

Select a Video track to change its settings.

Track Checkbox. Activates a track for processing. Uncheck a track to disable processing.

Stream Name. Select the input Video Stream that you want to use as the source for the output file.

Bit Rate. Check Bit Rate to override the bit rate for this stream with the value specified.

Audio Track Settings

Select the track to display audio stream settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, enable the track checkbox in the empty, untitled audio track to the right of the last active track. Up to 32 tracks are supported.

Stream Name. Select the input Audio Stream that you want to use as the source for the output file.

Language. When enabled, override the language parameter of this track with the selection. NOTE: If you are binding this control to a variable, the text value must exactly match one of the original language selections in the encoder.

Bit Rate. Check Bit Rate to override the bit rate for this stream with the value specified.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates a track for processing. Uncheck a track to disable processing.

Stream Name. Select the input Timed Text Stream that you want to use as the source for the output file.

SCC Output

An SCC file is the Scenarist Closed Captioning format developed to author DVD-Video discs with CEA-608 caption data. This file format is now used by transcode mechanisms, such as Vantage Transcode Pro and IPTV VOD, to insert caption data into a variety of media file types.

The SCC file does not contain any CEA-708 data. Therefore, a CEA-608 to CEA-708 conversion must occur when using an SCC file for HD media formats that require both 608 and 708 data. SCC files support Latin alphabet characters as specified in CEA-608 and cannot contain caption data for non-Latin languages such as Arabic, Hebrew, Cyrillic, and Japanese.

SCC files are intended to support NTSC video frame rates, such as 29.97fps. The Timed Text Flip action can output SCC files from video files and caption files that contain CEA-608 data, as well as subtitle files that contain Latin alphabet characters. SCC files can also be used to deliver caption data to Internet video players such as YouTube and Vimeo. SCC files also contain all the positioning and text formatting that TV closed captioning supports including pop-on, paint-on, and roll-up.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Not all configuration options listed below may be available for use with the Timed Text Conform action.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Output Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select an output and drag it to a new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Output Settings

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are

going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the package to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click the green Browse button to select a variable which supplies the fully-qualified path dynamically.

- *Collision Resolution*. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for the new file.

Delete. Click the X icon on the right to delete the output from this action.

Filter Settings

Select the output component panel to configure the available settings.

General

Field. Sets the SCC field to use for the output. The options are Field 1 or Field 2.

Reformat Roll-up Captions to Pop-on. When checked, individual roll-up lines will be combined into pop-on captions containing 1-4 lines. Unchecked by default.

Closed Caption/Subtitle Retiming

Check to activate options to modify the timing of the closed captions or subtitles.

Retime Rate. The rate factor to apply to caption/subtitle event times to realign or change synchronization. 100% matches the original speed. Use greater than 100% to make captions/subtitles slower than the original speed (appear later). Use less than 100% to make captions/subtitles faster than the original speed (appear sooner).

One example of when to use Retime Rate is when captions or subtitles are drifting out of sync as the video program length increases. Often, this drift of captions and subtitles is caused by drop frame to non-drop frame video conversion, which results in 3.6 seconds of captioning text timing change per hour (3.6 seconds early or late at the one-hour mark). This is caused by the difference between 30.0fps and 29.97fps, or 24.0fps and 23.976fps. To fix this problem, add or subtract 0.1% from 100%, depending on the timing of the text being early or late as it corresponds to the video.

- Captions or subtitles are appearing too early: Increase the time code by 0.1% (1.001/1.000). Enter 100.1% for the Retime Rate.

- Captions or subtitles are appearing too late: Decrease the time code by 0.1% (1.000/1.001). Enter 99.9% for the Retime Rate.

Rate Applies From. This option only works if the Retime Rate is set to something other than 100%. The Retime Rate applies starting from the time set in the Rate Applies From field. Also, if a program starts at a non-zero time, such as 1 hour (01:00:00;00), and you want to preserve this start time even after caption retiming, set this field to the program start time.

For example, if your media has a tape-based start time of 01:00:00:00 and you want to apply a retime rate (speed up or slow down) but you want the starting time code to remain pinned at 01:00:00:00 even after retiming, set this field to 01:00:00:00.

Time Offset. Time code value to add to, or subtract from, each caption or subtitle time code. To subtract, enable the Negative Offset option.

For example, if an SCC file starts at 01:00:00;00 and you want to adjust the start time to 00:00:00;00 for Internet delivery, set this Time Offset to 01:00:00;00, and select the Negative Offset checkbox.

Negative Offset. When enabled, the specified Time Offset is subtracted from each of the caption/subtitle time codes, instead of added.

Ripple Timecode. Time code value to add or subtract from all caption or subtitle time codes, without affecting the media start/stop time. To subtract, enable Negative Ripple.

Negative Ripple. When enabled, the specified Ripple Timecode is subtracted from all caption/subtitle time codes, instead of added.

Starting Timecode. Modifies the starting timecode of the output. Use when the starting timecode of the input timed text does not begin at 0 (zero). The options are:

- *First Frame of Input*. This will generate an output file that starts at the same frame as the input caption/subtitle file. This option is useful when creating a subtitle overlay from a caption or media file that already has the correct starting time code.

Note: Most subtitle sidecar file formats consider their first frame to be the starting time of the first subtitle, which could be several seconds or more after the start of the media file. If you want to make a subtitle overlay file from a sidecar subtitle file, so that the overlay starts at the same frame as an associated media file, you should use the "Specified Timecode" option.

- *Nearest Hour to Zero*. This option will attempt to zero-out the start time of the actual program by ignoring the hours portion of the source start time, as well as ignoring any pre-roll or slate which typically lasts for 2-3 minutes before the start of the program. For example, a source that starts at 00:58:30:00 typically contains pre-roll such that the actual program starts at 01:00:00:00. Using this "Nearest Hour to Zero" option results in an output file where 00:00:00:00 in the output aligns with the start of the actual program (01:00:00:00 in this example), as opposed to aligning with the start of the pre-roll. This option is useful if your sources have a mix of inconsistent or unknown starting timecodes, and you want them all to be output with a consistent starting timecode that aligns with the program start time of the associated media file.

This option should be used with caution on sources that have time-of-day timecode and where the recording may have been started on minutes 57 to 59 of any given hour. These first few minutes will appear to be pre-roll, so the output will be trimmed to start at the next hour mark. If those first few minutes contain actual program content then this may not be the desired result.

Note: If you want your output time to consistently start at 01:00:00:00 instead of zero, you can combine the "Nearest Hour to Zero" option with the "Time Offset" option, and have the Time Offset set to add a 01:00:00:00 offset.

- *Specified Timecode*. Select this option to use the values set in the Specified Starting Timecode fields. This option is useful when processing a sidecar file that already has correct timecode overall, but you want to add to or trim from the start time, such as when adding or removing a pre-roll segment.

Specified Starting Timecode. The output media will start with the timecode values specified in these fields, when "Specified Timecode" is selected for the Starting Timecode option.

Closed Caption/Subtitle Frame Rate Conversion

Check to enable this filter and use these options to modify the frame rate of the captions/subtitles without changing the relative timing.

Note: If the video frame rate is also being changed, that change must happen in a separate action.

Output Frame Rate. Select the output frame rate for the caption/subtitle.

Drop Frame. When enabled, Drop Frame time code mode is used when the output is 29.97 or 59.94 fps. Drop Frame mode is not used for any other frame rate, even if enabled.

XDS/V-Chip Encoding Options

Use these settings to enable and select V-chip ratings, set an XDS program name, or select a Copy Generation Management System (CGMS) setting to encode.

Only specify valid combinations of ratings and content flags. For example, Violence (V) should not be enabled for TV-G or TV-Y rated programs.

Note: When running in DEMO mode (license impaired mode), V-chip and XDS settings in outputs with embedded closed captions may be overridden with random values.

V-chip. Select one of the V-chip ratings to encode:

- *Pass Through*. Select Pass Through to preserve the V-chip rating from the caption source (if any).

- *None*. Do not encode any V-chip ratings. This will delete any rating present in the source.

- *TV-Y*. Programs aimed at children from ages 2 to 6.

- *TV-Y7*. Programs aimed at children age 7 and above.

- *TV-G*. General audience (all ages).

- *TV-PG*. Parental guidance suggested.

- *TV-14*. Parents cautioned for children under 14 years of age.

- *TV-MA*. Mature audience, age 17 or older.

Select from the following optional V-chip content flags to encode:

- *V/FV*. Violence (TV-PG, TV-14, TV-MA) / Fantasy Violence (TV-Y7).

- *S*. Sexual situations (TV-PG, TV-14, TV-MA).

- *L*. Adult language (TV-PG, TV-14, TV-MA).

- *D*. Sexually suggestive dialog (TV-PG, TV-14).

XDS Program Name. Enable the checkbox and enter the XDS program name to encode, or leave blank to encode no XDS program name. When left blank, any program name present in the source is deleted. When disabled, the XDS program name (if present) will pass through unchanged from the caption source to the output. A valid XDS program name consists of 2 to 32 ASCII printable characters.

CGMS. Select and choose the Copy Generation Management System (CGMS) setting to encode. When disabled, a CGMS setting (if present) will pass through unchanged from the caption source to the output. Select from these setting options:

- Copying is permitted without restriction

- One generation of copies may be made

- No copying is permitted

Note: Please refer to the CGMS specification for more details on the following APS and ASB options.

APS. Select the CGMS Analog Protection System (APS) setting to encode. This setting is ignored unless CGMS is enabled and set to "No copying is permitted". Select from these setting options:

- No APS

- PSP On; Split Burst Off

- PSP On; 2 line Split Burst On

- PSP On; 4 line Split Burst On

Analog Source Bit (ASB). Select to enable the CGMS Analog Source Bit (ASB). This setting is ignored if CGMS is not enabled.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates a track for processing, or to create additional tracks. Uncheck a Timed Text track to disable processing.

To add a new track, enable the track checkbox in the empty, untitled Timed Text track to the right of the last active track.

Stream Name. Select the input Timed Text Stream that you want to use as the source for the output file.

SCC Output (Timed Text Conform)

An SCC file is the Scenarist Closed Captioning format developed to author DVD-Video discs with CEA-608 caption data.

The SCC file does not contain any CEA-708 data. Therefore, a CEA-608 to CEA-708 conversion must occur when using an SCC file for HD media formats that require both 608 and 708 data. SCC files support Latin alphabet characters as specified in CEA-608 and cannot contain caption data for non-Latin languages such as Arabic, Hebrew, Cyrillic, and Japanese.

SCC files are intended to support NTSC video frame rates, such as 29.97fps. The Timed Text Flip action can output SCC files from video files and caption files that contain CEA-608 data, as well as subtitle files that contain Latin alphabet characters. SCC files can also be used to deliver caption data to Internet video players such as YouTube and Vimeo. SCC files also contain all the positioning and text formatting that TV closed captioning supports including pop-on, paint-on, and roll-up.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Output Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select an output and drag it to a new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Output Settings

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the package to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click the green Browse button to select a variable which supplies the fully-qualified path dynamically.

- *Collision Resolution*. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for the new file.

Delete. Click the X icon on the right to delete the output from this action.

Container Settings

To configure container options for each output file, select it. The controls display in the details panel to the right.

Set Output Start Time.

When unchecked (default), a zero-based start timecode is specified in the output. Check to specify a starting output time and configure these options:

Starting Timecode Mode. Select *Specified Timecode* | *Use CML Target Timecode*.

Specified Timecode. The value you specify is transferred to the output. This is similar to ripple timecode; to a zero value, the amount of time specified is added.

Use CML Target Timecode. The value is transferred from the CML to the output. If the CML does not have a timecode, the default, zero-based timecode is used.

Specified Starting Timecode. When *Specified Timecode* is selected, enter the starting timecode and framerate.

Spruce STL Output

A Spruce STL (Spruce Technologies) file is a subtitle format designed to work with Spruce DVD authoring systems, and later DVD Studio Pro 2.0 and above. This file format is a text file that can support a variety of languages and is used for subtitling purposes. The Spruce STL format supports text positioning on the screen. However, since DVDs only support SD NTSC material, all Spruce STL files are set up for SD workflows with corresponding limitations for positioning and font size. This format is supported in Timed Text Flip as a text-only output option.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Output Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/ readability purposes. Alternatively, use drag-and-drop to select an output and drag it to a new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Output Settings

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the package to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click

the green Browse button to select a variable which supplies the fully-qualified path dynamically.

- *Collision Resolution*. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for the new file.

Delete. Click the X icon on the right to delete the output from this action.

Container Settings

Select the output component panel to configure the container settings.

General

Caption Channel Source. Sets the caption channel of the source. The default is CC1, and the range is CC1 to CC4 (CEA-608), Service 1 to Service 6 (CEA-708), and Teletext. If your source is a closed caption file such as SCC, MCC, or video with embedded CEA-608/708 captions or Teletext, this setting controls which caption channel is converted to EBU-STL subtitles. If the source does not contain CEA-608/708 captions, or Teletext respectively, then this setting has no effect.

Teletext Decoding Options

When enabled, allows specification of various Teletext decoding parameters.

Page. Specify Teletext page to decode or leave at default setting of 0 to auto decode first detected page.

Character Set. Specify character set to use or leave at Default setting to auto detect character set from page headers if available. If no character set is detected, Latin will be used.

National Option Subset. Specify national option character subset to use when decoding Latin character Teletext or leave at Default setting to auto detect character subset from page headers if available. If no character subset is detected, English will be used.

Closed Caption/Subtitle Retiming

Check to activate options to modify the timing of the closed captions or subtitles.

Retime Rate. The rate factor to apply to caption/subtitle event times to realign or change synchronization. 100% matches the original speed. Use greater than 100% to make captions/subtitles slower than the original speed (appear later). Use less than 100% to make captions/subtitles faster than the original speed (appear sooner).

One example of when to use Retime Rate is when captions or subtitles are drifting out of sync as the video program length increases. Often, this drift of captions and subtitles is caused by drop frame to non-drop frame video conversion, which results in 3.6 seconds of captioning text timing change per hour (3.6 seconds early or late at the one-hour mark). This is caused by the difference between 30.0fps and 29.97fps, or 24.0fps and 23.976fps. To fix this problem, add or subtract 0.1% from 100%, depending on the timing of the text being early or late as it corresponds to the video.

- Captions or subtitles are appearing too early: Increase the time code by 0.1% (1.001/1.000). Enter 100.1% for the Retime Rate.

- Captions or subtitles are appearing too late: Decrease the time code by 0.1% (1.000/1.001). Enter 99.9% for the Retime Rate.

Rate Applies From. This option only works if the Retime Rate is set to something other than 100%. The Retime Rate applies starting from the time set in the Rate Applies From field. Also, if a program starts at a non-zero time, such as 1 hour (01:00:00;00), and you want to preserve this start time even after caption retiming, set this field to the program start time.

For example, if your media has a tape-based start time of 01:00:00:00 and you want to apply a re-time rate (speed up or slow down) but you want the starting time code to remain pinned at 01:00:00:00 even after retiming, set this field to 01:00:00:00.

Time Offset. Time code value to add to, or subtract from, each caption or subtitle time code. To subtract, enable the Negative Offset option.

For example, if an SCC file starts at 01:00:00;00 and you want to adjust the start time to 00:00:00;00 for Internet delivery, set this Time Offset to 01:00:00;00, and select the Negative Offset checkbox.

Negative Offset. When enabled, the specified Time Offset is subtracted from each of the caption/subtitle time codes, instead of added.

Ripple Timecode. Time code value to add or subtract from all caption or subtitle time codes, without affecting the media start/stop time. To subtract, enable Negative Ripple.

Negative Ripple. When enabled, the specified Ripple Timecode is subtracted from all caption/subtitle time codes, instead of added.

Starting Timecode. Modifies the starting timecode of the output. Use when the starting timecode of the input timed text does not begin at 0 (zero). The options are:

- *First Frame of Input*. This will generate an output file that starts at the same frame as the input caption/subtitle file. This option is useful when creating a subtitle overlay from a caption or media file that already has the correct starting time code.

Note: Most subtitle sidecar file formats consider their first frame to be the starting time of the first subtitle, which could be several seconds or more after the start of the media file. If you want to make a subtitle overlay file from a sidecar subtitle file, so that the overlay starts at the same frame as an associated media file, you should use the Specified Starting Timecode option.

- *Nearest Hour to Zero*. This option will attempt to zero-out the start time of the actual program by ignoring the hours portion of the source start time, as well as ignoring any pre-roll or slate which typically lasts for 2-3 minutes before the start of the program. For example, a source that starts at 00:58:30:00 typically contains pre-roll such that the actual program starts at 01:00:00:00. Using this "Nearest Hour to Zero" option results in an output file where 00:00:00:00 in the output aligns with the start of the actual program (01:00:00:00 in this example), as opposed to aligning with the start of the pre-roll. This option is useful if your sources have a mix of inconsistent or unknown starting timecodes, and you want them all to be output with a consistent starting timecode that aligns with the program start time of the associated media file.

This option should be used with caution on sources that have time-of-day timecode and where the recording may have been started on minutes 57 to 59 of any given hour. These first few minutes will appear to be pre-roll, so the output is trimmed to start at the next hour mark. If those first few minutes contain actual program content then this may not be the desired result.

Note: If you want your output time to consistently start at 01:00:00:00 instead of zero, you can combine the "Nearest Hour to Zero" option with the "Time Offset" option, and have the Time Offset set to add a 01:00:00:00 offset.

- *Specified Timecode*. Select this option to use the values set in the Specified Starting Timecode fields. This option is useful when processing a sidecar file that already has correct timecode overall, but you want to add to or trim from the start time, such as when adding or removing a pre-roll segment.

Specified Starting Timecode. The output media will start with the timecode values specified in these fields, when Specified Timecode is selected for the Starting Timecode option.

Closed Caption/Subtitle Frame Rate Conversion

Check to enable this filter and use these options to modify the frame rate of the captions/subtitles without changing the relative timing.

Note: If the video frame rate is also being changed, that change must happen in a separate action.

Output Frame Rate. Select the output frame rate for the caption/subtitle.

Drop Frame. When enabled, Drop Frame time code mode is used when the output is 29.97 or 59.94 fps. Drop Frame mode is not used for any other frame rate, even if enabled.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates a track for processing. Uncheck a track to disable processing.

Stream Name. Select the input Timed Text Stream that you want to use as the source for the output file.

SRT Output

The SRT format, or SubRip, is a subtitle timed text format that has very simple formatting and no positioning parameters. Typically, all subtitles rendered from an SRT file will have bottom center positioning. The simple formatting options are limited to tags such as italics, bold, and underline.

The SRT format is intended to be converted to a subtitle overlay from the Timed Text Flip action. However, if an SRT file has Latin characters and does not exceed the required 32 characters per line (CEA-608 specification), it can also be converted to SCC, MCC, or embedded into source media.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Output Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select an output and drag it to a new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Output Settings

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the package to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click

the green Browse button to select a variable which supplies the fully-qualified path dynamically.

- *Collision Resolution*. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for the new file.

Delete. Click the X icon on the right to delete the output from this action.

Filter Settings

Select the output component panel to configure the available settings.

General

Caption Channel Source. Sets the caption channel of the source. The default is CC1, and the range is CC1 to CC4 (CEA-608), Service 1 to Service 6 (CEA-708), and Teletext. If your source is a closed caption file such as SCC, MCC, or video with embedded CEA-608/708 captions or Teletext, this setting controls which caption channel is converted to SRT subtitles. If the source does not contain CEA-608/708 captions, or Teletext respectively, then this setting has no effect.

Omit Style Tags. When enabled, HTML like style settings such as for underline, italics, etc. are omitted from the output file. Default is disabled (style tags are preserved).

Teletext Decoding Options

When enabled, allows specification of various Teletext decoding parameters.

Page. Specify Teletext page to decode or leave at default setting of 0 to auto decode first detected page.

Character Set. Specify character set to use or leave at Default setting to auto detect character set from page headers if available. If no character set is detected, Latin will be used.

National Option Subset. Specify national option character subset to use when decoding Latin character Teletext or leave at Default setting to auto detect character subset from page headers if available. If no character subset is detected, English will be used.

Closed Caption/Subtitle Retiming

Check to activate options to modify the timing of the closed captions or subtitles.

Retime Rate. The rate factor to apply to caption/subtitle event times to realign or change synchronization. 100% matches the original speed. Use greater than 100% to make captions/subtitles slower than the original speed (appear later). Use less than 100% to make captions/subtitles faster than the original speed (appear sooner).

One example of when to use Retime Rate is when captions or subtitles are drifting out of sync as the video program length increases. Often, this drift of captions and subtitles is caused by drop frame to non-drop frame video conversion, which results in 3.6 seconds of captioning text timing change per hour (3.6 seconds early or late at the one-hour mark). This is caused by the difference between 30.0fps and 29.97fps, or 24.0fps and 23.976fps. To fix this problem, add or subtract 0.1% from 100%, depending on the timing of the text being early or late as it corresponds to the video.

- Captions or subtitles are appearing too early: Increase the time code by 0.1% (1.001/1.000). Enter 100.1% for the Retime Rate.

- Captions or subtitles are appearing too late: Decrease the time code by 0.1% (1.000/1.001). Enter 99.9% for the Retime Rate.

Rate Applies From. This option only works if the Retime Rate is set to something other than 100%. The Retime Rate applies starting from the time set in the Rate Applies From field. Also, if a program starts at a non-zero time, such as 1 hour (01:00:00;00), and you want to preserve this start time even after caption retiming, set this field to the program start time.

For example, if your media has a tape-based start time of 01:00:00:00 and you want to apply a retime rate (speed up or slow down) but you want the starting time code to remain pinned at 01:00:00:00 even after retiming, set this field to 01:00:00:00.

Time Offset. Time code value to add to, or subtract from, each caption or subtitle time code. To subtract, enable the Negative Offset option.

For example, if an SCC file starts at 01:00:00;00 and you want to adjust the start time to 00:00:00;00 for Internet delivery, set this Time Offset to 01:00:00;00, and select the Negative Offset checkbox.

Negative Offset. When enabled, the specified Time Offset is subtracted from each of the caption/subtitle time codes, instead of added.

Ripple Timecode. Time code value to add or subtract from all caption or subtitle time codes, without affecting the media start/stop time. To subtract, enable Negative Ripple.

Negative Ripple. When enabled, the specified Ripple Timecode is subtracted from all caption/subtitle time codes, instead of added.

Starting Timecode. Modifies the starting timecode of the output. Use when the starting timecode of the input timed text does not begin at 0 (zero). The options are:

- *First Frame of Input*. This will generate an output file that starts at the same frame as the input caption/subtitle file. This option is useful when creating a subtitle overlay from a caption or media file that already has the correct starting time code.

Note: Most subtitle sidecar file formats consider their first frame to be the starting time of the first subtitle, which could be several seconds or more after the start of the media file. If you want to make a subtitle overlay file from a sidecar subtitle file, so that the overlay starts at the same frame as an associated media file, you should use the "Specified Timecode" option.

- *Nearest Hour to Zero*. This option will attempt to zero-out the start time of the actual program by ignoring the hours portion of the source start time, as well as ignoring any pre-roll or slate which typically lasts for 2-3 minutes before the start of the program. For example, a source that starts at 00:58:30:00 typically contains pre-roll such that the actual program starts at 01:00:00:00. Using this "Nearest Hour to Zero" option results in an output file where 00:00:00:00 in the output aligns with the start of the actual program (01:00:00:00 in this example), as opposed to aligning with the start of the pre-roll. This option is useful if your sources have a mix of inconsistent or unknown starting timecodes, and you want them all to be output with a consistent starting timecode that aligns with the program start time of the associated media file.

This option should be used with caution on sources that have time-of-day timecode and where the recording may have been started on minutes 57 to 59 of any given hour. These first few minutes will appear to be pre-roll, so the output will be trimmed to start at the next hour mark. If those first few minutes contain actual program content then this may not be the desired result.

Note: If you want your output time to consistently start at 01:00:00:00 instead of zero, you can combine the "Nearest Hour to Zero" option with the "Time Offset" option, and have the Time Offset set to add a 01:00:00:00 offset.

- *Specified Timecode*. Select this option to use the values set in the Specified Starting Timecode fields. This option is useful when processing a sidecar file that already has correct timecode overall, but you want to add to or trim from the start time, such as when adding or removing a pre-roll segment.

Specified Starting Timecode. The output media will start with the timecode values specified in these fields, when "Specified Timecode" is selected for the Starting Timecode option.

Closed Caption/Subtitle Frame Rate Conversion

Check to enable this filter and use these options to modify the frame rate of the captions/subtitles without changing the relative timing.

Note: If the video frame rate is also being changed, that change must happen in a separate action.

Output Frame Rate. Select the output frame rate for the caption/subtitle.

Drop Frame. When enabled, Drop Frame time code mode is used when the output is 29.97 or 59.94 fps. Drop Frame mode is not used for any other frame rate, even if enabled.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates a track for processing. Uncheck a track to disable processing.

Stream Name. Select the input Timed Text Stream that you want to use as the source for the output file.

Subtitle Overlay Output

The Subtitle Overlay output generates a MOV video file that contains subtitle graphics with an alpha channel for overlay purposes. This MOV file does not contain any video picture, but only the subtitle graphics generated by the Timed Text Flip action. All supported video, caption, and subtitle files in Timed Text Flip can be converted to subtitle graphics using this component. The resulting MOV file can be used with a Vantage transcode action, such as Multiscreen or IPTV Flip, that have an Overlay Video Filter.

You can optionally enable closed caption/subtitle retiming, closed caption/subtitle frame rate conversion, and subtitle style options.

The Subtitle Overlay output in Timed Text Flip preserves animated CEA-608 caption formatting, such as paint-on or roll-up captions, from input CEA-608 source files, such as SCC and video files.

The resulting MOV file that contains subtitle graphics can also be used with any video editing system that supports an alpha channel overlay such as Autodesk Smoke, Avid Media Composer, Apple Final Cut Pro, and Adobe Premiere Pro.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Output Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select an output and drag it to a new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Output Settings

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the package to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click the green Browse button to select a variable which supplies the fully-qualified path dynamically.

- *Collision Resolution*. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for the new file.

Delete. Click the X icon on the right to delete the output from this action.

Container Settings

Select the output component panel to configure the available settings.

General

Caption Channel Source. Sets the caption channel of the source. The default is CC1, and the range is CC1 to CC4 (CEA-608), Service 1 to Service 6 (CEA-708), and Teletext. If

your source is a closed caption file such as SCC, MCC, or video with embedded CEA-608/708 captions or Teletext, this setting controls which caption channel is converted to the subtitle overlay. If the source does not contain CEA-608/708 captions, or Teletext respectively, then this setting has no effect.

Compressor. Select the video codec to use to compress the subtitle overlay movie. The options are QuickTime Animation or ProRes 4444.

- Use the ProRes 4444 setting to create a burn-in overlay for use in the Flip transcode action.

- Use the QuickTime Animation setting to use the output in the IPTV or Multiscreen actions.

Start Timecode. Set a container start timecode and frame rate for the output. This timecode is not related to the subtitle timing.

Teletext Accurate Decoding Mode. When checked, Teletext is decoded more closely to a reference hardware decoder. This includes stretched text in double-mode. Unchecked by default.

Teletext Decoding Options

When enabled, allows specification of various Teletext decoding parameters.

Page. Specify Teletext page to decode or leave at default setting of 0 to auto decode first detected page.

Character Set. Specify character set to use or leave at Default setting to auto detect character set from page headers if available. If no character set is detected, Latin will be used.

National Option Subset. Specify national option character subset to use when decoding Latin character Teletext or leave at Default setting to auto detect character subset from page headers if available. If no character subset is detected, English will be used.

Closed Caption/Subtitle Retiming

Check to activate options to modify the timing of the closed captions or subtitles.

Retime Rate. The rate factor to apply to caption/subtitle event times to realign or change synchronization. 100% matches the original speed. Use greater than 100% to make captions/subtitles slower than the original speed (appear later). Use less than 100% to make captions/subtitles faster than the original speed (appear sooner).

One example of when to use Retime Rate is when captions or subtitles are drifting out of sync as the video program length increases. Often, this drift of captions and subtitles is caused by drop frame to non-drop frame video conversion, which results in 3.6 seconds of captioning text timing change per hour (3.6 seconds early or late at the one-hour mark). This is caused by the difference between 30.0fps and 29.97fps, or 24.0fps and 23.976fps. To fix this problem, add or subtract 0.1% from 100%, depending on the timing of the text being early or late as it corresponds to the video.

- Captions or subtitles are appearing too early: Increase the time code by 0.1% (1.001/1.000). Enter 100.1% for the Retime Rate.

- Captions or subtitles are appearing too late: Decrease the time code by 0.1% (1.000/1.001). Enter 99.9% for the Retime Rate.

Rate Applies From. This option only works if the Retime Rate is set to something other than 100%. The Retime Rate applies starting from the time set in the Rate Applies From field. Also, if a program starts at a non-zero time, such as 1 hour (01:00:00;00), and you want to preserve this start time even after caption retiming, set this field to the program start time.

For example, if your media has a tape-based start time of 01:00:00:00 and you want to apply a re-time rate (speed up or slow down) but you want the starting time code to remain pinned at 01:00:00:00 even after retiming, set this field to 01:00:00:00.

Time Offset. Time code value to add to, or subtract from, each caption or subtitle time code. To subtract, enable the Negative Offset option.

For example, if an SCC file starts at 01:00:00;00 and you want to adjust the start time to 00:00:00;00 for Internet delivery, set this Time Offset to 01:00:00;00, and select the Negative Offset checkbox.

Negative Offset. When enabled, the specified Time Offset is subtracted from each of the caption/subtitle time codes, instead of added.

Ripple Timecode. Time code value to add or subtract from all caption or subtitle time codes, without affecting the media start/stop time. To subtract, enable Negative Ripple.

Negative Ripple. When enabled, the specified Ripple Timecode is subtracted from all caption/subtitle time codes, instead of added.

Starting Timecode. Modifies the starting timecode of the output. Use when the starting timecode of the input timed text does not begin at 0 (zero). The options are:

- *First Frame of Input*. This will generate an output file that starts at the same frame as the input caption/subtitle file. This option is useful when creating a subtitle overlay from a caption or media file that already has the correct starting time code.

Note: Most subtitle sidecar file formats consider their first frame to be the starting time of the first subtitle, which could be several seconds or more after the start of the media file. If you want to make a subtitle overlay file from a sidecar subtitle file, so that the overlay starts at the same frame as an associated media file, you should use the "Specified Timecode" option.

- *Nearest Hour to Zero*. This option will attempt to zero-out the start time of the actual program by ignoring the hours portion of the source start time, as well as ignoring any pre-roll or slate which typically lasts for 2-3 minutes before the start of the program. For example, a source that starts at 00:58:30:00 typically contains pre-roll such that the actual program starts at 01:00:00:00. Using this "Nearest Hour to Zero" option results in an output file where 00:00:00:00 in the output aligns with the start of the actual program (01:00:00:00 in this example), as opposed to aligning with the start of the pre-

roll. This option is useful if your sources have a mix of inconsistent or unknown starting timecodes, and you want them all to be output with a consistent starting timecode that aligns with the program start time of the associated media file.

This option should be used with caution on sources that have time-of-day timecode and where the recording may have been started on minutes 57 to 59 of any given hour. These first few minutes will appear to be pre-roll, so the output will be trimmed to start at the next hour mark. If those first few minutes contain actual program content then this may not be the desired result.

Note: If you want your output time to consistently start at 01:00:00:00 instead of zero, you can combine the "Nearest Hour to Zero" option with the "Time Offset" option, and have the Time Offset set to add a 01:00:00:00 offset.

- *Specified Timecode*. Select this option to use the values set in the Specified Starting Timecode fields. This option is useful when processing a sidecar file that already has correct timecode overall, but you want to add to or trim from the start time, such as when adding or removing a pre-roll segment.

Specified Starting Timecode. The output media will start with the timecode values specified in these fields, when "Specified Timecode" is selected for the Starting Timecode option.

Closed Caption/Subtitle Frame Rate Conversion

Check to enable this filter and use these options to modify the frame rate of the captions/subtitles without changing the relative timing.

Note: If the video frame rate is also being changed, that change must happen in a separate action.

Output Frame Rate. Select the output frame rate for the caption/subtitle.

Drop Frame. When enabled, Drop Frame time code mode is used when the output is 29.97 or 59.94 fps. Drop Frame mode is not used for any other frame rate, even if enabled.

Subtitle Style

Check to manually specify subtitle style options. When selected, all default settings are applied unless you modify them. When unselected, all options are either default or auto-set based on the output frame size. All text formatting and positioning will be preserved from caption and subtitle data input files.

Size

Width | Height. Specifies the width and height of the output subtitle overlay in pixels. Use this option when you want to override the size coming from the input movie, or when there is no input movie to determine the size.

Font

Font Name. Select the name of the font to use when rendering subtitles. Select (default) to use the font specified in the source file. The fonts listed are the ones available in your system.

Font Unit. Specifies the unit of measurement - percent (%) or pixels (px).

Font Scale/Size. Based on selection of Font Unit, specifies the percent (scale) or pixels (size) of font size as a real number. Percent adjusts the scale of the output size relative to the original font size specified in the source file. Pixels sets the font size as an absolute value, in pixels. The range for both is 4 to 300, and the default percent is 100.

Force Bold. Sets all output text to bold. This can help improve font legibility, especially for thin fonts.

Drop Shadow. When checked, adds user-configurable drop shadow effects to the text. When checked, configure these controls:

- **Color**. Color of shadow. Default Black (000000).
- **Opacity**. Transparency of drop shadow in percentage with 100 being fully opaque. Range 0-100. Default 100.
- **Angle**. Positioning of shadow in degrees. Range 0-360. Default 315.
- **Distance**. Distance of shadow from edge of character as a percentage of the font size. Range 0-100. Default 5.
- **Blur Radius**. Radius of blur in pixels. Range 0-32. Default 0.

Text Color Override. When enabled, the color specified below in Text Color is used, instead of the text color specified by the source file.

Text Color. The text (foreground) color to use when rendering subtitles. This is only active when Text Color Override is enabled.

Text Outline Override. When enabled, the color specified below in Text Outline Color is used, instead of the text outline color specified by the source file.

Text Outline Color. The text outline color to use when rendering subtitles. This is only active when Text Outline Override is enabled.

Text Outline Thickness. Select the text outline thickness to use, as a percent of font size. The range is from 0 to 25 percent. This is only active when Text Outline Override is enabled.

Secondary Font

Note: Secondary font overrides only apply to subtitle file formats that have the capability to flag certain subtitles as "secondary subtitles". Currently, this feature is only supported for PAC files.

Font Name. Select the name of the font to use when rendering subtitles. Select (default) to use the font specified in the source file. The fonts listed are the ones available in your system.

Font Unit. Specifies the unit of measurement - percent (%) or pixels (px).

Font Scale/Size. Based on selection of Font Unit, specifies the percent (scale) or pixels (size) of font size as a real number. Percent adjusts the scale of the output size relative to the original font size specified in the source file. Pixels sets the font size as an absolute value, in pixels. The range for both is 4 to 300, and the default percent is 100.

Text Color Override. When enabled, the color specified below in Text Color is used, instead of the text color specified by the source file.

Text Color. The text (foreground) color to use when rendering subtitles. This is only active when Text Color Override is enabled.

Text Outline Override. When enabled, the color specified below in Text Outline Color is used, instead of the text outline color specified by the source file.

Text Outline Color. The text outline color to use when rendering subtitles. This is only active when Text Outline Override is enabled.

Text Outline Thickness. Select the text outline thickness to use, as a percent of font size. The range is from 0 to 25 percent. This is only active when Text Outline Override is enabled.

Background Boxes

Background Color Override. When enabled, the color and opacity specified in Background Color and Background Opacity is used, instead of the background color and opacity specified by the source file.

Note: Source files with 608/708 closed captions usually set the background box to black with 100% opacity. If you want to change this, enable Background Color Override and set the color and opacity to your desired values.

Background Color. When Background Color Override is enabled, this is the color that is used to draw subtitle background boxes. If Background Color Override is not enabled, this color value is ignored, and the background color (if any) is taken from the source file instead.

Background Opacity. The percent of opacity for the background color. 0 percent is transparent and 100% is completely opaque. Background Color Override must be enabled for this opacity value to take effect.

Background Applies To. Select All Subtitles | Subtitle With Backgrounds | Subtitles Without Backgrounds.

Specifies which subtitles the background color applies to: all subtitles, only those with an existing background specified in the source file, or only those without an existing background specified in the source file.

Background Padding. Select Default | Full Stripe | No Padding to determine how padding (if any) should be applied.

- *Default*: Background box padded by 1 em left and right.

- *Full Stripe*: Background box padded horizontally, the full width of the frame.

- *No Padding*: No padding is applied - background box is truncated left and right at the edge of the text.

Safe Area Margins

Top | Bottom | Left | Right Margin. Allows you to set the percent of margin from the top, bottom, left, or right edge of the screen. The default is 10%, which is the typical amount for a "title safe" margin.

When greater than 10% is set, the text on the screen is rendered farther away from the edge of the screen. When less than 10% is set, the text on the screen is rendered closer to the edge of the screen.

For HD letter-boxed content a combination of default Left and Right 10% settings, and a greater than 10% Top and Bottom setting can be used to achieve the desired margins.

Snap to Top Margin | Snap to Bottom Margin:

- When both of these options are unchecked (default), subtitle vertical positions are preserved from the source file, relative to the specified margins.

- When Snap to Bottom is checked and Snap to Top is not, then all subtitles will be moved to align with the bottom margin.

- When Snap to Top is checked and Snap to Bottom is not, then all subtitles will be moved to align with the top margin.

- When both options are checked, subtitles on the upper half of the screen will be moved to the top margin, and subtitles on the lower half of the screen will be moved to the bottom margin.

Note: Unlike formats that have an implicit defined title-safe margin area, some subtitle formats such as TTML and WebVTT use explicit horizontal and vertical positioning to achieve a title-safe area margin-like effect. Timed Text Flip can not always determine if a given position setting is intended to respect a particular safe-area margin, or is simply an intended positioning effect. Therefore, the type of positioning often used in formats such as TTML and WebVTT may not always be modified by the Safe Area Margins settings in Timed Text Flip.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates a track for processing. Uncheck a track to disable processing.

Stream Name. Select the input Timed Text Stream that you want to use as the source for the output file.

Teletext OP42 VBI Overlay Output

The Teletext OP42 VBI Overlay output creates a standard definition PAL 720x608 pixel overlay movie containing Teletext subtitles encoded as VBI data and a transparent background. This overlay can be combined with the original video using the Movie Overlay filter in a subsequent transcode action such as Flip, or in other software that can overlay an alpha channel video on top of an original video.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Output Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select an output and drag it to a new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Output Settings

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the package to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click the green Browse button to select a variable which supplies the fully-qualified path dynamically.

- *Collision Resolution*. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for the new file.

Delete. Click the X icon on the right to delete the output from this action.

Filter Settings

Select the output component panel to configure the available settings.

General

Compressor. Sets the codec used to compress the overlay movie. Both options support an alpha channel for combining the VBI with the original movie. The default is ProRes 4444.

The options are:

- ProRes 4444

- QuickTime Animation

Start Timecode. Set a container start timecode and frame rate for the output. This timecode is not related to the subtitle timing.

Caption Channel Source. Sets the caption channel of the source. The default is CC1, and the range is CC1 to CC4 (CEA-608), Service 1 to Service 6 (CEA-708), and Teletext. If your source is a closed caption file such as SCC, MCC, or video with embedded CEA-608/708 captions or Teletext, this setting controls which caption channel is converted

to the subtitle overlay. If the source does not contain CEA-608/708 captions, or Teletext respectively, then this setting has no effect.

Teletext Decoding Options

When enabled, allows specification of various Teletext decoding parameters.

Page. Specify Teletext page to decode or leave at default setting of 0 to auto decode first detected page.

Character Set. Specify character set to use or leave at Default setting to auto detect character set from page headers if available. If no character set is detected, Latin will be used.

National Option Subset. Specify national option character subset to use when decoding Latin character Teletext or leave at Default setting to auto detect character subset from page headers if available. If no character subset is detected, English will be used.

Closed Caption/Subtitle Retiming

Check to activate options to modify the timing of the closed captions or subtitles.

Retime Rate. The rate factor to apply to caption/subtitle event times to realign or change synchronization. 100% matches the original speed. Use greater than 100% to make captions/subtitles slower than the original speed (appear later). Use less than 100% to make captions/subtitles faster than the original speed (appear sooner).

One example of when to use Retime Rate is when captions or subtitles are drifting out of sync as the video program length increases. Often, this drift of captions and subtitles is caused by drop frame to non-drop frame video conversion, which results in 3.6 seconds of captioning text timing change per hour (3.6 seconds early or late at the one-hour mark). This is caused by the difference between 30.0fps and 29.97fps, or 24.0fps and 23.976fps. To fix this problem, add or subtract 0.1% from 100%, depending on the timing of the text being early or late as it corresponds to the video.

- Captions or subtitles are appearing too early: Increase the time code by 0.1% (1.001/1.000). Enter 100.1% for the Retime Rate.

- Captions or subtitles are appearing too late: Decrease the time code by 0.1% (1.000/1.001). Enter 99.9% for the Retime Rate.

Rate Applies From. This option only works if the Retime Rate is set to something other than 100%. The Retime Rate applies starting from the time set in the Rate Applies From field. Also, if a program starts at a non-zero time, such as 1 hour (01:00:00;00), and you want to preserve this start time even after caption retiming, set this field to the program start time.

For example, if your media has a tape-based start time of 01:00:00:00 and you want to apply a retime rate (speed up or slow down) but you want the starting time code to remain pinned at 01:00:00:00 even after retiming, set this field to 01:00:00:00.

Time Offset. Time code value to add to, or subtract from, each caption or subtitle time code. To subtract, enable the Negative Offset option.

For example, if an SCC file starts at 01:00:00;00 and you want to adjust the start time to 00:00:00;00 for Internet delivery, set this Time Offset to 01:00:00;00, and select the Negative Offset checkbox.

Negative Offset. When enabled, the specified Time Offset is subtracted from each of the caption/subtitle time codes, instead of added.

Ripple Timecode. Time code value to add or subtract from all caption or subtitle time codes, without affecting the media start/stop time. To subtract, enable Negative Ripple.

Negative Ripple. When enabled, the specified Ripple Timecode is subtracted from all caption/subtitle time codes, instead of added.

Starting Timecode. Modifies the starting timecode of the output. Use when the starting timecode of the input timed text does not begin at 0 (zero). The options are:

- *First Frame of Input*. This will generate an output file that starts at the same frame as the input caption/subtitle file. This option is useful when creating a subtitle overlay from a caption or media file that already has the correct starting time code.

Note: Most subtitle sidecar file formats consider their first frame to be the starting time of the first subtitle, which could be several seconds or more after the start of the media file. If you want to make a subtitle overlay file from a sidecar subtitle file, so that the overlay starts at the same frame as an associated media file, you should use the "Specified Timecode" option.

- *Nearest Hour to Zero*. This option will attempt to zero-out the start time of the actual program by ignoring the hours portion of the source start time, as well as ignoring any pre-roll or slate which typically lasts for 2-3 minutes before the start of the program. For example, a source that starts at 00:58:30:00 typically contains pre-roll such that the actual program starts at 01:00:00:00. Using this "Nearest Hour to Zero" option results in an output file where 00:00:00:00 in the output aligns with the start of the actual program (01:00:00:00 in this example), as opposed to aligning with the start of the pre-roll. This option is useful if your sources have a mix of inconsistent or unknown starting timecodes, and you want them all to be output with a consistent starting timecode that aligns with the program start time of the associated media file.

This option should be used with caution on sources that have time-of-day timecode and where the recording may have been started on minutes 57 to 59 of any given hour. These first few minutes will appear to be pre-roll, so the output will be trimmed to start at the next hour mark. If those first few minutes contain actual program content then this may not be the desired result.

Note: If you want your output time to consistently start at 01:00:00:00 instead of zero, you can combine the "Nearest Hour to Zero" option with the "Time Offset" option, and have the Time Offset set to add a 01:00:00:00 offset.

- *Specified Timecode*. Select this option to use the values set in the Specified Starting Timecode fields. This option is useful when processing a sidecar file that already has correct timecode overall, but you want to add to or trim from the start time, such as when adding or removing a pre-roll segment.

Specified Starting Timecode. The output media will start with the timecode values specified in these fields, when "Specified Timecode" is selected for the Starting Timecode option.

Closed Caption/Subtitle Frame Rate Conversion

Check to enable this filter and use these options to modify the frame rate of the captions/subtitles without changing the relative timing.

Note: If the video frame rate is also being changed, that change must happen in a separate action.

Output Frame Rate. Select the output frame rate for the caption/subtitle.

Drop Frame. When enabled, Drop Frame time code mode is used when the output is 29.97 or 59.94 fps. Drop Frame mode is not used for any other frame rate, even if enabled.

Teletext Encoding Options

Enable this section to configure the Teletext encoding settings. If disabled, all settings are set to the default. Please refer to your TV station's delivery requirements to select the appropriate Teletext settings.

Teletext Page. The Teletext Subtitle Page value should be set to the standard magazine "8". This is the first digit in the parameter, so a setting of 801 will indicate magazine 8 and page 01. Typical values are either 801 or 888. The range is 100 to 899. The default is 888.

VBI Line Field 1. Configures the VBI line used for field 1 Teletext data. Selecting "0" will disable VBI field 1 Teletext output. The range is 0-22. The default is 21.

VBI Line Field 2. Configures the VBI line used for field 2 Teletext data. Selecting "0" will disable VBI field 2 Teletext output. The range is 0-335. The default is 334.

Filler Type. The Filler Type controls what gets encoded into the spaces between the subtitle “bursts”. The default is Packet 31 Test Data, and the other options are Null Page Headers, and None (No Filler). Inserting a constant stream of Packet 31 ‘ExtTest’ data between subtitles keeps TVs at a constant gain rate, ensuring accurate reception and display of subtitles. The default is Packet 31.

The options are:

- Packet 31

- Null Page Headers

- None (no filler)

Character Set. Selects the Teletext character set used for encoding subtitle text. Please refer to the Teletext specification for the characters that are available for each set. Any characters in the input which are not available in the selected Teletext character set will be replaced by a blank space. The default is Latin.

The options are:

- Latin

- Cyrillic-1 (Serbian/Croatian)

- Cyrillic-2 (Russian/Bulgarian)

- Cyrillic-3 (Ukrainian)

- Greek

- Hebrew

- Arabic

National Option Character Subset. This setting only applies when the Character Set option is set to "Latin". The Teletext specification defines several supplemental character subsets for use in different regions. Please refer to the Teletext specification for the characters that are available for each subset. Any characters in the input subtitles which are not supported by the selected Character Set, plus the selected National Option Character Subset, will be replaced by a blank space. The default is English.

The options are:

- English

- Portuguese/Spanish

- French

- German

- Italian

Double Height Mode. Double Height refers to the size of the characters. Selecting this option will result in a bigger font size for the text when viewed with a Teletext decoder on a broadcast TV monitor. The default is Enabled.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates a track for processing. Uncheck a track to disable processing.

Stream Name. Select the input Timed Text Stream that you want to use as the source for the output file.

Timed Text Flip Action Components
Teletext OP42 VBI Overlay Output

Teletext OP47 MXF Output

The Teletext OP47 MXF output creates OP1a MXF files containing video, audio, and OP47 Teletext data encoded in the SMPTE 436m VANC data track.

To configure this output, use a Media input to create Video and Audio source tracks, and add these video and audio tracks to the Teletext OP47 MXF output. The source video and audio must be in a format compatible with the MXF container. Additionally, you need a subtitle or closed captions source to generate a Timed Text track which should also be added to this output.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Output Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select an output and drag it to a new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Output Settings

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the package to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click

the green Browse button to select a variable which supplies the fully-qualified path dynamically.

- *Collision Resolution*. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for the new file.

Delete. Click the X icon on the right to delete the output from this action.

Container

Select the output component panel to configure the available settings.

General

Start Timecode. Set a container start timecode and frame rate for the MXF output. This timecode is not related to the subtitle timing.

Caption Channel Source. Sets the caption channel of the source. The default is CC1, and the range is CC1 to CC4 (CEA-608), Service 1 to Service 6 (CEA-708), and Teletext. If your source is a closed caption file such as SCC, MCC, or video with embedded CEA-608/708 captions or Teletext, this setting controls which caption channel is converted to the subtitle overlay. If the source does not contain CEA-608/708 captions, or Teletext respectively, then this setting has no effect.

Teletext Decoding Options

When enabled, allows specification of various Teletext decoding parameters.

Page. Specify Teletext page to decode or leave at default setting of 0 to auto decode first detected page.

Character Set. Specify character set to use or leave at Default setting to auto detect character set from page headers if available. If no character set is detected, Latin will be used.

National Option Subset. Specify national option character subset to use when decoding Latin character Teletext or leave at Default setting to auto detect character subset from page headers if available. If no character subset is detected, English will be used.

Closed Caption/Subtitle Retiming

Check to activate options to modify the timing of the closed captions or subtitles.

Retime Rate. The rate factor to apply to caption/subtitle event times to realign or change synchronization. 100% matches the original speed. Use greater than 100% to make captions/subtitles slower than the original speed (appear later). Use less than 100% to make captions/subtitles faster than the original speed (appear sooner).

One example of when to use Retime Rate is when captions or subtitles are drifting out of sync as the video program length increases. Often, this drift of captions and subtitles is caused by drop frame to non-drop frame video conversion, which results in 3.6 seconds of captioning text timing change per hour (3.6 seconds early or late at the one-hour mark). This is caused by the difference between 30.0fps and 29.97fps, or 24.0fps and 23.976fps. To fix this problem, add or subtract 0.1% from 100%, depending on the timing of the text being early or late as it corresponds to the video.

- Captions or subtitles are appearing too early: Increase the time code by 0.1% (1.001/1.000). Enter 100.1% for the Retime Rate.

- Captions or subtitles are appearing too late: Decrease the time code by 0.1% (1.000/1.001). Enter 99.9% for the Retime Rate.

Rate Applies From. This option only works if the Retime Rate is set to something other than 100%. The Retime Rate applies starting from the time set in the Rate Applies From field. Also, if a program starts at a non-zero time, such as 1 hour (01:00:00;00), and you want to preserve this start time even after caption retiming, set this field to the program start time.

For example, if your media has a tape-based start time of 01:00:00:00 and you want to apply a retime rate (speed up or slow down) but you want the starting time code to remain pinned at 01:00:00:00 even after retiming, set this field to 01:00:00:00.

Time Offset. Time code value to add to, or subtract from, each caption or subtitle time code. To subtract, enable the Negative Offset option.

For example, if an SCC file starts at 01:00:00;00 and you want to adjust the start time to 00:00:00;00 for Internet delivery, set this Time Offset to 01:00:00;00, and select the Negative Offset checkbox.

Negative Offset. When enabled, the specified Time Offset is subtracted from each of the caption/subtitle time codes, instead of added.

Ripple Timecode. Time code value to add or subtract from all caption or subtitle time codes, without affecting the media start/stop time. To subtract, enable Negative Ripple.

Negative Ripple. When enabled, the specified Ripple Timecode is subtracted from all caption/subtitle time codes, instead of added.

Starting Timecode. Modifies the starting timecode of the output. Use when the starting timecode of the input timed text does not begin at 0 (zero). The options are:

- *First Frame of Input*. This will generate an output file that starts at the same frame as the input caption/subtitle file. This option is useful when creating a subtitle overlay from a caption or media file that already has the correct starting time code.

Note: Most subtitle sidecar file formats consider their first frame to be the starting time of the first subtitle, which could be several seconds or more after the start of the media file. If you want to make a subtitle overlay file from a sidecar subtitle file, so that the overlay starts at the same frame as an associated media file, you should use the "Specified Timecode" option.

- *Nearest Hour to Zero*. This option will attempt to zero-out the start time of the actual program by ignoring the hours portion of the source start time, as well as ignoring any pre-roll or slate which typically lasts for 2-3 minutes before the start of the program. For example, a source that starts at 00:58:30:00 typically contains pre-roll such that the actual program starts at 01:00:00:00. Using this "Nearest Hour to Zero" option results in an output file where 00:00:00:00 in the output aligns with the start of the actual program (01:00:00:00 in this example), as opposed to aligning with the start of the pre-roll. This option is useful if your sources have a mix of inconsistent or unknown starting timecodes, and you want them all to be output with a consistent starting timecode that aligns with the program start time of the associated media file.

This option should be used with caution on sources that have time-of-day timecode and where the recording may have been started on minutes 57 to 59 of any given hour. These first few minutes will appear to be pre-roll, so the output will be trimmed to start at the next hour mark. If those first few minutes contain actual program content then this may not be the desired result.

Note: If you want your output time to consistently start at 01:00:00:00 instead of zero, you can combine the "Nearest Hour to Zero" option with the "Time Offset" option, and have the Time Offset set to add a 01:00:00:00 offset.

- *Specified Timecode*. Select this option to use the values set in the Specified Starting Timecode fields. This option is useful when processing a sidecar file that already has correct timecode overall, but you want to add to or trim from the start time, such as when adding or removing a pre-roll segment.

Specified Starting Timecode. The output media will start with the timecode values specified in these fields, when "Specified Timecode" is selected for the Starting Timecode option.

Closed Caption/Subtitle Frame Rate Conversion

Check to enable this filter and use these options to modify the frame rate of the captions/subtitles without changing the relative timing.

Note: If the video frame rate is also being changed, that change must happen in a separate action.

Output Frame Rate. Select the output frame rate for the caption/subtitle.

Drop Frame. When enabled, Drop Frame time code mode is used when the output is 29.97 or 59.94 fps. Drop Frame mode is not used for any other frame rate, even if enabled.

Teletext Encoding Options

Enable this section to configure the Teletext encoding settings. If disabled, all settings are set to the default. Please refer to your TV station's delivery requirements to select the appropriate Teletext settings.

Teletext Page. The Teletext Subtitle Page value should be set to the standard magazine “8”. This is the first digit in the parameter, so a setting of 801 will indicate magazine 8 and page 01. Typical values are either 801 or 888. The range is 100 to 899. The default is 888.

VANC Line Field 1. Set to 12 by default. This means that SDI hardware baseband playout of the Teletext OP-47 data will be mapped to line 12 (Line 9 is used for 608/708 captions). A different line for VANC data can be specified into the SMPTE 436M track of the MXF file. The range is 0-41.

VANC Line Field 2. Should only be used with interlaced video that has field 2 data. Progressive video source files should set this parameter to "0", which is disabled. Setting VANC Line Field 2 is optional and should be done if required. The range is 0-41. The default is 12.

VBI Line Field 1. Configures the VBI line used for field 1 Teletext data for downstream applications. Selecting 0 will disable VBI field 1 Teletext output. The range is 0-22. The default is 21.

VBI Line Field 2. Configures the VBI line used for field 2 Teletext data for downstream applications. Selecting 0 will disable VBI field 2 Teletext output. The range is 0-335. The default is 334.

Filler Type. The Filler Type controls what gets encoded into the spaces between the subtitle “bursts”. The default is Packet 31 Test Data, and the other options are Null Page Headers, and None (No Filler). Inserting a constant stream of Packet 31 ‘ExtTest’ data

between subtitles keeps TVs at a constant gain rate, ensuring accurate reception and display of subtitles. The default is Packet 31.

The options are:

- Packet 31

- Null Page Headers

- None (no filler)

Character Set. Selects the Teletext character set used for encoding subtitle text. Please refer to the Teletext specification for the characters that are available for each set. Any characters in the input which are not available in the selected Teletext character set will be replaced by a blank space. The default is Latin.

The options are:

- Latin

- Cyrillic-1 (Serbian/Croatian)

- Cyrillic-2 (Russian/Bulgarian)

- Cyrillic-3 (Ukrainian)

- Greek

- Hebrew

- Arabic

National Option Character Subset. This setting only applies when the Character Set option is set to "Latin". The Teletext specification defines several supplemental character subsets for use in different regions. Please refer to the Teletext specification for the characters that are available for each subset. Any characters in the input subtitles which are not supported by the selected Character Set, plus the selected National Option Character Subset, will be replaced by a blank space. The default is English.

The options are:

- English

- Portuguese/Spanish

- French

- German

- Italian

Double Height Mode. Double Height refers to the size of the characters. Selecting this option will result in a bigger font size for the text when viewed with a Teletext decoder on a broadcast TV monitor. The default is Enabled.

Container Settings

When checked, allows specification of various container settings. Unchecked by default.

Use AS11 Specification for MXF Output. When checked, MXF output will be written in AS11 mode with a KAG size of 1 versus the default of 512. Unchecked by default.

Video Track Settings

Select a Video track to change its settings.

Track Checkbox. Activates a track for processing. Uncheck a track to disable processing.

Stream Name. Select the input Video Stream that you want to use as the source for the output file.

Bit Rate. Check Bit Rate to override the bit rate for this stream with the value specified.

Audio Track Settings

Select the track to display audio stream settings.

Track Checkbox. Activates this track for processing. Uncheck to disable processing.

To add a new track, enable the track checkbox in the empty, untitled audio track to the right of the last active track. Up to 32 tracks are supported.

Stream Name. Select the input Audio Stream that you want to use as the source for the output file.

Language. When enabled, override the language parameter of this track with the selection. NOTE: If you are binding this control to a variable, the text value must exactly match one of the original language selections in the encoder.

Bit Rate. Check Bit Rate to override the bit rate for this stream with the value specified.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates a track for processing. Uncheck a track to disable processing.

Stream Name. Select the input Timed Text Stream that you want to use as the source for the output file.

TTML Output

TTML stands for the Timed Text Markup Language XML file which contains timing, text, and positioning. This format is also referred to as DFXP, and is standardized by the W3C (www.w3.org).

Output TTML files have both text and timing as part of the deliverable XML file. The output TTML document can conform to one of several profiles (see Filter Settings > General > TTML Profile below).

Delete. To delete this output, click the X icon in the upper right corner.

Note: Not all configuration options listed below may be available for use with the Timed Text Conform action.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Output Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/ readability purposes. Alternatively, use drag-and-drop to select an output and drag it to a new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Output Settings

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the package to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click the green Browse button to select a variable which supplies the fully-qualified path dynamically.

- *Collision Resolution*. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for the new file.

Delete. Click the X icon on the right to delete the output from this action.

Filter Settings

Select the output component panel to configure the available settings.

General

File Extension. Select the file extension for the output TTML file. The extensions .xml, .dfxp, and .ttml are commonly used depending on the application. Use .itt for iTT profile output. This field can also be customized to output any extension. The default is .xml.

TTML Profile. Select the profile of TTML document to output, from the following options.

- *Default*. For CEA-608/708 closed caption sources, the output will be SMPTE 2052 profile. For other types of sources, this will output a Basic Subtitles TTML profile document.

- *Basic Subtitles*. Creates a simple TTML document that conforms to the TTML 1.0 specification. This profile has limited support for positioning and formatting of the subtitles.

- *IMSC 1.0 Text Subtitles*. Creates a TTML document that conforms to the IMSC 1.0 Text profile. This profile has extended support for positioning and formatting attributes.

- *IMSC 1.1 Text Subtitles*. Creates a TTML document that conforms to the IMSC 1.1 Text profile. This profile has additional support for ruby and vertical text.

- *SMPTE 2052 Captions*. Creates a TTML document that conforms to the SMPTE 2052 specification and which replicates the look and feel of CEA-608/708 broadcast style closed captions. This output may fail if the source contains subtitles which aren't compatible with the CEA-608/708 broadcast specifications.

- *iTT*. Creates an iTT profile document that conforms to the Apple iTunes iTT specification. If the source language is Japanese (language tag "ja") then the output also supports the features defined in the iTunes "Film Addendum: Ruby and Vertical Extensions Revision 2".

IMSC Time Format. Sets the time format to use when generating IMSC files. This parameter has no effect when using profiles other than IMSC.

None (Default) | HH:MM:SS:FF | HH:MM:SS.sss | Frames |Ticks.

IMSC Include Frame Rate. When enabled, frame rate info will always be added to the IMSC header, even for time formats that do not require a frame rate (HH:MM:SS.sss and Ticks). This parameter has no effect when using profiles other than IMSC.

NOTE: This parameter has no effect when using HH:MM:SS:FF or Frames, which always require frame rate information in the header.

IMSC Include Aspect Ratio. When enabled, IMSC aspect ratio is added to the TTML header. Default value is 4x3. This parameter has no effect when using profiles other than IMSC.

Language Tag. Specify a language code that will be passed through as-is within the TTML document. This can be any string which complies with the XML specification for language identifiers.

Caption Channel Source. Sets the caption channel of the source. The default is CC1, and the range is CC1 to CC4 (CEA-608), Service 1 to Service 6 (CEA-708), and Teletext. If your source is a closed caption file such as SCC, MCC, or video with embedded CEA-608/708 captions or Teletext, this setting controls which caption channel is converted to TTML. If the source does not contain CEA-608/708 captions, or Teletext respectively, then this setting has no effect.

Normalize Colors. When enabled, colors specified in a source file will be normalized to TTML spec compliant color names. Default is disabled.

Add Metadata. When enabled, adds Telestream metadata derived from source files to the output TTML file for use in downstream Multiscreen actions. Default is disabled.

iTT Vertical Split Position. Specifies where vertical caption split occurs for iTT profile outputs. Default value (50%) forces subtitles above the 50% vertical line to be placed in the top region.

Teletext Decoding Options

When enabled, allows specification of various Teletext decoding parameters.

Page. Specify Teletext page to decode or leave at default setting of 0 to auto decode first detected page.

Character Set. Specify character set to use or leave at Default setting to auto detect character set from page headers if available. If no character set is detected, Latin will be used.

National Option Subset. Specify national option character subset to use when decoding Latin character Teletext or leave at Default setting to auto detect character subset from page headers if available. If no character subset is detected, English will be used.

Closed Caption/Subtitle Retiming

Check to activate options to modify the timing of the closed captions or subtitles.

Retime Rate. The rate factor to apply to caption/subtitle event times to realign or change synchronization. 100% matches the original speed. Use greater than 100% to make captions/subtitles slower than the original speed (appear later). Use less than 100% to make captions/subtitles faster than the original speed (appear sooner).

One example of when to use Retime Rate is when captions or subtitles are drifting out of sync as the video program length increases. Often, this drift of captions and subtitles is caused by drop frame to non-drop frame video conversion, which results in 3.6 seconds of captioning text timing change per hour (3.6 seconds early or late at the one-hour mark). This is caused by the difference between 30.0fps and 29.97fps, or 24.0fps and 23.976fps. To fix this problem, add or subtract 0.1% from 100%, depending on the timing of the text being early or late as it corresponds to the video.

- Captions or subtitles are appearing too early: Increase the time code by 0.1% (1.001/1.000). Enter 100.1% for the Retime Rate.

- Captions or subtitles are appearing too late: Decrease the time code by 0.1% (1.000/1.001). Enter 99.9% for the Retime Rate.

Rate Applies From. This option only works if the Retime Rate is set to something other than 100%. The Retime Rate applies starting from the time set in the Rate Applies From field. Also, if a program starts at a non-zero time, such as 1 hour (01:00:00;00), and you want to preserve this start time even after caption retiming, set this field to the program start time.

For example, if your media has a tape-based start time of 01:00:00:00 and you want to apply a retime rate (speed up or slow down) but you want the starting time code to remain pinned at 01:00:00:00 even after retiming, set this field to 01:00:00:00.

Time Offset. Time code value to add to, or subtract from, each caption or subtitle time code. To subtract, enable the Negative Offset option.

For example, if an SCC file starts at 01:00:00;00 and you want to adjust the start time to 00:00:00;00 for Internet delivery, set this Time Offset to 01:00:00;00, and select the Negative Offset checkbox.

Negative Offset. When enabled, the specified Time Offset is subtracted from each of the caption/subtitle time codes, instead of added.

Ripple Timecode. Time code value to add or subtract from all caption or subtitle time codes, without affecting the media start/stop time. To subtract, enable Negative Ripple.

Negative Ripple. When enabled, the specified Ripple Timecode is subtracted from all caption/subtitle time codes, instead of added.

Starting Timecode. Modifies the starting timecode of the output. Use when the starting timecode of the input timed text does not begin at 0 (zero). The options are:

- *First Frame of Input*. This will generate an output file that starts at the same frame as the input caption/subtitle file. This option is useful when creating a subtitle overlay from a caption or media file that already has the correct starting time code.

Note: Most subtitle sidecar file formats consider their first frame to be the starting time of the first subtitle, which could be several seconds or more after the start of the media file. If you want to make a subtitle overlay file from a sidecar subtitle file, so that the overlay starts at the same frame as an associated media file, you should use the "Specified Timecode" option.

- *Nearest Hour to Zero*. This option will attempt to zero-out the start time of the actual program by ignoring the hours portion of the source start time, as well as ignoring any pre-roll or slate which typically lasts for 2-3 minutes before the start of the program. For example, a source that starts at 00:58:30:00 typically contains pre-roll such that the actual program starts at 01:00:00:00. Using this "Nearest Hour to Zero" option results in an output file where 00:00:00:00 in the output aligns with the start of the actual program (01:00:00:00 in this example), as opposed to aligning with the start of the pre-roll. This option is useful if your sources have a mix of inconsistent or unknown starting timecodes, and you want them all to be output with a consistent starting timecode that aligns with the program start time of the associated media file.

This option should be used with caution on sources that have time-of-day timecode and where the recording may have been started on minutes 57 to 59 of any given hour. These first few minutes will appear to be pre-roll, so the output will be trimmed to start at the next hour mark. If those first few minutes contain actual program content then this may not be the desired result.

Note: If you want your output time to consistently start at 01:00:00:00 instead of zero, you can combine the "Nearest Hour to Zero" option with the "Time Offset" option, and have the Time Offset set to add a 01:00:00:00 offset.

- *Specified Timecode*. Select this option to use the values set in the Specified Starting Timecode fields. This option is useful when processing a sidecar file that already has correct timecode overall, but you want to add to or trim from the start time, such as when adding or removing a pre-roll segment.

Specified Starting Timecode. The output media will start with the timecode values specified in these fields, when "Specified Timecode" is selected for the Starting Timecode option.

Closed Caption/Subtitle Frame Rate Conversion

Check to enable this filter and use these options to modify the frame rate of the captions/subtitles without changing the relative timing.

Note: If the video frame rate is also being changed, that change must happen in a separate action.

Output Frame Rate. Select the output frame rate for the caption/subtitle.

Drop Frame. When enabled, Drop Frame time code mode is used when the output is 29.97 or 59.94 fps. Drop Frame mode is not used for any other frame rate, even if enabled.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates a track for processing. Uncheck a track to disable processing.

Stream Name. Select the input Timed Text Stream that you want to use as the source for the output file.

IMSC TTML Output (Timed Text Conform)

TTML stands for the Timed Text Markup Language XML file which contains timing, text, and positioning. This format is also referred to as DFXP, and is standardized by the W3C (www.w3.org).

Output TTML files have both text and timing as part of the deliverable XML file.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Not all configuration options listed below may be available for use with the Timed Text Conform action.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Output Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select an output and drag it to a new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Output Settings

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the package to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click

the green Browse button to select a variable which supplies the fully-qualified path dynamically.

- *Collision Resolution*. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for the new file.

Delete. Click the X icon on the right to delete the output from this action.

Container Settings

To configure container options for each output file, select it. The controls display in the details panel to the right.

General

TTML Profile. Select the profile of TTML document to output, from the following options:

- *IMSC 1.0 Text Subtitles*. Creates a TTML document that conforms to the IMSC 1.0 Text profile. This profile has extended support for positioning and formatting attributes.

- *IMSC 1.1 Text Subtitles*. Creates a TTML document that conforms to the IMSC 1.1 Text profile. This profile has additional support for ruby and vertical text.

Time Format. Sets the time format to use when generating IMSC files. This parameter has no effect when using profiles other than IMSC.

HH:MM:SS.sss (Default) | HH:MM:SS:FF | Frames |Ticks.

Include Frame Rate in Header. When checked, frame rate info will always be added to the IMSC header. This includes time formats such as HH:MM:SS.sss which normally don't require a specified frame rate. Unchecked by default.

Aspect Ratio. When checked, IMSC aspect ratio is added to the TTML header. Unchecked by default.

Language Tag. When checked, allows specification of a language code that will be passed through as-is within the TTML document. This can be any string which complies with the XML specification for language identifiers. Checked by default with a value of *en*.

Set Output Start Time

When unchecked (default), a zero-based start timecode is specified in the output. Check to specify a starting output time and configure these options:

Starting Timecode Mode. Select *Specified Timecode* | *Use CML Target Timecode*.

Specified Timecode. The value you specify is transferred to the output. This is similar to ripple timecode; to a zero value, the amount of time specified is added.

Use CML Target Timecode. The value is transferred from the CML to the output. If the CML does not have a timecode, the default, zero-based timecode is used.

Specified Starting Timecode. When *Specified Timecode* is selected, enter the starting timecode and framerate.

WebVTT Output

The WebVTT (.VTT) file format supports color, positioning, and formatting such as italics and underline. When selecting this output it is important to note that roll-up and paint-on caption formatting will not be added to a VTT file from a caption source file such as SCC or the Media input.

WebVTT supports non Latin characters such as Cyrillic, Arabic, Hebrew, and Japanese. Generally, VTT files are simple human readable subtitle formatted files that can be opened in any word processor application. Currently, WebVTT files are used for Internet caption distribution to websites, such as YouTube and Vimeo.

The WebVTT output will produce a VTT file with CEA-608 style positioning if the input file contains CEA-608 data, such as in a SCC or MCC file, or via the Media (video file) input.

Delete. To delete this output, click the X icon in the upper right corner.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Output Toolbar Icons

Up/Down Arrows. Moves the selected output up and down the list, for organization/readability purposes. Alternatively, use drag-and-drop to select an output and drag it to a new location in the list.

Details Arrow. Collapses or expands the output panels.

Plus Sign. Adds another output to this action.

Output Settings

Output Location. Click Output Location and select from these choices:

- *Available Vantage Store*. Write the package to any available store, selected dynamically at run-time. Use this option typically when you only have one store, or when you are going to access and use the file by nickname in a downstream action - a transport or staging action, for example.

- *Vantage Store/Folder*. Write the package to a specific Vantage store or folder. Select from the list, or click the Vantage Folders button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*. Write the package to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Alternatively, click the green Browse button to select a variable which supplies the fully-qualified path dynamically.

- *Collision Resolution*. When a path is specified, determines how to resolve a collision with the same named file when writing it out.

Edit Filename Pattern. Opens the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require. You can drag and drop a token to change its order relative to other tokens, thus changing its location in the file name.

You can use the following tokens:

- *Base Name*. The name of the file, without the extension.

- *Variable*. You select the variable to use.

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a variable token ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

- *Date*. The current date at the time the filename is constructed. Change the date format using the drop-down menu.

- *Time*. The current time at the time the filename is constructed. Change the time format using the drop-down menu.

Select Media Nickname. Select the nickname from the menu (or enter it manually) for the new file.

Delete. Click the X icon on the right to delete the output from this action.

Configuration Details

Select the output component panel to configure the WebVTT output component.

General

Caption Channel Source. Sets the caption channel of the source. The default is CC1, and the range is CC1 to CC4 (CEA-608), Service 1 to Service 6 (CEA-708), and Teletext. If your source is a closed caption file such as SCC, MCC, or video with embedded CEA-608/708 captions or Teletext, this setting controls which caption channel is converted to WebVTT subtitles. If the source does not contain CEA-608/708 captions, or Teletext respectively, then this setting has no effect.

Add X-TIMESTAMP-MAP Header. Check this option and specify the starting PTS (Presentation TimeStamp) clock value of the video (as an integer) when you are creating WebVTT files for HLS streams and the HLS streaming provider requires an X-

TIMESTAMP-MAP header. This header is part of the HLS specification, not the WebVTT specification. If you do not enter a value in the text field, no header is added. You must supply a value.

If you are not creating HLS media, this option should be unchecked.

WebVTT subtitle files containing the X-TIMESTAMP-MAP header synchronize the local timecodes of the WebVTT file to a specific MPEG-TS PTS clock value. `900000` is a common starting PTS clock value, but may vary from file to file.

For example, when delivering media to BrightCove:

- When using Brightcove's Dynamic Ingest or Zencoder to transcode your content, use an offset value of `900000`.

- When using an encoding system other than Zencoder, it is best to obtain the value needed. Apple recommends that you set the offset to match your encoded video. The MPEGTS value corresponds to the PTS value of the MPEG frame at the given LOCAL time. Some older Brightcove transcoding systems use a value of `0`.

Add Metadata. When enabled, adds Telestream metadata derived from source files to the output WebVTT file for use in downstream Multiscreen actions. Default is disabled.

Add Line Number Positioning. When enabled, line positioning values are specified as a line number. When disabled, cue line position values are specified as a percentage of screen height. Default is disabled.

Omit VTT Cue Settings. When enabled, positioning settings such as horizontal/vertical positioning, alignment, etc. are omitted from the output file. Default is disabled (cue settings are preserved).

Omit Style Tags. When enabled, HTML like style settings such as for underline, italics, etc. are omitted from the output file. Default is disabled (style tags are preserved).

Teletext Decoding Options

When enabled, allows specification of various Teletext decoding parameters.

Page. Specify Teletext page to decode or leave at default setting of 0 to auto decode first detected page.

Character Set. Specify character set to use or leave at Default setting to auto detect character set from page headers if available. If no character set is detected, Latin will be used.

National Option Subset. Specify national option character subset to use when decoding Latin character Teletext or leave at Default setting to auto detect character subset from page headers if available. If no character subset is detected, English will be used.

Closed Caption/Subtitle Retiming

Check to activate options to modify the timing of the closed captions or subtitles.

Retime Rate. The rate factor to apply to caption/subtitle event times to realign or change synchronization. 100% matches the original speed. Use greater than 100% to make captions/subtitles slower than the original speed (appear later). Use less than 100% to make captions/subtitles faster than the original speed (appear sooner).

One example of when to use Retime Rate is when captions or subtitles are drifting out of sync as the video program length increases. Often, this drift of captions and subtitles is caused by drop frame to non-drop frame video conversion, which results in 3.6 seconds of captioning text timing change per hour (3.6 seconds early or late at the one-hour mark). This is caused by the difference between 30.0fps and 29.97fps, or 24.0fps and 23.976fps. To fix this problem, add or subtract 0.1% from 100%, depending on the timing of the text being early or late as it corresponds to the video.

- Captions or subtitles are appearing too early: Increase the time code by 0.1% (1.001/1.000). Enter 100.1% for the Retime Rate.

- Captions or subtitles are appearing too late: Decrease the time code by 0.1% (1.000/1.001). Enter 99.9% for the Retime Rate.

Rate Applies From. This option only works if the Retime Rate is set to something other than 100%. The Retime Rate applies starting from the time set in the Rate Applies From field. Also, if a program starts at a non-zero time, such as 1 hour (01:00:00;00), and you want to preserve this start time even after caption retiming, set this field to the program start time.

For example, if your media has a tape-based start time of 01:00:00:00 and you want to apply a retime rate (speed up or slow down) but you want the starting time code to remain pinned at 01:00:00:00 even after retiming, set this field to 01:00:00:00.

Time Offset. Time code value to add to, or subtract from, each caption or subtitle time code. To subtract, enable the Negative Offset option.

For example, if an SCC file starts at 01:00:00;00 and you want to adjust the start time to 00:00:00;00 for Internet delivery, set this Time Offset to 01:00:00;00, and select the Negative Offset checkbox.

Negative Offset. When enabled, the specified Time Offset is subtracted from each of the caption/subtitle time codes, instead of added.

Ripple Timecode. Time code value to add or subtract from all caption or subtitle time codes, without affecting the media start/stop time. To subtract, enable Negative Ripple.

Negative Ripple. When enabled, the specified Ripple Timecode is subtracted from all caption/subtitle time codes, instead of added.

Starting Timecode. Modifies the starting timecode of the output. Use when the starting timecode of the input timed text does not begin at 0 (zero). The options are:

- *First Frame of Input*. This will generate an output file that starts at the same frame as the input caption/subtitle file. This option is useful when creating a subtitle overlay from a caption or media file that already has the correct starting time code.

Note: Most subtitle sidecar file formats consider their first frame to be the starting time of the first subtitle, which could be several seconds or more after the start of the media file. If you want to make a subtitle overlay file from a sidecar subtitle file, so that the overlay starts at the same frame as an associated media file, you should use the "Specified Timecode" option.

- *Nearest Hour to Zero*. This option will attempt to zero-out the start time of the actual program by ignoring the hours portion of the source start time, as well as ignoring any pre-roll or slate which typically lasts for 2-3 minutes before the start of the program. For example, a source that starts at 00:58:30:00 typically contains pre-roll such that the actual program starts at 01:00:00:00. Using this "Nearest Hour to Zero" option results in an output file where 00:00:00:00 in the output aligns with the start of the actual program (01:00:00:00 in this example), as opposed to aligning with the start of the pre-roll. This option is useful if your sources have a mix of inconsistent or unknown starting timecodes, and you want them all to be output with a consistent starting timecode that aligns with the program start time of the associated media file.

This option should be used with caution on sources that have time-of-day timecode and where the recording may have been started on minutes 57 to 59 of any given hour. These first few minutes will appear to be pre-roll, so the output will be trimmed to start at the next hour mark. If those first few minutes contain actual program content then this may not be the desired result.

Note: If you want your output time to consistently start at 01:00:00:00 instead of zero, you can combine the "Nearest Hour to Zero" option with the "Time Offset" option, and have the Time Offset set to add a 01:00:00:00 offset.

- *Specified Timecode*. Select this option to use the values set in the Specified Starting Timecode fields. This option is useful when processing a sidecar file that already has correct timecode overall, but you want to add to or trim from the start time, such as when adding or removing a pre-roll segment.

Specified Starting Timecode. The output media will start with the timecode values specified in these fields, when "Specified Timecode" is selected for the Starting Timecode option.

Closed Caption/Subtitle Frame Rate Conversion

Check to enable this filter and use these options to modify the frame rate of the captions/subtitles without changing the relative timing.

Note: If the video frame rate is also being changed, that change must happen in a separate action.

Output Frame Rate. Select the output frame rate for the caption/subtitle.

Drop Frame. When enabled, Drop Frame time code mode is used when the output is 29.97 or 59.94 fps. Drop Frame mode is not used for any other frame rate, even if enabled.

Timed Text Track Settings

Select a Timed Text track to change its settings.

Track Checkbox. Activates a track for processing. Uncheck a track to disable processing.

Stream Name. Select the input Timed Text Stream that you want to use as the source for the output file.

Timed Text Flip Action Components
WebVTT Output

TrafficManager Action Components

These TrafficManager components are associated with options in the Catch and Dublist actions.

TrafficManager Components

Catch Action Generate Variables

Settings

Sidecar File Ingest Settings

Syndicate Action Settings

Catch Server Settings

Managing Catch Schemes

Dublist Variables and Logging

Dublist Settings

Dublist Catalog Settings

Traffic File Properties

BXF Syndicator

Pathfire Syndicator

Pitchblue Syndicator

Analysis Syndicator

Catch Action Generate Variables

Use this panel to select each metadata element you want to extract from the sidecar metadata source file, and assign it to a variable for use in downstream actions. The metadata elements that are present vary by catch server.

To extract a given metadata element, check it, and select the variable to use from the menu.

Note: To create a new variable, select <<Create New Variable>> (the first item) in the menu. Workflow Designer displays the Create New Variable dialog. Configure the dialog and click OK to create the new variable.

When the job runs, Vantage assigns the value of the metadata element to the variable you selected. Now, each action downstream in this workflow can use the variable to operate on the metadata. For example, these variables can be used to populate a label, for later use.

Note: To identify jobs that are processing the same media again (it has the same file name), check Resubmit Indication, at the bottom of the list, and select a True/False variable to use. You can use this variable in downstream actions or workflows to perform special processing for duplicate files.

Settings

Use this panel to configure miscellaneous settings for this action. See the tool tip for more information about specific controls.

Note: Depending on the type of catch server (and the options) that you are configuring, all options may not display.

Settings

General

A number of user configurable settings are available depending on the catch server selected. Not all options are available for all catch servers.

Job Expiration. Specifies the number of days after Air Date, which is obtained from the metadata, to expire the job. The job is expired the number of days after the Air Date or according to the Workflow Expiration configured in Vantage (whichever is sooner). Default: 1 day.

Override Duration TC Type/Framerate. When checked, specifies timecode type and framerate to use for durations obtained from sidecar files/metadata. Unchecked by default. When unchecked, generated timecode is drop-frame.

Database Timeout (Mijo). The timeout used when communicating with the Mijo Database Server. Default: 180 seconds.

Database Host (Mijo). The name or IP address of the server hosting the Mijo database.

Database Username (Mijo). Enter authorized user name to log in to the Mijo database.

Database Password (Mijo). Enter password for the user name you supply.

Filename Extension (Mijo). Assumed filename extension for media discovered on the Mijo Server. Default: mpg

Video Definition (Mijo). Indicates the video standard of the media to watch for.

HTTP Timeout. Select the maximum length of time permitted between responses, before the Web server connection times out.

Default Start Time. Provides the start time to use in the output file, when it is missing from the sidecar file or the metadata.

Override SOM/EOM TC Type/Framerate. When checked, specifies timecode type and framerate to use for Start of Media (SOM) and End of Media (EOM) obtained from sidecar files/metadata. Unchecked by default. When unchecked, generated SOM/EOM is drop-frame.

Offset Start. Modifies the start time specified in the metadata by the amount of frames set in this option (negative or positive).

Offset End. Modifies the end time specified in or computed from the metadata by the amount of frames set in this option (negative or positive).

The Offset settings allow the Start and End times that have been obtained from the metadata to be shifted by the specified number of frames. You can use these values downstream to trim your media. This setting does not actually trim the media.

Note: This setting is ignored when Snap Trim Points is checked and the end time was trimmed using that setting. In other words, Snap Trim Points has precedence over Offset End.

Snap Trim Points

Snap Trim Points (Centaur | Comcast | DG | DMDS | Extreme Reach | Hula MX | Javelin | Mijo | Spot Genie | Spot Traffic | On The Spot). When checked, potentially changes the published duration and end time values. Use this feature to guarantee that the published duration is a consistent or predictable length. Enable the Snap Trim Points option and configure the following settings:

Snap Threshold. The minimum duration of the ingest media to be considered for snapping trim points. If the duration of the ingest media is less than the threshold set, no changes are made to the published time values.

Snap How Close. How close the duration of clip must be to the desired interval (1, 5, 10, etc.) before trimming will take effect.

For example, if the duration specified in the metadata is 18 seconds long and Snap How Close is set to 2 seconds and the Snap Interval is set to 15 seconds, then the published duration and end time will not be modified since the clip is 3 seconds away from the desired interval.

Snap Interval. When checked, select 1 | 5 | 10 | 15 | 20 | 30 | 60 seconds. The published duration (and therefore the end time) will snap to the desired interval provided the Threshold and How Close conditions are met.

For example, if a 30-second snap interval is selected and the duration specified in the metadata is 63 seconds, then the published duration for the media will be 60 seconds, assuming that the Threshold and How Close conditions were both met.

Logging

The log file that is generated includes information about each file being picked up and processed by the Catch action. If an error occurs with a specific file, then that information will also be added to the log file. If the Date parameter is used in naming the log file (which is the default), a new log file is generated each day the Catch action is monitoring a folder to pick up any new files.

Log Activity. To log activity on this action, check Log Activity and specify the fully-qualified path and directory where you want the action to write log files, optionally

specifying a file name pattern (default file name: <date>.txt). You can manually enter the path or click Browse to navigate to the directory and select it.

Use of a share is recommended to avoid the log file being saved directly on the server where the Traffic service that executed the action is hosted (for example, //Vantage/WorkflowLogs/CatchServerLogs/). This is especially problematic in a multi-server domain with more than one Traffic service, where a different, local log directory will be created for each Traffic service. Additionally, local log files may not be network-accessible.

Sidecar File Ingest Settings

Configure these settings to specify how to poll the server, and how to filter sidecar files for ingest and job submission.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Only new media files that match the Accept pattern and do not match the Reject pattern are ingested and submitted. A file is determined to be new providing that the file is not marked as read-only and at least one of these conditions is met:

- the file was not present on server during the last scan
- the size of the file has changed since last scan
- the modification date of the file has changed since last scan.

A new file is submitted when both of these conditions are met:

- the size of the file has not changed over the number of cycles specified
- the modification date of the file has not changed over at least two scan cycles.

Catch Scheme. (General Purpose ONLY) Select a catch scheme from the drop down list. Click on the configuration button to create, edit, or delete catch schemes.

Cycle and Count. Determines how many seconds occur between polls, and how many polls the file must remain at the same size before being submitted (to ensure that the file system has closed new files after writing is complete).

Look in Subfolders. Searches all sub-folders in the target location for new files.

Sidecar File Nickname. Specifies the nickname to assign to the specified file, which you can use to reference this file in all subsequent actions in the workflow.

Accept Pattern. Limits file selection to files that adhere to the specified pattern.

To enter one or more patterns use one of these methods:

- Manually enter the pattern
- Select a pattern from the menu
- Click Browse and select a file whose name has with the pattern you want to use, so you can more easily modify it with wildcards.

Pattern Rules. Patterns are not case sensitive. No spaces are allowed. Patterns can contain literal characters, plus the standard wild card characters ? and * and can include multiple patterns, separated by the | (OR bar) character.

- To filter files with an MPEG extension, enter **.mpg*. To filter files having the .fpk extension , enter **.fpk*.

- To filter all files beginning with the letters TESTBARS or containing the word BLACK, enter a compound pattern: TESTBARS* | *BLACK*.

- To filter files by a single character, use the ? wild card character. You can enter one ? for each character in the string. For example, to filter all MPEG files with the same root name plus a single character sequence, enter *NWCrossing?.mpg*.

- To filter files by the root name of the ingested media file, use the reserved string [Name]. For example, to filter all files with the root name of the incoming file, enter *[Name].**.

Syndicate Action Settings

Configure these settings to specify how to filter metadata sidecar files for transformation. These settings are displayed on two different inspector panels.

After a Syndicate action has completed, the result of its execution (a state of Success or Failure) can be viewed in the Job Status tab. The action state for each job is controlled by the State to Emit controls described below.

When operating in Template Mode (Automated Ingest Mode is unchecked), to determine if the Syndicate action found a match and applied a template for this job, select the job and open the Syndicate - Status/History window and select the Event. The Event element will explain if a matching template was found and whether the template applied has the same number of segments as the clip.

Note: Controls with a Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Syndicate Action Settings

Source Metadata Attachment. Specifies the nickname assigned to the ingested source metadata sidecar file from the catch server or the Analysis Result file from the Analyze action. This name is used to match a potential template.

Result Metadata Attachment. Specifies the nickname assigned to the generated mezzanine metadata file generated by the Syndicate action.

Note: The generated Result Metadata attachment should always have the nickname *Syndication* assigned to it when the Syndicate action is being utilized in an ingest workflow for the Vantage Syndication Workflow Portal.

Edit Filename Pattern. Displays the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- Base Name (the base name of the file, excluding the extension)
- Date
- Time
- Variable (you select the variable to use)

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token

named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Output Location. Specifies where to store the file. This location must be known/accessible to the automation system.

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Browse button and select a variable which supplies the fully-qualified path dynamically.

Enable Automated Ingest Mode. This feature is primarily for direct-to-automation workflows, where media is processed and sent directly to an on air server (or long term repository) and an automation system is notified. (The Vantage catalog and indirectly, the Syndication Port is not used to process and forward media.)

When unchecked (Template Mode - default), this action locates a template matching the incoming metadata, then the metadata is processed according to the template. If the metadata does not exactly match the template, the action functions according to the State control settings you specify (below).

When checked (Automated Ingest mode), if a template is not present or if the structure of the incoming metadata does not match the located template, then the Automated Ingest Mode settings you specify (next panel) are utilized to generate the XML.

Automated Ingest Mode only applies to metadata that does not have a corresponding template whose structure matches exactly. In this case, the metadata is processed, and a new Syndication XML is generated whose contents include all segment information present in the incoming metadata, but only those segments whose types match the checked types in the Include Segments of Type are enabled.

In Template (Automated Ingest mode is disabled), these two State controls are enabled and must be configured:

State to Emit if Template Match is Not Made. Specifies what state to set on this action when no template match is made, so the results can be tested downstream. This State setting enables you to control the flow of media through the workflow, based on the results of template matching. Template matching is set up on the next panel.

When this action completes, messages are posted to the History/Status window, where you can view detailed information regarding template matching:

- when a template has been successfully matched, the message indicates the template was successfully applied, along with the template name and the ingested XML file.

- When no template is matched based on the acceptance patterns you have set in this action, the message indicates that no match was found with details including the input XML file, and that the metadata has been transformed without any Syndication template applied.

State to Emit if Matched Template Does Not Correspond to Input File Structure. Specifies what state to set when the input file structure does not match that expected by the template being applied, so the results can be tested downstream. This State setting enables you to control the flow of media through the workflow, based on the results of the application of the template.

When this action completes, messages are posted to the History/Status window, where you can view detailed information regarding file structure correspondence:

- when a template has been successfully applied and the input file structure successfully matches the template, the message indicates the template was successfully applied, along with the template name and the ingested XML file.

- When an error occurs during template application, the message indicates the first error that occurred, along with the template name and the ingested XML file. Note that more than one error may be present in a given file and only the first is reported, at which point the application is aborted.

Recompute Timecode Setting. When checked, specifies the timecode value to use for re-computing the SOM of each segment in cases where the SOM timecode in the metadata doesn't match the timecode in the media file. Check this option and specify a starting timecode to adjust the timecode for all segments, while maintaining their relationship to the other segments. The SOM for the overall show and the SOM for the first segment (the one with the earliest SOM) area set to the indicated timecode value.

Leniency Mode Setting. During execution, the duration of the show is compared to the total calculated duration by adding up the duration of each segment in the show. If these values aren't the same, then the Syndicate Action fails. When checked, specifies the maximum time (in seconds) allowed for the discrepancy (1 to 20 seconds) between those two durations so that the Syndicate Action will not fail.

Analysis Settings

The following controls are only displayed when you are implementing the Analysis Result with the Analysis Syndicator. These controls allow you to specify the values that may optionally be used for the Syndication Clip Title and the Syndication Clip Identifier.

These are typically generated by the external metadata associated with a syndication spot (for example, Pitchblue metadata). As such, metadata such as the ISCI will automatically populate the clip title and clip ID fields of the newly-generated syndicated clip.

When employing Slate / Spot Analysis and Black Detection, because a syndication clip is being created from the Analysis Result output, the only information available is the

timing information associated with the color bars, slate and black portions of the original material. Thus, you can use these controls to provide values which correspond to an ISCI or other value that you want to be placed into the Clip Title and Clip ID fields of the new syndication clip.

If the Clip Title and Clip Identifier fields are left empty, then they will automatically be populated by the base name of the input file.

Clip Title. The title of the syndication clip.

Clip Identifier. The identifier of the syndication clip.

Omit Black/Color Bar Segments. When checked, non-active segments (black/slate/color bars) are omitted from the clip. The segments are present, but marked as skipped, indicated as such visually in the Syndication Portal Segment List.

BXF / Pathfire/ Pitchblue Settings

The following controls are only displayed when you are using the BXF, Pathfire, or Pitchblue Syndicator. These controls allow you to specify the values that may optionally be used for the Syndication Clip Title and the Syndication Clip Identifier.

These are typically generated by the external metadata associated with a syndication spot (for example, Pitchblue metadata). As such, metadata such as the ISCI will automatically populate the clip title and clip ID fields of the newly-generated syndicated clip.

If the Clip Title and Clip Identifier fields are left empty, then they will automatically be populated by the base name of the input file.

General

Remove segments less than. When enabled, segments less than the specified number of frames will be automatically removed from the list of segments processed by the Syndicate action.

Clip Title. The title of the syndication clip.

Clip Identifier. The identifier of the syndication clip.

Segment Grouping

When enabled, allows automated segment grouping of adjacent segments of similar type.

Contiguous Segments

When selected with Group All Contiguous Segments enabled, all contiguous segment types (program, commercial, promo) will be grouped together.

By Segment Type

Allows specification of contiguous segments to join together, based on the segment type.

Join Program Segments. When enabled, joins contiguous program segments only.

Join Commercial/Ad Segments. When enabled, joins contiguous commercial segments only.

Join Promo Segments

When By Segment Type is selected, the additional Join Promo Segments option becomes available. When enabled, promo segments can be joined with adjacent program or commercial segments.

Join with Adjacent Program Segments. When enabled promo segments will be joined with adjacent program segments.

Join with Adjacent Commercial Segments. When enabled promo segments will be joined with adjacent commercial segments.

Preference when Adjacent to Both. If both Join with Adjacent Program Segments and Join with Adjacent Commercial Segments are enabled, use this control to determine segment type preference for joining promos.

Acceptance Patterns

Acceptance Patterns.

The Acceptance Patterns controls are displayed for all types of metadata processing. These patterns are used to identify specific XML metadata files to match the incoming media.

Add New Item. Use Add New Item to add one or more optional XML file naming patterns and an associated template. See the Match Pattern tooltip for help entering a pattern. Templates are managed in the Vantage Management Console and correspond to a well-known segmentation hierarchy for a given syndication.

When the file name of the sidecar (source metadata attachment) nickname that you specify matches one of the provided patterns, then the associated template is applied to transform the XML metadata file into the output file. The result of this transformation is a Vantage mezzanine syndication format with the segmentation rules from the template applied.

If there is no match, the input sidecar file will be transformed to the Vantage mezzanine syndication format using the default transformation process.

In the event of multiple matches, only the first match is applied. Telestream does not recommend using patterns that intersect, because it may lead to improper processing of the file. For example, these two patterns are intersecting:

Pattern 1: A*.xml

Pattern2: AB*.xml

In this case, the second pattern would never be selected because the first always matches any file that starts with an A.

Automated Ingest Mode Settings

These settings are displayed only when Enable Automated Ingest Mode is checked on the previous panel.

Includes Segments of Type. Check each type of segment (and related segment information) that should be included in the Syndication XML file (Program Segments/Ad/Black/Slate, etc.) to be generated.

Catch Server Settings

Configure these settings to specify how to poll the server, and how to filter media files for ingest and job submission.

Note: Depending on the catch server (and the options) that you are configuring, all options may not display.

Only new media files that match the Accept pattern and do not match the Reject pattern are ingested and submitted. A file is determined to be new providing that the file is not marked as read-only and at least one of these conditions is met:

- the file was not present on server during the last scan
- the size of the file has changed since last scan
- the modification date of the file has changed since last scan.

A new file is submitted when both of these conditions are met:

- the size of the file has not changed over the number of cycles specified
- the modification date of the file has not changed over the number of cycles specified.

Media File Nickname. Specifies the nickname to assign to the specified file, which you can use to reference this file in all subsequent actions in the workflow.

Cycle and Count. Determines how many seconds occur between polls, and how many polls the file must remain at the same size before being submitted (to ensure that the file system has closed new files after writing is complete).

Look in Subfolders. Searches all sub-folders in the target location for new files.

Send Offline Notification Emails. Sends an email to the administrator when this action fails.

Ignore Re-submitted Files. When checked, if a file has been previously submitted, do not submit it again. If you do not enable this option, the file will be submitted. In the resulting job, the re-submit variable will be set to be TRUE.

Recover Material. Processes files in the specified directory of the file system, based on the condition you set. Select All | Limit to last <supply the time period> | Since last workflow activation.

File Match Pattern.

Accept and Reject. Limits file selection to files that adhere to the specified pattern. You can enter either an Accept or a Reject pattern. Best practice is to use the simplest method to solve the problem at hand.

Enter one or more patterns to filter how files are selected for processing.

Pattern Rules. Patterns are not case sensitive. No spaces are allowed. Patterns can contain literal characters, plus the standard wild card characters ? and * and can include multiple patterns, separated by the | (OR bar) character.

- To filter files with an MPEG extension, enter **.mpg*. To filter files having the .fpk extension , enter **.fpk*.

- To filter all files beginning with the letters TESTBARS or containing the word BLACK, enter a compound pattern: TESTBARS* | *BLACK*.

- To filter files by a single character, use the ? wild card character. You can enter one ? for each character in the string. For example, to filter all MPEG files with the same root name plus a single character sequence, enter *NWCrossing?.mpg*.

Active Only and Active Days. Controls the times and/or days when the monitor is active and accepts jobs. Specifies the start and end time on a daily basis, as measured by the service's host computer clock. Also specifies the selected days when the monitor is active.

Managing Catch Schemes

Catch schemes can be managed in the Vantage Management Console within the Fulfillment Schemes folder. Or, you can manage them directly in Workflow Designer, in the Workflow action inspector. You configure catch schemes to specify how each job parses the incoming sidecar XML to generate variables for catch metadata.

You can add and specify fields for catch schemes by using the Add Field button. After adding a field, click it to specify its parameters, including its Field Name, Description, Value Type, Qualifier, and XPath. These three fields are required for each catch scheme: Ad-ID/ISCI, Start Time, and Play Length.

Creating a New Catch Scheme

To create a new configuration, do the following:

1. Display the Catch Schemes configuration window.
2. Click the Create a New Configuration button (or right-click in the empty configuration list space and select New Configuration).
3. Enter a name in the Name field after the new configuration appears.
4. Enter a description of the configuration in the Description text box (this is optional).
5. Click the Save button.

Renaming a Scheme

To rename a scheme, do the following:

1. Display the Catch Schemes window.
2. Select the scheme to rename in the scheme list.
3. In the Name text box, enter a new name for the scheme.
4. Click the Save button.

Duplicating a Scheme

To duplicate a Catch scheme, do the following:

1. Display the Catch Schemes window.
2. Select the scheme to duplicate.
3. Click the Duplicate button (or right-click and select Duplicate).
4. In the Name text box, enter a name for the duplicate scheme.
5. In the Description field, enter a description for the scheme (optional).
6. Click the Save button.

Deleting a Scheme

To delete a Catch scheme, do the following:

1. Display the Catch Schemes window.
2. Select the configuration to delete. (Control-click or shift-click to select multiples.)
3. Click the Delete button (or right-click and select Delete).
4. When the confirmation dialog appears, click OK.

Creating Catch Scheme Fields

You can set Catch Schemes configuration options and define fields for catch processing below the Name and Description. The fields area lets you add a new field for each node in the XML catch server configuration file that you want to include. The XML file and your catch server definition can include any fields you prefer, but these fields are required: Ad-ID/ISCI, Start Time, and Play Length. Variable is optional and may be used for text fields such as the title.

To define fields in a configuration, do the following:

1. Display the Catch Schemes configuration window.
2. Select the configuration you want to modify from the Configuration list.
3. In the fields area, click the New Field button to add a field.
4. Enter a field name and description, usually the name of a node in the XML file. (A node is text surrounded by pointed brackets, such as <ISCI_CODE>.)
5. Select a Qualifier from the drop-down menu to define the function of the field/node. At a minimum, you must include one Ad-ID/ISCI, one Start Time, and one Play Length field.
6. Select a Value Type for the field. This specifies what kind of data the field will contain, such as text, timecode, numbers, paths, etc.
7. Enter an XPath, which indicates the field/node's position in the hierarchy of the XML file. The XPath begins with the root node, followed by any additional nodes in the hierarchy, leading to the node being defined.
   For example: /ROOT/Node_Level_1/Node_Level_2.
8. Click the Save button.

Click the Test button above the field area, and browse for the XML file you are using to define your catch server. If you successfully defined the fields, the Test Results window opens and shows the fields as headings with the correct data from the XML file under each heading.

Field List

Each field in a scheme is created and configured to extract data from a particular node in the catch server definition XML file when the file is parsed. The following options are available for defining a field:

Skip Lines—Enter the number of header lines to skip at the top of a file before parsing starts.

Add New Field—Click Add Field to add a new data field.

Delete Field—Click Delete Field to delete the highlighted field from the field list.

Field Name—Enter a name for the field.

Description—Enter a description of the field.

Qualifier—Set to the type of field being extracted: an Ad-ID/ISCI identifier, Start Time, Play Length, or a Variable.

Value Type—Enter the type of value to search for and extract from the field. Available values are True/False, Integer Number, Size, Decimal Number, Date, Text, Path, Timecode, and Mail Address. See the following Catch Scheme Values list for descriptions of these values.

Extraction Criteria, XPath—Set this to the path leading to the node defined by the field. Start at the root level and descend to desired node: /ROOT/Node1/Node2.

After entering your selections for each item described previously, click the Save button to save the field and scheme.

Use the Test button to view the Test Results window, showing your catch server definition.

Catch Scheme Values

The following list presents Value Type descriptions.

True/False - A true or false value

Integer Number - A signed 32-bit integer (decimals are rounded)

Size - A signed 64-bit integer (decimals are rounded)

Decimal Number - A double precision floating point decimal number

Date - A date specified according to local standards: MM/DD/YYYY or DD/MM/YYYY

Text - Any text string; use this when your data does not fit any other value type

Path - A valid Windows or UNC path. Must follow this pattern: [Drive Letter]:\ or this pattern: \\Device\path

Timecode - A video timecode value in this pattern: HH:MM:SS:FF@FR.

HH is hours, MM is minutes, SS is seconds, FF is the frame number, and @FR is the frame rate. Examples: 00:00:30:04 or 01:00:30;00@29.97 or 00:02:30:00@25. A frame rate of 29.97 is assumed if not specified

Mail Address - A valid email address consisting of an at symbol with a string before and after - email@domain. Example: name@telestream.net.

Testing Schemes

The Test button in the center of the Catch Schemes window lets you test your schemes on actual catches to verify that the scheme works correctly:

1. Select a Catch scheme in the scheme list.
2. Press the Test button.
3. Examine the Test Results display for a clean output.
4. Adjust each field of the scheme until a test produces a satisfactory output.

Refreshing the Catch Schemes List

In the Catch Schemes window, the Vantage Management Console displays the current list of catch schemes. If another administrator adds or changes schemes, you need to refresh the display to see those changes.

To refresh the display, click the Refresh button.

Exporting and Importing Catch Schemes

Vantage allows you to export catch schemes to XML files, which you can then use to import again into the same or another Vantage domain.

To export one or all catch schemes, do the following:

1. In the Catch Schemes window, select the catch scheme to export.
2. Click the Export button to export a single scheme, or select Export all from the Export button drop down menu. You can also right-click and select Export.
3. Use the file system dialog to save the exported schemes in the desired location.

The default file name is the scheme name, but you can change the file name.

Note: Changing the XML file name does not change the scheme name in the XML file.

To import a catch scheme, do the following:

1. Click the Import button.
2. Use the file system dialog to locate and select the catch scheme file to import, and then click Open.

Note: If you try to import a catch scheme that is already in this Vantage domain, Vantage prompts you to cancel or confirm replacement.

Dublist Variables and Logging

Use this panel to select each field in the selected dublist scheme that you want to extract, and assign it to a variable for use in downstream actions. Also use this panel to set up Dublist action logging.

Generate Variables from Dublist Fields

To publish a variable with the value from a given field (ISCI | House | Upload Date | Resubmit), check it. Next, select the variable to generate and publish from the menu.

When the job runs, Vantage assigns the value of the field to the variable you selected. Now, each action downstream in this workflow can use the variable to operate on the metadata.

Note: To create a new variable, select <<Create New Variable>> (the first item) in the menu. Workflow Designer displays the Create New Variable dialog. Fill out the dialog and click OK to create the new variable.

Logging

The log includes information about why certain files were not submitted. A new file is created for each attempted job submission that failed.

Log Activity. To log activity on this action, check Log Activity and specify the fully-qualified path and directory where you want the action to write log files, optionally specifying a file name pattern (default file name: <date>.txt). You can manually enter the path or click Browse to navigate to the directory and select it.

Use of a share is recommended to avoid the log file being saved directly on the server where the Monitor service that executed the action is hosted. For example, //Vantage/WorkflowLogs/WatchActionLogs/. This is especially problematic in a multi-server domain with more than one Monitor service. Additionally, local files may not be network-accessible.

Dublist Settings

Configure these settings to specify which dublist scheme to use, how to poll the server, and how to filter dublist files for ingest and job submission.

Note: You can use one of the default dublist schemes provided in Vantage or create a dublist scheme to meet your requirements before you configure and use the Dublist action.
If you are using an XML/HTML-based dublist (such as BXF, Eclipse, or Novar), the dublist must be saved with the appropriate encoding relative to the content which is present in the file. For example, If you are creating an XML file with non-ASCII characters (such as German or French), you must save the XML file with UTF-16 encoding. In XML files, the encoding type is generally indicated in the header line: <?xml version="1.0" encoding="utf-16"?>.

Only new dublist files that match the Accept pattern and do not match the Reject pattern are processed.

A file is determined to be new providing that the file is not marked as read-only and at least one of these conditions is met:

- the file was not present on server during the last scan
- the size of the file has changed since last scan
- the modification date of the file has changed since last scan.

A new file is processed when both of these conditions are met:

- the size of the file has not changed over the number of cycles specified
- the modification date of the file has not changed over the number of cycles specified.

Dublist Scheme. Specifies the scheme to use when processing dublists in this workflow. Dublist schemes are created in the Vantage Management Console (Fulfillment Schemes > Dublist Schemes).

Ignore Dublists Older Than. Specifies the number of days after which dublists are expired and ignored.

Cycle and Count. Determines how many seconds occur between polls, and how many polls the dublist file must remain at the same size before being processed (to ensure that the file is complete).

Look in Subfolders. Searches all sub-folders in the target location for new files.

Send Offline Notification Emails. Sends an email to the administrator when this action fails.

Duplicate ISCI/Ad-ID and House Collision Resolution. Choose one:

Process Duplicates: If a duplicate ISCI/House combination is encountered in a dublist, it is added to the list of active entries.

Ignore Duplicates: If a duplicate ISCI/House combination is encountered in a dublist, it is ignored.

Update Waiting To Match: If a duplicate ISCI/House combination is encountered in a dublist, the existing entry is updated with the dublist data associated with the duplicate.

Ignore Dublist Naming Rules. When checked, typical Ad ID/ISCI naming rules are ignored when the dublist attempts to make a dublist match in the catalog - hyphens and spaces are not removed - and binders created with hyphens and spaces can be matched.

File Match Pattern.

Accept and Reject. Limits file selection to files that adhere to the specified pattern (default: *.dub). You can enter either an Accept or a Reject pattern. Best practice is to use the simplest method to solve the problem at hand.

Enter one or more patterns to filter how files are selected for processing.

Pattern Rules. Patterns are not case sensitive. No spaces are allowed. Patterns can contain literal characters, plus the standard wild card characters ? and * and can include multiple patterns, separated by the | (OR bar) character.

- To filter files with a dublist extension, enter **.dub* or **.txt*, for example.

- To filter all files beginning with the letters TESTBARS or containing the word BLACK, enter a compound pattern: TESTBARS* | *BLACK*.

- To filter files by a single character, use the ? wild card character. You can enter one ? for each character in the string. For example, to filter all MPEG files with the same root name plus a single character sequence, enter *NWCrossing?.mpg*.

Active Only and Active Days. Controls the times and/or days when the monitor is active and accepts jobs. Specifies the start and end time on a daily basis, as measured by the service's host computer clock. Also specifies the selected days when the monitor is active.

Dublist Catalog Settings

Configure these settings to specify which dublist scheme to use, how to poll the server, and how to filter media files for ingest and job submission.

Catalog Folder for Material Reconciliation. Specifies the catalog or catalog folder that you are using to locate media identified in the dublist to be processed.

Media Files | Labels | Attachments. Specifies the nickname of the media | label | attachment file from the binder in the catalog to make available to downstream actions.

Note: The file with the nickname you specify MUST exist in the binder that is to be forwarded after the reconciliation process. For example, if you specify the nickname of *Original*; this indicates that the *Original* version exists in the binder that is identified during reconciliation. If *Original* does not exist in the binder, an error occurs.

Forward Binder. When checked, the *original binder* in the catalog which corresponds to a dublist reconciliation match is ingested by the workflow for processing. If unchecked, a *copy* of the original binder is created for ingest and processing, and the original binder remains in the catalog, unmodified. Which mode you chooose is based on your workflow processing requirements.

Traffic File Properties

The Traffic File Properties Identifier is an optional, licensed component of TrafficManager. This identifier, accessed via the Identify action, processes a file name using a pattern you specify, and updates variables for use downstream in the workflow.

Use the Inspector to indicate which fields are expected in the file name, and specify the separation character between fields. You can enable or disable specific fields. The fields you enable are expected to be present in the file name in the order that they are presented in the Inspector.

For example, you specify that a file name should include House, ISCI code, and Agency, and a dash (-) as the separator character. With this configuration only file names in the format *House_ISCI_Agency* (for example: *ABCD_1234_Post1.mpg*) will be successfully parsed.

Note: It is important to understand that the action will not use the Set Workflow State value unless the expected pattern of the file name is correct. The action state will only be set as specified if the variables cannot be generated.

For example, if you specify that the file name should have a structure of ISCI_DURATION, and you submit a file named *foo123_ABCDE*, this is interpreted this as ISCI=*foo123* and DURATION=*ABCDE*. Because the string *ABCDE* cannot be converted to a duration (timecode), this triggers the state you specified in Set Workflow State, because the file name was not parsed correctly. (Obviously, any string in ISCI and House ID will parse correctly.)

However, if you submit a file named *foo123*, the action will fail, because the identifier was unable to parse a field for the duration: there was no provided value.

Files that you submit whose file names do not match the specified pattern will ALWAYS fail. Files whose names DO match the pattern, but fail to parse correctly will cause the action to set the workflow state as specified in the Set Workflow State control.

Settings

Separator. Enter a single character that represents the separator between fields.

Fields. Check the fields that are expected to be present in the file name for this workflow.

Note: When you include Duration, specify the framerate and duration format.

Generate Variables

Variables. Check the fields that you want to publish as a variable in this workflow. For each variable you want to publish, select the variable from the list.

Set Workflow State

Check this option when you want to specify the state of this action if it fails. Select the state to set from the list. After this action executes, you can use Decide actions to test the state and execute the appropriate branch, depending on Failure or Ignore.

BXF Syndicator

The BXF Syndicator transforms metadata in BXF format which has been discovered by a Catch Action, into a mezzanine format for utilization by downstream actions in this workflow or by the Vantage Syndication Portal.

Pathfire Syndicator

The Pathfire Syndicator transforms a Pathfire Format Sheet extracted by a Catch Action into a mezzanine format for utilization either by downstream actions in this workflow or by the Vantage Syndication Portal.

Pitchblue Syndicator

The Pitchblue Syndicator transforms a Pitchblue sidecar metadata file into a mezzanine format for utilization either by downstream actions in this workflow or by the Vantage Syndication Portal.

Analysis Syndicator

The Analysis Syndicator transforms the Analysis Result XML file (generated by an upstream Analyze action) for Black Detection and Slate/Spot Analysis into a mezzanine format for utilization either by downstream actions in this workflow or by the Vantage Syndication Portal.

To use the Analysis Syndicator, an Analyze action must be added to the workflow upstream of the Analysis Syndicator and configured to use the Slate / Spot Analysis and Black Detection analyzers. The Analyze action must configured to generate the Analysis Result XML file as an attachment. This attachment (Source Metadata Attachment) is selected for input and processing by the Analysis Syndicator.

The output (Result Attachment) of the Analysis Syndicator can be used by the Syndication Workflow Portal to automatically generate Segments Lists based upon the detection of color bars, slate, black and active segments.

TrafficManager Automation System Components

TrafficManager can be integrated with market-leading automation systems. As media is processed and delivered to broadcast or on-air servers, for example, you can also configure TrafficManager to send the appropriate information to specific automation systems.

These Automation System components are intended for use in TrafficManager workflows, and are implemented in the Automate action.

Automation System Components

BXF File Automation

Florical Push Automation

Florical Request Transfer

Florical Transfer Complete

AdID Automation

ASDB Automation

ASDB MultiSegment Automation

iTX Automation

iTX MultiSegment Notification

Pebble Marina Automation

Syndication Restripe

Sundance Notification

BXF File Automation

The BXF File Automation creates a SMPTE-2021-compatible BXF file for the target media file, and populates selected fields with metadata values extracted from the variables you specify (or have hard-coded). The BXF file is written to a location specified by you, typically for ingest into the BXF-compliant automation system.

Note: If a previous BXF file with the same name exists in the target directory, it will be over-written without warning.

The name of the BXF file that is generated is based on the filename associated with the Input File Nickname. For example, the Input File Nickname is set to *Original* and points to *MyFile.mpg*. Thus, the file generated (in the folder specified in BXF Output Path) will be named *MyFile.xml*.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

Configuration Parameters

Inputs (One Required)

File Nickname. Specifies the nickname of the target media file.

OR

File Name. Select to specify the target media file by a fully-qualified path, and click Browse to navigate to and select the file. Or, enter the fully-qualified path manually. The file must be accessible by the Vantage service that executes this action; typically a share if not a local file (local to the service).

Outputs (Required)

Output File. Specifies the nickname to assign the output BXF file.

Output Location. Specifies where to store the file. This location must be known/accessible to the automation system.

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Browse button and select a variable which supplies the fully-qualified path dynamically.

Edit Filename Pattern. Displays the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- Base Name (the base name of the file, excluding the extension)
- Date
- Time
- Variable (you select the variable to use)

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Configuration Parameters

BXF Manager Operation

Specifies the operation to execute. Options are Content Transfer | Syndication Transfer | Non-Program Content Transfer | Content Transfer (BXF7) | Syndication Transfer (BXF7) | Non-Program Content Transfer (BXF7)

Note: Each BXF Manager Operation has a unique set of configurable parameters. Consult relevant tooltips and UI elements for configuration details.

BXF Metadata Fields. For each field in the chosen BXF schema, manually enter a static value or specify a variable which contains a dynamic value for each job. The variable must have been set with the extracted value in an upstream action.

Settings

Timecode Designation. When checked, semicolon dropframe timecode designator (;) will be used. Unchecked by default. (: designator will be used)

Florical Push Automation

The Florical Push Automation in the Automate action enables Vantage to inter-operate with Florical systems to deliver media to broadcast servers. The interaction is a two-part process: It requires two Automate actions (each using the Florical Push Automation) be placed in the same workflow for each media file delivery.

The first Automate action is placed after the Flip (or other transcoding action) in the workflow that generates the broadcast version of the media. It sends the Florical server a Transfer Request to determine if the Florical system will accept the media.

Use Decide actions after the first Automate action to determine if the workflow should deliver the media or the media already exists on the broadcast server. If the file is new - it does not exist on the server - Florical accepts the request to transfer, and returns a status message and an ID to use with the Transfer Complete command. (If the file already exists, you can use a Message action to generate an error email.)

Next, use a file operation action (Deploy, Copy, Move as required) to deliver the file to a broadcast server.

The second Florical Push Automation action - configured as a Transfer Complete - advises the Florical server that the media has been delivered.

Note: For implementation details, see the app note Using Florical with Vantage, located on the Telestream web site. Integration of Florical automation systems with Vantage is typically performed by Telestream Professional Services.

During delivery, Vantage makes an HTTP connection to the Florical system and delivers an XML file (a *push* file) that describes the media and metadata that has been placed on the broadcast server. Media is stored using the house name as the file name. Metadata is transferred to the Florical media database. A successful transfer is reported to Florical. A failure is also reported and the partial file is deleted.

The media is then available for archive and/or transfer to different broadcast servers for play to air by Florical automation.

The Florical Automation Notification creates or updates entries in the Florical Automation System. Each entry in the system contains information for a specific commercial including the ISCI code, house identifier, duration, the playback server and the media file name.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Florical Request Transfer

When the Florical Push Automation action is configured to determine if the media already exists in the Florical database (Florical Request Type: Request Transfer), configure these settings.

TrafficManager operates as follows:

The original spot files from catch servers are named after ISCI codes. The Vantage Catch ingest workflow registers the spots to a Vantage catalog with the ISCI codes for the binder names. The publishing workflow uses a Dublist action to read in dublist files. Dublist files associate ISCI codes with House IDs. When a Dublist action finds a match in the Vantage catalog with an ISCI code from a dublist file, the Dublist action submits a job and generates a variable for the associated House ID. The House ID is then used to set the output file name of the Flip or IPTV Flip action that produces the broadcast version. The broadcast version is then checked in to Florical. Thus the file name is assumed to be the House ID.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Inputs

Source Media. Specifies the nickname of the media file being delivered to an archive or broadcast server: typically, the broadcast version of output media from a Flip or other transcode action.

Outputs

Target Destination. Specifies the Vantage Folder (typically, an archive or broadcast server) where the transcoded media file should be copied to. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

Configuration Parameters

Specifies the host, port and Florical method to invoke.

Host. The DNS/IP address of the server running the Florical Automation System.

Port. The TCP port that the Florical HTTP server is using.

Florical Server Method. Enter the directory path and the name of the Florical DLL to finish building the URL for contacting the Florical HTTP server. (The Florical server must be set up to enable Vantage communication.)

Florical Request Type. Select the function to perform in this action. Used to configure each of the stages in the two-part transaction. The first action is configured as a Request Transfer, and the second action in the same workflow, as a Transfer Complete.

Request Transfer Parameters

Metadata parameters, as required. These parameters are passed to the Florical server during the Request Transfer.

House ID | ISCI | Title | Client | Agency | Product | Start Time | Duration | File Size. Enter the value for metadata field. House ID and ISCI are the only required parameters.

During a Transfer Request, the Florical Server must know the name of the media file that will be delivered, and it is assumed to be the ISCI value. These parameters are typically bound to variables which have been assigned values by a previous action in the workflow.

Start Time | Duration | File Size. The Start Time is typically extracted from the source file obtained from the catch server, and extracted using a Catch action and passed into the production workflow.

The Duration can also obtained from the Catch action as well, unless the duration after transcoding is different for some reason.

The File Size can be obtained from the broadcast output file after transcoding. (Use the Identify action, configured with the File Properties > File Size.) Select the variable that you used in Identify to pass the file size value through.

Override Timecode. When checked, the Override Timecode parameter forces the timecode format specified in the Start Time to Drop Frame or Non-Drop.

Generate Variables. Variables that are populated during the Request Transfer should be published for use by downstream actions in the workflow - typically, Decide actions and the second Automate action. Both the Transfer Request and Transfer Complete functions publish the status string received from the Florical Server and a Boolean to indicate the success of the transfer. The Transfer Success variable is typically used downstream to determine if the Florical workflow should continue. The Transfer ID variable is generated by a Transfer Request and must be supplied to the Transfer Complete action.

Transfer ID | Transfer Status | Transfer Success. When checked, select the variable to set. These variables can be used by downstream actions to control workflow processing.

Florical Transfer Complete

When the Florical Push Automation action is configured to perform the media transfer to the Florical database (Florical Request Type: Transfer Complete), configure these settings.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration Parameters

Specifies the host, port and Florical method to invoke.

Host. The DNS/IP address of the server running the Florical Automation System.

Port. The TCP port that the Florical HTTP server is using.

Florical Server Method. Enter the directory path and the name of the Florical DLL to finish building the URL for contacting the Florical HTTP server. (The Florical server must be set up to enable Vantage communication.)

Florical Request Type. Select the function to perform in this action. Used to configure each of the stages in the two-part transaction. The first action is configured as a Request Transfer, and the second action in the same workflow, as a Transfer Complete.

Transfer Complete Parameters

Transfer ID. The ID of the transfer supplied in the first Florical Push Automation action. This is typically bound to the variable published by the first Automate action.

File Size. (Optional) Specifies the size of the file. You can determine the file size by using an Identify action and the File Properties identifier upstream of this action. This is typically bound to the variable published by an Identify action.

Generate Variables. Variables of interest that are updated during the Transfer Complete can be published for use by downstream actions in the workflow. The Transfer Request and Transfer Complete functions publish the status string received from the Florical Server and a Boolean to indicate the success of the transfer.

Transfer Status | Transfer Success. When checked, select the variable to set. These variables can be used by downstream actions to control workflow processing.

AdID Automation

The AdID Automation enables a Vantage workflow to insert a new entry into an AdID database. Configure the automation to supply the proper login values to access the database. Then, supply the metadata as required for your application.

Note: Controls with a Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Inputs

Source Media. Specifies the nickname of the media file being delivered to an archive or broadcast server: typically, the broadcast version of output media from a Flip or other transcode action.

Configuration Parameters

Specifies required parameters for the AdID automation request.

Host. The address of the server running the AdID Automation System. Default is cea.ad-id.org.

User Identifier. Specifies user id provided by CEA server used to access the AdID endpoint.

API Key. Specifies API key associated with User Identifier value.

Service Request. Specifies service request identifier type for this request. Default is AdID.

Identifier Value. Specifies service request identifier value to send to specified service.

Requested Operation

Specifies automation operation to perform.

Validation. Specifies validation check ONLY for provided identifier.

Data Query. Specifies metadata request and validation check for provided identifier. When Data Query is selected, output file parameters may also be specified.

Generate Variables

Specifies variables to generate for the AdID automation request.

Valid Identifier. When checked, generates true/false value which indicates whether the AdID identifier is valid and recognized by the AdID service. Unchecked by default.

Result XML. When checked, generates a text value which is a serialized representation of the full XML file returned by the AdID service. Unchecked by default.

ASDB Automation

The ASDB Automation enables a Vantage workflow to insert a new entry into an ASDB database. Configure the automation to supply the proper log in values to access the database. Then, supply the metadata as required for your application.

Note: Controls with a Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration Parameters

Configure the following required controls to enable the Vantage workflow to log on to the ASDB database. The Host, User, and Password parameters are required.

ASDB Host. The DNS/IP address of the server running the Harris ASDB database.

ASDB Instance. The database instance, if other than the unnamed (default) instance.

ASDB User. A valid user ID for logging onto the database.

Password. The password associated with the user ID.

Metadata Values. All of the other controls are for specifying metadata values, which you can set static or dynamic (using variables) values for, as appropriate for your application. For details on each control, mouse over the control to display tooltips.

ASDB MultiSegment Automation

The ASDB MultiSegment Automation enables a Vantage workflow to insert multi-segment material into an ASDB database. The ASDB MultiSegment Automation uses the Syndication attachment generated either by the Syndicate action or via the Vantage Syndication portal as input.

Note: Controls with a Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration Parameters

Configure the following required controls to enable the Vantage workflow to log on to the ASDB database. The Host, User, and Password parameters are required.

Input Source

File Nickname. Specifies the nickname associated with the Syndication attachment that is generated either from the Syndicate action or from the Syndication Workflow Portal to use for updating the Segment table in the ASDB database.

OR

File Name. Specifies the filename and path to the Syndication attachment that is generated either from the Syndicate action or from the Syndication Workflow Portal to use for updating the Segment table in the ASDB database.

Input Source

ASDB Host. The DNS/IP address of the server running the ASDB database.

ASDB Instance. The database instance, if other than the unnamed (default) instance.

ASDB User. A valid user ID for logging onto the database.

Password. The password associated with the user ID.

Metadata Values. All of the other controls are for specifying metadata values, which you can set static or dynamic (using variables) values for, as appropriate for your application. For details on each control, mouse over the control to display tooltips.

iTX Automation

The iTX Automation component in the Automate action enables you to inter-operate with the iTX Interchange server, performing operations as required for the workflow.

Note: Vantage communicates with iTX Interchange via a REST API. Before you can use the Automate action configured with iTX Automation, the Opus Interchange Service must be installed on the iTX Interchange server.

TrafficManager integrates with the Grass Valley iTX Playout Automation system to coordinate files and metadata for scheduling and playout of files, and proliferation of metadata across the ingest, transcode, and playout workflows.

TrafficManager workflows can be configured with an iTX Automate action, which provides options for invoking iTX Interchange functions including importing assets by House ID, ISCI code, and other parameters. Since existing assets can be identified, both TrafficManager and iTX can be kept in sync regarding which assets are available for playout, and which assets require attention.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration Parameters

Host (Required). Specifies the hostname of the server hosting the iTX Interchange server (IP Address | Hostname).

Port. The TCP port that the Interchange server is using.

iTX Interchange Operation

Specifies the operation to execute. Select Import Asset | Check for Existing Asset, and refer to its configuration details topic, below.

Import Asset

Use this operation to import an asset by House ID into the iTX interchange server.

House ID | ISCI | Title | Notes. Enter the value for each metadata field. House ID and ISCI are the only required parameters.

Frame Rate. Specifies the frame rate of the output in frames per second.

Drop Frame. Specifies that the timecodes are drop frame. If unchecked, they are assumed to be Non-Drop Frame timecodes.

Start Time. The timecode of the start time for the video.

Duration. The timecode for the playout portion of the video.

Start Time Fixed. Check to prevent the in-point from being modified by the media scanner.

Duration Fixed. Check to prevent the duration from being modified by the media scanner.

Collision Resolution. When an existing asset with the same House ID is detected, determines how to resolve the problem.

Check for Existing Asset

Use this operation to determine if an asset already exists in the iTX interchange server, by House ID.

House ID. Specifies the House ID used to conduct the search.

State to Emit if Host is not Available/not Reachable

When checked, sets action state in cases where the specified host cannot be reached. Unchecked by default.

Generate Variables

The following variables can be published for use by downstream actions in the workflow.

iTX Asset Already Exists. When checked, generates a True/False variable based on the result of the Existing Asset search.

Asset Identifier. When checked, generates a text variable with the identifier used by the iTX server to uniquely identify the asset..

iTX MultiSegment Notification

TrafficManager integrates with the Grass Valley iTX Integrated Playout Platform to coordinate files and metadata for scheduling and playout of files, and proliferation of metadata across the ingest, transcode, and playout workflows.

Note: Vantage communicates with this iTX server by delivering an XML file to the iTX Inbox. Before you can use the Automate action configured with an iTX MultiSegment Notification, you should enable the Inbox on the iTX server. The iTX Inbox is treated by Vantage as a network folder.

TrafficManager workflows can be configured with an Automate action configured with iTX MultiSegment Notification, which provides options for invoking iTX functions including importing XML files describing syndicated content. The iTX MultiSegment Notification component enables you to inter-operate with the iTX server, performing operations as required for the workflow.

Note: Jobs submitted from Workflow Portal whose names are greater than 64 characters (the name attribute in the XML used to identify the media) result in media file names that are rejected by the iTX server. Thus, the iTX MultiSegment Notification Automate action will fail if the name is greater than 64 characters.

Note: Controls with a Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration Parameters

Input Source

File Nickname. Specifies the nickname associated with the Syndication attachment that is generated either from the Syndicate action or from the Syndication Workflow Portal to use for creating the XML file that will be delivered to the iTX Inbox.

OR

File Name. Specifies the filename and path to the Syndication attachment that is generated either from the Syndicate action or from the Syndication Workflow Portal to use for creating the XML file that will be delivered to the iTX Inbox.

Outputs (Required)

Output File. Specifies the nickname to assign the output iTX XML file.

Output Location. Specifies where to store the file. This location must be accessible and must point to the iTX Inbox folder.

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Browse button and select a variable which supplies the fully-qualified path dynamically.

Edit Filename Pattern. Displays the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- Base Name (the base name of the file, excluding the extension)

- Date

- Time

- Variable (you select the variable to use)

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Configuration Parameters

iTX Interchange Operation. Specifies the operation to execute (Asset Schedule Import).

Schedule Name. Specifies the schedule name for the associated media as a static value. If left blank, the schedule name is set to the clip title from the output of the syndicate action by default. Or, leave the field blank and click the green Browse button to assign a text variable whose value has been set with the schedule name for this job in an upstream action.

Pebble Marina Automation

The Pebble Marina Automation component in the Automate action enables you to inter-operate with the Pebble Beach Systems Marina Automation server, performing operations as required for the workflow.

TrafficManager integrates with the Marina Automation system to coordinate files and metadata for scheduling and playout of files, and proliferation of metadata across the ingest, transcode, and playout workflows.

TrafficManager workflows can be configured with a Pebble Marina Automate action, which provides options for invoking Marina functions including the insert or update of media metadata on the server.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration Parameters

Host (Required). Specifies the hostname of the server hosting the Marina server (IP Address | Hostname).

Port. (Default: 18083) Specifies the TCP port that the Marina server is using.

Marina Operation to Perform

Specifies the operation to execute. Select Insert/Update Media Metadata Configuration to insert/update the media metadata server and configure it as required:

Media ID (Required). Specifies the media ID number.

Media Title. Enter the title of the media.

House ID. Enter the house ID for the media.

Media Type. (Required). Specifies the Media Type of the asset.

Clip Type. Specifies the Clip Type for the asset. Defaults to: TO QC.

Start Time. The timecode for the start time for the video in HHMMSSFF format.

Duration. The length of the playout portion of the video in HHMMSSFF format.

Syndication Restripe

The Syndication Restripe component in the Automate action enables you to process a Syndication metadata XML file attachment, converting all timing in this attachment into a new timebase. For example, you can submit a syndication attachment with NTSC DF timecode and convert it to 60P timecode representation.

The Syndication Restripe component creates a new metadata attachment with a new nickname, and the metadata has the updated timecode representation.

Note: Controls with a Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuring Syndication Restripe

Input (select one)

File Nickname. Specifies the nickname of the target metadata file, previously ingested from an upstream action.

Use the option when you want this action to process ingested files, regardless of the filename (typical configuration).

OR

File Name. Specifies the target metadata file by a fully-qualified path. Click Browse to navigate to and select the file or enter the fully-qualified path manually. The file must be accessible by the Vantage service that executes this action; typically a share if not a local file (local to the service).

Use the option when you want this action to process only a specifically-named file, which was NOT ingested by an upstream action.

Output

Output File. Specifies the nickname of the new metadata file.

Output Location. Specifies where to store the file.

Open the Output Location panel and select from these choices:

- *Available Vantage Store*: Write the file(s) to any Vantage store, dynamically selected at run-time.

- *Vantage Store/Folder*: Write the file(s) to a specific Vantage store or folder. Select from the list, or click the Browse button to display the Vantage Folder Address Book where you can create, edit, and manage your Vantage folder addresses.

When you display the Vantage Folder Address Book, click the ? icon for more assistance. For more information on Vantage folder addresses, see the Vantage User Guide or the Vantage Domain Management Guide.

- *Path*: Write the file(s) to a specific Windows file system server and directory. Manually enter a Windows share (UNC path) or drive letter (not recommended on Vantage arrays) or click Browse to navigate and select the location. Or, click the green Browse button and select a variable which supplies the fully-qualified path dynamically.

Edit Filename Pattern. Displays the Filename Pattern Editor. Enter the complete filename or a portion of the filename, and use the drop-down menu on the right side to select one or more tokens to insert to create the exact filename pattern you require.

You can use the following tokens:

- Base Name (the base name of the file, excluding the extension)
- Date
- Time
- Variable (you select the variable to use)

The Variable token is replaced by the value it holds when the action executes. The variable should be set prior to execution of this action. For example, if a Variable token named ISCI is given the value *12H4JA678*, wherever the ISCI variable token appears in the filename pattern it is replaced with that value.

Output

New Timecode Type/Framerate. Specifies the new timecode type or frame rate.

Sundance Notification

The Sundance Notification option in the Automate action enables Vantage to interact with Sundance Automation systems and creates or updates clip entries in the Sundance Automation SQL database. The Sundance Notification action is typically placed toward or at the end of a Vantage workflow, in order to provide to the target Sundance system the final state of a completed job.

The user is responsible for providing the proper database host, instance, and login parameters for the Sundance database.

All of the Sundance Notification parameters except those dealing with database connectivity are used to indicate which metadata should be passed to the Sundance database for insertion or updating. Clip metadata can either be manually entered into the configuration parameters or the parameters can be bound to variables that are defined upstream in the workflow (such as from a Catch Action). All parameters with a green Variable button can be bound to a variable to supply the value at run time. Manually-entered values are static for all jobs.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. The variable must have a value when this action executes. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

Configuration Parameters

Sundance DB Host (Required). Specifies the hostname of the server hosting the Sundance database (IP Address | Hostname). Port number may be required.

Sundance DB Instance. Specifies the database instance, if other than the unnamed (default) instance. If unnamed, leave this field blank.

DB User Name (Required). Specifies the authorized account name for querying the database.

DB Password (Required). Specifies the password assigned to the account name.

Clip ID (Required). Specifies the content identifier.

Clip Name (Required). Specifies the name of the content.

Title. When checked, specifies the title of the content.

Clip Start. Specifies the timecode of the first valid frame of video in the clip.

Clip End. Specifies the timecode of the last valid frame of video in the clip (exclusive).

Clip Duration. Specifies the timecode of the duration of video in the clip.

Play Start. Specifies the timecode for the SOM to be used on-air.

Play End. Specifies the timecode of the EOM to be used on-air (exclusive).

Play Duration. Specifies the timecode of the duration of video on-air.

On Server. When checked, indicates that the clip is on the server.

Server Location. String map for multiple video server configurations indicating which server the content exists on.

Server Create Date. When checked, specifies the date time stamp of the first ingest of the clip.

On Archive. When checked, specifies that the clip is on the archive.

First Dubbed By. When checked, specifies the entity performing the first dub of this content.

Last Modified By. When checked, specifies the entity performing the latest update of this content.

Last Modified Date. When checked, specifies the date time stamp of the last modification.

Last Scheduled Play Date. When checked, specifies the date time stamp of the last scheduled play out.

ISCI Code. When checked, specifies the ISCI code for the content.

Empty Object. When checked, only used if the SMT will be required to query the video server for the play and clip data (SOM, EOM, Duration).

TrafficManager Catch Server Components

These catch servers are implemented in the Catch action.

Spot/Ad Catch Server Components

Adstream Catch Server

BXF Catch Server

BXF Spot Catch Server

Comcast Catch Server

DG Server

DMDS Catch Server

Extreme Reach Catch Server

Fotokem Catch Server

GeneralPurpose Catch Server

Hula MX Catch Server

Javelin Catch Server

Mijo Catch Server

On The Spot Catch Server

Pathfire Catch Server

Pitchblue Catch Server

RapidTransmit Catch Server

SmartJog Catch Server

Spot Genie Catch Server

Spottraffic Catch Server

Video Express Catch Server

TrafficManager Catch Server Components

Adstream Catch Server

When configured with an Adstream server, this action regularly polls the user-specified server for the arrival of new media content, which is stored in a single folder. When new media is detected in the monitored folder, a job is automatically submitted. Media on the Adstream Media server is assumed to be MPEG2 (.mpg).

Adstream Server Configuration

Telestream recommends that customers contact Adstream and advise them that a Telestream Vantage TrafficManager is being configured for use with an Adstream server. To complete the integration, the server must be configured with a shared media folder so that TrafficManager can access this directory for media and metadata.

BXF Catch Server

When configured for a BXF server, this action regularly polls a user-specified server and directory for media files.

When a new media file is detected in the monitored folder, a job is automatically submitted to the workflow.

For each submitted file, BXF metadata is retrieved from the server for use in workflows. The metadata file may be located in another folder. A media file is only submitted if the metadata is available.

BXF Spot Catch Server

The BXF Spot Catch plugin is intended for use with Non Program Content (syndicated) material. For Program Content material, use the BXF Catch plugin.

When configured for a BXF Spot Catch server, this action regularly polls a user-specified server and directory for media files.

When a new media file is detected in the monitored folder, a job is automatically submitted to the workflow.

For each submitted file, BXF sidecar file metadata is retrieved from the server for use in workflows. The metadata file may be located in another folder. A media file is only submitted if the metadata is available.

Centaur Catch Server

When configured for a Centaur server, this action regularly polls the user-specified server for the arrival of new media content, which is stored in a single folder. When new media is detected in the monitored folder, a job is automatically submitted. Content which is on the Centaur server is assumed to be MPEG2 media (.mpg).

Centaur runs on Windows servers, and requires server authentication to use Windows networking.

Comcast Catch Server

When configured for a Comcast server, this action regularly polls a user-specified share for the arrival of new media content, which is stored in a single folder. When a new file is present, a job that includes metadata is submitted.

DG Server

When configured for a DG server, this action regularly polls a user-specified server and folder for the arrival of new media content via FTP.

Content is delivered to a DG Systems server in two files - spot and slate, both having the same base name: ISCI code. Slates are unused. Media is delivered in MPEG format. The corresponding metadata file is an XML file with a matching uppercase ISCI code base name.

The metadata file is ingested from the DG server database via HTTP, the metadata is extracted (as specified by you), and a job is submitted for processing.

Media Folders

The default SD folder is */workspace/media002/*. HD media is typically in */workspace/720p/* and */media1080i/*.

FTP Server Details

The default login and password for a DG server is *dgsdel*.

DMDS Catch Server

When configured for a DMDS server, this action regularly polls a user-specified share for the arrival of new media content, which is stored in a single folder. When a new file is present, a job that includes metadata is submitted.

Extreme Reach Catch Server

When configured for an Extreme Reach server, this action regularly polls a user-specified share for the arrival of new media content, which is stored in a single folder. When a new file is present, a job that includes metadata is submitted.

The Extreme Reach server requires server authentication to use Windows Networking.

Fotokem Catch Server

When configured for a Fotokem server, this action regularly polls a user-specified server for the arrival of new media content, which is stored in a single folder. When new media is detected in the monitored folder a job is automatically submitted. Content is delivered to the Fotokem server as an MPEG2 media file (.mpg).

The Fotokem server requires server authentication to use Windows Networking.

GeneralPurpose Catch Server

When configured to monitor a GeneralPurpose server, this action regularly polls the user-specified server for the arrival of new media content, which is stored in a single folder. When new media is detected in the monitored folder, a job is automatically submitted. This Catch action utilizes a catch schema defined in the Vantage Management Console.

GeneralPurpose runs on Windows servers, and requires server authentication to use Windows networking.

Hula MX Catch Server

When configured for a Hula MX server, this action regularly polls a user-specified server for the arrival of new media content, which is stored in a single folder. When new media is detected in the monitored folder a job is automatically submitted. Content is delivered to the Hula server as an MPEG2 media file (.mpg).

Javelin Catch Server

When configured for a Javelin server, this action regularly polls a user-specified directory on the Javelin FTP server for media files. The monitor supports the use of a proxy server.

When new media is detected in the monitored folder, a job is automatically submitted. For each submitted file, special Javelin metadata is ingested from the server for use in workflows. The metadata file may be located in another folder. A media file will only be submitted if the metadata is available.

Mijo Catch Server

When configured for a Mijo server, this action queries the Mijo database on a user-specified Mijo server to track the arrival of new media content.

When the database indicates the availability and location of a new file, Vantage retrieves the metadata from the database, generates the required variables, and submits a job. The Mijo FTP Transport is used to retrieve the media via FTP. Mijo's database is updated to indicate a job was submitted.

Content is delivered to the Mijo server as a High or Standard Definition MPEG2 file.

Note: Only 2 files can be localized at a time from Mijo servers. Be sure to design your system to account for this limit.

Manual Job Submission

As an alternative to using the Catch Action to monitor the Mijo Server for new media, you can display the Submit Job window and manually submit a job to process media on a Mijo server. You can browse to the source file you want to submit via FTP in order to enter the file name and path. To be successfully submitted, a file must be available and unexpired. Make sure that you only submit HD files to workflows where the Mijo catch action is configured for HD files, and vice versa for SD files.

Note: In order to manually submit a job from a Mijo server, the target workflow must start with a Mijo catch action.

Mijo Server Configuration

Telestream recommends that customers contact Mijo Corporation and advise them that a Vantage TrafficManager is being configured for use with your Mijo server. To complete the integration, you need to configure both systems to support FTP and database connections.

On The Spot Catch Server

When configured for an On The Spot Media server, this action regularly polls a user-specified edge server for the arrival of new media content, which is stored in a single folder.

Vantage can access an On The Spot server via FTP or Windows file systems.

When new media is detected in the monitored folder a job is automatically submitted, along with the sidecar file. Content is delivered to the On The Spot Media server as an MPEG2 media file (.mpg).

Pathfire Catch Server

When configured to monitor a Pathfire DMG server, this action regularly polls a user-specified Pathfire server for the arrival of new media and metadata content collected by a Pathfire server.

When new media is detected on the Pathfire server, a job is automatically submitted. For each submitted job, Pathfire metadata is retrieved from the server for use in workflows.

Content retrieved from the Pathfire server can be High or Standard Definition .ts or .mpg files.

Note: Only 2 files can be localized at a time from Pathfire servers; be sure to design your workflows to account for this limit.

Manual Job Submission

As an alternative to using the Catch Action to monitor the Pathfire Server for new media, you can use the Submit Job window from a Receive Action and manually submit a job to process the media on a Pathfire server. You can browse to the content you want to submit via the Submit window. Make sure that you only submit HD files to workflows where the Pathfire catch action is configured for HD files, and vice versa for SD files.

Pathfire Server Configuration

Telestream recommends that customers contact Extreme Reach and advise them that a Vantage TrafficManager is being configured for use with your Pathfire server. To complete the integration, you need to configure both systems to support connection to the Pathfire server and retrieval of media/metadata from it. This may also involve configuring the FlipLite software embedded in the Pathfire server.

Pitchblue Catch Server

When configured for a Pitchblue server, this action regularly polls a user-specified server and directory for media files.

When a new media file is detected in the monitored folder, a job is automatically submitted. For each submitted file, special Pitchblue metadata is retrieved from the server for use in workflows. The metadata file may be located in another folder. A media file is only submitted if the metadata is available.

RapidTransmit Catch Server

When configured for a RapidTransmit server, this action regularly polls a user-specified server for the arrival of new media content, which is stored in a single folder. When new media is detected in the monitored folder a job is automatically submitted. Content is delivered to the RapidTransmit server as an MPEG2 media file (.mpg).

SmartJog Catch Server

When configured for a SmartJog Gateway server, this action regularly polls a user-specified folder on a SmartJog Gateway for media files. When a new media file is detected in the monitored folder a job is automatically submitted.

Spot Genie Catch Server

When configured for a Spot Genie server, this action regularly polls a user-specified Spot Genie server for the arrival of new media content, which is stored in a single folder. When new media is detected in the monitored folder, a job is automatically submitted (along with the same-named XML metadata file, if Advanced > Wait for Metadata to exist is checked). Content is delivered to the Spot Genie server as an MPEG2 media file (.mpg).

Spottraffic Catch Server

When configured for a Spottraffic server, this action regularly polls a user-specified Spottraffic server for the arrival of new media content, which is stored in a single folder. When new media is detected in the monitored folder, a job is automatically submitted (including metadata).

Video Express Catch Server

When configured for a Video Express Media server, this action regularly polls a user-specified edge server for the arrival of new media content, which is stored in a single folder.

Vantage can access a Video Express server via FTP or Windows file systems.

When new media is detected in the monitored folder a job is automatically submitted, along with the sidecar file. Content is delivered to the Video Express Media server as an MPEG2 media file (.mpg).

TrafficManager Catch Server Components
Video Express Catch Server

Workorder Action Components

These topics are associated with components in the Workorder action.

Workorder Components

Workorder Settings

Batch Notification

Generate Versions and Attachments

Generate Variables and Logging

Workorder Settings

Configure these settings to specify the workorder scheme to use for parsing workorders for this workflow, and how to perform polling for new workorder files to process.

New Workorder Files

A workorder file is considered new if at least one of the following conditions is met:

- The file was not present on server during the last scan

- The size of the file has changed during the scan counts specified

- The modification date of the file has changed since last scan.

- A new file is submitted when both of the following conditions are met:

- The size of the file has not changed during the scan counts specified

- The modification date of the file has not changed during the scan counts specified.

Inspector Wizard

Workorder Scheme. Specifies the name of the workorder scheme to use for parsing workorder files. Workorder schemes can be created and configured in the Vantage Domain Management Console or Workflow Designer.

Process Existing Workorders. Indicates that you want the workflow to process all existing workorders in the specified directory that have not yet been processed. When checked, select All, Limit to last X days, or Since Last Workflow Deactivation.

For example, if this is the first time that a workflow has been put into production, you may want all workorders submitted the first time. Or, check this when you need to compensate for the monitor being off line for some period of time.

Cycle and Count. Determines how many seconds occur between polls, and how many polls the file must remain at the same size before being submitted (to ensure that the file system has closed new files after writing is complete).

Look in Subfolders. Searches all sub-folders in the target location for new files.

Send Offline Notification Emails. Sends an email to the administrator when this action fails.

File Match Pattern. Limits file selection to files that adhere to the specified file name pattern.

To accept all files, do not enter a pattern in the Accept field.

To limit the files to process, enter one or more patterns separated by an OR bar (|) in the Accept or Reject fields.

Patterns are not case sensitive. No spaces are allowed. Patterns can contain literal characters, plus the standard wild card characters ? and *.

For example, to filter files having a .txt (text file) extension, enter **.txt*. To filter all files beginning with the letters WORKORDER or containing the phrase PROMO, enter WORKORDER* | *PROMO*.

To filter files by a single character, use the ? wild card character. You can use the ? repeatedly; one for each wildcard character. For example, to filter all text files with the same root name plus a four-character sequence, enter *Clip????.txt*.

Active Only. Controls the times when the action is active, and specifies the start and end time on a daily basis, as measured by the Monitor service's host computer clock.

Next. Displays the next inspector panel.

Batch Notification

Enable Batch Notification causes the Workorder action in a workflow (referred to as the *trigger* workflow) to pass a list of completed jobs in an XML file (See format below) and a File Name variable to a specified *notify* workflow, when all jobs in the source Workorder have completed.

The trigger workflow MUST remain running to trigger the notify workflow. If a user stops this workflow, then notifications will not be processed.

The batch of jobs that have completed may have succeeded, failed, or been stopped by an operator. If jobs are stopped and then restarted, when those jobs complete, another notify job is started and the process repeats.

For example, a Workorder action generates 10 jobs from a workorder and the user stops all 10, then deletes 5 of them. Now, the user restarts the remaining 5 and allows these jobs to complete. The Batch Notification workflow is triggered, but the ATTACHMENT only contains information about the remaining 5 jobs which existed at the time of the batch completion.

The information in the XML file provided to the notify workflow only consists of jobs which were generated by the original source AND which still exist when the final job from this collection of jobs completes.

For example, consider a workorder which creates 20 jobs, of which 15 are allowed to run to completion, 4 are stopped and 1 job is paused by the user. At this point no batch notification is triggered, because all jobs have not completed; there is one PAUSED job. If the user decided to DELETE the 15 jobs which had run to completion; then the user resumed the previously paused job, when this final job completes, the notification workflow is triggered, but only 5 jobs (the remaining 5 jobs which were not deleted) are in the XML file.

The *notify* workflow is required to start with a single Receive action, and be configured to receive the XML file from the Workorder action as an attachment file. Any other customizations and configurations you require are permitted.

When you enable Batch Notification, Workflow Designer checks for active, eligible Receive-based workflows in the domain and displays a list for selection.

If there are no eligible workflows, the inspector displays a yellow advisory: "Eligible workflow must start with a Receive origin action in order to be triggered by this action, and it must emit a single Attachment file". Create and activate an eligible notification workflow before continuing.

The File Name variable is also required. In the inspector, return to the Generate Variables panel and enable the File Name variable and assign a text variable (for example, *File Name*) before proceeding.

In the event that the notify workflow is not running at the time when the last job of a batch completes, there is no way to indicate the failure of a job, since no job actually failed). The only available option is to email the administrator.

XML Schema

```
<BatchNotification Source="Workorder: MediaList.csv">
    <Job Id="1234" Name="Job #1 " Disposition="Success"/>
    <Job Id="5678" Name="Job #2 " Disposition="Failure"/>
</BatchNotification>
```

In this example, the workorder file MediaList.csv - that was submitted to the trigger workflow - contains two media rows that spawned two jobs: Job #1 and Job #2. The state of each job is indicated as Success for one and Failure for the second.

Configuration

Enable Batch Job Notification. Check to start a job with the specified notification workflow when all jobs in the workorder are complete.

Workflow to Trigger. Specifies the target notification workflow.

Finish. Click Finish to save the action and close the inspector.

Generate Versions and Attachments

Use this panel to assign a nickname to each media file and attachment file specified in the workorder scheme. You can use these nicknames in downstream actions to utilize and operate on these media files and attachment files as required.

When *Require All Nicknames* is checked, the Workorder action will not process job submissions that do not exactly match the Workorder Schema.

When *Require All Nicknames* is not checked, the Workorder action will process job submissions without the exact schema being met, by ignoring missing fields in the workorder. This enables DAI workflows to be more dynamic in its application.

Warning: If *Require All Nicknames* is not checked and an incoming workorder does not have all fields populated, the job will fail if the workflow attempts to use a nickname that is not provided.

Media and Attachment File Nicknames

For each media file field and attachment file field defined in the workorder scheme and activated in this action (on the previous panel), there is an entry of the same name on this panel. Fields in the workorder scheme (created and managed in the Management Console) whose qualifiers are either Media or Attachment are displayed on this panel.

For example, if you create a field of qualifier Media in the workorder scheme and the field name is *Media File*, then this panel will display a checkbox item named *Media File*, with a nickname list.

For each media and attachment field on this panel, select (or enter) the nickname to use in the workflow.

When the job is submitted, each media and attachment field will have its fully-qualified path name value assigned to the nickname you specify, so that you can use and operate on these files in downstream actions in the workflow.

Require All Nicknames. When checked (default), require the presence of all nicknames to be present in order to process this job. When unchecked, do not check for the presence of all nicknames before processing the job.

It is the responsibility of the workflow designer to design a workflow that is responsible for ensuring that a nickname exists before attempting to use it.

For example, a workorder schema specifies 3 nicknames will be present.

A workflow designed with three Flip actions, where each Flip uses one of the 3 nicknames from the workorder, will obviously fail if the workorder does contain all 3 nicknames.

To create a proper workflow, the user should use the Exist action to ensure that each nickname exists before attempting to Flip the file identified by each nickname when Require All Nicknames is disabled.

Generate Variables and Logging

Use this panel to control variable field activation, and specify the variable for the data in the variable field in the workorder. You can also use this panel to specify variables about the workorder file itself.

Note: By providing field activation and variable assignment, you achieve looser coupling between the scheme and workflows. For example, you might create a general scheme, and use it in different ways in different workflows, depending on the data values encountered in each job.

Workorder Job Variables

For each variable field defined in the workorder scheme (created and managed in the Management Console), there is an entry of the same name on this panel.

For example, if you create a field with a qualifier of Variable in the workorder scheme and the field name is *Email Address*, then this panel will display a checkbox item named *Email Address*, with a checkbox and a variable list.

For each variable field on this panel, check the checkbox to activate this variable, and then select the variable to use in the workflow from the list. The variables in the list are only those of the type specified in the scheme. For example, if you create a variable field of type Decimal Number, then only Decimal Number variables are displayed.

When the job is submitted, each variable field you have enabled will have its data value assigned to the variable you specify, for use in downstream actions in the workflow.

Workorder File Variables

In addition to the workorder job variables, three variables may be supplied to downstream actions. These variables can be used by downstream actions to perform file operations on the workorder file itself (the file used for submitting this job), or use the metadata for other processing.

File Name. When checked, select a variable to contain the name of the workorder file.

File Path. When checked, select a variable to contain the path of the workorder file.

File Modified Date. When checked, select a variable to contain the modification date of the workorder file.

Log Activity

When checked (unchecked by default), enables logging activity for the Workorder action. A new log file is made each day and information is provided for each workorder file that is processed.

Specify the fully-qualified path and directory where you want the action to write log files along with an optional file name pattern. You can manually enter the path or click Browse to navigate to the directory and select it.

Encoders

Vantage provides the following encoders.

Encoders

360 Maxx HD Encoder

3GP Advanced Encoder

Apple 3GP Encoder

Apple HTTP Live Streaming Multi-bitrate Encoder

Apple MPEG-4 Encoder

AVI Encoder

Avid AAF Encoder

Bindable (Legacy) Encoder

Interplay Advanced Encoder

Final Cut/Avid QuickTime Encoder

Avid MediaStream Encoder

Avid OMF Encoder

Avid Transfer Engine Encoder

Avid Vortex Encoder

DV AVI Encoder

DV Stream Encoder

DVCPRO Encoder

Elementary Stream Encoder

EVS Encoder

Flash 8 (VP6) Encoder

Flash 9 Encoder

GXF Encoder

H.264 Encoder

Helix (Real 10) Encoder

IPTV H.264 Transport Stream Encoder

KeyFrames Encoder

Harris LXF Encoder

Matrox MPEG-2 AVI Format Encoder

MP3/M2A Encoder

MP4 Encoder

MPEG-1 System Stream Encoder

MPEG-2 Elementary Stream (DVD) Encoder

MPEG-2 Program Stream Encoder

VOD/MPEG-2 Transport Stream Encoder

MXF Application Specification Encoder

MXF Encoder

Omneon Encoder

P2 MXF Stream Encoder

QuickTime Encoder

QuickTime (Telestream) Encoder

SeaChange Encoder

Smooth Streaming H.264 Multibitrate Encoder

Syntactic Transport Stream Encoder

TIFO Encoder

VC1 Encoder

WAV Encoder

WebM Encoder

Windows Media Encoder

360 Maxx HD Encoder

The 360 MAXX HD encoder creates compressed video in a proprietary JPEG2000 format required for 360 MAXX HD servers. The encoder creates audio in PCM format.

Each 360 MAXX HD broadcast server is specifically configured for a particular video profile. All files being delivered to a given server must be encoded in the video profile specified for this server. The server accepts video files and marks them with the video profile that it is configured for - regardless of the actual profile of the file.

Thus, even if you change the server configuration to the video profile that these files have been encoded with, the incorrectly marked files will not be available - because they have been incorrectly marked.

For example, if the server is configured for1080i 60 and you deliver a 720p 60 file, that file will be marked as 1080i 60, such that when the server is reconfigured for 720p 60 files, you will not see the 720p 60 file that you delivered.

You must delete incorrectly marked files (those encoded with one profile and marked as another) from the server and then deliver them again once the server is configured for the correct video profile.

3GP Advanced Encoder

The 3GP Advanced encoder creates 3GPP files based on MP4 format, which are compatible with GSM mobile phone systems. This encoder wraps and interleaves video and audio according to the requirements specified in the supported codecs.

Supported video formats: MPEG-4, H.263 and H.264.

Supported audio formats: AAC-LC and AMR-NB.

Apple 3GP Encoder

The Apple 3GP encoder creates 3GPP and 3GPP2 files based on MP4 format but which are compatible with GSM and CDMA mobile phone systems. This encoder wraps and interleaves video and audio according to the specific output requirements specified in the included codecs. Supported video formats: MPEG-4, H.263 and H.264. Supported audio formats: AAC-LC and AMR-NB.

Note: This codec uses the underlying QuickTime implementation and thus is limited by the QuickTime encoding capabilities provided by Apple for QuickTime on Windows.

Apple HTTP Live Streaming Multi-bitrate Encoder

The Apple HTTP Live Streaming Multi-bitrate encoder creates files for live streaming over HTTP or HTTPS for Apple iOS-based devices including iPhone, iPad, iPod Touch, AppleTV, and Mac OS X computers.

Note: To create video-only or an audio-only output, click the X (close) button on the stream you want to eliminate from the output. For example, close the Video Stream box to create audio-only media; close the Audio Stream box to create video-only media.

Apple MPEG-4 Encoder

The Apple MPEG-4 encoder creates standard MPEG-4 files in an MP4 wrapper and creates iPod-compatible files in an M4V wrapper. This file format wraps and interleaves video and audio according to the specific output requirements specified in the included codecs.

Note: This codec uses the underlying QuickTime implementation and thus is limited by the QuickTime encoding capabilities provided by Apple for QuickTime on Windows.

To create an audio-only output, click the X (close) button on the video stream to eliminate it from the output.

AVI Encoder

The AVI encoder creates standard AVI files. This file format wraps and interleaves video and audio according to the specific output requirements specified in the included codecs.

Note: This codec loads available standard VFW codecs, though only frame-size, frame-rate, and quality settings are displayed for user configuration. Third-party VFW codecs can be installed and may work within this encoder. However, Telestream does not guarantee the functionality of third-party codecs functioning within Vantage. Meeting the obligations of any licensing requirements for third-party codecs is the responsibility of the user/installer and not Telestream, Inc.

Supported video formats are Uncompressed, Cinepak, Microsoft Video, Intel Indeo 4.5, Indeo 5.10, and Microsoft I.263.

Supported audio formats are Uncompressed PCM, IMA ADPCM, ADPCM, CCITT G.711 A-law and u-Law, and Fraunhofer IIS MPEG Layer 3.

Avid AAF Encoder

The Avid AAF encoder creates Avid OP-Atom media files for use in Avid Media Composer and Interplay systems, with the following essences:

- AVC Intra 4:2:0 - formats: 50 Mbps 1080i 60, 1080i 50, 720p 60, 720p 50

- AVC Intra 4:2:2 - formats: 100 Mbps 422 1080i 60, 1080i 50, 1080p 23.98 (23.976), 720p 60, 720p 50, 720p 23.98 (23.976)

- AVC Intra Direct Convert - format: same as source

- DNxHD - formats: 1080i/1080p 23.976, 25, 29.97, multiple bit rates

- DNxHD Direct Convert - format: same as source

- DV25 - formats: NTSC/PAL

- DV25 Direct Convert - format: same as source

- DVCPRO - formats: NTSC/PAL

- DVCPRO Direct Convert - format: same as source

- H.264 Proxy - formats: 800 Kbps 1080i 29.97/1080i 25/720p 59.94/720p 50/ 525/625, 2 Mbps 1080i 29.97/1080i 25/720p 59.94/720p 50, 1.5 Mbps 525/625

- IMX - formats: NTSC/PAL

- IMX Direct Convert - format: same as source

- JFIF - formats: 15:1s NTSC/PAL, 14:1 NTSC/PAL, 10:1 NTSC/PAL

- XAVC Intra 4:2:0 - formats: 50 Mbps 1080i 60, 1080i 50, 1080p 23.98 (23.976), 1080p 29.97, 1080p 25

- XDCAM HD 4:2:0 - formats: 35/17.5 Mbps 1080i 60, 1080i 50, 1080p 25, 1080p 24; 25 Mbps 1080p 25

- XDCAM HD 4:2:2 - formats: 50 Mbps 422 720p 50, 720p 60, 1080i 60, 1080i 50, 1080p 24, 1080p 29.97, 1080p 25, 1080p 30

- XCCAM HD EX - formats: 35 Mbps 1080i 60, 1080i 50, 1080p 30, 1080p 25, 1080p 24; 720p 60, 720p 50, 720p 30, 720p 25, 720p 24

- XDCAM MPEG-2 4:2:0 Direct Convert - format: same as source

- XDCAM MPEG-2 4:2:2 Direct Convert - format: same as source

These take the form of an AAF reference file and a set of MXF files, one for each stream encoded.

If you select a Proxy video codec, the encoder produces MPEG-1 Layer 2 audio automatically. For other codecs, the encoder produces PCM audio.

Combined with the Notify action configured with the Interplay Notifier, the Avid Interplay encoder supports the creation of multi-res clips for Interplay workflows.

Because the Avid AAF encoder is designed to deliver media directly to Avid systems, the Output Location control settings are ignored.

Note: If the fully-qualified path (the file name plus the path) exceeds 230 characters, the Flip action will fail, and display the error message: *Filename too long for Avid AMT (Interplay Clip)*.

Bindable (Legacy) Encoder

The Bindable Encoder allows this action to be configured with a Flip action that was created and configured, and then exported (right-click the action and select Export), as an XML file.

Encoder Definition. Manually enter the fully-qualified path to the Flip action configuration XML file (using a UNC path or drive letter path) including the file name or click the green Variable Browse button and select a variable that has been assigned the path in an upstream action.

Interplay Advanced Encoder

The Avid Interplay Advanced Encoder encodes single- or multi-resolution Avid assets and delivers them to an Interplay system via an Avid Web Services check-in, for use in Avid edit systems.

The Interplay Advanced Encoder supports two modes of media creation:

- Single-Res - for creating a single high or proxy resolution file

- Multi-Res - for creating a high resolution file while simultaneously creating an H.264 proxy file.

In both modes, the Interplay Advanced Encoder creates Avid media to be stored on Avid ISIS shared media and checked into an Avid Interplay workspace. This encoder directly incorporates Notify action functionality, including User Property and Locators, and marking a Head Frame thumbnail image, rendering a separate Notify action in the workflow unnecessary.

To create video-only or an audio-only output, click the X (close) button on the stream you want to eliminate from the output. For example, close the Video Stream box to create audio-only media; close the Audio Stream box to create video-only media.

Note: Vantage workflows utilizing the Flip Transcode action's AAF Encoder and Notify action can be used concurrently with workflows utilizing the Interplay Advanced encoder.

Single-Res Container

All codecs can be selected and used when the Single-Res container is selected. Interplay Advanced Encoders in Single-Res mode can be used in parallel or serially.

Notes:

- Audio files associated with H.264 Proxy video are created as 16bit MPEG1 Layer 2 at 96Kbps per channel. With all other codecs, audio files are created as Uncompressed PCM

- The Telestream H.264 Proxy is not supported for parallel workflows.

- If the fully-qualified path (the file name plus the path) exceeds 230 characters, the encoding action will fail, and display the error message: *Filename too long for Avid AMT (Interplay Clip)*.

Multi-Res Container with Simultaneous Proxy

When the Multi-Res container is selected, a proxy is simultaneously generated if required. Codecs supported when using a Multi-Res container is restricted to the following 1080i, 720p, and SD codecs:

HD - AVC Intra 4:2:2, XDCAM HD 4:2:2, DNxHD

- Hi-Res at 1080i50/60; proxy - H.264 800Kbps 480x270

- Hi-Res at 720p50/60; proxy - H.264 800Kbps 320x180

IMX (525i/625i)

- NTSC: Hi-Res at 525i; proxy - H.264 800Kbps 352x240
- PAL: Hi-Res at 625i; proxy - H.264 800Kbps 352x288

These assets are comprised of an AAF reference file and a set of OP-Atom MXF files, one for each stream encoded.

With one of the above codecs selected, an H.264 proxy is automatically created simultaneously with the high resolution file. Proxy files are created with MPEG-1 Layer 2 audio (max. 16 channels, 96 Kb/channel). Both the high resolution and proxy resolution files are simultaneously checked into Interplay and are available for FrameChase editing.

Note: Proxy codecs include the Telestream Proxy and High Bitrate Proxy. IMX does not support the Telestream Proxy codec.

Final Cut/Avid QuickTime Encoder

The Final Cut/Avid encoder creates QuickTime files (.mov) for use in Apple's Final Cut Pro and Avid editing systems. QuickTime file format wraps and interleaves video, audio, and certain types of metadata streams.

Supported video formats include AVC Intra, DV, DVCPRO, DVCPRO HD, DNxHD, HDV, IMX, ProRes, x264, and XDCAM HD.

Avid MediaStream Encoder

The Avid MediaStream encoder creates files in MSS format, which are used by Avid MediaStream video servers. These files typically include MPEG-2 video and either PCM, MPEG-1 Layer 2, or AC-3 audio.

Avid OMF Encoder

The Avid OMF encoder generates files for use with Avid editing systems.

Avid Transfer Engine Encoder

The Avid Transfer Engine encoder creates temporary files intended for delivery to Avid Transfer Engine for use in Avid systems.

Delivery of video to Avid Transfer Engine systems is performed by a separate delivery service, and requires a special installer from Telestream. Please contact Telestream Customer Service for more details.

Avid Vortex Encoder

The Avid Vortex encoder creates AVI files that are compatible with the Vortex News editing system.

DV AVI Encoder

The DV AVI Stream encoder creates AVI files in special formats for use on specific AVI-based systems such as Fission Core Playout Server, Liquid Edit stations, Matrox, and others. This file format wraps and interleaves video, audio, and certain types of metadata streams according to the specific output requirements of these systems.

Supported video format is DV in NTSC or PAL. Audio format is uncompressed PCM audio in 2 or 4 channels.

Supported metadata includes preservation of closed caption data for some codecs.

DV Stream Encoder

The DV Stream encoder produces a DV elementary stream corresponding to SMPTE 314M or IEC 61834 standards.

The primary differences between the DV Standard Definition codec and the DVCPRO codec are that the DVCPRO codec restricts the audio sample rate to 48KHz and that there is a distinct color sub-sampling difference between the 625 (PAL) variants. In IEC 61834, 625 material is color sub-sampled as 4:2:0; in SMPTE 314M (the DVCPRO Codec), color sub-sampling is 4:1:1.

Using 525 (NTSC) formatting, color sub-sampling is 4:1:1 in both SMPTE 314M and IEC 61834.

DVCPRO Encoder

The DVCPRO with Embedded Audio encoder produces a DV elementary stream corresponding to SMPTE 314M or IEC 61834 standards.

The primary differences between the DV Standard Definition codec and the DVCPRO codec are that the DVCPRO codec restricts the audio sample rate to 48KHz and that there is a distinct color sub-sampling difference between the 625 (PAL) variants. In IEC 61834, 625 material is color sub-sampled as 4:2:0; in SMPTE 314M (the DVCPRO Codec), color sub-sampling is 4:1:1.

Using 525 (NTSC) formatting, color sub-sampling is 4:1:1 in both SMPTE 314M and IEC 61834.

Elementary Stream Encoder

The Elementary Stream encoder produces raw elementary video and audio streams. Encoded files have a .es extension.

The encoder produces uncompressed PCM audio, and MPEG2, H.264 x.264, and AVC-Intra video. This encoder also supports Direct Convert operations.

Note: To create video-only or an audio-only output, click the X (close) button on the stream you want to eliminate from the output. For example, close the Video Stream box to create audio-only media; close the Audio Stream box to create video-only media.

EVS Encoder

The EVS encoder creates files in MXF format, for use on EVS XT[1] and XT[2] server products. Supported video is M-JPEG, DNxHD and DVCPRO HD; supported audio is PCM.

Flash 8 (VP6) Encoder

The Flash 8 VP6 encoder creates FLV files containing On2 VP6 (Flash 8) video and MP3 audio.

Note: To create video-only or an audio-only output, click the X (close) button on the stream you want to eliminate from the output. For example, close the Video Stream box to create audio-only media; close the Audio Stream box to create video-only media.

Flash 9 Encoder

The Flash 9 encoder creates F4V files comprised of H.264 Video and AAC Audio. It produces a file with the f4v extension, which can be played back in the Flash 9 Player and streamed from a Flash Server.

GXF Encoder

The Grass Valley GXF encoder creates files in GXF format for use on Grass Valley Profile and K2 server products. GXF file format wraps and interleaves video, audio, and certain types of metadata streams. Supported video formats include MPEG-2 in both Standard Definition and High Definition resolutions, plus DV, DV50, DV100, and AVC Intra.

Supported audio format is Uncompressed PCM audio in 2, 4, 6, or 8 channels.

Supported metadata includes timecode, uncompressed VBI data for SD resolutions, Vertical Ancillary (VANC) data for HD resolutions, and certain types of automation metadata.

H.264 Encoder

The H.264 encoder provides support for interlaced and progressive H.264 in M4V formats, and audio support for AAC and MPEG-1 Layer 2 audio. In addition, the H.264 Encoder supports the creation of files that are compatible with the Sony PSP.

Note: To create video-only output, click the X (close) button on the audio stream to eliminate from the output.

Helix (Real 10) Encoder

The Helix (Real 10) Encoder creates files for the Helix Universal Server. Helix Universal Server serves streaming media clips to users, enabling them to stream the media clips rather than download them. By streaming the content, the user can begin to watch the clip almost immediately and doesn't have to wait for the entire file to be downloaded. Helix Universal Server supports clients including RealOne, QuickTime, and Windows Media Players.

IPTV H.264 Transport Stream Encoder

The IPTV/H.264 Transport Stream encoder creates Transport Stream files containing H.264 video and various types of audio. The encoder supports a single program in each transport stream file. Both Standard Definition and High Definition resolutions of H264 video (Main Profile and High Profile) are supported. In addition, you can create custom H264 codec settings via the MainConcept CFG File Generator and save the CFG file for use when transcoding media. This configurator is installed as part of the Transcode Service, and can be found in the Program directory under \Transcode\Bin.

You can utilize the MainConcept H.264 codec or the x264 H.264 codec to encode your video.

The IPTV Transport Stream encoder allows independent control over the video, audio, and multiplexing (overall file) bitrate. If the multiplexing bitrate is not set high enough to accommodate the underlying video and audio, an error will occur during transcoding. Alternatively, setting a higher multiplexing bitrate than necessary will introduce NULL packets into the Transport Stream file; these packets can be used by external systems to add addition information into the stream.

Supported audio formats include AAC, Dolby 5.1/AC-3, and MPEG-1 Layer 2. The encoder allows multiple streams of different types of audio in a single product.

Note: To create video-only output, click the X (close) button on the audio stream box to eliminate it from the output.

KeyFrames Encoder

The Keyframes encoder enables the generation of one or more JPEG images from the original video. Either a single image, or a series of images, may be created. Image series may be at scene changes, or at a prescribed interval; the frequency of scene changes can be controlled using the Keyframe Sensitivity setting.

When multiple JPEG images are created by the Keyframe Encoder, they are treated as a single media item; all underlying JPEG files can be moved, copied or deleted by using that media item's nickname.

Harris LXF Encoder

The LXF encoder creates files for use on Harris WAN Streamer and Nexio server products. LXF file format wraps and interleaves video, audio, and certain types of metadata streams.

Supported video formats include MPEG-2 in both Standard Definition and High Definition resolutions, plus DV and DV50, IMX and AVC Intra. Supported audio format includes uncompressed PCM audio in 2, 4, 6, or 8 channels.

Supported metadata includes timecode, uncompressed VBI data for SD resolutions, Vertical Ancillary (VANC) data for HD resolutions, and certain types of other metadata specific to synchronized multi-file playback and automation systems.

Matrox MPEG-2 AVI Format Encoder

The Matrox encoder creates files in MPEG-2 format, for use on Matrox products.

MP3/M2A Encoder

The MP3/M2A (MPEG-1 Audio Layer-3) encoder creates both MPEG-1 Layer 2 and MP3 files. MP3 is a digital audio encoding format detailed in ISO/IEC 11172-1.

MPEG-1 Audio Layer 2 (MP2) is a lossy audio compression format defined by ISO/IEC 11172-3. While MP3 is much more popular for use on digital music players, computers, and Internet applications, MP2 remains a dominant standard for audio broadcasting.

Supported file extensions: m2a, mpa, mpg, mp2.

MP4 Encoder

The MP4 encoder creates standard MPEG-4 files in an MP4 wrapper. This file format wraps and interleaves video and audio according to the specific output requirements specified in the included codecs.

Note: To create video-only or an audio-only output, click the X (close) button on the stream you want to eliminate from the output. For example, close the Video Stream box to create audio-only media; close the Audio Stream box to create video-only media.

MPEG-1 System Stream Encoder

The MPEG-1 System Stream encoder encodes a multiplex of audio and video streams into a single MPEG-1 system stream file. The System Stream format is specified by ISO/IEC 11172 Part 1.

Note: To create an audio-only output, click the X (close) button on the Video Stream box to eliminate from the output.

MPEG-2 Elementary Stream (DVD) Encoder

The MPEG-2 Elementary Stream DVD encoder creates separate files for MPEG-2 video and audio. Typically, these files are used as input for DVD production.

MPEG-2 Program Stream Encoder

The MPEG-2 Program Stream encoder generates MPEG-2 video (ISO/IEC 13818-2) and MPEG-1 Layer 2 audio (ISO/IEC 11172-3).

VOD/MPEG-2 Transport Stream Encoder

The MPEG-2 Transport Stream encoder generates files compatible with the ISO/IEC standard 13818-1. Transport Stream files can contain multiple audio, video, and data streams and are designed for cable and other environments that experience lost data due to unreliable transmission.

Note: For all HD output formats, only ATSC/DTV 9600 bits/sec is valid. If others are chosen they will not be inserted.

Note: To create video-only output, click the X (close) button on the Audio Stream box to eliminate it from the output.

MXF Application Specification Encoder

The MXF AS encoder creates files in MXF AS-02 Application Specification format as defined by the Advanced Media Workflow Association (AMWA).

MXF Encoder

The MXF encoder creates files in MXF format, for use on various broadcast video products. MXF file format wraps video, audio, and timecode metadata into MXF files. This encoder offers several generic MXF formats, as well as MXF targeted for specific device compatibility.

The most widely used format is D10 MPEG-2 wrapped in MXF. This is the native format for Standard Definition versions of Sony XDCam and E-Vtr products. It is also supported by many broadcast servers and editing systems.

Other supported video formats are specific to devices from manufacturers including Grass Valley, Leitch, and Sony - XDCam HD devices.

Note: To create video-only or an audio-only output, click the X (close) button on the stream you want to eliminate from the output. For example, close the Video Stream box to create audio-only media; close the Audio Stream box to create video-only media.

Omneon Encoder

The Omneon encoder creates files for Omneon Spectrum Servers. The Vantage transcoder supports the creation of MXF or QuickTime files for use by Omneon Spectrum Servers.

Note: If you attempt to process input files that include a # character in a workflow, the job will fail and the references to the files are not presented correctly in the binder. For example, you attempt to transcode a QuickTime reference file to an Omneon QuickTime reference file.

P2 MXF Stream Encoder

The P2 MXF Stream encoder creates P2-wrapped MXF files compatible with P2 devices. The P2 MXF format has each element (video, audio tracks, descriptive metadata and icon (thumbnail)) stored in its own file in a specific sub-directory structure. P2 MXF supports several video formats including DV, DVCPRO, DVCPRO HD and AVC Intra.

QuickTime Encoder

The QuickTime encoder produces QuickTime movie files with the .mov extension.

QuickTime (Telestream) Encoder

The QuickTime (Telestream) encoder produces QuickTime movie files with the .mov extension.

Note: To create video-only or an audio-only output, click the X (close) button on the stream you want to eliminate from the output. For example, close the Video Stream box to create audio-only media; close the Audio Stream box to create video-only media.

SeaChange Encoder

The SeaChange encoder wraps and interleaves video, audio, and metadata to create files for use on the SeaChange Broadcast Media, Broadcast Media Cluster, and Broadcast MediaLibrary server products.

The supported video format is MPEG-2 (ISO/IEC13818-2). The supported audio formats are MPEG-1 Layer 2 (ISO/IEC 11172-3) audio and AES audio (SMPTE 302M).

Smooth Streaming H.264 Multibitrate Encoder

The Smooth Streaming encoder generates files that are compatible with the IIS Smooth Streaming client and players. It supports generation of up to 6 H.264 streams and one AAC audio stream.

Note: To create video-only or an audio-only output, click the X (close) button on the stream you want to eliminate from the output. For example, close the Video Stream box to create audio-only media; close the Audio Stream box to create video-only media.

Syntactic Transport Stream Encoder

The Syntactic Transport Stream encoder creates Transport Stream files containing H.264 video and MPEG-1 Layer 2 audio. A configurator for creating H.264 configuration files is installed as part of the Transcode Service, and can be found in the Programs directory under \Transcode\Bin.

TIFO Encoder

The TIFO encoder creates Telestream TIFO files of various supported essences.

VC1 Encoder

The VC-1 encoder creates SMPTE VC-1 (also known as Windows Media VC-1) files within an ASF/WMV wrapper.

WAV Encoder

The WAV encoder creates WAV/WAVE audio files. Typically these are uncompressed audio files.

WebM Encoder

The WebM encoder creates a VP8 video and a Vorbis audio stream, which can be displayed in browsers that support HTML5 video.

Windows Media Encoder

The Windows Media encoder creates ASF, WMV, and WMA files. It also supports the creation of IPV SpectreView-compatible files (available as a separate option from Telestream).

Note: To create video-only or an audio-only output, click the X (close) button on the stream you want to eliminate from the output. For example, close the Video Stream box to create audio-only media; close the Audio Stream box to create video-only media.

Containers

Vantage provides the following containers:

Containers

360 Maxx HD Container

3GP Container

Apple HTTP Live Streaming Multi-bitrate Container

ARD_ZDF_HDF AVC-I 100 MXF Container

ARD_ZDF_HDF XDCAM HD422 MXF Container

AS02 MXF Container

AS10 CNN MXF Container

AS10 French High HD MXF Container

AS10 JVC MXF Container

AS11 HD MXF Container

AS11 SD MXF Container

ASF Container

AVC Intra Container

AVI Container

Avid Interplay Single-Res and Multi-Res Containers

Avid AAF Interplay Container

Avid Liquid Container

Avid AAF Media Composer Container

Axio Container

BWF Container

DNxHD Container

DV Container

DV/DVCPRO Container

DVCPRO HD Container

Elementary Stream Container

EVS Container

F4A Container

F4V Container

Final Cut QuickTime Container

FLV Container

Generic OP1a MXF Container

Grass Valley MXF Container

GXF Container

Harris Nexio MXF Container

IMF MXF Container

IMX Container

IMX (D-10) MXF Container

IPTV Container

iPod Container

JPEG Container

LXF Container

M4V Container

Matrox AVI Container

MP4 Container

MXF AVC Proxy Container

MXF OP1a Program Telestream Container

MXF OP1a Telestream Container

M2A Container

M4V Configuration File Container

MP3 Container

MP4 Container

MSS Container

MXF Container

MXF AS10 NRK Container

IMF MXF Container

Omneon MXF Container

Omneon QuickTime Container

OMF Container

P2 MXF Container

Program Stream Container

QuickTime Movie Container

QuickTime (Telestream) File Container

RTL Container

SAF Container

SeaChange BML Container

SeaChange BMS/BMC Container

Smooth Streaming Container

Sony PSP Container

Sony XDCAM HD MXF Container

System Stream Container

TIFO Container

Transport Stream Container

Vortex Container

WAV Container

XDCAM HD 4:2:0 Container

XDCAM HD 4:2:2 Container

360 Maxx HD Container

The 360 Maxx HD container generates proprietary JPEG2000 format files that are compatible with 360 Maxx HD broadcast servers.

3GP Container

The 3GPP file format is designed for low-bitrate and low-cost transmission with high fault-tolerance. 3GPP is supported by GSM-based cell phones and mobile devices. GPP2 file format is very similar to 3GPP and is supported by CDMA-based cell phones.

Apple HTTP Live Streaming Multi-bitrate Container

Apple HTTP Live Stream Multi-bitrate (HLS) container generates adaptive bit-rate packages that are compatible with the Apple HLS format.

These consist of chunked transport stream files with H.264 video essence at multiple bit rates and AAC audio. The playlist files required for the HLS format are also generated.

MP4 Container

The M4V file format (ISO/IEC 14496-14) is similar to Apple QuickTime format, and generally contains H.264 or MPEG-4 video and AAC audio, compatible with the iPod.

MP4 (ISMA 1.0 Profile 0). When the MP4 (ISMA 1.0 Profile 0) container is selected, the video codec is limited to the MPEG-4 ISMA 1.0 Profile 0 setting.

MP4 (ISMA 1.0 Profile 01). When the MP4 (ISMA 1.0 Profile 1) container is selected, the video codec is limited to the MPEG-4 ISMA 1.0 Profile 1 setting.

M4V and MP4 file formats are synonymous, and are specified by ISO/IEC 144496-14. MP4 is the common extension for this file format, though the M4V extension indicates that the file is intended for iTunes and iPod.

General Settings

Extension. Specifies the extension for the output file: mp4 | m4v | m4a | m4r.

Fast Start. If the M4V file is generated by QuickTime, the Fast Start option may be available. Fast Start enables users to watch the movie as it's being downloaded (long before the whole movie has been downloaded) from a standard Web server, when using HTTP download. Fast Start is not used for real-time streaming servers.

Fast Start works well for short-form movies where file size is limited. It ensures high-quality playback regardless of the user's Internet connection speed, although those with slower connections will wait longer before media starts to play.

Optionally, bind this setting to a variable to enable or disable the option.

Streaming Mode. Turns streaming mode on or off.

ASF Container

The Advanced Systems Format (ASF) is the general specification used for WMV, WMA and ASF files. WMA files should contain only audio; WMV should contain video and may contain audio. ASF files can contain audio or video, or both.

Online Streaming. There are several considerations when using ASF in a streaming environment. First, if playback will allow users to rewind or jump between positions in the video, then indexing should be enabled.

Further, the ASF file structure allows you to specify the amount of video that should be downloaded before playback starts - this pre-charge time ensures that a constant bitrate can be maintained during playback. This is set using the Buffer Window setting in the video codec. Larger buffer windows mean that more video must be downloaded before it will start playing; this effectively delays the time between when the viewer selects play and when the video actually starts playing. However, larger buffer windows allow higher quality video encoding, particularly for high-motion sections of video.

Multiple Audio Streams. ASF supports multiple audio streams. A separate language identifier may be specified for each track by selecting it in the Audio Stream settings. On each stream, an audio channel mapping filter (to control which input channel goes to which stream) and an audio overlay filter (to replace incoming audio with an external WAV or AIFF file) may be used.

AVC Intra Container

The AVC Intra container wraps media generated by the AVC Intra intra-frame HD video codec. Originally defined by Panasonic, it is a fully-compliant subset of the H.264/AVC specification. AVC Intra 50 is 50Mbit/s with 4:2:0 chrominance sampling and a reduced horizontal resolution. AVC Intra 100 is 100Mbit/s with 4:2:2 chrominance sampling and full horizontal resolution.

AVI Container

The AVI file format wraps and interleaves video, and audio according to the specific output requirements specified in the included codecs.

Avid Interplay Single-Res and Multi-Res Containers

The Avid Interplay Single-Res and Multi-Res containers are designed to create Avid OP-Atom media files. When you choose the Single-Res container, all supported codecs including proxy codecs are available. When you choose the Multi-Res container, the high resolution and proxy file are created simultaneously.

Codecs are limited to AVC Intra 4:2:2, DNxHD, IMX, and XDCAM HD 4:2:2 and your proxy video settings are configured in the codec settings. The files are created in the specified shared storage and the media added as assets to the Avid Interplay.

All proxy video is produced with MPEG-1 Layer 2 audio automatically (max. 16 channels, 96 Kb/channel). For other codecs, the encoder produces PCM audio (max. 16 channels, 48 kHz).

General

Preserve Ancillary Data into SMPTE 436 Track. When checked, preserves ANC data as a SMPTE 436 track (not supported for proxy formats).

Update Interval. Specifies how often AAF is updated in Interplay, measured in frames.

Avid Interplay Web Services

WS Host. Specifies the host name or IP address of the server hosting the Web Service.

TCP Port. Specifies the listening TCP port. Default: 80.

Username/Password. Specifies the login credentials.

Asset Attributes

ASF Workgroup. Avid Service Framework Workgroup. This parameter is case sensitive and matches the workgroup name under Services, in the Avid Workgroup Properties window.

Interplay Folder. Interplay Database folder destination for the file associated with the codec selected.

Interplay Proxy Folder (Multi-Res only). Interplay Database folder destination for the proxy file associated with the proxy codec selected.

Update Interval. Specifies how often the AAF file is updated in Interplay, in frames (default: 600).

Master MOB ID. If left empty a Master MOB ID is generated internally.

Source MOB ID. If left empty a Source MOB ID is generated internally.

Tape. Enter the tape name to be added to this assets Interplay record.

Drop Frame Timecode Format. Check to set the Interplay asset as drop frame. Can be controlled by binding to a True/False variable.

Physical File Locations

Extension. AAF.

AAF File Location. UNC path to Avid Storage to which the AAF file will be written.

Proxy AAF File Location (Multi-Res only). UNC path to Avid Storage to which the AAF proxy file will be written.

MXF File Location. UNC path to Avid Storage to which the selected codec's MXF OPAtom media files will be written.

Proxy MXF File Location (Multi-Res only). UNC path to Avid Storage to which the proxy MXF OPAtom media files will be written.

Delete Avid AAF and XML Support Files. Check to cause the workflow to delete the AAF and XML support files after the media has been checked into Interplay.

Physical Directory Control

When Limit Files per Directory is selected, specify the maximum number of MXF files per directory. When the maximum is reached a new directory will be created with a numerical suffix (<dirname>.1, etc.), to store the next set of files.

Metadata

Adds metadata to the master asset (locators, user properties set in the Inspector, and from XML attachments). (Locator metadata can only be added after an asset contains at least one clip resolution).

Use the Metadata control to add Locators and User Properties from an XML file or as individual items.

Add Metadata from an XML document. If you want to add metadata from a file, click Browse and locate the file or enter the fully-qualified path manually. User Properties and Locators can be added through an XML file (see Example XML Metadata File, below).

Locator Timecodes are Relative to Source Start Time. When checked, specified timecodes will be added to the start timecode to position the locator. When unchecked (disabled), specified timecodes are treated as absolute values. If enabled, the incoming timecode values are considered relative and are added to the Source Start Time (Locator Time Code = Start Timecode + Incoming time code). If unchecked the incoming time codes are considered absolute time code values.

Insert Locators. Check to insert locators manually. Click Add New Item and configure the comment, color, timecode, and track. Each locator item contains Interplay Locator fields for adding Comments (can be bound to a variable), Color, Timecode (can be

bound to a variable) and Track (must be set to a valid Video or Audio track such as V1 or A1, can be bound to a variable) data.

Set User Properties. Check to set user properties manually. Click Add New Item and configure the name and value.

Each User Property item contains Interplay metadata fields for the Name (can be bound to a variable) of the property and for its Value (can be bound to a variable). If the Name of the Property does not currently exist in Interplay Vantage will create it before populating its value. The Name field is limited to 30 characters.

Set Headframe

Set Headframe. When checked, applies a head frame to the Interplay asset using an accessible UNC path to an image file. The Path can be set by a bound Path variable.

Example XML Metadata File

The XML for Avid User Property Metadata and Locators uses a simple structure. It consists of two Element types: <Entry> for adding Avid User Property data and <Locator> for adding Avid Locator data. Each Element has several attributes, used to supply data for the Entry or Locator element you are defining. Multiple Entry and Locator elements are permitted.

```
<?xml version="1.0" encoding="UTF-8"?>

<Metadata>

<Entry>

<Tag>Avid Property Name</Tag>

<Value>Data for this Property</Value>

</Entry>

<Locator>

<Label>Comment data for Locator</Label>

<Color>Color for this Locator</Color>

<Timecode>Time code value (relative or absolute) in hh:mm:ss:ff format</Timecode>

<Username>Login username for WS/Interplay Server</Username>

<Track>Set to a valid video or audio track. For example: V1 or A1</Track>

</Locator>

</Metadata>
```

Avid AAF Interplay Container

The Avid AAF Interplay container is designed for single- and multi-resolution Avid OP-Atom media files. The files are created in the specified shared storage and the media added as assets to the Avid Interplay database, via Avid Interplay Web Services.

General

Preserve Ancillary Data into SMPTE 436 track. Preserves SMPTE 436 ancillary data track (does not apply to proxy formats).

Update Interval. Specifies how often the AAF file is updated in Interplay, in frames (default: 600).

Avid Interplay Web Services

WS Host. Specifies the host name or IP address of the server hosting the Web Service.

TCP Port. Specifies the listening TCP port. Default: 80.

Username/Password. Specifies the login credentials.

Asset Attributes

ASF Workgroup. Avid Service Framework Workgroup. This parameter is case sensitive and matches the workgroup name under Services, in the Avid Workgroup Properties window.

Interplay Folder. Interplay Database folder destination for the file associated with the codec selected.

Master MOB ID. If left empty a Master MOB ID is generated internally.

Source MOB ID. If left empty a Source MOB ID is generated internally.

Tape. Enter the tape name to be added to this assets Interplay record.

Drop Frame Timecode Format. Check to set the Interplay asset as drop frame. Can be controlled by binding to a True/False variable.

Physical File Locations

When Limit Files per Directory is selected, specify the maximum number of MXF files per directory. When the maximum is reached a new directory will be created with a numerical suffix (<dirname>.1, etc.), to store the next set of files.

AAF File Location. UNC path to Avid Storage to which the AAF file will be written.

MXF File Location. UNC path to Avid Storage to which the selected codec's MXF OPAtom media files will be written.

Delete Avid AAF and XML Support Files. Check to cause the workflow to delete the AAF and XML support files after the media has been checked into Interplay.

Physical Directory Control

When Limit Files per Directory is selected, specify:

Max Number of files in MXF Directory. When the maximum is reached a new directory will be created with a numerical suffix (<dirname>.1, etc.), to store the next set of files.

Avid Liquid Container

The Avid Liquid container, a variant of the AVI container, is specifically compatible with Avid Liquid systems. In addition to creating an AVI file containing DV, a separate WAV file containing audio is created.

Avid AAF Media Composer Container

The Avid AAF Media Composer container is designed to create Avid OP-Atom media files. The files may be created locally and delivered to the Media Composer server via a Transport action.

General

Preserve Ancillary Data into SMPTE 436 track. Preserves SMPTE 436 ancillary data track (does not apply to proxy formats).

Asset Attributes

Master MOB ID. If left empty a Master MOB ID is generated internally.

Source MOB ID. If left empty a Source MOB ID is generated internally.

Tape. Enter the tape name to be added to this assets Interplay record.

Drop Frame Timecode Format. Check to set the Interplay asset as drop frame. Can be controlled by binding to a True/False variable.

Axio Container

The Axio DV-AVI format is a variant of AVI which is specifically compatible with systems that include Matrox AXIO-based video cards.

This container type creates three output files: (1) An AVI file that contains DV video, (2) A WAV file that contains audio, and (3) A CC.avi file which includes closed captioning information.

Note: If the source file containers fewer audio channels than are selected for output, then the input channels of audio are copied onto the missing output audio channels. If the input does not contain any audio channels, then the output audio file will not contain any audio by default. These default behaviors can be overridden by using the appropriate Audio filter to add blank audio channels.

BWF Container

The BWF file format is an extension of the Microsoft WAVE audio format. This file format allows the inclusion of metadata. This container supports RF64, a BWF-compatible file format enabling file sizes to exceed 4 GB.

DNxHD Container

The DNxHD container wraps video created by the Avid DNxHD codec, a lossy, high-definition video codec. It is codified as the SMPTE VC-3 standard.

DNxHD generally provides near-uncompressed video quality with significantly lower bitrate requirements than true uncompressed video.

DV Container

The DV file format is specified by the SMPTE 314M and IEC 61834 standards, and interleaves a DV video payload with uncompressed audio.

Note: If the source file containers fewer audio channels than are selected for output, then the input channels of audio are copied onto the missing output audio channels. If the input does not contain any audio channels, then the output audio file will not contain any audio by default. These default behaviors can be overridden by using the appropriate Audio filter to add blank audio channels.

DV/DVCPRO Container

Digital Video (DV) is a common editing and camera format. It is standardized within IEC 61834 and SMPTE 314M. DV is an I-frame codec, and is generally encoded at 25,000,000 bits per second.

DV is usually encoded lower-field first for both PAL and NTSC material.

In some cases, DV can support embedded audio and/or embedded captions. This behavior varies from container format to container format.

The primary difference between DV and DVCPRO is with PAL (625-line) encoding. With DV (IEC 61834), PAL material is color sub-sampled as 4:2:0, whereas with DVCPRO (SMPTE 314M), PAL material is color sub-sampled as 4:1:1.

For NTSC (525) encoding, both DV and DVCPRO use 4:1:1 color sub-sampling.

DVCPRO HD Container

The DVCPRO HD (also known as DV100 or DVCPRO100) container wraps DVCPRO HD video, an HD format encoded at 100Mbits/sec. It is defined by the SMPTE 390M standard.

DVCPRO HD is an I-frame-based codec which makes it particularly suited for editing. It is widely supported by most major editing systems.

Elementary Stream Container

Elementary Stream files contain a single video or audio stream. Audio or video is placed directly into a single file.

EVS Container

EVS file format is a proprietary MXF variant that is compatible with XT[1] and XT[2] servers. The MXF file generally contains video with uncompressed PCM audio. Additional metadata may include information about the sporting event, and timecode.

F4A Container

The Flash 9 (.F4A) container is an audio-only container format for Flash 9 media.

F4V Container

The Flash 9 (.F4V) container is a variant of the M4V format, and is commonly used as an input to a Flash SWF or EXE file. F4V and H.264 video are supported by Flash Player 9 Update 3, and later.

Final Cut QuickTime Container

The QuickTime file format for the Final Cut/ Avid QuickTime encoder is a multimedia container file format that includes one or more media tracks. Each media track can store a particular type of data - for transcoding, this is typically audio and video, though other tracks are also supported.

Timecode. Specify how timecode tracks display in the video: No Timecode Track | Timecode Track Hidden | Timecode Track Visible.

Enable Fast Start. Fast Start is a QuickTime feature that enables users to watch the movie as it's being downloaded (long before the whole movie has been downloaded) from a standard web server, when using HTTP download. Fast Start is not used for real-time streaming servers. Fast Start works well for short-form movies where file size is limited. It ensures high-quality playback regardless of the users' Internet connection speeds, though those with slower connections will wait longer before media starts to play.

Preserve Chapter Track. When checked, preserves the chapter track located in the source file.

Conform Aperture. Choose one of these options:

Disabled - When disabled, no clean aperture or pixel aspect ratio is applied to the output.

Classic - displays the image without applying either the pixel aspect ratio or the clean aperture. The image is displayed using the track header dimensions, meaning the decompressed picture is scaled into the track header dimensions if the encoded dimensions are different.

Clean Aperture - Both the clean aperture and the pixel aspect ratio are applied. The dimensions of the track become equal to the clean dimensions which are equal to the display dimensions (with conformed contents).

Production Aperture - Applies the pixel aspect ratio but not the clean aperture. The image is presented in the correct aspect ratio, but the extra pixels outside of the image that exists in the source material will be presented. The track dimensions are equal to the result of applying the pixel aspect ratio.

Encoded Pixels - The encoded pixels are displayed intact in this mode. Under this mode the track dimensions are equal to the encoded dimensions. No scaling or transformation takes place.

FLV Container

The Flash Video (FLV) file format is Adobe's generic video format. It is generally used as an input to a Flash SWF or EXE file, allowing those files to reference the video without pre-loading the entire video stream. FLV generally supports a broad range of video compression formats, including H.263, Flash 8 VP6, and H.264.

Generic OP1a MXF Container

Note: For each control, click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

General

Extension. Specifies the output file name extension: *mxf*. Not changeable.

Omneon Compatibility

Timecode Preservation in File Headers

Save as Start Timecode in File Header. When checked, specifies that the encoder preserves the timecode that is present in the input file and inserts it into the timecode track of the header in the output file.

Save as First Frame in File Header. When checked, specifies that the encoder preserves the timecode that is present in the input file and inserts it as a binary value into the first frame of the video in the video track in the output file.

For instance, if you were to select Save as Start Timecode, when viewing the timecode track of the file you would see that the timecode displays as the starting timecode in the timecode track.

If you select Save as First Frame, the starting timecode is the default (00:00:00:00), but the number assigned to the first frame of video in the video track (not the timecode track) is the binary representation of the preserved timecode as an integer.

Set AFD in File Headers

AFD. Specifies the AFD profile to be used in the output file.

AFD Ratio Flag. Specifies the value to insert in the AFD ratio flag: 0 = SD, 1 = HD.

Grass Valley MXF Container

Note: For each control, click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

General

Extension. Specifies the output file name extension: mxf. Not changeable.

Set Timecode in the GOP Header. When checked, specifies that the encoder inserts the timecode that is present in the input file into the header of the output file.

Omneon Compatibility

Timecode Preservation in File Headers

Save as Start Timecode in File Header. When checked, specifies that the encoder preserves the timecode that is present in the input file and inserts it into the header of the output file.

Save as First Frame in File Header. When checked, specifies that the encoder preserves the timecode that is present in the input file and inserts it as a binary value into the first frame of the video in the video track in the output file.

For instance, if you were to select Save as Start Timecode, when viewing the timecode track of the file you would see that the timecode displays as the starting timecode in the timecode track.

If you select Save as First Frame, the starting timecode is the default (00:00:00:00), but the number assigned to the first frame of video in the video track (not the timecode track) is the binary representation of the preserved timecode as an integer.

Set AFD in File Headers

AFD. Specifies the AFD profile to be used in the output file.

AFD Ratio Flag. Specifies the value to insert in the AFD ratio flag: 0 = SD, 1 = HD.

GXF Container

The Grass Valley GXF container is designed for use on Grass Valley Profile and K2 server products. This file format wraps and interleaves video, audio, and certain types of metadata streams.

For SD MPEG-2 material, captions and VITC timecode may be stored as an uncompressed VBI data stream within the GXF file.

For HD material, VANC can be stored in a data stream.

A timecode track can be created in the UMF header. Display aspect ratio information can also be stored in the UMF header.

The GXF format can also store Start Of Material and End Of Material (SOM/EOM) marker timecodes within the file format. Further, for Encoda and Crispin automation systems, the House ID and additional spot information can be stored as part of the user data in the UMF header; this allows automation systems to collect this information after the file is placed upon a Grass Valley server.

Note: If the source file containers fewer audio channels than are selected for output, then the input channels of audio are copied onto the missing output audio channels. If the input does not contain any audio channels, then the output audio file will not contain any audio by default. These default behaviors can be overridden by using the appropriate Audio filter to add blank audio channels.

Harris Nexio MXF Container

Note: For each control, click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

General

Extension. Specifies the output file name extension: mxf. Not changeable.

Set Timecode in the GOP Header. When checked, specifies that the encoder inserts the timecode that is present in the input file into the header of the output file.

Omneon Compatibility

Timecode Preservation in File Headers

Save as Start Timecode in File Header. When checked, specifies that the encoder preserves the timecode that is present in the input file and inserts it into the header of the output file.

Save as First Frame in File Header. When checked, specifies that the encoder preserves the timecode that is present in the input file and inserts it as a binary value into the first frame of the video in the video track in the output file.

For instance, if you were to select Save as Start Timecode, when viewing the timecode track of the file you would see that the timecode displays as the starting timecode in the timecode track.

If you select Save as First Frame, the starting timecode is the default (00:00:00:00), but the number assigned to the first frame of video in the video track (not the timecode track) is the binary representation of the preserved timecode as an integer.

Set AFD in File Headers

AFD. Specifies the AFD profile to be used in the output file.

AFD Ratio Flag. Specifies the value to insert in the AFD ratio flag: 0 = SD, 1 = HD.

IMX Container

The IMX container wraps D-10 (also known as IMX) MPEG-2 4:2:2 I-frame only video, with specific bitrates. It is specified by SMPTE 356M. It is supported natively by a wide range of editing systems.

Typically IMX is encoded at 30, 40 or 50 Mb/sec., and is used for SD material (particularly NTSC or PAL). Higher bitrates generally have higher quality.

IMX (D-10) MXF Container

The IMX (D-10) MXF container produces files of MPEG-2 4:2:2 I-frame-only video, at certain bit rates that comply with the SMPTE 356M standard. IMX is commonly used with Sony eVTR and XDCAM products.

You can optionally store the timecode in the header, and set various options for Omneon compatibility.

Note: For each control, click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

General

Extension. Specifies the output file name extension: mxf. Not changeable.

Set Timecode in the GOP Header. When checked, specifies that the encoder inserts the timecode that is present in the input file into the header of the output file.

Omneon Compatibility

Timecode Preservation in File Headers

Save as Start Timecode in File Header. When checked, specifies that the encoder preserves the timecode that is present in the input file and inserts it into the header of the output file.

Save as First Frame in File Header. When checked, specifies that the encoder preserves the timecode that is present in the input file and inserts it as a binary value into the first frame of the video in the video track in the output file.

For instance, if you were to select Save as Start Timecode, when viewing the timecode track of the file you would see that the timecode displays as the starting timecode in the timecode track.

If you select Save as First Frame, the starting timecode is the default (00:00:00:00), but the number assigned to the first frame of video in the video track (not the timecode track) is the binary representation of the preserved timecode as an integer.

Set AFD in File Headers

AFD. Specifies the AFD profile to be used in the output file.

AFD Ratio Flag. Specifies the value to insert in the AFD ratio flag: 0 = SD, 1 = HD.

IPTV Container

The IPTV Transport Stream encoder multiplexes H264 Video and various types of audio and synchronizes IPTV-compliant output.

The IPTV Transport Stream encoder supports a single program in each transport stream file. Both Standard Definition and High Definition resolutions of H264 video (Main Profile and High Profile) are supported. In addition, you can create custom H264 codec settings via the MainConcept CFG File Generator and save the CFG file for use when transcoding media. This configurator is installed as part of the Transcode Service, and can be found in the Program directory under \Transcode\Bin.

Supported audio formats include AAC, Dolby 5.1/AC-3, and MPEG-1 Layer 2. The encoder allows multiple streams of different types of audio in a single product. This encoder supports an audio direct convert option in each codec, and supports H264 direct convert.

iPod Container

The iPod container produces MPEG-4 (m4v) media with H.264 and AAC audio, compatible with the Apple iPod.

General Settings

Extension. Specifies the output file name extension for the output file: mp4 | m4v | m4a | m4r.

Fast Start. If the M4V file is generated by QuickTime, the Fast Start option may be available. Fast Start enables users to watch the movie as it's being downloaded (long before the whole movie has been downloaded) from a standard web server, when using HTTP download. Fast Start is not used for real-time streaming servers.

Fast Start works well for short-form movies where file size is limited. It ensures high-quality playback regardless of the users' Internet connection speeds, though those with slower connections will wait longer before media starts to play.

Optionally, bind this setting to a variable to enable or disable the option.

Streaming Mode. You can turn streaming mode on or off.

JPEG Container

The JPEG format compresses still images into JPEG files.

JPEG is the most common image compression format in the world. It is a lossy format, meaning that information about the original image is lost during compression. One key feature of JPEG is the ability to choose a quality setting, where higher quality results in a larger file, and lower quality results in a smaller file.

LXF Container

The Harris LXF format is used by Harris WAN Streamer and Nexio video servers, and interleaves video, audio, and metadata into a single file.

For SD MPEG-2 material, captions and VITC timecode may be stored as an uncompressed VBI data stream within the LXF file. For HD material, VANC can be stored in a data stream.

Timecode can be preserved from the source file in the LXF header.

LXF Header Types. LXF supports two header types - version 0 and version 1. Version 1 was adopted for all server products in 2006, and is require for HD 720p formats. The change was made to accommodate new metadata in the LXF structure for interoperability with other Harris product lines, as well as provide additional space for new features and future usage.

Nexio servers upgraded during or after 2007 can support either Version 1 or 0 headers.

All LXF exports from NX4200HDX, NX3600HDX (32-bit), NX3600HDX (64-bit), NX3601HDX, NX1000MGX (gateway server) are in LXF v1.0 format. For imports, the servers will accept a file in LXF v0 or LXF v1 format, and fill in the appropriate metadata fields provided. If a v0 file is uploaded to a Nexio and then re-exported, the re-exported file will be V1-compliant.

The previous generation NX4000TXS SD-only server and NX2000GS (gateway server) have the capability of both LXF v0 and v1 depending on the software build installed. V1 files are only accepted for upload to the Nexio if newer software is present. The NX2000GS can be upgraded to the latest software at any time. It can use the 32-bit build of the same version that is shipping on our 64-bit NX3601HDX and NX1000MGX/ NX1010MGX platforms; and therefore is 100% compatible with the newest headers.

Specific fields will never be filled out or used by the TXS; for example those fields regarding aspect-ratio conversion, HD fields, and other fields which have no meaning on the older model servers.

The LXF header can be used to store Agency and Title information for spots.

Linked Files. Part of the LXF metadata includes a LINK field which allows two files on the Harris server to be linked together for synchronized playback. A typical use of the linking capability is to link two files, one which contains color information, and one which is used for transparency (keying) information. This enables the server to play overlay material.

The LXF encoder supports the linking of two files as follows:

Use the Remove and Add Letters options to customize the contents of the field, using the output filename as a starting point. For example, if the current product is creating the file *OUTPUT1M.lxf*, the default settings remove one character from the end of the filename and then add the letter *A*. The resulting link field is populated with *OUTPUT1A*.

Note: The LINK field does not write extensions.

To implement the workflow as described above linking a color video file with a key video file, follow these steps:

Step 1. Create a new workflow.

Step 2. Add a watch action and configure it for a specific target folder.

Step 3. Add an encode action to the watch action, which uses the Color Remap filter with default settings, the Harris LXF output container, and sets the link field to remove 0 characters and add the letter *A*.

Step 4. Add a second encode action to the watch action, which uses the Color Remap filter setting all fields to A (so, Red = A, Green =A, etc.), the Harris output product with Append to Filename set to *A*, and sets the link field to remove 1 character.

Step 5. Add a copy action on both encode actions to place the output in a specific target folder. Or, look for the files in the default Vantage store.

Submitting a file to this workflow that has alpha - for example, input *INPUT.mpg* - will result in two files:

INPUT.lxf. This file contains color information and has the link field set to *INPUTA*.

INPUTA.lxf. This file contains alpha information and has the link field set to *INPUT*.

Interlacing. For the LXF file format, all MPEG-2 is encoded as upper-field first; the only exception is for HD 720p which is encoded as progressive frames.

Audio. If the source file containers fewer audio channels than are selected for output, then the input channels of audio are copied onto the missing output audio channels. If the input does not contain any audio channels, then the output audio file will not contain any audio by default. These default behaviors can be overridden by using the appropriate Audio filter to add blank audio channels.

M4V Container

The M4V file format generally contains H.264 and AAC audio, and is compatible with the iPod.

M4V and MP4 file formats are synonymous, and are specified by ISO/IEC 144496-14. MP4 is the common extension for this file format, though the M4V extension indicates that the file is intended for iTunes and iPod.

If the M4V file is generated by QuickTime, the Fast Start option may be available. Fast Start is a QuickTime feature that enables users to watch the movie as it's being downloaded (long before the whole movie has been downloaded) from a standard web server, when using HTTP download. Fast Start is not used for real-time streaming servers.

Fast Start works well for short-form movies where file size is limited. It ensures high-quality playback regardless of the users' Internet connection speeds, though those with slower connections will wait longer before media starts to play.

Matrox AVI Container

The Matrox AVI container, a variant of the AVI container, is compatible with various Matrox editing systems. In addition to an AVI file containing DV or MPEG-2, between one and four WAV files, and optionally a metadata clip file, will be created.

MXF AVC Proxy Container

The MXF AVC container produces a file with the MXF Application Profile for H.264 Long GOP proxies with AAC audio. The file extension is MXF and there are no user-configurable settings.

MXF OP1a Program Telestream Container

Note: For each control, click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

General

Extension. Specifies the output file name extension: mxf. Not changeable.

Source Timecode

Specifies how to set the timecode in the output file.

Preserve Source Timecode. The encoder preserves the incoming timecode and writes it into the output MXF file. The timecode is provided in the timecode label from supported decoders when the Publish Timecode Label option is checked. If there is no label, the timecode is set to 00:00:00.

Do Not Preserve Source Timecode. The encoder sets the timecode to 00:00:00 in the output file.

Override Source Timecode. The encoder sets the timecode in the output file to the value specified in the Start Timecode field.

Start Timecode. When Override Source Timecode is specified, enter the starting timecode and frame rate in this field.

MXF OP1a Telestream Container

Note: For each control, click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

General

Extension. Specifies the output file name extension: mxf. Not changeable.

Source Timecode

Specifies how to set the timecode in the output file.

Preserve Source Timecode. The encoder preserves the incoming timecode and writes it into the output MXF file. The timecode is provided in the timecode label from supported decoders when the Publish Timecode Label option is checked. If there is no label, the timecode is set to 00:00:00.

Do Not Preserve Source Timecode. The encoder sets the timecode to 00:00:00 in the output file.

Override Source Timecode. The encoder sets the timecode in the output file to the value specified in the Start Timecode field.

Start Timecode. When Override Source Timecode is specified, enter the starting timecode and frame rate in this field.

Partition Strategy

Specifies how to partition the output file.

Automatic: When you select *Automatic*, .

Place Essence Container and Index Table in Header Partition + Index Leads Essence + RIP: When you select *Place Essence Container and Index Table in Header Partition + Index Leads Essence + RIP*

Preserve Source Timecode. The encoder preserves the incoming timecode and writes it into the output MXF file. The timecode is provided in the timecode label from supported decoders when the Publish Timecode Label option is checked. If there is no label, the timecode is set to 00:00:00.

Partition Duration

Specifies how to set partitions.

Partition Duration. When checked, specifies the duration time, in seconds.

M2A Container

The M2A container produces a raw MPEG-1 Layer 2 audio stream with no container to a file with an m2a extension.

M4V Configuration File Container

The M4V Configuration File container supports H.264, and enables you to configure the MainConcept H.264 codec externally, using the MainConcept desktop interface utility supplied by Telestream.

MP3 Container

MPEG-1 Audio Layer-3 format is a digital audio encoding format detailed in ISO/IEC 11172-1. It is one of the most broadly-utilized standards for audio distribution via the Internet.

The MP3 format can contain MPEG-1 Layer 3, MPEG-2 Layer 3, or MPEG-2.5 Layer 3 audio. Each offers different bitrate and sample rate settings. MPEG-2.5 is automatically selected as appropriate when encoding to MPEG-2 Layer 3.

MP4 Container

The MP4 file format (ISO/IEC 14496-14) is similar to Apple QuickTime format, and generally contains H.264 or MPEG-4 video and AAC audio.

M4V and MP4 file formats are synonymous, and are specified by ISO/IEC 144496-14. MP4 is the common extension for this file format.

There are no user-configurable settings.

MSS Container

The MSS container generates MPEG-2 video (ISO/IEC 13818-2) and MPEG-1 Layer 2 audio (ISO/IEC 11172-3). The MPEG-2 Program Stream encoder can also operate in a re-wrapping mode termed *Direct Convert*. When used in Direct Convert mode, the video (and possibly the audio) is only re-wrapped by the encoder. That is, no decoding and encoding of the media essence is performed.

MXF Container

Material eXchange Format (MXF) is a file format standardized by SMPTE and with varying levels of vendor support. Vantage supports several variants of MXF specifically targeted for - and tested with - different vendor devices. Further, generic OP-1a MXF is available supporting SMPTE 378M, which is also compatible with a number of specific vendor devices.

Depending upon the desired operating pattern, MXF support may require the use of actions (in addition to encode) in the workflow to translate metadata or to create packages that include MXF files.

ARD_ZDF_HDF AVC-I 100 MXF Container

Material eXchange Format (MXF) is a professional media file format for program material standardized by SMPTE and with varying levels of vendor support within the complete media production chain. Vantage supports several variants of MXF specifically targeted for - and tested with - different vendor devices.

This container is implemented specifically to support ARD and ZDF MXF profiles. ARD ZDF profiles include XDCAM (HD MPEG-2 422) HD 422 and AVC-I 100 media. This container supports AVC-I 100.

Depending upon the desired operating pattern, MXF support may require the use of actions (in addition to encode) in the workflow to translate metadata or to create packages that include MXF files.

General

Extension. mxf (can not be changed).

Source Timecode

The source file timecode may be presented to the encoder via a Timecode label. The Timecode label can be auto-generated by the QuickTime, Telestream and MXF decoders by checking the Publish Timecode Label setting in these decoders. If you are not decoding the input file with one of these encoders, you can add an Analysis action (license required) upstream to extract the timecode into a variable and then select the variable using the Override Source Timecode option (see below).

Source Timecode. Select from these choices:

Preserve Source Timecode. The encoder transfers the source timecode passed into the output media from the Timecode label, if present. If there is no Timecode label, the timecode is set to 00:00:00:00. Timecode labels can be generated directly from the MXF, QuickTime, and Telestream decoders in this action. An Analysis action can also be used to extract the input file timecode and present it in a variable using the Override Source Timecode option described below.

Do Not Preserve Source Timecode. Specifies timecode 00:00:00:00, regardless of the timecode in the Timecode label, if present.

Override Source Timecode. Specifies a specific starting timecode for the transcoded output file. May be a static timecode or a dynamically-assigned timecode from a variable, which you supply from an upstream action.

However, ARD ZDF MXF encoding only supports 25fps, non-drop frame. The frame rate selection does not change the 25fps frame rate.

ARD_ZDF_HDF XDCAM HD422 MXF Container

Material eXchange Format (MXF) is a professional media file format for program material standardized by SMPTE and with varying levels of vendor support within the complete media production chain. Vantage supports several variants of MXF specifically targeted for - and tested with - different vendor devices.

This container is implemented specifically to support ARD and ZDF MXF profiles. ARD ZDF profiles include XDCAM (HD MPEG-2 422) HD 422 and AVC-I 100 media. This container supports XDCAM HD 422.

Depending upon the desired operating pattern, MXF support may require the use of actions (in addition to encode) in the workflow to translate metadata or to create packages that include MXF files.

General

Extension. mxf (can not be changed).

Source Timecode

The source file timecode may be presented to the encoder via a Timecode label. The Timecode label can be auto-generated by the QuickTime, Telestream and MXF decoders by checking the Publish Timecode Label setting in these decoders. If you are not decoding the input file with one of these encoders, you can add an Analysis action (license required) upstream to extract the timecode into a variable and then select the variable using the Override Source Timecode option (see below).

Source Timecode. Select from these choices:

Preserve Source Timecode. The encoder transfers the source timecode passed into the output media from the Timecode label, if present. If there is no Timecode label, the timecode is set to 00:00:00:00. Timecode labels can be generated directly from the MXF, QuickTime, and Telestream decoders in this action. An Analysis action can also be used to extract the input file timecode and present it in a variable using the Override Source Timecode option described below.

Do Not Preserve Source Timecode. Specifies timecode 00:00:00:00, regardless of the timecode in the Timecode label, if present.

Override Source Timecode. Specifies a specific starting timecode for the transcoded output file. May be a static timecode or a dynamically-assigned timecode from a variable, which you supply from an upstream action.

However, ARD ZDF MXF encoding only supports 25fps, non-drop frame. The frame rate selection does not change the 25fps frame rate.

AS02 MXF Container

Material eXchange Format (MXF) is a file format standardized by SMPTE and with varying levels of vendor support. Vantage supports several variants of MXF specifically targeted for - and tested with - different vendor devices. Further, generic OP-1a MXF is available supporting SMPTE 378M, which is also compatible with a number of specific vendor devices.

The AS02 container is implemented specifically to support the AS02 specification - its constraints and operational rules.

Depending upon the desired operating pattern, MXF support may require the use of actions (in addition to encode) in the workflow to translate metadata or to create packages that include MXF files.

General

Extension. mxf (can not be changed).

Create SMPTE 436 Ancillary Data Track. When checked, an ANC track for SMPTE 436 data is added to the output.

Source Timecode

The source file timecode may be presented to the encoder via a Timecode label. The Timecode label can be auto-generated by the QuickTime, Telestream and MXF decoders by checking the Publish Timecode Label setting in these decoders. If you are not decoding the input file with one of these encoders, you can add an Analysis action (license required) upstream to extract the timecode into a variable and then select the variable using the Override Source Timecode option (see below).

Source Timecode. Select from these choices:

Preserve Source Timecode. The encoder transfers the source timecode passed into the output media from the Timecode label, if present. If there is no Timecode label, the timecode is set to 00:00:00:00. Timecode labels can be generated directly from the MXF, QuickTime, and Telestream decoders in this action. An Analysis action can also be used to extract the input file timecode and present it in a variable using the Override Source Timecode option described below.

Do Not Preserve Source Timecode. Specifies timecode 00:00:00:00, regardless of the timecode in the Timecode label, if present.

Override Source Timecode. Specifies a specific starting timecode for the transcoded output file. May be a static timecode or a dynamically-assigned timecode from a variable, which you supply from an upstream action.

AS10 CNN MXF Container

Material eXchange Format (MXF) is a file format standardized by SMPTE and with varying levels of vendor support. Vantage supports several variants of MXF specifically targeted for - and tested with - different vendor devices. Further, generic OP-1a MXF is available supporting SMPTE 378M, which is also compatible with a number of specific vendor devices.

The AS10 container is implemented specifically to support the Production AS-10 constraints for use in CNN media workflows.

Depending upon the desired operating pattern, MXF support may require the use of actions (in addition to encode) in the workflow to translate metadata or to create packages that include MXF files.

General

Extension. mxf (can not be changed).

Metadata. Specifies values for CNN-specific metadata fields.

Source Timecode

The source file timecode may be presented to the encoder via a Timecode label. The Timecode label can be auto-generated by the QuickTime, Telestream and MXF decoders by checking the Publish Timecode Label setting in these decoders. If you are not decoding the input file with one of these encoders, you can add an Analysis action (license required) upstream to extract the timecode into a variable and then select the variable using the Override Source Timecode option (see below).

Source Timecode. Select from these choices:

Preserve Source Timecode. The encoder transfers the source timecode passed into the output media from the Timecode label, if present. If there is no Timecode label, the timecode is set to 00:00:00:00. Timecode labels can be generated directly from the MXF, QuickTime, and Telestream decoders in this action. An Analysis action can also be used to extract the input file timecode and present it in a variable using the Override Source Timecode option described below.

Do Not Preserve Source Timecode. Specifies timecode 00:00:00:00, regardless of the timecode in the Timecode label, if present.

Override Source Timecode. Specifies a specific starting timecode for the transcoded output file. May be a static timecode or a dynamically-assigned timecode from a variable, which you supply from an upstream action.

AS10 French High HD MXF Container

Material eXchange Format (MXF) is a file format standardized by SMPTE and with varying levels of vendor support. Vantage supports several variants of MXF specifically targeted for - and tested with - different vendor devices. Further, generic OP-1a MXF is available supporting SMPTE 378M, which is also compatible with a number of specific vendor devices.

The AS10 container is implemented specifically to support the Production AS-10 constraints for use in French High HD MXF media workflows.

Depending upon the desired operating pattern, MXF support may require the use of actions (in addition to encode) in the workflow to translate metadata or to create packages that include MXF files.

General

Extension. mxf (can not be changed).

Metadata. Specifies values for French High HD MXF-specific metadata fields.

Source Timecode

The source file timecode may be presented to the encoder via a Timecode label. The Timecode label can be auto-generated by the QuickTime, Telestream and MXF decoders by checking the Publish Timecode Label setting in these decoders. If you are not decoding the input file with one of these encoders, you can add an Analysis action (license required) upstream to extract the timecode into a variable and then select the variable using the Override Source Timecode option (see below).

Source Timecode. Select from these choices:

Preserve Source Timecode. The encoder transfers the source timecode passed into the output media from the Timecode label, if present. If there is no Timecode label, the timecode is set to 00:00:00:00. Timecode labels can be generated directly from the MXF, QuickTime, and Telestream decoders in this action. An Analysis action can also be used to extract the input file timecode and present it in a variable using the Override Source Timecode option described below.

Do Not Preserve Source Timecode. Specifies timecode 00:00:00:00, regardless of the timecode in the Timecode label, if present.

Override Source Timecode. Specifies a specific starting timecode for the transcoded output file. May be a static timecode or a dynamically-assigned timecode from a variable, which you supply from an upstream action.

AS10 JVC MXF Container

Material eXchange Format (MXF) is a file format standardized by SMPTE and with varying levels of vendor support. Vantage supports several variants of MXF specifically targeted for - and tested with - different vendor devices. Further, generic OP-1a MXF is available supporting SMPTE 378M, which is also compatible with a number of specific vendor devices.

The AS10 container is implemented specifically to support the Production AS-10 constraints for use in JVC media workflows.

Depending upon the desired operating pattern, MXF support may require the use of actions (in addition to encode) in the workflow to translate metadata or to create packages that include MXF files.

General

Extension. mxf (can not be changed).

Metadata. Specifies values for JVC-specific metadata fields.

Source Timecode

The source file timecode may be presented to the encoder via a Timecode label. The Timecode label can be auto-generated by the QuickTime, Telestream and MXF decoders by checking the Publish Timecode Label setting in these decoders. If you are not decoding the input file with one of these encoders, you can add an Analysis action (license required) upstream to extract the timecode into a variable and then select the variable using the Override Source Timecode option (see below).

Source Timecode. Select from these choices:

Preserve Source Timecode. The encoder transfers the source timecode passed into the output media from the Timecode label, if present. If there is no Timecode label, the timecode is set to 00:00:00:00. Timecode labels can be generated directly from the MXF, QuickTime, and Telestream decoders in this action. An Analysis action can also be used to extract the input file timecode and present it in a variable using the Override Source Timecode option described below.

Do Not Preserve Source Timecode. Specifies timecode 00:00:00:00, regardless of the timecode in the Timecode label, if present.

Override Source Timecode. Specifies a specific starting timecode for the transcoded output file. May be a static timecode or a dynamically-assigned timecode from a variable, which you supply from an upstream action.

MXF AS10 NRK Container

Material eXchange Format (MXF) is a file format standardized by SMPTE and with varying levels of vendor support. Vantage supports several variants of MXF specifically targeted for - and tested with - different vendor devices. Further, generic OP-1a MXF is available supporting SMPTE 378M, which is also compatible with a number of specific vendor devices.

The AS10 container is implemented specifically to support the Production AS-10 constraints for use in NRK media workflows.

Depending upon the desired operating pattern, MXF support may require the use of actions (in addition to encode) in the workflow to translate metadata or to create packages that include MXF files.

General

Extension. mxf (can not be changed).

Metadata. Specifies values for NRK-specific metadata fields.

Source Timecode

The source file timecode may be presented to the encoder via a Timecode label. The Timecode label can be auto-generated by the QuickTime, Telestream and MXF decoders by checking the Publish Timecode Label setting in these decoders. If you are not decoding the input file with one of these encoders, you can add an Analysis action (license required) upstream to extract the timecode into a variable and then select the variable using the Override Source Timecode option (see below).

Source Timecode. Select from these choices:

Preserve Source Timecode. The encoder transfers the source timecode passed into the output media from the Timecode label, if present. If there is no Timecode label, the timecode is set to 00:00:00:00. Timecode labels can be generated directly from the MXF, QuickTime, and Telestream decoders in this action. An Analysis action can also be used to extract the input file timecode and present it in a variable using the Override Source Timecode option described below.

Do Not Preserve Source Timecode. Specifies timecode 00:00:00:00, regardless of the timecode in the Timecode label, if present.

Override Source Timecode. Specifies a specific starting timecode for the transcoded output file. May be a static timecode or a dynamically-assigned timecode from a variable, which you supply from an upstream action.

AS11 HD MXF Container

Material eXchange Format (MXF) is a file format standardized by SMPTE and with varying levels of vendor support. Vantage supports several variants of MXF specifically targeted for - and tested with - different vendor devices. Further, generic OP-1a MXF is available supporting SMPTE 378M, which is also compatible with a number of specific vendor devices.

The AS11 container is implemented specifically to support the Program Contribution AS-11 constraints for use in HD media workflows.

Depending upon the desired operating pattern, MXF support may require the use of actions (in addition to encode) in the workflow to translate metadata or to create packages that include MXF files.

General

Extension. mxf (can not be changed).

Metadata File. Specifies the fully-qualified path to the metadata file.

Create SMPTE 436 Ancillary Data Track. When checked, an ANC track for SMPTE 436 data is added to the output.

Source Timecode

The source file timecode may be presented to the encoder via a Timecode label. The Timecode label can be auto-generated by the QuickTime, Telestream and MXF decoders by checking the Publish Timecode Label setting in these decoders. If you are not decoding the input file with one of these encoders, you can add an Analysis action (license required) upstream to extract the timecode into a variable and then select the variable using the Override Source Timecode option (see below).

Source Timecode. Select from these choices:

Preserve Source Timecode. The encoder transfers the source timecode passed into the output media from the Timecode label, if present. If there is no Timecode label, the timecode is set to 00:00:00:00. Timecode labels can be generated directly from the MXF, QuickTime, and Telestream decoders in this action. An Analysis action can also be used to extract the input file timecode and present it in a variable using the Override Source Timecode option described below.

Do Not Preserve Source Timecode. Specifies timecode 00:00:00:00, regardless of the timecode in the Timecode label, if present.

Override Source Timecode. Specifies a specific starting timecode for the transcoded output file. May be a static timecode or a dynamically-assigned timecode from a variable, which you supply from an upstream action.

AS11 SD MXF Container

Material eXchange Format (MXF) is a file format standardized by SMPTE and with varying levels of vendor support. Vantage supports several variants of MXF specifically targeted for - and tested with - different vendor devices. Further, generic OP-1a MXF is available supporting SMPTE 378M, which is also compatible with a number of specific vendor devices.

The AS11 container is implemented specifically to support the Program Contribution AS-11 constraints for use in SD media workflows.

Depending upon the desired operating pattern, MXF support may require the use of actions (in addition to encode) in the workflow to translate metadata or to create packages that include MXF files.

General

Extension. mxf (can not be changed).

Metadata File. Specifies the fully-qualified path to the metadata file.

Create SMPTE 436 Ancillary Data Track. When checked, an ANC track for SMPTE 436 data is added to the output.

Source Timecode

The source file timecode may be presented to the encoder via a Timecode label. The Timecode label can be auto-generated by the QuickTime, Telestream and MXF decoders by checking the Publish Timecode Label setting in these decoders. If you are not decoding the input file with one of these encoders, you can add an Analysis action (license required) upstream to extract the timecode into a variable and then select the variable using the Override Source Timecode option (see below).

Source Timecode. Select from these choices:

Preserve Source Timecode. The encoder transfers the source timecode passed into the output media from the Timecode label, if present. If there is no Timecode label, the timecode is set to 00:00:00:00. Timecode labels can be generated directly from the MXF, QuickTime, and Telestream decoders in this action. An Analysis action can also be used to extract the input file timecode and present it in a variable using the Override Source Timecode option described below.

Do Not Preserve Source Timecode. Specifies timecode 00:00:00:00, regardless of the timecode in the Timecode label, if present.

Override Source Timecode. Specifies a specific starting timecode for the transcoded output file. May be a static timecode or a dynamically-assigned timecode from a variable, which you supply from an upstream action.

IMF MXF Container

Material eXchange Format (MXF) is a file format standardized by SMPTE and with varying levels of vendor support. Vantage supports several variants of MXF specifically targeted for - and tested with - different vendor devices. Further, generic OP-1a MXF is available supporting SMPTE 378M, which is also compatible with a number of specific vendor devices.

IMF is the Interoperable Master Format, specified in SMPTE standard ST 2067. MXF IMF containers generate a file compatible with the SMPTE ST 2067 standard. The IMF container is implemented specifically to support the Interoperable Master Format constraints, typically for use in post-production media workflows.

Depending upon the desired operating pattern, MXF support may require the use of actions (in addition to encode) in the workflow to translate metadata or to create packages that include MXF files.

Conform to Frame Boundary. Check to truncate track durations written to the CPL. This ensures that tracks align on a five-frame boundary.

Omneon MXF Container

The Omneon MXF container creates MXF file that are compatible with Omneon systems.

Omneon QuickTime Container

The Omneon QuickTime container creates QuickTime files by packaging the underlying media for use on Omneon systems.

OMF Container

OMF (Open Media Framework) is a platform-independent file format intended to facilitate the interchange of digital media, and is used primarily on Avid editing systems.

P2 MXF Container

The P2 MXF container creates files that contain AVC Intra, DV, or DVCPRO video streams and up to 8 channels of PCM audio.

Program Stream Container

The MPEG-2 Program Stream container is specified by ISO/IEC 13818 Part 1. It is designed for relatively reliable transmission methods or storage media, where the loss of data is unlikely.

The Program Stream container may support dual-stereo audio. If so, two audio streams with stream IDs: C0 and C1 are placed in the MPEG-2 Program Stream file. Otherwise, a single audio stream with stream ID: C0 is placed in the file.

Extension. Specifies the output file name extension: mpg | m2v | mpg2.

Captions. Specifies caption options: Do not add captions | ATSC | DiviCom | ATSC/DTV 9600 bits/sec.

QuickTime Movie Container

The QuickTime file format is a multimedia container file format that includes one or more media tracks. Each media track can store a particular type of data - for transcoding, this is typically audio and video, though other tracks are also supported.

Timecode. QuickTime allows a timecode track which can optionally be set to display over the media. Select one of the options.

Enable Fast Start. Enable Fast Start enables users to watch the movie as it's being downloaded (long before the whole movie has been downloaded) from a standard web server, when using HTTP download. Fast Start is not used for real-time streaming servers. Fast Start works well for short-form movies where file size is limited. It ensures high-quality playback regardless of the users' Internet connection speeds, though those with slower connections will wait longer before media starts to play.

A/V Duration Synchronization. Because the timing of each QuickTime track may be different, it may be necessary to adjust the original audio or video to ensure synchronization of the output media. Without this synchronization, white frames may appear at the end of the output media file. The difference in time may be significant - for example, the QDesign codec generally requires a full half-second of silent samples to indicate the end of the audio stream.

The transcode options generally include the ability to either repeat the last frame of video as necessary to match the audio, or alternatively flush the last audio frame to ensure synchronization.

QuickTime (Telestream) File Container

The QuickTime file format is a multimedia container file format that includes one or more media tracks. Each media track can store a particular type of data - for transcoding, this is typically audio and video, though other tracks are also supported.

M4V and QuickTime file formats are synonymous, and are specified by ISO/IEC 144496-14. The mov file extension is the common extension for this file format.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value on a job-by-job basis. The variable must have a value when this action executes. You can assign the value in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one.

General

Extension. Specifies mov. Not changeable.

Timecode. QuickTime permits a timecode track which can optionally be set to display over the media. Select an option to specify how timecode tracks display in the media.

Timecode Title. Specifies the string to assign to the QuickTime Timecode Title.

Enable Fast Start. Fast Start is a QuickTime feature that enables users to watch the movie as it's being downloaded (long before the whole movie has been downloaded) from a standard web server, when using HTTP download. Fast Start is not used for real-time streaming servers. Fast Start works well for short-form movies where file size is limited. It ensures high-quality playback regardless of the users' Internet connection speeds, though those with slower connections will wait longer before media starts to play.

Header Compression. Compresses QuickTime header information to improve playback responsiveness when downloading the file.

Insert 608 Closed Caption Track. Check to include a 608 caption track.

Insert 708 Closed Caption Track. Check to include a 708 caption track.

Conform Aperture. QuickTime 7.1 and later supports four aperture display modes that allow you to properly display video with non-square pixels (such as DV video) in QuickTime Player and other applications that support these modes.

Select Disabled if you do not want to apply the QuickTime Aperture to your video.

The four aperture display modes in QuickTime are:

Classic - In this mode, content appears as it did in QuickTime 7 and earlier. The video track dimensions are respected. Classic displays the image without applying either the pixel aspect ratio or the clean aperture. The image is displayed using the track header dimensions, meaning the decompressed picture is scaled into the track header dimensions if the encoded dimensions are different.

Clean Aperture - The clean aperture is the region of video free from transition artifacts caused by the encoding of the video. This is the region of video that should be displayed. Both the clean aperture and the pixel aspect ratio settings are applied. The dimensions of the track are set to the clean aperture dimensions (set below), which are equal to the display dimensions (with conformed contents).

Production Aperture - Content may appear differently than in QuickTime 7. The video track is not cropped to the Clean aperture mode, but it is scaled according to the pixel aspect ratio. Use this option when you want to see all the pixels in your video, including the edges. Applies the pixel aspect ratio but not the clean aperture. The image is presented in the correct aspect ratio, but the extra pixels outside of the image that exist in the source material will be presented. The track dimensions are equal to the result of applying the pixel aspect ratio.

Encoded Pixels - Content typically appears the same as in Classic aperture mode. The video track is not cropped to the Clean aperture mode and is not scaled according to the pixel aspect ratio. The encoded dimensions of the image description are displayed. This option is typically used to preview rendering (where you want all pixels) in a professional application. The encoded pixels are displayed intact in this mode.

Note. Clean Aperture should not be used in conjunction when you check Enable Clap Atom. Only one or the other should be used.

Enable CLAP atom. Check to enable the Apple Clean Aperture atom. This atom defines the pixel aspect ratio used during video capture and controls the cropping of edge artifacts.

Color Space. Specifies the output file color space to apply.

Aspect Ratio Mode

Use as appropriate, in conjunction with your Conform Aperture settings to configure the display or pixel aspect ratio in the QuickTime atom.

Aspect Ratio Mode. Specifies Display Aspect Ratio | Pixel Aspect Ratio.

Display | Pixel Aspect Ratio. Specifies the display aspect ratio or the pixel aspect ratio, per your Aspect Ratio Mode setting.

QuickTime Atom Configuration

Color Matrix. Specifies the index into a table specifying the transformation matrix coefficients used to translate between RGB color space values and YCbCr values. The table of matrices specifies the matrix used during the translation.

Color Primaries. Specifies the index into a table specifying the CIE 1931 XY chromaticity coordinates of the white point and the red, green, and blue primaries. The table of primaries specifies the white point and the red, green, and blue primary color points for a video system.

Color Transfer Function. Specifies the index into a table specifying the nonlinear transfer function coefficients used to translate between RGB color space values and

YCbCr values. The table of transfer function coefficients specifies the nonlinear function coefficients used to translate between the stored YCbCr values and a video capture or display system.

RTL Container

The RTL container, a variant of the AVI container is specifically compatible with systems utilizing Matrox RTL-based cards. In addition to an AVI video file, a WAV file is created containing the audio.

Audio. If the source file containers fewer audio channels than are selected for output, then the input channels of audio are copied onto the missing output audio channels. If the input does not contain any audio channels, then the output audio file will not contain any audio by default. These default behaviors can be overridden by using the appropriate Audio filter to add blank audio channels.

SAF Container

The SeaChange Archive Format (SAF) container is a self-contained file that includes audio and video, and which can be used on SeaChange broadcast video servers.

SeaChange BML Container

The SeaChange BML container generates files that are compatible with SeaChange BML broadcast servers. The BML requires both a video file and a private data (.pd) file; for MPEG-2 content, it also requires a VIX (.vix) file which is used for indexing the MPEG-2 video.

SeaChange BMS/BMC Container

The SeaChange BMS/BMC container generates files that are compatible with SeaChange BMS and BMC broadcast servers.

Smooth Streaming Container

The Smooth Streaming container generates files that are compatible with the IIS Smooth Streaming client and players. It supports generation of up to 6 H264 streams and one AAC audio stream.

Sony PSP Container

The Sony PSP container creates MP4 files that are compatible with the Sony PSP.

Sony XDCAM HD MXF Container

The Sony XDCAM HD MXF Container produces an MXF Op1a MXF file that contains HDV or MPEG-2 HD 4:2:2 video. The audio configuration has 4/8/16 tracks.

Note: For each control, click the green Browse button to bind this setting to a variable which has been set in an upstream action to modify this value dynamically, on a job-by-job basis. Otherwise the value you specify is static and does not change from job to job.

General

Extension. Specifies the output file name extension: mxf. Not changeable.

Set Timecode in the GOP Header. When checked, specifies that the encoder inserts the timecode that is present in the input file into the header of the output file.

Enable Timecode Override. When checked, specifies that the encoder writes specified timecode into the header of the output file.

Enable Timecode Override. Specifies the starting timecode to be written into the output file.

RDD09 Version 2 (for XDCAM SxS)

Check to enable RDD09 Version 2 mode for XDCAM SxS files. Configure these controls:

Index Table Reserved Space. Specifies the space (in KB) to reserve in the first body partition for the index table. 64KB represents about 3 minutes of HD video.

Index Table Update Period. Specifies the index table update rate in seconds of media time. Use 0 to serialize the table only at the end.

Omneon Compatibility

Timecode Preservation in File Headers

Save as Start Timecode in File Header. When checked, specifies that the encoder preserves the timecode that is present in the input file and inserts it into the timecode track of the header in the output file.

Save as First Frame in File Header. When checked, specifies that the encoder preserves the timecode that is present in the input file and inserts it as a binary value into the first frame of the video in the video track in the output file.

For instance, if you were to select Save as Start Timecode, when viewing the timecode track of the file you would see that the timecode displays as the starting timecode in the timecode track.

If you select Save as First Frame, the starting timecode is the default (00:00:00:00), but the number assigned to the first frame of video in the video track (not the timecode track) is the binary representation of the preserved timecode as an integer.

Set AFD in File Headers

AFD. Specifies the AFD profile to be used in the output file.

AFD Ratio Flag. Specifies the value to insert in the AFD ratio flag: 0 = SD, 1 = HD.

System Stream Container

The MPEG-1 System Stream format is specified by ISO/IEC 11172 Part 1.

TIFO Container

The TIFO container creates Telestream TIFO files of various supported essences.

Transport Stream Container

The Transport Stream container format is specified in ISO/IEC standard 13818-1. Transport Stream was specifically designed to be used with storage and transmission mechanisms which experience data loss. It allows multiple elementary streams of audio, video, and data to be synchronized into one or more programs; these streams are multiplexed into a single file and control is given for either overall multiplexing bitrate, or individual stream bitrate.

Note: Transport Stream container options in the VOD encoder enable you to insert an additional header containing SeaChange DVL data into the transport stream file.

Multiplexing Bitrate. The multiplexing bitrate can generally be specified within the container. Additionally, audio and video stream bitrates can be specified within individual stream and codec settings. When the total multiplexing rate is higher than the sum of the individual streams, null (empty) packets will be inserted to meet the specified total bitrate.

PIDs and the Program Map Table. Each stream within the Transport Stream file is identified by a 13-bit PID. In cable environments, typically an ad insertion server will expect a particular configuration of audio and video streams, each with particular PIDs. PIDs can be specified in the Stream properties within the encoder.

Individual streams are organized in the Program Map Table within the Transport Stream file. Certain set-top boxes require that video streams come before audio streams in the Program Map Table. The default behavior places audio streams before video streams, though this behavior can be overridden.

Enhanced Television Packets. If the input is a Transport Stream containing EBIF/ETV streams, then they can be preserved in the output.

Vortex Container

The Vortex container, a variant of the AVI container format, is specifically compatible with Vortex systems. In addition to an AVI video file, two WAV files are created containing audio.

WAV Container

The WAVE or WAV file format is a standard for storing audio bitstreams, and is usually used to store Uncompressed PCM audio.

XDCAM HD 4:2:0 Container

The XDCAM HD 4:2:0 container wraps MPEG-2 4:2:0 video streams with PCM audio.

XDCAM HD 4:2:2 Container

The XDCAM HD 4:2:2 container wraps MPEG-2 4:2:2 video streams with PCM audio.

Streams

Vantage provides the following streams:

- *Video Stream*
- *Audio Stream*

Video Stream

You can create a video stream in a file, based on the requirements of the selected encoder format/container. In some formats, a video stream is optional (or not permitted, as in WAV); others require a video stream.

To create the video stream (checked by default), select Video Stream from the Video Stream button in the toolbar (far left) to check it. To remove the video stream (if permitted), select Video Stream again to uncheck it.

The video stream generates the video essence based on the selected codec.

Adding Movie Filters. You can also add optional movie filters (movie filters affect both the video and audio streams). Click the Movie Filters button (4th from left in the toolbar) and select the filter to add - then click on the filter to configure its settings. To delete the filter, click the black X icon in the upper right corner of the filter.

Adding Video Filters. You can also add optional video filters to the stream. Click the Video filters button (5th from left in the toolbar) and select the filter to add - then click on the filter to configure its settings. To delete the filter, click the black X icon in the upper right corner of the filter.

Video Processors

You can select the video processor to use for creating this video stream:

Legacy 8-bit RGB 4:4:4. Select the Legacy 8-bit RGB 4:4:4 video processing library for performing standard video transcoding in Vantage. This VPL is available in all versions of Vantage.

Multi-core 16-bit YCbCr 4:4:4:4. Select the Multi-core 16-bit YCbCr 4:4:4:4 video processing library for high-efficiency video transcoding, plus adaptive bitrate (ABR) encoding workflows using the x264 video encoder (or generating uncompressed video), plus AAC, AC3, and PCM audio encoding.

The Multi-core 16-bit YCbCr 4:4:4:4 processor is available in Vantage Transcode Multiscreen and runs on standard Vantage servers.

Transcode Multiscreen bundles transcoded video and audio, thumbnail images, closed captions, and metadata into finished ABR packages. Each package can contain up to 16 layers, with conforming file structure and manifest for immediate playout from origin servers for Apple iOS, Adobe Dynamic Streaming, Microsoft Smooth Streaming, MPEG-DASH and progressive download applications.

Lightspeed Accelerated 16-bit YCbCr 4:4:4:4. Select the Lightspeed Accelerated 16-bit YCbCr 4:4:4:4 video processing library (see details above) when you are performing transcoding on Lightspeed servers for GPU-accelerated video processing.

Cinnafilm Tachyon. Select the Cinnafilm Tachyon video processing library for high-quality, high-efficiency standards conversion and video correction workflows, integrated directly into Vantage Transcode and Transcode Pro, as an optional, licensed feature.

The Cinnafilm Tachyon processor runs only on the Telestream Lightspeed server, utilizing GPU acceleration.

Note: For a comprehensive description of the Cinnafilm Tachyon Video Processing Library, see *Using the Cinnafilm Tachyon Video Processing Library* app note on the Telestream Web site.

Audio Stream

You can create zero or more audio streams in a file, based on the requirements of the selected encoder format/container. (n some formats (for example, key frames), audio streams are not permitted.

To create the audio stream (checked by default), select Audio Stream from the Audio Stream button in the toolbar (far left) to check it. To remove the audio stream (if permitted), select Audio Stream again to uncheck it.

The video stream generates the video essence based on the selected codec.

Adding Movie Filters. You can also add optional movie filters (movie filters affect both the video and audio streams). Click the Movie Filters button (4th from left in the toolbar) and select the filter to add - then click on the filter to configure its settings. To delete the filter, click the black X icon in the upper right corner of the filter.

Adding Audio Filters. You can also add optional audio filters to the stream. Click the Audio Filters button (far right in the toolbar) and select the filter to add - then click on the filter to configure its settings. To delete the filter, click the black X icon in the upper right corner of the filter.

Decoders

Vantage provides the following decoders for use in the Flip action.

Decoders

360 Maxx HD Decoder

AvidMeta Decoder

Comprimato JPEG2000 Decoder

DV Decoder

Edit Decision List Decoder

Grass Valley Decoder

Image Sequence Decoder

LXF Decoder

MAV70 Decoder

MTS Decoder

MXF Decoder

Omneon Decoder

PitchBlue Decoder

Program Stream/MediaStream Decoder

QuickTime Decoder

R3D Decoder

SeaChange SAF Decoder

Still Image Decoder

Telestream Decoder

TIFO Decoder

Transport Stream Decoder

360 Maxx HD Decoder

The 360 MAXX HD decoder decodes proprietary, JPEG2000-compressed video required for 360 MAXX HD servers into digital baseband. The decoder also decodes PCM audio.

There are no user-configurable options for this decoder.

AvidMeta Decoder

The AvidMeta decoder decodes AvidMeta files into digital baseband.

Access of video from the Avid TransferManager/TransferEngine systems is performed by a separate delivery service, and requires a special installer from Telestream. Please contact Telestream Customer Service for more details.

There are no user-configurable options for this decoder.

Comprimato JPEG2000 Decoder

The Comprimato JPEG2000 decoder converts a JPEG2000 input video stream into baseband video for processing. To enable Comprimato accelerated decoding for a JPEG2000 source file, you must select the Comprimato JPEG2000 Decoder in the Flip action Inspector input decoder stage and configure the General and Advanced settings as described below.

Configuration Details

Configure the following controls (or use the green browse button to bind settings to a variable).

General Settings

Enable open file decoding mode. Check to allow files to be read while being decoded.

Open mode timeout. Specify the time in seconds to wait between changes to the file.

Ignore transport stream errors. Decoder continues the decoding process even if transport stream errors are encountered.

Advanced Settings

Enable read file cache size. When enabled, allows you to specify how much data (in bytes) must be cached before processing occurs.

Cache size in bytes. Set the cache size in bytes (16384 - 12582912).

Enable Decode Thread. Allows threading the decoding process.

Enable Metadata Process. Allows inclusion of metadata.

CUDA device number. Specify the device number (1 or 2) of a specific NVIDIA GPU.

CUDA memory limit. Specify a memory limit (0 - 5000 MB). Adjust up or down as needed for most efficient processing.

CUDA tile limit. Specify a tile limit (0 - 10) to maximize throughput and prevent overload.

Decoder queue size (0 means unlimited). Set queue size (0 - 100) to optimize performance.

DV Decoder

The DV decoder decompresses DV and DVCPRO files to digital baseband.

Configuration Details

Configure the following controls (use the green browse button to bind settings to a variable).

General Settings

Force Read Timecode. When checked, instructs the decoder to extract the timecode, even if the source file is corrupted.

Edit Decision List Decoder

The Edit Decision List decoder handles EDL packages. These consist of an XML file and a package of media files. The XML defines the list of ordered reel and timecode data, specifying where each clip is located and how it conforms to the final edited media. The media files are decompressed using the appropriate decoder into digital baseband.

Configuration Details

Configure the following controls (use the green browse button to bind these settings to a variable).

General Settings

Use LPCM Audio Only. When checked, instructs the decoder to use only LPCM audio, even if there is MPEG1 audio present.

Force Read VANC. When checked, for Transport Stream files only, instructs the decoder to read VANC data, even if it is not present at the beginning.

Advanced Settings

Open Content Mode Overall Frame Size. Instructs the decoder to decode the file segment-wise by the specified byte count, rather than waiting for the complete file to finish copying.

Enable File Check. When checked, instructs the decoder to check the file and log the status in the Output window.

Ignore VANC. When checked, instructs the decoder to ignore VANC data in Transport Stream files, and use MPEG user data instead.

Enable Audio Correction. When checked, instructs the decoder to perform audio correction as necessary to align the audio and video streams.

Decode AC3 Audio. When checked, instructs the decoder to decode AC3 audio in Program Stream media.

Decode One Audio Stream Only. When checked, instructs the decoder to decode only one audio stream.

Set Audio/Video Behavior. Select the option for video and audio parsing options:
0 - Legacy Video and Audio Parsing
1 - Legacy Audio Parsing Only
2 - Normal Video and Audio Parsing

Decode H.264 SEI Captions. When checked, instructs the decoder to decode VANC from PitchBlue files.

Grass Valley Decoder

The Grass Valley decoder decompresses GXF files into digital baseband.

Configuration Details

Configure the following controls (use the green Browse button to bind these settings to a variable).

General Settings

Enable Audio Verification. When checked, instructs the decoder to perform audio verification.

Enable Label Trimming. When checked, instructs the decoder to trim labels from the video stream.

Timecode Source. When checked, for Transport Stream files only, instructs the decoder to read VANC data, even if it is not present at the beginning.

Advanced Settings

Read Truncate Duration. When checked, instructs the decoder to truncate the duration of the file.

Image Sequence Decoder

The Image Sequence decoder decodes DPX sequence files into digital baseband.

There are no user-configurable options for this decoder.

LXF Decoder

The LXF decoder decodes files that were encoded for use on Harris WAN Streamer and Nexio server products into digital baseband. LXF file format wraps and interleaves video, audio, and certain types of metadata streams.

Supported video formats include MPEG-2 in both Standard Definition and High Definition resolutions, plus DV and DV50, IMX and AVC Intra. Supported audio format includes uncompressed PCM audio in 2, 4, 6, or 8 channels.

Supported metadata includes timecode, uncompressed VBI data for SD resolutions, Vertical Ancillary (VANC) data for HD resolutions, and certain types of other metadata specific to synchronized multi-file playback and automation systems.

There are no user-configurable options for this decoder.

MAV70 Decoder

The MAV70 decoder decompresses MAV70 files to digital baseband.

Configuration Details

Configure the following controls (use the green browse button to bind these settings to a variable).

Advanced Settings

Correct VBI Line Numbering. When checked, instructs the decoder to correct line numbering from PAL MAV70 media to NTSC (no reverse).

MTS Decoder

The MTS decoder is a general-purpose decoder which decompresses files (typically with a .mts extension) into digital baseband.

There are no user-configurable options for this decoder.

MXF Decoder

The MXF decoder decompresses MXF format files into digital baseband. MXF file format wraps video, audio, and timecode metadata into MXF files. This decoder supports several generic MXF formats, as well as MXF targeted for specific device compatibility.

The most widely used format is D10 MPEG-2 wrapped in MXF. This is the native format for Standard Definition versions of Sony XDCam and E-Vtr products. It is also supported by many broadcast servers and editing systems.

Other supported video formats are specific to devices from manufacturers including Grass Valley, Leitch, and Sony - XDCam HD devices.

Configuration Details

Configure the following controls (use the green Browse button to bind settings to a variable).

General Settings

Ignore Track Duration. Check to cause the MXF decoder to ignore the timecode track duration when determining the end of the video stream. (May be connected to a Boolean variable.)

P2 File Set Decode Duration Calculation. Check to calculate the total file duration of multiple files in a P2 file set. (Only enable this when decoding P2 file sets.)

Advanced Settings

Read Timecode Label. When checked, the decoder auto-generates and publishes a Timecode label, containing the start timecode of the input file. If the input file does not have a valid timecode, no timecode label will be created.

Some Flip action encoders (specifically, the MXF encoder with the Telestream MXF container, and all MXF AS encoder containers) utilize a Timecode label to obtain the input file time code and add it to the encoded output file. If the Timecode label is not present when specifying Preserve Source Timecode in the Source Timecode of the container, the timecode will be set to 00:00:00:00.

The label can also be used by downstream actions in the workflow.

Allow Large D10 Frames. Check to cause the MXF decoder to allow D10 frames larger than the frame size listed in the specification.

Omneon Decoder

The Omneon decoder, intended for use on Omneon Spectrum Servers, decompresses files into digital baseband. The Vantage transcoder supports both MXF and QuickTime files.

Note: If you attempt to process input files that include a # character in a workflow, the job will fail and the references to the files are not presented correctly in the binder. For example, you attempt to transcode a QuickTime reference file to an Omneon QuickTime reference file.

Configuration Details

General Settings

Enable Open File Decoding Mode. Causes the Omneon decoder to work in Open File Decode mode. The decoder will keep reading to near the end of the file until it is apparent that the duration is no longer growing.

Enable Splicer Trimming. Causes the Omneon decoder to use the splicer filter to trim the file. This works to trim pre- and post-roll frames in the Omneon file for MPEG2-based sources.

Number of Retries for File Read. Specifies the number of retries after a timeout to attempt until the file is determined to be complete.

Retry Timeout Interval. Specifies the interval (in seconds) between file size checks. When the current location in the file is within the Buffer Frames of the end of the file, the decoder will wait for the file to grow.

Advanced Settings

Skip Pre-charge Offset. Causes the Omneon decoder to skip pre-charge frames by this value.

Switch Little to Big Endian. Causes the Omneon decoder to switch little-endian to big Endian, if there are both 24- and 16-bit audio streams.

Convert to 24-bit Audio. Causes the Omneon decoder to convert 16-bit audio tracks to 24-bit audio if the source file has both 24- and 16-bit audio tracks.

Flip Endianness. Causes the Omneon decoder to enable AC3 mode for HD (look for AC3 data in channels 1 and 2).

Enable AC3 Decode for HD. Causes the Omneon decoder to allow D10 frames larger than the frame size listed in the specification.

Skip User Data. Causes the Omneon decoder to skip reading user data from the blanking interval.

Search for AC3 in Audio Channels 3 and 4 when AC3 Mode is Active. Causes the Omneon decoder to look for AC3 data in channels 3 and 4.

Timecode Offset. Specifies the number of frames (may be a negative number) by which the Omneon decoder should offset the starting timecode value.

Starting Frame Offset. Specifies the number of frames (may be a negative number) by which the Omneon decoder should adjust the starting output frame.

Audio Start Frame Offset. Specifies the number of frames (may be a negative number) by which the Omneon decoder should adjust the starting point of the audio.

Search Range for AC3. Specifies the number of frames (may be a negative number) past the pre-charge that the Omneon decoder should search for AC3 payloads when AC3 mode is enabled.

Specify Override Buffer Frames. Specifies the number of buffer frames (may be a negative number) the Omneon decoder should use in open file mode.

Retries for Sample Info. Specifies the maximum number of times the Omneon decoder will attempt to get media sample information.

Retry Timeout for Sample Info. Specifies the interval (in milliseconds) between attempting to get media sample information.

Timecode Source. Specifies how the Omneon decoder should control output timecode source:

0, 1 - Ignore MPEG User Data if present and use the reference movie start timecode

2 - Ignore MPEG User Data if present and use the reference movie First Frame value

3 - Ignore all timecodes and extract the timecode from VBI

4 -Use MPEG User Data.

PitchBlue Decoder

The PitchBlue decoder, intended for use in decompressing SD/HD syndicated media and ad content from PitchBlue platforms, decompresses files with Vigor Transport Stream video into digital baseband.

Program Stream/MediaStream Decoder

The Program Stream/MediaStream decoder decompresses Program Stream or MediaStream files into digital baseband.

Configuration Details

Configure the following controls (use the green browse button to bind settings to a variable).

General Settings

Use LPCM Audio Only. When checked, instructs the decoder to use only LPCM audio, even if there is MPEG1 audio present.

Use GOP Timecode. When checked, instructs the decoder to use GOP timecode only.

Decode AC3 Audio. When checked, instructs the decoder to decode AC3 audio in Program Stream media.

Align Audio. When checked, instructs the decoder to perform audio correction as necessary to align the audio and video streams.

Decode One Audio Stream Only. When checked, instructs the decoder to decode only one audio stream.

Get more accurate duration. When checked, provides a more accurate representation of the transcoding progress.

Percent to scan for final presentation time stamp. Sets how much of the file to scan through to get the true duration of the file.

Advanced Settings

Ignore EOS. When checked, instructs the decoder to ignore mid-stream EOS markers.

QuickTime Decoder

The QuickTime 7 decoder decompresses QuickTime movie files into digital baseband.

Configuration Details

Configure the following controls (use the green browse button to bind settings to a variable).

General Settings

Fallback to Legacy QuickTime Decoding. Check to force the use of the legacy QuickTime decoder for workflow compatibility purposes. If unchecked, fallback occurs only when necessary. Otherwise, the current QuickTime decoder is utilized.

Unless you are having problems decoding files (and/or as directed by Telestream Customer Service/Technical Support), you should leave this control unchecked to use the current decoder.

Publish Timecode Label. When checked, the decoder auto-generates and publishes a Timecode label, containing the start timecode of the input file. If the input file does not have a valid timecode, no timecode label will be created.

Some Flip action encoders (specifically, the MXF encoder with the Telestream MXF container, and all MXF AS encoder containers) utilize a Timecode label to obtain the input file time code and add it to the encoded output file. If the Timecode label is not present when specifying Preserve Source Timecode in the Source Timecode of the container, the timecode will be set to 00:00:00:00.

The label can also be used by downstream actions in the workflow.

Advanced Settings

Disable Telestream XDCAM. When checked, directs the QT7 decoder to disable Telestream Media Framework processing for XDCAM files with 4CC codes xdc5 4CC.

Legacy Mode: Remove Pre-roll Frame. When in Legacy Mode, check to direct the QT7 decoder to remove unwanted pre-roll frames.

Legacy Mode: Decode XDCAM Internally. When in Legacy Mode, check to direct the QT7 decoder to internally decode XDCAM.

Legacy Mode: Enable Avid RGB Decode. When in Legacy Mode, check to direct the QT7 decoder to enable support for Avid RGB decode mode.

Legacy Mode: Ignore Edit Marks. When in Legacy Mode, check to direct the QT7 decoder to ignore edit marks embedded in the video stream.

Legacy Mode: Turn Off AV Sync Lock. When in Legacy Mode, check to cause the QT7 decoder to disable the audio video sync locking mechanism.

Use Telestream Media Framework for Uncompressed. When checked, if the file contains uncompressed video, the Telestream Media Framework Video Processing Library (Multi-core 16-bit YCbCr 4:4:4:4 processor) will be used for decompressing the media. Note: This feature does NOT work with the legacy 8-bit RGB VPL.

Disable Splicer. This feature does NOT work with the legacy 8-bit RGB VPL.

R3D Decoder

The R3D decoder decompresses R3D files (with a .r3d extension) into digital baseband.

Configuration Details

Configure the following controls (use the green browse button to bind settings to a variable).

General Settings

Use Half Resolution Decode Mode. Check to cause the decoder to decode faster, and utilize less memory.

Use Absolute Timecode. Check to cause the decoder to use absolute timecode.

Use Lightspeed Acceleration if Available. Check to cause the decoder to process the media on a Vantage Lightspeed server, utilizing GPU-acceleration, if available.

SeaChange SAF Decoder

The SeaChange encoder decodes files intended for use on the SeaChange Broadcast Media, Broadcast Media Cluster, and Broadcast MediaLibrary server products into digital baseband. These files typically have a .saf extension.

The supported video format is MPEG-2 (ISO/IEC13818-2). Supported audio formats are MPEG-1 Layer 2 (ISO/IEC 11172-3) audio and AES audio (SMPTE 302M).

Configuration Details

Configure the following controls (use the green browse button to bind settings to a variable).

General Settings

Force Decode Mode. Check to cause the decoder to decode the media based on the following values:

0 - RGB

1 - MPEG2

2 - YUV

Still Image Decoder

The Still Image decoder decodes one JPEG, BMP, PNG, TIFF, GIF, and TGA file into digital baseband video of the specified duration and frame rate.

Use the Multi-core Video Processing Library to resize the frame to the largest frame size that will fit in the output frame without changing the original aspect ratio. Bars or pillars (if required) are filled with black.

Use the Legacy 8-bit Video Processing Library to resize and fit the input into the specified output frame, which may change the original aspect ratio.

Configuration Details

Configure the following control (or use the green browse button to bind this setting to a variable).

General Settings

Duration. Specifies the video duration and frame rate of the resulting video clip.

Telestream Decoder

The Telestream decoder decompresses files not correctly handled by other decoders. There are two user options that you can employ.

Configuration Details

Configure the following controls (use the green browse button to bind settings to a variable).

General Settings

Enable Open File Decoding Mode. For MXF XDCAM files only, enables the decoder to decode files in near real-time as they are being written to a share.

Open Mode Timeout. Specifies the timeout period, in seconds.

Ignore Transport Stream Errors. When checked, instructs the decoder to ignore some errors in Transport Stream files. May lead to corruption of files in some circumstances.

Decode SMPTE-337m Wrapped AC-3. When checked, instructs the decoder to decode AC3 audio from an AES stream.

Publish Timecode Label. When checked, the decoder auto-generates and publishes a Timecode label, containing the start timecode of the input file. If the input file does not have a valid timecode, no timecode label will be created.

Some Flip action encoders (specifically, the MXF encoder with the Telestream MXF container, and all MXF AS encoder containers) utilize a Timecode label to obtain the input file time code and add it to the encoded output file. If the Timecode label is not present when specifying Preserve Source Timecode in the Source Timecode of the container, the timecode will be set to 00:00:00:00.

The label can also be used by downstream actions in the workflow.

Advanced Settings

Enable Read File Cache Size. When enabled, allows you to specify the maximum amount of data (in bytes) to be cached from the input file as it is being processed.

Cache Size. Specifies the cache size, in bytes.

Use Telestream Media Framework for Uncompressed. When checked, if the file being processed contains uncompressed video, the Telestream Media Framework Video Processing Library (Multi-core 16-bit YCbCr 4:4:4:4 processor) will be used for decompressing the media. **Note**: This feature does NOT work with the legacy 8-bit RGB VPL.

Preserve Pluge for Legacy RGB Video Processor in Frames Insertion Mode. When checked, the RGB VPL decompression of MPEG2 video frames will not limit or scale the pixel values to be 16 to 235. The decoded video frames may have pixels in the range of 0 to 255.

TIFO Decoder

The TIFO Decoder decompresses Telestream TIFO files of various supported essences into digital baseband.

Configuration Details

Configure the following controls (use the green browse button to bind settings to a variable).

General Settings

Use Legacy Mode. When checked, the TIFO decoder operates in legacy mode for compatibility purposes. Otherwise, the current TIFO decoder is utilized.

Unless you are having problems decoding your TIFO files (and/or as directed by Telestream Customer Service/Technical Support), you should leave this control unchecked to use the current decoder.

Enable Open File Reading. When checked, causes the action to read the file in near real time, as it is being written.

Process all Frames Regardless of In/Out State. When checked, causes the decoder to process all of the frames in the TIFO file, regardless of the state of each individual frame.

Transport Stream Decoder

The Transport Stream decoder decompresses Transport Stream files (.ts) into digital baseband. It does not process MTS files. For MTS files, use the MTS decoder.

Configuration Details

Configure the following controls (use the green browse button to bind settings to a variable).

General Settings

Ignore VANC. When checked, ignores VANC data in the stream.

Force Read VANC. When checked, for Transport Stream files only, reads VANC data, even if it is not present at the beginning.

Decode AC3 Audio. When checked, decodes AC3 audio only.

Decode SMPTE302 Data. When checked, decodes SMPTE302 data only, even when AC3 audio is present.

Advanced Settings

Decode H.264 SEI Captions. When checked, decodes VANC data from PitchBlue files.

Video Codecs

Vantage provides the following codecs:

Codecs

360 Maxx HD Video Codec

Apple H.264 Video Codec

AVC Intra Codec (MXF Implementation)

AVC Intra Codec (Interplay Implementation)

AVC Intra Direct Convert Codec

H.264 AVC Codec

AVI Video Codec

Avid H.264 Proxy Codec

Avid Video Codec

Blackmagic 10-bit Video Codec

Cinewave Video Codec

Comprimato JPEG2000 Video Codec

Direct Convert Video Codec

DNxHD Video Codec (MXF Implementation)

DNxHD Video Codec (Interplay Implementation)

DNxHD Direct Convert Video Codec

DNxHR Video Codec (MXF Implementation)

DNxHR Video Codec (Interplay Implementation)

DV Video Codec

DV/DVCPRO Video Codec

DV/DVCPRO Video Direct Convert Codec

DVCPRO HD Video Direct Convert Codec

DV25 Video Codec

DV50 Video Codec

DV100 Video Codec

DVCPRO HD Video Codec

EVS M-JPEG Video Codec

Flash 8 VP6 Video Codec

H.263 Video Codec

JPEG-2000 Video Codec

MainConcept H.264 Video Codec

H.264 Configuration File Import Codec

HDV Video Codec

IMX Video Codec (MXF Implementation)

IMX Video Codec (Interplay Implementation)

IMX Direct Convert Codec

JPEG Image Codec

Motion-JPEG Video Codec

MPEG-1 Video Codec

MPEG-2 Video Codec

MPEG-4 Video Codec

No Video Codec

Omneon DV Direct Convert Video Codec

Omneon MPEG-2 Direct Convert Video Codec

ProRes422 Video Codec

ProRes422 Direct Convert Codec

ProRes422 HD Video Codec

ProRes Video Codec

Photo-JPEG Video Codec

QuickTime Animation Video Codec

Radius Cinepak Video Codec

Sorenson Video 2 Codec

Sorenson Video 3 Codec

Telestream H.264 Proxy Codec

Uncompressed Video Codec

Windows Media Video Codec

XAVC 4K Intra Video Codec

XAVC 4K Intra Direct Convert Video Codec

XAVC Intra 4:2:0 Video Codec

XAVC HD Intra Video Codec

x264 H.264 Video Codec

XDCAM EX Video Codec

XDCAM HD 4:2:0 Codec

Sony XDCAM HD 4:2:2 Codec (MXF Implementation)

Sony XDCAM HD 4:2:2 Codec (Interplay Implementation)

XDCAM HD 4:2:0 Direct Convert Codec

XDCAM HD 4:2:2 Direct Convert Codec

360 Maxx HD Video Codec

The 360 MAXX HD codec creates compressed video in a proprietary JPEG2000 format required for 360 MAXX-HD servers.

Apple H.264 Video Codec

The Apple H.264 video codec is the Apple QuickTime implementation of H.264.

H.264 video offers very high-quality compression. H.264 is specified by ISO/IEC 14496-10, and was designed to offer an improvement in quality over MPEG-2, H.263, and MPEG-4 Part 2, with the aim of keeping complexity at a minimum to avoid dramatic increases in the cost of hardware.

A significant percentage of consumer devices, particularly portable media devices, IPTV set-top boxes, and mobile phone, support the H.264 format.

AVC Intra Codec

The AVC Intra codec is an intra-frame HD video codec. Originally defined by Panasonic, it is a fully-compliant subset of the H.264/AVC specification.

- AVC Intra 50 is 50Mbit/s with 4:2:0 chrominance sampling and a reduced horizontal resolution.

- AVC Intra 100 is 100Mbit/s with 4:2:2 chrominance sampling and full horizontal resolution.

- AVC Ultra (LongG250) is a long-GOP alternative to AVC Intra. It is approximately 25 Mbit/s at High 10 bit with 4:2:2 chrominance sampling.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder failure message will indicate that the encode action cannot be created with the settings of the specific source.

AVC Intra Codec

The AVC Intra codec is an intra-frame HD video codec. Originally defined by Panasonic, it is a fully-compliant subset of the H.264/AVC specification.

- AVC Intra 50 is 50Mbit/s with 4:2:0 chrominance sampling and a reduced horizontal resolution.

- AVC Intra 100 is 100Mbit/s with 4:2:2 chrominance sampling and full horizontal resolution.

- AVC Ultra (LongG250) is a long-GOP alternative to AVC Intra. It is approximately 25 Mbit/s at High 10 bit with 4:2:2 chrominance sampling.

Proxy Settings

When used to encode media in the Multi-Res container, proxy settings are displayed.

If no Proxy codec options are enabled, the encoder automatically produces a low bitrate Avid AMT proxy encoded by the Avid AMT H.264 codec via the SDK.at 800 kbps; for example, for IMX.

Telestream H.264 Proxy. Specifies that the Telestream H.264 codec will be used which increases encoding speed and quality for 1080i25 and 1080i29.97 workflows; RGB mode is not supported by the Telestream Proxy option.

High Bitrate H.264 Proxy. Specifies that a high-resolution H.264 proxy should be produced. For HD, the proxy is encoded at 2Mbps; for SD it is encoded at 1.5Mbps.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder failure message will indicate that the encode action cannot be created with the settings of the specific source.

AVC Intra Direct Convert Codec

Direct Convert codec options assume that the incoming video will be of the specified format, and will repackage the video in the new output file, without decoding or re-encoding the video. As such, the source video frame size, frame rate, and all other video encoding parameters are preserved exactly.

If the incoming video is not of the correct format, the transcode fails.

H.264 AVC Codec

The H.264 AVC codec produces 1, 1.5, and 2 Mbit H.264 video.

You can also specify varying frame sizes, frame rates, and IDR intervals.

AVI Video Codec

For AVI encoding, any I/FW codecs which are available on the transcoding server are used.

Third-party codecs may be installed and may function correctly. However, Telestream does not guarantee the functionality of third-party codecs. Supported codecs include Uncompressed Video, Cinepak, Microsoft Video, Intel Indeo 4.5, Intel Indeo 5.10, and Microsoft I.263.

Avid H.264 Proxy Codec

The Avid H.264 Proxy codec creates H.264 proxy formats that are compatible with Avid systems including MediaComposer and Interplay.

Avid JFIF Codec

The Avid JFIF Codec encodes J PEG-based files supported on Avid editors, including MediaComposer, and Interplay. JPEG is the most common image compression format in the world. It is a lossy format, meaning that information about the original image is lost during compression.

Avid Video Codec

A variety of video codecs are supported by Avid editing systems.

Note: Not all codecs are available in all container formats.

AVID Technology AVBV. JPEG-based format supported on AVBV-compatible Avid editing systems. The output is encoded as interlaced, upper field first for NTSC and lower-field first for PAL.

AVID Technology Meridien. JPEG-based format supported on Avid editors. The Meridian Interlaced Codec makes exclusively interlaced material, and by convention creates lower-field first material. The Meridien Progressive Codec creates exclusively progressive material.

AVID Technology NuVista. Photo-JPEG-based format supported on legacy Avid editing systems. The output is encoded as interlaced, upper field first for NTSC and lower-field first for PAL.

AVID DV. Creates Avid-compatible DV video. The output is encoded as interlaced, lower-field first.

AVID DV100. Creates Avid-compatible DVCPRO HD video, at either 720p or 1080i.

AVID 1:1x. Creates Avid-compatible 1:1x video, encoded as interlaced upper-field first.

AVID AVmp. Creates Avid-compatible MPEG-2 50Mb video.

Blackmagic 10-bit Video Codec

The Blackmagic 10-bit codec is uncompressed 10-bit video and thus is bandwidth intensive, but preserves high detail in animations and gradients which require high bit depth in the sample. By default this codec encodes interlaced upper-field first.

Cinewave Video Codec

The Cinewave codec creates Cinewave 8Bit YUV video, encoded as progressive frames.

This is a legacy format and is not often used in production environments where formats like H.264 can provide much higher quality and better compression.

Comprimato JPEG2000 Video Codec

The Comprimato JPEG2000 video codec is an optional, licensed codec in Vantage.

The Comprimato JPEG2000 video codec is a high-performance video codec that encodes video into JPEG2000, utilizing the GPU processors in Telestream Lightspeed servers.

JPEG-2000 is an intra-frame HD video codec specified by ISO/IEC 15444-1. It uses wavelet transformations to compress the image which results in high quality images in both lossy and lossless modes.

JPEG 2000 offers higher compression ratios over standard JPEG video. It offers resolution, color, quality and position progression scalability, and also supports 4:2:2 and 4:4:4 chroma subsampling methods and bit depths up to 12-bit.

Direct Convert Video Codec

Direct Convert codec options assume that the incoming video will be of the specified format, and will repackage the video in the new output file, without decoding or re-encoding the video. As such, the source video frame size, frame rate, and all other video encoding parameters are preserved exactly.

If the incoming video is not of the correct format, the transcode fails.

DNxHD Video Codec

Avid DNxHD is a lossy, high-definition video codec. It is codified as the SMPTE VC-3 standard. DNxHD generally provides near-uncompressed video quality with significantly lower bitrate requirements than true, uncompressed video.

Caution: Do not use this codec in the MXF encoder to generate files for import into Avid. DNxHD files generated using this codec in the MXF encoder will not work with Avid systems. Instead, select the DNxHD codec in the Avid TransferManager/TransferEngine or in the Avid AAF encoder.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder failure message will indicate that the encode action cannot be created with the settings of the specific source.

DNxHD Video Codec

Avid DNxHD is a lossy, high-definition video codec. It is codified as the SMPTE VC-3 standard. DNxHD generally provides near-uncompressed video quality with significantly lower bitrate requirements than true, uncompressed video.

Proxy Settings

When used to encode media in the Multi-Res container, proxy settings are displayed.

If no Proxy codec options are enabled, the encoder automatically produces a low bitrate Avid AMT proxy encoded by the Avid AMT H.264 codec via the SDK.at 800 kbps; for example, for IMX.

Telestream H.264 Proxy. Specifies that the Telestream H.264 codec will be used which increases encoding speed and quality for 1080i25 and 1080i29.97 workflows; RGB mode is not supported by the Telestream Proxy option.

High Bitrate H.264 Proxy. Specifies that a high-resolution H.264 proxy should be produced. For HD, the proxy is encoded at 2Mbps; for SD it is encoded at 1.5Mbps.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder failure message will indicate that the encode action cannot be created with the settings of the specific source.

DNxHD Direct Convert Video Codec

Direct Convert codec options assume that the incoming video will be of the specified format, and will repackage the video in the new output file, without decoding or re-encoding the video. As such, the source video frame size, frame rate, and all other video encoding parameters are preserved exactly.

If the incoming video is not of the correct format, the transcode fails.

DNxHR Video Codec

Avid DNxHR is a lossy, high-definition video codec. It is codified as the SMPTE VC-3 standard. DNxHR provides near-uncompressed video quality with significantly lower bitrate requirements than uncompressed video.

Caution: Do not use this codec in the MXF encoder to generate files for import into Avid. DNxHD files generated using this codec in the MXF encoder will not work with Avid systems. Instead, select the DNxHD codec in the Avid TransferManager/TransferEngine or in the Avid AAF encoder.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder failure message will indicate that the encode action cannot be created with the settings of the specific source.

DNxHR Video Codec

Avid DNxHR is a lossy, high-definition video codec. It is codified as the SMPTE VC-3 standard. DNxHR provides near-uncompressed video quality with significantly lower bitrate requirements than uncompressed video.

Caution: Do not use this codec in the MXF encoder to generate files for import into Avid. DNxHD files generated using this codec in the MXF encoder will not work with Avid systems. Instead, select the DNxHD codec in the Avid TransferManager/TransferEngine or in the Avid AAF encoder.

Proxy Settings

When used to encode media in the Multi-Res container, proxy settings are displayed.

If no Proxy codec options are enabled, the encoder automatically produces a low bitrate Avid AMT proxy encoded by the Avid AMT H.264 codec via the SDK.at 800 kbps; for example, for IMX.

Telestream H.264 Proxy. Specifies that the Telestream H.264 codec will be used which increases encoding speed and quality for 1080i25 and 1080i29.97 workflows; RGB mode is not supported by the Telestream Proxy option.

High Bitrate H.264 Proxy. Specifies that a high-resolution H.264 proxy should be produced. For HD, the proxy is encoded at 2Mbps; for SD it is encoded at 1.5Mbps.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder failure message will indicate that the encode action cannot be created with the settings of the specific source.

DV Video Codec

The DV codec produces a DV elementary stream, compliant with IEC 61834 and SMPTE 314M. DV is an I-frame codec, and DV is generally encoded at 25,000,000 bits per second.

The primary difference between the DV Standard Definition Codec and the DVCPRO codec are that the DVCPRO codec restricts the audio sample rate to 48KHz and that there is a distinct color sub-sampling difference between the 625 (PAL) variants. In the IEC 61834, 625 material is color sub-sampled as 4:2:0, while using SMPTE 314M (the DVCPRO Codec), color sub-sampling is 4:1:1.

Using 525 (NTSC) formatting, color sub-sampling is 4:1:1 in both SMPTE 314M and IEC 61834.

DV is usually encoded lower-field first for both PAL and NTSC material.

DV/DVCPRO Video Codec

Digital Video (DV) is a common editing and camera format. It is standardized within IEC 61834 and SMPTE 314M. DV is an I-frame codec, and is generally encoded at 25,000,000 bits per second.

DV is usually encoded lower-field first for both PAL and NTSC material.

In some cases, DV can support embedded audio and/or embedded captions. This behavior varies from container format to container format.

The primary difference between DV and DVCPRO is with PAL (625) encoding. With DV (IEC 61834), PAL material is color sub-sampled as 4:2:0, whereas with DVCPRO (SMPTE 314M), PAL material is color sub-sampled as 4:1:1.

For NTSC (525) encoding, both DV and DVCPRO use 4:1:1 color sub-sampling.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder failure message will indicate that the encode action cannot be created with the settings of the specific source.

DV/DVCPRO Video Direct Convert Codec

Direct Convert codec options assume that the incoming video will be of the specified format, and will repackage the video in the new output file, without decoding or re-encoding the video. As such, the source video frame size, frame rate, and all other video encoding parameters are preserved exactly.

If the incoming video is not of the correct format, the transcode fails.

DVCPRO HD Video Direct Convert Codec

Direct Convert codecs assume that the incoming video will be of the specified format, and will repackage the video in the new output file, without decoding or re-encoding the video. As such, the source video frame size, frame rate, and all other video encoding parameters are preserved exactly.

If the incoming video is not of the correct format, the transcode fails.

DV25 Video Codec

The DV25 codec creates Digital Video format media at 25 Mbits/second. DV is standardized within IEC 61834 and SMPTE 314M. DV25 is an I-frame codec, and is generally encoded at 25,000,000 bits per second.

DV50 is usually encoded lower-field first for both PAL and NTSC material.

In some cases, DV can support embedded audio and/or embedded captions. This behavior varies by container format.

General

Aspect Ratio. Specifies 4:3 or 16:9 display aspect ratio. Depending on the encoder you specify, this option may not be available.

Video Profile

Video Profile. Specifies NTSC or PAL.

DV50 Video Codec

The DV50 codec creates Digital Video format media at 50 Mbits/second. DV is standardized within IEC 61834 and SMPTE 314M. DV50 is an I-frame codec, and DV50 is generally encoded at 50,000,000 bits per second.

DV50 is usually encoded lower-field first for both PAL and NTSC material.

In some cases, DV can support embedded audio and/or embedded captions. This behavior varies from container format to container format.

DV100 Video Codec

DV100 (also known as DVCPRO HD or DVCPRO100) is an HD format encoded at 100Mbits/sec. It is defined by the SMPTE 390M standard.

DVC100 is an I-frame based codec which makes it particularly suited for editing. It is widely supported by most major editing systems.

DVCPRO HD Video Codec

DVCPRO HD (also known as DV100 or DVCPRO100) is an HD format encoded at 100Mbits/sec. It is defined by the SMPTE 390M standard.

DVCPRO HD is an I-frame based codec which makes it particularly suited for editing. It is widely supported by most major editing systems.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder failure message will indicate that the encode action cannot be created with the settings of the specific source.

EVS M-JPEG Video Codec

The EVS Motion JPEG (M-JPEG) format is a series of encoded JPEG stills. EVS systems are generally used for sports production; the M-JPEG format allows quick editing and slow-motion capture.

Older EVS HD systems, including the XT[1], supported four-band encoding which is a legacy M-JPEG encoding method. Newer EVS systems including the XT[2] do not support four-band encoding and generally support higher bitrates for M-JPEG encoding.

Recommended bitrate settings vary from system to system as follows:

XT[2] Systems

SD Material - from 40-65Mbit/sec.

HD Material - from 85-120Mbit/sec.

XT[1] Systems

SD Material - from 40-55Mbit/sec.

HD Material - from 85-105Mbit/sec.

Flash 8 VP6 Video Codec

The Flash 8 VP6 codec generates a constant bitrate Flash 8 Video (VP6) stream.

Flash 8 can either be generated using On2's single-threaded implementation, or Telestream's multi-threaded implementation. Multi-threaded encoding takes advantage of multiple CPUs on the server and runs significantly faster than single-threaded implementations. Two-pass encoding typically provides slightly better quality than one-pass encoding, and is only available in multi-threaded mode.

Note: When encoding to Flash 8, either Video Quality or Bitrate can be selected as the primary encoding method. However, both encoding methods attempt to respect the Minimum and Maximum Frame Quality settings. Setting the Minimum Frame Quality too high can force the encoder to drop frames, or may cause the encoder to be unable to meet the desired bitrate.

H.263 Video Codec

H.263 video is an older compression scheme that is still used on many mobile phones and some older video Web sites.

JPEG-2000 Video Codec

JPEG 2000 is an intra-frame HD video codec specified by ISO/IEC 15444-1. It uses wavelet transformations to compress the image which results in high quality images in both lossy or lossless modes.

JPEG 2000 offers higher compression ratios over standard JPEG video. It offers resolution, color, quality and position progression scalability, and also supports 4:2:2 and 4:4:4 chroma subsampling methods.

MainConcept H.264 Video Codec

H.264 video offers very high-quality compression. H.264 is specified by ISO/IEC 14496-10, and was designed to offer an improvement in quality over MPEG-2, H.263, and MPEG-4 Part 2, with the aim of keeping complexity at a minimum to avoid dramatic increases in the cost of hardware.

A significant percentage of consumer devices, particularly portable media devices, IPTV set-top boxes, and mobile phone, support the H.264 format.

This is the MainConcept implementation of H.264.

Profile Selector. Select the H.264 codec profile that offers the proper capabilities for encoding your video (not all profiles are available in every encoder):

- H.264 Configuration File Import: Select to specify an external configuration file
- Baseline profile: progressive encoding
- Main profile: interlaced or progressive encoding, generally for SD material
- High profile: interlaced or progressive encoding, generally for HD material.
- No Video: Select to encode the media without a video stream.

Configuration File. When you select H.264 Configuration File Import, click Browse to specify an external H.264 codec configuration file containing your video encoding parameters. You configure codec settings using the MainConcept desktop interface (in the Program Files directory under \Telestream\Transcode\bin), then save the file, and import it into Vantage. Optionally, configuration file names can be identified using variables.

Insert Closed Captions. When enabled in the encoder or container, check to insert closed captions in SEI Messages in the H.264 bitstream. Captions may be propagated from the source file if inserted from an SCC caption file using the SCC Caption Insertion feature, which is located in the Add Movie Filter list.

H.264 Configuration File Import Codec

The H.264 Configuration File Import codec provides support for MainConcept configuration files for video encoding purposes. You configure codec settings using the MainConcept desktop interface (in the Program Files directory under \Telestream\Transcode\bin), then save the file, and import it into Vantage.

H.264 video offers very high-quality compression. H.264 is specified by ISO/IEC 14496-10, and was designed to offer an improvement in quality over MPEG-2, H.263, and MPEG-4 Part 2, with the aim of keeping complexity at a minimum to avoid dramatic increases in the cost of hardware.

A significant percentage of consumer devices - particularly portable media devices, IPTV set-top boxes, and mobile phones - support the H.264 format.

Configure the options presented, based on the encoder you have selected.

Configuration File. Specifies an external H.264 codec configuration specification for your video encoding parameters, using the MainConcept desktop interface utility supplied by Telestream to produce the configuration file.

HDV Video Codec

High-Definition Video (HDV) uses MPEG-2 compression and is generally used by HD cameras and editing systems. It uses 8-bit chroma and luma encoding and 4:2:0 chroma sub-sampling. HDV is supported by most major editing systems.

Note: Use the MPEG 2 Encoder Version menu in General settings to specify which version of the MainConcept encoder to utilize, depending on your compatibility requirements.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder failure message will indicate that the encode action cannot be created with the settings of the specific source.

IMX Video Codec

D-10 (also known as IMX) is MPEG-2 4:2:2 I-frame only video, with specific bitrates. It is specified by SMPTE 356M. It is supported natively by a wide range of editing systems.

Typically IMX is encoded at 30, 40 or 50 Mbits/sec., and is used for SD material (particularly NTSC or PAL). Higher bitrates generally have higher quality.

Note: Use the MPEG 2 Encoder Version menu in General settings to specify which version of the MainConcept encoder to utilize, depending on your compatibility requirements.

General

Video Bit Rate. Specifies the bit rate for this stream, in bits per second.

Aspect Ratio. Specifies 4:3 or 16:9 display aspect ratio. Depending on the encoder you specify, this option may not be available.

Video Profile

Video Profile. Specifies NTSC or PAL.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder failure message will indicate that the encode action cannot be created with the settings of the specific source.

IMX Video Codec

D-10 (also known as IMX) is MPEG-2 4:2:2 I-frame only video, with specific bitrates. It is specified by SMPTE 356M. It is supported natively by a wide range of editing systems.

Typically IMX is encoded at 30, 40 or 50 Mbits/sec., and is used for SD material (particularly NTSC or PAL). Higher bitrates generally have higher quality.

General

Video Bit Rate. Specifies the bit rate for this stream, in bits per second.

Aspect Ratio. Specifies 4:3 or 16:9 display aspect ratio. Depending on the encoder you specify, this option may not be available.

Video Profile

Video Profile. Specifies NTSC or PAL.

Proxy Settings (displays only in Interplay Multi-Res container)

If the High Bitrate H.264 Proxy codec is not checked, the encoder automatically produces a low bitrate Avid AMT proxy encoded by the Avid AMT H.264 codec via the SDK.at 800 kbps; for example, for IMX.

High Bitrate H.264 Proxy. Specifies that a high-resolution H.264 proxy should be produced. For HD, the proxy is encoded at 2Mbps; for SD it is encoded at 1.5Mbps.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder failure message will indicate that the encode action cannot be created with the settings of the specific source.

IMX Direct Convert Codec

Direct Convert codec options assume that the incoming video will be of the specified format, and will repackage the video in the new output file, without decoding or re-encoding the video. As such, the source video frame size, frame rate, and all other video encoding parameters are preserved exactly.

If the incoming video is not of the correct format, the transcode fails.

JPEG Image Codec

The JPEG Image codec compresses frames into JPEG files.

JPEG is the most common image compression format in the world. It is a lossy format, meaning that information about the original image is lost during compression. One key feature of JPEG is the ability to choose a quality setting, where higher quality results in a larger file, and lower quality results in a smaller file.

Motion-JPEG Video Codec

The Motion-JPEG codec (MJPEG) compresses video as a series of frames or fields using a compression scheme similar to JPEG images. MJPEG can offer high visual quality and I-frame capabilities, but generally requires a fairly high bitrate. While used in some editing and sports systems, it is generally no longer used for broadcast playout servers.

MPEG-1 Video Codec

MPEG-1 video is an older standard commonly used in broadcast applications. MPEG-1 is specified by ISO/IEC 11172-2.

MPEG-1 CPB (Constrained Parameters) is traditionally restricted to a small number of frame sizes (352x240, 352x288, and 320x240) and a bitrate less than 1.5Mbits/sec. Unconstrained MPEG-1 can generally support up to HD resolutions and bitrates, though such support varies depending upon container format.

MPEG-2 Video Codec

MPEG-2 video is one of the most common formats in broadcast and cable applications. MPEG-2 video is defined by ISO/IEC 13818-2 standard.

MPEG-2 supports both I-frame and Long-GOP encoding. With I-frame encoding, each frame of video is treated as an independent image; this allows fast seeking and makes I-frame MPEG-2 suitable for editing, but generally requires a higher bitrate to achieve reasonable quality. In contrast, Long-GOP encoding uses predictive (P) and bi-directional (B) frames to encode frames, which take significantly less space, but which cannot be seeked directly. Long-GOP MPEG-2 is a very common playout format because it offers high quality at low bitrates, and because it is broadly supported across most cable and broadcast environments.

MPEG-2 supports 4:2:0 and 4:2:2 chroma sub-sampling methods. For SD content, 4:2:0 chroma limits the resolution of MPEG-2 to the active screen (480 lines for NTSC, 576 lines for PAL), and does not allow in-band video encoding of line-21 VBI. As a result, caption and timecode support for 4:2:0 SD MPEG-2 is generally provided by the container format.

Note: Use the MPEG 2 Encoder Version menu in General settings to specify which version of the MainConcept encoder to utilize, depending on your compatibility requirements.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder

failure message will indicate that the encode action cannot be created with the settings of the specific source.

MPEG-4 Video Codec

MPEG-4 video is commonly used for mobile and Internet streaming and on-demand files. It is specified by ISO/IEC 14496.

The Internet Streaming Media Alliance (ISMA) specifies several profiles designed for streaming video over IP networks. ISMA 1.0 provides specific settings for MPEG-1 Internet streaming.

No Video Codec

The No Video codec removes the video stream from the output file.

Omneon DV Direct Convert Video Codec

Direct Convert codec options assume that the incoming video will be of the specified format, and will repackage the video in the new output file, without decoding or re-encoding the video. As such, the source video frame size, frame rate, and all other video encoding parameters are preserved exactly.

If the incoming video is not of the correct format, the transcode fails.

Omneon MPEG-2 Direct Convert Video Codec

Direct Convert codec options assume that the incoming video will be of the specified format, and will repackage the video in the new output file, without decoding or re-encoding the video. As such, the source video frame size, frame rate, and all other video encoding parameters are preserved exactly.

If the incoming video is not of the correct format, the transcode fails.

ProRes422 Video Codec

ProRes422 is a 10-bit compression format developed by Apple. It is primarily used for editing and archival purposes. The ProRes codec provides several options, including four bitrate (Quality) levels (SQ, HQ, LT, and Proxy), and can be used for NTSC and PAL SD in various profiles. You can optionally preserve the chapter track from the source, and create 608 or 708 captions.

If you are producing 23.976 or 24p video, you should create 708 captions, not 608.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder failure message will indicate that the encode action cannot be created with the settings of the specific source.

ProRes422 Direct Convert Codec

Direct Convert codec options assume that the incoming video will be of the specified format, and will repackage the video in the new output file, without decoding or re-encoding the video. As such, the source video frame size, frame rate, and all other video encoding parameters are preserved exactly.

If the incoming video is not of the correct format, the transcode fails.

You can optionally preserve an existing chapter track and insert 608 captions.

ProRes422 HD Video Codec

ProRes 422 is a 10-bit compression format developed by Apple. It is primarily used for editing and archival purposes. The ProRes 422 HD codec provides several interlaced and progressive 720 and 1080 profiles in four bitrate (Quality) levels (SQ, HQ, LT, and Proxy). You can optionally preserve the chapter track from the source, and create 608 or 708 captions.

If you are producing 23.976 or 24p video, you should create 708 captions, not 608.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder failure message will indicate that the encode action cannot be created with the settings of the specific source.

ProRes Video Codec

ProRes is a 10-bit compression format developed by Apple. It is primarily used for editing and archival purposes. The ProRes codec provides several options, including five bitrate (Quality) levels (SQ, HQ, LT, Proxy, and 4444), and can be used for NTSC and PAL SD in various profiles. You can also use it to encode HD video.

In this codec, you can optionally select 4444 mode to supply an alpha channel.

Photo-JPEG Video Codec

The Photo-JPEG codec creates a video stream comprised of a series of Photo JPEG images. The output is encoded progressive.

QuickTime Animation Video Codec

The QuickTime Animation codec is a fast, nearly-lossless codec that uses RLE (run-length encoding) for compression. This codec is best used on cartoon-type images - those with large areas of a single, solid color, although it works for real-world video as well. When Quality set to 100% the codec is lossless.

Radius Cinepak Video Codec

The Radius Cinepak codec was used in early versions of QuickTime and Microsoft Video for Windows. It was designed for playback on relatively slow computers; it is rarely used today.

Sorenson Video 2 Codec

The Sorenson Video 2 codec was used in early versions of QuickTime (versions 3 and 4). It is rarely used today, with the preference being for H.264 and MPEG-4 video compression.

Sorenson Video 3 Codec

The Sorenson Video 3 codec was used in early versions of QuickTime (version 5). It is rarely used today, with the preference being for H.264 and MPEG-4 video compression.

Telestream H.264 Proxy Codec

The Telestream H.264 Proxy codec creates H.264 proxy formats that are compatible with Avid systems including Media Composer and Interplay. Increased compression quality and speed are available for 1080i 25 and 1080i 29.97 at 800 Kbps/2 Mbps only. RGB video processing is not supported.

Uncompressed Video Codec

Uncompressed video does not use any form of compression whatsoever and generally stores raw RGB or YUV pixels at bit depths ranging from 8 to 32 bits per pixel.

Because the video is uncompressed, the resulting bitrate and storage requirements are very high. Uncompressed video is occasionally the preferred format for editing and effects environments where pixel-perfect source footage is required.

Windows Media Video Codec

There are several versions of Windows Media Video:

Windows Media Video V7. The first version of the codec, WMV 7, introduced in 1999, and built upon Microsoft's implementation of MPEG-4 Part 2.

Windows Media Video V8. Primarily added support for VBR.

Windows Media Video V9. While all versions of WMV support variable bit rate, average bit rate, and constant bit rate, WMV 9 introduces several important features including non-square pixels, and frame interpolation.

VC-1 Standardized by SMPTE. Adds native support for interlaced video. This codec is also known as Windows Media Video 9 Advanced.

Windows Media Video 9 and VC-1 support a variety of advanced codec setup features:

CBR and VBR Encoding. When using the CBR option, the bit rate remains fairly constant and close to the target bit rate over the course of the stream, within a small window of time set by the buffer size. This buffer size also determines how much video must be pre-downloaded by a viewer before playback will start. Smaller buffer sizes will result in a more responsive playback experience, but larger values will offer higher encoding quality, particularly when dealing with video that has a lot of motion.

When using the VBR option, you may either select a quality setting that is uniformly applied to the output file, or instruct the encoder to work within a bitrate range. The latter option is only available when doing two-pass encoding.

Two-Pass Encoding. This option requires a large amount of free hard drive space for temporary files, especially with higher resolution video. There is only negligible improvement in encoding quality when using two-pass in Constant Bitrate modes.

IPV SpectreView. Available as a separate option, and requiring a dongle, this feature will generate WMV files that are compatible with IPV SpectreView systems.

XAVC 4K Intra Video Codec

The XAVC 4K Intra Video codec produces XAVC 4K Intra video stream using H264 encoding.

General

Preserve SMPTE 463 Ancillary Data Track. When checked, the VANC track will override any selected uncompressed VBI tracks.

Enable Fast Mode. When checked, speeds encoding by utilizing multiple threads. When checked, you can also specify the number of threads to utilize; see Advanced MXF Settings, below.

Omneon Compatibility

Save as Start Timecode in File Header. When checked, the encoder preserves the incoming timecode as a start timecode in the header.

Save as First Frame in File Header. When checked, the encoder preserves the incoming timecode as the first frame in the header.

AFD. Specifies the AFD profile to be used as output.

Aspect Ratio Flag. Specifies the value of the aspect ratio flag in the AFD byte: 0 = 4:3; 1 = 16:9.

Video Profile

Video Profile. Specifies the video profile for the encoded media.

Advanced MXF Settings

Set MainConcept Threads. Specifies the number of threads the MainConcept compressor should utilize when encoding the media. Only applies when Fast Mode is enabled.

XAVC 4K Intra Direct Convert Video Codec

The XAVC 4K Intra Direct Convert Video codec re-wraps the incoming XAVC 4K Intra video stream inside an MXF file. The input file must contain an XAVC 4K Intra stream or the conversion will fail.

General

Preserve SMPTE 463 Ancillary Data Track. When checked, the VANC track will override any selected uncompressed VBI tracks.

Omneon Capability

Save as Start Timecode in File Header. When checked, the encoder preserves the incoming timecode as a start timecode in the header.

Save as First Frame in File Header. When checked, the encoder preserves the incoming timecode as the first frame in the header.

AFD. Specifies the AFD profile to be used as output.

Aspect Ratio Flag. Specifies the value of the aspect ratio flag in the AFD byte: 0 = 4:3; 1 = 16:9.

XAVC Intra 4:2:0 Video Codec

The XAVC Intra 4:2:0 Video codec produces an XAVC HD Intra video stream using H264 encoding.

Video Profile

Video Profile. Specifies the video profile for the encoded media. Choices include 50 Mbps 1080 60i, 50 Mbps 108050i, 50 Mbps 1080 23.98p, 50 Mbps 1080 29.97p, and 50 Mbps 1080 25p

Frame Width. Displays the frame width of the selected video profile.

Frame Height. Displays the frame height of the selected video profile.

Frame Rate. Displays the frame rate in frames per second of the selected video profile.

Video Bit Rate. Displays the video bit rate in bits per second of the selected video profile.

Profile. Displays the H.264 profile number.

Level. Displays the H.264 profile level.

Interlace Mode. Specifies field dominance for the encoded media.

ID: The AVC Intra identifier used by Avid.

XAVC HD Intra Video Codec

The XAVC HD Intra Video codec produces XAVC HD Intra video stream using H264 encoding.

General

Preserve SMPTE 463 Ancillary Data Track. When checked, the VANC track will override any selected uncompressed VBI tracks.

Omneon Capability

Save as Start Timecode in File Header. When checked, the encoder preserves the incoming timecode as a start timecode in the header.

Save as First Frame in File Header. When checked, the encoder preserves the incoming timecode as the first frame in the header.

AFD. Specifies the AFD profile to be used as output.

Aspect Ratio Flag. Specifies the value of the aspect ratio flag in the AFD byte: 0 = 4:3; 1 = 16:9.

Video Profile

Video Profile. Specifies the video profile for the encoded media.

Interlace Mode. Specifies field dominance for the encoded media.

x264 H.264 Video Codec

The x264 codec prZoduces H.264 video.

H.264 video offers very high-quality compression. H.264 is specified by ISO/IEC 14496-10, and was designed to offer an improvement in quality over MPEG-2, H.263, and MPEG-4 Part 2, with the aim of keeping complexity at a minimum to avoid dramatic increases in the cost of hardware.

A significant percentage of consumer devices, particularly portable media devices, IPTV set-top boxes, and mobile phone, support the H.264 format.

Command Line. For parameters that are not in the editor panel (those other than Profile, Preset, and Tuning), you can enter the CLI command or commands (separated by spaces) to execute them. For best results, be sure to use long form: `--bframe 5`, for example. Use of short form (`-b 5`) is not recommended.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder failure message will indicate that the encode action cannot be created with the settings of the specific source.

XDCAM EX Video Codec

The XDCAM EX codec generates video that is compatible with the XDCAM EX Specification: MPEG-2 4:2:0 1080 or 720, in various profiles.

Note: Use the MPEG 2 Encoder Version menu in General settings to specify which version of the MainConcept encoder to utilize, depending on your compatibility requirements.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder failure message will indicate that the encode action cannot be created with the settings of the specific source.

XDCAM HD 4:2:0 Codec

The Sony XDCAM HD 4:2:0 codec produces video in MPEG-2 format using 4:2:0 color sampling according to the constraints of the Sony XDCAM specifications.

Note: Use the MPEG 2 Encoder Version menu in General settings to specify which version of the MainConcept encoder to utilize, depending on your compatibility requirements.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder failure message will indicate that the encode action cannot be created with the settings of the specific source.

Sony XDCAM HD 4:2:2 Codec

The Sony XDCAM HD 4:2:2 codec produces video in MPEG-2 format using 4:2:2 color sampling according to the constraints of the Sony XDCAM specifications.

Note: Use the MPEG 2 Encoder Version menu in General settings to specify which version of the MainConcept encoder to utilize, depending on your compatibility requirements.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder failure message will indicate that the encode action cannot be created with the settings of the specific source.

Sony XDCAM HD 4:2:2 Codec

The Sony XDCAM HD 4:2:2 codec produces video in MPEG-2 format using 4:2:2 color sampling according to the constraints of the Sony XDCAM specifications.

Proxy Settings

When used to encode media in the Multi-Res container, proxy settings are displayed.

If no Proxy codec options are enabled, the encoder automatically produces a low bitrate Avid AMT proxy encoded by the Avid AMT H.264 codec via the SDK.at 800 kbps; for example, for IMX.

Telestream H.264 Proxy. Specifies that the Telestream H.264 codec will be used which increases encoding speed and quality for 1080i25 and 1080i29.97 workflows; RGB mode is not supported by the Telestream Proxy option.

High Bitrate H.264 Proxy. Specifies that a high-resolution H.264 proxy should be produced. For HD, the proxy is encoded at 2Mbps; for SD it is encoded at 1.5Mbps.

Same as Source Feature

The Same as Source feature in supported codecs enables you to simplify workflow design and configuration by always using the input media's frame rate and/or frame size values for the output file. These values are automatically determined at runtime.

Same as Source is implemented in two ways, depending on the type of encoder:

- For codecs that utilize profiles (DNxHD, for example) the Same as Source option is displayed at the bottom of the Profile list.

- For codecs that do not utilize profiles (x264, for example), checkboxes are displayed on user-configurable codec settings for frame height and width and frame rate. When these items are unchecked they will be disabled, and the parameters of the source file will be used instead.

The Same as Source feature may not be exposed in every implementation of a given codec.

When you enable Same as Source, other options may or may not be enabled. Depending on your choices, Same as Source may automatically alter the bit rate, interlacing rules or other parameters to conform to your manual setting of frame rate or frame size.

If a valid configuration cannot be created based on the parameters of the source and additional options selected, the requested encode action will fail and an encoder failure message will indicate that the encode action cannot be created with the settings of the specific source.

XDCAM HD 4:2:0 Direct Convert Codec

The XDCAM HD 4:2:0 Direct Convert codec re-wraps the input video and audio stream into Avid AAF format with an XDCAM payload.

The input source must contain HD MPEG-2 4:2:0 video.The direct convert codec can complete successfully and still produce a file that an XDCAM device cannot play back. This is true, for example, when the source file uses a bit-rate or video profile that is not supported on the target device (deck, camera, etc.).

XDCAM HD 4:2:2 Direct Convert Codec

The XDCAM HD 4:2:2 Direct Convert codec re-wraps the input video and audio stream into Avid AAF format with an XDCAM payload.

The input source must contain HD MPEG-2 4:2:2 video.The direct convert codec can complete successfully and still produce a file that an XDCAM device cannot play back. This is true, for example, when the source file uses a bit-rate or video profile that is not supported on the target device (deck, camera, etc.).

Audio Codecs

Vantage provides the following audio codecs:

Codecs

AAC Audio Codec

AC-3 Audio Codec

AC-3 Audio Direct Convert Codec

AES Audio Codec

AIFF Audio Codec

AMR Audio Codec

AVI Audio Codecs

Direct Convert Audio Codec

Dolby AC-3 Audio Direct Insert Codec

MP3/MPEG-1 Layer 3 Audio Codec

MPEG-2 Layer 3 Audio Codec

MPEG-1 Layer 2 Audio Codec

OMF AIFC Uncompressed Audio Codec

Omneon WAV Audio Codec

PCM Audio Codec

PCM Audio A-Law Codec

PCM Audio MU-Law Codec

PCM/MPEG-1 Layer 2 Audio Codec

QDesign Music 2 Audio Codec

Qualcomm PureVoice Audio Codec

Windows Media (WMA) Audio Codec

AAC Audio Codec

Advanced Audio Coding (AAC) is a lossy audio codec designed as successor to the MPEG-1Layer 3 (MP3) standard. It offers improved quality over MP3 at all bitrates and is supported on a range of consumer devices including mobile phones, gaming devices, and portable media players such as the iPod.

HE-AAC can encode up to 6 channels, and can handle Parametric Stereo as well as Stereo. The Parametric Stereo option uses HE-AAC version 2. All other profiles use version 1. In Parametric Stereo, the stereo data is encoded into one mono channel and can be transmitted at very low bitrates.

AAC offers several encoding profiles, including the following:

- Low Complexity (AAC-LC) which is the simplest and most widely used profile
- Main (AAC Main) which includes AAC-LC
- High Efficiency (HE) which includes AAC Main, and SBR (Spectral Band Replication)
- High Efficiency v2 (HE v2), which includes HE and PS (Parametric Stereo).

Note: Not all encoders, nor all consumer devices, support profiles beyond AAC-LC.

AAC is standardized within the MPEG-4 specification (ISO/IEC 14496-3) and the MPEG-2 specification (ISO/IEC 13818-7).

AC-3 Audio Codec

Dolby Digital (AC-3) is a flexible audio compression format that supports up to six channels of audio. The most common usage of AC-3 is in 2.0 (stereo) mode and 5.1 (surround sound) mode.

AC-3 supports a variety of encoded metadata information, including:

- General information such as copyright and production information

- Information to help consumer devices optimize decoding, such as the Extended Bit Field parameters, which are used for downmixing.

In 5.1 mode, AC-3 supports five discrete channels of audio typically configured as Right Front (R), Center (C), Left Front (L), Right Rear Surround (RS), and Left Rear Surround (LS), and a sixth channel of audio allocated for low-frequency effects (LFE).

AC-3 Audio Direct Convert Codec

The Dolby Digital (AC-3) Direct Convert Audio codec is generally used when the input file has the same audio compression format as the desired output file. The Direct Convert codec preserves the original compressed audio in the new output file, without decoding or re-encoding the audio. As such, the source audio sample rate, bit rate, and other parameters are preserved.

Dolby AC-3 Audio Direct Insert Codec

The Dolby Digital (AC-3) Direct Insert Audio codec reads a Dolby Digital AC-3 audio stream from an external file you specify, and adds it to the MP4 file being encoded.

Note: This codec is often used in DP600 workflows, where (in a previous action or previous workflow), an audio file was converted, corrected, or up-mixed by a Dolby DP600 and returned to the workflow for utilization.

AC-3 File. Enter or select an AC-3 file path, or select a path variable that was populated with the path value upstream.

AES Audio Codec

AES audio is an uncompressed audio format. From a compression perspective, it is PCM audio at 48kHz or 44.1kHz. This codec implements the ISO/IEC 13818-1 standard.

AIFF Audio Codec

Audio Interchange File Format (AIFF) is an audio file format standard used for storing sound data for personal computers and other electronic audio devices.

The audio data in a standard AIFF file is uncompressed pulse-code modulation (PCM). Like any non-compressed, lossless format, it uses much more disk space than MP3 - about 10MB for one minute of stereo audio at 44.1 kHz sample rate and 16-bit sample size.

AMR Audio Codec

Adaptive Multi-Rate (AMR) encoding is specifically designed to compress voice audio. It is the standard speech codec for 3GPP.

AVI Audio Codecs

For AVI encoding, any iI/FW codecs which are available on the transcoding server are used.

Third-party codecs may be installed and may function correctly, however Telestream does not guarantee the functionality of third-party codecs. Supported codecs include Uncompressed Audio, IMA ADPCM, ADPCM, CCITT G.711 a-Law and u-Law, and Fraunhofer IIS MPEG Layer-3.

Direct Convert Audio Codec

The Direct Convert Audio codec is generally used when the input file has the same audio compression format as the desired output file. The Direct Convert codec preserves the original compressed audio in the new output file, without decoding or re-encoding the audio. As such, the source audio sample rate, bit rate, and other parameters are preserved.

The Direct Convert Audio codec only processes MPEG-1 Layer 2 audio. If the incoming audio is not of the correct format, the transcode fails.

For container formats that support multiple audio streams, the Direct Convert audio option generally cannot be used at the same time as other audio encoding options; the output file generally only has one audio stream.

MP3/MPEG-1 Layer 3 Audio Codec

The MPEG-1 Layer 3 codec creates MPEG-1 Layer 3 audio. This compression scheme is a high-quality audio codec commonly used in Web audio compression. It is implemented by ISO/IEC 11172-3.

MPEG-2 Layer 3 Audio Codec

The MPEG-2 Layer 3 Audio codec creates MPEG-2 Layer 3 audio (nd alternatively, MPEG-2.5 Layer 3 audio as appropriate). This compression scheme is a high-quality audio codec commonly used in Web audio compression. It is implemented by ISO/IEC 13818-3.

MPEG-1 Layer 2 Audio Codec

MPEG-1 Layer 2 is part of the ISO/IEC 11172-3 standard and is a very common compression format for broadcast and cable-quality audio.

OMF AIFC Uncompressed Audio Codec

The OMF AIFC codec creates 16-bit uncompressed PCM audio with 2 channels.

OMF is an acronym for Open Media Framework. OMF is a platform-independent file format intended to facilitate interchange of digital media. OMF is primarily used with Avid editing systems.

Omneon WAV Audio Codec

The Omneon WAV codec creates Omneon-compliant 16- or 24-bit uncompressed PCM audio with up to 32 channels, at a fixed sample rate of 48000 Hz.

You can also specify the maximum channels per file, and optionally, enable Omneon OVN Track Match Preservation.

Each of the parameters are bindable.

PCM Audio Codec

Pulse-code modulation (PCM) encoding is uncompressed audio, where the original audio waveform is sampled at regular intervals and stored as a series of numbers.

While PCM does not use any compression method and thus does not suffer from lossy audio compression artifacts, information can be lost at lower sampling rates. For example, encoding PCM audio at 11kHz will lose higher-frequency audio information.

XDCAM Video. Supported audio channels for XDCAM video include:

2 or 4 channels for XDCAM HD 4:2:0

2, 4, or 8 channels for XDCAM HD 4:2:2

PCM Audio A-Law Codec

The PCM Audio A-Law codec produces 64kbit/s A-law audio, compliant with ITU G.711, which represents logarithmic pulse-code modulation (PCM) samples for signals of voice frequencies, sampled at the rate of 8000 samples/second.

G.711 defines two main compression algorithms, the MU-law algorithm (used in North America & Japan) and A-law algorithm (used in Europe and the rest of the world).

The MU-law and A-law algorithms encode 14-bit and 13-bit signed linear PCM samples (respectively) to logarithmic 8-bit samples. Thus, the codec creates a 64 kbps bitstream for a signal sampled at 8 kHz.

PCM Audio MU-Law Codec

The PCM Audio MU-Law codec produces 64kbit/s MU-law audio, compliant with ITU G.711, which represents logarithmic pulse-code modulation (PCM) samples for signals of voice frequencies, sampled at the rate of 8000 samples/second.

G.711 defines two main compression algorithms, the MU-law algorithm (used in North America & Japan) and A-law algorithm (used in Europe and the rest of the world).

The MU-law and A-law algorithms encode 14-bit and 13-bit signed linear PCM samples (respectively) to logarithmic 8-bit samples. Thus, the codec creates a 64 Kbit/s bitstream for a signal sampled at 8 kHz.

PCM/MPEG-1 Layer 2 Audio Codec

MPEG-1 Layer 2 is part of the ISO/IEC 11172-3 standard and is a very common compression format for broadcast and cable-quality audio.

This codec selector enables the encoder to encode either PCM or MPEG-1 Layer 2 audio, based on your video codec selection.

Audio files associated with H.264 proxy video are created as 16-bit MPEG1 Layer 2 audio, at 96Kbps per channel. Audio for all other video formats implemented in the Interplay Advanced encoder are created as Uncompressed PCM.

QDesign Music 2 Audio Codec

The QDesign Music codec is best suited for low-bitrate music audio; using higher bitrates may introduce compression artifacts. QDesign is an older audio compression scheme which is primarily used in QuickTime files; generally AAC audio is preferred for QuickTime audio compression.

Qualcomm PureVoice Audio Codec

Qualcomm PureVoice (also known as QCELP) is generally used to compress speech.

Windows Media (WMA) Audio Codec

There are several versions of Windows Media Audio:

Windows Media Audio. Offers high-quality audio compression, and is compatible with Windows Media Player 7 and later. This version of WMA supports mono and stereo audio only.

Windows Media Audio Professional. Compatible with Windows Media Player 9 and later. This version of WMA supports 5.1 and 7.1 audio encoding, as well as higher bitrates.

Windows Media Audio Voice. Designed for low-bandwidth voice playback applications.

Media Analysis Filters

Vantage provides a comprehensive set of media analysis filters that allow you to expose specific characteristics of your media and assist you in applying filters intelligently.

Most analysis filters extract values and generate metadata for use in later job tasks; you can also view graphs and reports to observe the metrics of your input media.

Some filters utilize input media to perform their task on transcoded media produced by the workflow: watermark tools, for example.

It is important to remember that analysis filters operate on the *input* media - and do not modify the media. Video and audio filters, on the other hand, operate on *output* media, and DO modify the media.

Analysis Filters

Advanced Audio Measurement Filter

Ancillary Data Detection Filter

Black Detection Filter

Caption Detection Filter

Curtain Detection Filter

Duration Detection Filter

ITU-R BS.1770 Loudness Filter

Interlacing Detection Filter

Letterbox Detection Filter

Level/Gamut Check Filter

Macroblock Detection Filter

PSNR Filter

Slate Detection Filter

Telecine Detection Filter

Advanced Audio Measurement Filter

The Advanced Audio Measurement filter analyzes 48KHz audio in the specified file and performs a number of measurements related to audio loudness.

This filter is used to perform the analysis and assign the results data to variables which can be used in downstream actions for decision-making or as input data for the Audio Levels filter during transcoding. The Audio Levels filter can use this data to adjust media levels to match a specified audio loudness target.

Note: Only 48KHz sample rate audio is supported and can be analyzed by this filter.

General

Relative Loudness Gate. Specifies the loudness gate to be used as silence, set as default at the -10dB level specified in the EBU R128 and ITR-R BS. 1770-2 standards. Generally, the default value should not be changed.

Channel Map

Channel 1-16. Allows you to specify which audio channels in a source file should be measured. Specifies the logical representation of the given channel.

Generate Variables

You can specify the following variables to be generated, for use by downstream actions in this workflow.

Audio Detected. Indicates that audio data was extracted from the source file.

Note: Reports TRUE even if the audio in the source file was silent.

Ungated Loudness. Specifies the Ungated Integrated Loudness of the audio, as defined in ITR-R BS.1770-1.

Loudness (-70dB Gate). Specifies the intermediate value in the EBU R128 / ITR-R BS.1770-2 gated loudness measurement. It should not generally be used.

Relative Gated Loudness. Specifies the long term Integrated loudness measurement defined by EBU R128 / ITR-R BS.1770-2. This is the variable that should generally be bound to the Source Loudness parameter in the Audio Levels filter.

Max Momentary Loudness. Specifies the maximum ungated loudness, measured over a 0.4 second period.

Max Short-term Loudness. Specifies the maximum ungated loudness, measured over a 3 second period.

Peak Signal. Specifies the level of the peak audio sample in the uncompressed digital audio stream.

True Peak Signal. Specifies the True Peak of a digital audio stream when converted to an analog signal for playout may be slightly higher than the value indicated by Peak Signal as defined previously. The True Peak variable is generated using the True Peak measurement techniques outlined in Annex 2 of ITR-R BS.1770. This is the variable that should generally be bound to the Source Peak parameter in the Audio Levels filter.

Loudness Range. Specifies the loudness range of the audio as defined in EBU R128. This measurement is primarily informational and is not intended to be bound to any parameter in the Audio Levels filter.

Dialog Loudness. Specifies the ITR-R B.S.1770-1 ungated loudness measurement that is applied only when there is dialog in the audio stream. Dialog detection is performed by the Dolby(R) Dialog Intelligence(TM) algorithm. This is the primary loudness measurement technique advocated by the ATSC in their Recommended Practice A/85. This is the variable that should generally be bound to the Dialog Loudness parameter in the Audio Levels filter.

Dialog Percentage. Specifies the percentage of the source audio stream was found to contain dialog. This can be used to disable dialog based loudness correction in the case where very little dialog is present in the source audio. This is the variable that should generally be bound to the Dialog Percentage parameter in the Audio Levels filter.

Measured Dialnorm. Specifies the metadata parameter that controls playback gain within the Dolby Laboratories Dolby Digital (AC-3) audio compression system. Dialnorm is an integer value with range 1 to 31 corresponding to a playback gain of -30 to 0 dB (unity) respectively.

Ancillary Data Detection Filter

The Ancillary Data Detection filter is implemented in the Examine action. It analyzes the specified file to determine if VANC data is present in the file. The results of the filter can be published as XML files in various formats, as well as variables.

Metadata XML files can be saved and used externally, or processed by other actions in the workflow. Variables can be used by downstream actions in the workflow.

Publish Metadata: Check to generate SCC, SMPTE 2052, W3C TTML, and WebVTT format metadata as an attachment. For each format, select the type of file from the menu. The metadata can be stored in an SCC, STL, Subtitle, or XML file.

Generate Variables: Check to generate specific results. For each result you want to store in a variable, specify the variable by selecting it from the menu.

Black Detection Filter

The Black Detection filter analyzes the specified file to determine where black and silence exist at the start, end, and middle of the file, and to determine the duration of the non-black content.

You can choose Force Drop-Frame |Force Non Drop-Frame | Drop Frame from source NTSC time code reporting.

For black segments in the middle of the file, up to 25 active segments (non-black regions) of the video will be reported as variables.

Variables generated by this filter may be used to trim the file, or to make decisions based upon the content duration or number of active segments found.

The *Active Video Region* settings allow you to specify which region of NTSC 512-line and 486-line SD video should be ignored during analysis. Such video occasionally follows different guidelines for where specifically the VBI lines are placed. This allows you to specify where the VBI lines are expected.

Note: PAL video is generally consistent and the VBI is ignored automatically.

Caption Detection Filter

The Caption Detection filter analyzes the specified file to determine if VBI or VANC caption data is present.

Curtain Detection Filter

The Curtain Detection filter analyzes the specified file to determine how many columns of black are present on the left and right side of the frame.

In addition to detecting curtains, this filter can also generate suggested crop values to remove black edges on the left or right of the media. These values are presented as variables that may be used during a transcode, by binding them to a Crop filter.

By default, suggested crop values ensures that all non-black media is preserved after cropping. However, some distribution channels require the removal of black edges for some percentage of the final timeline. This filter can accomplish this by selecting Define behavior for media that contains multiple, differing curtain segments, and then specifying the percentage of material after a crop which should not have black edges.

For example, a media file is analyzed and the above parameter is set to 80%. The suggested crop values, when applied, results in a file that has black on the left and right for no more than 20% of the total timeline - that is, 80% of the output have non-black edges.

Variables generated by this filter may be used to trim the file, or to make decisions based upon the content duration.

The *Active Video Region* settings allow you to specify which region of NTSC 512-line and 486-line SD video should be ignored during analysis. Such video occasionally follows different guidelines for where specifically the VBI lines are placed. This allows you to specify where the VBI lines are expected.

Note: PAL video is generally consistent and the VBI is ignored automatically.

Duration Detection Filter

The Duration Detection filter analyzes the specified file to determine the exact duration of the file.

Note: PAL video is generally consistent and the VBI is ignored automatically.

ITU-R BS.1770 Loudness Filter

The ITU-R BS.1770 Loudness filter analyzes the specified file to determine the loudness of audio.

This filter is generally used to create variables that are used either for decision-making, or to feed the Audio Levels filter during a transcode. The Audio Levels transcode filter can use information created by this analysis to adjust media levels to match a specified target.

Interlacing Detection Filter

The Interlacing Detection filter is a video analyzer which detects field dominance by performing statistical analysis of field correlation within the video content. It will subsequently report whether the video content is upper-field, lower-field, or progressive.

This analyzer will also report a confidence level which indicates the certainty of the reported result. Because field correlation is only a useful measure in scenes that contain motion, video that contains virtually no motion will report a low confidence level.

Letterbox Detection Filter

The Letterbox Detector filter analyzes the specified file to determine how many lines of black are present at the top and bottom of the frame.

In addition to detecting letterboxing, this filter can also generate suggested crop values to remove black edges on the top and bottom of the media. These values are presented as variables that may be used during a transcode, by binding them to a Crop filter.

By default, suggested crop values ensure that all original non-black media is preserved after cropping. However, some distribution channels require the removal of black edges for some percentage of the final timeline. This filter can accomplish this by selecting Define behavior for media that contains multiple, differing curtain segments, and then specifying the percentage of material after a crop which should not have black edges.

For example, suppose that a media file is analyzed and the above parameter is set to 80%. The suggested crop values, when applied, result in a file that has black on the top and bottom for no more than 20% of the total timeline - that is, 80% of the output have non-black edges.

Variables generated by this filter may be used to trim the file, or to make decisions based upon the content duration.

The *Active Video Region* settings allow you to specify which region of NTSC 512-line and 486-line SD video should be ignored during analysis. Such video occasionally follows different guidelines for where specifically the VBI lines are placed. This allows you to specify where the VBI lines are expected.

Note: PAL video is generally consistent and the VBI is ignored automatically

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Level/Gamut Check Filter

The Level/Gamut Check filter determines whether or not the incoming media is compliant with various gamut and chroma/luminance level standards. Each filter will find and report whether or not the video is compliant with a particular standard, and if not, will report (a) the timecode of the frame which is least compliant, and (b) the percentage of pixels in that frame which are not compliant.

Note: All time codes are non-drop timecodes.

Generally, from a pass/fail perspective, some frames may have only a few pixels out of compliance. Specific thresholds will vary based upon your video operation, but Telestream suggests that frames with more than 5% non-compliant pixels should be reviewed visually.

This filter only works for MPEG-2 video.

For level checking, the YCbCr 16-235(240) filter should be used. This examines the color space to ensure that the entire video is within acceptable chroma and luminance levels for broadcast material.

For gamut checking, choose from these options:

16-235 709 RGB Range. Determines if the video content is valid for the HD ITU-R BT.709 broadcast-safe color space.

0-255 709 RGB Range. Determines if the video content has any color clipping according to the BT.709 specification. This does not determine if the video is broadcast-safe.

16-235 601 RGB Range. Determines if the video content is valid for the SD ITU-R BT.601 broadcast-safe color space.

0-255 601 RGB Range. Determines if the video content has any color clipping according to the ITU-R BT.601 specification. This does not determine if the video is broadcast-safe.

Macroblock Detection Filter

The Macroblock Detection filter analyzes the specified file to determine whether excessive macroblocking artifacts are present in the file.

Note: All time codes are non-drop timecodes.

This video analyzer detects frames with significant macro-blocking artifacts. Each frame is assigned a *macroblocking level* number which indicates the overall amount of macroblocking in the frame.

This macroblocking level is a weighted combination of the average strength of macroblocking artifacts, including the number of artifacts in a frame compared to the size of the entire frame.

Generally, Telestream recommends that media should be examined visually if either (a) any one frame has a macroblocking level greater than 30, or (b) the average macroblocking for the entire timeline is greater than 10.

Note: Different quality thresholds may be desired for different media frame sizes. Generally, the larger the frame size, the higher the acceptable macroblocking level will be. For example, a 1080i HD video frame with a macroblocking level of 30 may in fact be acceptable, whereas a QCIF (320x240) frame with the same macroblocking level of 30 would likely be extremely poor quality.

PSNR Filter

The PSNR filter compares the peak signal-to-noise ratio between two files.

PSNR refers to Peak Signal to Noise Ratio, which measures the difference between two signals, and returns a value between 0 (very different) and 100 (identical).

Note: All timecodes are non-drop timecodes.

One use of PSNR is to compare an original file against its newly-transcoded version. Generally, differences between 30 and 50 are considered acceptable for traditional video compression, though lower values may be acceptable for low-bitrate outputs.

In cases where the files to be compared are of different frame sizes and frame rates, the Normalize Reference Video option can be applied. This converts the reference input to match the source input, using the specified video processing instructions. This also allows the specification of filters for cases where field dominance is different between input and outputs.

The Normalize Reference Video option effectively performs all of the video processing done during a transcode - except for the actual video compression - upon the reference media signal, prior to comparing it to the source media signal. As a result, this allows a comparison of the source media against a perfect transcode of the reference.

Slate Detection Filter

The Slate Detection filter (similar to the Black Detection filter) analyzes the specified file to detect leading slate and color bars in the specified file, and provides a start point for the content that excludes the slate/color bars.

Note: All timecodes are non-drop timecodes.

This filter is generally used to analyze spot material, identifying the following pattern:

- Black
- Color Bars
- Slate
- Black
- Spot or other content
- Black

By providing an estimate of slate duration, and guidelines for error, the filter can differentiate between slate and actual content, in material where a slate does not exist. Further, by allowing a certain number of black frames in the spot itself, the filter can be instructed as to what will constitute black at the end of the spot, as opposed to black that is simply part of the spot itself.

Note: This filter analyzes both video and audio to determine where content starts. If content starts with audio, but black, this will be correctly detected.

Telecine Detection Filter

The Telecine Detection filter analyzes the specified file to determine if it contains content created using a 3:2 pulldown process. It can detect both a 3:2 and a 3:3:2:2 cadence within the source media.

The Minimum Threshold parameter provides a rough guideline for what percentage of material must contain a telecine cadence in order for the entire clip to be considered *telecine*. Bad edits or cadence breaks may cause portions of the media to be mis-identified, so this value should generally be set somewhat lower than the expected actual telecine level in the media to be analyzed.

Video and Audio Pre-Processing Filters

Vantage video and audio pre-processing filters operate on baseband media and modifies the output files you create in a workflow during transcoding. You can enable as many filters as you need in each output file you create in your workflow.

For each set of filters enabled in a given transcode action, you can only have one filter of each type. To process a media file more than once with the same filter, you can set up cascading transcode actions or cascading workflows.

Video Processing Filters

3:2 Pulldown (Telecine) Filter

Blur Filter

Teletrax Watermark Filter

Closed Caption Burn-in Filter

Color Level Filter

Color Rescale Filter

Contrast Filter

Crop Filter

Custom Cadence Video Filter

Darken Region Filter

De-interlacing Filter

Disable Video Processing Filter

Down Convert Filter

Fade In-out Video Filter

Field Order Conversion Filter

Frame Rate Conversion Filter

Gamma Correction Filter

GraphicsFactory Filter

Hue Filter

Image Overlay Filter

Input Frame Mode Filter

Interlaced Resize Filter

Inverse Telecine Filter

Lookup Table Filter

Mask Filter

Movie Overlay Filter

NexGuard Video Watermark Filter (V2)

Noise Reduction Filter

Non-Linear Resize Filter

Open Subtitle Overlay Filter

Output Frame Mode Filter

Saturation Filter

Screen Subtitles Filter

Sharpen Filter

Source Color Processing Filter

Source Video Timing Filter

Text Overlay Filter

Vertical Blanking Synthesis Filter

Audio Processing Filters

Audio Overlays Filter

Add Silent Channels Filter

Audio Levels Filter

Audio Speed Adjustment Filter

Channel Mapping Filter

Fade In/Out Filter

NexGuard Audio Watermark Filter

Nielsen Watermarking Filter

Stereo Phase Invert Filter

SMPTE 337M Audio Insertion Filter

3:2 Pulldown (Telecine) Filter

The 3:2 Pulldown (Telecine) filter (Legacy 8-bit RGB Processor) detects when a 3:2 pulldown operation is appropriate and applies 3:2 pulldown accordingly. 3:2 pulldown is only applied when converting 24fps or 23.98fps source to 30fps or 29.97fps interlaced output.

Note: For NTSC or PAL frame sizes, when converting a progressive input you may need to use the Frame Mode filter to force Vantage to treat the input as progressive.

Note: Telestream recommends that you convert 24p to 30i, or 23.98p to 29.97i. Converting 24p to 29.97i may introduce audio drift.

Audio Overlays Filter

The Audio Overlays Filter combines source channels with up to 32 overlay channels (optionally from multiple files) to an output channel. Controls with a browse button may be assigned a variable, so that values can be passed into the filter from upstream actions on a job-by-job basis.

Usage examples are described after the controls, below.

Using the Controls

General Controls

Source Channel [1 to 32] Scale Factor: To scale the audio channel in the video source file during (whether mixing with an overlay channel or not) to create the output channel, add a real number scale factor (min. 0, max. 10). The scale factor may be an integer or real number, and can be in the range of 0.0 to 10.0 The value 0 = 0% or silent, 0.5 = 50%, 1.0 is 100%, and 10.0 = 1000% or 10X loudness.

To make a source channel silent in the output channel, specify 0 in the Source Channel Scale Factor.

Overlay File Controls

Overlay Files: Check to supply overlay files which contain audio channels you want to use in this filter. When checked, you can add multiple files and configure them.

Add New Item: Click to add a new file entry - one for each file you plan to supply. These files should have WAV audio tracks in them. Each file entry specifies an audio file, a looping option, and overlay channel configurations for up to 32 channels.

Audio File (Max 32) Entry

Filename: Manually enter the fully-qualified path to the audio overlay file (using a UNC path or drive letter path), click the Browse button and select the file, or click the green Variable Browse button and select a variable that has been assigned the path in an upstream action.

Looping: Check looping to repeat the audio overlay track, or click Browse and select a variable that has been assigned True or False in an upstream action.

Overlay Channels for Output Channels 1 to 32: Specify the channel to insert into this output channel from the audio overlay file specified. If Overlay Channel for Output Channel X is left empty, that output channel is not altered; it is not overlaid with any audio from the audio overlay file.

To mix multiple overlay channels, separate the overlay channel numbers with commas or plus signs, as shown in these examples:

1, 2, 4

-OR-

1+2+4

Both examples combine overlay channels 1, 2 and 4 into the output channel.

To scale the overlay channel audio during mixing with a source channel to create the output channel, append a scale factor, surrounding it in parenthesis. The scale factor may be an integer or real number, in the range of 0.0 to 10.0 (where 0 is 0% or silent, 0.5 = 50%, 1.0 = 100% or normal, and 10.0 = 1000% or 10X loudness), as shown here:

1+3 (0.5)

This example combines overlay channel 1 at 100% because no scale is specified, and overlay channel 3 at 50%, into the output channel.

Usage Examples

Mixing Channels From Multiple Audio Overlay Files

To mix channels from multiple audio overlay files into a single output channel, add one audio file item (using the Add New Item button) for each additional file you want to specify, up to 32 total, and configure each filter. The results of all filters are additive.

In this example, you want to combine a Spanish translation channel (2) with a low-volume (20%) sound bed from the 2nd file - dropping any source channel audio entirely from the output.

Audio Overlay File 1

Filename: \\AudioShare\TranslationOverlayFile.wav

Overlay Channel for Output Channel 1: 2

Source Channel 1 Scale Factor: 0

Audio Overlay File 2

Filename: \\AudioShare\SoundBedOverlayFile.wav

Overlay Channel for Output Channel 1: 1(.2)

Making Output Channels Silent

To make an output channel silent, configure the overlay channel for the given output channel with no overlay channel, and set the source channel to zero in the first filter.

Continuing the example, you want output channel 2 silent. Set up the filter for channel 2 in this manner:.

Audio Overlay File 1

Filename: \\AudioShare\TranslationOverlayFile.wav

Overlay Channel for Output Channel 2: <EMPTY>

Source Channel 1 Scale Factor: 0

Audio Overlay File 2

Filename: \\AudioShare\SoundBedOverlayFile.wav

Overlay Channel for Output Channel 2: <EMPTY>

Blur Filter

The Blur filter (Legacy 8-bit RGB Processor) decreases the sharpness and detail of the video. This is done using a two-step process:

First, the entire source image is blurred. The window parameter determines the number of neighboring pixels used by the filter. Larger numbers result in a more blurry effect.

Second, the blurred image is mixed with the original image allowing further control of the effective softness of the image.

Teletrax Watermark Filter

The Teletrax Watermark filter adds an indelible, invisible pattern to source frames as a watermark so that content owners can identify copies of their material being broadcast, for detection by the Teletrax broadcast monitoring system.

Configuration Details

Configure these settings as required. To bind a setting to a variable, click the green Browse button.

General

Duration. Specifies the duration of the media, either as a time value or a timecode and FPS.

Teletrax Watermark

Teletrax Watermark. The items in this menu are auto-populated by the Teletrax configuration file and accessible to the Vantage domain. See the Teletrax App Note on the Vantage web site for details.

ISCI or Ad ID... Ad Length. Specifies the metadata from the configuration file. All metadata fields may be altered or left unaltered, as appropriate.

Closed Caption Burn-in Filter

The Closed Caption Burn-in filter (Legacy 8-bit RGB Processor) burns the closed caption text into the source media frames prior to encoding.

If multiple lines are required on a frame, each line of characters will be broken on natural boundaries such as spaces and punctuation marks. Lines are typically broken on whole words. Lines are automatically limited to fit on the displayed video.

Note: If the output frame size is different than the input frame size, it may result in rescaling the closed caption.

Source Closed Captions Burn-in. Check to activate this filter.

X Position. Left edge of the top, left corner of the burn-in rectangle on the input frame.

Y Position. Top edge of the top, left corner of the burn-in rectangle on the input frame.

Font Size. Specifies the font size, in points.

Color Level Filter

The Color Level filter enables you to correct the YUV color level by value. To use the filter, select the color level range (8, 10, or 16-bit YUV) and then specify the lower and upper range limits. This filter clips values that are out of range.

All color value changes are made on a 16-bit color space; you do not have to know or specify what YUV color level range the input media is; the filter normalizes the values automatically.

Color Rescale Filter

The Color Rescale filter (Legacy 8-bit RGB Processor) is used to rescale between the ITU-R 601/709 color space and a full-band color space. This filter is rarely used, as most transcoding makes the color space adjustment automatically.

Traditionally, when a video component is represented using an 8-bit value, the ITU-R 601/709 color space is represented by intensity values from 16 to 235. This filter maps between those values, and a full 0 to 255 value range. When rescaling to the full range, lighter colors will get lighter and darker colors will get darker; rescaling to ITU-R 601/709 has the opposite effect.

For example, when using the Color Rescale filter to convert from 601/709 to full scale RGB, a red input pixel of RGB value 235,16,16 is rescaled to 255,0,0.

Contrast Filter

The Contrast filter (Legacy 8-bit RGB Processor) enhances the contrast of the video. Contrast values greater than zero generate images with more contrast in the mid-intensity range of the video color components, while contrast values less than zero generate images with less contrast in the mid-intensity range.

Crop Filter

The Crop filter (Legacy 8-bit RGB Processor) trims the outer edges of each frame of the input file immediately prior to resizing the image for transcoding. Effectively, this reduces the dimensions of the input video. For example, a 480-line input video that crops 20 pixels from the top will effectively be treated as a 460-line input before resizing to the target dimensions.

As a result, cropping changes the effective aspect ratio of the input video signal as it is transcoded. In cases such as up-conversion or down-conversion, this may be used to change the source video dimensions to match the aspect ratio of the output format.

If you want to crop the input video without changing the source signal aspect ratio - for example, if the goal is to overlay 20 lines of black at the top of a 480-line video - then a Mask filter should be used with exactly the same dimension as the crop parameters, to replace the cropped region.

Custom Cadence Video Filter

Inverse Telecine is the process of converting Telecined media back to 24fps progressive media. When the starting phase and cadence of the material is known, the inverse Telecine algorithm is easy to implement with excellent results. However, when Telecined material contains edits, or long sections of static content (black bumpers or animation, for example), the inverse Telecine algorithm may make an incorrect determination on certain frames, resulting in poorer quality output.

Inverse Telecine is improved by implementing a two-pass approach.

The first pass - implemented in the Telecine Cadence Analyzer in the Analysis action - analyzes the entire media file for breaks or changes in Telecined content, determining the most likely phase and cadence of each frame individually. The result of this analysis is stored in an XML file.

The second pass - implemented in the Custom Cadence Video Filter in the Flip action utilizing the Multi-Core or the Lightspeed VPL - uses the XML file created by the Telecine Cadence Analyzer to apply the frame-by-frame cadence and phase to the inverse Telecine operation.

Note: This filter is intended for use in video encoders generating 24fps progressive media only. To enable and use this filter, you must select either the Multi-Core or Lightspeed VPL (select Video Stream and then select the VPL to utilize). If the Custom Cadence Video Filter is not displayed in the video filter menu, make sure that you have selected the Multi-Core or Lightspeed VPL.

To perform inverse Telecine on your media using the Custom Cadence Video filter, you must first use the Telecine Cadence Analyzer in the Analyze action to perform phase and cadence analysis on the media and produce the required XML file.

Configuration Details

Browse to select (or manually enter the fully-qualified path to) the cadence information XML file or click the green Variable Browse button to use a variable to obtain the file, which has been set in the Telecine Cadence Analyzer in an upstream Analysis action in the same workflow.

You can use the fully-qualified path when the file is generated in an earlier job by this or another workflow (use a generic file name for this method to make the workflow operate on a continual basis). Use a variable when the Analysis is performed in the same workflow.

Note: If you supplied a nickname instead of a file name in the Telecine Cadence Analyzer in the Analyze action, you MUST add an Identify > File Properties action to the workflow and enable a File Path variable to assign to a variable so that you can transfer the file path over to the Custom Cadence video filter in a variable - the Custom Cadence video filter is not capable of using nicknames.

Darken Region Filter

The Darken Region filter (Legacy 8-bit RGB Processor) allows you to darken a region of the output video. This filter is useful for drop shadows, or as a background behind text. The position of the region to darken is specified by its pixel location relative to the top left of the output video, and by its width and height in pixels as measured in the output video.

De-interlacing Filter

The De-interlacing filter (Legacy 8-bit RGB Processor) enables you to select which method to use for de-interlacing your input video. The De-interlacing filter should be used when converting from interlaced to progressive material, has no effect in other situations.

The simplest form of de-interlacing is to simply preserve both fields from the source and render them directly into a progressive output frame. However, in high-motion material this can have undesirable ghosting effects where the combination of two independent fields results in two apparent images of the same object in different locations.

In contrast, keeping only the upper or lower fields ensures that high-motion material renders correctly, but loses half the detail of the original image. This de-interlacing method is best used when scaling the original down by 50% or more.

Finally, adaptive de-interlacing calculates on a per-pixel basis whether to preserve detail from both fields, or avoid motion artifacts by preserving only one field. Simple adaptive de-interlacing uses preset constants and tends to perform well in most situations. Advanced adaptive de-interlacing allows specific values for what constitutes noise, motion, and how to blend the two.

Disable Video Processing Filter

The Disable Video Processing filter (Legacy 8-bit RGB Processor) completely disables all video filters to improve transcoding speed. This filter is not a filter per se, but a filter disabling option. When enabled, no video filters execute.

This filter only applies when both the input and output have the same frame rate and frame size.

Down Convert Filter

The Down Convert filter allows (Legacy 8-bit RGB Processor) you to specify a down conversion method (Resize to Fit | Letter Box | Center Cut) when converting video from HD to SD (PAL or NTSC resolutions).

You should only use this filter when down converting to SD resolutions - PAL or NTSC.

Fade In-out Video Filter

The Video Fade In/Out (Legacy 8-bit RGB Processor) filter fades the video in from the specified color at the start of the clip. It also fades the video out to the specified color at the end of the clip. To fade only at the start or end of the clip, specify 0 seconds for the unused fade duration.

Field Order Conversion Filter

The Field Order Conversion filter (Legacy 8-bit RGB Processor) enables you to select which method to use when performing field order conversion. This filter is generally used during interlaced-to-interlaced conversion between formats that have different field dominance. For example, when converting from lower-field first video to upper-field first video.

The Field Order Conversion filter affects field order only when the following conditions are met:

- Input media is interlaced
- Output media is interlaced
- Input field rate is the same as output field rate
- Input field ordering is opposite of output field ordering

The Field Order Conversion filter provides three conversion modes:

Spatially Interpolate. (Default) Inverts field ordering by interpolating lower field lines to generate upper field lines, and by interpolating upper field lines to generate lower field lines.

Frame Line Shift Up. Inverts field ordering by shifting input frame up one frame line.

Frame Line Shift Down. Inverts field ordering by shifting input frame down one frame line.

Frame Rate Conversion Filter

The Frame Rate Conversion filter (Legacy 8-bit RGB Processor) enables you to select which algorithm method to use when performing field/frame rate conversion.

Blending. The nearest frames or fields can result in apparently smoother motion; however, each output frame is a combination of two input frames. As a result, two versions of objects may appear in some frames. This is especially noticeable when converting between frame rates that are near multiples of each other. For example, this option is generally not used when converting between 30fps and 29.97fps, or 29.97fps and 15fps.

Choosing. The nearest frame or field may result in motion which is slightly less smooth, but each output frame or field is an exact copy of an input frame or field. This option is the best choice when converting between frame rates that are nearly multiples of each other - for example, 30fps to 29.97fps. However, with material that has smooth motion such as panning, and particularly when converting between NTSC and PAL, blending may be the preferred choice.

Gamma Correction Filter

The Gamma Correction filter (Legacy 8-bit RGB Processor) applies gamma correction to the output video for the purpose of displaying it uniformly on different display devices which have different gamma characteristics: for example, CRT televisions, CRT computer monitors, LCD televisions, LCD computer monitors, and handheld devices.

Television and computer monitors have very different gamma characteristics. Material originally produced for television viewing often displays more darkly when played on a computer monitor, requiring a gamma correction to correct the problem.

GraphicsFactory Filter

The GraphicsFactory filter specifies the template to use when processing a GraphicsFactory job to produce media with overlaid graphics and audio.

GraphicsFactory templates are created using the GraphicsFactory template creator. GraphicsFactory is a paid option to Vantage; contact Telestream for details.

Hue Filter

The Hue filter (Legacy 8-bit RGB Processor) adjusts the color of the video by rotating the hue. The rotation value ranges from -180 degrees to +180 degrees. Rotating the hue affects the apparent color of the material; for example, greens may become yellows, or blues may become reds.

Image Overlay Filter

The Image Overlay filter (Legacy 8-bit RGB Processor) composites the specified image file over the output video. Supported overlay image types include PNG, TIFF, TGA, JPG, BMP, and GIF. If alpha is present in the image, it is used to determine which portions of the image is transparent in the overlay.

Positioning the overlaid image is done using the top-left corner of the image, and specifying its coordinates relative to the top-left of the output video frame. From this position, either width and height values can be provided, or the original image width and height can be observed. All coordinates are measured in output video pixels.

Cropping can be used to adjust the image prior to overlay. Cropping is applied before calculating the top-left coordinate of the image and the image width and height; that is, the cropped version of the image is used to calculate all coordinates.

Input Frame Mode Filter

The Input Frame Mode filter (Legacy 8-bit RGB Processor) instructs the video processing engine to ignore the interlacing configuration for the input video, and instead use a user-defined interlacing configuration. This setting affects how the incoming video is processed; it has no actual effect upon the input video.

Note: This filter should only be used when input video essence is not recorded in the way reported by the input video container. Vantage automatically reads the interlacing configuration from the input file, and uses this information in its video processing; however, in some cases, the input file may report incorrect interlacing configuration. For example, some material may be tagged as upper-field first by the media file type, but may in fact have been encoded as lower-field first.

Interlaced Resize Filter

The Interlaced Resize filter (Legacy 8-bit RGB Processor) enables you to determine which method to use for resizing interlaced video. This filter can be used during up-conversion, down-conversion, and standards conversion where both the input and output are interlaced.

Generally speaking, higher-quality output requires more processing time. Resizing the fields independently is the fastest method of interlaced resizing, but may result in noticeable visual artifacts at the edges of objects.

MotionResolve (TM) offers a significantly higher-quality output, though it also requires more processing power. MotionResolve analyzes fields and determines whether to preserve detail, or preserve motion, on a per-pixel basis.

Simple mode uses pre-set coefficients and uses a simpler algorithm to perform the calculations; Advanced mode uses a more sophisticated algorithm, and also allows user-defined coefficients for what constitutes motion, what constitutes noise, and how to weight the importance of motion against detail. Advanced mode offers the highest visual quality, but requires the most processing time.

Inverse Telecine Filter

The Inverse Telecine filter (Legacy 8-bit RGB Processor) allows you to convert telecined material from NTSC 29.97 to 24p film, reversing the 3:2 pulldown (telecine) process.

The Inverse Telecine filter detects when an inverse telecine operation is appropriate and applies inverse telecine accordingly. Inverse telecine is only applied when converting 29.97fps or 30fps interlaced source to a 23.98fps or 24fps progressive output.

Note: This option is not recommended for material that was originally shot at 29.97 fps - that is, was not created using 3:2 pulldown techniques. Vantage can automatically detect whether the source material was created using a 3:2 pulldown filter, but will default to Keep Both Fields de-interlacing when telecine is not detected.

Note: If you are converting media that was originally shot at 29.97 fps to 24 fps, consider using the De-interlacing filter instead for more control over the de-interlacing process.

Note: Telestream recommends that you convert 29.97i to 23.98p, or 30i to 24p. Converting 29.97i to 30p may introduce audio drift.

Detect and Adapt to Bad Edits and Cadence Changes. When Apply Inverse Telecine when Appropriate (above) is checked, this option is also checked. When checked, this filter processes all fields to detect bad edits and cadence changes to improve the visual temporal quality of the output; it also disables inverse Telecine when a 3:2 cadence is not detected. If unneeded, uncheck to reduce processing time.

Lookup Table Filter

The Lookup Table filter enables you to manipulate the colors in the video frame using color lookup table files.

The filter supports both one-dimensional and three-dimensional tables in the following formats:

- Adobe Systems Cube format lookup table files (.cube).
- Foundry 3dl format lookup table files (.3dl).

Lookup Table. Specifies the fully-qualified path to the lookup table file. Optionally, assign a variable to specify the file.

Note: To use specific LUT files dynamically on a job-by-job basis, add an Associate action after the origin action (typically, Watch) in the workflow. Configure the action as required to select the proper LUT file. Check File Path and assign the variable to hold this value.

Input Color Space. Specifies the color space of the input file.

Output Color Space. Specifies the color space of the output file.

Mask Filter

The Mask filter (Legacy 8-bit RGB Processor) masks the output video, adding extra lines as specified.

The Mask Filter masks a region which lies outside of the output image and inside of the output rectangle. Masking causes the output image to be resized (scaled down) to fit into the masked region in each dimension: horizontal (left and right) and vertical (top and bottom).

Letterbox mask mode (default) is used to automatically calculate the mask region so that the selected output image aspect ratio, 16:9 or 14:9, is achieved by scaling the output image appropriately.

Note: To use Letterbox mode, the output rectangle aspect ratio must be 4:3, which is a function of the output rectangle dimensions that are specified in the encoder setup.

Manual mask mode is used to set each mask edge (top, bottom, left, right) individually. Image distortion can occur if the selected horizontal and vertical mask values do not maintain the original image aspect ratio.

In either mode, Letterbox or Manual, the mask region matte color may be selected. Black is the default matte color.

The Mask filter can also be used in conjunction with the Overlay filter to apply an image in the mask region.

Movie Overlay Filter

The Movie Overlay filter (Legacy 8-bit RGB Processor) allows you to overlay any QuickTime movie (including movies with an alpha channel) over the input video that you are transcoding. The Movie Overlay filter supports any file that QuickTime Player for Windows can play.

The top left of the overlay movie can be positioned relative to the top left of the output video. The width and height of the overlay movie can also be set; all values are measured in pixels within the output video.

Noise Reduction Filter

The Noise Reduction filter (Legacy 8-bit RGB Processor) reduces video noise by applying a median filter to the entire source image.

The noise reduction window parameter determines the number of neighboring pixels that will be utilized in the noise reduction process for each input pixel. A small window (3x3) will reduce random noise and improve image compression. Larger windows will remove more noise but can blur the image or cause it to look pixelated.

Non-Linear Resize Filter

The Non-linear Resize filter (Legacy 8-bit RGB Processor) executes a resizing algorithm that preserves the aspect ratio of the center material, while warping the outer edges to compensate for the change in shape of the video rectangle. Typically, the Non-linear Resize filter is used when stretching content from 4:3 to 16:9 aspect ratios without using letterboxing or cropping.

Open Subtitle Overlay Filter

The Open Subtitle Overlay filter references an XML file which specifies subtitle graphics files and insertion times for each of the files.

The XML is typically generated by an upstream MediaMate action, configured to use the Subtitle to XML feature. Contact Telestream Technical Support for more details.

Configuration Details

Configure the following settings. Use the green Browse button to bind the settting to a variable.

General

Screen Subtitle XML File. Click browse to navigate to and select (or manually enter) the fully-qualified path to the subtitle XML file, generally create by an upstream MediaMate action.

Subtitle Timeline. When Specify XML Timeline Start Timecode is selecte, specifies the start timecode assumed by the XML timeline (either as a time value or a timecode and FPS). When Use Movie Start Timecode is selected, specifies the time offset in milliseconds.

Output Frame Mode Filter

The Output Frame Mode filter (Legacy 8-bit RGB Processor) enables control over how to generate output fields or frames.

Note: Use of this filter overrides the interlacing settings in the video codec you are using, and allows you to specify interlace settings that may be invalid for some video formats.

Saturation Filter

The Saturation filter (Legacy 8-bit RGB Processor) controls the amount of color in the video by saturating the output video components. Saturation values range from -100% (no color) to 100% (5 times the normal saturation).

Screen Subtitles Filter

The Screen Subtitles filter (Legacy 8-bit RGB Processor) enables you to apply burnt-in (or open) subtitles to video during the transcoding process. Subtitles are generated from subtitle files, which include details of text, timing and format. Screen Subtitling typically uses PAC subtitle files generated by subtitle preparation systems from Screen Subtitling Systems (http://www.screen.subtitling.com). Alternatively, European Broadcast Union (EBU) STL subtitle files may be used.

Screen Subtitling is a licensed option, which may be purchased and downloaded by registered Vantage users via our Web site at http://www.telestream.net.

To perform screen subtitling on a media file, you set up a workflow which has the Screen Subtitling option installed and licensed, configure the Screen Subtitles filter on the product you have specified to identify the subtitle and optionally, configuration file, and submit the source media for processing.

Sharpen Filter

The Sharpen filter (Legacy 8-bit RGB Processor) increases the sharpness and detail of the video in a two step process:

1. An edge enhancement filter is applied to the entire source image. The window parameter determines the number of neighboring pixels used by the filter and the amount of edge enhancement.
2. The edge enhanced image is mixed with the original image further controlling the effective sharpness.

Source Color Processing Filter

The Source Color Processing filter (Legacy 8-bit RGB Processor) provides control over RGB and YUV color space conversion during decoding of the input file as specified in the settings.

Source Color Processing Type. Select Color Remap Mode | YUV Mode.

Color Remap Mode

Red | Green | Blue | Alpha Output Channel. There are four input and four output color channels: R (red), G (green), B (blue) and A (alpha). Each input channel can be assigned to one or more output channels by entering the values R, G, B, or A. You can also control the value in each field with a variable that has been set in a previous action.

Note: The Alpha channel is only available for a limited set of file formats, and only if the input file contains Alpha information. Where no Alpha information is available, the Alpha content of the signal is assumed to be zero.

YUV Mode

Accept YUV. Check to decode and emit YUV uncompressed video and convert the YUV to RGB using either ITU-R 601 (SD) or 709 (HD) colorspace conversion, as appropriate.

Preserve Pluge. Check to convert the full range YUV (0-255) to full range RGB (0-255). If unchecked the 16-235 range YUV is converted into full range RGB.

Both of these controls may be enabled or disabled using a variable that has been set in a previous action.

Source Video Timing Filter

The Source Video Timing filter (Legacy 8-bit RGB Processor) allows control for how the Vantage video processing engine processes fields or frames from the input video.

This filter is rarely used. By default, Vantage detects the incoming video frame rate and locks incoming frames or fields to that rate; this removes any slight variations that may be present in the incoming video, and ensures that the output video is encoded cleanly. However, in some rare cases the input video file may present frames in incorrect order, or may present one frame for a longer display time. In these cases, the source video frame timing should be used.

Text Overlay Filter

The Text Overlay filter (Legacy 8-bit RGB Processor) allows you to generate text elements over the video that you are transcoding.

Text is positioned relative to the specified margins, which are measured in pixels within the output video. Text can further be forced to wrap - or automatically adjust spacing - to fit within these margins.

An outline or shadow can be generated. For an outline, a high intensity value and a low softness value should be used; for a gentle shadow, a low intensity value can be combined with a high softness value. The horizontal and vertical offset values can then be used to adjust any shadow effect's position relative to the text; negative values move the shadow to the left or up, positive values move the shadow to the right, or down.

Vertical Blanking Synthesis Filter

The Vertical Blanking Synthesis filter (Legacy 8-bit RGB Processor) takes source closed-caption textual information from line 21/22 (NTSC/PAL) provided by a source decoder and synthesizes an analog signal based upon the source data. This filter only works on 486/525 line outputs.

The blanking synthesis module can also work in a replacement mode, whereby a source with in-band data (for example, a 720x512 NTSC frame) can have the blanking area replaced with synthesized information provided by the source filter.

Note: This filter provides a checkbox which instructs the synthesis filter to only overwrite the caption line in the output VBI. If checked, only the caption line is replaced. If unchecked, the entire vertical blanking region is replaced.

Overwrite Only Closed Captioning Line. When checked, overwrites only the closed caption line in the VBI. When unchecked, the entire VBI region is cleared before writing captions.

Put Blanking Only in Field One. When checked, only field one of the VBI is synthesized; otherwise both fields are synthesized.

Closed Captioning Line (525/60). Specifies which line in the VBI the synthesized data should be inserted for full 512-line material.

Closed Captioning Line (486/60). Specifies which line in the VBI the synthesized data should be inserted for full 486-line material

Add Silent Channels Filter

The Add Silent Channels filter enables you to create new audio channels in the output file. New audio channels have no sound.

By default, if this filter is not used, and an input file has no audio, then the output file may simply not have any audio channels at all. This filter may be used to ensure that the output file has audio tracks - either blank, or containing audio provided by an Audio Overlay filter.

Audio Levels Filter

The Audio Levels filter enables automatic adjustment of output audio levels.

When using the Master Gain Adjustment option, the output levels are adjusted by the specified amount.

When using the Loudness Adjustment option, loudness adjustment items can be added that allow automatic adjustment of groups of output channels. The Loudness Adjustment option is generally used in conjunction with variables generated by the Advanced Audio Measurement filter in the Analyze action.

Apply To Channels. A comma separated list of channels to which the loudness adjustment will be applied. For example: *1,2,3,4,5,6*. A range of channels can also be specified with a hyphen, so that *1-6* is functionally equivalent to *1,2,3,4,5,6*.

Source Loudness. The measured loudness of the source file. Typically this is bound to a Relative Gated Loudness variable generated by the Advanced Audio Measurement filter.

Target Loudness. The desired target loudness for the output file.

Apply Peak Limits. Check to use Peak Limiting. If unchecked, the Source Peak and Peak Limit parameters are ignored. When the peak limit option is checked, peak limiting may override the loudness correction in circumstances where a positive loudness adjustment is applied.

For example: If Source Loudness = -28dB and Target Loudness = -23dB then +5dB of loudness adjustment is required. If the Source Peak is -6dB and the Peak Limit is -3dB then applying a +5dB gain correction results in a peak of the output of -1dB, which is 2dB above the specified limit. In this case, only +3dB of loudness adjustment will be applied, ensuring that the peak does not exceed the specified limit. The loudness of the output in this case will not reach the required target of -23dB and will only be adjusted to -25dB.

Note: The peak limit is only applied in the case of a positive loudness adjustment. In the case that a negative loudness adjustment is required the peak limit parameters will be ignored.

Source Peak. Typically this parameter is bound to the True Peak variable generated by the Advanced Audio Measurement filter.

Peak Limit. The peak that should not be exceeded in the event of a positive loudness adjustment.

Use Dialog Based Measurement. When checked, Dialog Loudness is primarily used in place of Source Loudness to calculate the loudness adjustment. If Use Dialog Based Measurements is unchecked, the subsequent Dialog parameters in the interface are ignored.

Source Dialog Percentage. The percentage of dialog present in the source, typically this is bound to a Dialog Percentage variable generated by the Advanced Audio Measurement filter.

Minimum Dialog Threshold. If Source Dialog percentage is greater than the Minimum Dialog Threshold, then the Source Dialog Loudness is used in place of Source Loudness to calculate the required loudness adjustment. If Source Dialog percentage is less than the Minimum Dialog Threshold, then the Source Loudness is used.

Source Dialog Loudness. The loudness of the dialog in the source, typically this is bound to a Dialog Loudness variable generated by the Advanced Audio Measurement filter.

Audio Speed Adjustment Filter

The Audio Speed Adjustment filter allows you to speed up or slow down the audio, without a pitch change.

Audio Speed Adjustment. Select from the pre-set adjustments, or select Custom and set your input audio frame rate and your output audio frame rate. Or, supply variables with values which have been specified upstream.

Channel Mapping Filter

The Channel Mapping filter controls the assignment and mixing of the input audio channels to the output audio channels.

Audio channels are numbered from 1 to 32. For each audio output channel, enter the number of the input channel that should be connected to that output. To combine multiple inputs to an output channel, separate the input channel numbers with commas or plus signs, as shown in these examples:

1, 2, 4

-OR-

1+2+4

Both examples combine input channels 1, 2 and 4 into the output channel.

To mix an input channel into the output channel, append a scale factor to the input channel number, surrounding the scale factor in parenthesis. The scale factor may be an integer or real number, and can be in the range of 0 to 10, as shown in this example:

1+3 (0.5)

This example combines input channel 1 at 100%, and input channel 3 at 50%, into the output channel.

Fade In/Out Filter

The Fade In/Out filter fades the audio up from silence at the start of the clip. It also fades the audio down to silence at the end of the clip.

Fade times are specified in seconds.

NexGuard Audio Watermark Filter

The NexGuard Audio Watermark filter is an optional, licensed feature which adds an indelible, inaudible pattern to source audio as a watermark so that content owners can protect content by identifying unique copies of their material.

The NexGuard Audio Watermark filter requires a NexGuard Audio Watermark license from NexGuard, as well as a NexGuard Connector Vantage license from Telestream (the NexGuard Vantage license enables both the video and audio watermark filters).

Note: Settings which display a Browse button can be supplied a value using a variable which has been assigned the value in an upstream action.

The watermark ID and key are typically provided by an upstream Notify action, configured with a NexGuard Notifier which communicates with the NexGuard Manager to obtain these values, and pass them to the Flip action via variables. For details, see the help page for the Notify action NexGuard Notifier.

In special circumstances, you can optionally supply the watermark ID and watermark key manually - for example, if the NexGuard Manager is temporarily unavailable.

NexGuard Audio Watermark ID. Specifies the watermark ID to be embedded by NexGuard. Click Browse to select the variable carrying the watermark ID.

NexGuard Audio Watermark Key. Specifies the key to use when NexGuard applies the watermark. Click Browse to select the variable carrying the watermark key. The license provided to you by NexGuard contains the key or keys. The key list in the menu is dynamically updated when the Vantage Transcode service starts in your Vantage domain.

NexGuard Video Watermark Filter

The NexGuard Video Watermark filter is an optional, licensed feature which adds an indelible, invisible pattern to source video as a watermark so that content owners can protect content by identifying unique copies of their material.

The NexGuard Video Watermark filter can only operate when you are using the Multi-core 16-bit or Lightspeed Accelerated video processor.

The NexGuard Video Watermark filter requires a NexGuard Video Watermark license from NexGuard, as well as a NexGuard Connector Vantage license from Telestream (the NexGuard Vantage license enables both the video and audio watermark filters).

Note: Settings which display a Browse button can be supplied a value using a variable which has been assigned the value in an upstream action.

The watermark ID and key are typically provided by an upstream Notify action, configured with a NexGuard Notifier which communicates with the NexGuard Manager to obtain these values, and pass them to the Flip action via variables. For details, see the help page for the Notify action NexGuard Notifier.

In special circumstances, you can optionally supply the watermark ID and watermark key manually - for example, if the NexGuard Manager is temporarily unavailable.

NexGuard Video Watermark ID. Specifies the watermark ID to be embedded by NexGuard. Click Browse to select the variable carrying the watermark ID.

NexGuard Video Watermark Key. Specifies the key to use when NexGuard applies the watermark. Click Browse to select the variable carrying the key. The license provided to you by NexGuard contains the key or keys. The key list presented in the menu is dynamically updated when the Vantage Transcode service starts in your Vantage domain.

NexGuard HDR Support. Utilizes NexGuard's internal support of HDR Content. If the checkbox is enabled, it displays a selection of Transfer Characteristic types.

Nielsen Watermarking Filter

Note: The use of the Nielsen Watermark filter is an optional, licensed feature. For full details about the Nielsen Watermark product, see the vendor documentation.

The Nielsen Watermarking filter (also referred to as an audio codec) is a Nielsen software component that inserts an inaudible sequence of bits periodically in PCM audio streams. The components of the watermark (SID, TIC, and watermarking level) uniquely identify the portion of audio from which the watermark is extracted and the distribution source to which the audio content is credited.

Note: Settings which display a Browse button can be supplied a value using a variable which has been assigned the value in an upstream action.

General Settings

Watermark SID. Nielsen assigns one or more SIDs (Source IDentification) to each content provider or distribution source. The SID uniquely identifies the distribution source and is included as a component of each watermark.

Nielsen SID/TIC Server IP Address. The IP address of the computer running the Nielsen licensing SID/TIC server system, which is required to run the Nielsen Watermarking. Nielsen must be contacted in order to obtain their licensing SID/TIC server system.

If Nielsen Server connection failure, sleep for. Retry delay value (in milliseconds) for the connection to the Nielsen SID/TIC server. If a connection attempt fails, Vantage waits the prescribed time until it attempts another connection. Upon failing a second time, the transcode aborts.

TIC Duration. Duration (in seconds) of the source audio. The SID/TIC Server uses the duration to allocate the proper range of TICs.

Metadata/Logging Output Directory. Fully-qualified directory (from the perspective of the Vantage domain server) where Vantage writes metadata, log, and signature output files containing information about the transcode and the watermarked content. Enter or browse to select the directory path - usually a share - which is required, if you have a distributed (multi-server) domain. Vantage must have write permission for this directory.

Channel Setting Group

Channel Setting. Select the type of audio you are watermarking.

Stereo: Requires 2 channels - for example 1,2. If you are generating a signature file, channel 1 is used.

5.1 AC-3: Requires either 5 or 6 channels. If you are generating a signature file, specify one channel number for LEFT (typically FRONT LEFT) and one for the CENTER channel. For example, 1,3, or 3,4. These two channels are mixed and used.

Quad Stereo: Requires 8 channels. If you are generating a signature file, specify one channel number for LEFT (typically FRONT LEFT) and one for the CENTER channel. For example, 1,3, or 3,4. These two channels are mixed and used.

Other: 1 to 8 channels required. The first channel in the list is used.

Audio Channels. Setting determined by Channel setting.

Input Channel IDs. Specify the channel number or numbers, separated by comma. Or, click the Variable Browse button and select a text variable assigned an appropriate text string value (for example: 1,2) by an upstream action.

Content Type Group

These values are all passed to the SID/TIC server.

Content Type. Select Commercial Content | Program Content.

Nielsen Param Type. This value can not be changed.

Nielsen Timecode Type. This value can not be changed.

Content Type. Set as specified by Content Type setting.

Process Type. Specifies which watermarking process is activated.

Distribution Type. Set based on your Content Type selection.

Decode and Signatures. Check to generate signature files (DNA, PAS or both, depending on settings and content). Log files and decode files are also generated. These files are written to the Metadata/Logging Output Directory, specified above.

Stereo Phase Invert Filter

The Stereo Phase Invert filter inverts the audio phase. The filter can only be used to invert 2 channel input having 16-bits per sample.

SMPTE 337M Audio Insertion Filter

The SMPTE 337M Audio Insertion filter replaces the source file audio stream with audio from the specified file.

The audio file name may be bound to the Audio File variable. The total number of audio channels in the WAV files must equal the number of channels in the output file. The sample rate and bit depth of the WAV output audio must also match that of the source audio.

Movie Pre-Processing Filters (Legacy 8-bit RGB Processor)

Vantage movie pre-processing filters for the legacy 8-bit RGB processor operate on baseband media and modifies the output files you create in a workflow during transcoding. You can enable as many filters as you need in each output file you create in your workflow.

For each set of filters enabled in a given transcode action, you can only have one filter of each type. To process a media file more than once with the same filter, you can set up cascading transcode actions or cascading workflows.

Blanking Synthesis Filter

Caption Conversion Filter

Dolby E Decode Filter

Media Expansion Filter

Media Trim Filter

SCC Caption Insertion Filter

SCC Caption File Generation Filter

Source Timecode Preservation Filter

Timecode Burn-in Filter

Timecode Override Filter

VANC Insertion Filter

VANC Packet Scan Filter

VBI Caption Decoder Filter

Vertical Blanking Interval Filter

VITC Decoder Filter

VITC Synthesis Filter

Blanking Synthesis Filter

The Blanking Synthesis Filter synthesizes vertical blanking Interval lines from ANC data in the output media. This is typically used when creating media for use on equipment that requires ancillary data as VBI or you have other needs for presenting ancillary data in VBI lines.

Note: Settings which display a Browse button can be assigned a Variable, supplying a run-time value supplied in an upstream action.

Enable Caption Replacement. When checked, ignores input VANC CC data supplied by a decoder and generates new VANC data from VBI captions. It should be used in cases where the source file has corrupt or invalid VANC closed captions but valid VBI captions.

Manual Line Selection. When checked, instructs the filter to insert closed captions on a certain line of VBI. By default it inserts closed caption data on line 21 for NTSC content or line 22 for PAL, but other lines can be selected if needed.

Caption Line 525/60. Select VBI line 7-22 for a 525 line file at 60 Hz (29.97 fps).

Caption Line 486/60. Select VBI line 0-6 for a 486 line file at 60 Hz (29.97 fps).

Caption Line 625/50. Select VBI line 7-23 for a 625 line file at 50 Hz (25 fps).

Put Blanking Only in Field One. When checked, instructs the filter to add closed captioning data in field one only. It can be used if there is no CC3 or CC4 data to be inserted.

Caption Conversion Filter

The Caption Conversion Filter converts incoming CEA-608 caption data to CEA-708 format. It overwrites any previously existing 708 data.

Note: This filter only works with files containing caption data.

Enable CEA-608 to CEA-708 Caption Conversion. Check to convert 608 captions to 708 format captions. This operation replaces any data in existing 708 packets.

Use Telestream Media Framework. Checked to utilize the Telestream Media Framework for performing this operation.

Encode CEA-708 Captions in 42-column Mode. When checked, 708 data is encoded in 42-column mode, also known as 16x9 wide mode. Captions still occupy a 4x3 region of the frame, but the frame is padded and displays centered on a 16x9 frame.

Dolby E Decode Filter

The Dolby E Decode filter detects and decodes stereo pair Dolby E Audio in the source file into 6 or 8 channels of PCM audio. If the filter does not detect Dolby E in an audio stream, it treats the audio in that stream as PCM.

By default, Vantage always preserves (passes through) Dolby E audio, even without adding a Dolby E Decode filter. To override this behavior, you must add an Auto-Detection Override and disable Pass Through.

Basic Operation

Vantage supports the processing of up to 32 separate audio channels in media files. When decoding Dolby E in media files, you can submit media that includes multiple audio tracks, including one or more Dolby E tracks, provided that the decoded (uncompressed) audio channels in the output file does not exceed 32 channels.

The Dolby E Decode filter operates by examining the audio stream for the first few seconds. If Dolby E is identified on any stereo pair, it is expanded.

Dolby E tracks decode into 6 (16-bit) or 8 (20-bit) channels. Other audio channels pass through unchanged. The Dolby E Decode filter decodes (expands) all audio tracks into individual channels in the same order as the input. When a Dolby track is decoded (for example, a 5.1 surround sound track on 3 and 4 expands to 6 channels), the 6 channels are output into 3 through 8, and any audio on higher channels (for example, 5 and 6) are moved to the next ordinal channel numbers - 9 and 10.

You can optionally add a Channel Mapping Filter to your stream when applying a Dolby E Decode filter to remap your output audio channels.

Using Auto-Detection Override

Enable Auto-Detection Override to force Dolby E decoding per your requirements. For example, your Dolby E audio may not start at the beginning of the media, due to the presence of a slate.

Add New Item. Click Add New Item for each pair of source Dolby E channels you want to process.

Source Channels. Specifies which channel-pair Dolby E is present on, with options to either pass through this Dolby E pair or decode it.

Pass Through. Check for the unusual instance where you want to decode the source Dolby E and also preserve the source Dolby E so the output has both. The audio input on the specified pair is passed through as two-channel uncompressed audio to the output in the same channels. The pass-through option is not used for any other purpose.

Decode Dolby E. Check to decode the source Dolby E audio input on the specified pair into any output that supports audio. Output channels start at the same channel as input unless Pass Through is specified; then output channels start at the next highest channel. For example, if Source Channels is set to 3,4 and Pass Through is checked, then channel 1 of the decoded Dolby E is output on channel 5.

Media Expansion Filter

The Media Expansion filter allows you to adjust the timeline of the media during a transcode. This filter can either insert black frames or QuickTime movies, at the start, at any point in the media, or at the end of the media.

Black bumpers and trailers can be inserted either during a full transcode or during a direct convert involving IMX video. QuickTime bumpers and trailers can only be added when transcoding media from one format to another.

When inserting QuickTime movies into media, the frame size, frame rate, and number of audio channels must match the metrics of the input media file the QuickTime movie is being inserted into. For example, if you are adding a QuickTime movie to an MPEG-2-PS 480i file with stereo audio, each QT movie you insert with must be 720x480 at 29.97 fps, with 2 channels of audio.

When this filter is applied, the source timecode may be lost during processing.

Note: Select Time from the FPS list to display timecode in fractional seconds (for example, 00:00:10.123), instead of using a frame rate based timecode.

Media Trim Filter

The Media Trim filter allows up to 25 segments to be extracted from a media file during transcoding.

After selecting your options under the General tab, check Media to Keep, and for each segment you want to extract from the media, click Add New Item.

Drop-Frame Time Code Processing. When you specify 29.97 or 59.94 FPS in the segment, you can also specify drop-frame processing by selecting any element of the time code and the pressing the semi-colon key or the D key. Workflow Designer displays a semicolon between the second field and frame field to indicate that drop-frame processing is enabled.

To return to normal (non-drop-frame) processing, press the colon key or the N key again.

Fractional Time Code Processing. Select Time from the FPS list to display timecode in fractional seconds (for example, 00:00:10.123), instead of using a frame rate based timecode.

Note: This mode uses a period instead of a colon or semicolon, to specify decimal seconds values.

SCC Caption Insertion Filter

The SCC Caption Insertion filter reads an Scenarist Caption file (SCC) as the primary source of 608 captions. During the transcode, these captions are inserted into the output media file.

The source media timecode is generally used for caption synchronization. Alternatively, a user-defined timecode may be used as the start timecode - even though it is not applied to the output media. This allows arbitrary synchronization of an SCC file into a media file regardless of the actual source timecode.

Note: Select Time from the FPS list to display timecode in fractional seconds (for example, 00:00:10.123), instead of using a frame rate based timecode.

SCC Caption File Generation Filter

The SCC Caption File Generation filter creates a Scenarist Caption file (SCC) file from the source media file.

Specify an output directory (e.g.: *C:\SCCFILES* or *\\Apollo\SCCFILES*). If you want to generate a file with same name as the media file, then, in an upstream action, you should create a variable for the file name, and assign it the base name of the input media file and bind the variable to the SCC File Name parameter.

If the SCC File Name parameter is empty, then the SCC file is saved as *default.scc*.

Source Timecode Preservation Filter

The Source Timecode Preservation filter preserves the existing timecode, starting at the anchor time or timecode specified - even for frame rate changes.

Timecode Burn-in Filter

The Timecode Burn-in filter (Legacy 8-bit RGB Processor) burns the source media time code into the video during a transcode. Timecode is burned into the video prior to any video processing; if part of the transcode involves a resizing of the video, it is done when the video is still in the source dimensions.

For example, if an HD video is being converted to Web format, timecode is burned into the HD video signal prior to resizing. As a result the timecode will display smaller on the output, unless a larger font size is used.

Timecode Override Filter

The Timecode Override filter allows the source timecode to be replaced during a transcode. It can either apply timecode for every input file processed, or only for input files that do not already have a timecode.

Note: With the Timecode field selected, you can type semicolon (;) in the Start Timecode parameter to make the timecode drop-frame. Alternatively, type *D* to change the timecode to dropframe or *N* to change it to non-dropframe.
Select Time from the FPS list to display timecode in fractional seconds (for example, 00:00:10.123), instead of using a frame rate based timecode.

VANC Insertion Filter

The VANC Insertion filter allows the insertion of VANC data into the output file, sourced from a proprietary XML file. Specifications of this XML file format are available from Telestream.

VANC Packet Scan Filter

The VANC Packet Scan filter scans the ancillary data packets or captions of input media files. Optionally, incoming caption payloads are analyzed and reformatted as necessary to conform to CEA-708/SMPTE 334 standards.

Enable Caption Payload Normalizer. When checked, incoming caption payloads are analyzed and reformatted to conform with existing standards (CEA-708, SMPTE 334).

VBI Caption Decoder Filter

The VBI Caption Decoder filter reads 608 captions out of the Vertical Blanking Interval, and allows those captions to be converted into different formats.

Note: Some file formats may have multiple sources of captions - for example, VANC or user data captions, and VBI captions, both in the same 512-line MPEG-2 file. Typically the user captions are given priority over the VBI; the override checkbox instructs the transcode engine to use the VBI captions as the primary caption source.

Vertical Blanking Interval Filter

The Vertical Blanking Interval filter enables you to preserve the entire set of lines from the Vertical Blanking Interval, passing them on to the output.

Preserve All Vertical Blanking Lines From Source. When checked, preserves all VBI lines in the source frame, passing them to the output untouched.

VITC Decoder Filter

The VITC Decoder filter allows the use of VITC timecode as the primary source timecode. It is only applicable to 512-line or 608-line input material.

VITC Synthesis Filter

The VITC Synthesis filter allows the use of VITC timecode as the primary source timecode. It is only applicable to 512 and 608-line input material.

Video Processing Filters (Multi-core & Lightspeed Processors)

Vantage video processing filters for the Multi-core 16-bit YUV & the Lightspeed Accelerated 16-bit YUV processor operate on baseband digital media and modify the output files you create in a workflow during transcoding. You can enable as many filters as you need in each output file you create in your workflow.

For each set of filters enabled in a given transcode action, you can only have one filter of each type. To process a media file more than once with the same filter, you can set up cascading transcode actions or cascading workflows.

Video Processing Filters

Chroma Settings Filter

Closed Caption Burn-in Filter

Color Space Filter

Fade In-out Video Filter

Frame Count Burn-In Filter

Frame Rate Conversion Filter

Image Overlay Filter

Image Processing Filter

Interlacing Rules Filter

Movie Overlay Filter

Performance Filter

Resizing Filter

Source Timecode Burn-In Filter

Text Overlay Filter

Vertical Blanking Synthesis Filter

Chroma Settings Filter

The Chroma Settings filter (Multi-core Processor) allows you to change the Chroma siting method prior to encoding.

The Chroma Settings filter applies only to 4:2:0 video; 4:2:2 video is always Cosited.

Use of this filter is indicated when your output specification indicates a specific Chroma siting, when your input video has incorrect chroma siting per the format specifications, or when you observe a Chroma shift in your output you suspect may be related to Chroma siting problems.

Cosited chrominance is always associated with the luminance of the upper left corner of the sample. Interstitial is in the center (vertical and horizontal) of the sample; Horizontal is in the center vertically, but left horizontally.

Input Chroma Siting. Select Cosited (default) | Interstitial | Horizontal.

Output Chroma Siting. Select Cosited (default) | Interstitial | Horizontal.

Closed Caption Burn-in Filter

The Closed Caption Burn-in filter (Multi-core & Lightspeed Processor) burns the closed caption text into the source media frames prior to encoding.

If multiple lines are required on a frame, each line of characters will be broken on natural boundaries such as spaces and punctuation marks. Lines are typically broken on whole words. Lines are automatically limited to fit on the displayed video.

Note: If the output frame size is different than the input frame size, it may result in rescaling the closed caption.

Source Closed Captions Burn-in. Check to activate this filter.

X Position. Left edge of the top, left corner of the burn-in rectangle on the input frame.

Y Position. Top edge of the top, left corner of the burn-in rectangle on the input frame.

Font Size. Specifies the font size, in points.

Max Characters / Line. Specifies the maximum number of character per line.

Color Space Filter

The Color Space filter (Multi-core & Lightspeed Processor) enables you to specify the input and output color space when necessary, and specify when a transformation should occur. By default, NTSC and PAL media is processed as BT.601 color space; all other media is processed as BT.709.

For example, an NTSC clip (which is processed by default as BT.601) might have accidentally been encoded using BT.709; if so, you can specify that the input is BT.709. Also, media may be *Broadcast Levels* encoded and represented as RGB in Vantage.

Additionally, you can control whether RGB video is encoded with broadcast levels or full studio. By default, all RGB video is assumed to be *full studio*, using the full range of values from 0-255. Broadcast level RGB uses the range of values from 15-235 and has less dynamic range of brightness than full studio.

Note: When using the Multi-core & Lightspeed processors, most media is decoded and encoded as YUV. Thus, checking the Broadcast Levels checkbox usually has no effect. Only media which is natively RGB, such as RGB Uncompressed in QuickTime, is certain to be RGB.

You can also utilize an upstream variable to control when to process input or output media as broadcast level video.

Input Color Space. Specifies input file color space. Multiscreen Flip automatically detects input and output color spaces, assuming that HD content is BT.709 and SD content is BT.601. Web and desktop frame sizes are also assumed to be BT.709.

Assume Input RGB has Broadcast Levels. Processes RGB as broadcast video instead of computer video. Broadcast RGB has a range of 16...235. Computer video has a range of 0...255.

This option only affects input video rendered as RGB during the Vantage transcode. Only codecs which are explicitly RGB (such as Uncompressed RGB) render as RGB in Vantage; most others render as YCbCr and as a result this check box has no effect.

Output Color Space. Specifies the output file color space.

Assume Output RGB has Broadcast Levels. Processes RGB as broadcast video instead of computer video. Broadcast RGB has a range of 16...235. Computer video has a range of 0...255.

This option only affects input video rendered as RGB during the Vantage transcode. Only codecs which are explicitly RGB (such as Uncompressed RGB) render as RGB in Vantage; most others render as YCbCr and as a result this check box has no effect.

Change Color Space. Specifies when to change the color space change: before or after gamma and contrast.

Fade In-out Video Filter

The Video Fade In/Out (Multi-Core and Lightspeed Processors) filter fades the video in at the start of the clip, and fades the video out at the end of the clip. To fade only at the start or end of the clip, specify 0 seconds for the unused fade duration.

Frame Count Burn-In Filter

The Frame Count Burn-In filter (Multi-core and Lightspeed Processors) overlays the frame count as text onto the video frames. The frame count numeric value is overlaid onto the uncompressed output video frames.

Note: Controls with a green Browse button may be bound to a variable to dynamically assign their setting or value. You can assign the value to the variable in a previous action in the workflow or use the variable's default value. Click Browse to select the variable or create a new one to use.

X Position. Specifies the distance (in pixels) from the left edge of the frame to the left edge of the text in the output frame.

Y Position. Specifies the distance (in pixels) from the top of the frame to the top of the text in the output frame.

Font Size. Specifies the font size in points (1/72 inch).

Zero Indexed Frame Count. When unchecked (False), the first frame is marked as frame number one (1). When checked (True), the first frame is marked as frame number zero (0).

Frame Rate Conversion Filter

The Frame Rate Conversion filter (Multi-core & Lightspeed Processors) enables you to select which algorithm method (Automatic | Use Original Frames | Nearest Neighbor | Blend Frames) to use when performing field/frame rate conversion. Frame rate conversion is performed after resizing, and before interlacing.

Conversion Method. Specifies how to handle frame rate conversion. The Interlacing Rules Filter should also be used when performing Inverse Telecine.

Use Original Frames - The output file contains all of the original frames played out from the input file, at the new frame rate. This can result in speed changes of the output video. Small changes in frame rates can use this method, and the audio can be changed to follow these video speed changes by using the Audio Speed Adjustment filter in conjunction with this method. This method should not be used when the frame rate change is large, or adverse video slow downs or speed ups can result.

Automatic - automatically chooses the best approach based upon the type of transcode you are performing. You can specify the quality level that you prefer (Fastest Speed | Balance Speed & Quality | Highest Quality).

Nearest Neighbor - utilizes the closest input frame as the source for any output frame.

Blend Frames - blends the two nearest frames to create each output frame. A threshold may be provided; if an output frame is close enough (within the threshold) to the input frame, it may simply use that one input frame instead of blending two.

When Blend Frames is selected, specify the delta between frames, as a percentage. If an input frame and an output frame are very close together, the output will simply use the input (similar to Nearest Neighbor). This parameter specifies how close the input and output frames must be, to be treated as essentially the same time, expressed as a percentage of frame duration.

Image Overlay Filter

The Image Overlay filter (Multi-core & Lightspeed Processors) composites the specified image file over the output video. Overlays are applied after interlacing, as the last stage in the video processing pipeline before formatting and compression.

Supported overlay image types include PNG, TIFF, TGA, JPG, BMP, and GIF. If alpha is present in the image, it is used to determine which portions of the image is transparent in the overlay.

Positioning the overlaid image is done using the top-left corner of the image, and specifying its coordinates relative to the top-left of the output video frame. From this position, either width and height values can be provided, or the original image width and height can be observed. All coordinates are measured in output video pixels.

Cropping can be used to adjust the image prior to overlay. Cropping is applied before calculating the top-left coordinate of the image and the image width and height; that is, the cropped version of the image is used to calculate all coordinates.

Image Processing Filter

The Image Processing filter (Multi-core & Lightspeed Processors) allows you to apply blur, gamma correction, sharpening, and other image processing functions. Sharpening, contrast and gamma correction are performed prior to resizing; blur and contrast are applied after frame rate conversion is performed.

Select from the following choices, and configure them as appropriate:

Blur. The Blur filter decreases the sharpness and detail of the video. This is done using a two-step process:

First, the entire source image is blurred. The window parameter determines the number of neighboring pixels used by the filter. Larger numbers result in a more blurry effect. Second, the blurred image is mixed with the original image allowing further control of the effective softness of the image. The higher the mix amount, the more blur is applied.

Sharpen. The Sharpen filter increases the sharpness and detail of the video in a two step process:

First, an edge enhancement filter is applied to the entire source image. The window parameter determines the number of neighboring pixels used by the filter. Larger numbers result in stronger edge enhancement.

Second, the edge-enhanced image is mixed with the original image further controlling the effective sharpness. Larger mix amount values indicate that more sharpening should be applied.

Contrast. The Contrast filter enhances the contrast of the video. Contrast values greater than zero generate images with more contrast, while contrast values less than zero generate images with less contrast. Unlike the Legacy RGB video processing library, contrast is performed on the luminance channel; only color brightness (not actual color) is affected by this contrast adjustment.

Noise Reduction. The Noise Reduction filter reduces video noise by applying a median filter to the entire source image. Noise reduction is generally used to remove fine noise such as film grain, to improve compression. When applying, set the window size. A larger window size results in more noise reduction.

The noise reduction window parameter determines the number of neighboring pixels that will be utilized in the noise reduction process for each input pixel. A small window (3x3) will reduce random noise and improve image compression. Larger windows will remove more noise but can blur the image or cause it to look pixelated.

Gamma Correction. The Gamma Correction filter applies gamma correction to the output video for the purpose of displaying it uniformly on different display devices which have different gamma characteristics: for example, CRT televisions, CRT computer monitors, LCD televisions, LCD computer monitors, and handheld devices.

Television and computer monitors have very different gamma characteristics. Material originally produced for television viewing often displays more darkly when viewed on a computer monitor, requiring a gamma correction to prepare it for desktop viewing.

Rounding. Outputs from Video Processor may be rounded. Rounding can cause certain color levels to be 1 higher or lower than expected. This is most prevalent when down-converting between bit depths.

The Rounding filter enables you to specify what type of rounding to apply:

- *Cumulative*: collects rounding segments across several pixels
- *Dynamic*: utilizes Gaussian noise
- *Normal*: rounds up at 0.5 and higher
- *Round Down*: always rounds decimal values down.

Saturation. The Saturation filter controls the amount of color in the video by saturating the output video components. Saturation values range from -100% (no color) to 100% (5 times the normal saturation).

Interlacing Rules Filter

The Interlaced Rules filter (Multi-core & Lightspeed processors) enables you to determine select the method to use for resizing interlaced video. This filter can be used during up-conversion, down-conversion, and standards conversion where both the input and output media are interlaced. This filter also allows you to specify rules for handling various conversions between interlaced and progressive video.

Note: If Motion Adaptive de-interlacing is used, these rules allow you to choose Motion Adaptive interlacing, which re-uses information from the de-interlacing stage to reduce artifacts in the output. You may also specify that Vantage perform Inverse Telecine for 30fps/29.97fps input video as the preferred de-interlacing mode.

Rules for Interlaced Input to Progressive Output

These rules are applied when the input is interlaced and the output is progressive. Fundamentally, this is the choice of which deinterlacing algorithm to apply *prior to resizing and changing the frame rate*.

These rules include one specialized option - *Resize both fields as progressive frames* - which allows you to convert each incoming field into a progressive frame. This option may be beneficial when creating 50p or 60p output from 50i or 60i input, particularly if the output frame size is significantly smaller than the input. For example, 1080i60 to 640x480p60. This option may also be used to quickly convert from 1080i to 720p, though it will not provide as high quality output as true deinterlacing.

These rules also allow you to select other deinterlacing options. Refer to Deinterlacing Options (following) for details.

Rules for Interlaced Input to Interlaced Output

These rules are applied when the input is interlaced and the output is also interlaced. In most cases, interlaced to interlaced processing is performed by:

1. Deinterlacing the input media

2. Performing resizing and frame rate changes to create new progressive frames

3. Re-interlacing the progressive frames to create interlaced output.

These rules control steps 1 and 3; resizing and frame rate changes are performed by separate filters.

One specialized option - *Process Fields Independently* - allows you to skip steps 1 and 3, simply resize the fields independently to create output fields directly. This is recommended when performing down-conversion from HD to SD, where the input and output frame rates are the same (for example, 1080i60 to NTSC, or 1080i50 to PAL).

These rules also allow you to select other deinterlacing options (for step 1) and an interlacing options (for step 3). Refer to the Deinterlacing Options and Interlacing Options (following) for details.

Rules for Progressive Input to Interlaced Output

These rules are applied when the input is progressive and the output is interlaced. Resizing and frame rate changes are performed on the progressive frames, and then interlacing is performed; with these rules, you select which interlacing algorithm should be used. Refer to Interlacing Options (following) for details.

Deinterlacing Options

Deinterlacing converts an interlaced frame (containing two fields) to a progressive frame. This can be performed in all cases where the input is interlaced. The following deinterlacing options are available when converting from interlaced input to progressive output, or interlaced input to interlaced output, except as noted.

Automatic - determines the best rule for the input content and the output frame size. By specifying whether you prefer faster transcoding or higher quality, you can specify how the decisions should be made.

Keep Both Fields - effectively does not perform deinterlacing. This is particularly useful for content that has no motion, or content that is encoded as PsF (progressive segmented frames).

Keep Upper Field / Keep Lower Field - drops a field to create progressive frames.

Resize both fields as progressive frames - (interlaced to progressive only) treats each field independently as a progressive frame, and resizes it to meet the output frame size. This has the benefit of avoiding any form of deinterlacing artifacts, but may introduce slight vertical jitter as upper and lower fields alternate in the output.

Motion Adaptive Deinterlacing - converts every field into a progressive frame. This is done by keeping the original field, then examining each pixel in the other field to determine whether or not it is moving, and then choosing to either discard it (if it is moving, to avoid field artifacts), or keeping it (if not, to preserve detail).

Advanced Motion Adaptive Deinterlacing - the same as motion adaptive deinterlacing, but allows control over thresholds for what constitutes motion. Values are measured in luma value differences between pixels; lower values will result in less detail, but fewer field motion artifacts.

Zero-motion Compensated Deinterlacing - converts every field into a progressive frame. This is done by keeping the original field, then performing block matching to determine whether a given region is moving or not. The noise threshold indicates how sensitive the algorithm should be to noise; higher values will cause the algorithm to treat noise as actual object motion.

Motion Compensated Deinterlacing - converts every field into a progressive frame. This is done by keeping the original field, then performing a full motion-vector search to determine whether a region of video is in motion, or not. If a motion vector is found, it will be used to synthesize missing information between fields. This algorithm provides the highest quality, but also requires the most processing time.

All options allow you to apply inverse telecine if the input is 29.97 or 30 frame per second interlaced material. With telecined material, this option gives the best possible

quality deinterlacing, as the original progressive film frames are re-constructed. Frame rate conversion occurs after the inverse telecine step, so inverse telecine can be used for deinterlacing regardless of what the output frame rate will be.

Note: This option should only be enabled if the input is actually telecined; Vantage Analysis may be used to determine whether a video has a telecine cadence.

Input Frame Configuration. Select how to handle input frames: automatic detection or manual. If you select manual, specify Upper, Lower, or Progressive.

Input Frame Configuration and *Output Frame Configuration* - allows you to override the way that Vantage treats incoming and outgoing frames. By default, Vantage detects the input frame type from the source file, and uses the encoder settings to determine the output frame type; generally this behavior is correct and should not be changed.

Note: When dealing with PSF (progressive segmented encoded frames, where a frame is progressive but encoded within an interlaced codec), you may specify that the input or output is progressive, even if the actual video encoding is using an interlaced form.

All of these rules may be set to *Automatic*, with user selection between quality, speed, or some balance between the two. In Automatic mode, Vantage determines the best possible set of operations given the input, and the output video characteristics. Examples include (1) If the output is less than half the input frame size, Vantage will drop a field to achieve the output size; (2) If the operation is 1080i to SD, Vantage will resize fields independently (this provides the best down-conversion quality in those cases).

Note: For interlaced input, *Automatic* may be specified to use Inverse Telecine if the input is 29.97 or 30fps. Inverse Telecine converts 29.97 or 30fps film media back to the original 24p footage. When the input is telecine material, inverse telecine will provide the absolute best de-interlacing. When you specify Inverse Telecine, it will only be performed if the input is 29.97 or 30fps, otherwise the user-specified preferred de-interlacing method will be used. When performed, Inverse Telecine is performed prior to any resizing or frame rate changes, with the advantage that the frame rate changes and resizing is performed on the best possible progressive representation of the original 24p material. For example, converting from NTSC telecine content to PAL will produce significantly higher quality results using Inverse Telecine, instead of any other form of de-interlacing.

Interlacing Options

Interlacing converts a progressive frame or frames to an interlaced frame containing two fields. The following interlacing options are available when converting from progressive input to interlaced output, or interlaced input to interlaced output.

Sub-Sampling - simply uses alternating lines from the nearest progressive frames, as fields.

Filtered Sub-Sampling - blends data from the nearest progressive frames to create fields.

Motion Adaptive Interlacing (interlaced to interlaced rules only) - only used when performing Motion Adaptive or Motion Compensated deinterlacing. This uses motion analysis to reduce artifacts caused by the deinterlacing stage.

Telecine 3:3:2:2 and *Telecine 3:2:3:2* - only applicable when converting 24p or 23.976p input to 29.97i or 30i output. This overrides the frame rate conversion algorithm and instead, directly creates fields according to either a 3:2 or a 3:3:2:2 telecine cadence.

Movie Overlay Filter

The Movie Overlay filter (Multi-core & Lightspeed Processors) allows you to overlay any QuickTime movie (including movies with an alpha channel) over the video that you are transcoding. Movie overlay occurs as the final step after interlacing, prior to formatting and compression of the video. The Movie Overlay filter supports any file that QuickTime Player for Windows can play.

Overlay Left | Top. Specifies the X and Y coordinate of the overlay frame, identifying the location of the top left corner of the overlay relative to the output frame origin.

Width | Height. Specifies the width and height of the overlay movie; values are measured in pixels within the output video.

Opacity. Controls how transparent the movie overlay will be. 0% indicates fully transparent, 100% indicates fully opaque.

Looping. When checked, the movie repeats indefinitely. Otherwise it stops playing after the last frame, and disappears.

Enable Telestream Media Framework. Check to overlay the video using the Telestream Media Framework.

Performance Filter

The Performance filter (Multi-core Processor only) controls how many threads may be executing simultaneously by the CPU-based Video Processing Library, thus controlling performance, at the expense of other processes on the same server.

If not used, the default number of threads utilized is roughly one quarter of the total number of cores on the server.

Note: This filter us not available to the Lightspeed Accelerated Processor.

Resizing Filter

The Resize filter (Multi-core and Lightspeed Processors) performs cropping, masking, and resizing of video frames. It will allows you to control how much vertical blanking is in the frame, and where it is located. Resizing is performed after deinterlacing (when used) and before frame rate conversion.

When resizing, Vantage automatically calculates how much masking and/or cropping should be performed to create, remove, or preserve vertical blanking. For example, 486-line content converted to 512-line content will add additional lines of black to create the necessary VBI region. When converting between PAL and NTSC, the entire vertical blanking is removed and replaced with black. This is all performed prior to any VITC or VBI synthesis.

Vantage can also automatically calculate masking and padding when converting between different aspect ratios. Aspect ratio is determined automatically based upon whether the content is SD (4:3), HD (16:9) or other (square pixels). You can override treatment of SD and HD material, indicating that SD is anamorphic and that HD is 14:9; similarly, the user can indicate whether the output is 1:1, 4:3, 16:9, etc. Vantage uses this information to either pad, or crop, or stretch the original image when performing a resize operation.

You can also choose which algorithm is used for resizing. Lanczos resizing offers the best visual result and can be tuned either for quality, detail, or a balance between the two.

Vertical Blanking. Allows you to control where vertical blanking is located for NTSC, PAL or 486-line content. This setting instructs where and how much to crop or pad the video to either add or remove blanking during a transcode.

NTSC and 486-line content in particular may either have 2 lines of black at the bottom, or none, depending upon how it was encoded. This option also allows you to specify that the entire video is active (no vertical blanking), avoiding cropping of Web or desktop video with no blanking.

Cropping and Padding. Specifies how to handle cropping and padding:

Automatic - In automatic mode, the transcoder determine the aspect ratio of the input, and then (optionally) crops the original video, or pads it with letterboxing or curtains/pillars, to preserve the input aspect ratio in the output video.

For example, when HD video is converted to SD output, with padding enabled, letterboxing is automatically added.

Use the Stretch option to disable cropping and padding. In Stretch mode, the aspect ratio is ignored and the input video is simply resized to match the size of the output frame.

Note: All aspect ratio calculations are performed only on active video (not on vertical blanking). For example, an HD conversion to 512-line NTSC performs letterboxing only

on the 480 lines of active video, and then 32 lines of vertical blanking are added separately.

Automatic Settings

When Changing Aspect Ratio. Specifies the action to take, and optionally, how to handle SD and HD video input frame sizes. This allows you to process input SD content as anamorphic or HD content as 14:9.

Note: This only affects how cropping and masking is performed. It does not affect actual encoding.

Treat SD Input as 16:9. Check to specify that SD source is 16:9; otherwise it is treated as 4:3.

Treat HD Input as 14:9. Check to specify that HD source is 14:9; otherwise it is treated as 16:9.

Output Aspect Ratio. Specifies the output aspect ratio. For example, this option allows you to specify that your output SD content is anamorphic 16:9 for the purposes of cropping and masking.

Note: This setting only controls the cropping and masking; it does not affect the actual encode settings.

Enable Dynamic AFD Down-Convert. Check to enable dynamic AFD down-convert and crop or letterbox each frame, based on the AFD setting for the frame.

Manual Settings

Crop and Pad Settings. Specifies the crop and pad settings, and pad color.

Resizing Algorithm. Specifies the type of resizing algorithm to use:

Bilinear - offers the fastest conversion, but the lowest quality.

Gaussian - offers improved quality over Bilinear.

Lanczos - offers the highest possible quality.

Generally, the Lanczos algorithm automatically tunes itself according to the type of resizing you are performing, but additional control is provided for difficult resizing situations.

For example, Preserve Detail may best be used when resizing from a smaller video frame size to a larger one, such as when converting from SD to HD frame sizes, if the Balanced approach causes too much smoothing during the resize.

Alternatively, Avoid Visual Artifacts may best be used when down-scaling from an HD frame size to an SD one, particularly if the original video has a lot of fine-grained noise that causes visual artifacts when down-scaled.

Source Timecode Burn-In Filter

The Source Timecode Burn-In filter (Multi-core and Lightspeed Processors) overlays timecode as text onto the video frames. Source TimeCode is overlaid onto the uncompressed source video frames. Transcodes that include changes in frame size or frame rate may produce inaccurate or illegible results.

Text Overlay Filter

The Text Overlay filter (Multi-core and Lightspeed Processors) overlays text onto the video frames, using the text you specify and the rendering options you choose.

General

Font. Specifies the font to use for rendering the text.

Text Display

Text to Display. Enter the text you want to display.

Text Color. Click to display the color selector dialog where you can select the color to apply to the text.

Font Size. Specifies the size of the font in pixels.

Weight. Specifies Light | Normal | Bold | Heavy.

Italics. When checked, specifies that the font face should display in an italic face.

Opacity. Specifies the opacity of the text, where 100% is fully opaque; 0% is fully transparent (invisible).

Softness. Specifies how crisp or soft to feather the font edge, where 0% is as crisp as possible; 100% is fully feathered.

Character Spacing. Specifies the space between characters.

Positioning

Left Margin. Specifies the distance from the left edge of the frame to the left edge of the text.

Top Margin. Specifies the distance from the top edge of the frame to the top of the text, not counting ascenders.

Right Margin. Specifies the distance from the right edge of the frame to the right edge of the text.

Bottom Margin. Specifies the distance from the bottom edge of the frame to the bottom edge (baseline) of the text, not counting descenders.

Justification. Specifies Left | Right | Center.

Wrap and Fit

Fit to Horizontal Margins. When checked, adjusts the text to fit within the specified margin, buy adjusting the character spacing and applying wrap, as necessary. If not specified, text may overrun the margins.

Fit to Vertical Margins. When checked, adjusts the text to fit within the specified margin, buy adjusting the character spacing and applying wrap, as necessary. If not specified, text may overrun the margins.

Wrap Text. When checked, uses text wrapping to display text within the bounds of the text frame.

Adjust Spacing By Up To. When checked, permits character spacing to be adjusted by the specified amount, to fit the text in the bounds of the text frame.

Outline/Shadow

Outline/Shadow. When Create Outline or Shadow is selected, a shadow is created to the right and down for each character. When No Outline or Shadow is selected, the text is displayed normally.

Outline/Shadow Color. Click to display the color selector dialog where you can select the color to apply to the outline or shadow.

Width. Sets the width in pixels, of the outline or shadow.

Horizontal Offset. Sets the horizontal offset of the shadow or outline from the text characters in pixels.

Vertical Offset. Sets the vertical offset of the shadow or outline from the text characters in pixels.

Intensity. Specifies the intensity of the outline or shadow.

Softness. Specifies how much to feather the edges of the outline or shadow.

Vertical Blanking Synthesis Filter

The Vertical Blanking Synthesis filter (Multi-core and Lightspeed Processors) converts EIA 608 caption data from the source into a waveform in the VBI of the compressed output image that can be decoded by legacy analog caption decoders. This captioning format is only applicable to 486 or 512 line SD NTSC output video formats.

Overwrite Only Closed Captioning Line. When checked, overwrites only the closed caption line in the VBI. When unchecked, the entire VBI region is cleared before writing captions.

CC Synthesis Enabled. When checked, enables CC synthesis (typically line 21). Applies only to 720 x 486 and 720 x 512 resolutions.

Put Blanking Only in Field One. When checked, only field one of the VBI is synthesized; otherwise both fields are synthesized.

Closed Captioning Line (525/60). Specifies which line in the VBI the synthesized data should be inserted for full 512-line material.

Closed Captioning Line (486/60). Specifies which line in the VBI the synthesized data should be inserted for full 486-line material

VITC Synthesis Enabled. When checked, enables the insertion of VITC time code. When checked, specify the VITC lines for either NTSC or PAL media:

VITC Line 1 (525/60 inputs). Specifies which line to use for VITC synthesis when writing 512-line NTSC input media.

VITC Line 2 (525/60 inputs). Specifies which line to use for VITC synthesis when writing 512-line NTSC input media.

VITC Line 1 (625/50 inputs). Specifies which line to use for VITC synthesis when writing 608-line PAL input media.

VITC Line 2 (625/50 inputs). Specifies which line to use for VITC synthesis when writing 608-line PAL input media.

Cinnafilm Tachyon Video Processor

Cinnafilm Tachyon Video Processing Library

The Cinnafilm Tachyon video processor is an optional, licensed feature of Vantage. The Tachyon processor operates on baseband media to transcode input files you supply to new media files you specify, during transcoding.

Note: For a comprehensive description of the Cinnafilm Tachyon Video Processing Library, see the *Using the Cinnafilm Tachyon Video Processing Library* app note in the Vantage product section on the Telestream web site.

Allow vs. Enable Terminology

In the Tachyon controls, two terms should be noted: *Allow* and *Enable*.

Allow-based controls provide Tachyon the option to invoke this particular algorithm if it is the best solution to achieve the frame rate conversion selected. For example, if *Allow 2:3 Insertion* is checked, the target is 29.97i and the source material is 23.976, then Tachyon inserts a true 2:3 Telecine pattern.

Because of the *if it is best* nature of the *Allow*-based settings, they can be checked erroneously and the transcoding conversion will still produce high-quality results.

Enable-based controls cause Tachyon to turn on the feature/filter irrespective if it is the best solution for the problem.

Input/Output Frame Rate Limits

The following input and output frame rates are supported by the Tachyon VPL:

23.976 FPS - progressive
24 FPS - progressive
25 FPS - progressive/interlaced
29.97 FPS - progressive/interlaced
30 FPS - progressive
50 FPS - progressive

59.94 FPS - progressive
60 FPS - progressive

Note: Settings which display a Browse button can be enabled or disabled, or supplied a value using variables which have been implemented and set in upstream actions.

General Settings

Adjust for Excessing Noise. Specifies that the image should be converted to grayscale and filter out the noise for field difference computations.

Adjust for Cartoon/Anime. Check this setting if the pre-Telecine frames have repeats. Not applicable when operating in Tachyon compatibility mode. To turn off compatibility mode, specify the advance setting _UseLatest instead of using _Use9681.

Allow Telecine/Pulldown Removal. This feature is a combination function which removes simple 3:2 pulldown patterns, but also detects when patterns (cadence) is broken and if advanced cadence patterns are present.

Telecine/Pulldown Removal detects orphan fields near scene cuts. Orphan fields are frames with only an upper or lower field in the source video - the complement field is missing. Sometimes, orphan fields are needed to produce the correct number of output frames. In these cases orphan fields are upscaled to a full-sized frame. Because this option uses *Allow*, it only invokes pulldown removal when it is detected by Tachyon on a scene-by-scene basis.

Telecine/Pulldown Removal: Increased Detection Sensitivity. Check to reduce pulldown matching thresholds, which favors more pulldown pattern matches. When pulldown is not achieved due to extremely broken cadence, or other factors like highly-mixed content or if chroma noise masks motion, the pulldown engine may fall back to de-interlacing rather than removing Telecine. This algorithm favors inverse Telecine and with lower thresholds for triggering pulldown identification, will maximize the number of progressive frames created from the video.

Telecine/Pulldown Removal: Residual Combing Removal Mode. Unique to Tachyon is the ability to automatically remove composited cadence errors. A standard inverse Telecine creates combing artifacts in the progressive overlay anywhere there is motion. Tachyon's Post Pulldown Filter automatically removes the combing artifacts from the progressive overlay once the inverse Telecine has been performed.

Resize Mode. When changing the aspect ratio, choose one of these options. Specify Add Black to Fit | Stretch | Crop.

Input Frame Configuration. Specifies how Tachyon should handle input frames.

Output Frame Configuration. Specifies how Tachyon should handle output frames.

Convert Settings

When checked, specifies the following options:

Motion Compensation Conversions

The Motion Compensation Filter is applied to the entire clip being transcoded.

Tachyon converts and formats video frames in progressive mode only. So all video, irrespective of mode, is converted to its progressive essence prior to any conversion taking place. This progressive stream of Motion Compframes is then used by the motion compensation engine:

- Inverse Telecine is performed to obtain the 23.976 essence

- De-interlacing is performed to obtain a progressive essence which is double the source frame rate (i.e. 25i will become 50p)

- Progressive frames are passed through to the motion compensation engine

Rules of Thumb for Motion Estimation

The amount of motion data present in the source file is critical to the outcome of motion compensation technologies.

Starting with lower progressive frame essence rates provide the least amount of motion data and will require higher amounts of fallback. The potential to create artifacts is highest when starting with low progressive frame rates (23.976, 24, 25, 29.97p, 30p).

Starting with higher progressive frame essence rates will provide the cleanest conversions and will require less fallback. 25i, 29.97i, 50p, 59.94p are examples of higher frame rates which will create conversions with lower potential for artifacts.

Motion Compensation. Check to implement a phase correlation motion estimator to perform interpolated frame rate conversion.

When you are performing Motion Compensation (this option is checked), configure Motion Amount, Fallback Mode, and Fallback Size:

Motion Compensation: Amount. When Motion Compensation is checked, select how much Tachyon will trust motion vectors in the creation of new images. Extra-Low means it will invoke more fallback areas when motion data is inconclusive. Extra-High means it will invoke fewer fallback areas in the frame.

Motion Compensation: Block Size. When Motion Compensation is checked, select the block size. Smaller block sizes use less detail for finding matches and should be used for scenes with complicated, non-linear motion such as rapid zoom out.

Motion Compensation: Fallback Blend Area. When Motion Compensation is checked, select the relative size of the transition region between fallback areas and motion compensated areas. A larger fallback size allows more blending (feathering) to occur between the regions. to use.

Interlaced: Allow 2:3 Insertion. Inserts a standard 2:3 Telecine pattern to 23.976p video stream to achieve a 29.97i frame rate.

Interlaced: Allow 2:2 (PSF) Insertion. Creates a new series of frames which are based on duplicating the field and interlacing it into a top/bottom field. Maintains film-look.

Interlaced: Allow Euro Insertion. Produces field-based interpolation rather than pixel-based. This is designed for interlaced or progressive integer frame rate conversions that are being converted to interlaced outputs. This method is valid for 24p to 50i conversions only.

Interlaced: Allow Adaptive Insertion. Produces field-based interpolation rather than using pixel-based interpolation. This algorithm is designed for both integer and non-integer frame rate conversion targets - as long as one of them is a non-integer rate (23.976, 29.97, 59.94, etc). Adaptive insertion create NTSC-PAL conversions clean of motion artifacts at the expense of possible slight stutter. Stutter is most noticeable with material that has smooth and uniform motion.

Note: This algorithm may cause a slight stutter based on the footage. If this ever proves to be unacceptable, perform the conversion using the Motion Estimator and uncheck Allow Adaptive Insertion.

Progressive: Double Frames (4:4 Insertion). Used when you want to convert to high progressive frame rates (i.e. 50p/59.94p/60p) but want to preserve film qualities (low motion rate, such as 24p).

Progressive: 4:6 Insertion). Used to perform 4:6 insertion as applicable. Not applicable in compatibility mode.

Advanced Settings. Used to perform internal commands. Specify _UseLatest to use the latest Tachyon library and CUDA 5.5 Specify _Use9681 for compatibility mode.

Manual Crop and Pad Settings

Check Manual Crop and Pad (masking) to enable you to specify crop and pad values.

These settings override any automatic crop and mask. That is, Vertical Blanking settings won't be used when Manual crop and pad is enabled. This operates differently than Multicore and Lightspeed VPLs. In these VPLs, vertical blanking may perform an automatic crop or mask; if you specify a crop or pad in addition, both will take effect.

Note: When you enable manual cropping and padding, you will almost always want to change Resizing Mode (General Settings) from its default value (Add black to fit) to Stretch for best results.

Crop Top. Specify the number of lines to remove from the top of the input video frame.

Crop Bottom. Specify the number of lines to remove from the bottom of the input video frame.

Pad Top. Specify the number of lines to add to the top of the input video frame.

Pad Bottom. Specify the number of lines to add to the bottom of the input video frame.

Crop Left. Specify the number of pixels to remove from the left edge of the input video frame.

Crop Right. Specify the number of pixels to remove from the right edge of the input video frame.

Pad Left. Specify the number of pixels to add to the left edge of the input video frame.

Pad Right. Specify the number of pixels to add to the right edge of the input video frame.

Dark Energy (c)

Specifies that Tachyon should use the Dark Energy - texture-aware resolution scaling.

Tachyon Dark Energy license and _UseLatest required.

Vertical Blanking Settings

These settings allow you to specify (for input) and control (for output) how much vertical blanking is in the frame, and where it is located for 486- or 512-line NTSC or PAL content. This setting instructs where and how much to crop or pad the video to either add or remove blanking during a transcode.

NTSC and 486-line content in particular may either have 2 lines of black at the bottom, or none, depending upon how it was encoded. This option also allows you to specify that the entire video is active (no vertical blanking), avoiding cropping of Web or desktop video with no blanking.

Note: Vertical Blanking settings are ignored when Manual crop and pad is enabled.

Vertical Blanking for 486-line NTSC Content. Select VBI processing option from popup menu.

Vertical Blanking for 512-line NTSC Content. Select VBI processing option from popup menu.

Vertical Blanking for 608-line PAL Content. Select VBI processing option from popup menu.