Telestream

Administration Guide

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Telestream Contact Information

To obtain product information, technical support, or provide comments on this guide, contact us using our web site, email, or phone number as listed below.

Resource	Contact Information
Kumulate Technical Support	Web Site: https://www.telestream.net/telestream-support/kumulate/support.htm Support Email: cmsupport@telestream.net Phone (USA): (888) 827-3139 Phone (International): +1 (905) 946-5701 Depending on your support contract and problem severity, we will respond to your request within 1–2 business hours. • Standard Support hours for customers are Monday – Friday, 9am to 5pm local time. • Gold Support hours for customers are 24/7.
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Overview

This book gives a basic understanding of system functionality and detailed instructions for configuring Kumulate 2.2. It guides System Administrators through initial Kumulate system configuration, daily operations, and routine maintenance.

- Overview
- New Terminology
- System Requirements
- New Features and Functionality

Overview

Kumulate is a Content Application enabling locating and working with videos remotely, from any computer on your network. Administrators monitor and maintain the system and user accounts with minimal effort from anywhere they have access to your network.

You access Kumulate through a web browser using the HTTPS protocol. Some of the advantages of a web-based interface include:

- No client software installation required
- A browser-based Content Application can be accessed from anywhere on the network
- No client application configuration is necessary
- No client updates are required

Using Kumulate you can:

- Search for video clips by file name, date, category, and format
- Define metadata fields that support search
- Use advanced search operations to hone searches for specific criteria. For example, you can search for video clips of farm animals in the United States, but not in Nebraska or Kansas.
- Review located clips using the built-in media player
- Extract selected frames, add them to a list of related clips, forward them to editing applications, or arrange them for distribution
- Administrators can assign a default set of pinned metadata fields

New Terminology

The following terminology has been updated to reflect standardization efforts across all Kumulate and DIVA applications. There will be some variations in the documentation compared to the interface until everything is switched over to the new terminology; the documentation uses the new terms wherever possible.

- Storage Location is now called Unmanaged Storage Repository
- Archive Location is now called Managed Storage Repository
- Federation is now called Multi-Site Federation
- Asset is now called Virtual Object
- Instance is now called Rendition

System Requirements

The following system requirements must be up to date before installing or using Kumulate 2.2:

- SPTI must be installed on the Kumulate Server host.
- MMP users that require searching by Virtual Object alias (Virtual Object name) need to set Use Alias on MMP query to YES.
- MTE (formerly HQS) version 2.0.0 is required for full functionality. When using MTE/HQS, ensure that the Kumulate XMTI ML partial restore supported formats field has been updated to include MXF and QT
- Avid Interplay must be configured through Interplay Web Services.
- Harmonic Spectrum Family (formerly Omneon Spectrum and Media Deck) firmware is supported up to version 8.3 on 64bit Kumulate systems.
- Grass Valley K2 is supported up to version 3.2.74 build 1060.
- Support is available for T10KC drives in Oracle StorageTEK libraries. Backward compatibility is preserved for T9840A, T9840B, T9840C, T9940A, T9940B, and T10000A drives.

New Features and Functionality

The following new features and functionality were introduced in Kumulate release 2.2. Refer to the Kumulate 2.2 Release Notes for additional fixes applied to this release.

Recovering Content from Tapes

When Kumulate's database is compromised and cannot be recovered, content written to tapes is lost. However, the files are still there and by "scanning" the tapes for them, whole asset instances can be recuperated and inserted into the database, making the content available again.

See Recovering Content from Tapes.

Add Alias Indicators to the Index Management Page

Index Alias Indicators are now displayed to the left of the Status on the Index Management page. This is useful for viewing if an index has an alias associated with it without having to enter Kibana and use the API for diagnostics purposes.

See Index Alias Indicators.

Expose Bulk Processor Configuration for Indexing Process

Added a new section in Elasticsearch Cluster configuration in order to configure the bulk processor settings.

See Bulk Processor Configuration.

Cluster Configuration and Failover

In a clustered configuration, two Kumulate servers are connected to each other to ensure redundancy and continuation of business. The two clustered servers operate as a Master and Backup. Services are installed on both servers, but only run on the Master server. During failover, services are shut down on the Master and restarted on the Backup.

Kumulate cluster services are managed using the Windows Failover Cluster Manager. Services can be failed over either from the Kumulate Web Interface, or from the Master or Backup server using Windows Failover Cluster Manager.

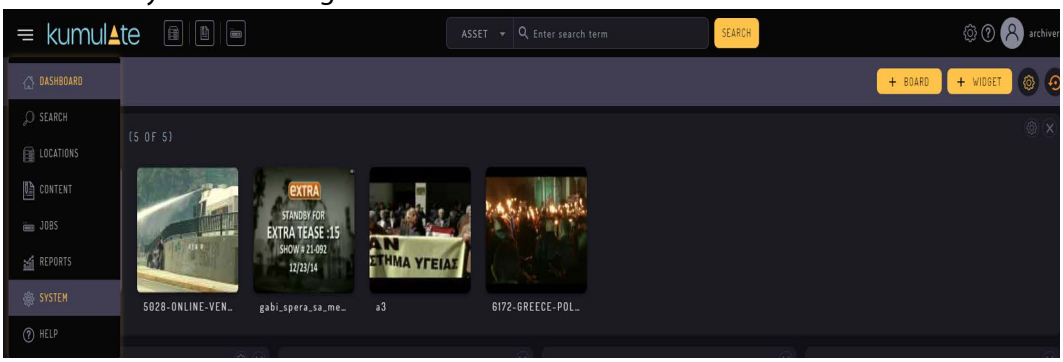
This chapter includes the following information:

- Failover using the Web Interface
- Windows Failover Cluster Manager
- Cluster Internal DataMover

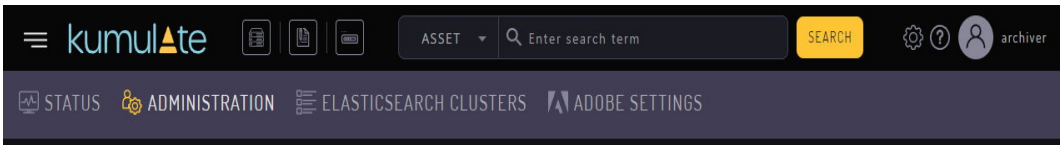
Failover using the Web Interface

Use the following procedures to failover Kumulate to or from the Master Server:

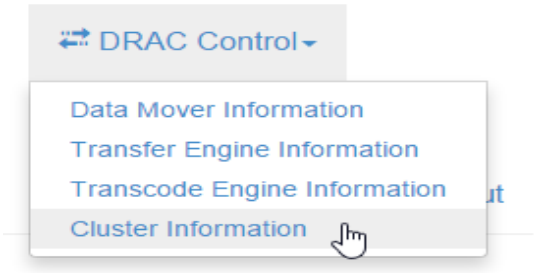
1. Open the Kumulate web interface in your browser and log into the system.
2. Select System in the right frame of the Kumulate interface.



3. Select Administration.



4. Select DRAC Control> Cluster Information.



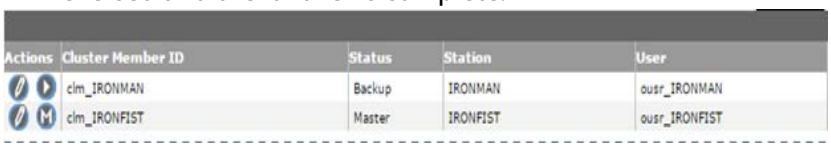
5. The Master and Backup servers will be listed in the information as shown in the following figure.

Cluster Information

6. Click the Play button next to the Backup Server Name to trigger the failover.

7. Click OK when the confirmation dialog appears.

8. Kumulate will be unavailable after clicking the OK button. It will remain unavailable until all services have been failed over. The failover process takes approximately three minutes.
9. Reload the web page. When Kumulate comes back online the server roles will be reversed and the failover is complete.

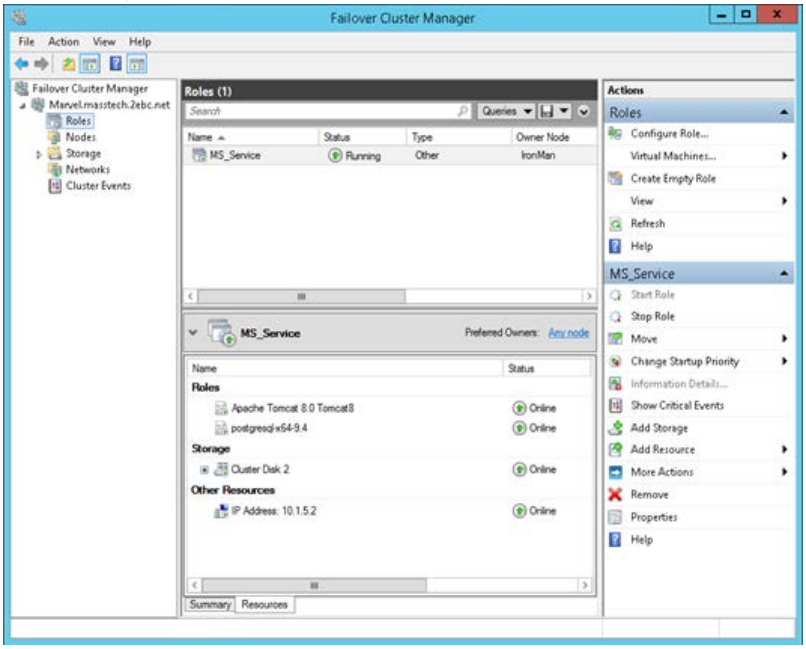


Actions	Cluster Member ID	Status	Station	User
	clm_IRONMAN	Backup	IRONMAN	ousr_IRONMAN
	clm_IRONFIST	Master	IRONFIST	ousr_IRONFIST

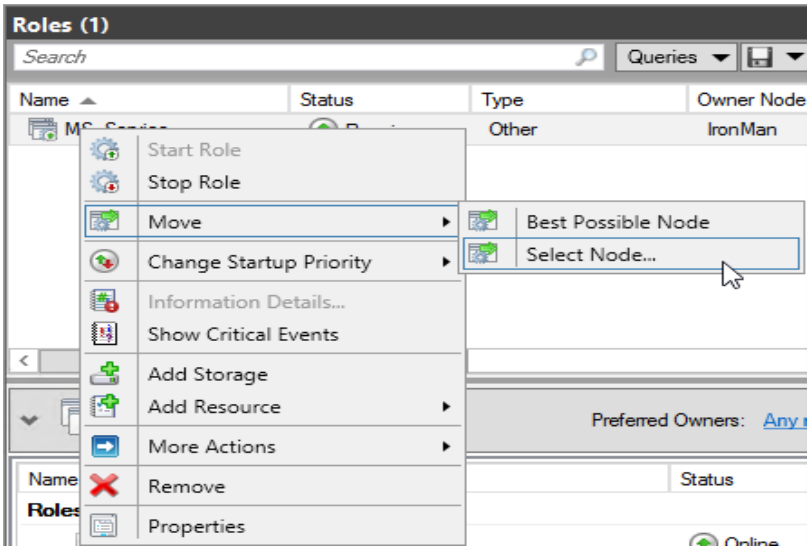
Windows Failover Cluster Manager

Use the following procedure to failover services from the Windows Failover Cluster Manager.

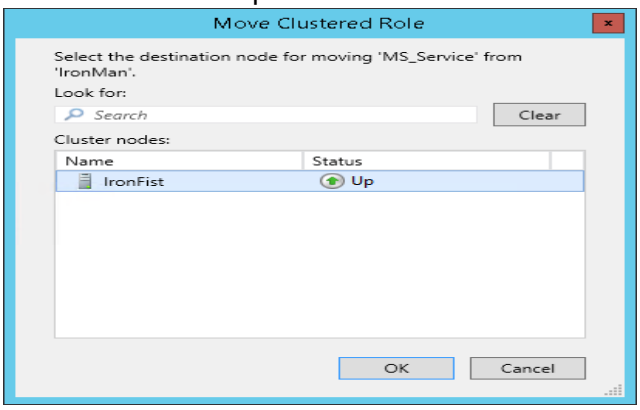
1. Log in to either the Master or Backup server and open Windows Failover Cluster Manager.



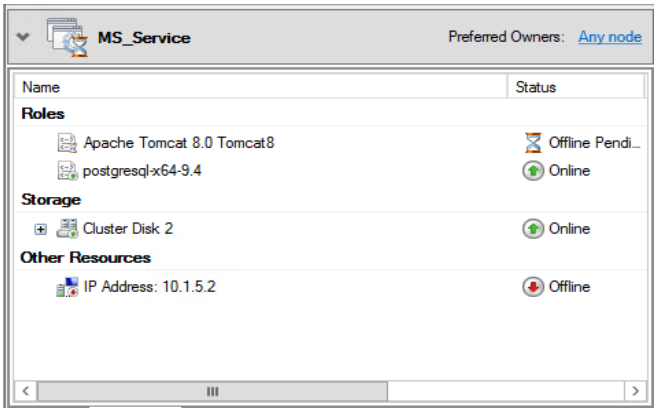
2. Right-click the cluster service named either MS_Services or MS_Service.
3. Select Move> Node.



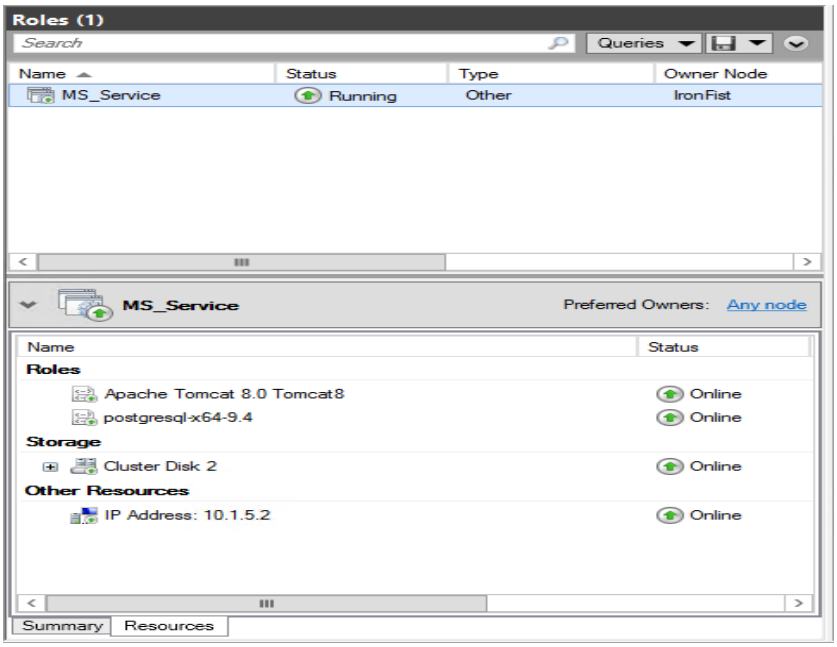
4. Select the Backup Server from the node list.



5. Click OK to take the services offline.



6. Kumulate will be unavailable while the services are moved between nodes. The failover should take approximately three minutes.
7. Wait until the services are running on the Backup server before attempting to access Kumulate.



8. After the services are running, log into the Kumulate web interface and navigate back to the Cluster Information page. The backup server will now be the master.

Actions	Cluster Member ID	Status	Station	User
	clm_IRONMAN	Backup	IRONMAN	ousr_IRONMAN
	clm_IRONFIST	Master	IRONFIST	ousr_IRONFIST

Cluster Internal DataMover

DataMovers on both the Master and Backup servers are operational in a cluster. However, only the DataMover on the Master acts as the internal DataMover. The DataMover on the Backup acts as an external DataMover.

In the event of failover, the internal DataMover also fails over. The Backup server becomes the Master server, and the external DataMover on the Backup becomes the internal DataMover.

A new flag, named Disable for Local DM, has been added to internal DataMover endpoint configuration. When set, this flag disables the endpoint when the DataMover assumes the role of the internal DataMover.

See *Add a DataMover Endpoint* for more information.

Unmanaged Storage Repositories

This chapter describes different types of Unmanaged Storage Repositories available for use with Kumulate and includes the following information:

- Unmanaged Storage Repository Locations
- Avid Standalone Unmanaged Storage Repositories
- PMRUpdater Module
- Media Repository Path Replacement Examples
- Avid Interplay Unmanaged Storage Repositories
- Avid Unmanaged Storage Repository Metadata Mapping
- Omneon FTP Unmanaged Storage Repositories
- Pitchblue FTP Unmanaged Storage Repositories
- Project FTP Unmanaged Storage Repositories
- Project UNC Unmanaged Storage Repositories
- UNC Unmanaged Storage Repositories
- Discriminators and File Identifiers
- BXF Unmanaged Storage Repositories

Unmanaged Storage Repository Locations

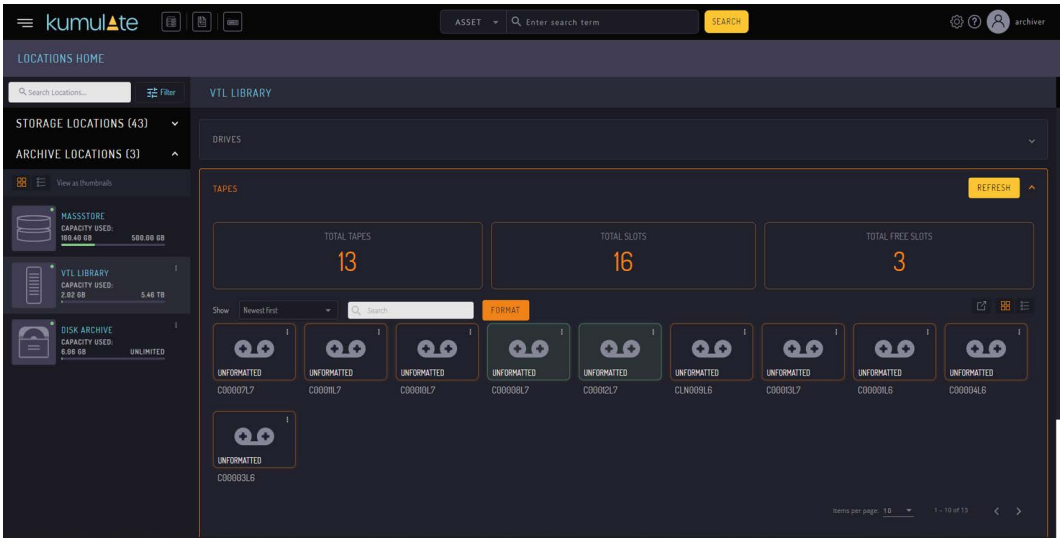
Repository locations use either a UNC or an FTP transfer protocol. Each Unmanaged Storage Repository is configured based on the media stored on it and the transfer mode used to transfer the media.

Unmanaged Storage Repositories are configured to expect a specific Rendition format. Renditions that do not match this format cannot be transferred to the location unless a Transcode Profile exists that can transcode the incoming Rendition to the format specified by the location's Restore Profile.

Unmanaged Storage Repositories are not automatically accessible to users, nor are they automatically added to external DataMovers. They need to be explicitly added as endpoints to external DataMovers, and they need to be explicitly added to user groups.

In Kumulate release 2.0 the Locations page was completely redesigned. The following administration capabilities have been added to it:

- Viewing general storage status and statistics
- Taking a storage online/offline
- Taking monitoring on/off for an Unmanaged Storage Repository
- Viewing and exporting the Rendition list for an Unmanaged Storage Repository
- Taking a tape drive online/offline
- Viewing tape drive status and configuration
- Taking a Managed Storage Repository online/offline
- Viewing and exporting the Rendition list for a Managed Storage Repository
- Taking a disk/cloud Managed Storage Repository's storage unit online/offline
- Viewing storage unit status and configuration
- Viewing and exporting the Rendition list for a storage unit
- Viewing a tape library's tape status, configuration, and tape list
- Modifying tape description and state (Online, Readonly, Unformatted) for a tape
- Viewing a tape status
- Viewing and exporting the Rendition list for a tape
- Adding a tape group
- Modifying a tape group configuration
- Viewing a tape group status, configuration, and tape list


kumulate
ASSET
Enter search term
SEARCH
archiver
LOCATIONS HOME
Search Locations...
Filter
STORAGE LOCATIONS (43)
ARCHIVE LOCATIONS (3)
View as thumbnails
MASSSTORE
CAPACITY USED:
160.40 GB
500.00 GB
VTL LIBRARY
CAPACITY USED:
2.02 GB
5.46 TB
DISK ARCHIVE
CAPACITY USED:
6.06 GB
UNLIMITED
VTL LIBRARY
DRIVES
TAPES
REFRESH
TOTAL TAPES
13
TOTAL SLOTS
16
TOTAL FREE SLOTS
3
Show
Newest first
Search
FORMAT
UNFORMATTED
C00007L7
C00011L7
C00010L7
C00008L7
C00012L7
CLN009L6
C00013L7
C00031L6
C00004L6
C00003L6
Items per page: 10
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Avid Standalone Unmanaged Storage Repositories

Avid Standalone Unmanaged Storage Repositories consist of an Avid Media Composer workstation connected to the Kumulate system.

When two or more Media Composer workstations use a shared Unmanaged Storage Repository, such as an ISIS Unmanaged Storage Repository, to store their media files, Kumulate connects to the ISIS location rather than to the Media Composer workstations.

File and Folder Formats

Avid Standalone Unmanaged Storage Repositories store MXF OP_ATOM files and AAF files.

MXF OP_ATOM files can contain video or audio essences. The video and audio of a media clip are stored in individual MXF OP_ATOM files. The video file and its audio file together make up an Avid Master Clip.

Master Clips are used to create finished media projects called sequences. A sequence's AAF file contains its list of Master Clip segments and the order in which to play them. When a sequence is added to Kumulate, its AAF file and Master Clips are also added to the Rendition.

Effects are stored in separate MXF_OP_ATOM files only if the effects are rendered either before the sequence is exported from Avid, or as part of the export process. If the effects are not rendered, they are stored as metadata in the AAF file.

When Kumulate monitors an Avid Standalone Unmanaged Storage Repository, it monitors the AAF file location. When a new AAF file is discovered, Kumulate creates a new Virtual Object and adds the Master Clips listed in the AAF file to a Rendition.

When a sequence or Master Clip is transferred from a Managed Storage Repository, or from one Avid Standalone Unmanaged Storage Repository to another, Kumulate transfers the AAF file and the Master Clips it references. Kumulate places the Master Clips in numbered subfolders under the Avid MediaFiles\MXF\ root folder. The number of files per subfolder is capped by the Interplay Maximum Files Unmanaged Storage Repository configuration parameter. The Avid MediaFiles\MXF\ folder can be located on a local drive, on a mapped drive or an UNC location.

The name of the numbered subfolders is set using the Interplay Repository Folder Pattern parameter. The folder number is appended to the folder name after a separator. The separator is specified by the Folder Pattern Separator parameter. For example, if `MyMedia` is used for the Interplay Repository Folder Pattern, and underscore (_) is used for the Folder Pattern Separator, then the subfolders will be named MyMedia_1, MyMedia_2, MyMedia_3, and so on.

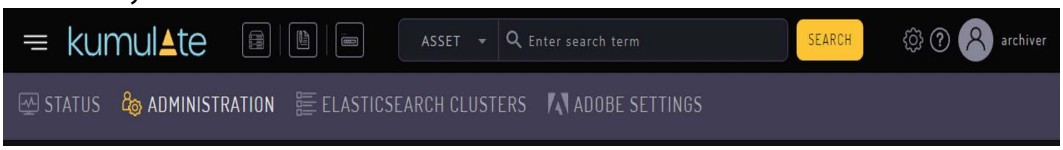
If the Interplay Repository Folder Pattern is left blank, no separator will be used even if one is specified. In this case, the subfolders will simply be numbers: 1, 2, 3, and so on.

The Folder Pattern Separator can be a period (.), an underscore (_), or a dash (-). If PMRUpdater is being used, the Folder Pattern Separator must be a period (.), and the Interplay Repository Folder Pattern must be the Media Composer workstation's name. For example, if the Media Composer workstation's fully qualified domain name is `MyWorkStation.MyOrg.com`, the Interplay Repository Folder Pattern must be set to *MyWorkstation*.

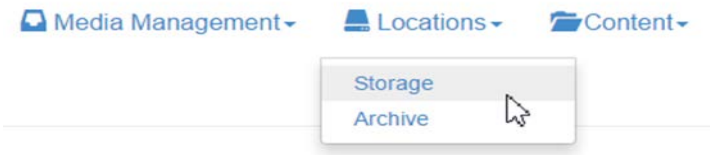
Configuration

Use the following procedure to configure the Avid Standalone Unmanaged Storage Repositories:

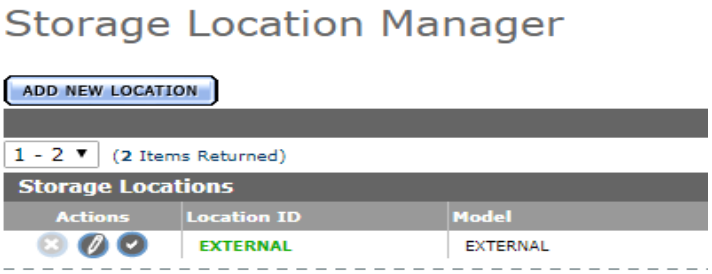
1. Click System > Administration in the menu bar in the Kumulate web interface.



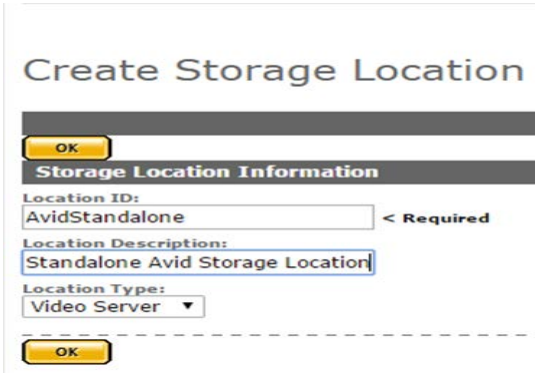
2. From the top menu, select Locations > Storage.



3. Click Add New Location to create a new Unmanaged Storage Repository.

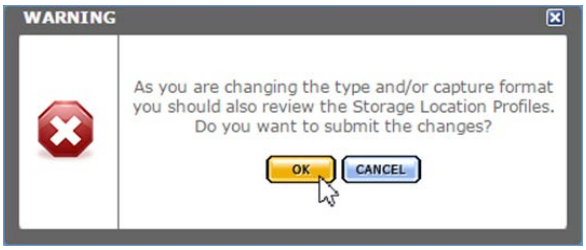


4. Enter a name and description for the Unmanaged Storage Repository, then click OK.

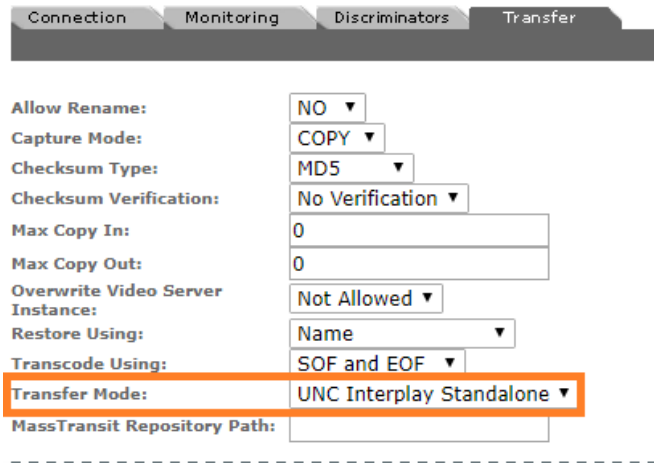


5. Select the Monitoring tab. Set API Protocol to *UNC*, and Capture Format to *AVID*.

6. Click OK to continue. A warning dialog appears asking if you want to submit the change to the Unmanaged Storage Repository. Click OK to continue. You will be returned to the Connection tab.



7. Select the Transfer tab and set Transfer Mode to *UNC Interplay Standalone*.



8. Click OK to continue and return to the Connection tab.

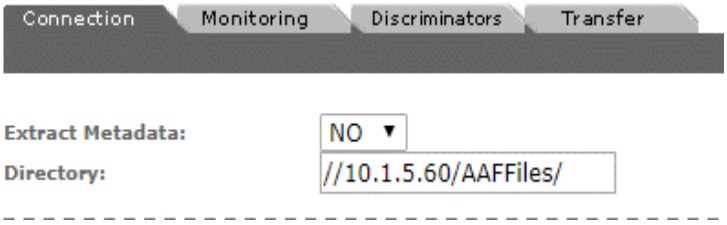
Continue to *Rendition Discovery Configuration* if the Unmanaged Storage Repository will be used to discover new Renditions.

Continue to *Rendition Transfer Configuration* if the locations will be used to copy Renditions from Kumulate to a physical location.

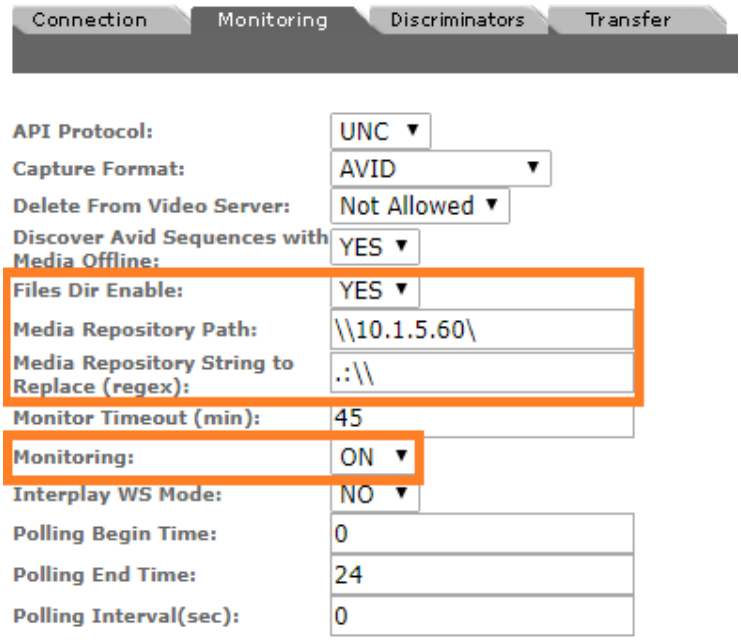
Rendition Discovery Configuration

Use the following procedure to set the parameters under the Connection and Monitoring tabs to discover new Renditions and copy them into Kumulate:

1. On the Connection tab, enter the path to the AAF files. Kumulate will monitor this directory for new AAF files.



2. On the Monitoring tab, set the Files Dir Enable, Media Repository Path, Media Repository String to Replace (regex), and Monitoring parameters as shown in the following figure.



3. After the Unmanaged Storage Repository has been configured, set the metadata mapping for the location.

Parameter	Value
Files Dir Enable	Must be set to *YES*.

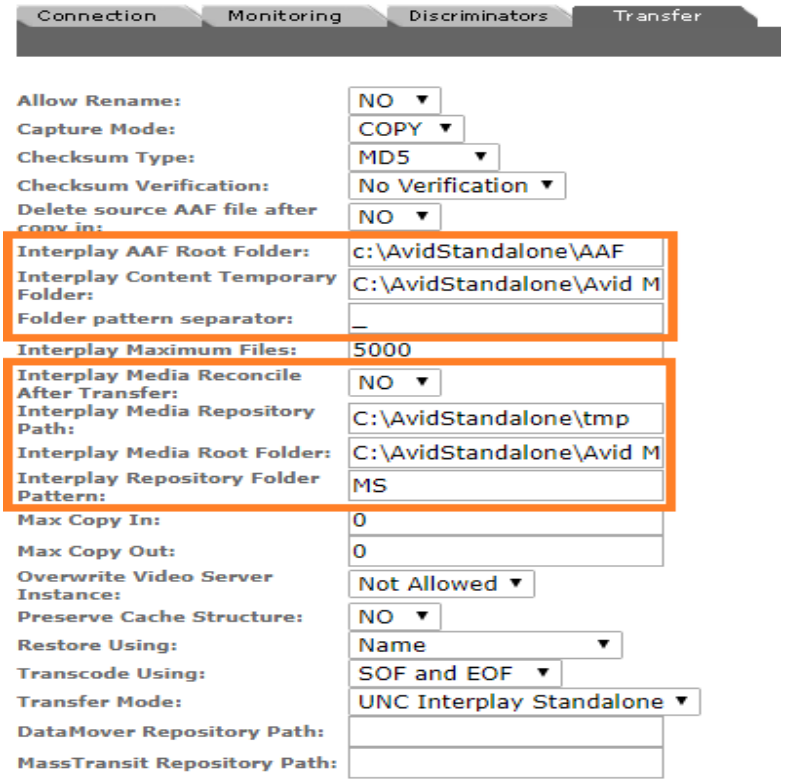
Media Repository Path	The path to the Avid MediaFiles\MXF\ folder on the Media Composer workstation relative to Kumulate.
Media Repository String to Replace (regex)	Regular expression that matches the local path to the Avid MediaFiles\MXF\ folder used in the AAF file. The matched string is replaced by Media Repository Path. By default this is set to (.*\\), matching any drive letter. This should only be changed if Media Composer is running on a workstation running MacOS.
Monitoring	This must be set to *ON*.

See the following section for the complete list of applicable parameters.

Caution: Do not forget to set the Metadata Mapping.

Rendition Transfer Configuration

Set these parameters under the Transfer tab so that Renditions transferred to this Unmanaged Storage Repository are copied to a physical location. Navigate to the Transfer tab and set the required parameters as shown the following figure:



Parameter	Value
Interplay AAF Root Folder	Path to the folder where Kumulate will write the AAF file.
Interplay Content Temporary Folder	Fully qualified path to Avid MediaFiles\MXF\Creating\.
Folder Pattern Separator	The separator used with Interplay Media Repository Folder Pattern. Can be period (.), underscore (_), or dash (-). If it is omitted, and Interplay Media Repository Folder Pattern is not left blank, MS is used. Must be set to period (.) when using PMRUpdater.

Parameter	Value
Interplay Media Reconcile After Transfer	Determines whether PMR files are updated by PMRUpdater or Media Composer. Must always be set to NO if PMRUpdater is not installed.
Interplay Media Repository Path	Fully qualified path to a temporary directory for the AAF files. Must be blank when using shared storage.
Interplay Media Root Folder	Fully qualified path to Avid MediaFiles\MXF\. Additional subfolders can be created below this folder.
Interplay Media Repository Folder Pattern	The prefix name used with the indexed subfolders of the Interplay Media Root Folder. Must be set to the Media Composer workstation name when using PMRUpdater.

See *Transfer Parameters* for the complete list of Transfer parameters.

Monitoring Parameters

The following parameters under the Monitoring tab are used by Avid Standalone Unmanaged Storage Repositories.

Caution: Do not modify any parameter that does not appear in this list. Modifying an unlisted parameter may affect Kumulate's operations.

- API Protocol

  Always set to *UNC*
- Capture Format

  Always set to *Avid*

- Discover Avid Sequences with Media Offline

  When discovering Renditions on the location, the AAF file used may point to files that are located on offline media.

  When this parameter is set to *YES*, Renditions will be discovered even if the files are located on offline media. Setting this parameter to *NO* will not discover Renditions if the files are located in offline media.

  This is set to *YES* by default.

- Files Dir Enable

  Indicates whether the full directory structure of the folder on the ISIS storage unit is recreated on the cache.

  Setting this parameter to *YES* recreates the directory structure, allowing Kumulate to transcode the files and create proxies. Setting the parameter to *NO* creates a proxy on the cache instead.

  The parameter must be set to *YES* when the Unmanaged Storage Repository is configured for discovery. Otherwise, the parameter can be left set to *NO*.

- Media Repository Path

  AAF files contain paths to the Master Clips used in its sequence. However, the paths are relative to the Media Composer workstation. To add files to Kumulate, the paths must be changed to be relative to the Kumulate server.

  This parameter is the path to Avid MediaFiles\MXF\ relative to the Kumulate server. It replaces the path specified by Media Repository String to Replace (regex).

- Media Repository String to Replace (regex)

  AAF files contain paths to the Master Clips used in its sequence. However, the paths are relative to the Media Composer workstation. For the files to be discovered by Kumulate, the paths must be changed to be relative to the Kumulate server.

  This parameter is a regular expression that selects the path to the Avid MediaFiles\MXF\ folder in the AAF file. The path selected by the regular expression is replaced by Media Repository Path.

  This parameter is set to (`.*\\`) by default and selects a drive letter. The result is that the drive letter before Avid MediaFiles\MXF\ is replaced with Media Repository Path.

  For examples, see *Media Repository Path Replacement Examples*.

- Monitor Timeout (min)

  A possibly deprecated parameter that may or may not have an effect on some function. **Do not change this parameter**.

- Monitoring

  This parameter indicates whether this Unmanaged Storage Repository is to be monitored if the Unmanaged Storage Repository will be used to copy in files. If the Unmanaged Storage Repository will only be used to copy out files, set the parameter to *OFF*; otherwise set it to *ON*.

- Interplay WS Mode

  Indicates whether Kumulate communicates with the Unmanaged Storage Repository through the Interplay Web Services interface. Since Avid Standalone Unmanaged Storage Repositories are not connected to an Interplay system, this parameter must be set to *NO*.

- Polling Begin Time, Polling End Time, Polling Interval(sec)

  Controls how Kumulate polls the AAF file.

  Polling Begin Time and Polling End Time instruct Kumulate to poll the Unmanaged Storage Repository only between Polling Begin Time and Polling End Time. These parameters are based on the 24-hour clock and can only be set to hours.

  Polling Interval(sec) instructs Kumulate to poll the Unmanaged Storage Repository every specified number of seconds. The interval begins when the discovery operation ends. The minimum value for this interval is 10s. Setting this parameter to *0* effectively sets it to 10s.

Transfer Parameters

The following parameters under the Transfer tab are used by Avid Standalone Unmanaged Storage Repositories.

Caution: Do not modify any parameter that does not appear in this list. Modifying an unlisted parameter may affect Kumulate's operations.

- Capture Mode

  The capture mode specifies whether the physical file on this Unmanaged Storage Repository is kept or deleted after its Rendition is transferred to another location.

  MOVE deletes the physical file from this location after the transfer, while COPY keeps it.

- Checksum Type and Checksum Validation

  Rendition checksums are calculated to ensure that Rendition data is not corrupted.

  When a Rendition is copied to the location, its checksum is calculated using the algorithm specified by Checksum Type. If the Rendition's checksum is not already in the database, it is added. If the Rendition's checksum is already in the database, but the two checksums do not match, the transfer will fail and an error will be generated.

  If *After Write* is selected for Checksum Validation, then an additional check is made after the Rendition has been fully copied to the location. If the checksum of the written Rendition does not match the checksum in the database, the transfer will fail.

- Delete Source AAF file after copy in

  This parameter only applies when Kumulate is copying in files from the Unmanaged Storage Repository. It deletes the AAF file from the Unmanaged Storage

Repository after its files have been transferred from the Unmanaged Storage Repository to cache. A copy of the AAF file will remain in the cache.

- Interplay AAF Root Folder

  This is the path to the location where Kumulate will write the AAF file when copying out files to the Unmanaged Storage Repository. The Avid system must be configured to retrieve the AAF file from this location.

- Interplay Content Temporary Folder

  This is the temporary file write location on the Media Composer workstation or ISIS Unmanaged Storage Repository. Kumulate writes files, including the AAF file, to this temporary folder to prevent the Avid system from indexing the files before Kumulate has completed restoring the files.

  After Kumulate has completed transferring the files, it updates the Master Clip paths in the AAF file with the Interplay Media Root Folder path, and moves the contents of this folder to the Interplay Media Root Folder. The AAF file is moved to Interplay AAF Root Folder.

  The Interplay Content Temporary Folder must be named Creating and must be located on under Avid MediaFiles\MXF\. Creating can be located under a subfolder of Avid MediaFiles\MXF\. If the folder does not exist, it will be created by Kumulate.

- Folder Pattern Separator

  This setting can be left blank or set to dash (-), underscore (_), or period (.). It must be set to period (.) when using PMRUpdater.

  It is used in conjunction with the Interplay Media Repository Folder Pattern to create the numbered subfolders under the Interplay Media Root Folder.

  The numbered subfolders are created and named [repository_folder_pattern][folder_pattern_separator][number]. For example, if the folder pattern separator is an underscore (_), and the folder pattern is `MyFiles`, folders named MyFiles_1, MyFiles_2, MyFiles_3, and so on will be created under the root folder.

  If this setting is left blank, Kumulate will use MS as the separator. For example, MyFilesMS1, MyFilesMS2, MyFilesMS3, and so on.

  If the Repository Folder Pattern is also left blank, Kumulate will create folders with only numbers in their names. For example, Avid MediaFiles\MXF\1\, Avid MediaFiles\MXF\2\, Avid MediaFiles\MXF\3\, and so on.

- Interplay Maximum Files

  This is the maximum number of files per numbered subfolders. A new numbered subfolder is created when the maximum is reached.

  Technical Support recommends 2500 files per folder. Avid limits the number of files per folder to 5000. **Do not set this parameter to any value greater than 5000**.

- Interplay Media Reconcile After Transfer

  This parameter is only used when PMRUpdater is installed.

  When set to *YES*, PMRUpdater will be used to update PMR files. The PMR files will be updated by Media Composer when it is set to *NO*.

  If PMRUpdater is not installed and Interplay Media Reconcile After Transfer is set to YES, transfers to and from this Unmanaged Storage Repository will fail.

- Interplay Media Repository Path

  Temporary directory for the AAF file.

- Interplay Media Root Folder

  The fully qualified path to the root folder on the Avid Standalone Unmanaged Storage Repository where the transferred files are placed. The path used for the Interplay Media Root Folder must include Avid MediaFiles\MXF\, which is automatically created by Media Composer.

  The numbered folders can be located in a subfolder of Avid MediaFiles\MXF\. If Avid MediaFiles\MXF\ is in an unmapped UNC location, the subfolder must already exist before it can be used as the Interplay Media Root Folder. If Avid MediaFiles\MXF\ is located on a local or mapped drive, Kumulate will create the subfolder if it does not already exist.

- Interplay Media Repository Folder Pattern

  This setting is used in conjunction with Folder Pattern Separator to create the numbered subfolders under the Interplay Media Root Folder.

  The numbered subfolders are created and named [Interplay Media Repository Folder Pattern][Folder Pattern Separator][number]. For example, if Folder Pattern Separator is set to underscore (_), and Interplay Media Repository Folder Pattern is set to `MyFiles`, folders named MyFiles_1, MyFiles_2, MyFiles_3, and so on will be created.

  If this parameter is left blank, Kumulate will create folders with number names. For example, Avid MediaFiles\MXF\1\, Avid MediaFiles\MXF\2\, Avid MediaFiles\MXF\3\, and so on.

  This parameter must be set to the Media Composer workstation machine name when using PMRUpdater. For example, if the machine's fully qualified domain name is `ThisMachine.MyCompany.com`, then this parameter must be set to *ThisMachine*.

- Max Copy In

  This setting only applies when the Unmanaged Storage Repository is configured for copying in files. It sets the maximum number of concurrent transfers from the Unmanaged Storage Repository to Kumulate.

  The value can be between 0 and 127, where 0 means that there is no limit on the number of transfers. The default value is 0.

Note: It is **strongly recommended** to change this to a non-zero value.

- Max Copy Out

  Only applies when the Unmanaged Storage Repository is configured for copying out files. Sets the maximum number of concurrent transfers from Kumulate to the Unmanaged Storage Repository.

  The value can be between 0 and 127, where 0 means that there is no limit on the number of transfers. The default value is 0.

Note: It is **strongly recommended** to change this to a non-zero value.

- Overwrite Video Server Rendition

  When set to *NOT ALLOWED*, a transfer from Kumulate to the Unmanaged Storage Repository will fail if the file already exists on the Unmanaged Storage Repository.

  When set to *ALLOWED*, the transfer will overwrite the existing file on the Unmanaged Storage Repository.

- Preserve Cache Structure

  Preserve Cache Structure is set to *YES* in cases where Avid files are stored on a shared Unmanaged Storage Repository that is not connected to a Media Composer workstation. This setting is generally used when moving files from one Kumulate system to another Kumulate system.

  When Avid files are saved to the cache, they are saved along with a copy of the AAF file to the same folder structure. The AAF file is stored under VirtualObjectID/Metadata/ while the media files are stored under VirtualObjectID/Media/.

  When the files need to be transferred to another Kumulate system, the VirtualObjectID folder on the originating Kumulate system is copied in its entirety to an Unmanaged Storage Repository connected to the destination Kumulate system. This Unmanaged Storage Repository is configured with Preserve Cache Structure set to *YES*.

  Restore Using must be set to *Virtual Object ID* when Preserve Cache Structure is set to *YES*.

- Restore Using

  This parameter specifies how to name the physical file when a Rendition is transferred to this Unmanaged Storage Repository. There are four options for Restore Using as follows:

Option	Description
Virtual Object ID	The file is named using the transferred Rendition's Virtual Object's ID.

Option	Description
Name	The file is named using the transferred Rendition's Virtual Object's Name.
Original Name	The file is named using the transferred Rendition's Virtual Object's Original Name. Original Name contains the name of the Virtual Object when its source Rendition was discovered.
Preserve Filenames	The file name is not modified after transfer. The Restore Extension parameter will not be applicable when this option is used. If the Unmanaged Storage Repository configuration is saved after setting this option then Restore Extension will be hidden.

Note: If the Virtual Object source location used Virtual Object ID as the Naming Schema, the Virtual Object ID, Virtual Object Name, and the Original Name may be identical.

- Transcode Using

  Some files may contain information at the beginning and end of the file that is not necessarily meant to be transcoded. This happens most often with commercial spots which can have agency information, tags, and blacks appended to the begging and the end of the advertisement. Selecting *SOM* and *EOM* prevents these extraneous bits from being transcoded. Additional configuration is needed to use EOM and SOM.

  The entire file is transcoded when set to *SOF and EOF*.

  Only a part of the file is transcoded when set to *SOM and EOM*.

  See *Start of Message Parameter* for more information.

- Transfer Mode

  This parameter is always set to *UNC Interplay Standalone*.

PMRUpdater Module

Media Composer PMR files are used to keep track of the online resources available to the Media Composer Editor. A Media Composer workstation that is not connected to an ISIS Unmanaged Storage Repository, or is connected to an ISIS location that is not configured to do continuous updates to PMR files, will only update its PMR files when there is user input. If many files have been added or removed before there is user input, the time required for Media Composer will be significant.

The PMRUpdater runs on the Kumulate server and updates PMR files as soon as changes are made to the contents of a PMR file's folder.

Installation

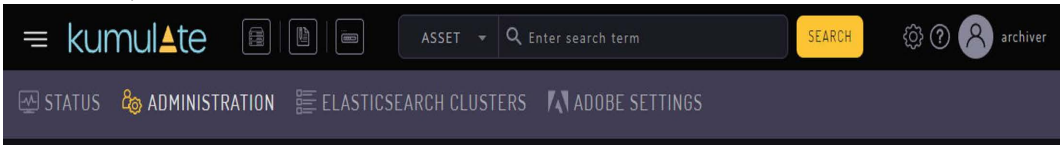
The PMRUpdater is installed on the Kumulate Server. PMRUpdater is only available for 64bit architectures. Use the following procedure to install PMRUpdater:

1. Log in to the Masstech ftp site, ftp.masstech.com, as the Software user, and change directory to *CORE_PRODUCTS/KUMULATE/AVID Interfaces/*.
2. Create a directory on the Kumulate Server named *Avid_PMRUpdater* under the *C:\Software* directory.
3. Download *Avid_PMRUpdater to C:\Software\Avid_PMRUpdater*.
4. Navigate to the *C:\Software\Avid_PMRUpdater\2014.01.07.1.0.0.2* directory on the Kumulate Server.
5. Run *PMRUpdater64Installer.msi* as the Administrator, and follow the instructions to install the PMRUpdater executable.

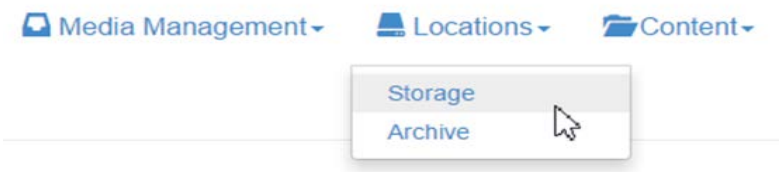
Configure Avid Standalone Unmanaged Storage Repositories

Use the following procedure to configure the Avid Standalone Unmanaged Storage Repositories:

1. Click System > Administration in the menu bar in the Kumulate web interface.



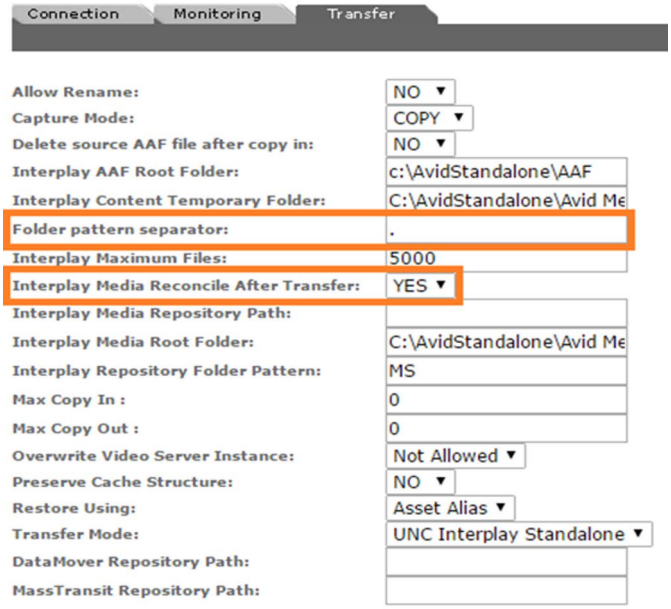
2. From the topmost menu, select Locations > Unmanaged Storage Repositories.



3. Click the pencil icon next to the Avid Standalone Unmanaged Storage Repository to modify. If a new location needs to be created, follow the instructions in *Avid Standalone Unmanaged Storage Repositories*.
4. Click the Transfer tab.

5. Set Folder pattern separator to a period (.), and set Interplay Media Reconcile After Transfer to *YES*.

Note: If PMRUpdater is not installed, but Interplay Media Reconcile After Transfer is set to *YES*, transfers to and from the Unmanaged Storage Repository will fail.



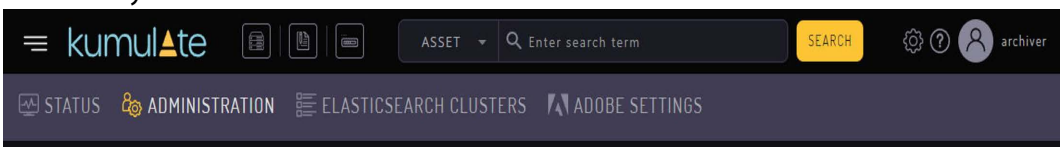
6. Click OK to save the changes.
7. Modify all the Avid Standalone Storage that will be using the PMR Updater.

MMC Module Configuration

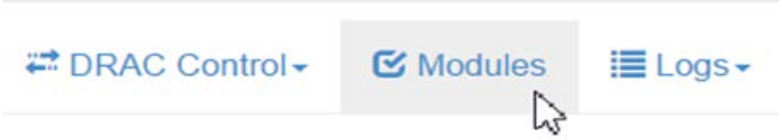
Use the following procedure to configure the MMC Module:

Note: Before configuring the MMC module, perform at least one transfer to any Avid Standalone Unmanaged Storage Repository. The PMRUpdater Path parameter will only become visible in the MMC module after a transfer to an Avid Standalone Unmanaged Storage Repository has been made.

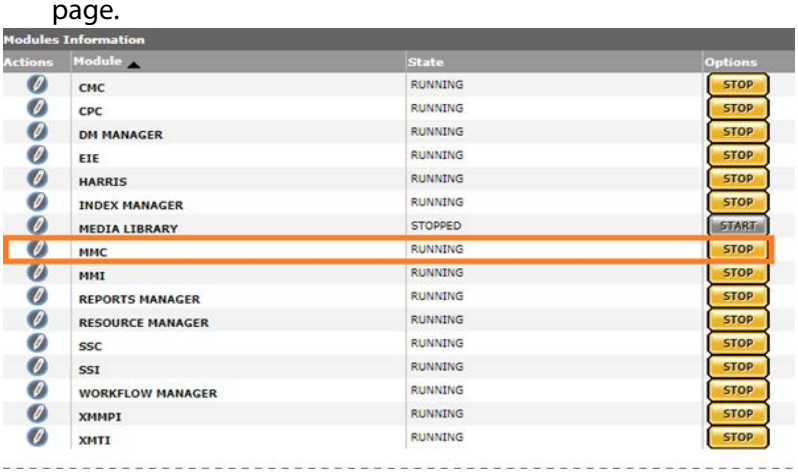
1. Click System > Administration in the menu bar in the Kumulate web interface.



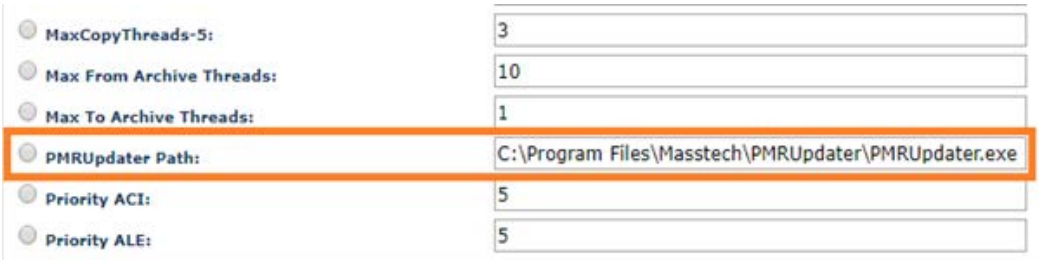
2. Select Modules from the topmost menu.



3. Click the pencil next to the MMC module to open the MMC Module Configuration page.



4. Enter the path of the PMRUpdater executable in the PMRUpdater Path text box.



5. Click OK to save the changes.

Media Repository Path Replacement Examples

The file paths extracted from monitored AAF files point to locations on the Media Composer host. These paths must be changed to locations relative to Kumulate for the files to be archived. The Media Repository Path and Media Repository String to Replace parameters are used to alter the file paths.

The following Media Repository Path Replacement usage examples demonstrate how to configure these parameters.

Replacing a Drive Letter

When the path to Avid MediaFiles in the AAF file uses a drive letter, the drive letter is replaced by keeping Media Repository String to Replace (regex) set to `(.*\\)`.

Note: Replacing multiple drive letters for the same Unmanaged Storage Repository are not currently supported.

For example, to change:

C:\Avid MediaFiles\MXF\5\tvo1345.mxf

to

\\10.1.4.1\Avid MediaFiles\MXF\5\tvo1345.mxf

Enter the following for Media Repository Path and Media Repository String to Replace (regex):

Media Repository Path	\\10.1.4.1\
Media Repository String to Replace (regex)	`(.*\\)`

Replacing a Known Path

When the path to Avid MediaFiles/MXF/ used in the AAF file is known, Media Repository String to Replace (regex) can be set to the path. If any special characters such as backslashes (\) need to be removed, they must be prefixed by a backslash (\).

For example, to change:

\\macpath\workspace3\Avid MediaFiles\MXF\mtg.2\e1234567.mxf

to

\\isis123\workspace3\Avid MediaFiles\mxf\mtg.2\e1234567.mxf

Enter the following for Media Repository Path and Media Repository String to Replace (regex):

Media Repository Path	isis123
Media Repository String to Replace (regex)	macpath

or

Media Repository Path	isis123
Media Repository String to Replace (regex)	\\\\mactest\\

In the first option only the names are matched and replaced. In the second option the leading and trailing backslashes, in addition to the names, are matched and replaced.

Note: Replacing multiple drive letters for the same Unmanaged Storage Repository are not currently supported.

If Media Repository String to Replace (regex) ends with a double backslash (\\) to match an end backslash, then the Media Repository Path needs to include the ending backslash (\), otherwise the ending backslash will be removed and not replaced.

Case-Insensitive Replacement

When the path to the Avid MediaFiles\MXF\ folder used in the AAF file can be either lower or upper case, use the (?!) modifier in the Media Repository String to Replace (regex) regular expression.

For example, to change

\\MyPath\Avid MediaFiles\MXF\5\tvo1345.mxf

or

\\mypath\Avid MediaFiles\MXF\5\tvo1345.mxf

to

\\isis123\Avid MediaFiles\MXF\5\tvo1345.mxf

Enter the following for Media Repository Path and Media Repository String to Replace (regex):

Media Repository Path	\\isis123\
Media Repository String to Replace (regex)	(?!)\\\\mypath\\

The (?!) modifier matches the regular expression without considering case.

Regular Expression Does Not Match Root Path

If Media Repository String to Replace (regex) does not match the file path used in the AAF file, Kumulate will behave differently depending on the file path in the AAF file.

AAF File Contains Drive Letters or IPv4 Addresses

If the AAF file uses drive letters or IPv4 addresses, Kumulate will replace the paths in the AAF with the new path even if Media Repository String to Replace (regex) does not match the paths in the AAF file.

For example, if the Media Repository Path and Media Repository String to Replace (regex) parameters are set as follows:

Media Repository Path	\\NewPath\
Media Repository String to Replace (regex)	\\\\OriginalPath\\

but the file paths in the AAF file are of the form

C:\Avid MediaFiles\MXF\5\tvo1345.mxf

or

\\10.1.4.1\Avid MediaFiles\MXF\5\tvo1345.mxf

the path will still be changed to

\\NewPath\Avid MediaFiles\MXF\5\tvo1345.mxf

Note: Leaving Media Repository String to Replace (regex) blank, but filling in Media Repository Path will produce the same result.

File Path is a Location Name

If the AAF file contains UNC file paths that do not match Media Repository String to Replace (regex), the Media Repository Path will be added to the beginning of the path. The files listed in the AAF files will not be found and the copy in will fail.

For example, if the Media Repository Path and Media Repository String to Replace (regex) parameters are set as follows:

Media Repository Path	\\NewPath\
Media Repository String to Replace (regex)	\\\\OriginalPath\\

but the file paths in the AAF file are of the form

\\SomeOtherPath\Avid MediaFiles\MXF\5\tvo1345.mxf

the new path will be

\\NewPath\SomeOtherPath\Avid MediaFiles\MXF\5\tvo1345.mxf

Note: The files will not be found in this case and the transfer will fail.

Log and Operator Messages

In all cases where Media Repository String to Replace (regex) does not match the paths in the AAF file, an error will be logged in the Montana logs, and an operator message will be generated.

For example, the operator message would be as follows:

Media Repository String to Replace (<\\\\OriginalPath\\>) does not match on Unmanaged Storage Repository TEST

The message in the Montana log would be as follows:

14-11-17 11:36:32.609 CMI:FtpUncAvidStandaloneFolderCommandExecutor.getFilesInfoIfCompleted: Failed to replace (\\\\OriginalPath\\)/(\\NewPath\) on file C:\Avid MediaFiles\MXF\5\tvo1345.mxf

Avid Interplay Unmanaged Storage Repositories

An Avid Interplay Unmanaged Storage Repository consists of an ISIS storage unit and an Interplay server. The Interplay server keeps an inventory of the contents of the ISIS unit.

Kumulate communicates with the Interplay server through a Web Services interface, to identify files available to copy in from the ISIS storage unit, and to check-in files that have been copied to the ISIS storage unit with the Interplay server.

The files are moved to and from the ISIS storage unit using an ISIS client installed on the Kumulate server. When Kumulate transfers files to the ISIS unit, the files must be checked-in with the Interplay server (by Kumulate) to update the Interplay server's inventory.

Separate Avid Interplay Unmanaged Storage Repositories must be configure for copy in and copy out, even if they both correspond to the same physical Interplay server and ISIS storage unit.

File and Folder Formats

Avid Interplay Unmanaged Storage Repositories store MXF OP_Atom files that can contain video or audio essences. The video and audio of a media clip are stored in individual MXF OP_ATOM files. The video file and its audio file together make up an Avid Master Clip.

Master Clips are used to create finished media projects called Sequences. Sequences are defined in AAF files. A sequence's AAF file contains a list of Master Clip segments, and the order in which to play them. If data and effects are used in the sequence, they are stored in separate MXF OP_ATOM files, which are also referenced in the sequence's AAF file. When a sequence is added to Kumulate, its AAF file and Master Clips are also added to the Rendition.

In an Avid Interplay Unmanaged Storage Repository, Kumulate communicates with the Interplay server through the Web Services interface. Kumulate and Interplay pass messages that contain information about Sequences and Master Clips. Both the Kumulate and Interplay servers use these messages to create AAF files.

When a sequence is copied in to Kumulate, Kumulate polls Interplay through Web Services. Interplay responds with a message that contains information about the sequence. Kumulate then uses the message to generate an AAF file used to pull the Master Clips from the ISIS storage unit using the ISIS client.

When a Rendition is copied out to the Avid Interplay Unmanaged Storage Repository, Kumulate creates an AAF describing the Rendition, then copies the files to the ISIS storage unit using the ISIS client installed on the Kumulate server host. Kumulate places the Master Clips in numbered subfolders under the Avid MediaFiles\MXF\ root folder. The number of files per subfolder is capped by the Interplay Maximum Files Unmanaged Storage Repository configuration parameter. Kumulate then uses its AAF file to create a Web Service message that it sends to Interplay. Interplay then becomes aware of the files that were copied to the ISIS storage unit.

The name of the numbered subfolders is set using the Interplay Repository Folder Pattern parameter. The folder number is appended to the folder name after a separator. The separator is specified by the Folder Pattern Separator parameter, which can be a period (.), an underscore (_), or a dash (-). For example, if `MyMedia` is used for Interplay Repository Folder Pattern, and underscore (_) is used for Folder Pattern Separator, then the subfolders will be named MyMedia_1, MyMedia_2, MyMedia_3, and so on.

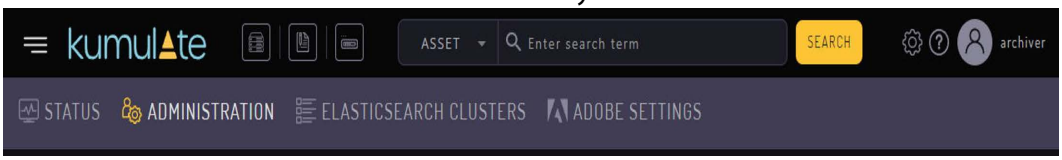
If Interplay Repository Folder Pattern is left blank, no separator will be used even if one is specified. In this case, the subfolders will simply be numbers: 1, 2, 3, and so on.

Rendition Discovery Configuration

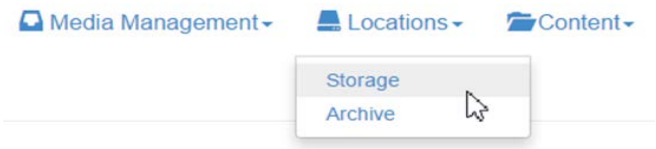
Note: Avid Interplay Unmanaged Storage Repositories cannot be configured to both copy in new Renditions and copy out existing Renditions. Separate Unmanaged Storage Repositories must be created for these two scenarios regardless of whether the same physical location is used for both.

Use the following procedure to configure Interplay Unmanaged Storage Repositories to be used for Rendition discovery:

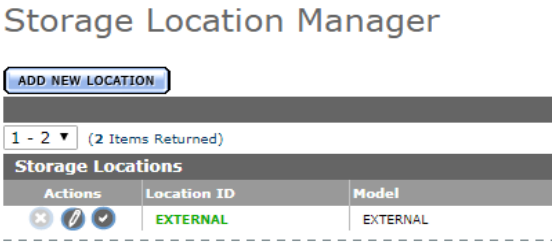
1. In the Kumulate web interface menu click System > Administration.



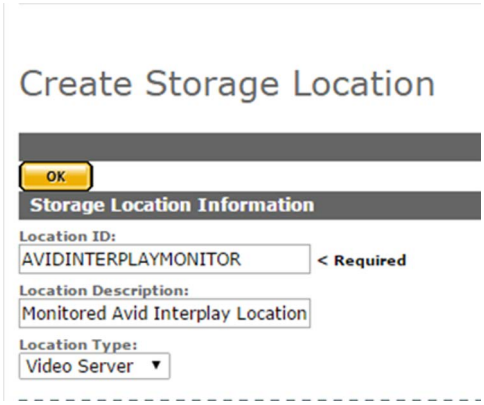
2. Select Locations > Storage.



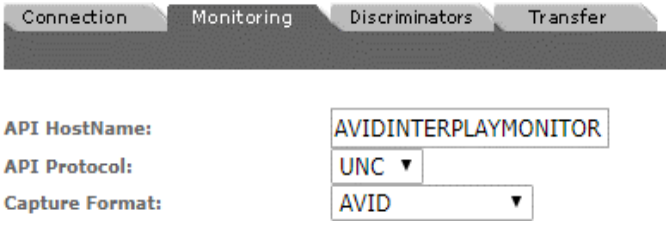
3. Click the Add New Location button to create a new Unmanaged Storage Repository.



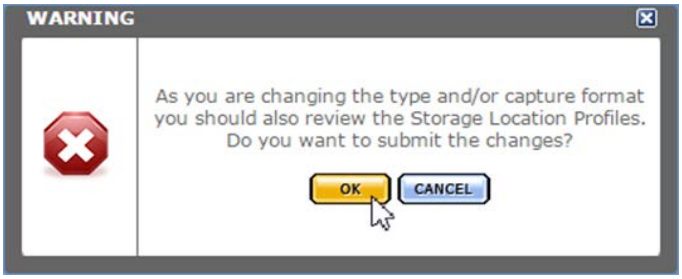
4. Enter a name and description for the Unmanaged Storage Repository, then click OK.



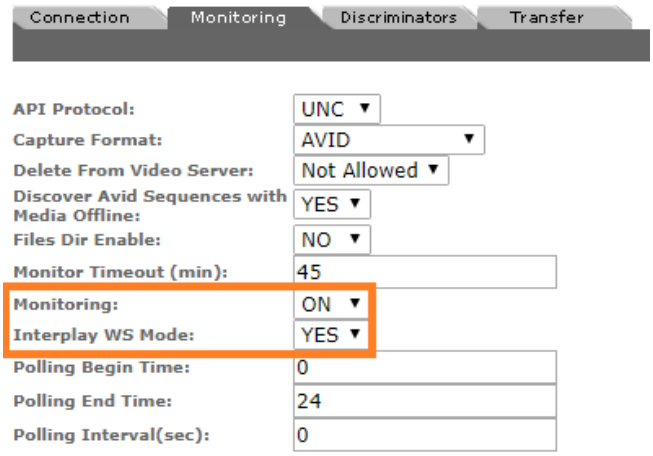
5. Select the Monitoring tab and set API Protocol to *UNC*, and Capture Format to *AVID*.



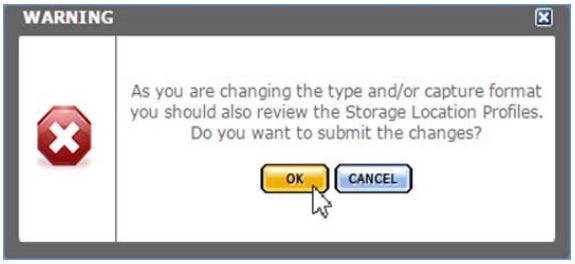
6. Click OK to continue. A warning will appear asking if you want to submit the change to the Unmanaged Storage Repository. Click OK to continue. You will be returned to the Connection tab.



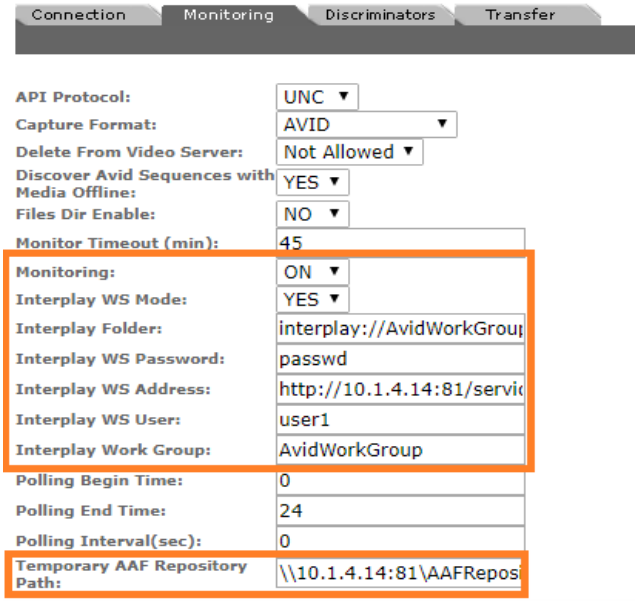
7. Select the Monitoring tab and set Monitoring to *ON* and Interplay WS Mode to *YES*.



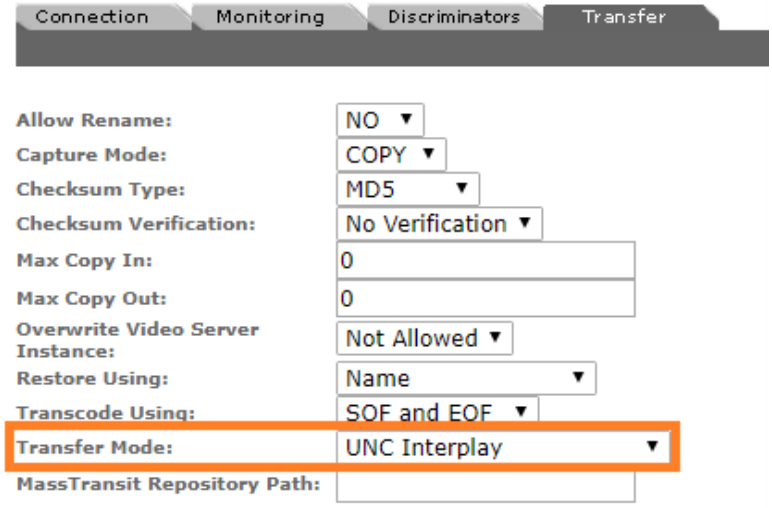
8. Click OK to continue. A warning will appear asking if you want to submit the change to the Unmanaged Storage Repository. Click OK to continue. You will be returned to the Connection tab.



9. Set Interplay Folder, Interplay WS Password, Interplay WS Address, Interplay WS user, Interplay Work Group, and Temporary AAF Repository Path.

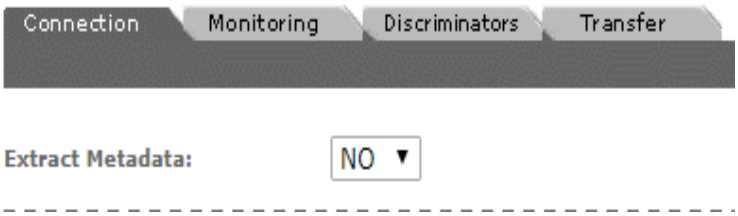


10. Click OK to continue. You will be returned to the Connection tab.
11. Select the Transfer tab and set Transfer Mode to *UNC Interplay*.



12. Click OK to continue and you are returned to the Connection tab.

Note: Ensure that the only connection parameter visible is Extract Metadata, and that it is set to *NO*. Metadata is extracted automatically from the AAF file and does not need to be extracted from the discovered media files.



13. Set the metadata mapping, then click OK to save and continue.

Rendition Discovery Monitoring Parameters

The following parameters under the Monitoring tab are used by Avid Interplay copy in Unmanaged Storage Repositories:

Caution: Do not modify any parameter that does not appear in this list.

- API Protocol

  Always set to *UNC*.

- Capture Format

  Avid Interplay Unmanaged Storage Repositories that are used to send files to Kumulate (copy-in, archive, monitor) must have Capture Format set to *Avid*.

- Delete From Video Server

  Allows the deletion of files from the Unmanaged Storage Repository after they have been copied in to Kumulate.

- Discover Avid Sequences with Media Offline

  When discovering Renditions on the location, the AAF file used may point to files that are located on offline media.

  When this parameter is set to *YES*, Renditions will be discovered even if the files are located on offline media.

  Setting this parameter to *NO* will not discover Renditions if the files are located in offline media.

  The default is *YES*.

- Files Dir Enable

  Indicates whether the full directory structure of the folder on the ISIS storage unit is recreated on the cache.

  Setting this to *YES* recreates the directory structure. This allows Kumulate to transcode the files and create proxies. Setting the parameter to *NO* creates a proxy on the cache instead.

Caution: It is strongly recommended that Files Dir Enable be set to *YES* when the Unmanaged Storage Repository is configured for discovery; otherwise it can be left set to *NO*.

- Interplay WS Mode

  Indicates whether Kumulate communicates with the Unmanaged Storage Repository through the Interplay Web Services interface. Kumulate always communicates through Web Services with Avid Interplay Unmanaged Storage Repositories. Therefore this parameter must be set to *YES*.

- Interplay Folder

  Information about Avid files stored on the ISIS storage unit is saved in metadata on the Interplay server. The server organizes information about the Avid files in folders. Kumulate monitors only one Interplay folder on an Avid Interplay Unmanaged Storage Repository, and queries Interplay for information about this folder. In return, Interplay sends information about the files referenced in the folder to Kumulate, and Kumulate uses this information to discover the files on the ISIS Unmanaged Storage Repository.

  Interplay Folder is the fully qualified path to the folder on the Interplay server that Kumulate will monitor.

- Interplay WS User, Interplay WS Password, and Interplay WS Address

  The connection credentials for Interplay Web Services.

- Interplay Work Group

  The Interplay work group to connect to.

- Monitor Timeout (min)

  A possibly deprecated parameter that may (or may not) have an effect on some functionality somewhere. **Do not change this parameter**.

- Monitoring

  Indicates whether this Unmanaged Storage Repository is to be monitored. Must be set to *ON* when the Avid Interplay location is used to send files to Kumulate (copy-in, archive, monitoring).

- Polling Begin Time, Polling End Time, Polling Interval(sec)

  Controls how Kumulate polls the Interplay server.

  Polling Begin Time and Polling End Time instruct Kumulate to poll the Unmanaged Storage Repository only between Polling Begin Time and Polling End Time. These parameters are based on the 24-hour clock, and can only be set to hours.

  Polling Interval(sec) instructs Kumulate to poll the Unmanaged Storage Repository every specified number of seconds. The interval begins when the discovery operation ends. The minimum value for this interval is 10s. Setting this parameter to *0* effectively sets it to 10s.

- Temporary AAF Repository Path

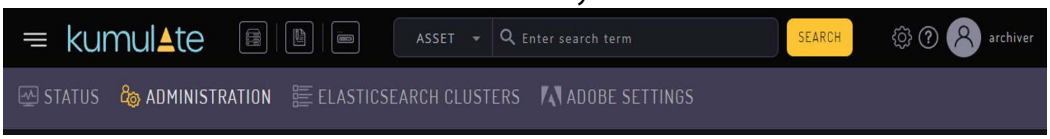
  Kumulate uses the information received from Interplay to create an AAF file that it then uses to discover files on the ISIS storage unit. The AAF file is saved to Temporary AAF Repository Path; which is a fully qualified path to a location on the Kumulate cache.

Rendition Transfer Configuration

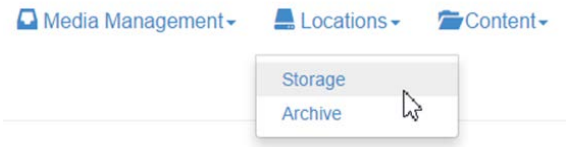
Note: Avid Interplay Unmanaged Storage Repositories cannot be configured to both copy in new Renditions and copy out existing Renditions. Separate Unmanaged Storage Repositories must be created for these two scenarios regardless of whether the same physical location is used for both.

Use the following procedure to configure an Avid Interplay Unmanaged Storage Repository for Rendition transfers:

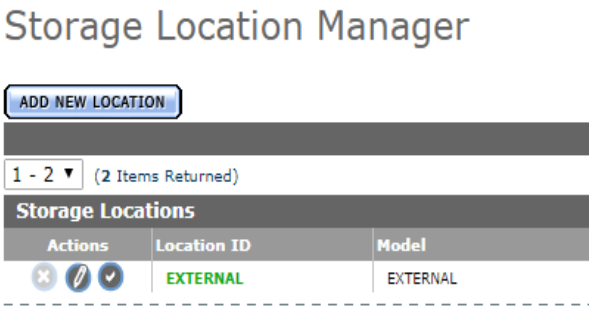
1. In the Kumulate web interface menu click System > Administration.



2. Select Locations > Storage.

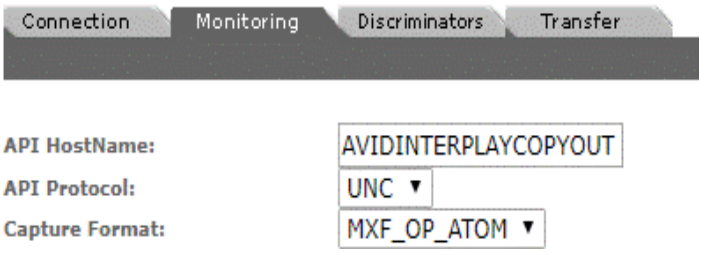


3. Click the Add New Location button to create a new Unmanaged Storage Repository.

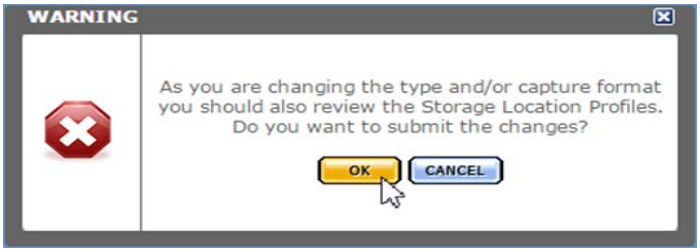


4. Enter a name and description for the Unmanaged Storage Repository, then click OK.

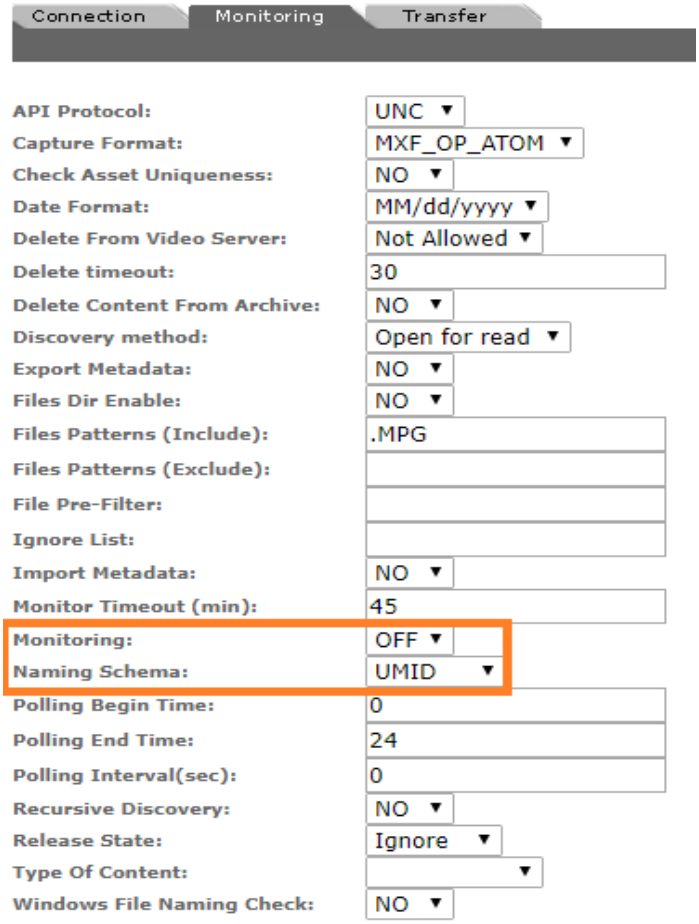
5. Select the Monitoring tab. Set API Protocol to *UNC* and Capture Format to *MXF_OP_ATOM*.



6. Click OK to continue. A warning will appear asking if you want to submit the change to the Unmanaged Storage Repository. Click OK to continue. You will be returned to the Connection tab.

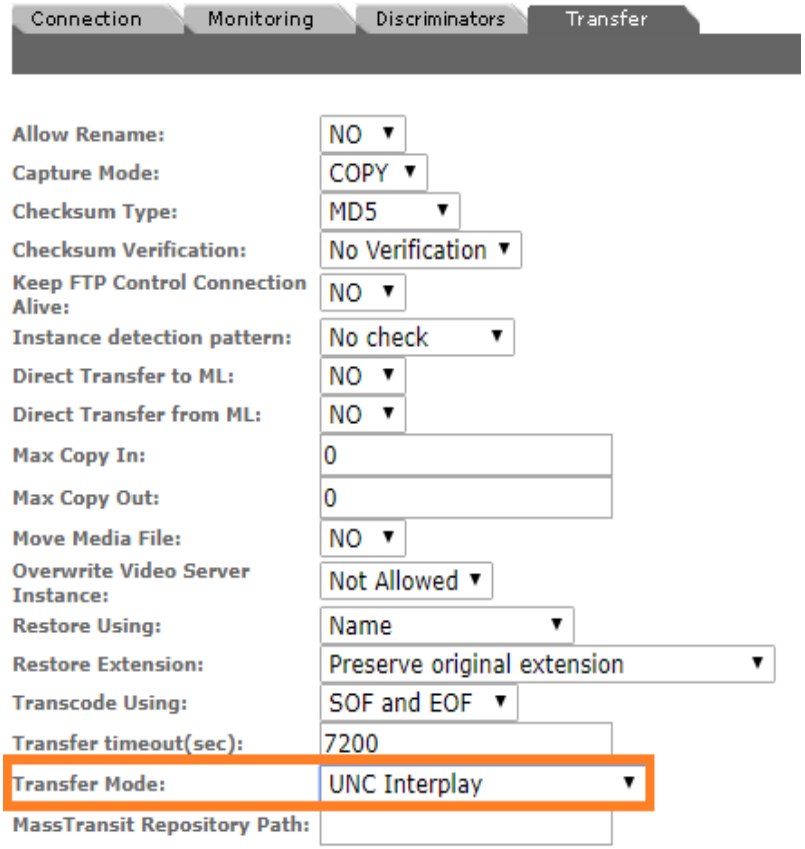


7. Select the Monitoring tab. Set Monitoring to *OFF*, and Naming Schema to *UMID*.

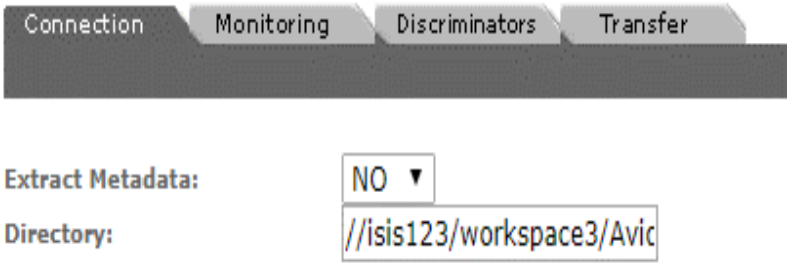


8. Click OK to continue. You will be returned to the Connection tab.

9. Select the Transfer tab. Set Transfer Mode to *UNC Interplay*.



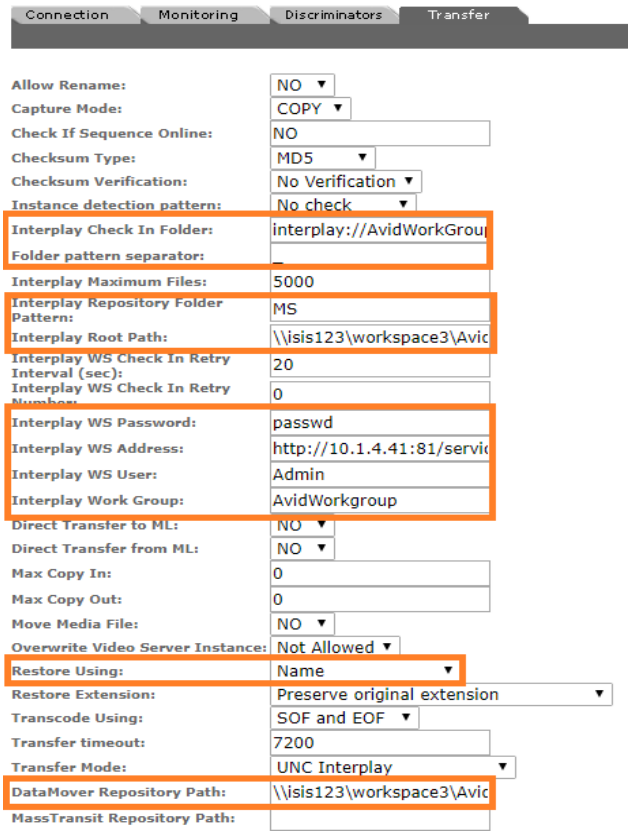
10. Click OK to continue. You will be returned to the Connection tab. Extract Metadata must be set to *NO*. Directory must be set to the UNC path to the location on the ISIS storage unit where the media files will be copied.



11. Click OK to continue. You will be returned to the Connection tab.

12. Select the Transfer tab and set the following parameters (see *Copy In and Copy Out Transfer Parameters* for the complete list of Transfer parameters):

Parameter	Description
Interplay Check In Folder	The fully qualified path to the folder on the Interplay server where metadata about the transferred files will be written.
Folder Pattern Separator	The separator used with Interplay Repository Folder Pattern. This can be a period (.), underscore (_), or dash (-). If it is omitted, and Interplay Media Repository Folder Pattern is not left blank, MS is used.
Interplay Repository Folder Pattern	The prefix name used with the indexed subfolders of the Interplay Root Path.
Interplay Root Path	UNC path to the Avid MediaFiles\MXF\ folder on the ISIS storage unit. Any subfolders of Avid MediaFiles\MXF\ must also be included in this path.
Interplay WS Password Interplay WS Address Interplay WS User	The web server connection credentials.
Interplay Work Group	The Interplay workgroup to connect to.
Restore Using	Must always be set to *Name*.
DataMover Repository Path	The UNC path to the location on the ISIS storage unit where the media files will be copied. This must be the same path used for the Directory parameter in the Connection tab.



13. Click OK to save and continue.

Rendition Transfer Monitoring Parameters

The following parameters under the Monitoring tab are used by Avid Interplay copy out Unmanaged Storage Repositories:

Caution: Do not modify any parameter that does not appear in this list.

- API Protocol

  Always set to *UNC*.

- Capture Format

  Avid Interplay Unmanaged Storage Repositories that are used to receive files from Kumulate (copy-out, check in) must have Capture Format set to *MXF_OP_ATOM*.

- Files Dir Enable

  Indicates whether the full directory structure of the folder on the ISIS storage unit is recreated on the cache.

  Setting Files Dir Enable to *YES* recreates the entire directory structure on the cache. This allows Kumulate to transcode the files and create proxies. Setting the parameter to *NO* will only create file proxies on the cache.

Caution: It is strongly recommended that Files Dir Enable be set to *YES* when the Unmanaged Storage Repository is configured for discovery; otherwise, the parameter can be left set to *NO*.

- Monitoring

  Indicates whether this Unmanaged Storage Repository is to be monitored. This parameter must be set to *OFF* when the Avid Interplay location is used to receive files from Kumulate (copy-out, check in).

- Naming Schema

  Set this to *UMID*.

Copy In and Copy Out Transfer Parameters

The following parameters under the Transfer tab are used by Avid Interplay Unmanaged Storage Repositories:

Caution: Do not modify any parameter that does not appear in this list.

- Capture Mode

  The Capture Mode parameter specifies whether the physical file on this Unmanaged Storage Repository is kept or deleted after its Rendition is transferred to another location.

  MOVE deletes the physical file from this location after the transfer, while *COPY* keeps it.

Note: Only the *COPY* option is implemented for Avid Interplay Unmanaged Storage Repositories.

- Check If Sequence Online

  When set to *NO*, Kumulate assumes the sequence to copy in from the Unmanaged Storage Repository is online and ready to transfer.

  When set to any other value, Kumulate queries the Interplay server about the state of the sequence for each transfer.

  This parameter is not case sensitive.

- Checksum Type and Checksum Validation

  Rendition checksums are calculated to ensure that Rendition data is not corrupted.

  When a Rendition is copied to the location, its checksum is calculated using the algorithm specified by Checksum Type. If the Rendition's checksum does not exist in the database, it is added. If the Rendition's checksum does exist in the database,

but the two checksums do not match, the transfer will fail and an error will be generated.

If *After Write* is selected for Checksum Validation, then an additional check is made after the Rendition has been fully copied to the location. If the checksum of the written Rendition does not match the checksum in the database, the transfer will fail.

- Interplay Check In Folder

  After Kumulate transfers files to the ISIS storage unit, it sends a Web Service message to Interplay to update the Interplay folder associated with the files that have been transferred. The Interplay Check In Folder is the fully qualified path to the Interplay folder that is being updated. Only one folder can be updated per Unmanaged Storage Repository.

- Folder Pattern Separator

  This parameter can be left blank or set to dash (-), underscore (_), or period (.).

  Used in conjunction with the Interplay Repository Folder Pattern to create the numbered subfolders under the Interplay Root Path.

  The numbered subfolders are created and named as follows:

  <repository_folder_pattern><folder_pattern_separator><number>

  For example, if the folder pattern separator is an underscore (_), and the folder pattern is MyFiles, folders named MyFiles_1, MyFiles_2, MyFiles_3, and so on will be created under the root folder.

  If Folder Pattern Separator is left blank, Kumulate will use MS as the separator. For example, MyFilesMS1, MyFilesMS2, MyFilesMS3, and so on.

Note: If the Interplay Repository Folder Pattern is also left blank, Kumulate will create folders with only numbers in their names. For example, Avid MediaFiles\MXF\1\, Avid MediaFiles\MXF\2\, Avid MediaFiles\MXF\3\, and so on.

- Interplay Maximum Files

  This parameter is the maximum number of files per numbered subfolders. A new numbered subfolder is created when the maximum is reached.

Note: 2500 files per folder is recommended. Avid limits the number of files per folder to 5000. Do not set this parameter to any value greater than 5000.

- Interplay Repository Folder Pattern

  This parameter is used in conjunction with Folder Pattern Separator to create the numbered subfolders under the Interplay Root Path.

  The numbered subfolders are created and named as follows:

  [Interplay Repository Folder Pattern][Folder Pattern Separator][number]

  For example, if Folder Pattern Separator is set to underscore (_), and Interplay Repository Folder Pattern is set to MyFiles, folders named MyFiles_1, MyFiles_2, MyFiles_3, and so on will be created.

Note: If Interplay Repository Folder Pattern is left blank, Kumulate will create folders with number names. For example, Avid MediaFiles\MXF\1\, Avid MediaFiles\MXF\2\, Avid MediaFiles\MXF\3\, and so on.

- Interplay Root Path

  The fully qualified path to the root folder on the ISIS storage unit where the restored Master Clips are placed. The path used for the Interplay Root Path must include Avid MediaFiles\MXF\, which is automatically created by Media Composer.

  The numbered folders can be located in a subfolder of Avid MediaFiles\MXF\. The subfolder must already exist before it can be used as the Interplay Root Path.

- Interplay WS Check In Retry Interval (sec) and Interplay WS Check In Retry Number

  In the event that a transfer is not successful, the transfer will be retried Interplay WS Check In Retry Number times, every Interplay WS Check In Retry Interval (sec). If the transfer is still unsuccessful when Interplay WS Check In Retry Number is reached, the transfer fails.

- Interplay WS User, Interplay WS Password, and Interplay WS Address

  The connection credentials for the Interplay Web Services service.

- Interplay Work Group

  The Interplay workgroup to connect to.

- Max Copy In

  This only applies when the Unmanaged Storage Repository is configured for copying in files. It sets the maximum number of concurrent transfers from the Unmanaged Storage Repository to Kumulate. The value can be between 0 and 127, where 0 means that there is no limit on the number of transfers. The default value is 0.

Note: It is **strongly recommended** to change this to a non-zero value.

- Max Copy Out

  This only applies when the Unmanaged Storage Repository is configured for copying out files. It sets the maximum number of concurrent transfers from Kumulate to the Unmanaged Storage Repository. The value can be between 0 and 127, where 0 means that there is no limit on the number of transfers. The default value is 0.

Note: It is **strongly recommended** to change this to a non-zero value.

- Overwrite Video Server Rendition

  When set to *NOT ALLOWED*, a transfer from Kumulate to the Unmanaged Storage Repository will fail if the file already exists on the Unmanaged Storage Repository.

  When set to *ALLOWED*, the transfer will overwrite the existing file on the Unmanaged Storage Repository.

- Restore Using

  This parameter specifies how to name the physical file when a Rendition is transferred to this Unmanaged Storage Repository. There are three options for Restore Using as follows:

Virtual Object ID	The file is named using the transferred Rendition's Virtual Object ID.
Name	The file is named using the transferred Rendition's Virtual Object Name.
Original Name	The file is named using the transferred Rendition's Original Name. Original Name contains the name of the Virtual Object when its source Rendition was discovered.
Preserve Filenames	The file name is not modified after transfer. The Restore Extension parameter will not be applicable when this option is used. If the Unmanaged Storage Repository configuration is saved after setting this option, Restore Extension will be hidden.

Note: If the Virtual Object source location used Virtual Object ID as the Naming Schema, the Virtual Object ID, Virtual Object Name, and Original Name may be identical.

- Restore Extension

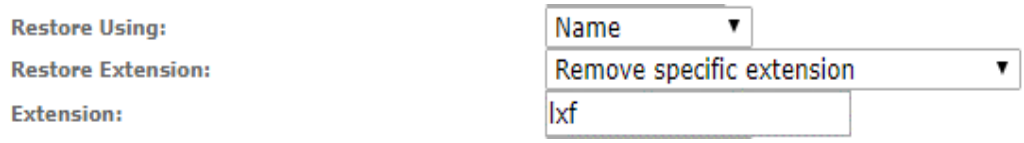
  This parameter determines how file extensions are handled when files are copied to the Unmanaged Storage Repository.

  Filenames and their extensions are preserved when Renditions are copied between locations by default. The Restore Extension parameter allows extensions to be added, removed, or replaced.

The following ***Restore Extension*** options are available:

Value	Behavior
Preserve original extension	The extension does not change when the file is copied to the Unmanaged Storage Repository. This is the default behavior.
New extension	Change the existing extension to the specified extension.
Remove extension	Remove the extension if one exists.
Add extension if no original extension	Add the specified extension if the original filename does not have an extension.
Remove specific extension	Remove only the specified extension and preserve all other extensions.

The New extension, Add extension if no original extension, and Remove specific extension work with the Extension parameter. This parameter is not visible by default. If the Extension parameter is not visible, click OK to save the configuration, then navigate back to the Transfer tab. The Extension parameter should now be visible.



- Extension

  The Extension parameter works with the Restore Extension parameter to replace file extensions when Renditions are copied to the Unmanaged Storage Repository.

  This parameter is not visible by default. It only becomes visible when Restore Extension is set to New extension, Add extension if no original extension, or Remove specific extension.

Note: In some cases, the configuration must be saved after selecting New extension, Add extension if no original extension, or Remove specific extension for the Extension parameter to become visible.

- Transcode Using

  Some files may contain information at the beginning and end of the file that is not necessarily meant to be transcoded. This happens most often with commercial spots which can have agency information, tags, and blacks appended to the begging and the end of the advertisement. Selecting *SOM* and *EOM* prevents these

extraneous bits from being transcoded. Additional configuration is needed to use EOM and SOM.

When set to *SOF and EOF*, the entire file is transcoded.

When set to *SOM and EOM*, only a part of the file is transcoded.

See *Start of Message Parameter* for more information.

- Transfer Mode

  Always set to *UNC Interplay*.

- DataMover Repository Path

  Provides the DataMover access to the ISIS Unmanaged Storage Repository. This must point to the location of the files on the ISIS storage unit. With copy-out Unmanaged Storage Repositories, this path must be the same path used for the Directory parameter under the Connection tab.

- MassTransit Repository Path

  Provides HQS access to the ISIS Unmanaged Storage Repository. Allows HQS to transcode files on the Unmanaged Storage Repository rather than on the cache.

  The parameter should either point to the location of the files on the ISIS storage unit, or it can be left blank. If this parameter is left blank, HQS will transcode files once they are transferred to the cache.

  With copy-out Unmanaged Storage Repositories, this path must be the same path used for the Directory parameter under the Connection tab.

Avid Unmanaged Storage Repository Metadata Mapping

When Avid Renditions are copied in to Kumulate, an AAF processor extracts metadata and a metadata mapping assigns the extracted metadata to Kumulate metadata.

You have to manually add metadata mappings to an Avid Unmanaged Storage Repository for the metadata extracted from the AAF to be assigned to the appropriate Kumulate metadata.

Before mappings are added, a representative AAF file needs to be examined by the administrator creating the metadata mappings. The AAF processor included with HQS can be used for this purpose.

Note: The information in this section applies to all Avid Unmanaged Storage Repositories except Avid Interplay Copy Out Unmanaged Storage Repositories.

Adding a Metadata Mapping

The metadata in an Avid Rendition's AAF file can be mapped to Kumulate metadata. These mappings must be added to the Avid Unmanaged Storage Repository after a representative AAF file has been examined. The AAF processor installed with HQS can be used to extract the metadata in an AAF file to an xml file.

For example:

C:\AAFFiles>aafProcessor.exe -r ExtractMetadata Sample.aaf MD_Sample.aaf.xml

Note: The aafProcessor.exe can be found on the server where HQS is installed in C:\Program Files (x86)\Masstech\AAFProcessor\ folder.

Each xml tag in the output file is an AFF metadata and its value.

For example:

```
<AAFProcessor version="1.0">
[...]
<Metadata type="TVDM">
  <MobAttributeList id="60958183-47b1-11d4-a01c0004ac969f50">
    <_VERSION>2</_VERSION>
    <_SERVERUSER type="__AttributeList">
      <Name>W0002-076</Name>
    </_SERVERUSER>
    <_EXPORT type="__AttributeList">
      <Duration>24;35;29</Duration>
      <Modified_Date>7/31/2014 9:52:50</Modified_Date>
      <Creation_Date>7/28/2014 11:52:29</Creation_Date>
      <CFPS>59.94</CFPS>
      <Color></Color>
      <End>02;52;03;01</End>
      <FPS>59.94</FPS>
```

```
      <Lock></Lock>
      <Offline></Offline>
      <Start>02;27;27;02</Start>
      <Tracks>V1 A1-8 TC1</Tracks>
      <_HEADFRAMEOFFSET>0</_HEADFRAMEOFFSET>
      <_HEADFRAMEIMAGE type="Unknown">
        ccaa73d1-f538-11d3-a081006094eb75cb
      </_HEADFRAMEIMAGE>
    </_EXPORT>
  </MobAttributeList>
</Metadata>

[...]

</AAFProcessor>
```

The metadata tags in the output file correspond to a point-separated Location Metadata ID.

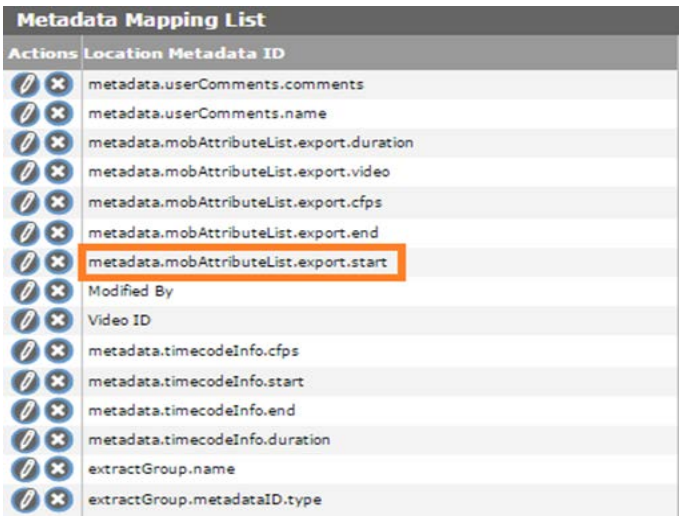
For example:

<metadata><mobAttributList><export><start>

corresponds to

metadata.mobAttributeList.export.start

```
<Metadata type="TVDM">
  <MobAttributeList id="60958183-47b1-11d4-a01c0004ac969f50">
    […]
    <_EXPORT type="__AttributeList">
      […]
      <Start>02;27;27;02</Start>
      […]
    </_EXPORT>
  </MobAttributeList>
</Metadata>
```

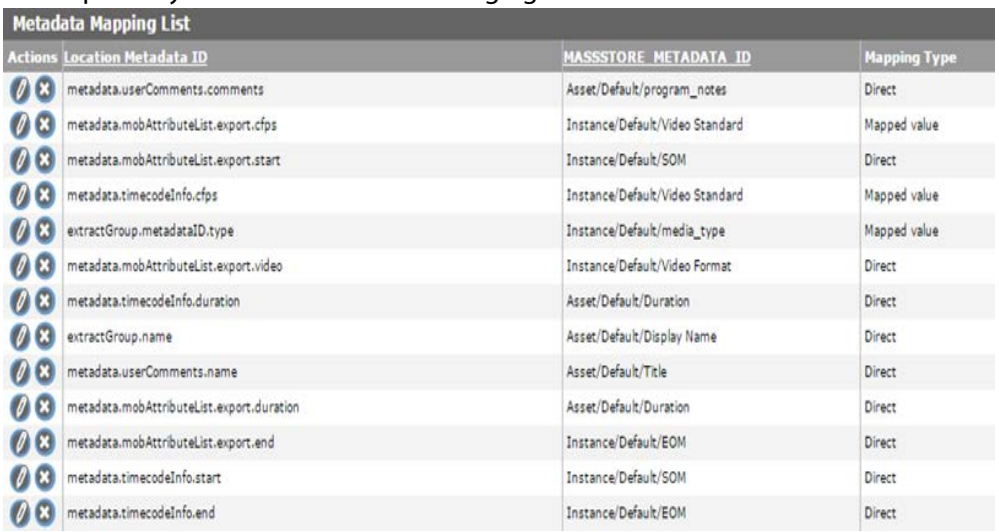


Use the following procedure to add a metadata mapping to an Unmanaged Storage Repository:

1. Click the Location Metadata Mapping button on the Unmanaged Storage Repository Configuration page.

2. Click Add Mapping to add default metadata mappings.

3. The default metadata mappings are loaded and added to the Unmanaged Storage Repository as shown in the following figure:



   The default metadata mapping is different for Avid Standalone and Avid Interplay locations.

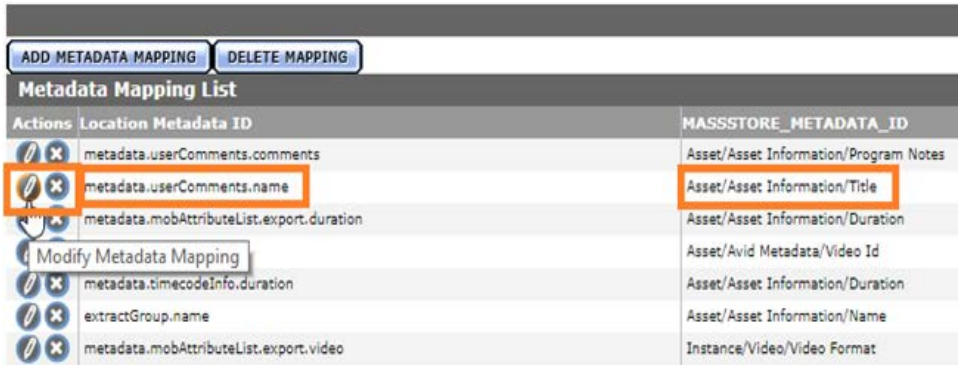
The metadata mapping table has three columns:

Column	Description
Location Metadata ID	The path to the metadata in the AAF file.
KUMULATE METADATA ID	The Kumulate metadata that will be assigned the AAF metadata.
Mapping Type	Can be Direct or Mapped. If the metadata is Mapped, the metadata in the AAF file is mapped to a value that is then used as the Kumulate metadata; otherwise the metadata in the AAF file is assigned to the Kumulate metadata directly.

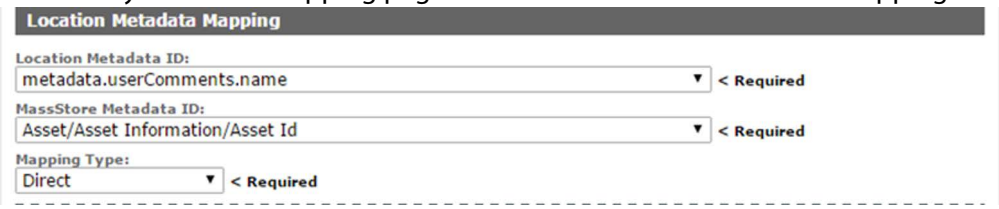
The default metadata mapping may not correspond to the actual metadata in the AAF file, or the user may prefer that some metadata be mapped differently from the default.

If a metadata mapping needs to be changed, it can be modified by clicking the pencil icon.

For example, if the Virtual Object/Default/Title Kumulate metadata needs to get its value from extractGroup.name rather than from metadata.userComments.name as set by default, click the pencil icon next to that line.



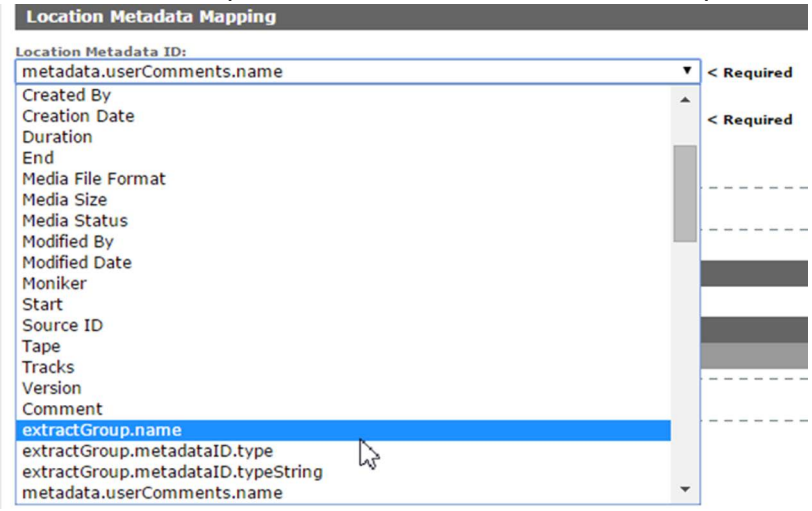
The Modify Metadata Mapping page will show the current metadata mapping.



Both the Kumulate and the Location Metadata IDs can be modified. However, if both the Kumulate metadata and the AAF metadata need to be modified, a new metadata mapping should be created instead.

In the following example only the Location Metadata ID needs to be modified:

Select extractGroup.name from the Location Metadata ID pull down menu as shown.



Note: If the AAF metadata that needs to be mapped is not in the pull down menu, it can be added manually.

Creating a New Metadata Mapping

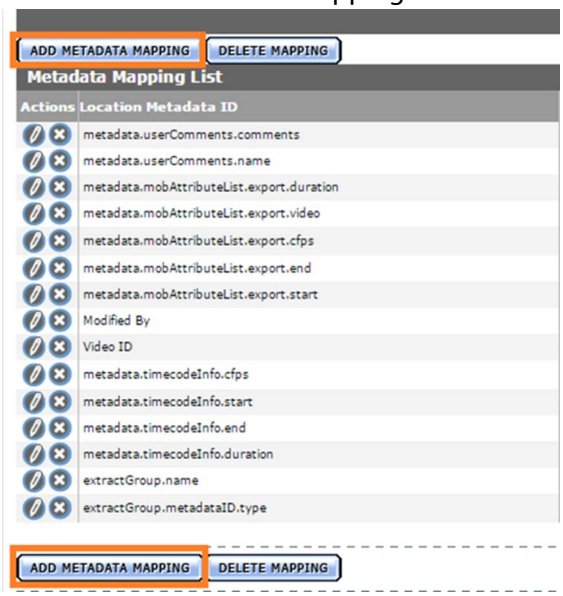
If an additional metadata mapping between location metadata and AAF metadata, it can be created and added to the list of metadata mappings.

Note: The AAF metadata must already exist in the Kumulate Metadata ID pull down menu. If the metadata does not exist in the drop down menu, it must be added.

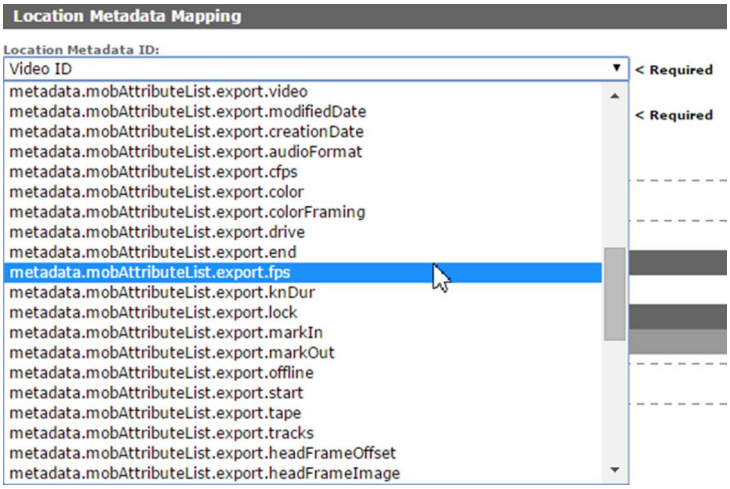
Use the following procedure to create a new metadata mapping:

1. Click Location Metadata Mapping from the Unmanaged Storage Repository Configuration page.

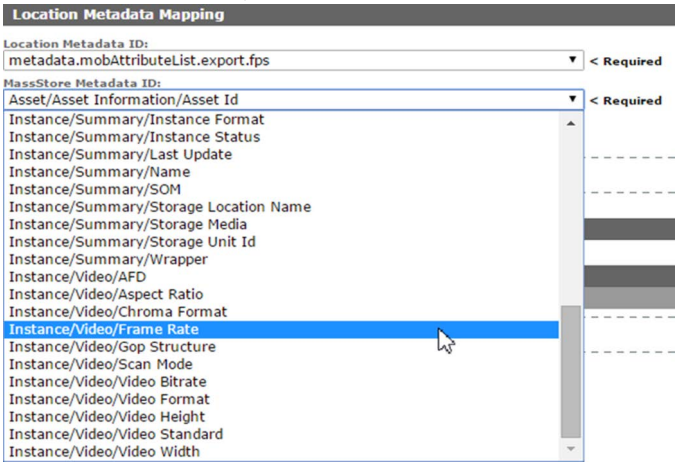
2. Click Add Metadata Mapping on the Metadata Mapping page.



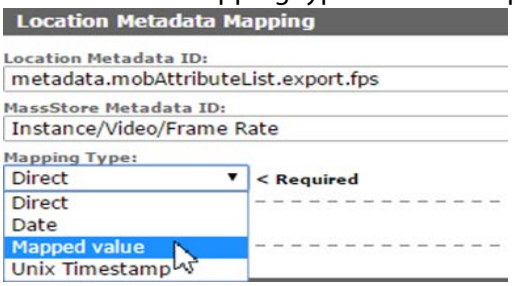
3. Select the AAF file metadata from the Location Metadata ID pull down menu.



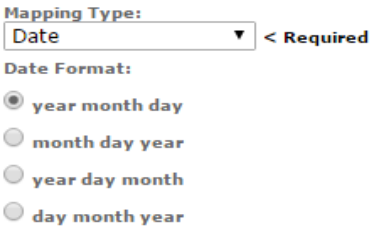
4. From the Kumulate Metadata ID pull down menu, select the Kumulate metadata that will be assigned the AAF metadata.



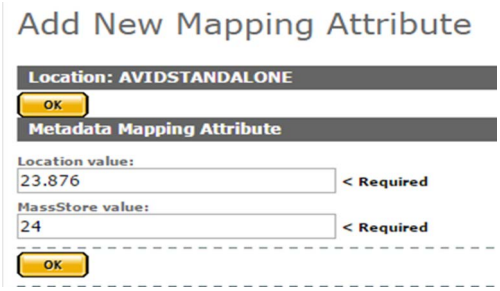
5. Select the mapping type from the Mapping Type pull down menu.



6. With the Date mapping type, the date format must also be selected.

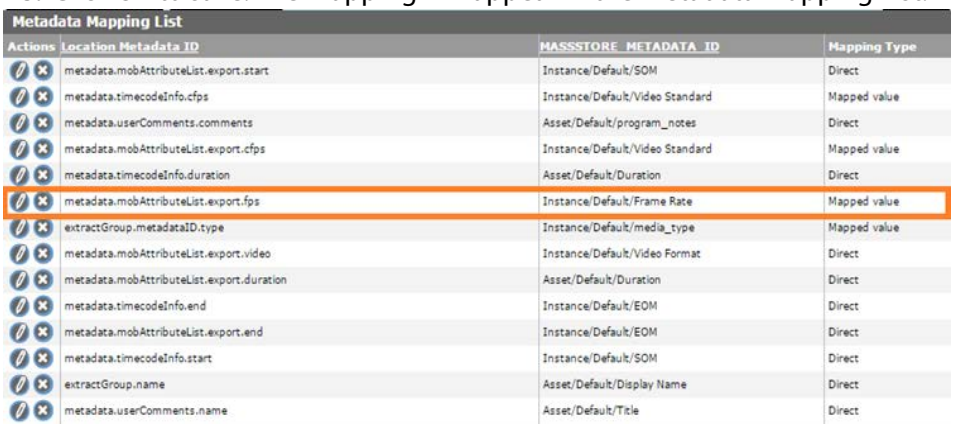


On the Add New Mapping Attribute page, add the expected value from the AAF in the Location Value text box, and add the value to use in the Kumulate metadata in the Kumulate value text box.



7. Click OK to save.

8. Click OK to save. The mapping will appear in the Metadata Mapping List.



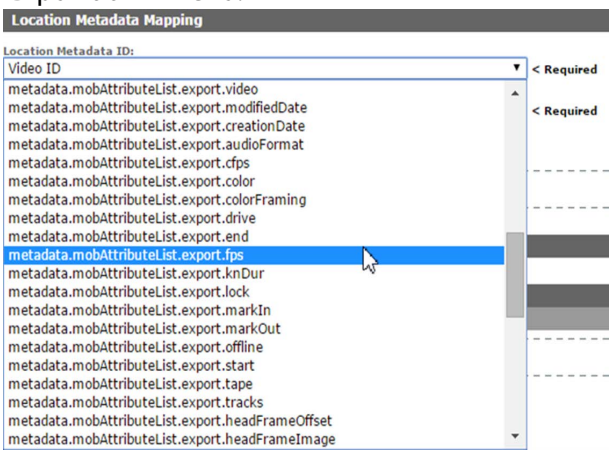
Metadata Mapping List

Actions	Location Metadata ID	MASSSTORE_METADATA_ID	Mapping Type
	metadata.mobAttributeList.export.start	Instance/Default/SOM	Direct
	metadata.timecodeInfo.cfps	Instance/Default/Video Standard	Mapped value
	metadata.userComments.comments	Asset/Default/program_notes	Direct
	metadata.mobAttributeList.export.cfps	Instance/Default/Video Standard	Mapped value
	metadata.timecodeInfo.duration	Asset/Default/Duration	Direct
	metadata.mobAttributeList.export.fps	Instance/Default/Frame Rate	Mapped value
	extractGroup.metadataID.type	Instance/Default/media_type	Mapped value
	metadata.mobAttributeList.export.video	Instance/Default/Video Format	Direct
	metadata.mobAttributeList.export.duration	Asset/Default/Duration	Direct
	metadata.timecodeInfo.end	Instance/Default/EOM	Direct
	metadata.mobAttributeList.export.end	Instance/Default/EOM	Direct
	metadata.timecodeInfo.start	Instance/Default/SOM	Direct
	extractGroup.name	Asset/Default/Display Name	Direct
	metadata.userComments.name	Asset/Default/Title	Direct

The Kumulate metadata will now be populated using the information extracted from the AAF file.

Adding AAF Metadata

When a new metadata mapping is created, metadata from the AAF file is mapped to Kumulate metadata. The available AAF metadata is visible from the Location Metadata ID pull down menu.



If the AAF metadata needed for the mapping is not in the pull down menu, it can be added by modifying AVID_UNC_location_metadata.properties and aaf-xml-entries.xml.

Use the following procedure to add the AAF Metadata:

1. On the Kumulate server host, change directory to *C:\Program Files\Apache Software Foundation\Tomcat 8.5\webapps\montana\WEB-INF\classes*.
2. Open the AVID_UNC_location_metadata.properties file.
3. Convert the metadata xml tags in the AAF file to a point-separated name.

   For example, the AAF metadata xml path <metadata><slots><DescriptiveMarker><UserComments><Comment> corresponds to metadata.slots.DescriptiveMarker.UserComments.Comment.
4. Add the point-separated AAF metadata ID to the list of IDs:

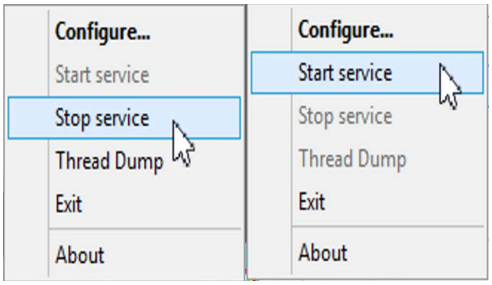
   metadata.mobAttributeList.systemColumnData.columnVideoFileFormat
   metadata.timecodeInfo.duration
   metadata.timecodeInfo.cfps
   metadata.timecodeInfo.start
   metadata.timecodeInfo.end
   metadata.slots.DescriptiveMarker.UserComments.Comment
5. Save *AVID_UNC_location_metadata.properties*.
6. Open *aaf-xml-entries.xml* (located in the same directory), and create an entry for the new Location Metadata ID.
7. Each MetadataInfo entry in the aaf-xml-entries.xml file associates the point-separated name used in the Location Metadata ID field with the xml path in the AAF file.

8. For example, to add metadata.slots.DescriptiveMarker.UserComments.Comment, add the following at the end of the file, before the </MetadataInfo> closing tag:

```
<MetadataInfo>
  <MetadataName>
    metadata.slots.DescriptiveMarker.UserComments.Comment
  </MetadataName>
  <Type>TEXT</Type>
  <Tag>
    /Metadata[0]/Slots[0]/DescriptiveMarker[0]/UserComments[0]/
Comment[0]
  </Tag>
</MetadataInfo>
```

9. Save *aaf-xml-entries.xml*.

10. Stop and start the Tomcat server to restart Kumulate.



11. The newly-added metadata ID will now appear in the pull down list.

Omneon FTP Unmanaged Storage Repositories

Note: Omneon Spectrum and Media Deck are now known as Harmonic Spectrum Family. However, the configuration name for this type of Unmanaged Storage Repository remains Omneon FTP, and the capture type remains OMNEON.

An Omneon FTP Unmanaged Storage Repository consists of a Harmonic Spectrum video server, or an Omneon Spectrum or Media Deck video server, connected to a Kumulate server through location on an FTP server. Kumulate monitors the FTP server location for new Renditions.

File and Folder Formats

An Omneon FTP Unmanaged Storage Repository only supports reference MOV files. A reference MOV file is essentially a file containing a list of MOV files. The MOV files in the list are stored in a separate directory.

When Kumulate discovers a reference MOV file, Kumulate transfers the file, opens it to obtain its list of files, then copies in the files in the list.

Files that are transferred from Kumulate to the video server are also placed on the FTP server.

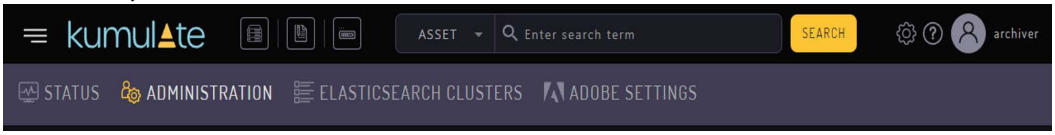
The reference MOV files are generally located under the *clip.dir* directory. The media files referenced by the MOV files are located in the *clip.dir/media.dir* directory.

Configuration

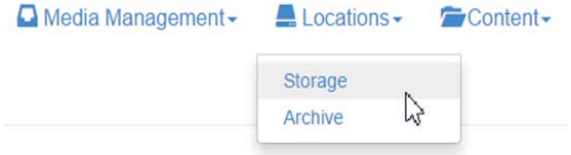
An Omneon FTP Unmanaged Storage Repository is typically configured as both a copy-in and a copy-out location. Each Omneon FTP Unmanaged Storage Repository is configured to discover MXF, self-contained MOV, or reference MOV files. An Omneon FTP Unmanaged Storage Repository can handle either self-contained MOV files or reference MOV files, but not both.

Use the following procedure to configure an Omneon FTP Unmanaged Storage Repository:

1. Click System > Administration in the menu bar in the Kumulate web interface.



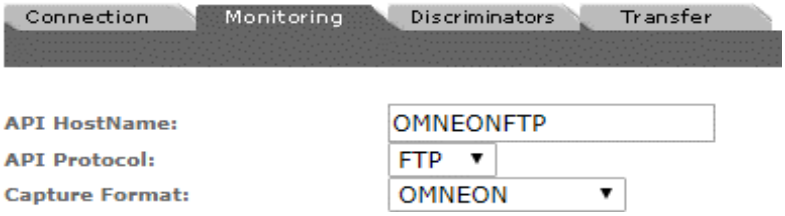
2. Select Locations > Storage.



3. Create a new Unmanaged Storage Repository by clicking the Add New Location button.

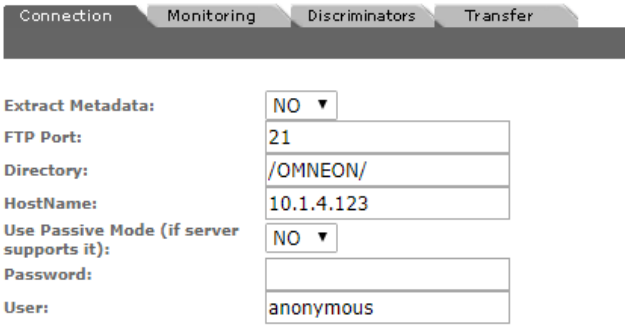
4. Enter a name and description for the Unmanaged Storage Repository, then click OK.

5. Select the Monitoring tab and set Capture Format to *OMNEON*.



6. Click OK to continue and you will be returned to the Connection tab.

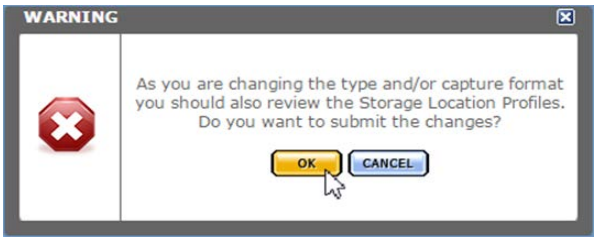
   Enter the FTP credentials in the text boxes. The Directory parameter must point to the FTP root directory. Extract Metadata must be set to *NO*.



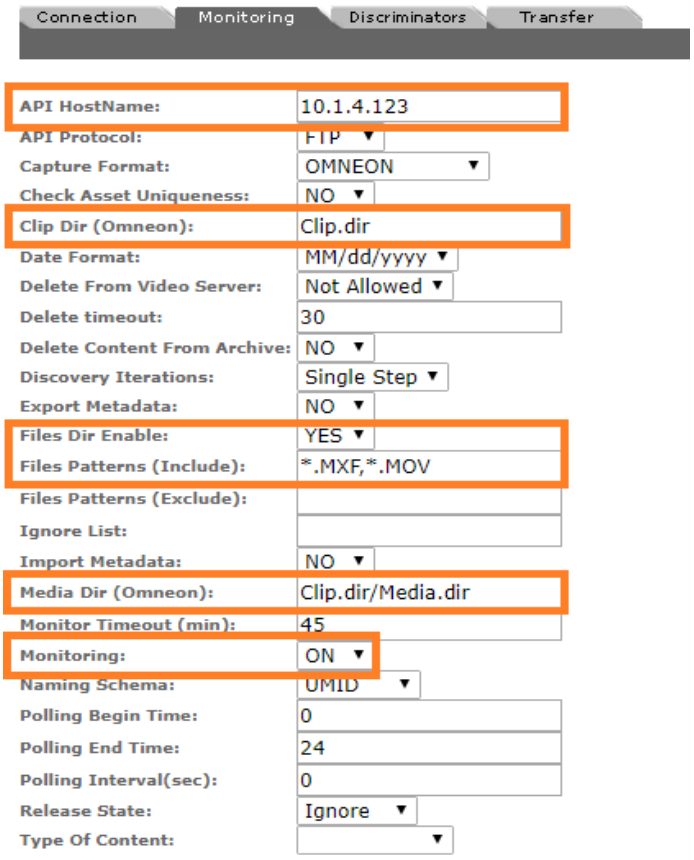
7. Active FTP is used by default. Set Use Passive Mode (if server supports it) to *YES* to use passive FTP.

Note: The FTP connection will default back to Active if the Passive FTP connection fails.

8. Click OK to continue. A warning will appear asking if you want to submit the change to the Unmanaged Storage Repository. Click OK to continue and you will be returned to the Connection tab.



9. Navigate to the Monitoring tab and set API Hostname, Clip Dir (Omneon), Files Dir Enable, Files Patterns (Include), Media Dir (Omneon), and Monitoring.



Parameter	Description
API HostName	The FTP hostname or IP address. Must be the same as that used under the Connection tab.
Clip Dir (Omneon)	The FTP folder used for the clip files. This directory contains the MXF and MOV files, including reference MOV files. The folder will generally be named clip.dir.
Files Dir Enable	Must be set to *YES*.
Files Patterns (Include)	The file type extensions to discover on the Unmanaged Storage Repository. The extensions should be separated by a comma (,) if both MXF and MOV files will be discovered.
Media Dir (Omneon)	The FTP folder for media files referenced by the reference MOV files. The folder will generally be named clip.dir\media.dir.
Monitoring	Set Monitoring to *ON*.

See *Monitoring Parameters* and *Transfer Parameters* for the complete list of applicable parameters.

10. Click OK to save the configuration.

Monitoring Parameters

The following parameters under the Monitoring tab are used by Omneon FTP Unmanaged Storage Repositories.

Caution: Do not modify any parameter that does not appear in this list. Modifying an unlisted parameter may affect Kumulate's operations.

- API HostName

  The IP address of the FTP server.

- API Protocol

  Always set to *FTP*.

- Capture Format

  Omneon FTP Unmanaged Storage Repositories must have Capture Format set to *OMNEON*.

- Clip Dir (Omneon)

  This is the FTP directory used for the clip files. This directory contains the MXF and MOV files, and includes the reference MOV files.

  The MXF and MOV files (including reference MOV files) are typically kept in the clip.dir directory. This directory may be different in certain configurations. The files referenced by reference MOV files are stored in a subdirectory. The Media Dir (Omneon) parameter must point to this directory.

- Delete Content From Archive

  Delete Content From Archive sets whether a Virtual Object's archived Renditions are deleted when the physical Rendition on the Unmanaged Storage Repository changes.

  When a Rendition changes on an Unmanaged Storage Repository, the existing Rendition is deleted and replaced with the changed Rendition.

  Setting Delete Content From Archive to *YES* will also delete all Renditions located on Managed Storage Repositories when the physical Rendition on the Unmanaged Storage Repository changes.

  If the Delete Virtual Object With No Renditions parameter in the Virtual Object Manager module is set to *ON*, and the Virtual Object does not contain any other Unmanaged Storage Repository Renditions in addition to the one that has changed, the Virtual Object will be deleted and a new Virtual Object will be created for the changed Rendition.

  Delete Content From Archive is set to *NO* by default.

Note: Delete Content From Archive has no effect when discriminators are used by the location.

- Delete From Video Server

  Allows the deletion of files from the Unmanaged Storage Repository after they have been copied in to Kumulate.

- Delete Timeout

  The amount of time to wait for a file to be physically deleted from the video server.

  If the timeout is reached and the file has not been deleted, the operation fails and the file will no longer be visible. However, it may remain in an unusable state on the video server.

- Files Dir Enable

  Indicates whether the full directory structure of the folder on the FTP server is recreated on the cache.

  Setting Files Dir Enable to *YES* recreates the entire directory structure on the cache. This allows Kumulate to transcode the files and create proxies. Setting the parameter to *NO* only creates file proxies on the cache.

Note: Files Dir Enable must be set to *YES* in Omneon FTP Unmanaged Storage Repositories.

- Files Patterns (Include)

  The file type extensions to discover on the Unmanaged Storage Repository and must be set to MOV. This value is used to populate the wrapper metadata.

- Ignore List

  Kumulate will not copy-in any files that appear in this list. Ignore List can either be a list of filenames or a regular expression.

- Media Dir (Omneon)

  The FTP directory used for media files referenced by reference MOV files.

  The MXF and MOV files (including reference MOV files) are kept in the Clip Dir (Omneon). The MOV files referenced by the reference MOV files are kept in a subdirectory of this directory; typically named media.dir.

- Monitoring

  Specifies whether Kumulate is monitoring the location to discover and copy in new Renditions.

  Omneon FTP Unmanaged Storage Repositories are generally used to both copy-in and copy-out media. Therefore, Monitoring is set to *ON*. It should only be set to *OFF* if the Unmanaged Storage Repository will not be used to discover and copy-in Renditions.

- Naming Schema

  Determines how the Virtual Object ID is set upon discovery.

  Virtual Object ID sets the Virtual Object ID to the root filename of the discovered Rendition. In this case, the Virtual Object Name, Virtual Object ID, and Original Name of the Virtual Object will be identical.

  UMID sets the Virtual Object ID to a unique UMID. This ensures unique names for all Virtual Objects. The Virtual Object Name will still be the root filename of the discovered Rendition.

Note: Neither Rendition nor Virtual Object discriminators can be used when Naming Schema is set to Virtual Object ID.

- Polling Begin Time, Polling End Time, Polling Interval(sec)

  Controls the frequency at which Kumulate polls the FTP server.

  Polling Begin Time and Polling End Time instruct Kumulate to poll the Unmanaged Storage Repository only between Polling Begin Time and Polling End Time. These parameters are based on the 24-hour clock, and can only be set to hours.

  Polling Interval(sec) instructs Kumulate to poll the Unmanaged Storage Repository every specified number of seconds. The interval begins when the discovery operation ends. The minimum value for this interval is 10s. Setting this parameter to *0* effectively sets it to 10s.

Transfer Parameters

The following parameters under the Transfer tab are used by Omneon FTP Unmanaged Storage Repositories.

Caution: Do not modify any parameter that does not appear in this list. Modifying an unlisted parameter may affect Kumulate's operations.

- Capture Mode

  The capture mode specifies whether the physical file on this Unmanaged Storage Repository is kept or deleted after its Rendition is transferred to another location.

  MOVE deletes the physical file from this location after the transfer, while COPY keeps it.

- Checksum Type and Checksum Validation

  Rendition checksums are calculated to ensure that Rendition data is not corrupted.

  When a Rendition is copied to the location, its checksum is calculated using the algorithm specified by Checksum Type. If the Rendition's checksum is not already in the database, it is added. If the Rendition's checksum is already in the database, but the two checksums do not match, the transfer will fail and an error will be generated.

  If After Write is selected for Checksum Validation an additional check is made after the Rendition has been fully copied to the location. If the checksum of the written Rendition does not match the checksum in the database the transfer will fail.

- File info command

  The FTP command to use to determine whether a file is on an FTP server.

Note: Do not change the value from the default unless the FTP command results in errors.

- Max Copy In

  Only applies when the Unmanaged Storage Repository is configured for copying in files, and sets the maximum number of concurrent transfers from the Unmanaged Storage Repository to Kumulate.

  The value can be between 0 and 127 where *0* means that there is no limit on the number of transfers.

  The default value is 0.

Note: It is **strongly recommended** to change this to a non-zero value.

- Max Copy Out

  This parameter only applies when the Unmanaged Storage Repository is configured for copying out files, and sets the maximum number of concurrent transfers from Kumulate to the Unmanaged Storage Repository.

  The value can be between 0 and 127 where *0* means that there is no limit on the number of transfers.

  The default value is 0.

Note: It is **strongly recommended** to change this to a non-zero value.

- Overwrite Video Server Rendition

  When set to NOT ALLOWED, a transfer from Kumulate to the Unmanaged Storage Repository will fail if the file already exists on the Unmanaged Storage Repository.

  When set to ALLOWED, the transfer will overwrite the existing file on the Unmanaged Storage Repository.

- Restore Using

  This parameter specifies how to name the physical file when a Rendition is transferred to this Unmanaged Storage Repository. There are four options as follows:

Virtual Object ID	The file is named using the transferred Rendition's Virtual Object ID.
Name	The file is named using the transferred Rendition's Virtual Object Name.
Original Name	The file is named using the transferred Rendition's Original Name. Original Name contains the name of the Virtual Object when its source Rendition was discovered.
Preserve Filenames	The filename is not modified after transfer. The Restore Extension parameter will not be applicable when this option is used. If the Unmanaged Storage Repository configuration is saved after setting this option, Restore Extension will be hidden.

Note: If the Virtual Object source location used Virtual Object ID as the Naming Schema, the Virtual Object ID, Virtual Object Name, and Original Name may be identical.

- Transcode Using

Some files may contain information at the beginning and end of the file that is not necessarily meant to be transcoded. This happens most often with commercial spots which can have agency information, tags, and blacks appended to the begging and the end of the advertisement. Selecting *SOM* and *EOM* prevents these

extraneous bits from being transcoded. Additional configuration is needed to use EOM and SOM.

When set to *SOF and EOF*, the entire file is transcoded.

When set to *SOM and EOM*, only a part of the file is transcoded.

See *Start of Message Parameter* for more information.

- Transfer Mode

  Always set to *Direct FTP*.

Pitchblue FTP Unmanaged Storage Repositories

A Pitchblue Unmanaged Storage Repository consists of an FTP server connected to Kumulate. Kumulate monitors the FTP server for new files and pulls them in. Pitchblue Unmanaged Storage Repositories are purely used to discover and copy-in Virtual Objects.

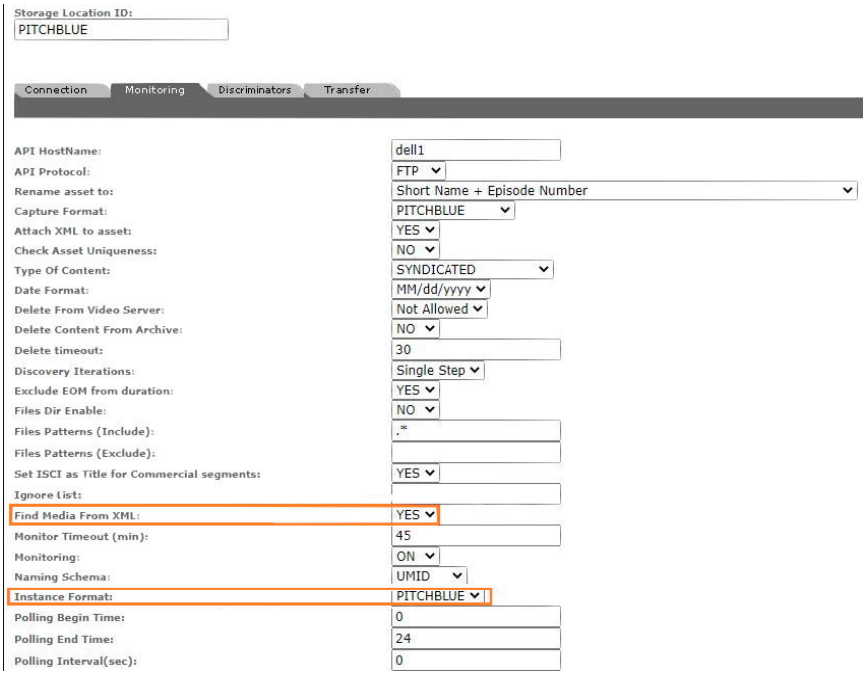
Two new options have been added to the Pitchblue Unmanaged Storage Repository configuration in Kumulate 2.2 to enable the centralized ingest and subsequent distribution to local Kumulate systems. The new options are named Find Media from XML and Rendition Format.

The Find Media from XML parameter was added to configure the media path discovery method. If the parameter is set to YES, Kumulate will extract the discovery file and media path from the XML file. If the parameter is set to NO, Kumulate will look for these files in the path specified in the XML Path parameter (similar to BXF/EXTREMEREACH).

- The xml files in XML Path are monitored; this can be a relative or absolute path from the FTP Connection directory.
- The connection directory is scanned for files matching the name of the XML file (excluding the extension).
  - All files in the directory are iterated if there are wildcards in the extensions of the File Patterns (Include) setting.
  - If there are only explicit extensions, Kumulate will attempt to find only files with the xml file's name with the explicit extension; this is faster than iterating all files.

The Rendition Format parameter provides the option of different Rendition formats to support configurations where content is transcoded before it arrives in the Kumulate Unmanaged Storage Repository. The available values are as follows:

- PITCHBLUE (this is the default value)
- MXF
- QT
- MP4
- MPEG2TS
- MPEG2PS



File and Folder Formats

The physical FTP server Unmanaged Storage Repository is used to receive content from content creators. This content is discovered and copied in by Kumulate. Renditions are never transferred to Pitchblue Unmanaged Storage Repositories.

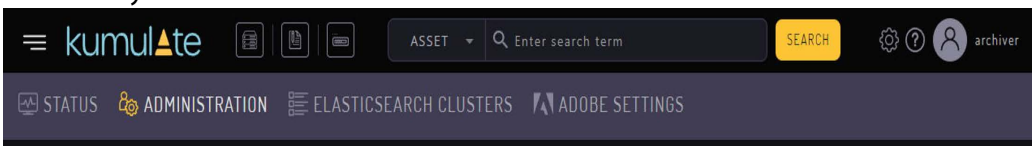
Pitchblue Unmanaged Storage Repositories expect each media file to have a corresponding formatsheet file. The formatsheet file is an xml file that contains information on how to segment their associated media files. It can be saved as an attachment by using the Attach XML to Virtual Object parameter.

The root FTP directory will contain two subdirectories: *content* and *xml*. The media files are located under the *content* directory and may contain several subdirectories. The formatsheets are located in the *xml* directory. These are searched recursively by Kumulate for media files.

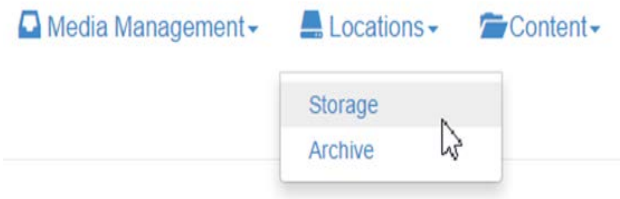
Note: If a media file does not have a corresponding formatsheet file, the file will not be copied in, and no new Virtual Object will be created.

Configuration

1. Click System > Administration in the menu bar in the Kumulate web interface.

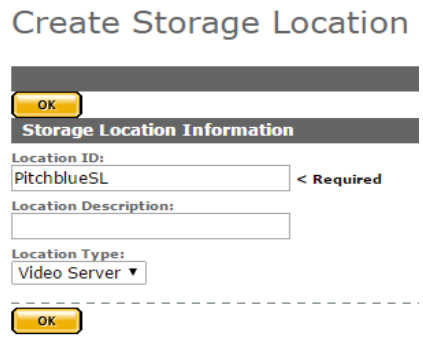


2. Select Locations > Storage.

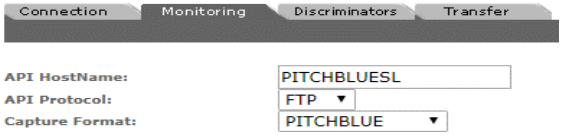


3. Create a new Unmanaged Storage Repository by clicking the Add New Location button.

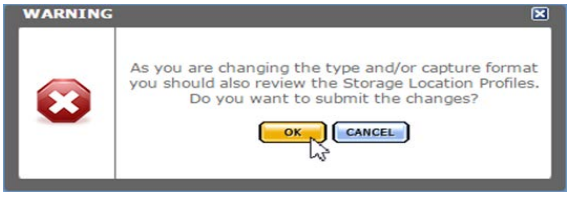
4. Enter a name and description for the Unmanaged Storage Repository, then click OK.



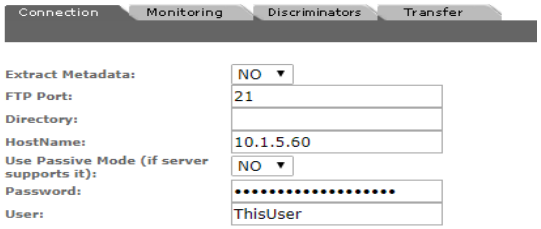
5. Select the Monitoring tab and set Capture Format to *OMNEON*.



6. Click OK to continue. A warning will appear asking if you want to submit the change to the Unmanaged Storage Repository. Click OK to continue and you will be returned to the Connection tab.



7. Enter the FTP credentials in the text boxes. The Directory parameter must point to the FTP root directory. Extract Metadata must be set to *NO*.



8. Active FTP is used by default. Set Use Passive Mode (if server supports it) to *YES* to use passive FTP. Click OK to continue and you will be returned to the Connection tab.

Note: The FTP connection will default back to Active if the Passive FTP connection fails.

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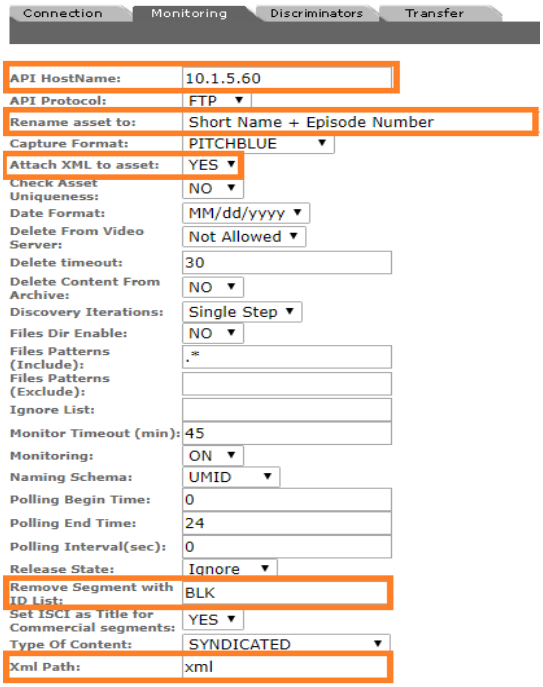
9. Navigate to the Monitoring tab and set API Hostname, Virtual Object Name Format, Attach XML to Virtual Object, and Xml Path. The Xml Path is relative the root path and must point to the path on the FTP server where the formatsheets are located.



See the following section for the complete list of applicable parameters.

Parameter	Description
API HostName	The FTP hostname or IP address. Must be the same as that used under the Connection tab.
Virtual Object Name Format	The format to use for Virtual Object naming. This sets the Virtual Object Name metadata, not the Virtual Object ID metadata.
Attach Xml to Virtual Object	Set this to *YES* to upload the formatsheet associated with the media to the Virtual Object as an attachment. Set this to *NO* to discard the formatsheet after it has been parsed.
Remove Segment ID with List	Use this to exclude events with specific IDs from segments. This can be used to remove blacks (BLK events) from segments. Separate multiple IDs with a comma.
Xml Path	The path to the location of the formatsheets relative to the root FTP directory.

10. Click OK to save the configuration.

Monitoring Parameters

The following parameters under the Monitoring tab are used by Pitchblue FTP Unmanaged Storage Repositories.

Caution: Do not modify any parameter that does not appear in this list. Modifying an unlisted parameter may affect Kumulate's operations.

- API HostName

  The IP address of the FTP server.

- API Protocol

  Always set to *FTP*.

- Attach XML to Virtual Object

  When set to *YES*, the formatsheet associated with the discovered media file is uploaded as an attachment to the new Virtual Object.

  If this parameter is set to *NO*, the information in the formatsheet will still be used, but the file will not be uploaded as an attachment.

- Virtual Object Name Format

  The format to use when setting the Virtual Object name. With the exception of the Original Name option, the naming information is extracted from the media file's associated formatsheet. There are four options as follows:

Naming Option	**Description**
Short Name + Episode Number	Concatenate the short name and episode number to create the Virtual Object name.
Short Name + Job ShortName + Episode Number + Run ShortName	Concatenate the short name, job short name, episode number, and run short name to create the Virtual Object name.
Short Name + Episode Number [+ Job ShortName] [+ Run ShortName]	Concatenate the short name, episode number, job short name, and run short name to create the Virtual Object name.
Original Name	Use the media file's root name as the Virtual Object name.

- Capture Format

  Pitchblue FTP Unmanaged Storage Repositories must have Capture Format set to *PITCHBLUE*.

- Delete Content From Archive

  Delete Content From Archive sets whether a Virtual Object's archived Renditions are deleted when the physical Rendition on the Unmanaged Storage Repository changes.

  When a Rendition changes on an Unmanaged Storage Repository, the existing Rendition is deleted and replaced with the changed Rendition.

  Setting Delete Content From Archive to *YES* will also delete all Renditions located on Managed Storage Repositories when the physical Rendition on the Unmanaged Storage Repository changes.

  If the Delete Virtual Object With No Renditions parameter in the Virtual Object Manager module is set to *ON*, and the Virtual Object does not contain any other Unmanaged Storage Repository Renditions in addition to the one that has changed, the Virtual Object will be deleted and a new Virtual Object will be created for the changed Rendition.

  This parameter is set to *NO* by default.

Note: Delete Content From Archive has no effect when discriminators are used by the location.

- Delete From Video Server

  Allows the deletion of files from the Unmanaged Storage Repository after they have been copied in to Kumulate.

- Delete Timeout

  The amount of time to wait for a file to be physically deleted from the video server. If the timeout is reached and the file has not been deleted the operation fails. The file will no longer be visible, but it may remain in an unusable state on the video server.

- Ignore List

  Kumulate will not copy in any files that appear in this list. This parameter can be a list of filenames or a regular expression.

- Monitoring

  Indicates whether this Unmanaged Storage Repository is to be monitored.

  Always set to *ON*.

- Naming Schema

  Determines how the Virtual Object ID is set upon discovery.

  The Virtual Object ID parameter sets the Virtual Object ID to the root filename of the discovered Rendition. In this case, the Virtual Object Name, Virtual Object ID, and Original Name of the Virtual Object will be identical.

  UMID sets the Virtual Object ID to a unique UMID. This ensures unique names for all Virtual Objects. The Virtual Object Name will still be the root filename of the discovered Rendition.

Note: Neither Rendition nor Virtual Object discriminators can be used when Naming Schema is set to Virtual Object ID.

- Polling Begin Time, Polling End Time, Polling Interval(sec)

  Controls the frequency at which Kumulate polls the FTP server.

  Polling Begin Time and Polling End Time instruct Kumulate to poll the Unmanaged Storage Repository only between Polling Begin Time and Polling End Time. These parameters are based on the 24-hour clock, and can only be set to hours.

  Polling Interval(sec) instructs Kumulate to poll the Unmanaged Storage Repository every specified number of seconds. The interval begins when the discovery operation ends. The minimum value for this interval is 10s. Setting this parameter to *0* effectively sets it to 10s.

- Remove Segment with ID in (list)

  A comma-separated list of event IDs that need to be excluded from segments.

  When the formatsheet is parsed to create segments, any events that include these IDs will not be included in a segment. If an event with the listed ID is present in a segment, the segment will be split around that event.

  This parameter is used most often to remove blacks from the video. The event ID most likely to need to be removed is the BLK event ID.

- Type of Content

  This parameter identifies the type of content being monitored.

- Xml Path

  The path to the directory on the FTP server that contains the formatsheets associated with the media files. The path must be in relation to the root directory.

Project FTP Unmanaged Storage Repositories

Kumulate monitors Project Unmanaged Storage Repositories for new directories rather than for new files. Kumulate copies in entire directories as a Virtual Object, preserving the directory structure. This type of Unmanaged Storage Repository is useful for archiving and restoring DPX projects. In the case of the Project FTP Unmanaged Storage Repository, Kumulate monitors an FTP server for new directories.

Note: As of Kumulate 8.1, Project Locations can also be configured as UNC locations. UNC locations offer better performance over FTP locations and should be used instead of FTP locations whenever possible.

File and Folder Formats

A project Unmanaged Storage Repository consists of an FTP server connected to Kumulate. When Kumulate discovers a new directory on the location, it waits for all files under the directory to be completely uploaded before copying in the directory as a new Virtual Object.

Note: Kumulate will ignore any changes made to the directory after it has been copied in. It is **strongly recommended** that projects only be uploaded to the monitored location after the project is complete and no more changes will be made to it.

A dominant file is selected to be used for transcodes, for metadata and for thumbnail extractions. This file is specified by the Dominant File Location and Dominant File Pattern parameters. If Dominant File Pattern is left blank, the largest file in the directory is used. When the Virtual Object is copied out, the entire directory structure is preserved.

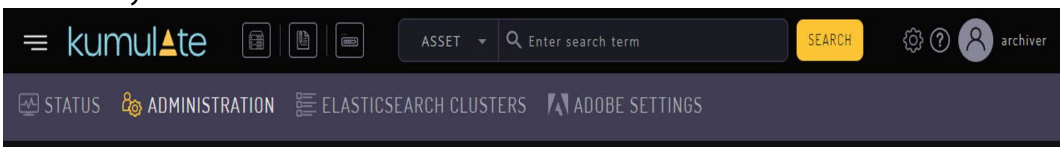
Configuration

A Project FTP Unmanaged Storage Repository is typically configured as both a copy-in and a copy-out location. Entire directories are copied in and out of the Unmanaged Storage Repository.

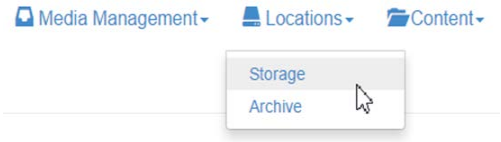
Note: As of Kumulate 8.1, Project locations can also be configured as UNC locations. UNC locations offer better performance over FTP locations, and should be used instead of FTP locations when possible.

Use the following procedure to configure Project FTP Locations:

1. Click System > Administration in the menu bar in the Kumulate web interface.

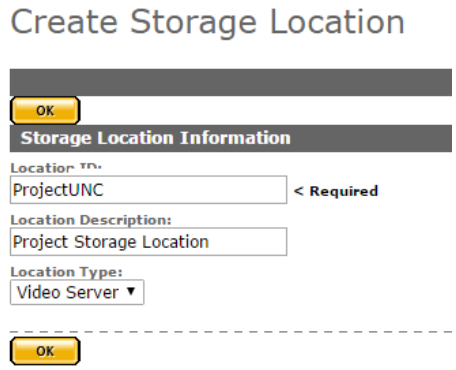


2. Select Locations > Storage.

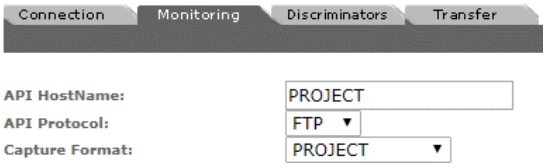


3. Create a new Unmanaged Storage Repository by clicking the Add New Location button.

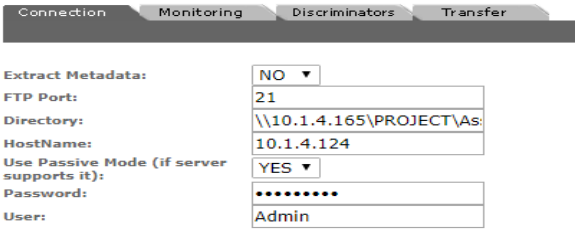
4. Enter a name and description for the Unmanaged Storage Repository, then click OK.



5. Select the Monitoring tab and set Capture Format to *PROJECT*.



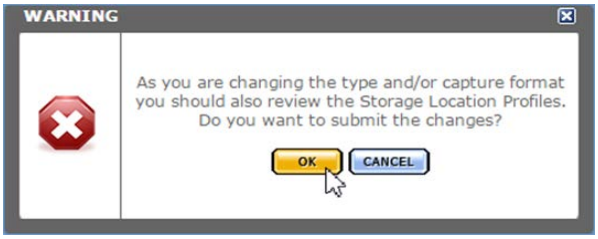
6. Click OK to return to the Connection tab and enter the FTP credentials in the text boxes. The Directory parameter must point to the FTP root directory. Extract Metadata must be set to *NO*.



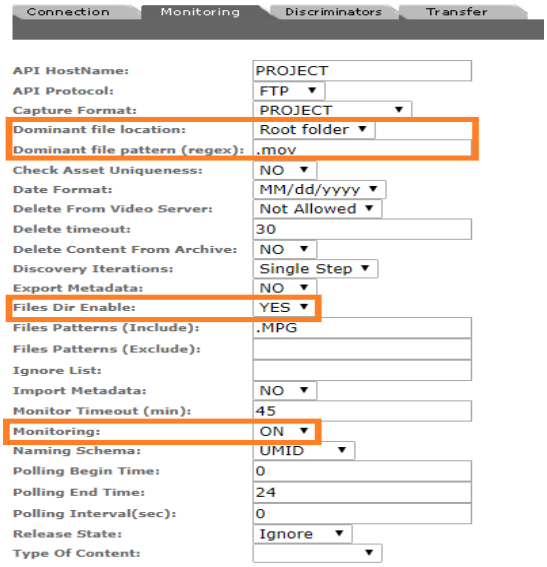
Active FTP is used by default. Set Use Passive Mode (if server supports it) to *YES* to use passive FTP.

Note: The FTP connection will default back to Active if the Passive FTP connection fails.

7. Click OK to continue. A warning will appear asking if you want to submit the change to the Unmanaged Storage Repository. Click OK to continue and you will be returned to the Connection tab.



8. Navigate to the Monitoring tab and set API Hostname, Dominant File Location, Dominant File Pattern, Files Dir Enable, and Monitoring parameters. The Dominant File Location and Dominant File Pattern parameters are used to identify the file in the project that will be used for transcodes, metadata extractions, and thumbnail extractions.



See *Monitoring Parameters* for a complete list of applicable parameters.

Parameter	Description
API HostName	The FTP hostname or IP address. Must be the same as that used on the Connection tab.
Dominant File Location	The directory to search for the file that matches Dominant File Pattern. This file will be used for transcodes, metadata extractions, and thumbnail extractions. Set this to *All Folders* to search the project directory recursively for the file. Set this to *Root folder* to search only the top-level project directory for the file.
Dominant File Pattern	A regular expression that matches the file that will be used for transcodes, metadata extractions, and thumbnail extractions. If more than one file matches the regular expression the largest of the matched files will be used. If the parameter is left empty the largest file found will be used. If the dominant file is not a media file, the Transcode, Extract Thumbnail, and Extract Metadata operations for that Virtual Object's Renditions will be disabled.
Files Dir Enable	This parameter must be set to *YES*.
Monitoring	Set this parameter to *ON*.

9. Click OK to save the configuration.

Monitoring Parameters

The following parameters on the Monitoring tab are used by Project FTP Unmanaged Storage Repositories.

Caution: Do not modify any parameter that does not appear in this list. Modifying an unlisted parameter may affect Kumulate's operations.

- API HostName

  The IP address of the FTP server.
- API Protocol

  Always set to *FTP*.

- Capture Format

  Project FTP Unmanaged Storage Repositories must have Capture Format set to *PROJECT*.

- Delete Content From Archive

  This parameter sets whether a Virtual Object's archived Renditions are deleted when the physical Rendition on the Unmanaged Storage Repository changes.

  When a Rendition changes on an Unmanaged Storage Repository the existing Rendition is deleted and replaced with the changed Rendition.

  Setting Delete Content From Archive to *YES* will also delete all Renditions located on Managed Storage Repositories when the physical Rendition on the Unmanaged Storage Repository changes.

  If the Delete Virtual Object With No Renditions parameter in the Virtual Object Manager module is set to *ON*, and the Virtual Object does not contain any other Unmanaged Storage Repository Renditions in addition to the one that has changed, the Virtual Object will be deleted and a new Virtual Object will be created for the changed Rendition.

  The default setting is NO.

Note: This parameter has no effect when discriminators are used by the location.

- Delete From Video Server

  Allows the deletion of files from the Unmanaged Storage Repository after they have been copied in to Kumulate.

- Delete Timeout

  The amount of time to wait for a file to be physically deleted from the video server.

  The operation will fail if the timeout is reached and the file has not been deleted. The file will no longer be visible, but it may remain in an unusable state on the video server.

- Dominant File Location, Dominant File Pattern

  These two parameters provide information about the location and name of the project's dominant file. The dominant file is the media file used for transcoding, thumbnail, and metadata extraction.

  Setting Dominant File Location to *Root folder* will only search the top-level folder for the dominant file. Setting it to *All folders* searches the project's entire directory tree for the dominant file.

  Dominant File Pattern is a regular expression that matches the file used for metadata extraction.

  The largest of the files will be used if more than one file matches Dominant File Pattern.

  The largest file found will be used as the dominant file if Dominant File Pattern is left blank.

  If the dominant file is not a media file, the Transcode, Extract Thumbnail, and

Extract Metadata operations for that Virtual Object's Renditions will be disabled.

- Files Dir Enable

  Indicates whether the full directory structure of the folder on the FTP server is recreated on the cache.

  Setting Files Dir Enable to *YES* recreates the entire directory structure on the cache. This allows Kumulate to transcode the files and create proxies. Setting the parameter to *NO* only creates file proxies on the cache.

  Files Dir Enable must be set to *YES* in Project FTP Unmanaged Storage Repositories.

- Ignore List

  Kumulate will not copy-in and create Virtual Objects for directories that match this list. Ignore List can be a regular expression or a list of directory names.

- Monitoring

  Indicates whether this Unmanaged Storage Repository is to be monitored. Set Monitoring to *OFF* if the Unmanaged Storage Repository will only be used to copy-out files. Set Monitoring to *ON* in all other cases.

- Naming Schema

  Determines how the Virtual Object ID is set upon discovery.

  Virtual Object ID sets the Virtual Object ID to the root filename of the discovered Rendition. In this case, the Virtual Object Name, Virtual Object ID, and Original Name of the Virtual Object will be identical.

  UMID sets the Virtual Object ID to a unique UMID. This ensures unique names for all Virtual Objects. The Virtual Object Name will still be the root filename of the discovered Rendition.

Note: Neither Rendition nor Virtual Object discriminators can be used when Naming Schema is set to Virtual Object ID.

- Polling Begin Time, Polling End Time, Polling Interval(sec)

  Controls how Kumulate polls the Unmanaged Storage Repository.

  Polling Begin Time and Polling End Time instruct Kumulate to poll the Unmanaged Storage Repository only between Polling Begin Time and Polling End Time. These parameters are based on the 24-hour clock, and can only be set to hours.

  Polling Interval(sec) instructs Kumulate to poll the Unmanaged Storage Repository every specified number of seconds. The interval begins when the discovery operation ends. The minimum value for this interval is 10s. Setting this parameter to *0* effectively sets it to 10s.

Transfer Parameters

The following parameters on the Transfer tab are used by Project FTP Unmanaged Storage Repositories.

Caution: Do not modify any parameter that does not appear in this list. Modifying an unlisted parameter may affect Kumulate's operations.

- Capture Mode

  This parameter specifies whether the physical file on this Unmanaged Storage Repository is kept or deleted after its Rendition is transferred to another location.

  MOVE deletes the physical file from this location after the transfer, while COPY keeps it.

- File info command

  The FTP command to use to determine whether a file is on an FTP server.

Note: Do not change the value from the default unless the FTP command results in errors.

- Checksum Type and Checksum Validation

  Rendition checksums are calculated to ensure that Rendition data is not corrupted.

  When a Rendition is copied to the location, its checksum is calculated using the algorithm specified by Checksum Type. The Rendition's checksum is added to the database if it does not already exist. If the Rendition's checksum exists in the database, but the two checksums do not match, the transfer will fail and an error will be generated.

  If After Write is selected for Checksum Validation, then an additional check is made after the Rendition has been fully copied to the location. The transfer will fail if the checksum of the written Rendition does not match the checksum in the database.

- Max Copy In

  This parameter only applies when the Unmanaged Storage Repository is configured for copying in files and sets the maximum number of concurrent transfers from the Unmanaged Storage Repository to Kumulate.

  The value can be between 0 and 127, where 0 means that there is no limit on the number of transfers.

  The default value is 0.

Note: It is **strongly recommended** to change this to a non-zero value.

- Max Copy Out

  This parameter only applies when the Unmanaged Storage Repository is configured for copying out files and sets the maximum number of concurrent transfers from Kumulate to the Unmanaged Storage Repository.

  The value can be between 0 and 127, where 0 means that there is no limit on the number of transfers.

  The default value is 0.

Note: It is **strongly recommended** to change this to a non-zero value.

- Overwrite Video Server Rendition

  Transfers from Kumulate to the Unmanaged Storage Repository will fail if the file already exists on the Unmanaged Storage Repository when set to NOT ALLOWED.

  The transfer will overwrite the existing file on the Unmanaged Storage Repository when set to ALLOWED.

- Restore Using

  This parameter specifies how to name the physical file when a Rendition is transferred to this Unmanaged Storage Repository. There are four options for Restore Using:

Virtual Object ID	The file is named using the transferred Rendition's Virtual Object Virtual Object ID.
Name	The file is named using the transferred Rendition's Virtual Object Virtual Object Name.
Original Name	The file is named using the transferred Rendition's Virtual Object Original Name. Original Name contains the name of the Virtual Object when its source Rendition was discovered.
Preserve Filenames	The filename is not modified after transfer. The Restore Extension parameter will not be applicable when this option is used. If the Unmanaged Storage Repository configuration is saved after setting this option, Restore Extension is hidden.

Note: If the Virtual Object source location used Virtual Object ID as the Naming Schema, the Virtual Object ID, Virtual Object Name, and Original Name may be identical.

- Transcode Using

  Some files may contain information at the beginning and end of the file that is not necessarily meant to be transcoded. This happens most often with commercial spots which can have agency information, tags, and blacks appended to the beg-

ging and the end of the advertisement. Selecting *SOM* and *EOM* prevents these extraneous bits from being transcoded. Additional configuration is needed to use EOM and SOM.

The entire file is transcoded when set to *SOF and EOF*.

Only a part of the file is transcoded when set to *SOM and EOM*.

See *Start of Message Parameter* for more information.

- Transfer Mode

  Always set to *Direct FTP*.

Project UNC Unmanaged Storage Repositories

Kumulate monitors project Unmanaged Storage Repositories for new directories rather than for new files. Kumulate copies in entire directories into Virtual Objects preserving the directory structure. This type of Unmanaged Storage Repository is useful for archiving and restoring DPX projects. In the case of the Project UNC Unmanaged Storage Repository, Kumulate monitors a UNC location for new directories.

File and Folder Formats

Note: Prior to Kumulate 8.1, Kumulate connected to the Project location using FTP. Systems that were upgraded from earlier versions to 8.1 may still have the FTP configuration.

When Kumulate discovers a new directory on the location, it waits for all files under the directory to be completely uploaded before copying in the directory as a new Virtual Object.

Note: Kumulate ignores any changes made to the directory after it has been copied in. It is **strongly recommended** that projects only be uploaded to the monitored location after the project is complete and no more changes will be made to it.

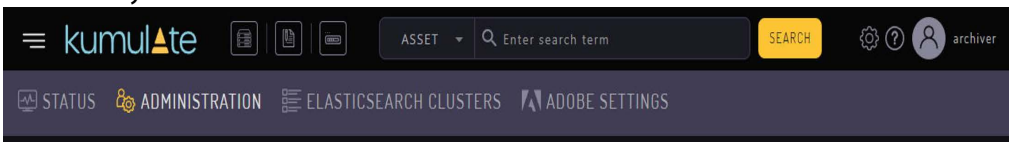
A dominant file is selected to be used for transcodes, metadata, and thumbnail extractions. This file is specified by the Dominant File Location and Dominant File Pattern parameters. If Dominant File Pattern is left blank, the largest file in the directory is used.

When the Virtual Object is copied out, the entire directory structure is preserved.

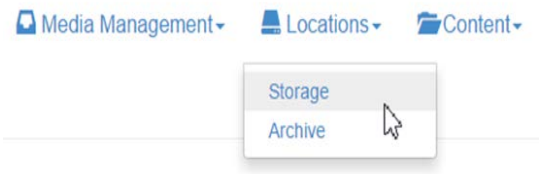
Configuration

A Project Unmanaged Storage Repository is typically configured as both a copy-in and a copy-out location. Entire directories are copied in and out of the Unmanaged Storage Repository. Use the following procedure to configure a Project UNC Unmanaged Storage Repository:

1. Click System > Administration in the menu bar in the Kumulate web interface.

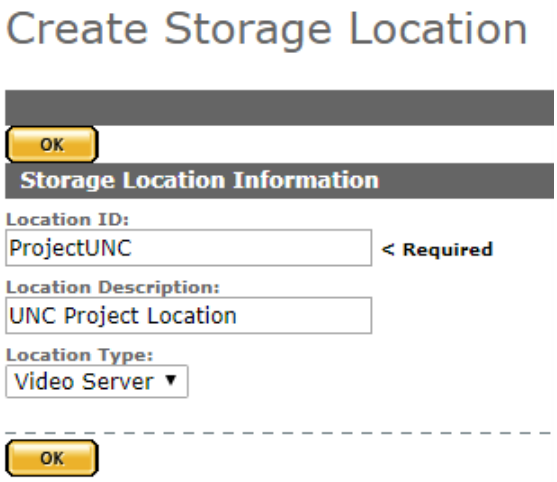


2. Select Locations > Storage.

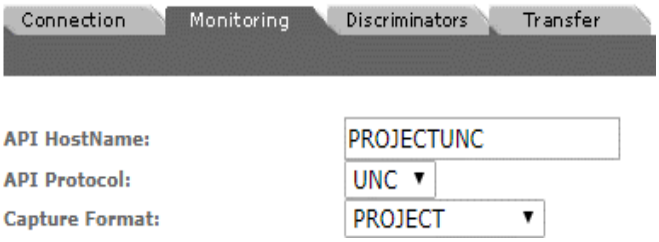


3. Create a new Unmanaged Storage Repository by clicking the Add New Location button.

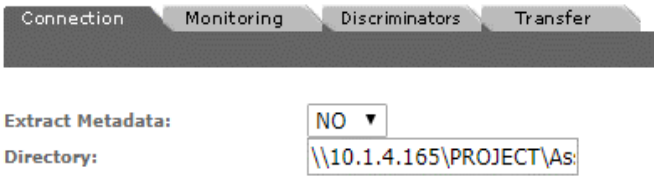
4. Enter a name and description for the Unmanaged Storage Repository, then click OK.



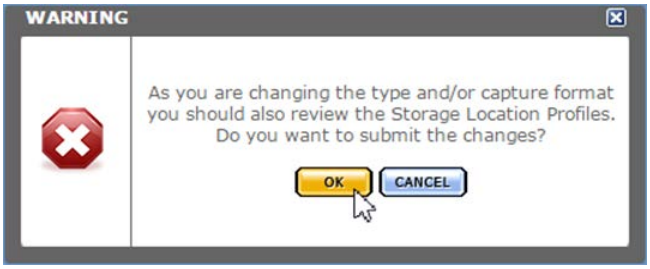
5. Select the Monitoring tab. Set Capture Format to *PROJECT* and API Protocol to *UNC*.



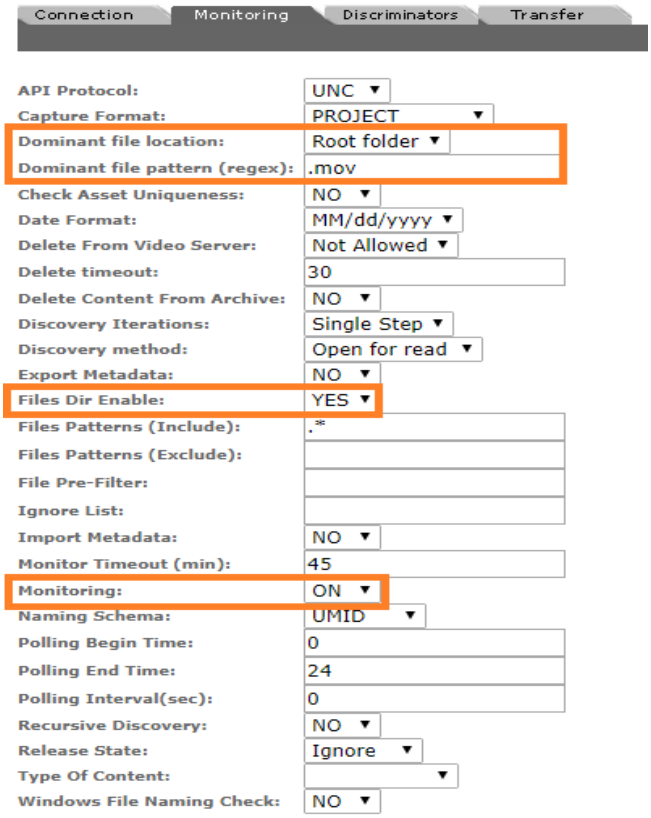
6. Click OK to return to the Connection tab and enter the FTP credentials in the text boxes. The Directory parameter must point to the FTP root directory. Extract Metadata must be set to *NO*.



7. Click OK to continue. A warning will appear asking if you want to submit the change to the Unmanaged Storage Repository. Click OK to continue and you will be returned to the Connection tab.



8. Navigate to the Monitoring tab and set Dominant File Location, Dominant File Pattern, Files Dir Enable, and Monitoring parameters. The Dominant File Location and Dominant File Pattern parameters are used to identify the file in the project that will be used for transcodes, metadata extractions, and thumbnail extractions.



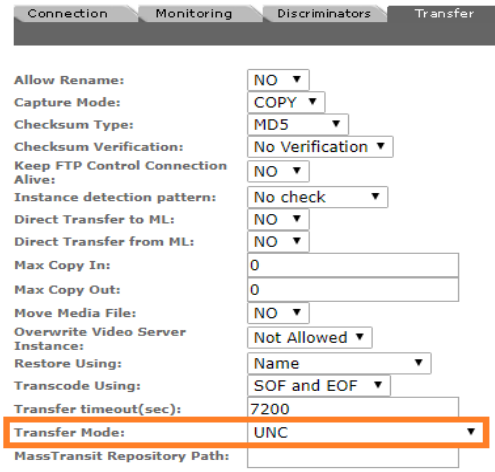
See *Monitoring Parameters* for a complete list of applicable parameters.

Parameter	Description
Dominant File Location	The directory to search for the file that matches Dominant File Pattern. This file will be used for transcodes, metadata extractions, and thumbnail extractions. Set this to *All Folders* to search the project directory recursively for the file. Set this to *Root folder* to search only the top-level project directory for the file.
Dominant File Pattern	A regular expression that matches the file that will be used for transcodes, metadata extractions, and thumbnail extractions. If more than one file matches the regular expression the largest of the matched files will be used. If the parameter is left empty the largest file found will be used. If the dominant file is not a media file, the Transcode, Extract Thumbnail, and Extract Metadata operations for that Virtual Object's Renditions will be disabled.
Files Dir Enable	This parameter must be set to *YES*.
Monitoring	Set this parameter to *ON*.

9. Click OK to continue. You will be returned to the Connection tab.
10. Select the Transfer tab and set the Transfer Mode parameter to *UNC* to use the Kumulate DataMovers to transfer files between the video server and Kumulate.

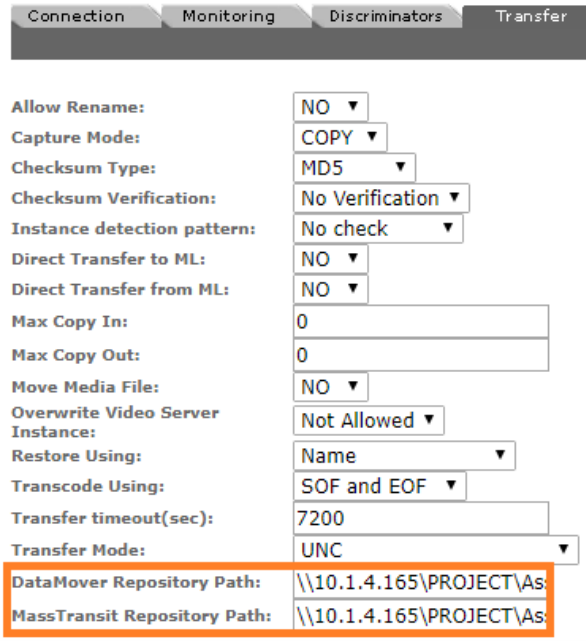
    Set the value to *Signiant* or *Aspera* to use these transfer APIs.

Note: Signiant and Aspera must be installed to use these modes.



11. Click OK to continue. You will be returned to the Connection tab.

12. Select the Transfer tab and set DataMover Repository Path and MassTransit Repository Path to the same UNC location used for the Directory parameter.



13. Click OK to save the changes.

Monitoring Parameters

The following parameters on the Monitoring tab are used by Project Unmanaged Storage Repositories.

Caution: Do not modify any parameter that does not appear in this list. Modifying an unlisted parameter may affect Kumulate's operations.

- API Protocol

  Set to *UNC*.

- Capture Format

  Project Unmanaged Storage Repositories must have Capture Format set to *PROJECT*.

- Delete Content From Archive

  This parameter sets whether a Virtual Object's archived Renditions are deleted when the physical Rendition on the Unmanaged Storage Repository changes.

  When a Rendition changes on an Unmanaged Storage Repository, the existing Rendition is deleted and replaced with the changed Rendition.

  Setting this parameter to *YES* will also delete all Renditions located on Managed Storage Repositories when the physical Rendition on the Unmanaged Storage Repository changes.

  If the Delete Virtual Object With No Renditions parameter in the Virtual Object Manager module is set to *ON*, and the Virtual Object does not contain any other Unmanaged Storage Repository Renditions in addition to the one that has changed, the Virtual Object will be deleted and a new Virtual Object will be created for the changed Rendition.

  The default setting for this parameter is NO.

Note: Delete Content From Archive has no effect when discriminators are used by the location.

- Delete From Video Server

  Allows the deletion of files from the Unmanaged Storage Repository after they have been copied in to Kumulate.

- Delete Timeout

  The amount of time to wait for a file to be physically deleted from the video server.

  The operation fails if the timeout is reached and the file has not been deleted. The file will no longer be visible, but it may remain in an unusable state on the video server.

- Discovery Method

  By default, Kumulate will attempt to open a file for reading to determine whether the file has finished copying to the UNC location monitored by the Unmanaged Storage Repository.

  However, in cases where a file is being ingested and written in chunks to the UNC location, the file can be opened for reading even if the file has not been completely copied. In these situations, Discovery Method should be set to *Open for write* instead. This will cause Kumulate to attempt to open the file for writing to determine if it has finished being copied to the UNC location. The file will not be discovered until the process writing to it releases it.

- Dominant File Location, Dominant File Pattern

  Dominant File Location and Dominant File Pattern provide information about the location and name of the project's dominant file. The dominant file is the media file used for transcoding, thumbnail, and metadata extraction.

  Dominant File Pattern is a regular expression that matches the file that will be used for metadata extraction.

  Setting Dominant File Location to *Root folder* will only search the top-level folder for the dominant file. Setting it to *All folders* will allow Kumulate to search the project's entire directory tree for the dominant file.

  The largest of the files will be used if more than one file matches Dominant File Pattern.

  If Dominant File Pattern is left blank, the largest file found will be used as the dominant file.

  If the dominant file is not a media file, the Transcode, Extract Thumbnail, and Extract Metadata operations for that Virtual Object's Renditions will be disabled.

- Files Dir Enable

  Indicates whether the full directory structure of the folder on the location is recreated on the cache.

  Setting Files Dir Enable to *YES* recreates the entire directory structure on the cache. This allows Kumulate to transcode the files and create proxies. Setting the parameter to *NO* only creates file proxies on the cache.

  This parameter must be set to *YES* for Project Unmanaged Storage Repositories.

- File Pre-Filter

  Excludes files that match a regular expression from discovery.

  The pre-filter step occurs before the file pattern inclusion and exclusion. Files that match the regular expression are not included in the list of files from which Virtual Objects can be discovered. This is useful for excluding system files used by video servers, such as .ds files.

Note: Do not use this option with the MXF_OP_ATOM capture format.

- Ignore List

  Kumulate will not copy in and create Virtual Objects for directories that match this list. Ignore List can be a regular expression or a list of directory names.

- Monitoring

  Indicates whether this Unmanaged Storage Repository is to be monitored. Set Monitoring to *OFF* if the Unmanaged Storage Repository will only be used to copy-out files; set Monitoring to *ON* in all other cases.

- Naming Schema

  Determines how the Virtual Object ID is set upon discovery. Virtual Object ID sets the Virtual Object ID to the root filename of the discovered Rendition. In this case,

the Virtual Object Name, Virtual Object ID, and Original Name of the Virtual Object will be identical.

UMID sets the Virtual Object ID to a unique UMID. This ensures unique names for all Virtual Objects. The Virtual Object Name will still be the root filename of the discovered Rendition.

Neither Rendition nor Virtual Object discriminators can be used when Naming Schema is set to Virtual Object ID.

- Polling Begin Time, Polling End Time, Polling Interval(sec)

  Instructs Kumulate how to poll the Unmanaged Storage Repository.

  Polling Begin Time and Polling End Time instruct Kumulate to poll the Unmanaged Storage Repository only between Polling Begin Time and Polling End Time. These parameters are based on the 24-hour clock, and can only be set to hours.

  Polling Interval(sec) instructs Kumulate to poll the Unmanaged Storage Repository every specified number of seconds. The interval begins when the discovery operation ends. The minimum value for this interval is 10s. Setting this parameter to *0* effectively sets it to 10s.

Transfer Parameters

The following parameters on the Transfer tab are used by Project Unmanaged Storage Repositories.

Caution: Do not modify any parameter that does not appear in this list. Modifying an unlisted parameter may affect Kumulate's operations.

- Capture Mode

  The capture mode specifies whether the physical file on this Unmanaged Storage Repository is kept or deleted after its Rendition is transferred to another location.

  MOVE deletes the physical file from this location after the transfer; COPY keeps it.

- Checksum Type and Checksum Validation

  Rendition checksums are calculated to ensure that Rendition data is not corrupted.

  When a Rendition is copied to the location, its checksum is calculated using the algorithm specified by Checksum Type. The Rendition's checksum is added to the database if it does not already exist. If the Rendition's checksum does exist in the database, but the two checksums do not match, the transfer will fail and an error will be generated.

  If After Write is selected for Checksum Validation an additional check is made after the Rendition has been fully copied to the location. If the checksum of the written Rendition does not match the checksum in the database, the transfer will fail.

- DataMover Repository Path

  This should always be set to the same value as the Directory Connection parameter.

- MassTransit Repository Path

  This should always be set to the same value as the Directory Connection parameter.

- Max Copy In

  Only applies when the Unmanaged Storage Repository is configured for copying in files and sets the maximum number of concurrent transfers from the Unmanaged Storage Repository to Kumulate.

  The value can be between 0 and 127, where 0 means that there is no limit on the number of transfers.

  The default value is 0.

Note: It is **strongly recommended** to change this to a non-zero value.

- Max Copy Out

  Only applies when the Unmanaged Storage Repository is configured for copying out files and sets the maximum number of concurrent transfers from Kumulate to the Unmanaged Storage Repository.

  The value can be between 0 and 127, where 0 means that there is no limit on the number of transfers.

  The default value is 0.

Note: It is **strongly recommended** to change this to a non-zero value.

- Overwrite Video Server Rendition

  Transfers from Kumulate to the Unmanaged Storage Repository will fail if the file already exists on the Unmanaged Storage Repository when set to NOT ALLOWED.

  Transfers will overwrite the existing file on the Unmanaged Storage Repository when set to ALLOWED.

- Restore Using

  This parameter specifies how to name the physical file when a Rendition is transferred to this Unmanaged Storage Repository. There are four options for Restore Using:

Virtual Object ID	The file is named using the transferred Rendition's Virtual Object ID.

Name	The file is named using the transferred Rendition's Virtual Object Name.
Original Name	The file is named using the transferred Rendition's Original Name. Original Name contains the name of the Virtual Object when its source Rendition was discovered.
Preserve Filenames	The filename is not modified after transfer. The Restore Extension parameter will not be applicable when this option is used. If the Unmanaged Storage Repository configuration is saved after setting this option, Restore Extension will be hidden.

Note: If the Virtual Object source location used Virtual Object ID as the Naming Schema, the Virtual Object ID, Virtual Object Name, and Original Name may be identical.

- Transcode Using

  Some files may contain information at the beginning and end of the file that is not necessarily meant to be transcoded. This happens most often with commercial spots which can have agency information, tags, and blacks appended to the begging and the end of the advertisement. Selecting *SOM* and *EOM* prevents these extraneous bits from being transcoded. Additional configuration is needed to use EOM and SOM.

  The entire file is transcoded when set to *SOF and EOF*.

  Only a part of the file is transcoded when set to *SOM and EOM*.

  See *Start of Message Parameter* for more information.

- Transfer Mode

  Set the value to *UNC* to use the Kumulate DataMovers to transfer files between the video server and Kumulate.

  Set the value to *Signiant* or *Aspera* to use these transfer APIs.

Note: Signiant and Aspera must be installed to use these modes.

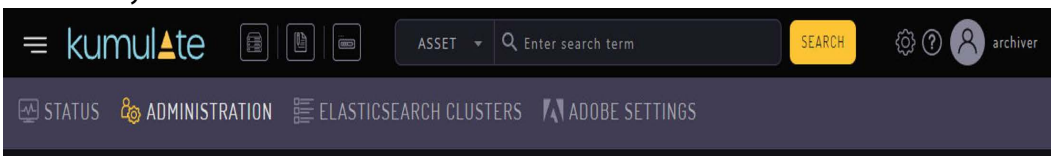
UNC Unmanaged Storage Repositories

UNC Unmanaged Storage Repositories are locations connected to Kumulate using the UNC protocol. Several different capture formats can be used with UNC Unmanaged Storage Repositories. The Unmanaged Storage Repository is configured identically for all capture formats except for minor variations.

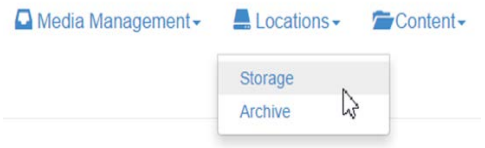
Configuration without Metadata Sidecar Files

A UNC Unmanaged Storage Repository is typically configured as both a copy-in and a copy-out location. Use the following procedure to configure UNC without metadata sidecar files:

1. Click System > Administration in the menu bar in the Kumulate web interface.



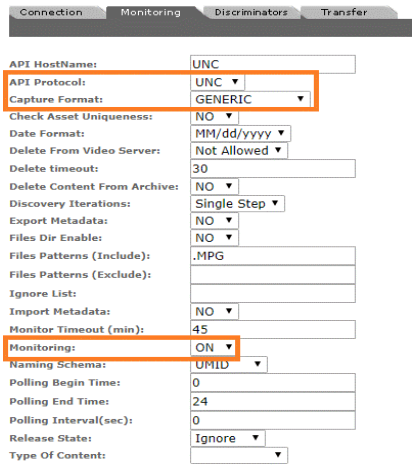
2. Select Locations > Storage.



3. Create a new Unmanaged Storage Repository by clicking the Add New Location button.

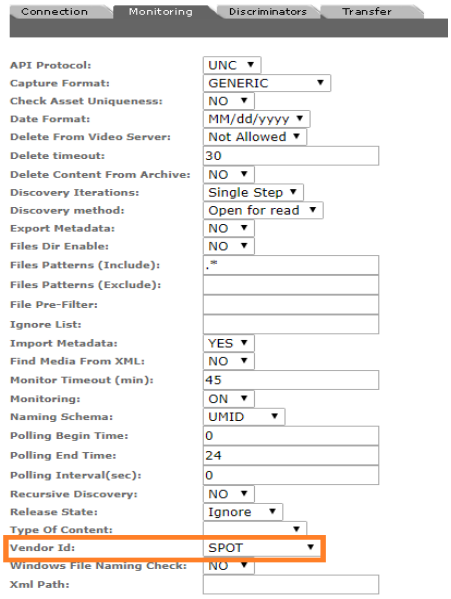
4. Enter a name and description for the Unmanaged Storage Repository, then click OK.

5. Select the Monitoring tab. Set API Protocol to *UNC*, Capture Format to the file format that will be copied in and copied out to the video server, and Monitoring to *ON*.

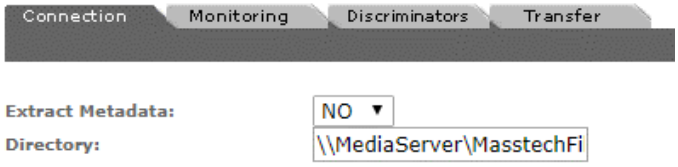


See *Monitoring Parameters* for details.

6. Click OK to return to the Connection tab.
7. Select the Monitoring tab and confirm that the Vendor Id parameter (now visible) is set to *SPOT*.



8. Click OK to return to the Connection tab and enter the FTP credentials. Directory must point to the shared UNC directory and Extract Metadata must be set to *NO*.

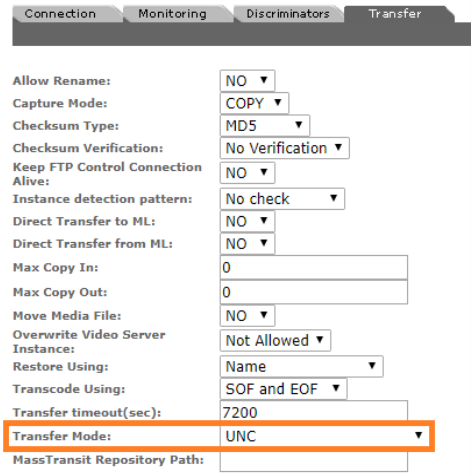


9. Click OK to return to the Connection tab.

10. Select the Transfer tab and set the Transfer Mode parameter to *UNC* to use the Kumulate DataMovers to transfer files between the video server and Kumulate.

Set the value to *Signiant* or *Aspera* to use these transfer APIs.

Note: Signiant and Aspera must be installed to use these modes.



11. Click OK to save the changes.

Configuration with Metadata Sidecar Files

UNC locations can be configured to use metadata sidecar files in xml format.

Metadata sidecar files contain additional metadata not found in the accompanying media file. This metadata can be mapped to Kumulate metadata in the Unmanaged Storage Repository configuration.

The Vendor ID parameter (visible when Import Metadata is set to YES) provides two options for sidecar metadata processing: SPOT and GENERIC XML.

The SPOT option is used specifically for metadata files created with Extreme Reach software. In addition to allowing metadata to be mapped from the sidecar file, this option also allows a commercial spot to be transcoded without its pre-frames automatically.

The GENERIC XML option can be used with xml metadata files created with any software.

Configuration Using Extreme Reach Metadata Sidecar Files

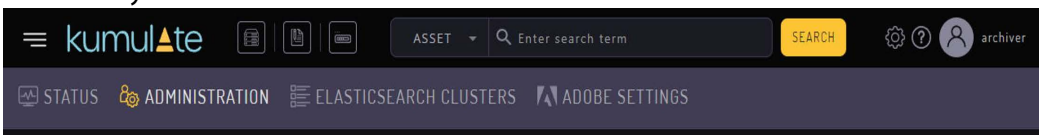
The SPOT UNC Unmanaged Storage Repository configuration is used specifically for Unmanaged Storage Repositories containing media files with Extreme Reach sidecar metadata files.

In addition to allowing metadata to be mapped from the sidecar files to Kumulate metadata, the SPOT configuration can also be used to automatically remove any

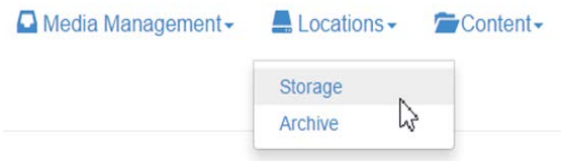
additional frames that may come before or after a commercial spot. In many cases, these additional frames contain advertising agency information and do not need to be transcoded. These frames are removed automatically when transcoding the file by setting the TranscodeUsing parameter to *SOM* and *EOM*.

Use the following procedure to configure UNC using Extreme Reach:

1. Click System > Administration in the menu bar in the Kumulate web interface.



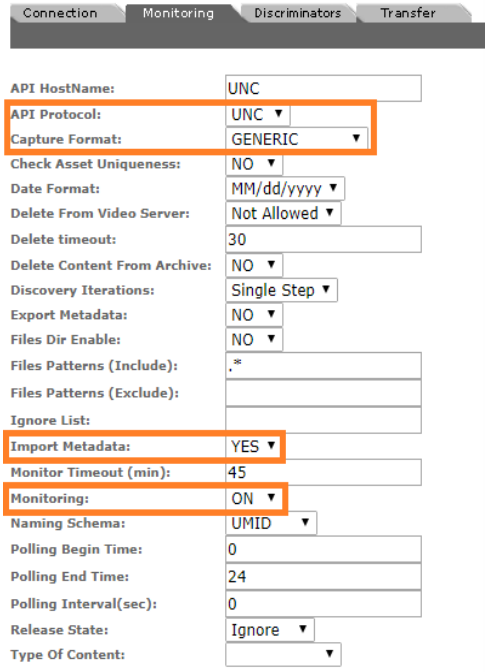
2. Select Locations > Storage.



3. Create a new Unmanaged Storage Repository by clicking the Add New Location button.

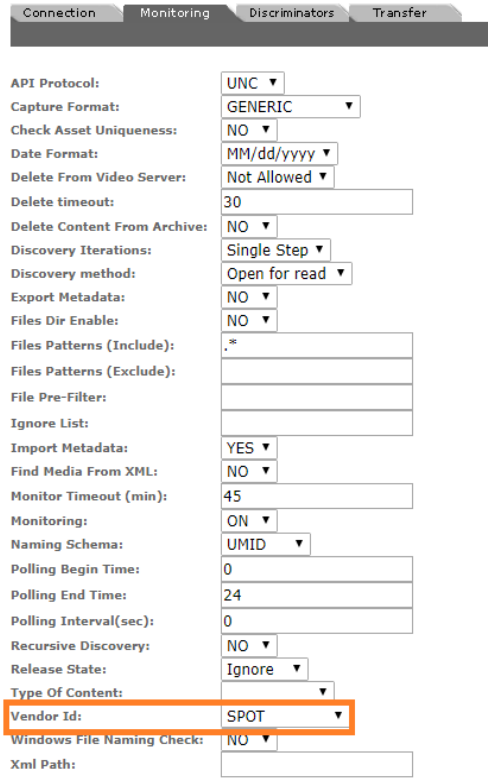
4. Enter a name and description for the Unmanaged Storage Repository, then click OK.

5. Select the Monitoring tab. Set API Protocol to *UNC*, Capture Format to *GENERIC*, Import Metadata to *YES*, and Monitoring to *ON*.



See *Monitoring Parameters* for details.

6. Click OK to continue and then select the Monitoring tab. Confirm that the Vendor Id parameter (now visible) is set to *SPOT*.

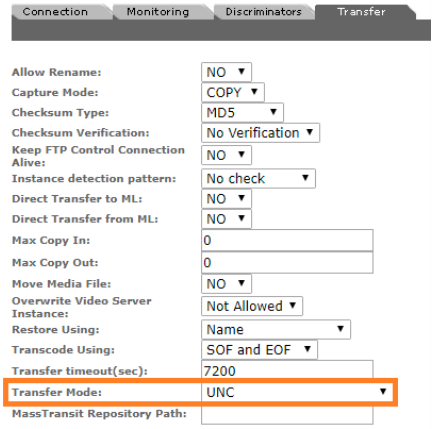


7. Click OK to return to the Connection tab and enter the FTP credentials in the text boxes. The Directory parameter must point to the shared UNC directory. Extract Metadata must be set to *NO*.

8. Click OK to continue and return to the Connection tab.
9. Select the Transfer tab and set the Transfer Mode parameter to *UNC* to use the Kumulate DataMovers to transfer files between the video server and Kumulate.

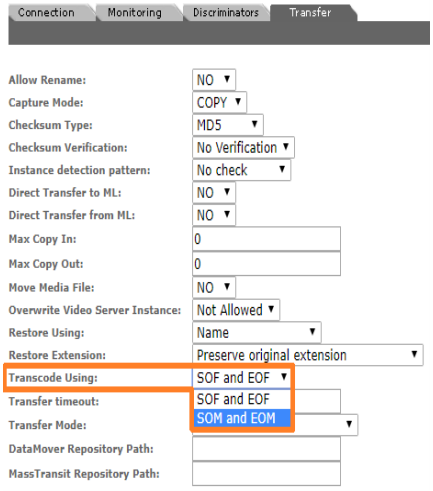
   Set the value to *Signiant* or *Aspera* to use these transfer APIs.

Note: Signiant and Aspera must be installed to use these modes.

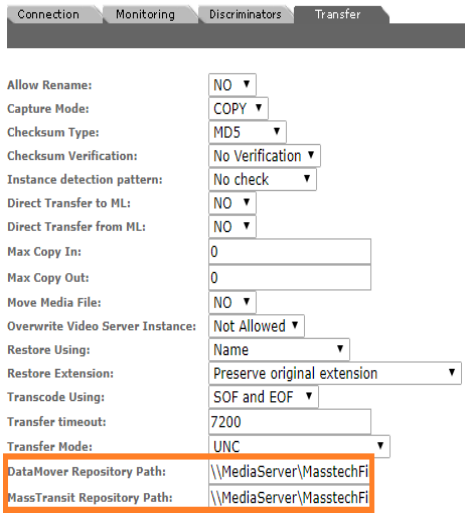


10. Click OK to continue. You will be returned to the Connection tab.
11. Select the Transfer tab and set the Transfer Using parameter. Select *SOF and EOF* if the entirety of the file is to be transcoded.

    Select *SOM and EOM* if only the commercial spot is to be transcoded, without the leading and trailing frames.



12. Click OK to continue and then select the Transfer tab and set DataMover Repository Path and MassTransit Repository Path to the same UNC location used for the Directory parameter.

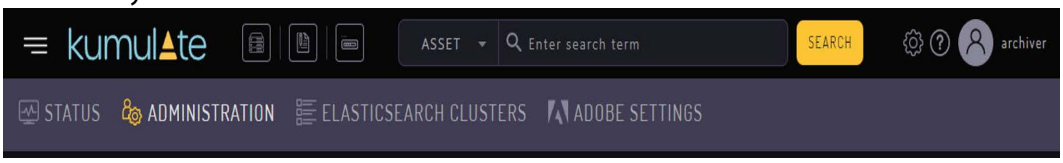


13. Click OK to save the changes.

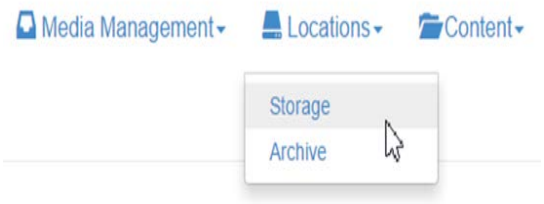
Configuration Using Generic Metadata Sidecar Files

The Generic XML UNC Unmanaged Storage Repository configuration is used to extract additional metadata from sidecar files. Any sidecar file can be used provided it is in xml format. The structure of the expected xml files must be known.

1. Click System > Administration in the menu bar in the Kumulate web interface.



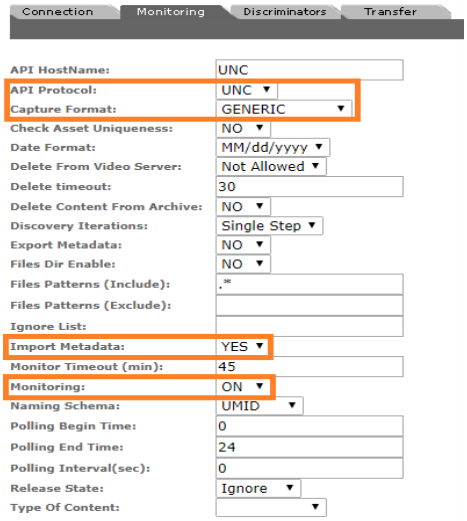
2. Select Locations > Storage.



3. Create a new Unmanaged Storage Repository by clicking the Add New Location button.

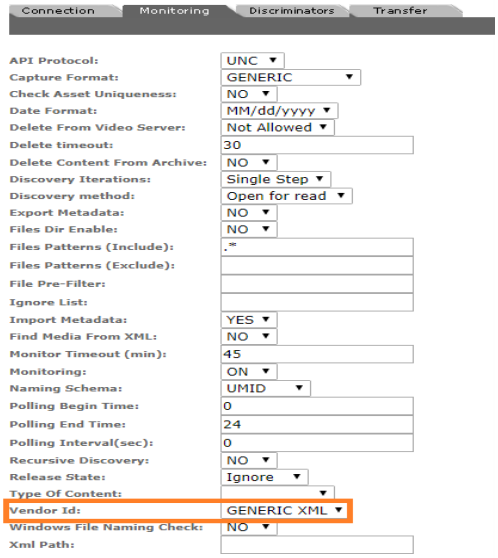
4. Enter a name and description for the Unmanaged Storage Repository, then click OK.

5. Select the Monitoring tab. Set API Protocol to *UNC*, Capture Format to *GENERIC*, Import Metadata to *YES*, and Monitoring to *ON*.

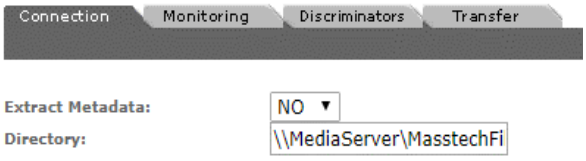


See *Monitoring Parameters* for details.

6. Click OK to continue and then select the Monitoring tab. Confirm that the Vendor Id parameter (now visible) is set to *GENERIC XML*.



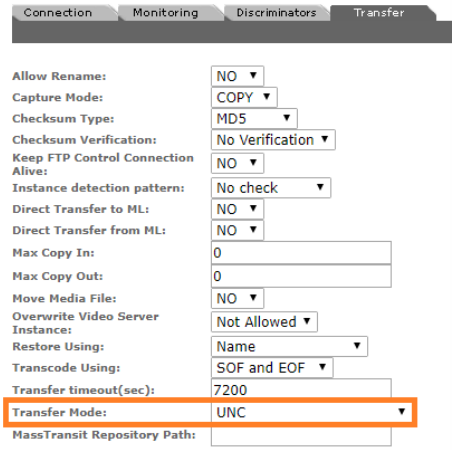
7. Click OK to return to the Connection tab and enter the FTP credentials in the text boxes. The Directory parameter must point to the shared UNC directory. Extract Metadata must be set to *NO*.



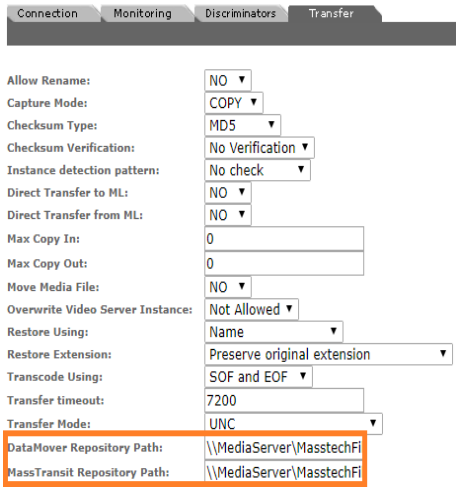
8. Click OK to continue and return to the Connection tab.
9. Select the Transfer tab and set the Transfer Mode parameter to *UNC* to use the Kumulate DataMovers to transfer files between the video server and Kumulate.

   Set the value to *Signiant* or *Aspera* to use these transfer APIs.

Note: Signiant and Aspera must be installed to use these modes.



10. Click OK to continue and then select the Transfer tab and set DataMover Repository Path and MassTransit Repository Path to the same UNC location used for the Directory parameter.



11. Click OK to save the changes.

Sidecar Metadata Mapping

To use the metadata in the metadata sidecar xml files it must be manually mapped to Kumulate metadata elements. The metadata is mapped in the Unmanaged Storage Repository configuration.

The following conditions must be met for the metadata to be mapped correctly:

- The sidecar metadata file must be in xml format.
- The sidecar metadata file must have the same root name as the media file. For example, if the media file is named MyMediaFile.mpg, the sidecar file must be named MyMediaFile.xml.
- The structure of the sidecar metadata files must be known.
- There can be no typographical errors in the mapping.

Kumulate will not generate any errors or messages in the event that any of these conditions are not met.

Use the following procedure to create a mapping:

1. Click the Location Metadata Mapping button on the Unmanaged Storage Repository Configuration page.

2. Click Add Mapping to add a mappings.

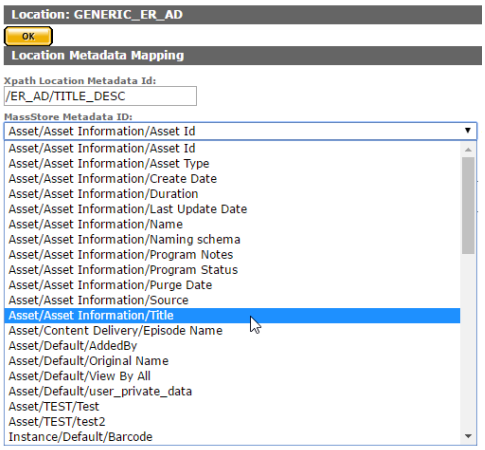
3. In the Xpath Location Metadata ID, add the xpath to the metadata in the sidecar file. For example, enter */ER_AD/TITLE_DESC* in Xpath Location Metadata ID to extract the TITLE_DESC metadata from a sidecar file that looks like this:

Note: Do not add an extra / at the end of the xpath.

```
<?xml version="1.0" encoding="utf-8"?>
<ER_AD>
  <TITLE_DESC>New Game Cutdown/Kids/Fri/HD :15</TITLE_DESC>
  <ISCI_CODE>DIMI1543H</ISCI_CODE>
  <PRODUCT_DESC>WDSMP/Million Dollar Arm</PRODUCT_DESC>
  <PLAY_LENGTH>00:00:15:00</PLAY_LENGTH>
  <START_TIME>00:00:07:00@29.97</START_TIME>
  <COMPRESSION_LEVEL_CODE>4:2:2</COMPRESSION_LEVEL_CODE>
  <ENCODER_TYPE_DESC>Extreme Reach</ENCODER_TYPE_DESC>
  <OUTPUT_RATE>29.97</OUTPUT_RATE>
  <FILE_NAME>DIMI1543H.mpg</FILE_NAME>
  <FILE_SIZE>114523208</FILE_SIZE>
  <COPY_DATE>2014-05-07T12:13:29.7415861Z</COPY_DATE>
  <ADVERTISER>WDSMP/Million Dollar Arm</ADVERTISER>
  <AGENCY_VENDOR>Walt Disney Studios Motion Pictures</AGENCY_VENDOR>
  <SPOT_TYPE>HD</SPOT_TYPE>
  <MEDIA_DESCRIPTION>HD1080i</MEDIA_DESCRIPTION>
  <SUPPORT_EMAIL>support@extremereach.com</SUPPORT_EMAIL>
</ER_AD>
```

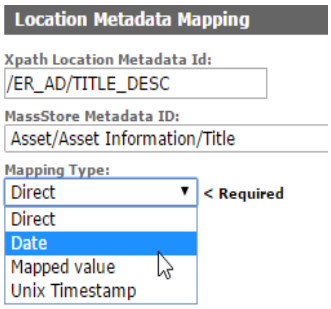
4. Select the Kumulate metadata to populate with the selected sidecar metadata from the Kumulate Metadata ID pull down menu.

   For example, to populate the Virtual Object Title with the sidecar metadata, select Virtual Object/Virtual Object Information/Title from the pull down menu.

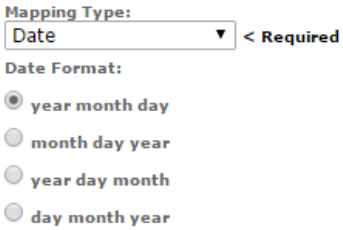


5. Choose the mapping type from the Mapping Type pull down menu.

Note: The Unix Timestamp type is not used.



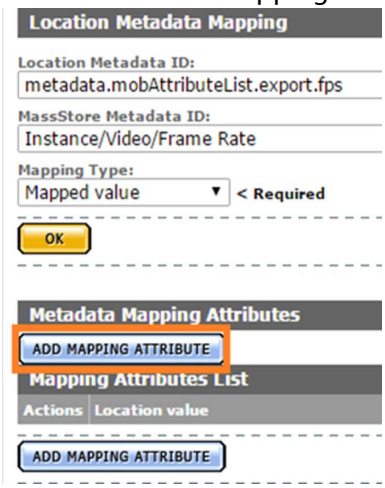
With the Date mapping type, the date format must also be selected.



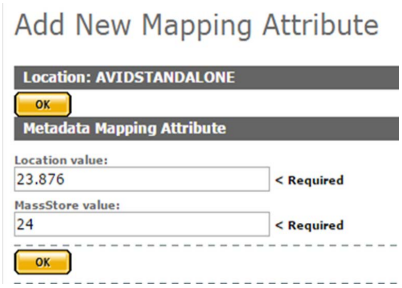
With the Mapped Value type, the mapped value must be set. The Date mapping supports the following formats in the metadata file:

YY/MM/DD	YYYY/MM/DD	YYYY-MM-DD	YYYY-MM-DD hh:mm:ss
YYYY-MM-DDThh:mm:ss	YYYY-MM-DDThh:mm:ss.s	YY-MM-DDThh:mm:ssTDZ	YYYY-MM-DDThh:mm:ss.sTDZ
D/M/YY	DD/MM/YY	D/M/YYYY	DD/MM/YYYY
MM/DD/YY	MM/DD/YYYY	M/D/YYYY hh:mm:ss.s	

6. Click the Add Mapping Attribute button.



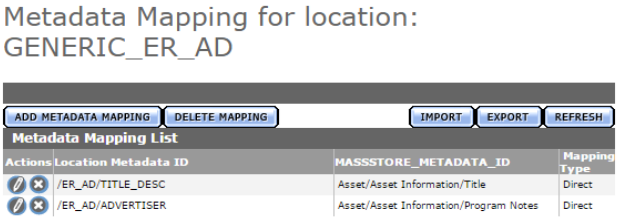
a. On the Add New Mapping Attribute page, add the expected value from the AAF in the Location Value box and add the value to use in the Kumulate metadata in the Kumulate value box as shown in the following figure:



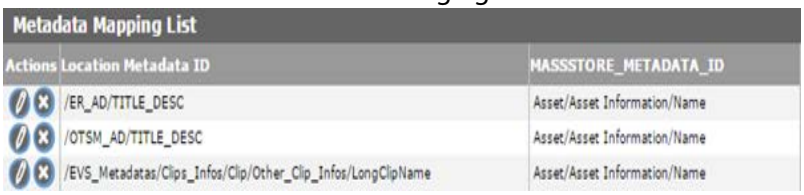
b. Click OK to save.

c. Click OK to save.

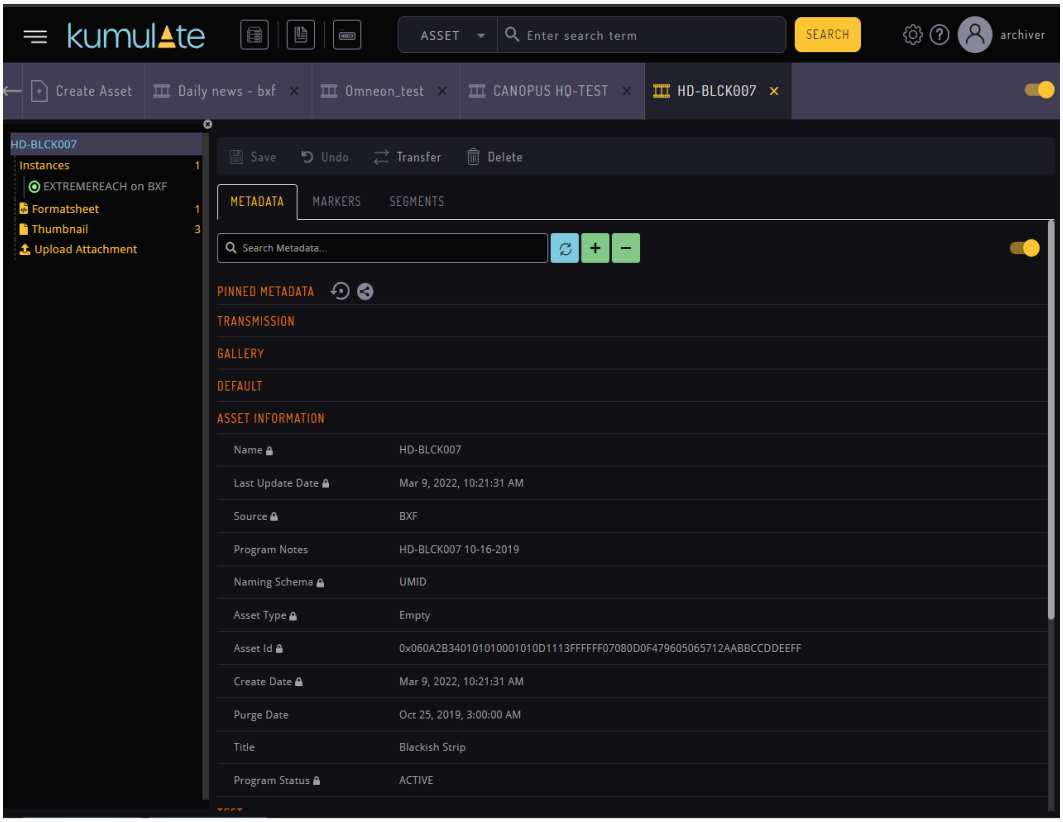
d. The list of mappings will appear on the Metadata Mapping page as shown in the following figure:



If more than one type of xml file will be used, xpaths for different file structures can be mapped to the same Kumulate metadata. Kumulate will search for the xpaths in the file, and, if one matches, it will be mapped to the Kumulate metadata as shown in the following figure:



7. When a Rendition is discovered on this Unmanaged Storage Repository, the metadata will be extracted from its sidecar file and used to populate its Kumulate metadata.



Monitoring Parameters

The following parameters on the Monitoring tab are used by UNC Unmanaged Storage Repositories.

Caution: Do not modify any parameter that does not appear in this list. Modifying an unlisted parameter may affect Kumulate's operations.

- API HostName

  The IP address of the FTP server.

- API Protocol

  Always set to *UNC*.

- Capture Format

  The capture format used depends on the type of file that will be copied in and out of the video server.

Capture Format	File Type
FCP_UN	Final Cut Pro
Leitch	Leitch - Used when the video server is a Leitch video server, and the files are in Leitch's proprietary format.
MPEG2PS	Program Stream MPEG2
MXF	All MXF operational patterns except OP_ATOM.
MXF_OP_ATOM	MXF OP_ATOM
WM9	Windows Media Player
Generic	Any single-file format such as self-contained MOV files, or single-file MXF files. Used when the file format is not covered by the other capture formats, or when the files can be a mix of any single-file format. Used for commercial spots, and generic XML files. **Note:** Cannot be used with MXF OP_ATOM files.

- Delete Content From Archive

  Delete Content From Archive sets whether a Virtual Object's archived Renditions are deleted when the physical Rendition on the Unmanaged Storage Repository changes.

  When a Rendition changes on an Unmanaged Storage Repository, the existing Rendition is deleted and replaced with the changed Rendition.

  Setting this parameter to *YES* will also delete all Renditions located on Managed Storage Repositories when the physical Rendition on the Unmanaged Storage Repository changes.

  If the Delete Virtual Object With No Renditions parameter in the Virtual Object Manager module is set to *ON*, and the Virtual Object does not contain any other Unmanaged Storage Repository Renditions in addition to the one that has changed, the Virtual Object will be deleted and a new Virtual Object will be created for the changed Rendition.

  This parameter is set to NO by default.

Note: Delete Content From Archive has no effect when discriminators are used by the location.

- Delete From Video Server

  Allows the deletion of files from the Unmanaged Storage Repository after they have been copied in to Kumulate.

- Delete Timeout

  The amount of time to wait for a file to be physically deleted from the video server.

  If the timeout is reached and the file has not been deleted, the operation fails. The file will no longer be visible, but it may remain in an unusable state on the video server.

- Discovery Method

  By default, Kumulate will attempt to open a file for reading to determine whether the file has finished copying to the UNC location monitored by the Unmanaged Storage Repository.

  However, in cases where a file is being ingested and written in chunks to the UNC location, the file can be opened for read even if the file has not been copied completely. In these situations, Discovery Method should be set to *Open for write* instead. This will cause Kumulate to attempt to open the file for writing to determine if it has finished being copied to the UNC location. The file will not be discovered until the process writing to it releases it.

- Files Dir Enable

  Indicates whether the full directory structure of the folder on the FTP server is recreated on the cache.

  Setting Files Dir Enable to *YES* recreates the entire directory structure on the cache. This allows Kumulate to transcode the files and create proxies. Setting the parameter to *NO* only creates file proxies on the cache.

  Files Dir Enable must be set to *YES* when the UNC location uses recursive discovery; otherwise it must be set to *NO*.

- Files Patterns (Include)

  The file type extensions to discover on the Unmanaged Storage Repository. This value is used to populate the wrapper metadata.

Note: Do not use this option with the MXF_OP_ATOM capture format.

- Files Patterns (Exclude)

  Instructs Kumulate to ignore files with these extensions during discovery.

Note: Do not use this option with the MXF_OP_ATOM capture format.

- File Pre-Filter

  Excludes files that match a regular expression from discovery.

  The pre-filter step occurs before the file pattern inclusion and exclusion. Files that match the regular expression are not included in the list of files from which Virtual Objects can be discovered. This is useful for excluding system files used by video servers, such as .ds files.

Note: Do not use this option with the MXF_OP_ATOM capture format

---

- Ignore List

  Kumulate will not copy-in any files that appear in this list. Ignore List can be a list of filenames, or a regular expression.

- Import Metadata

  Indicates that additional metadata will be pulled in from metadata sidecar files.

  Sidecar files must be in xml format, and they must have the same root names as their corresponding media files. All sidecar files on the same Unmanaged Storage Repository must have the same structure.

  If this parameter is set to *YES* to import metadata from sidecar files, the Vendor Id parameter must be set appropriately.

  The sidecar metadata must be mapped to Kumulate metadata explicitly.

- Monitoring

  Indicates whether this Unmanaged Storage Repository is to be monitored. If the Unmanaged Storage Repository will only be used to copy-out files, set Monitoring to *OFF*; otherwise set it to *ON*.

- Polling Begin Time, Polling End Time, Polling Interval(sec)

  Controls how Kumulate polls the Unmanaged Storage Repository.

  Polling Begin Time and Polling End Time instruct Kumulate to poll the Unmanaged Storage Repository only between Polling Begin Time and Polling End Time. These parameters are based on the 24-hour clock, and can only be set to hours.

  Polling Interval(sec) instructs Kumulate to poll the Unmanaged Storage Repository every specified number of seconds. The interval begins when the discovery operation ends. The minimum value for this interval is 10s. Setting this parameter to *0* effectively sets it to 10s.

- Recursive Discovery

  If Renditions can be discovered anywhere under the root folder of the Unmanaged Storage Repository, set this parameter to *YES*.

Note: FTP Files Dir Enable must be set to *YES* when Recursive Discovery is set to *YES*.

- Vendor Id

Note: This parameter is only visible when Import Metadata is set to YES.

This parameter indicates the type of sidecar metadata files to expect.

Set Vendor Id to *SPOT* if Extreme Reach sidecar files will be used; otherwise set it to *Generic XML*.

Transfer Parameters

The following parameters on the Transfer tab are used by UNC Unmanaged Storage Repositories.

Caution: Do not modify any parameter that does not appear in this list. Modifying an unlisted parameter may affect Kumulate's operations.

- Capture Mode

  The capture mode specifies whether the physical file on this Unmanaged Storage Repository is kept or deleted after its Rendition is transferred to another location.

  MOVE deletes the physical file from this location after the transfer; COPY keeps it.

- Checksum Type and Checksum Validation

  Rendition checksums are calculated to ensure that Rendition data is not corrupted.

  When a Rendition is copied to the location, its checksum is calculated using the algorithm specified by Checksum Type. The Rendition's checksum is added if it does not exist in the database. The transfer will fail and an error will be generated if the Rendition's checksum does exist in the database, but the two checksums do not match.

  An additional check is made after the Rendition has been fully copied to the location if After Write is selected for Checksum Validation. The transfer will fail if the checksum of the written Rendition does not match the checksum in the database.

- DataMover Repository Path

  This should always be set to the same value as the Directory Connection parameter.

- MassTransit Repository Path

  This should always be set to the same value as the Directory Connection parameter.

- Max Copy In

  This only applies when the Unmanaged Storage Repository is configured for copying in files, and sets the maximum number of concurrent transfers from the Unmanaged Storage Repository to Kumulate.

  The value can be between 0 and 127, where 0 means that there is no limit on the number of transfers.

  The default value is 0.

Note: It is **strongly recommended** to change this to a non-zero value.

- Max Copy Out

  This only applies when the Unmanaged Storage Repository is configured for copying out files, and sets the maximum number of concurrent transfers from Kumulate to the Unmanaged Storage Repository.

  The value can be between 0 and 127, where 0 means that there is no limit on the number of transfers.

  The default value is 0.

Note: It is **strongly recommended** to change this to a non-zero value.

- Overwrite Video Server Rendition

  A transfer from Kumulate to the Unmanaged Storage Repository will fail if the file already exists on the Unmanaged Storage Repository when set to NOT ALLOWED.

  The transfer will overwrite the existing file on the Unmanaged Storage Repository when set to ALLOWED.

- Restore Using

  Restore Using specifies how to name the physical file when a Rendition is transferred to this Unmanaged Storage Repository.

Note: If the Virtual Object source location used Virtual Object ID as the Naming Schema, the Virtual Object ID, Virtual Object Name, and Original Name may be identical.

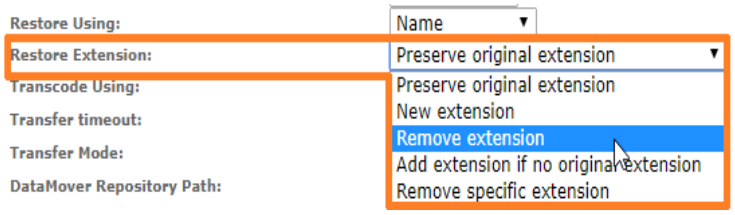
There are four options for Restore Using as follows:

Virtual Object ID	The file is named using the transferred Rendition's Virtual Object's ID.
Name	The file is named using the transferred Rendition's Virtual Object's Name.
Original Name	The file is named using the transferred Rendition's Virtual Object's Original Name. Original Name contains the name of the Virtual Object when its source Rendition was discovered.
Preserve Filenames	The file name is not modified after transfer. The Restore Extension parameter will not be applicable when this option is used. If the Unmanaged Storage Repository configuration is saved after setting this option, Restore Extension will be hidden.

- Restore Extension

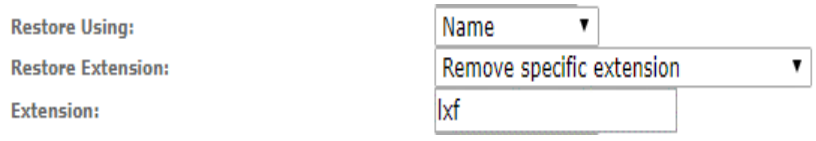
  The Restore Extension parameter determines how file extensions are handled when files are copied to the Unmanaged Storage Repository.

  File names and their extensions are preserved when Renditions are copied between locations by default. The Restore Extension parameter allows extensions to be added, removed, or replaced.



Value	Behavior
Preserve original extension	Default behavior. The extension does not change when the file is copied to the Unmanaged Storage Repository.
New extension	Changes the existing extension to the specified extension.
Remove extension	Remove the extension if there is one.
Add extension if no original extension	Add the specified extension if the original file name does not have an extension.
Remove specific extension	Remove only the specified extension; preserve all other extensions.

The New extension, Add extension if no original extension, and Remove specific extension work with the Extension parameter. This parameter, though, is not visible by default. If the Extension parameter is not visible, click OK to save the configuration, then navigate back to the Transfer tab. The Extension parameter should now be visible.



- Extension

  The Extension parameter works with the Restore Extension parameter to replace file extensions when Renditions are copied to the Unmanaged Storage Repository.

  This parameter is not visible by default. It only becomes visible when Restore Extension is set to New extension, Add extension if no original extension, or Remove specific extension.

Note: In some cases, the configuration must be saved after selecting New extension, Add extension if no original extension, or Remove specific extension for the Extension parameter to become visible.

- Transcode Using

  Some files may contain information at the beginning and end of the file that is not necessarily meant to be transcoded. This happens most often with commercial spots which can have agency information, tags, and blacks appended to the begging and the end of the advertisement. Selecting *SOM* and *EOM* prevents these extraneous bits from being transcoded. Additional configuration is needed to use EOM and SOM.

  When set to *SOF and EOF*, the entire file is transcoded.

  When set to *SOM and EOM*, only a part of the file is transcoded.

  See *Start of Message Parameter* for more information.

- Transfer Mode

  Set the value to *UNC* to use the Kumulate DataMovers to transfer files between the video server and Kumulate.

  Set the value to *Signiant* or *Aspera* to use these transfer APIs.

Note: Signiant and Aspera must be installed to use these modes.

Start of Message Parameter

Media files containing commercial spots will often begin with a series of frames with the name of the advertising agency, the name of the spot, and the running time of the spot.

Setting the TranscodeUsing parameter to *SOM&EOM* will remove these frames when a Rendition is transcoded.

UNC Unmanaged Storage Repository using the *SPOT* Vendor ID will automatically remove the pre-frames without additional configuration from video with Extreme Reach sidecar files.

For UNC Unmanaged Storage Repositories configured with *Generic XML* Vendor ID, the pre-frames can also be removed, but additional configuration is needed as follows:

1. To extract pre-frames, the sidecar file must contain the length of the clip, and a timestamp in hh:mm:ss:ms format that points to when the commercial spot begins.

```
<?xml version="1.0" encoding="utf-8"?>
<ER_AD>
  <TITLE_DESC>MillionArm</TITLE_DESC>
  <ISCI_CODE>DIMI1543H</ISCI_CODE>
  <PRODUCT_DESC>WDSMP/Million Dollar Arm</PRODUCT_DESC>
  <PLAY_LENGTH>00:00:15:00</PLAY_LENGTH>
  <START_TIME>00:00:07:00</START_TIME>
  <COMPRESSION_LEVEL_CODE>4:2:2</COMPRESSION_LEVEL_CODE>
  <ENCODER_TYPE_DESC>Extreme Reach</ENCODER_TYPE_DESC>
  <OUTPUT_RATE>29.97</OUTPUT_RATE>
  <FILE_NAME>MillionArm.mpg</FILE_NAME>
  <FILE_SIZE>114523208</FILE_SIZE>
  <COPY_DATE>2014-05-07T12:13:29.7415861Z</COPY_DATE>
  <ADVERTISER>WDSMP/Million Dollar Arm</ADVERTISER>
  <AGENCY_VENDOR>Walt Disney Studios Motion Pictures</AGENCY_VENDOR>
  <SPOT_TYPE>HD</SPOT_TYPE>
  <MEDIA_DESCRIPTION>HD1080i</MEDIA_DESCRIPTION>
  <SUPPORT_EMAIL>support@extremereach.com</SUPPORT_EMAIL>
</ER_AD>
```

2. The start time and length of the clip must be explicitly mapped to the SOM and Duration Kumulate metadata fields.

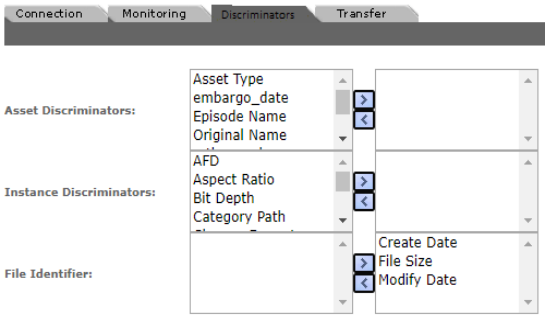
Metadata Mapping List

Actions	Location Metadata ID	MASSSTORE_METADATA_ID
	/ER_AD/PLAY_LENGTH	Asset/Asset Information/Duration
	/ER_AD/START_TIME	Instance/Summary/SOM

3. After the Rendition is discovered, extract its metadata.
4. Create the proxy. The pre-frames should now be trimmed.

Discriminators and File Identifiers

The following parameters under the Discriminators tab are used to differentiate between Renditions with the same name on the Unmanaged Storage Repository.



Virtual Object and Rendition Discriminators

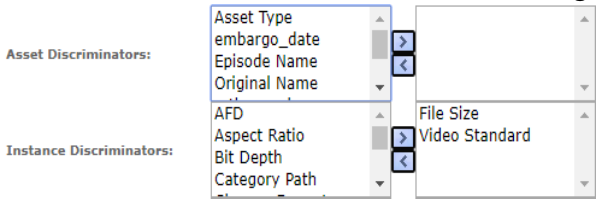
Note: Discriminators override the Unmanaged Storage Repository's Delete Contents From Archive setting.

Virtual Object and Rendition discriminators are metadata used to determine whether a Rendition that has changed is the same Rendition or a different Rendition than one that is already on the Unmanaged Storage Repository.

When a Rendition has changed, the Rendition discriminator metadata values of the original and changed Renditions are compared. If any of the discriminator metadata values do not match, a new Virtual Object will be created for the changed Rendition.

Discriminator metadata is selected from the left list and moved to the right list using the right-facing arrow.

For example, to compare Renditions based on file size and video standard, select File Size and Video Standard and add them to the right list as shown in the following figure.



When Kumulate detects that the physical Rendition on the Unmanaged Storage Repository has changed, it will compare the file size and video standard of the original Rendition to the changed Renditions. A new Virtual Object will be created for the changed Rendition if either of the two metadata values do not match.

Note: Naming Schema must be set to *UMID*, and Extract Metadata must be set to *YES* when using discriminators. No Renditions will be discovered on the Unmanaged Storage Repository if discriminators are used but the Unmanaged Storage Repository's naming schema is not set to UMID.

BXF Unmanaged Storage Repositories

A BXF Unmanaged Storage Repository consists of a UNC path or FTP server that is delivering BXF files to Kumulate. Kumulate monitors the location for new files, parses the BXF file for metadata and ingests the content.

Two new options have been added to the BXF Unmanaged Storage Repository configuration in Kumulate 2.2 to enable the centralized ingest and subsequent distribution to local Kumulate systems:

- The option to retrieve XML sidecar files from a different folder than the media files. The path is defined in the Unmanaged Storage Repository's XML Path parameter. If no path is defined in this parameter, Kumulate will assume the path is the same as the one used for the media files.
- The option of different Rendition formats to support configurations where content is transcoded before it arrives in the Kumulate Unmanaged Storage Repository. The format is defined in the Unmanaged Storage Repository's Rendition Format parameter in a pull down list. All Renditions discovered on the location will have this format. The available values are as follows:

  a. EXTREMEREACH (this is the default value)

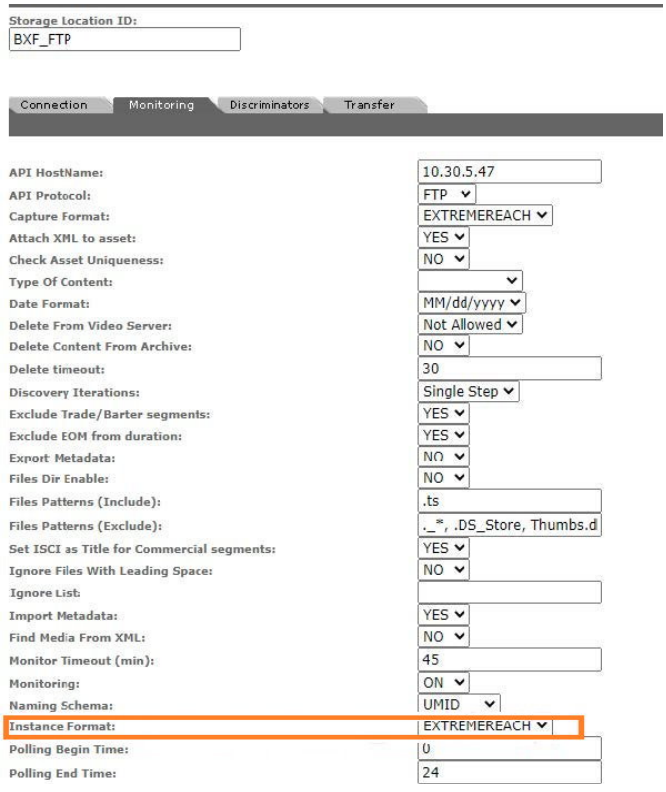
  b. MXF

  c. QT

  d. MP4

  e. MPEG2TS

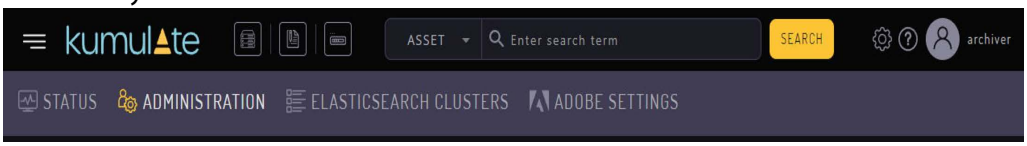
  f. MPEG2PS



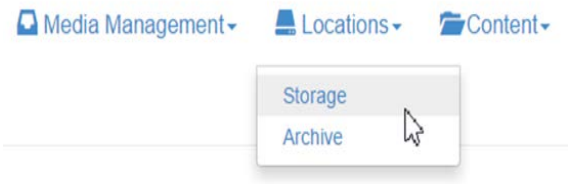
Configuration

Use the following procedure to configure BXF Unmanaged Storage Repositories:

1. Click System > Administration in the menu bar in the Kumulate web interface.



2. Select Locations > Storage.

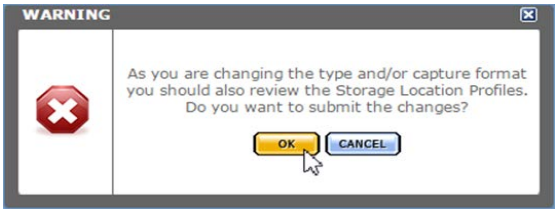


3. Create a new Unmanaged Storage Repository by clicking the Add New Location button.

4. Enter a name and description for the Unmanaged Storage Repository, then click OK.

5. Select the Monitoring tab and set Capture Format to *ExtremeReach*.

6. Click OK to continue. A warning will appear asking if you want to submit the change to the Unmanaged Storage Repository. Click OK to continue and you will be returned to the Connection tab.



7. Enter the UNC directory or FTP credentials and set Extract Metadata to *NO*.

8. Navigate to the Monitoring tab and set Vendor Id to *GENERIC XML*.
9. Navigate to the Transfer tab and set the input path for the DataMover. If UNC is used as the protocol then set the input path for the Transcode Engine.
10. Click OK to continue.
11. Add the appropriate permissions in the Security area and the endpoint to your DataMover.

Metadata Mapping

When BXF files are discovered, their metadata is read and mapped to Kumulate metadata. There are six default mappings for BXF files, but more can be added.

Use the following procedure to map BXF metadata:

1. Navigate to Location Metadata Mapping to add or remove mappings.

2. Modify settings on the Monitoring tab if necessary as follows:
   a. Attach XML to Virtual Object.
   b. Set ISCI as *Title for Commercial* segments.
   c. Adjust SOM to *zero (0)*.
   d. Set Commercial as *Note*.
3. Validate the location.

Video Server Unmanaged Storage Repositories

This chapter describes the various Video Server Unmanaged Storage Repositories. The locations are configured based on the type of video server that it will connect to.

Each location is configured to expect a specific Rendition format. Renditions that do not match this format cannot be transferred to the location unless a transcode profile exists that can transcode the incoming Rendition to the format specified by the location's restore profile.

Unmanaged Storage Repositories are not automatically accessible to users, nor are they automatically added to external DataMovers. They need to be explicitly added as endpoints to external DataMovers, and they need to be explicitly added to user groups.

- K2 Unmanaged Storage Repositories
- Leitch Unmanaged Storage Repositories
- Omneon (Harmonic) Unmanaged Storage Repositories
- Discriminators for Video Server Locations
- Fast Initialization & Delete Content From Archive

K2 Unmanaged Storage Repositories

A K2 Unmanaged Storage Repository consists of a K2 Video Server connected to Kumulate. Communication between the video server and Kumulate is done through API calls using libraries installed on the Kumulate server.

Media transfers between Kumulate and the video server are done through the video server's FTP service.

K2 File and Folder Formats

Kumulate receives a list of clips on the video server. K2 provides metadata information about the clips, but does not provide the file format. When Kumulate requests a clip, it sends a request to retrieve the clip from an FTP directory that corresponds to a wrapper type. The K2 server wraps the clip in the format corresponding to the directory and places it in the directory for Kumulate to copy-in.

Clips can be wrapped as GXF, MXF, or MOV. The root FTP directories for the wrapped clips correspond to the wrapper types. For example, the root directory for GXF is /GXF/.

The physical clips are stored within a subdirectory generally named default. For example, physical GXF files would be located under /GXF/default/.

For transfers to the K2 Unmanaged Storage Repository, Kumulate places the files in their corresponding wrapper directories.

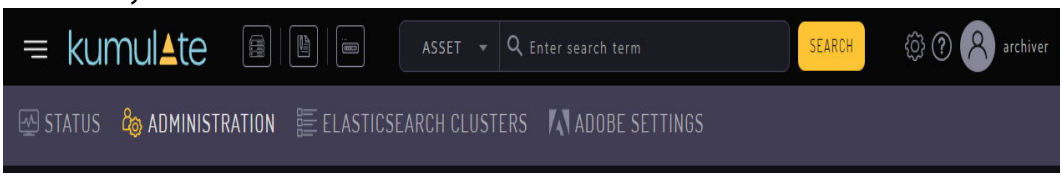
Kumulate can only monitor one wrapper type per K2 Unmanaged Storage Repository.

Note: K2 does not support files with filename lengths over 32 characters long. Copying out a file with a filename longer than 32 characters to a K2 video server will fail.

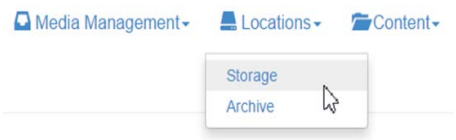
K2 Configuration

A K2 Unmanaged Storage Repository is typically configured as both a copy-in and copy-out location. Use the following procedure to configure a K2 Unmanaged Storage Repository:

1. Click System > Administration in the menu bar in the Kumulate web interface.



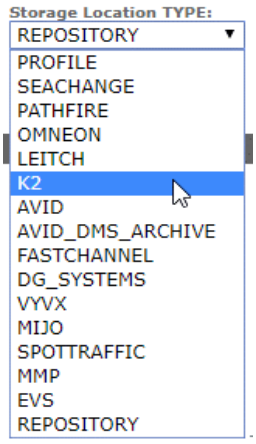
2. Select Locations > Storage.



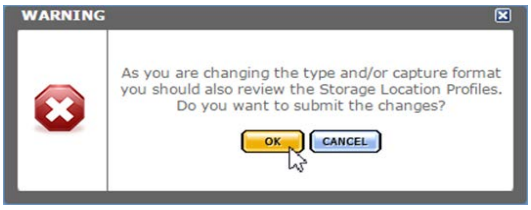
3. Create a new Unmanaged Storage Repository by clicking the Add New Location button.

4. Enter a name and description for the Unmanaged Storage Repository, then click OK.

5. From the Unmanaged Storage Repository Configuration page, set Video Server Type to *K2*.



6. Click OK to continue. A warning will appear asking if you want to submit the change to the Unmanaged Storage Repository. Click OK to continue. You will be returned to the Connection tab.



7. Set the following minimum parameters (see *K2 Parameters* for the complete list of K2 Unmanaged Storage Repository configuration parameters).

Parameter	Description
API HostName	The hostname or IP address of the video server. This address is used by the API.
Directory	The location from where Kumulate requests to copy-in clips from the K2 server. The root directory dictates the type of wrapper the K2 server will apply to the transferred clips. Only GXF, MXF, and MOV wrappers are supported.
HostName, Password, Port, User	Connection credentials for the FTP server used to transfer files.
Max Copy In	Sets the maximum number of concurrent transfers from the Unmanaged Storage Repository to Kumulate. The default value is 0 and allows an unlimited number of concurrent transfers. **Note:** It is recommended to change this to a non-zero value.
Max Copy Out	Sets the maximum number of concurrent transfers from Kumulate to the Unmanaged Storage Repository. The default value is 0 and allows an unlimited number of concurrent transfers. **Note:** It is recommended to change this to a non-zero value.

Parameter	Description
Monitoring	K2 Unmanaged Storage Repositories are generally used to both copy-in and copy-out media. Monitoring should be kept ON unless the Unmanaged Storage Repository will only be used for copy-out.
Naming Schema	Sets whether Virtual Objects are named using a Virtual Object ID or using a UMID. **Note:** Rendition metadata discriminators cannot be used when Naming Schema is set to Virtual Object ID. See *Fast Initialization & Delete Content From Archive* for more information.
Remote Dir	The server directory monitored by Kumulate. This directory must correspond to the directory where the K2 server stores its clips.

K2 Parameters

The following parameters are used by K2 Unmanaged Storage Repositories.

Caution: Do not modify any parameter that does not appear in this list. Modifying an unlisted parameter may affect Kumulate's operations.

- API HostName

  The hostname or IP address of the video server used by the API.

- Checksum Type and Checksum Validation

  Rendition checksums are calculated to ensure that Rendition data is not corrupted.

  When a Rendition is copied to the location, its checksum is calculated using the algorithm specified by Checksum Type. The Rendition's checksum is added to the database if it does not already exist. The transfer will fail and an error will be generated if the Rendition's checksum exists in the database, but the two checksums do not match.

  An additional check is made after the Rendition has been fully copied to the location if After Write is selected for Checksum Validation. The transfer will fail if the checksum of the written Rendition does not match the checksum in the database.

- Delete Content From Archive

  This parameter sets whether a Virtual Object's archived Renditions are deleted when the physical Rendition on the Unmanaged Storage Repository changes.

  When a Rendition changes on an Unmanaged Storage Repository, the existing Rendition is deleted and replaced with the changed Rendition.

  Setting Delete Content From Archive to *YES* will also delete all Renditions located on Managed Storage Repositories when the physical Rendition on the Unmanaged Storage Repository changes.

  If the Delete Virtual Object With No Renditions parameter in the Virtual Object Manager module is set to ON, and the Virtual Object does not contain any other Unmanaged Storage Repository Renditions in addition to the one that has changed, the Virtual Object will be deleted and a new Virtual Object will be created for the changed Rendition.

  The default setting is NO.

Note: Delete Content From Archive has no effect when discriminators are used by the location

- Delete From Video Server

  Allows the deletion of files from the Unmanaged Storage Repository after they have been copied in to Kumulate.

- Delete Timeout

  The amount of time to wait for a file to be physically deleted from the video server.

  The operation fails if the timeout is reached and the file has not been deleted. The file will no longer be visible, but it may remain in an unusable state on the video server.

- Directory

  The location from where Kumulate requests to copy-in clips from the K2 server. The root directory dictates the type of wrapper the K2 server will apply to the transferred clips. Only GXF, MXF, and MOV wrappers are supported. The types of file that will be copied in are found in a directory corresponding to their wrapper type as follows:

File Type	Directory
GXF	/GXF/default/
MXF	/MXF/default/
MOV	/MOV/default/

Note: The physical files are typically found in the default subdirectory, but may be located in other subdirectories.

- HostName, Password, Port, User

  These parameters are the connection credentials for the FTP server used to transfer files.

- Use Passive Mode (if server supports it)

  Set this parameter to *YES* to use passive FTP connections. Passive FTP connections allow FTP to be used with firewalls with port forwarding.

  It is set to NO by default.

Note: The FTP connection will default back to active FTP if the passive FTP connection fails.

- File info command

  The FTP command to use to determine whether a file is on an FTP server.

Note: Do not change the value from the default unless the FTP command results in errors.

  This parameter is used with the Rendition detection pattern parameter.

- Ignore List

  Kumulate will not copy-in any files that appear in this list. Ignore List can be a list of filenames or a regular expression.

- ML Direct Transfer

  Transfer files directly from the video server to the tape library without creating a Rendition in the cache.

  This should only be set to YES if the Rendition does not need to be transcoded, or if a proxy does not need to be created.

- Max Copy In

  This setting only applies when the Unmanaged Storage Repository is configured for copying in files and sets the maximum number of concurrent transfers from the Unmanaged Storage Repository to Kumulate.

  The value can be between 0 and 127, where 0 means that there is no limit on the number of transfers.

  The default value is 0.

Note: It is **strongly recommended** to change this to a non-zero value.

- Max Copy Out

  This setting only applies when the Unmanaged Storage Repository is configured for copying out files and sets the maximum number of concurrent transfers from Kumulate to the Unmanaged Storage Repository.

  The value can be between 0 and 127, where 0 means that there is no limit on the number of transfers.

  The default value is 0.

Note: It is **strongly recommended** to change this to a non-zero value.

- Monitoring

  Specifies whether Kumulate is monitoring the location to discover and copy-in new Renditions.

  OMNEON Unmanaged Storage Repositories are generally used to both copy-in and copy-out media. Therefore, Monitoring is set to *ON*. It should only be set to *OFF* if the Unmanaged Storage Repository will not be used to discover and copy-in Renditions.

- Monitoring Interval (Seconds)

  The amount of time the system waits for the monitoring thread. The thread is restarted when this interval passes.

  This value should be higher if there are several monitored Unmanaged Storage Repositories in the Kumulate system.

Note: This parameter should be set with the help of the installation team.

- Naming Schema

  Determines how the Virtual Object ID is set upon discovery.

  Setting this to *Virtual Object ID* sets the Virtual Object ID to the root filename of the discovered Rendition. In this case, the Virtual Object Name, Virtual Object ID, and Original Name of the Virtual Object will be identical.

  Setting this to *UMID* sets the Virtual Object ID to a unique UMID. This ensures unique names for all Virtual Objects. The Virtual Object Name will still be the root filename of the discovered Rendition.

Note: Neither Rendition nor Virtual Object discriminators can be used when Naming Schema is set to Virtual Object ID.

- Overwrite Video Server Rendition

  Transfers from Kumulate to the Unmanaged Storage Repository will fail if the file already exists on the Unmanaged Storage Repository when this is set to NOT ALLOWED.

  The transfer will overwrite the existing file on the Unmanaged Storage Repository when this is set to ALLOWED.

- Polling Begin Time, Polling End Time, Polling Interval(sec)

  Controls how Kumulate polls the Unmanaged Storage Repository.

  Polling Begin Time and Polling End Time instruct Kumulate to poll the Unmanaged Storage Repository only between Polling Begin Time and Polling End Time. These parameters are based on the 24-hour clock, and can only be set to hours.

  Polling Interval(sec) instructs Kumulate to poll the Unmanaged Storage Repository every specified number of seconds. The interval begins when the discovery operation ends. The minimum value for this interval is 10s. Setting this parameter to *0* effectively sets it to 10s.

- Remote Dir

  The directory on the K2 server where unwrapped clips are kept. Kumulate queries the K2 server through the API for clips in this directory.

- Restore Using

  Restore Using specifies how to name the physical file when a Rendition is transferred to this Unmanaged Storage Repository. There are four options for Restore Using:

Virtual Object ID	The file is named using the transferred Rendition's Virtual Object's ID.
Name	The file is named using the transferred Rendition's Virtual Object's Name.
Original Name	The file is named using the transferred Rendition's Virtual Object's Original Name. Original Name contains the name of the Virtual Object when its source Rendition was discovered.
Preserve Filenames	The filename is not modified after transfer. The Restore Extension parameter will not be applicable when this option is used. Restore Extension will be hidden if the Unmanaged Storage Repository configuration is saved after setting this option.

Note: If the Virtual Object source location used Virtual Object ID as the Naming Schema, the Virtual Object ID, Virtual Object Name, and Original Name may be identical.

- Transcode Using

  Some files may contain information at the beginning and end of the file that is not necessarily meant to be transcoded. This happens most often with commercial spots which can have agency information, tags, and blacks appended to the begging and the end of the advertisement. Selecting *SOM* and *EOM* prevents these

extraneous bits from being transcoded. Additional configuration is needed to use EOM and SOM.

The entire file is transcoded when set to *SOF and EOF*.

Only a part of the file is transcoded when set to *SOM and EOM*.

See *Start of Message Parameter* for more information.

- Transfer timeout

  The transfer fails if it has not completed successfully within this amount of time. This value should only be changed if transfers routinely time out.

- Transfer Mode

  Always set to *Direct FTP*.

- Video Format Type and Video Bitrate

  The video format and bitrate information is not returned by the K2 API, but is extracted using HQS. Video Format Type and Video Bitrate are used as defaults if HQS is not installed.

  Video Format Type is the video chroma subsampling. It can be 411, 420, 422, or 444.

Leitch Unmanaged Storage Repositories

A Leitch Unmanaged Storage Repository consists of a Leitch video server connected to Kumulate. Communication between the video server and Kumulate is done through API calls using libraries installed on the Kumulate server.

Media transfers between Kumulate and the video server are done through the video server's FTP service.

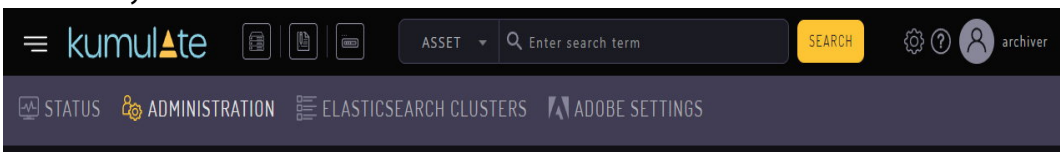
Leitch File and Folder Formats

All files on a Leitch video server are in a proprietary format. The Leitch server wraps the file into either LXF, GXF, MXF, or MOV format, depending on the format Kumulate has requested, and makes the files available through the FTP server.

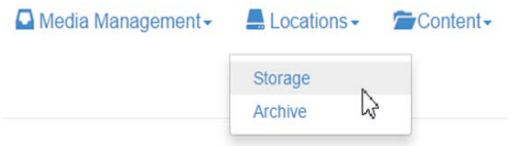
Leitch Configuration

A Leitch Unmanaged Storage Repository consists of a Leitch video server connected to Kumulate. Files are copied in and copied out through the video server's FTP service. Leitch Unmanaged Storage Repositories are typically configured as both a copy-in and a copy-out location. Use the following procedure to configure a Leitch Unmanaged Storage Repository:

1. Click System > Administration in the menu bar in the Kumulate web interface.

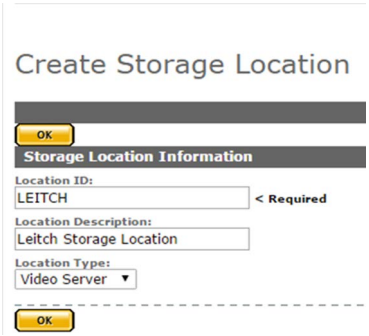


2. Select Locations > Storage.

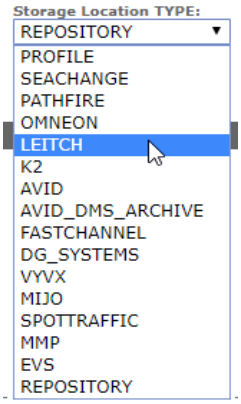


3. Create a new Unmanaged Storage Repository by clicking the Add New Location button.

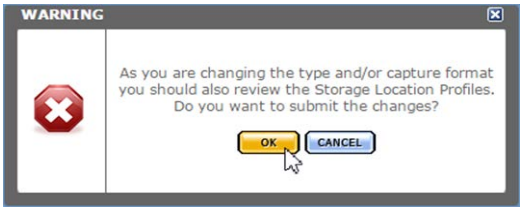
4. Enter a name and description for the Unmanaged Storage Repository, then click OK.



5. From the Unmanaged Storage Repository Configuration page, set Video Server Type to *LEITCH*.



6. Click OK to continue. A warning will appear asking if you want to submit the change to the Unmanaged Storage Repository. Click OK to continue. You will be returned to the Connection tab.



7. Set the following minimum parameters (see *Leitch Parameters* for the complete list of K2 Unmanaged Storage Repository configuration parameters).

Parameter	Description
API HostName	The hostname or IP address of the video server. This address is used by the API.
HostName, Password, Port, User	Connection credentials for the FTP server used to transfer files. **Note:** The Leitch FTP service uses port 2098.
Max Copy In	Sets the maximum number of concurrent transfers from the Unmanaged Storage Repository to Kumulate. The default value is 0 and allows an unlimited number of concurrent transfers. **Note:** It is recommended to change this to a non-zero value.
Max Copy Out	Sets the maximum number of concurrent transfers from Kumulate to the Unmanaged Storage Repository. The default value is 0 and allows an unlimited number of concurrent transfers. **Note:** It is recommended to change this to a non-zero value.
Marking Key	Used to mark Renditions on the video server once they are discovered. Leitch Unmanaged Storage Repositories should use a short key. If this value is left blank, the key value set in the CMI module configuration is used.

Parameter	Description
Monitoring	K2 Unmanaged Storage Repositories are generally used to both copy-in and copy-out media. Monitoring should be kept *ON* unless the Unmanaged Storage Repository will only be used for copy-out.
Monitored Extension	Wrap discovered Renditions in the format specified by this extension. Only one extension is permitted. Allowed extensions are MOV, MXF, GXF, and LXF. Defaults to LXF if left blank.
Naming Schema	Sets whether Virtual Objects are named using a Virtual Object ID or using a UMID. **Note:** Rendition metadata discriminators cannot be used when Naming Schema is set to *Virtual Object ID*. See *Fast Initialization & Delete Content From Archive* for more information.

Leitch Parameters

The following parameters are used by Leitch Unmanaged Storage Repositories.

Caution: Do not modify any parameter that does not appear in this list. Modifying an unlisted parameter may affect Kumulate's operations.

- API HostName

  The hostname or IP address of the video server. This address is used by the API.

- Allow Rename

  Allows the renaming of a Rendition copied out to the video server. Only the physical file on the video server is renamed; the Rendition name on Kumulate does not change.

  This parameter only applies to MMP requests and does not apply to requests made through the Kumulate UI.

- Checksum Type and Checksum Validation

  Rendition checksums are calculated to ensure that Rendition data is not corrupted.

  When a Rendition is copied to the location, its checksum is calculated using the algorithm specified by Checksum Type. The Rendition's checksum is added to the database if it does not already exist. The transfer will fail and an error will be gener-

ated if the Rendition's checksum exists in the database, but the two checksums do not match.

An additional check is made after the Rendition has been fully copied to the location if After Write is selected for Checksum Validation. The transfer will fail if the checksum of the written Rendition does not match the checksum in the database.

- DefaultVideoBitrate

  This bitrate is used if the API does not report the bitrate of a discovered Rendition. This value is only used when the VIDEO_BIT_RATE metadata is not set. See *VIDEO_BIT_RATE Metadata Mapping* for more information.

- Delete Content From Archive

  This parameter sets whether a Virtual Object's archived Renditions are deleted when the physical Rendition on the Unmanaged Storage Repository changes.

  When a Rendition changes on an Unmanaged Storage Repository, the existing Rendition is deleted and replaced with the changed Rendition.

  Setting Delete Content From Archive to *YES* will also delete all Renditions located on Managed Storage Repositories when the physical Rendition on the Unmanaged Storage Repository changes.

  If the Delete Virtual Object With No Renditions parameter in the Virtual Object Manager module is set to *ON*, and the Virtual Object does not contain any other Unmanaged Storage Repository Renditions in addition to the one that has changed, the Virtual Object will be deleted and a new Virtual Object will be created for the changed Rendition.

  The default setting is NO.

Note: Delete Content From Archive has no effect when discriminators are used by the location

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- Delete From Video Server

  Allows the deletion of files from the Unmanaged Storage Repository after they have been copied in to Kumulate.

- Delete Timeout

  The amount of time to wait for a file to be physically deleted from the video server.

  The operation fails if the timeout is reached and the file has not been deleted. The file will no longer be visible, but it may remain in an unusable state on the video server.

- HostName, Password, Port, User

  Connection credentials for the FTP server used to transfer files.

Note: The Leitch FTP service uses port 2098.

- Use Passive Mode (if server supports it)

  Set this parameter to *YES* to use passive FTP connections. Passive FTP connections allow FTP to be used with firewalls with port forwarding.

  It is set to NO by default.

Note: The FTP connection will default back to active FTP if the passive FTP connection fails.

- File info command

  The FTP command to use to determine whether a file is on an FTP server. This parameter is used with the Rendition detection pattern parameter.

Note: Do not change the value from the default unless the FTP command results in errors.

- Ignore List

  Kumulate will not copy-in any files that appear in this list. Ignore List can be a list of filenames or a regular expression.

- Use file name length validator for transfers

  Leitch video servers only support a maximum file name length of 32 characters. Transferring a file with a filename longer than 32 characters to a Leitch video server will fail. Setting this parameter to *YES* verifies that the filename length of a file being copied out to the video server does not exceed this maximum. Kumulate will not attempt to copy out a file if its filename exceeds 32 characters; in this case Kumulate will generate a warning.

  If this parameter is set to *NO*, Kumulate will attempt to copy out the file regardless of the length of its filename.

- Marking Key

  The Marking Key is used to mark Renditions on the video server after they are discovered. This prevents the same Rendition from being discovered multiple times as Kumulate will ignore Renditions that have already been marked with its key.

  The marking key is inserted into the file's wrapper. On Leitch video servers, marking keys must be at most 32 characters long. The default marking key should be changed to a shorter key that identified the Kumulate system. Each Kumulate system must have a unique marking key.

  If the Marking Key parameter is left blank, the Processed Keyword parameter from the CMI Module Configuration is used.

- Max Copy In

  This setting only applies when the Unmanaged Storage Repository is configured for copying in files and sets the maximum number of concurrent transfers from the Unmanaged Storage Repository to Kumulate.

  The value can be between 0 and 127, where 0 means that there is no limit on the number of transfers.

  The default value is 0.

Note: It is **strongly recommended** to change this to a non-zero value.

- Max Copy Out

  This setting only applies when the Unmanaged Storage Repository is configured for copying out files and sets the maximum number of concurrent transfers from Kumulate to the Unmanaged Storage Repository.

  The value can be between 0 and 127, where 0 means that there is no limit on the number of transfers.

  The default value is 0.

Note: It is **strongly recommended** to change this to a non-zero value.

- Monitoring

  Specifies whether Kumulate is monitoring the location to discover and copy-in new Renditions.

  LEITCH Unmanaged Storage Repositories are generally used to both copy-in and copy-out media. Therefore, Monitoring is set to *ON*. It should only be set to *OFF* if the Unmanaged Storage Repository will not be used to discover and copy-in Renditions.

- Monitoring Interval (Seconds)

  The amount of time the system waits for the monitoring thread. The thread is restarted when this interval passes.

  This value should be higher if there are several monitored Unmanaged Storage Repositories in the Kumulate system.

Note: This parameter should be set with the help of the installation team.

- Monitored Extension

  Specifies the wrapper format returned by the video server. The video server will return Renditions in this wrapper format, if possible. The transfer will fail if the Renditions cannot be wrapped in this format.

  Supported wrapper formats are LXF, MXF, GXF, and MOV and defaults to LXF if it is left blank.

- Naming Schema

  Determines how the Virtual Object ID is set upon discovery.

  Setting this to *Virtual Object ID* sets the Virtual Object ID to the root filename of the discovered Rendition. In this case, the Virtual Object Name, Virtual Object ID, and Original Name of the Virtual Object will be identical.

  Setting this to *UMID* sets the Virtual Object ID to a unique UMID. This ensures unique names for all Virtual Objects. The Virtual Object Name will still be the root filename of the discovered Rendition.

Note: Neither Rendition nor Virtual Object discriminators can be used when Naming Schema is set to Virtual Object ID.

- Overwrite Video Server Rendition

  Transfers from Kumulate to the Unmanaged Storage Repository will fail if the file already exists on the Unmanaged Storage Repository when this is set to NOT ALLOWED.

  The transfer will overwrite the existing file on the Unmanaged Storage Repository when this is set to ALLOWED.

- Polling Begin Time, Polling End Time, Polling Interval(sec)

  Controls how Kumulate polls the Unmanaged Storage Repository.

  Polling Begin Time and Polling End Time instruct Kumulate to poll the Unmanaged Storage Repository only between Polling Begin Time and Polling End Time. These parameters are based on the 24-hour clock, and can only be set to hours.

  Polling Interval(sec) instructs Kumulate to poll the Unmanaged Storage Repository every specified number of seconds. The interval begins when the discovery operation ends. The minimum value for this interval is 10s. Setting this parameter to *0* effectively sets it to 10s.

- Restore Using

  Restore Using specifies how to name the physical file when a Rendition is transferred to this Unmanaged Storage Repository. There are four options for Restore Using:

Virtual Object ID	The file is named using the transferred Rendition's Virtual Object's ID.

Name	The file is named using the transferred Rendition's Virtual Object's Name.
Original Name	The file is named using the transferred Rendition's Virtual Object's Original Name. Original Name contains the name of the Virtual Object when its source Rendition was discovered.
Preserve Filenames	The filename is not modified after transfer. The Restore Extension parameter will not be applicable when this option is used. Restore Extension will be hidden if the Unmanaged Storage Repository configuration is saved after setting this option.

Note: If the Virtual Object source location used Virtual Object ID as the Naming Schema, the Virtual Object ID, Virtual Object Name, and Original Name may be identical.

- Transcode Using

  Some files may contain information at the beginning and end of the file that is not necessarily meant to be transcoded. This happens most often with commercial spots which can have agency information, tags, and blacks appended to the begging and the end of the advertisement. Selecting *SOM* and *EOM* prevents these extraneous bits from being transcoded. Additional configuration is needed to use EOM and SOM.

  The entire file is transcoded when set to *SOF and EOF*.

  Only a part of the file is transcoded when set to *SOM and EOM*.

  See *Start of Message Parameter* for more information.

- Transfer timeout

  The transfer fails if it has not completed successfully within this amount of time. This value should only be changed if transfers routinely time out.

- Transfer Mode

  Always set to *Direct FTP*.

VIDEO_BIT_RATE Metadata Mapping

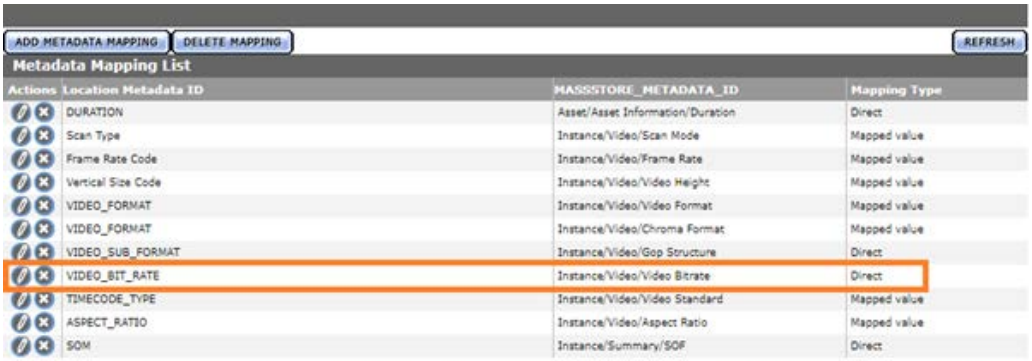
The Leitch DefaultVideoBitrate parameter is only used when the Unmanaged Storage Repository's VIDEO_BIT_RATE metadata is not mapped. However, it is preferable to add the VIDEO_BIT_RATE metadata than to use the DefaultVideoBitrate parameter.

Use the following procedure to verify that the VIDEO_BIT_RATE metadata is present:

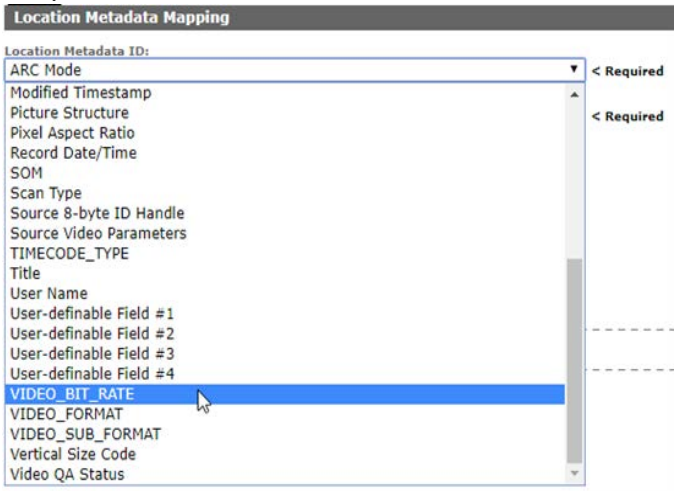
1. Click the Location Metadata Mapping button at the top of the Unmanaged Storage Repository Configuration page to open the metadata mappings for the Unmanaged Storage Repository.

2. Click Add Mapping if there is no metadata mapping already in the location.

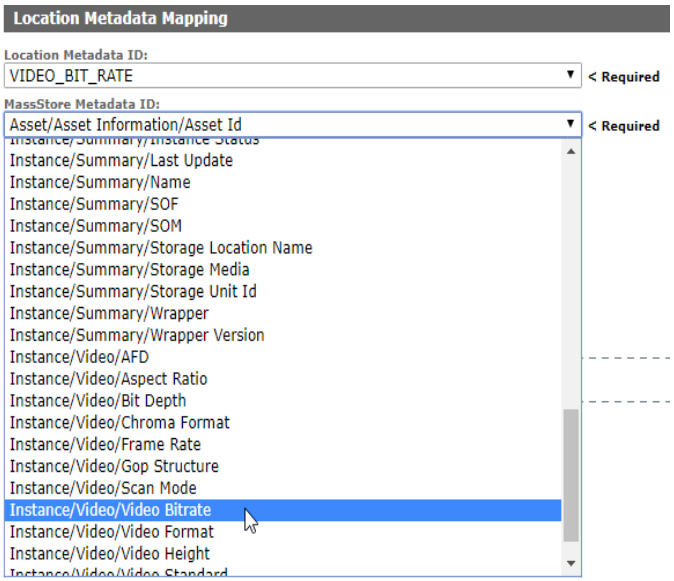
3. Verify that VIDEO_BIT_RATE is present in the Metadata Mapping List and is mapped directly to *Rendition/Video/Video Bitrate*.



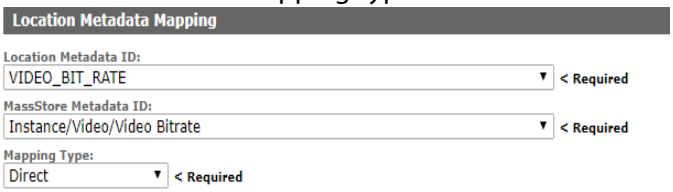
4. If VIDEO_BIT_RATE is not in the list of mapped metadata, add it by clicking the ADD METADATA MAPPING button and selecting it from the Location Metadata Mapping pull down menu.



5. Map it to *Rendition/Video/Video Bitrate* from the Kumulate Metadata ID pull down menu.



6. Ensure that the Mapping Type is set to *Direct* and click OK to save.



Omneon (Harmonic) Unmanaged Storage Repositories

Note: Omneon Spectrum and Media Deck are now known as Harmonic Spectrum Family. However, the configuration name for this type of Unmanaged Storage Repository remains Omneon, and the video server type remains OMNEON.

An Omneon Unmanaged Storage Repository consists of a Harmonic Spectrum video server, or an Omneon Spectrum or Media Deck video server, connected to Kumulate. Communication between the video server and Kumulate is achieved through API calls using libraries installed on the Kumulate server. Media transfers between Kumulate and the video server are completed through an FTP service running on the video server. Kumulate receives a register of all the media on the video server.

Omneon (Harmonic) File and Folder Formats

Omneon Unmanaged Storage Repositories can contain MXF, self-contained MOV, and reference MOV files. A reference MOV file is essentially a list of MOV files stored in a subdirectory.

Kumulate polls the video server through the API to discover new media files. The video server provides information about new files and a list of the reference MOV files in any reference MOV files that may be available for transfer.

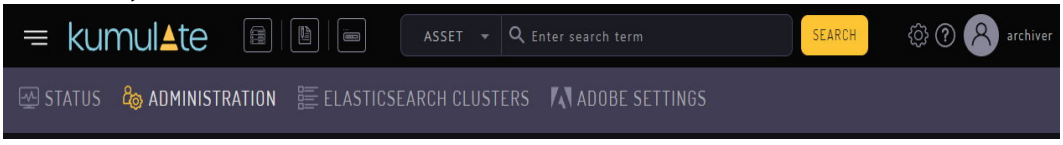
Files that are transferred from Kumulate to the video server are placed on the FTP server. Files are generally located under the clip.dir directory. If the media files are reference MOV files, the media files referenced by the MOV files are located in the clip.dir/media.dir directory.

Omneon Configuration

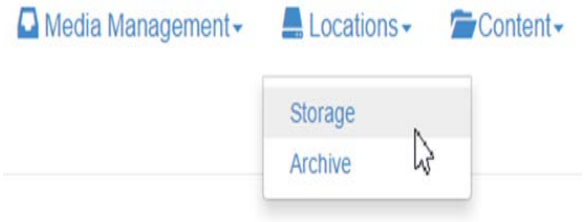
An Omneon Unmanaged Storage Repository is typically configured as both a copy-in and a copy-out location. Each Omneon Unmanaged Storage Repository is configured to discover MXF, self-contained MOV, or reference MOV files.

Use the following procedure to configure an Omneon Unmanaged Storage Repository:

1. Click System > Administration in the menu bar in the Kumulate web interface.

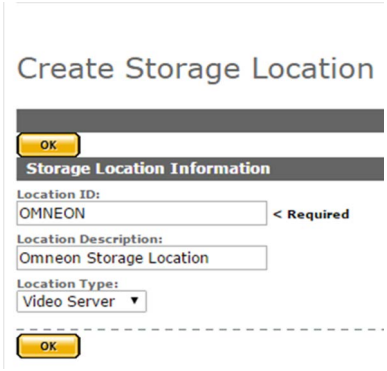


2. Select Locations > Storage.

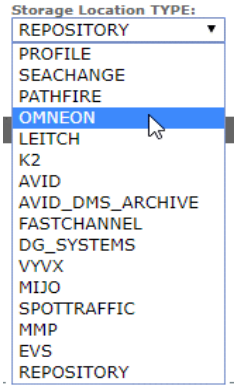


3. Create a new Unmanaged Storage Repository by clicking the Add New Location button.

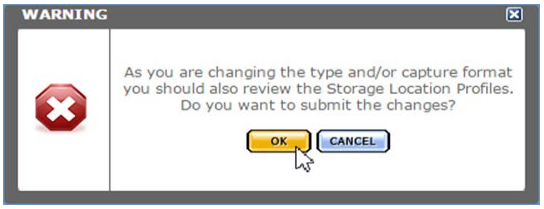
4. Enter a name and description for the Unmanaged Storage Repository, then click OK.



5. From the Unmanaged Storage Repository Configuration page, set Video Server Type to *K2*.



6. Click OK to continue. A warning will appear asking if you want to submit the change to the Unmanaged Storage Repository. Click OK to continue. You will be returned to the Connection tab.



7. Set the following minimum parameters (see *Omneon Parameters* for the complete list of Omneon Unmanaged Storage Repository configuration parameters).

Parameter	Description
API HostName	The hostname or IP address of the video server. This address is used by the API.
Clip Directory	The media file directory. This directory is usually clip.dir.
Container Extension List	The list of file extensions corresponding to the types of media files this Unmanaged Storage Repository handles. Valid values are MOV and MXF. If both MOV and MXF files are handled, MOV and MXF must be separated by a comma.
HostName, Password, Port, User	Connection credentials for the FTP server used to transfer files.
Max Copy In	Sets the maximum number of concurrent transfers from the Unmanaged Storage Repository to Kumulate. The default value is 0 and allows an unlimited number of concurrent transfers. **Note:** It is recommended to change this to a non-zero value.
Max Copy Out	Sets the maximum number of concurrent transfers from Kumulate to the Unmanaged Storage Repository. The default value is 0 and allows an unlimited number of concurrent transfers. **Note:** It is recommended to change this to a non-zero value.
Media Directory Version	Always set this to *4.0 or higher*.

Parameter	Description
Media Directory	The directory used for media files referenced by reference MOV files. The directory is usually clip.dir\media.dir.
Monitoring	Omneon Unmanaged Storage Repositories are generally used to both copy-in and copy-out media. Monitoring should be kept *ON* unless the Unmanaged Storage Repository will only be used for copy-out.
Naming Schema	Sets whether Virtual Objects are named using Virtual Object ID or using UMID. **Note:** Rendition metadata discriminators cannot be used when Naming Schema is set to Virtual Object ID. See *Fast Initialization & Delete Content From Archive* for more information.
Player Version	Always set this to *4.6 or higher*.

Omneon Parameters

The following parameters are used by Omneon Unmanaged Storage Repositories.

Caution: Do not modify any parameter that does not appear in this list. Modifying an unlisted parameter may affect Kumulate's operations.

- API Hostname

  The hostname or IP address of the video server used by the API.

- Allow Rename

  Allows the renaming of a Rendition copied out to the video server. Only the physical file on the video server is renamed. The Rendition name on Kumulate does not change.

  This parameter only applies to MMP requests and does not apply to requests made through the Kumulate UI.

- Clip Directory

  The directory used for the clip files.

  Files are transferred between the video server and Kumulate using the video server's internal FTP server. The MXF and MOV files, including reference MOV files,

are usually kept in the clip.dir directory. This directory may be different in certain configurations.

The files referenced by reference MOV files are stored in a subdirectory. The Media Directory parameter must point to this directory.

- Checksum Type and Checksum Validation

  Rendition checksums are calculated to ensure that Rendition data is not corrupted.

  When a Rendition is copied to the location, its checksum is calculated using the algorithm specified by Checksum Type. The Rendition's checksum is added to the database if it does not already exist. The transfer will fail and an error will be generated if the Rendition's checksum exists in the database, but the two checksums do not match.

  An additional check is made after the Rendition has been fully copied to the location if After Write is selected for Checksum Validation. The transfer will fail if the checksum of the written Rendition does not match the checksum in the database.

- Container Extension List

  The list of file extensions corresponding to the types of media files this Unmanaged Storage Repository handles. Valid values are MOV and MXF. If both MOV and MXF files are handled, MOV and MXF must be separated by a comma.

  MOV can refer to either self-contained or reference MOV files.

Note: If two files have the same name except for their extensions, only one file will be discovered. For example, if Rendition.mxf and Rendition.mov exist on the video server, only one of those files will be discovered.

- Delete Content From Archive

  This parameter sets whether a Virtual Object's archived Renditions are deleted when the physical Rendition on the Unmanaged Storage Repository changes.

  When a Rendition changes on an Unmanaged Storage Repository, the existing Rendition is deleted and replaced with the changed Rendition.

  Setting the Delete Content From Archive parameter to *YES* will also delete all Renditions located on Managed Storage Repositories when the physical Rendition on the Unmanaged Storage Repository changes.

  If the Delete Virtual Object With No Renditions parameter in the Virtual Object Manager module is set to *ON*, and the Virtual Object does not contain any other Unmanaged Storage Repository Renditions in addition to the one that has changed, the Virtual Object will be deleted and a new Virtual Object will be created for the changed Rendition.

  The default setting is NO.

Note: Delete Content From Archive has no effect when discriminators are used by the location

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- Delete From Video Server

  Allows the deletion of files from the Unmanaged Storage Repository after they have been copied in to Kumulate.

- Delete Timeout

  The amount of time to wait for a file to be physically deleted from the video server.

  The operation fails if the timeout is reached and the file has not been deleted. The file will no longer be visible, but it may remain in an unusable state on the video server.

- HostName, Password, Port, User

  The connection credentials for the FTP server used to transfer files.

- Use Passive Mode (if server supports it)

  Set this parameter to *YES* to use passive FTP connections. Passive FTP connections allow FTP to be used with firewalls with port forwarding.

  It is set to NO by default.

Note: The FTP connection will default back to active FTP if the passive FTP connection fails.

- File info command

  The FTP command to use to determine whether a file is on an FTP server.

Note: Do not change the value from the default unless the FTP command results in errors.

  This parameter is used with the Rendition detection pattern parameter.

- Ignore extra notify open

  Indicates whether to ignore extra OPEN messages sent by the video server to Kumulate.

  The extra OPEN message can cause Kumulate to fail to add newly-discovered Renditions to its database.

  This may not occur with all versions of the video server. The value of this parameter should only be changed to YES if discovery errors occur.

- Ignore List

  Kumulate will not copy-in any files that appear in this list. Ignore List can be a list of filenames or a regular expression.

- Max Copy In

  This setting only applies when the Unmanaged Storage Repository is configured for copying in files and sets the maximum number of concurrent transfers from the Unmanaged Storage Repository to Kumulate.

  The value can be between 0 and 127, where 0 means that there is no limit on the number of transfers.

  The default value is 0.

Note: It is **strongly recommended** to change this to a non-zero value.

- Max Copy Out

  This setting only applies when the Unmanaged Storage Repository is configured for copying out files and sets the maximum number of concurrent transfers from Kumulate to the Unmanaged Storage Repository.

  The value can be between 0 and 127, where 0 means that there is no limit on the number of transfers.

  The default value is 0.

Note: It is **strongly recommended** to change this to a non-zero value.

- Media Directory Version

  This parameter was introduced to allow for differences between earlier and later releases of the Omneon software. No new installations use a release of the Omneon (now Harmonic) software that is lower than 4.0.

  Always set this to *4.0 or higher*.

- Media Directory

  The directory used for media files referenced by reference MOV files.

  Files are transferred between the video server and Kumulate using the video server's internal FTP server. The MXF and MOV files, including reference MOV files, are kept in the Clip Directory. The MOV files referenced by the reference MOV files are kept in a subdirectory of this directory; typically media.dir.

  The full path to the subdirectory must be specified for Media Directory. For example, if the reference MOV files are located in clip.dir, and the referenced files are located in media.dir, Media Directory must be set to *clip.dir/media.dir*.

- Monitoring

  Specifies whether Kumulate is monitoring the location to discover and copy-in new Renditions.

  OMNEON Unmanaged Storage Repositories are generally used to both copy-in and copy-out media. Therefore, Monitoring is set to *ON*. It should only be set to *OFF* if the Unmanaged Storage Repository will not be used to discover and copy-in Renditions.

- Naming Schema

  Determines how the Virtual Object ID is set upon discovery.

  Setting this parameter to *Virtual Object ID* sets the Virtual Object ID to the root filename of the discovered Rendition. In this case, the Virtual Object Name, Virtual Object ID, and Original Name of the Virtual Object will be identical.

  Setting this parameter to *UMID* sets the Virtual Object ID to a unique UMID. This ensures unique names for all Virtual Objects. The Virtual Object Name will still be the root filename of the discovered Rendition.

Note: Neither Rendition nor Virtual Object discriminators can be used when Naming Schema is set to Virtual Object ID.

- Overwrite Video Server Rendition

  Transfers from Kumulate to the Unmanaged Storage Repository will fail if the file already exists on the Unmanaged Storage Repository when this is set to NOT ALLOWED.

  The transfer will overwrite the existing file on the Unmanaged Storage Repository when this is set to ALLOWED.

- Player Version

  This parameter was introduced to allow for differences between earlier and later releases of the Omneon software. No new installations use a release of the Omneon (now Harmonic) software that is lower than 4.0.

  Always set this to *4.0 or higher*.

- Polling Begin Time, Polling End Time, Polling Interval(sec)

  Controls how Kumulate polls the Unmanaged Storage Repository.

  Polling Begin Time and Polling End Time instruct Kumulate to poll the Unmanaged Storage Repository only between Polling Begin Time and Polling End Time. These parameters are based on the 24-hour clock, and can only be set to hours.

  Polling Interval(sec) instructs Kumulate to poll the Unmanaged Storage Repository every specified number of seconds. The interval begins when the discovery operation ends. The minimum value for this interval is 10s. Setting this parameter to *0* effectively sets it to 10s.

- Process DAL0

  Ensures compatibility with files that contain DAL.0 metadata. Changing the value of Process DAL0 to YES only has an effect if GenerateDAL0 in the ALL Module Configuration has been set to YES.

- Restore Using

  Restore Using specifies how to name the physical file when a Rendition is transferred to this Unmanaged Storage Repository. There are four options for Restore Using:

Virtual Object ID	The file is named using the transferred Rendition's Virtual Object's ID.
Name	The file is named using the transferred Rendition's Virtual Object's Name.
Original Name	The file is named using the transferred Rendition's Virtual Object's Original Name. Original Name contains the name of the Virtual Object when its source Rendition was discovered.
Preserve Filenames	The filename is not modified after transfer. The Restore Extension parameter will not be applicable when this option is used. Restore Extension will be hidden if the Unmanaged Storage Repository configuration is saved after setting this option.

Note: If the Virtual Object source location used Virtual Object ID as the Naming Schema, the Virtual Object ID, Virtual Object Name, and Original Name may be identical.

- Transcode Using

  Some files may contain information at the beginning and end of the file that is not necessarily meant to be transcoded. This happens most often with commercial spots which can have agency information, tags, and blacks appended to the begging and the end of the advertisement. Selecting *SOM* and *EOM* prevents these extraneous bits from being transcoded. Additional configuration is needed to use EOM and SOM.

  The entire file is transcoded when set to *SOF and EOF*.

  Only a part of the file is transcoded when set to *SOM and EOM*.

  See *Start of Message Parameter* for more information.

- Transfer timeout

  The transfer fails if it has not completed successfully within this amount of time. This value should only be changed if transfers routinely time out.

- Transfer Mode

  Always set to *Direct FTP*.

Discriminators for Video Server Locations

The Virtual Object Discriminators and Rendition Discriminators under the Discriminators tab are used to differentiate between Renditions with the same name on the same video server.

Virtual Object Discriminators and Rendition Discriminators are metadata used to determine whether a Rendition that has changed is the same Rendition or a different Rendition than one that is already on the Unmanaged Storage Repository.

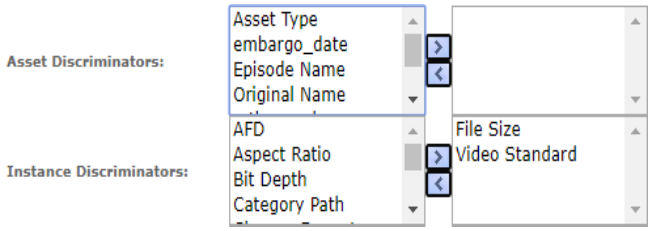
Note: Delete Content From Archive has no effect when discriminators are used.

When a Rendition has changed, the Rendition discriminator metadata values of the original and changed Renditions are compared. If any of the discriminator metadata values do not match, the original Rendition is deleted and a new Virtual Object is created for the changed Rendition.

The original Virtual Object will be deleted if the original Rendition is the only Rendition in its Virtual Object and Delete Virtual Objects with No Renditions is set to ON.

Discriminator metadata is selected from the left hand side list and moved to the right hand side using the arrow icon.

For example, to compare Renditions based on file size and video standard, select *File Size* and *Video Standard*.



When Kumulate detects that the physical Rendition on the Unmanaged Storage Repository has changed, it will compare the file size and video standard of the original Rendition to the changed Renditions. If either of the two metadata values do not match, then the current Rendition in Kumulate will be deleted and a new Virtual Object will be created for the Rendition on the physical location.

Note: Naming Schema must be set to *UMID*, and Extract Metadata must be set to *YES* when using discriminators. No Renditions will be discovered on the Unmanaged Storage Repository if discriminators are used but the Unmanaged Storage Repository's naming schema is not set to UMID.

Fast Initialization & Delete Content From Archive

The Fast Initialization and Delete Content From Archive parameters together determine what happens to archive Renditions when a Rendition with the same name as an existing Virtual Object is discovered on an Unmanaged Storage Repository.

The Delete Content From Archive determines whether a Virtual Object's archived Renditions are deleted when a new Rendition with the same name is discovered on an Unmanaged Storage Repository.

When turned on, Fast Initialization causes Kumulate to only perform an in-depth cataloging of the Renditions on an Unmanaged Storage Repository once; then subsequently only cataloging changes to the Renditions.

Delete Content From Archive Setting	Fast Initialization Setting	Result
No	No	Kumulate deletes the existing archived Renditions. The discovered Rendition is added to the Virtual Object. The existing Virtual Object is deleted if the Virtual Object Manager Delete Virtual Object With No Renditions parameter is set to *ON* and the Virtual Object has no other Renditions on Unmanaged Storage Repositories. A new Virtual Object is created, and the new Rendition is added to this Virtual Object. If the Naming Schema parameter is set to UMID, there may be more than one Virtual Object with the same name. In this case, Kumulate will generate an exception.

Delete Content From Archive Setting	Fast Initialization Setting	Result
Yes	No	Kumulate deletes all the Renditions in the existing Virtual Object, and creates a new Virtual Object for the newly-discovered Rendition. The Virtual Object will be deleted if the Virtual Object Manager Delete Virtual Object With No Renditions parameter is set to ON.
Yes	Yes	Kumulate will delete all Renditions in the existing Virtual Object. The existing Virtual Object will be deleted if the Virtual Object Manager Delete Virtual Object With No Renditions parameter is set to ON. A new Virtual Object will be created for the newly-discovered Rendition.
No	Yes	Kumulate will ignore the newly-discovered Rendition. No changes will be made to the existing Virtual Object.

Managed Storage Repositories

Data libraries and the cache are classified as Managed Storage Repositories. The cache is used as temporary storage, and storage for the low-resolution proxies. Data libraries are used for long-term storage.

In general, Managed Storage Repositories are connected to the Kumulate server and the DataMovers through fiber channels rather than through a network connection. A notable exception are StorageTek libraries using LibAttach. These are connected to Kumulate through a network connection.

- Cache Configuration
- Add A Tape Library
- Registering LibAttach for StorageTek/Oracle Network Libraries
- Configuring the Managed Storage Repository
- Formatting Tapes
- Defragmenting Tapes
- Adding Group Access to a Location
- Import LTFS Tapes
- Archive Search
- Recovering Content from Tapes

Cache Configuration

Every Kumulate system has exactly one cache. The cache is created by default and is used as a dedicated Managed Storage Repository connected to the Kumulate server and its DataMovers.

The physical cache location is generally connected to the DataMovers and the Kumulate server through fiber channels. The cache can also be connected to a network, and a UNC path can be used to ensure that a connection to it is always available. A UNC path also ensures that additional servers and workstations that are not directly connected to the cache can still access it.

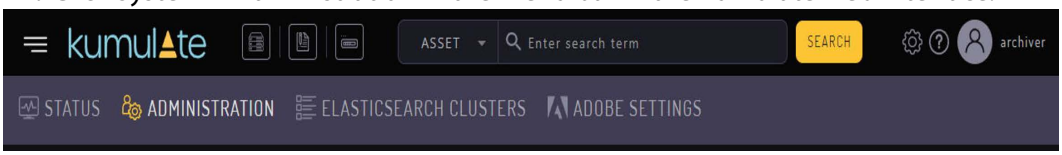
Four directories must be created on the physical cache:

Directory Name	Description
Media	Main cache directory. Any Rendition that is located on the cache, with the possible exception of proxy Renditions, will be located in this directory.
ProxyRoot	Dedicated directory for low-resolution proxies. Low-resolution proxies can be located in the main cache along with the other cache Renditions or they can be kept in a separate directory. Proxies located on a separate directory cannot be transferred to other locations. The path to the proxy Renditions is also used to configure Tomcat for proxy streaming.
Attachments	Attachment directory. Virtual Object attachments are stored in this directory including closed caption files and thumbnails.
TempAttachment	Temporary directory that is used as a temporary repository when Renditions and attachments are discovered or uploaded.

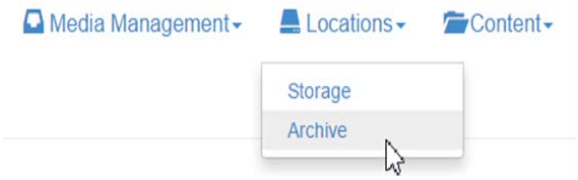
The cache information is entered into Kumulate from the Administration page during installation. The cache information can be viewed from the Administration pages.

Use the following procedure to configure the cache:

1. Click System > Administration in the menu bar in the Kumulate web interface.

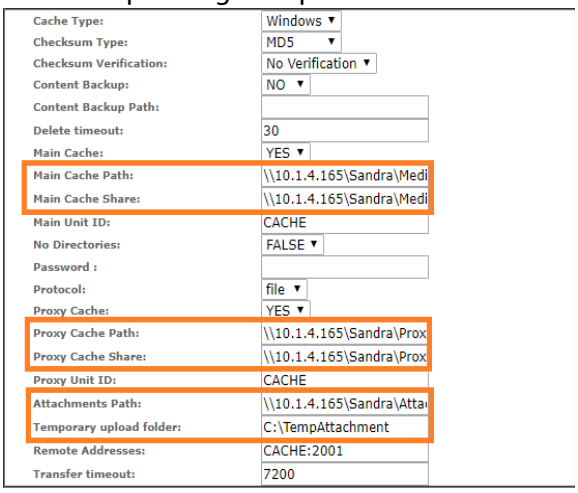


2. Select Locations > Archive.

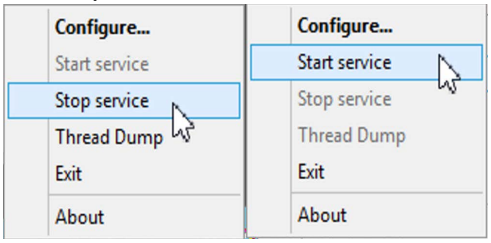


3. Click the pencil to open the Cache Location Manager and click Configure (pencil icon).

4. The Main Cache Path, Proxy Cache Path and, Attachment Path as well as their corresponding UNC paths should be filled in correctly.



5. Click OK to save the configuration if changes have been made.
6. Stop and restart the Tomcat service on the Kumulate server host.

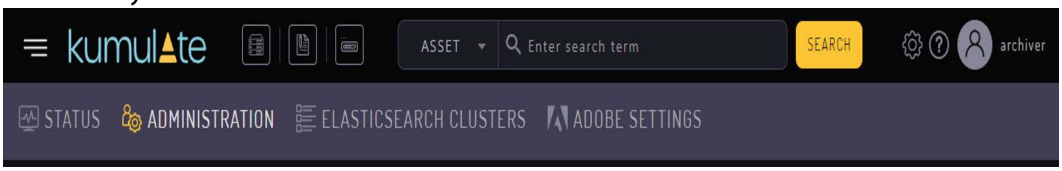


Add A Tape Library

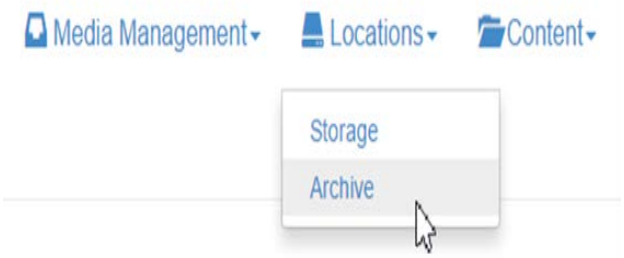
When creating a new Managed Storage Repository, Kumulate will automatically detect the libraries connected to it. Before creating a new Managed Storage Repository, make sure that the model of any library connected to Kumulate is known.

Use the following procedure to create a new Managed Storage Repository:

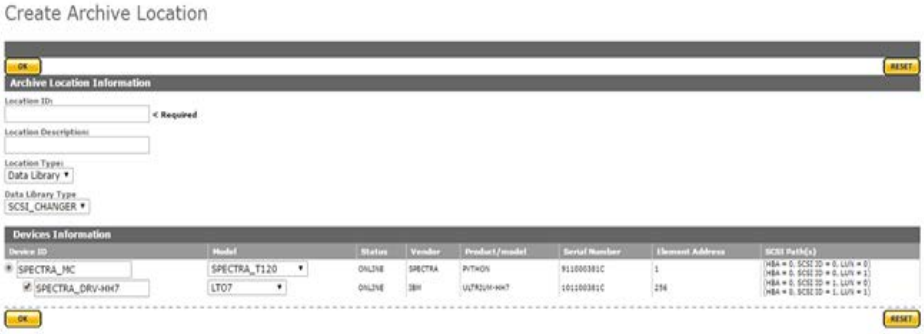
1. Click System > Administration in the menu bar in the Kumulate web interface.



2. Select Locations > Archive.



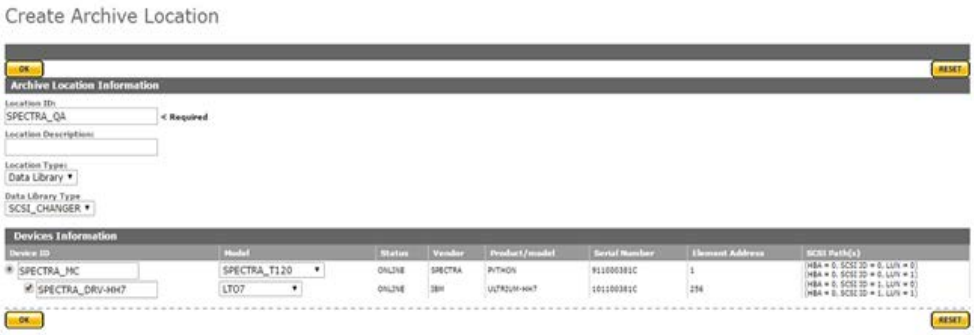
3. Click Add New Location to open the Create Managed Storage Repository page. Kumulate will detect the devices connected to it and list them under Device Information.



The SCSI_CHANGER data library type is selected by default. When SCSI_CHANGER is selected, Kumulate will automatically detect all the devices connected through the SCSI connection.

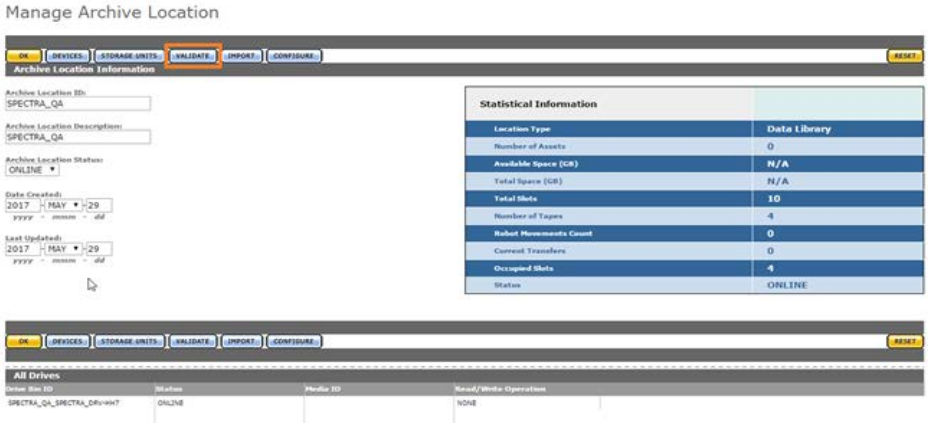
Selecting the *NETWORK* data library type will automatically discover all the StorageTek libraries connected to Kumulate through LibAttach. See *Registering LibAttach for StorageTek/Oracle Network Libraries* for more details on using the NETWORK library type.

4. Select the device to use with the location, provide the location with a name, then click OK to create the location.

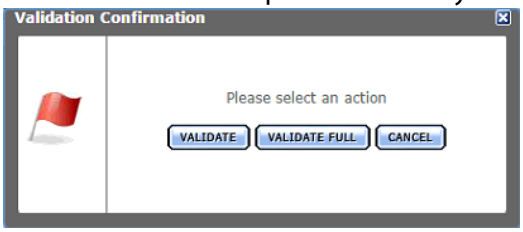


The location will open in the Manage Managed Storage Repository page. Before the location can be used, it must be validated to discover all the tapes in the library.

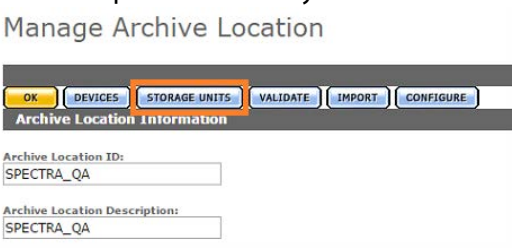
5. Click Validate in the Manage Managed Storage Repository menu.



A dialog box will appear asking which validate action to use. Click Validate Full to discover all the tapes in the library.

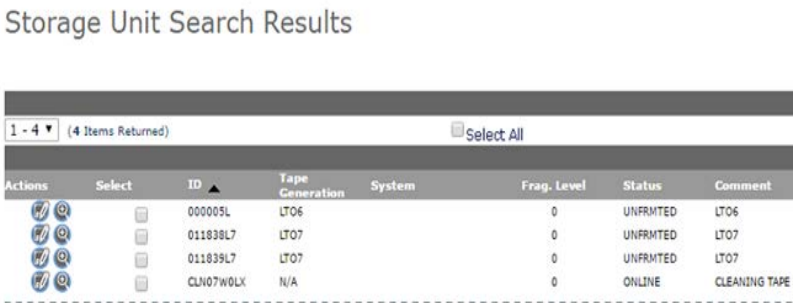


6. Click Storage Units in the Manage Managed Storage Repository to get a list of all the tapes in the library.



The tapes will be in the unformatted state when the library is first validated. Renditions cannot be copied to the library until at least one of its tapes is formatted.

Note: Do not format tapes that will be added manually to a media group. See *Media Groups* for details.

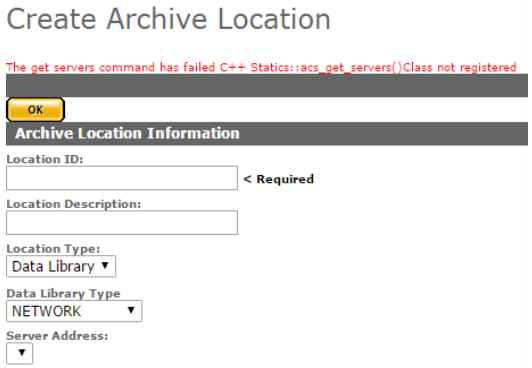


Registering LibAttach for StorageTek/Oracle Network Libraries

A StorageTek library connected to Kumulate via LibAttach must be configured as a NETWORK library type.

When the NETWORK library type is used, Kumulate will send commands to the ACSLS using the LibAttach API.

To use the NETWORK library type, the LibAttach API needs to be registered before Tomcat starts. An error will be generated if LibAttach is not registered as shown in the following figure:



Before registering the LibAttach API, ensure that LibAttach for 64bit architectures is installed on the Kumulate host. Use the following procedure to register the LibAttach API:

1. Shutdown Tomcat if it is running.
2. Open a command prompt and change directory to *C:\Masstech\bin\dll\x64*.
3. Execute the ComStoragetek.exe command as follows:

   ComStoragetek.exe /regserver
4. Restart Tomcat after the API is registered; the NETWORK library type can now be used.

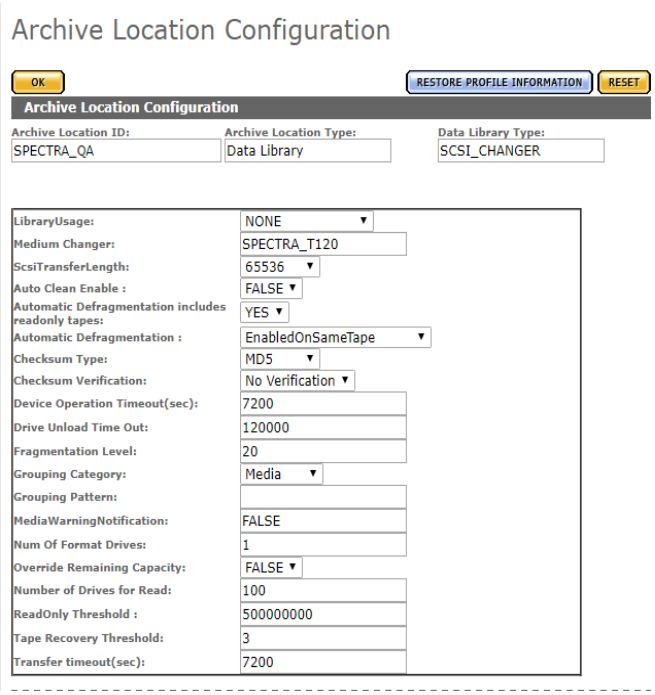
Configuring the Managed Storage Repository

Use the following procedure to configure the Managed Storage Repository:

1. Click Configure in the Manage Managed Storage Repository page.

2. Set all parameters that need changing from the defaults.

Caution: Take special care when setting parameters related to defragmenting.



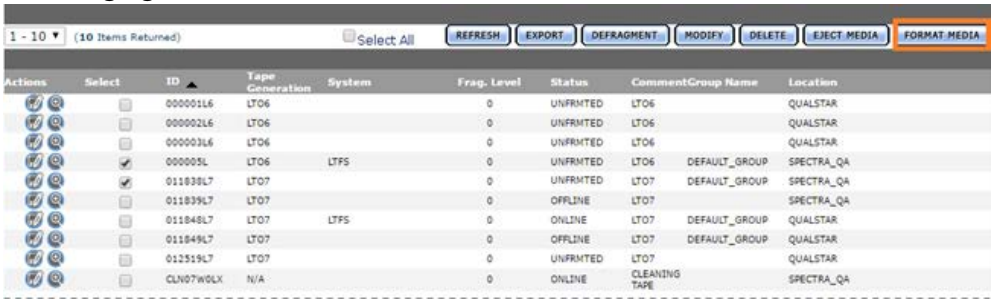
Parameter	Description
LibraryUsage	The name of the library being used by the Managed Storage Repository.
Medium Changer	The name of the medium changer being used by the Managed Storage Repository.
ScsiTransferLength	The maximum length for transfers across the SCSI interface.
ACSLS Commands Timeout (in seconds)	The time in seconds to wait for an ACSLS to respond when connected to a StorageTek/ Oracle library. **Note:** Only visible when configuring StorageTek/Oracle libraries.
Auto Clean Enable	This enables or disables automatic cleaning of the Managed Storage Repository. When set to TRUE it is enabled; setting it to FALSE disables this function.
Automatic Defragmentation includes readonly tapes	When set to NO, read only tapes will not be defragmented automatically.
Checksum Type	Generate a checksum using the specified algorithm. This is set to MD5 by default.
Checksum Validation	When a Rendition is copied to the location, its checksum is calculated using the algorithm specified by Checksum Type. The Rendition's checksum is added if it does not exist in the database. The transfer will fail and an error will be generated if the Rendition's checksum does exist in the database, but the two checksums do not match. An additional check is made after the Rendition has been fully copied to the location if After Write is selected. The transfer will fail if the checksum of the Rendition after copy does not match the checksum in the database. This is set to No Verification by default.

Parameter	Description
Automatic Defragmentation	When enabled, tapes in the library will be defragmented automatically when the library's fragmentation level is reached. Two options are available for defragmenting tapes: EnabledOnSameTape copies the undeleted contents of a tape to the cache, defragments the tape, then recopies the contents back to the same tape. EnabledUsingGroupPattern copies the undeleted contents back to any tape in the media group specified in Grouping Pattern.
Device Unload Timeout(sec)	
Fragmentation Level	When enabled, this is the percentage by which the ratio of deleted content to written content needs to be exceeded to trigger automatic defragmentation.
Grouping Category	The media group category to use when defragmented content is recopied to tape. Used with the Automatic Defragmentation EnabledUsingGroupPattern option.
Grouping Pattern	The media group to use when defragmented content is recopied to tape. Used with the Automatic Defragmentation EnabledUsingGroupPattern option.
MediaWarningNotification	
Num Of Format Drives	
Override Remaining Capacity	
Number of Drives for Read	
ReadOnly Threshold	The tape will be marked as read after the amount of empty space drops to this level or below.
Server Address	The IP address of the library server.
Tape Recovery Threshold	
Transfer Timeout	

Formatting Tapes

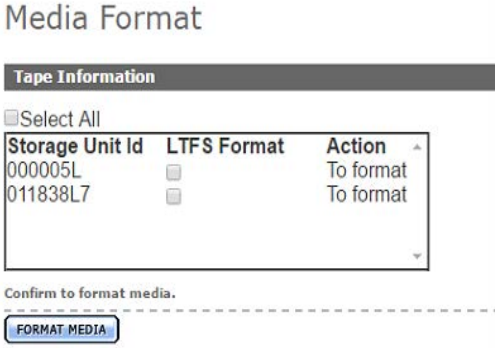
Tapes must be formatted before they can be written to. Tapes belonging to a particular Managed Storage Repository are accessed by clicking the Pencil icon next to the Managed Storage Repository, then click the Storage Units button as shown in the following figure:

Tapes can also be accessed by performing a search through the Archive Search. Select all or some of the tapes to format, then click the Format Media button as shown in the following figure.



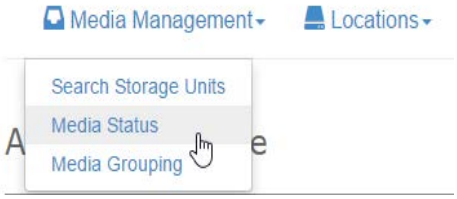
The Media Format page will open. Select the tapes that need LTFS formatting before clicking Format Media.

Note: If the tape is not an LTFS tape, Kumulate will not use LTFS formatting, even if LTFS Format is selected.

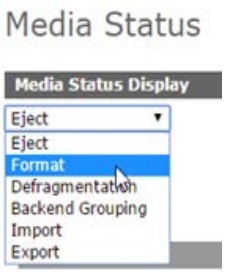


The Formatting Status page will open.

The tape statuses will go from To format, which indicates that the tape is queued for formatting, to Fetching, which indicates that the tape is being moved to a drive, and finally, to Formatting. Tape status can also be viewed from the Media Status page.

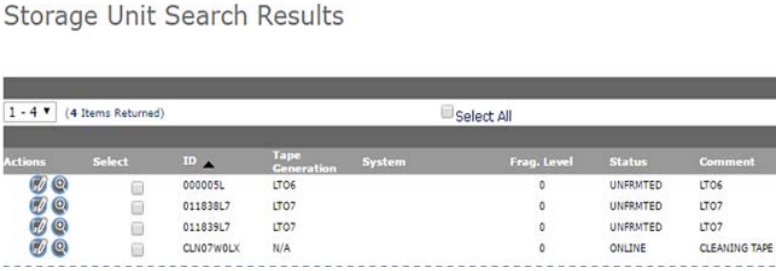


From the Media Status page, select the operation to monitor. To monitor tape formatting, select Format from the pull down menu.



A list of tapes that are in the process of being formatted and their statuses will be displayed.

The status of the tapes changes to FRMTTED after the formatting is complete. Tapes will not change to ONLINE until a Rendition has been copied to them.



Defragmenting Tapes

When a Rendition is deleted from a tape in Kumulate, the record of the Rendition is deleted from the database. However, the content is not deleted from the tape itself; a physical copy is left on the tape.

A tape can be defragmented to make room on the tape and to consolidate all the content that is still in Kumulate.

When a tape is defragmented, all the content that remains in Kumulate is copied to the cache, and the EOD (End Of Data) mark is reset to the beginning of the tape. The content is then recopied to the original tape, or to any tape in a specified media group.

Defragmenting can be triggered automatically for all tapes on a tape library Managed Storage Repository by setting Automatic Defragmentation to either *EnabledOnSameTape* or *EnabledUsingGroupPattern*. Defragmenting will then occur whenever the ratio of deleted content to written content exceeds the percentage specified by the Fragmentation Level parameter.

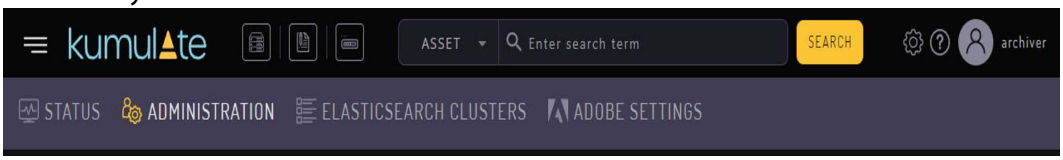
Automatic defragmenting can be disabled for read only tapes using the Automatic Defragmentation includes readonly tapes parameter. This prevents content that has been deleted in Kumulate from being overwritten on the tape.

Adding Group Access to a Location

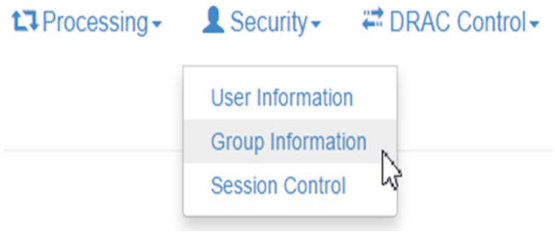
Storage and Managed Storage Repositories are not automatically visible to users. A location must be added to a user's Group ACL (Access Control List) for the user to have access to it.

Use the following procedure to add group access to a location:

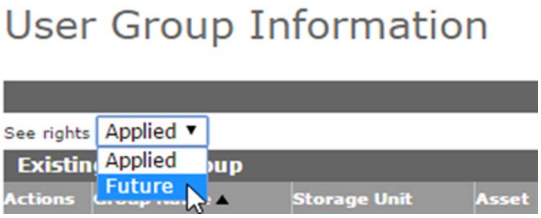
1. Click System > Administration in the menu bar of the Kumulate web interface.



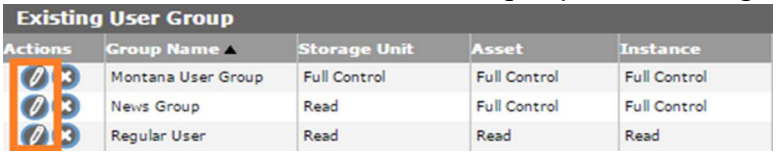
2. From the menu bar select Security, then Group Information to open the Group Information page.



3. The default view in the User Group Information page does not allow the user to create or edit groups. Selecting Future from the See rights pull down menu enables editing.



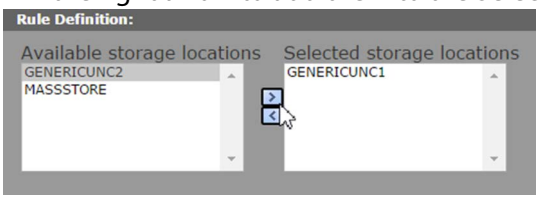
4. Click the Pencil icon to the left of the group to select the group to edit.



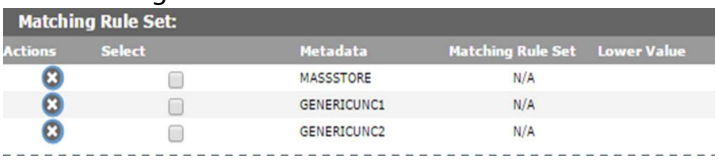
5. An existing ACL can be modified to include a new Unmanaged Storage Repository, or a new ACL can be created for the Unmanaged Storage Repository. Click the icon to the left of a resource filter under Unmanaged Storage Repository ACL to modify an existing ACL.

Note: Adding a location to an existing ACL resource filter modifies all ACLs and groups that use that filter.

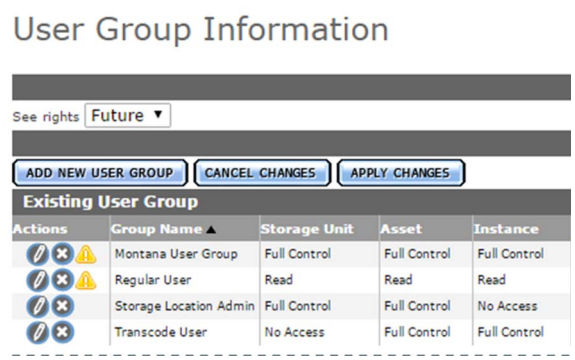
6. Select locations from the Available Unmanaged Storage Repositories list, then use the right arrow to add them to the Selected Unmanaged Storage Repositories list.



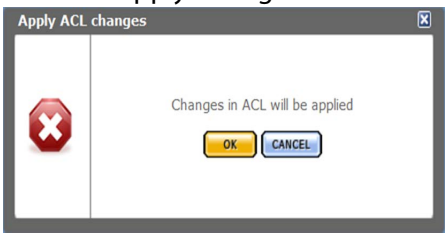
7. Click Add to add the location to the filter. The location will be added to the Matching Rule Set list.



8. Click OK to save the changes and return to the User Group Information page.
9. An attention symbol will remain next to the group until all the changes are applied or canceled.



10. Click Apply Changes. A confirmation dialog will open; click OK to continue.



11. The new Unmanaged Storage Repository will appear in the Kumulate web interface.

Import LTFS Tapes

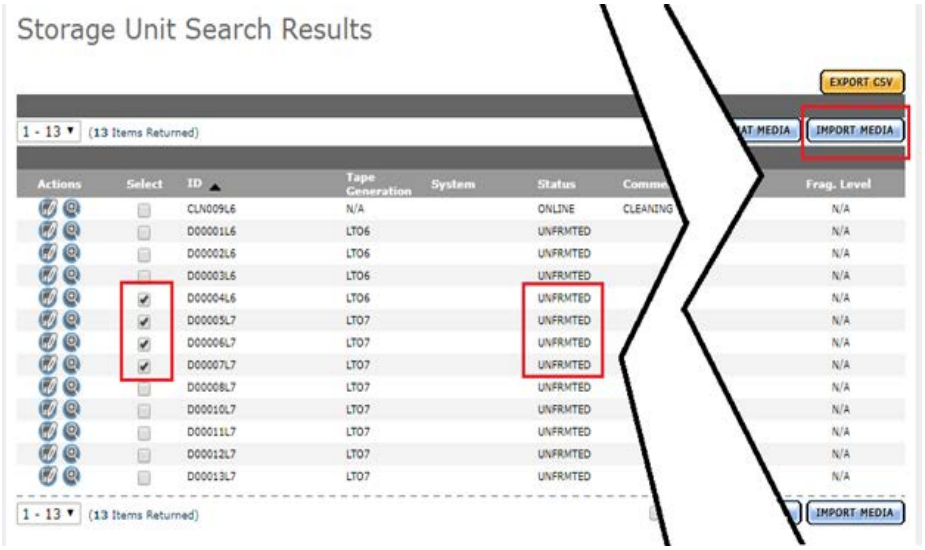
Kumulate can import tapes written in LTFS format by other systems. When importing projects from LTFS tapes, the system now supports the ability to choose the parent folder for the Virtual Objects to be imported. The LTFS structures are saved in the database (for future use) after they have been read. Users can initiate an operation to read the LTFS structure (index and label) for selected tapes, and then download file(s) displaying the structure.

When a tape is sent for import, if the structures are present, the import will be executed, regardless of whether the drives are available for import. A successful import will not remove the LTFS data; allowing the user to run subsequent imports with different parameters.

If one tape is selected, the download operation will produce a file containing an explanation of the LTFS structure related to the import operation. If more than one tape is selected the download will create a zip archive containing an explanation of the LTFS structure for the selected tapes.

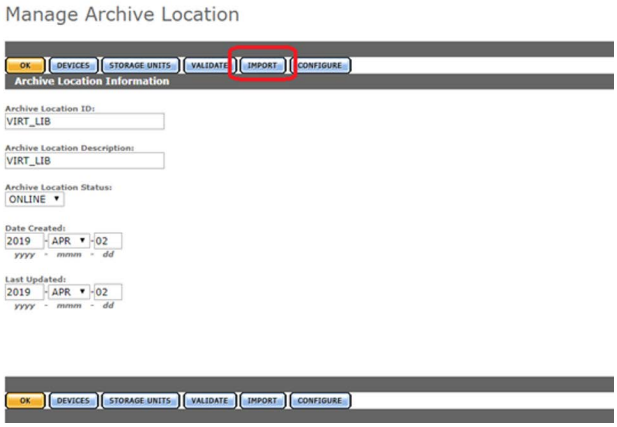
Users can view the status of the operations on the Media Status page.They can then set the folder depth for the tape (as in previous releases) based on the tape's structure.

To access this function navigate to System > Administration > Locations > Archive and select Storage Units. From this page, you will be able to select the tapes to import and then click the Import Media button.

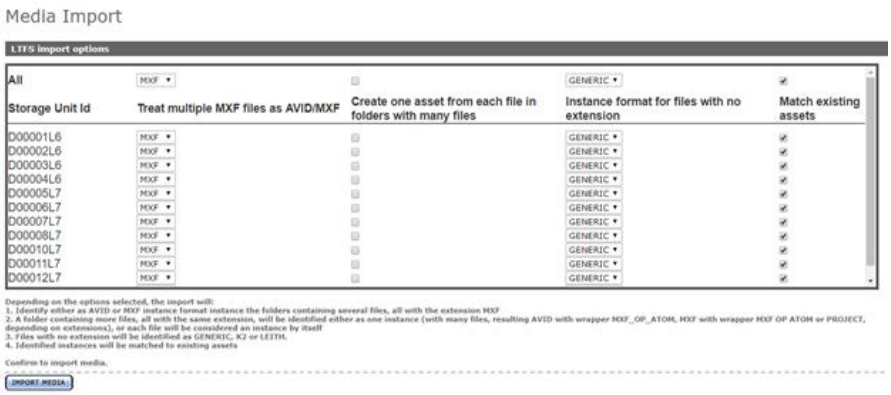


After clicking the Import button, you will be presented with a new page where you can configure the LTFS content import criteria. This is presented in the following section regarding the import of LTFS tapes.

You can also access the LTFS content import by navigating to System > Administration > Locations > Archive, then selecting the library and clicking Import.



Individual parameters can be set for each tape selected after the selection of tapes to import is determined.



Parameter	Description
Treat multiple MXF files as AVID/ MXF	Applies to folders with multiple files with mxf extensions and instructs the system to identify these files as either AVID or as MXF Renditions.

Parameter	Description
Create one Virtual Object from each file in folders with many files	Combined with the option above, will generate either one AVID/MXF Rendition with capture format MXF_OP_ATOM (if unchecked) or many AVID/ MXF Renditions with capture format MXF_OP_ATOM/ MXF (if checked).
Rendition format for files with no extension	For files that have no extension this instructs the system to consider them as GENERIC/ K2 or LEITCH.
Match existing Virtual Objects	Attempts to match the newly imported Renditions to existing Virtual Objects based on the original name or, if not filled, on the alias. If no match is found, a new Virtual Object will be created.

The system will attempt to determine what kind of content is on each tape during the import process and set the Rendition format and wrapper appropriately.

Deleting LTFS Data

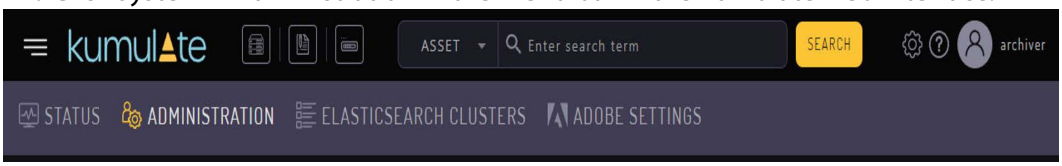
Users can manually delete the LTFS data for the selected tapes. The data is removed automatically when the tape goes into a formatted state. This means that even if the tape had content on it, the user knowingly chose to format the tape. In this case, the LTFS index is no longer valid for the tape content.

Use the appropriate button as shown to perform the desired operation.

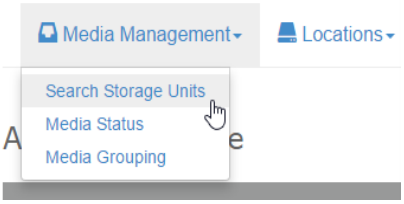
Archive Search

A dedicated archive search is available. Use the following procedure to perform an archive search:

1. Click System > Administration in the menu bar in the Kumulate web interface.

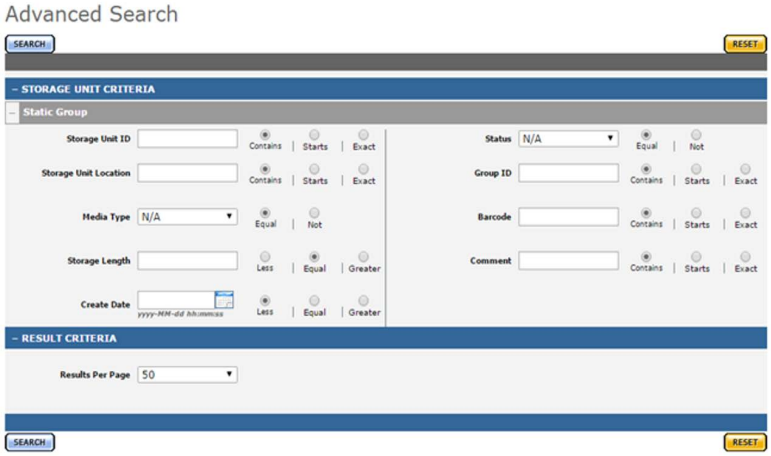


2. Select Media Management > Search Storage Units.



Note: The terms storage units, media, and tapes are sometimes used interchangeably.

3. The search returns tapes that match the search criteria. Clicking Search without any criteria returns all the tapes in the system.

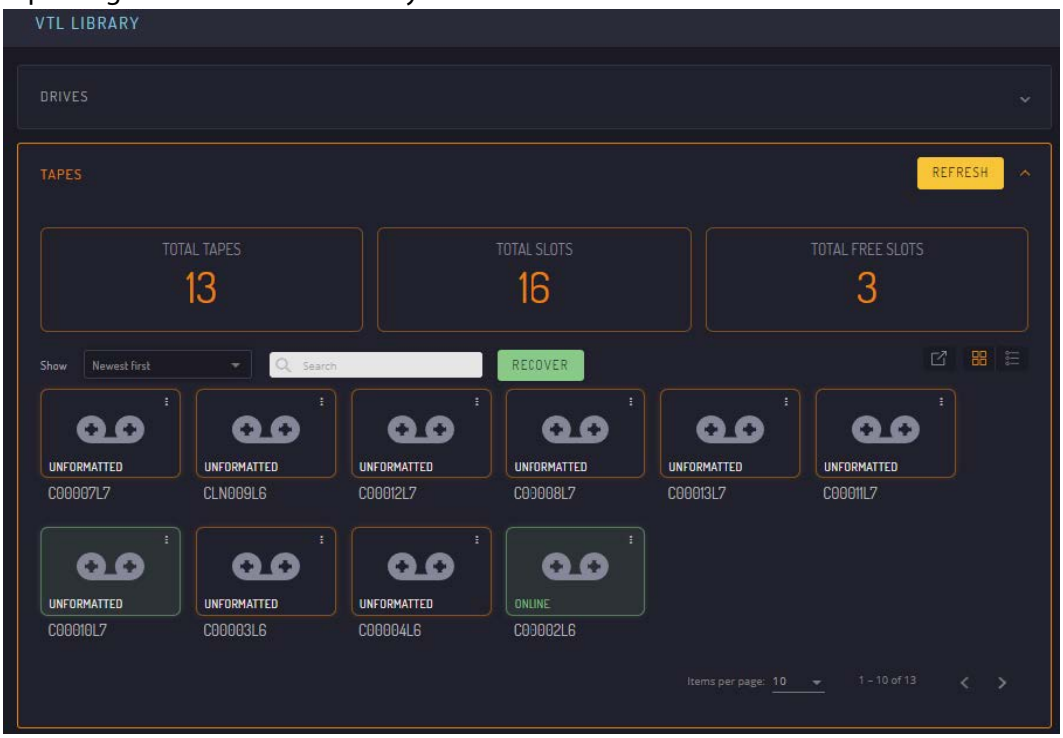


Recovering Content from Tapes

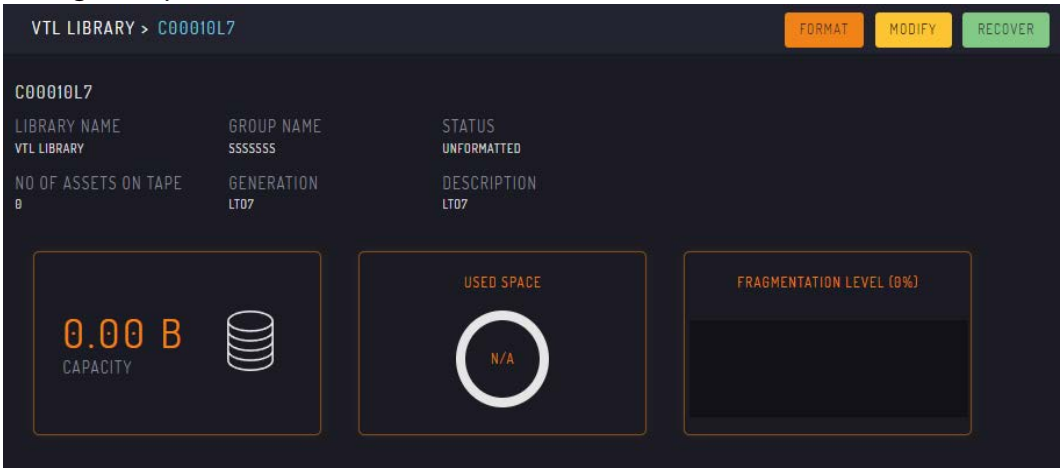
When Kumulate's database is compromised and cannot be recovered, content written to tapes is lost. However, the files are still there and by "scanning" the tapes for them, whole asset instances can be recuperated and inserted into the database, making the content available again.

User Actions for Recovering Tapes

A Recover button is now available in the Tapes view of an Archive Location's page when tapes eligible for content recovery are selected:



There is also a Recover button on an individual tape's page; the button is only available for eligible tapes.

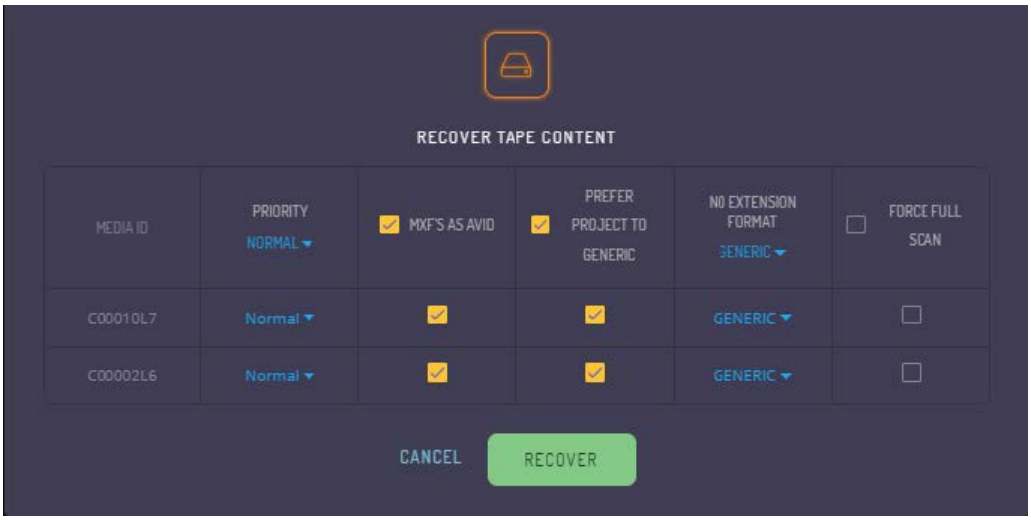


Uninitialized tapes in UNFORMATTED or OLD_CONTENT states are the main target for the recovery operation. However, used tapes in READONLY or ONLINE states can also be recovered; in the latter case, the recovery operation equates to an undelete of deleted instances.

Only so much content can be restored as it's available on tapes: no metadata for files, instances and assets can be recovered (except for LTFS tapes, see the following), as these are not present on non-LTFS tapes written by Kumulate. However, because asset IDs are stored on tape, recovered instances are associated with assets existing in the database; if there are none, new assets will be created. The asset's Source metadatum is also initialized with the Recovered from TapeID value, where TapeID is the id of the recovered tape.

The recovery process detects whether the tape under recovery has been formatted for LTFS and employs different mechanisms for recovering content from LTFS tapes. LTFS tapes written by Kumulate contain instance and asset metadata, so a full recovery of the content on LTFS tapes is possible. Recovering content from LTFS tapes is a much shorter process because only the LTFS index must be read (as opposed to all content in the non-LTFS case).

Clicking the Recover button displays the Recover Tape Content dialog box:



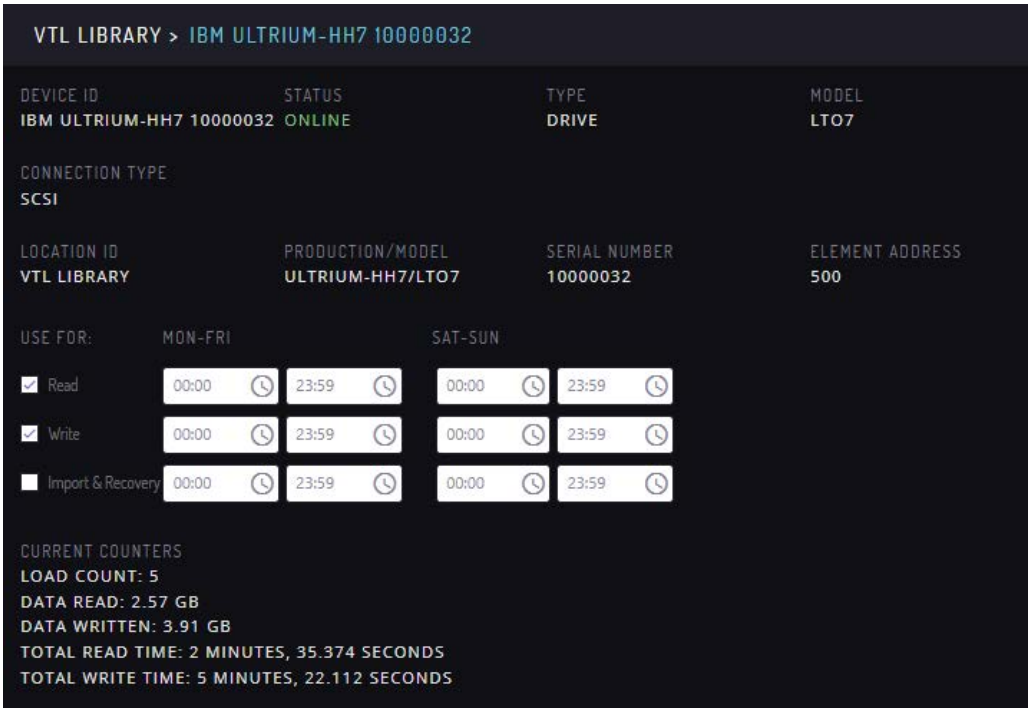
The following parameters are configurable from this page and dictate the recovery process:

- Priority

  Scanning a tape for content requires allocating a DataMover and a drive that is configured as an endpoint in that DataMover; just like for any transfer from/to tape job. This means the recover job competes for available drives with all other tape jobs in the system, so setting the job's priority allows for the prioritization of recover jobs relative to the other scheduled tape jobs.

  A recover job might take a significant amount of time to complete (if the tape contains a lot of files), during which the drive is unavailable for other tape jobs. Therefore, giving recover jobs a high priority might significantly slow down content

archive and restore operations. This can be partially mitigated by configuring appropriate schedules for the drive's operations. As seen in the following figure, content recovery is on the same schedule as the Import operations:



- MXFs as Avid

  An instance containing only MXF files can be coerced into an Avid instance format using this flag (even though a regular Avid instance would also have an AAF file). When this is not set, these instances are regarded as having regular MXF instance format.

- Prefer Project to Generic

  The recovery process tries to determine on a best-effort basis the instance format from the recovered file's extensions; when no specific format can be determined, it defaults to the unspecific and limited Generic format. With this setting, these instances can be configured to have Project format instead.

- No Extension Format

  Instances with files having no extension cannot be assigned a specific format and will default to Generic. With this setting, a more specific instance format like LXF (for Leitch media) and GXF (for K2 media) can be assigned to these instances when the tapes are known to contain such formats.

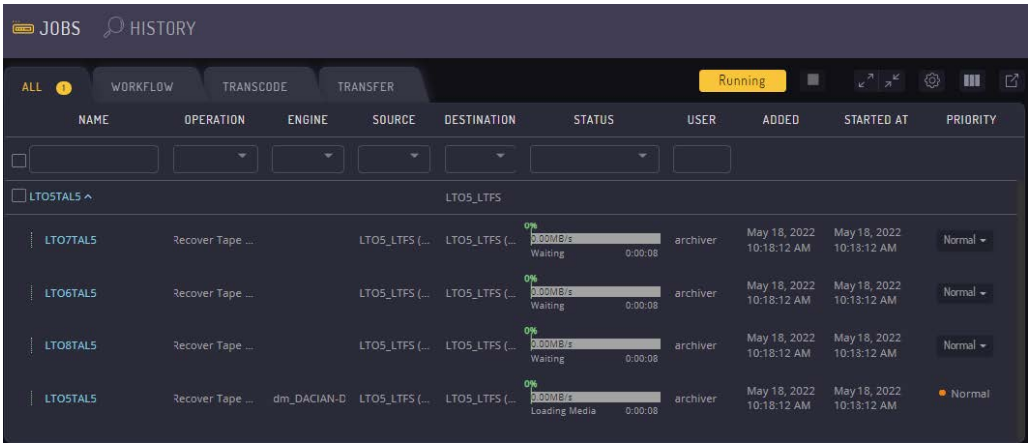
- Force Full Scan

  For ONLINE and READONLY tapes, this setting allows undeleting all the instances written on the tape. This makes little sense for tapes in UNFORMATTED and OLD_-CONTENT tapes because they are always scanned from the beginning, and no sense for RECOVERING and PARTIALLY_RECOVERED tapes. RECOVERING tapes are either in the process of already being recovered, or their recovery jobs have been

cut short (typically by a system restart), and PARTIALLY_RECOVERED tapes have been canceled; so only resuming from where the previous jobs left is possible for these states.

Recover Tape Content Jobs

Clicking the Recover button in the Recover Tape Content dialog box launches a Recover Tape Content job for each of the selected tapes. When there is more than one tape, the launched jobs are grouped into one compound job that contains all the individual recovery jobs for easier tracking of the overall progress.



A new state named RECOVERING has been added to the tapes' state set. It is the state tapes are in during the process of being recovered and during the entire scanning process.

Recover Tape Content jobs on non-LTFS tapes may take a lot of time as all written content on tape is read until End of Data. Therefore, it might make sense to pause these long-running jobs; unfortunately, this cannot be done in Kumulate.

However, as a work-around, a Recover Tape Content job can be canceled, and a new one can be scheduled later to resume the recovery process from where the job was canceled. When a job is canceled, the tape changes states from RECOVERING to PARTIALLY_RECOVERED; so tapes for which the recovery process has not been carried out completely can be easily identified as those having PARTIALLY_RECOVERED status.

When content recovery is successful, the status of the tape switches from RECOVERING to ONLINE if any content has been restored; except for the READONLY tapes, which become READONLY again. If there is no content the tape reverts to the initial status before the recovery. For example, an UNFORMATTED tape with no content ends up UNFORMATTED again after a successful recovery is complete.

Media Groups

Media groups are groups of tapes within the same Managed Storage Repository where Renditions with specific metadata values are stored. Tapes can be assigned to groups manually or automatically.

When tapes are assigned to a group automatically, the Managed Storage Repository must have a pool of formatted tapes where Renditions can be copied. When a Rendition is copied to the location it will be copied to a tape from the location's pool of formatted tapes. That tape will be assigned to the appropriate media group based on the Rendition's metadata values.

When tapes are added to the media group manually, unformatted tapes are added to the group when it is configured.

By default, Kumulate adds unassigned tapes to the default group (DEFAULT_GROUP) when a Rendition is copied to it.

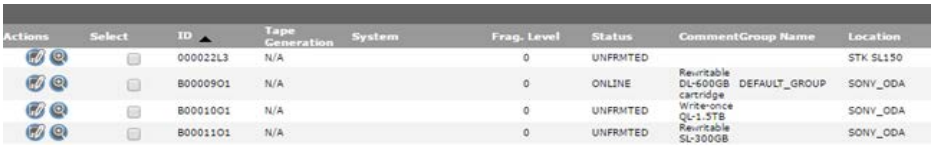
Renditions that are stored on tapes belonging to the wrong group can be moved to tapes belonging to the appropriate group using back end grouping.

- Default Media Group
- Creating a Media Group
- Back End Grouping

Default Media Group

After a tape has been assigned to DEFAULT_GROUP it can no longer be assigned to any other group in the Kumulate system. If there are no groups configured in the Kumulate system, all the tapes with Renditions will belong to DEFAULT_GROUP.

If tapes belonging to a particular Managed Storage Repository have been grouped, but the Rendition being copied to the location does not have metadata that matches any of the groups, Kumulate will copy the Rendition to an unassigned formatted tape and assign it to DEFAULT_GROUP.



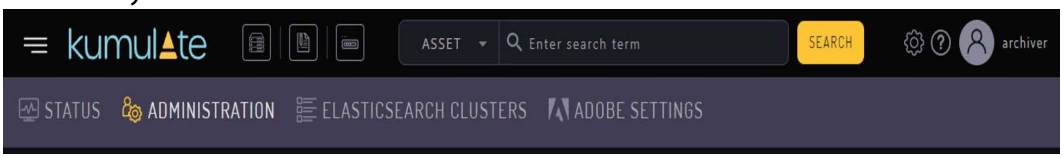
Actions	Select	ID	Tape Generation	System	Frag. Level	Status	Comment	Group Name	Location
		000022L3	N/A		0	UNFRMTED			STK SL150
		B00009O1	N/A		0	ONLINE	Rewritable DL-600GB cartridge	DEFAULT_GROUP	SONY_ODA
		B00010O1	N/A		0	UNFRMTED	Write-once QL-1.5TB		SONY_ODA
		B00011O1	N/A		0	UNFRMTED	Rewritable SL-300GB		SONY_ODA

Creating a Media Group

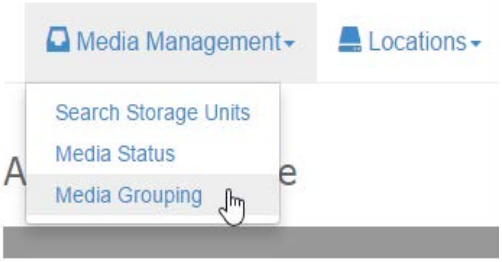
Media groups are groups of tapes that will be used to store Renditions with certain metadata values. Determining which Renditions to store on specific groups of tapes is accomplished using Rendition and Virtual Object resource filters. Add any new metadata needed before creating the grouping.

Use the following procedure to create a media group:

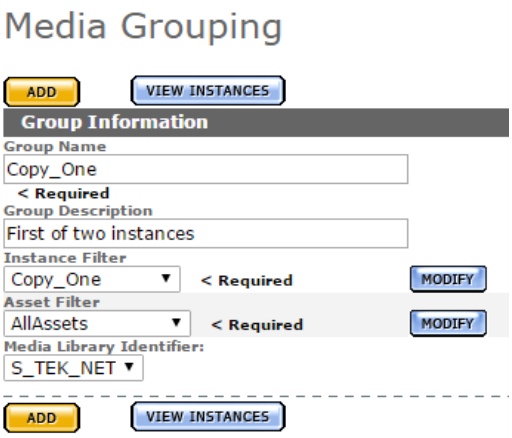
1. Click System > Administration in the menu bar in the Kumulate web interface.



2. Select Media Management > Media Grouping.



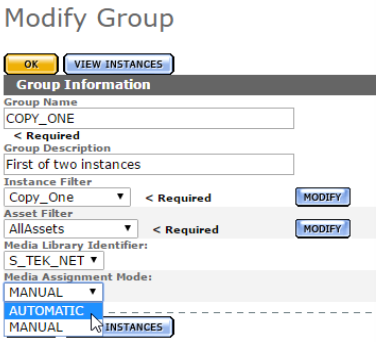
3. On the Media Grouping page, enter the information needed to create the tape group, and select which Renditions are stored on these tapes.



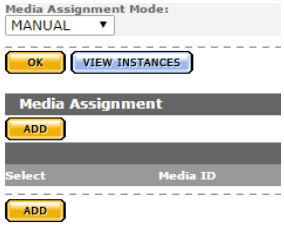
Parameter	Description
Group Name	The unique name of the group.
Group Description	An optional description of the group.
Rendition Filter	The Rendition resource filter to use to select Renditions to store on the tapes in this group. If a new resource filter is needed, select new and create a new resource filter.
Virtual Object Filter	The Virtual Object resource filter to use to select Renditions to store on the tapes in this group. If a new resource filter is needed, select new and create a new resource filter.
Media Library Identifier	The Managed Storage Repository from which to select the tapes for this group.

4. Click Add to create the group. It will appear at the bottom of the Media Groupings page. Click the Pencil icon to open the group in the Modify Group page.

5. Select whether to add the tapes manually to the group, or to allow Kumulate to assign tapes to the group automatically.

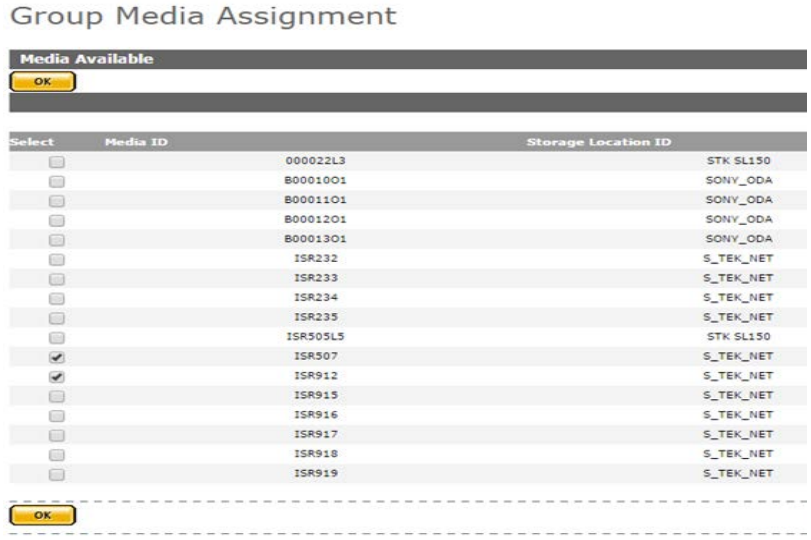


6. If tapes will be added manually click ADD under Media Assignment at the bottom of the page to assign tapes to the group.



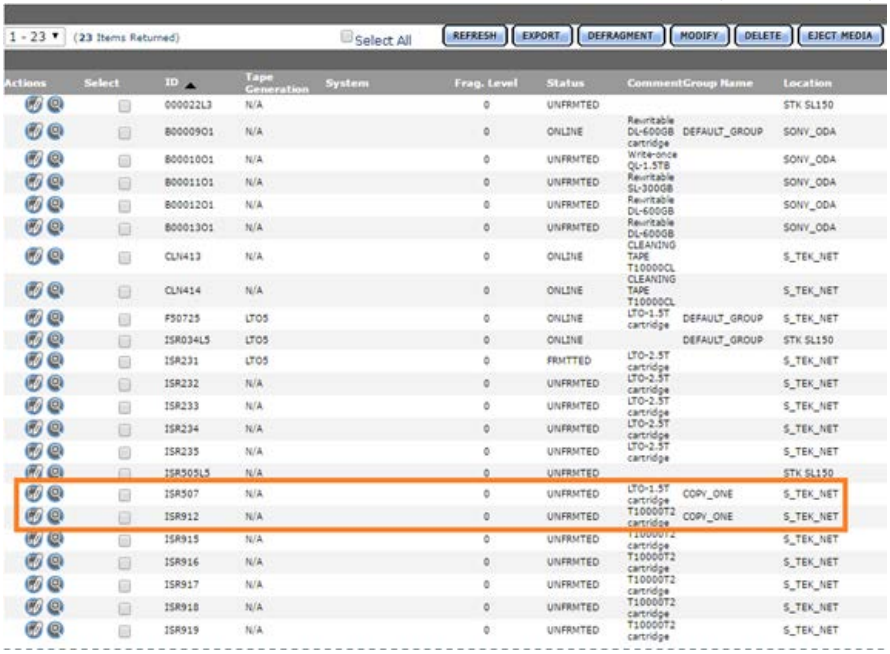
7. Select the tapes to add to the group on the Group Media Assignment page and click OK.

Note: All unformatted tapes in the system will be shown on the Group Media Assignment page. Be mindful to select only the tapes that belong to the Managed Storage Repository assigned to the group.



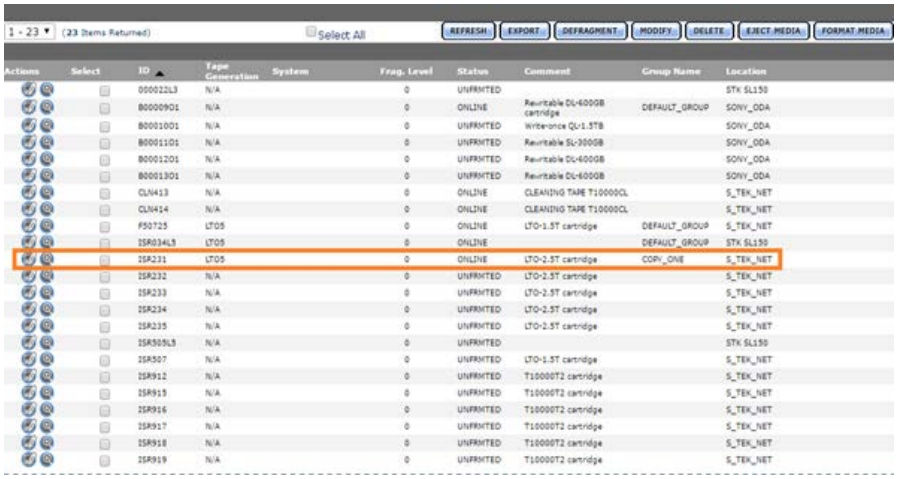
8. The selected tapes will appear under Media Assignment.

9. Use the archive search to ensure that the tapes are assigned to the group.



10. If tapes are added automatically, Kumulate will assign a formatted tape to the group when a Rendition with matching metadata is copied to the group's Managed Storage Repository. After a Rendition has been copied to the location, the tape where the Rendition was copied will appear in the group's Media Assignment list.

11. Use the Archive Search the view the tapes assigned to the group.



Back End Grouping

Back end grouping is used to reorganize Renditions onto tapes in a particular group.

Note: A formatted, unused tape (FRMTTD) must be available in the tape group for a Rendition to be added to the tape group. This means that Renditions can only be regrouped into groups with automatically-added tapes.

And Rendition's Storage Unit ID shows the tape it is stored on.

The Storage Unit ID can be used to check the group the Rendition is associated with.

For example, a search for the Rendition (shown in the previous figure) Storage Unit ID (F50725), shows that the tape belongs to DEFAULT_GROUP.

CLN414	N/A	0	ONLINE	CLEANING TAPE T10000CL			S_TEK_NET
F50725	LTO5	0	ONLINE	LTO-1.5T cartridge	DEFAULT_GROUP		S_TEK_NET
ISR034L5	LTO5	0	ONLINE		DEFAULT_GROUP		STK SL150
ISR231	LTO5	0	ONLINE	LTO-2.5T cartridge	COPY_ONE		S_TEK_NET
ISR232	LTO5	0	FRMTTED	LTO-2.5T cartridge	ROUGH_DRAFT		S_TEK_NET
ISR233	LTO5	0	FRMTTED	LTO-2.5T cartridge	ROUGH_DRAFT		S_TEK_NET
ISR234	N/A	0	UNFRMTED	LTO-2.5T cartridge			S_TEK_NET

If the Rendition is meant to be stored on a tape in the ROUGH_DRAFT group, the Rendition can be moved to an available formatted tape in that group.

CLN414	N/A	0	ONLINE	CLEANING TAPE T10000CL			S_TEK_NET
F50725	LTO5	0	ONLINE	LTO-1.5T cartridge	DEFAULT_GROUP		S_TEK_NET
ISR034L5	LTO5	0	ONLINE		DEFAULT_GROUP		STK SL150
ISR231	LTO5	0	ONLINE	LTO-2.5T cartridge	COPY_ONE		S_TEK_NET
ISR232	LTO5	0	FRMTTED	LTO-2.5T cartridge	ROUGH_DRAFT		S_TEK_NET
ISR233	LTO5	0	FRMTTED	LTO-2.5T cartridge	ROUGH_DRAFT		S_TEK_NET
ISR234	N/A	0	UNFRMTED	LTO-2.5T cartridge			S_TEK_NET

Use the following procedure to move the Rendition to the appropriate group:

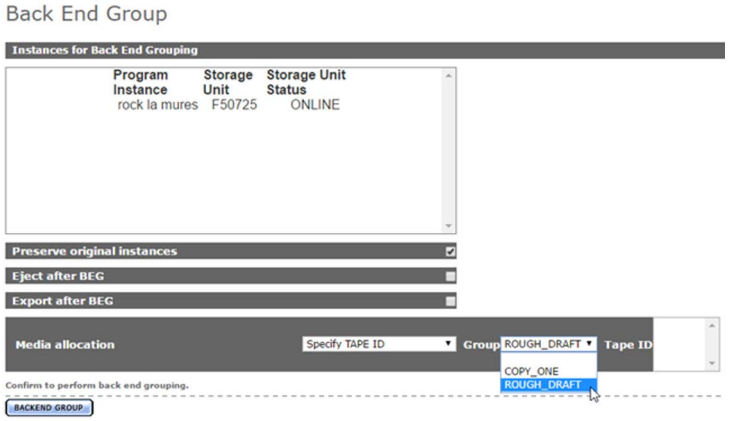
1. Click the Show Renditions icon (looks like a magnifying glass) next to the tape the Rendition is currently stored on.

CLN414	N/A
F50725	LTO5
ISR034L5	LTO5
ISR231	LTO5
ISR232	LTO5
ISR233	LTO5
ISR234	N/A

2. On the Rendition Search Results page, select the Rendition to move, then click Backend Group.

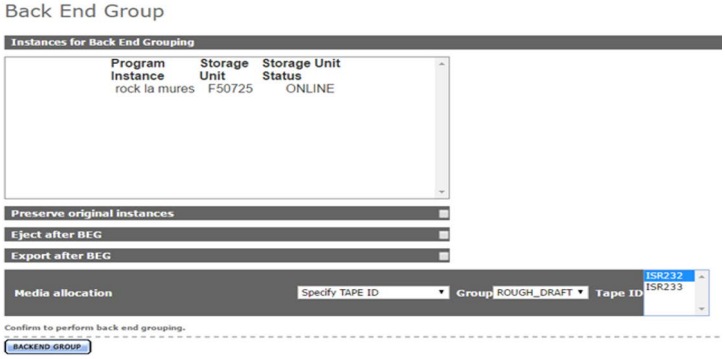
3. On the Backend Group page, select the Rendition to move again, then click Backend Group again.

4. On the Backend Group screen, select Specify Tape ID from the pull down menu; then select the tape group the Rendition should be on.

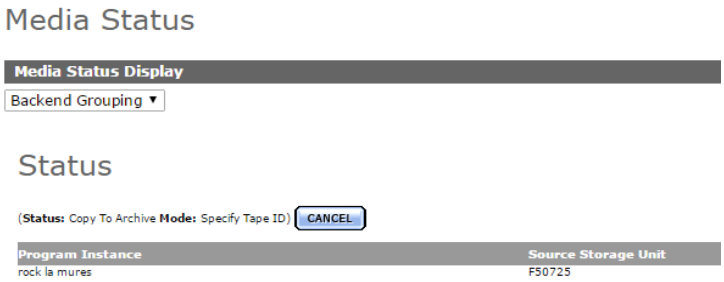


5. Select Preserve original Renditions to keep the Rendition on the source tape. Select Eject after BEG to eject the source tape after the Rendition has been moved.

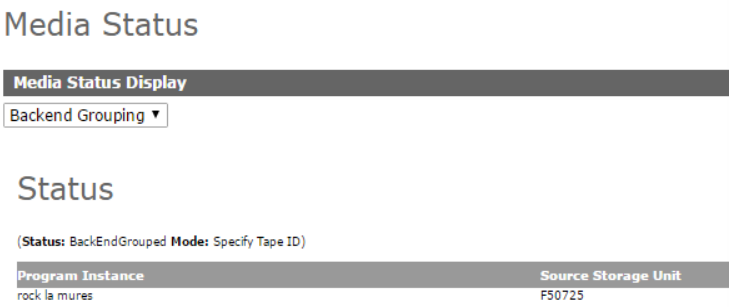
6. Select the tape in the group to move the Rendition to, then click Backend Group.



7. The Media Status page will open. The status will be Copy to Archive while the Rendition is being copied.



8. After the Rendition has been copied the status will change to BackEndGrouped.



9. The Rendition's Storage Unit ID will now show the new tape ID.

Attachment Templates

Attachments are additional files associated with Virtual Objects. Captions, formatsheets, marks, segments, and thumbnails are stored as attachments. Image files, pdf documents, and Microsoft Office documents can also be uploaded as attachments provided that attachment templates have been created for these types of attachments.

Attachment templates are used to upload attachments to the Virtual Object. They contain information on the type of file to expect and what metadata is associated with the attachment.

Attachment templates must be created for any type of attachment aside from the built-in caption, formatsheet, mark, segment, and thumbnail attachments.

- Built-In Attachment Templates
- Creating an Attachment Template
- Add Attachment Template Access to Groups
- Delete an Attachment Template

Built-In Attachment Templates

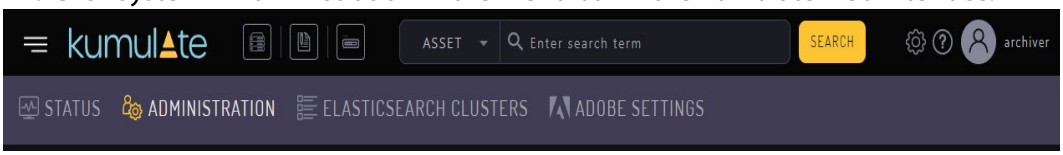
Kumulate includes built-in attachment templates for certain file types. These templates cannot be modified.

Attachment Template	Usage
Thumbnail	Thumbnail images associated with the media content. The thumbnail attachment type is used internally by Kumulate.
Segment	Video segments created by the user. The segment attachment type is used internally by Kumulate.
Marker	Video markers set by the user in the video previewer. The marker attachment type is used internally by Kumulate.
Closed Captioning	Closed captioning file. The closedcaptioning attachment type is used internally by Kumulate, but users can also use it to upload additional captioning files to a Virtual Object.
Formatsheet	XML attachments that provide information on run orders. The formatsheet attachment type is used internally by Kumulate, but users can also use it to upload formatsheet files to Virtual Objects.

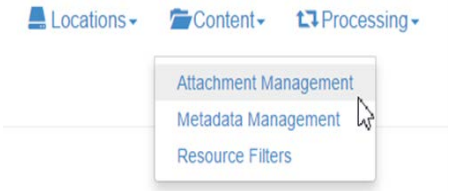
Creating an Attachment Template

Attachment templates must be created to upload files other than caption and formatsheet files. Kumulate supports uploading any file type as an attachment. Using the exact file type in an attachment template optimizes indexing of the file, and improves attachment searches. Use the following procedure to create an attachment template:

1. Click System > Administration in the menu bar in the Kumulate web interface.



2. Select **Content**, then **Attachment Management**.



3. Click Add Attachment Type to create a new attachment type.
4. Provide an Attachment Template Name, Description, and Class for the attachment type. The description is used as the attachment template's display name. It will appear in a pull down menu in the Kumulate user web interface. If it is omitted, the template name will be used instead.

Select the file type for this attachment template.

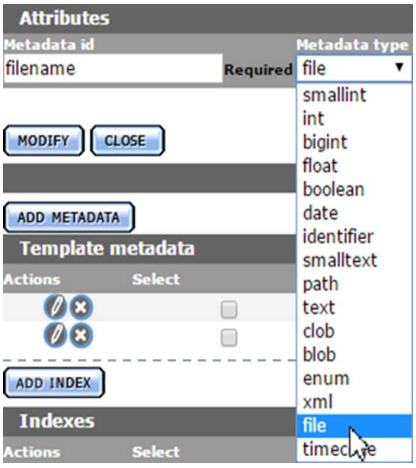
Note: Using the exact file type in an attachment template optimizes indexing of the file and improves attachment searches. Use the *free* and *text* classes only when absolutely necessary.

Class	Description
free	Any type of file. Use this class if the attachment will contain a type not defined by any other class.
xml	XML file
jpeg	JPEG file
pdf	PDF file
word	Word document

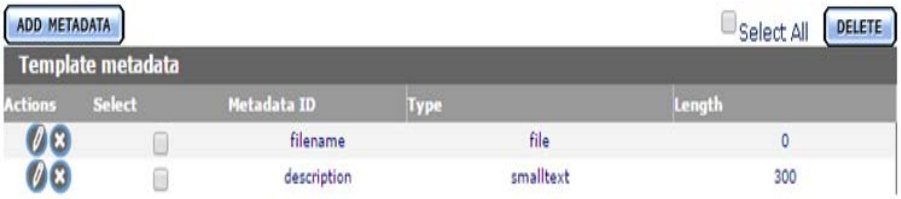
Class	Description
excel	Excel document
binary	Binary file: Use this class only if the attachments will not be Word, PDF, or Excel files.
text	Text file: Use this class only if the attachments will not be xml files.

5. Click Add Metadata to add attachment attributes and provide a Metadata id and the Metadata type. These attributes are filled in by the user when the attachment is uploaded.

Note: The file metadata type is required to upload a file as an attachment.



6. Click OK to add the attribute.
7. Click OK to save and exit after all the attributes have been added.



8. Refresh the browser to ensure that the changes are reflected in the user interface.

Saving the template automatically creates a resource filter for the new attachment template. The new resource filter is added with full privileges and controls to the current user's group and to the Montana User Group.

The resource filter can be added to all other groups manually. See the *Add Attachment Template Access to Groups* for more details.

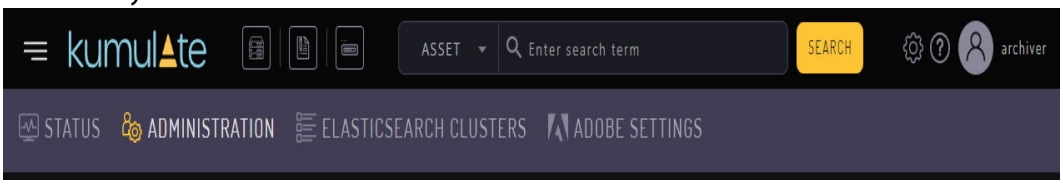
Add Attachment Template Access to Groups

User groups do not automatically gain access to attachment templates created by a user. Access control lists for the templates must be added to the groups to allow groups of users to access the templates.

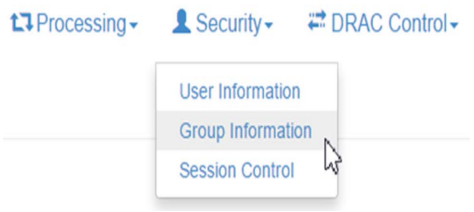
For more information on groups, see *Groups and Users*.

Use the following procedure to add attachment template access to a group:

1. Click System > Administration in the menu bar in the Kumulate web interface.



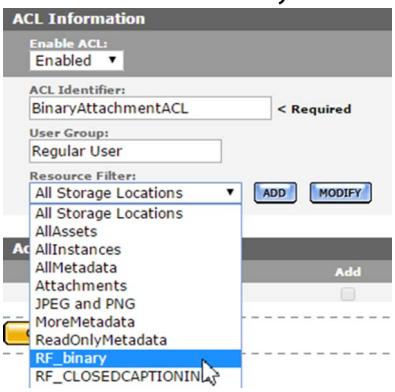
2. Select Security > Group Information.



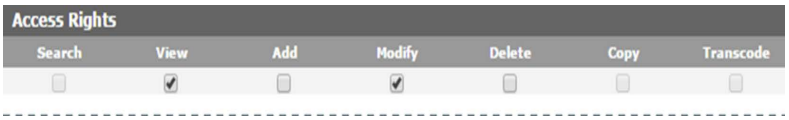
3. The default view in the User Group Information page does not allow the user to create or edit groups. Enable editing by selecting Future from the See rights pull down menu.

4. Select a group to edit. Click Add New ACL on the Modify User Group page.

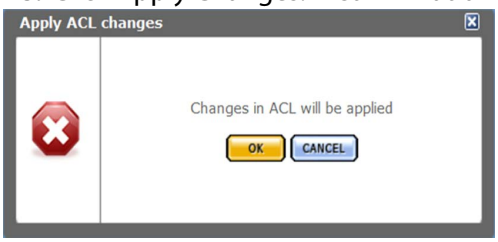
5. On the Add ACL page give the ACL a name, then select the resource filter corresponding to the new attachment template. A new resource filter can be created if necessary.



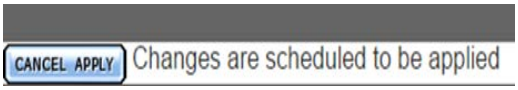
6. Set the access rights to the template. See *Access Control Lists and Access Privileges* for more information.



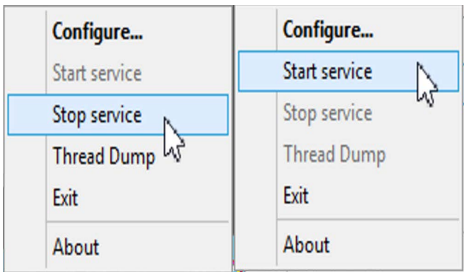
7. Click OK to save the changes and return to the Modify User Group page. An attention symbol will remain next to the group until all the changes are applied or canceled.
8. Click Apply Changes. A confirmation window will open; click OK to continue.



The message Changes are scheduled to be applied will appear after the dialog box closes.



9. Kumulate must be restarted for the changes to take effect. Stop and start the Tomcat server to restart Kumulate.



10. After Kumulate has restarted, return to the Groups page to verify that the changes were applied.

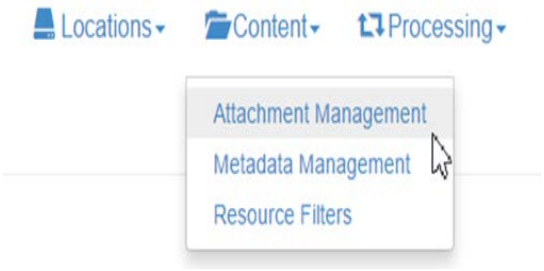
Delete an Attachment Template

When an attachment template is deleted, its resource filter is not deleted. The resource filter must be removed from any groups that use it, then it must be deleted.

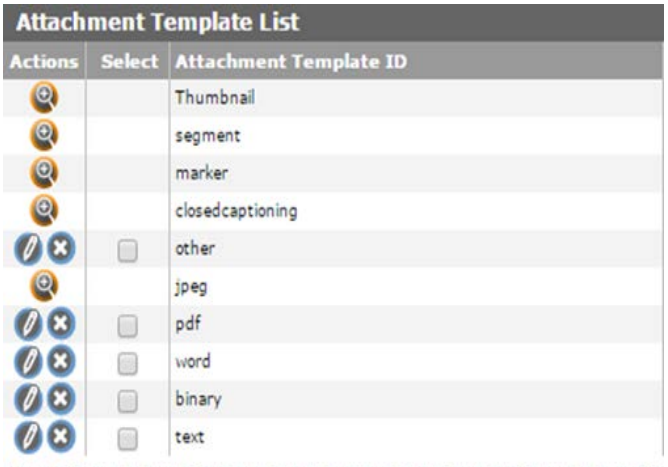
Note: Only attachment templates that are not associated with any attachments can be deleted.

Use the following procedure to delete an attachment template:

1. Open the Attachment Template Management page by clicking System in the left menu, then selecting Content > Attachment Management from the top menu.



   Any attachment template with the note Has Children is associated with one or more attachments currently in the system; these templates cannot be deleted. Templates can only be deleted when they are no longer associated with any attachments.



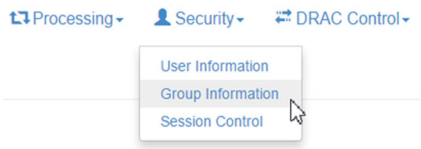
2. Delete the attachment template by clicking on the X icon next to the template.

   After the attachment is deleted, the resource filter associated with the template can be removed from any groups that use it; then the resource filter itself can also be deleted.

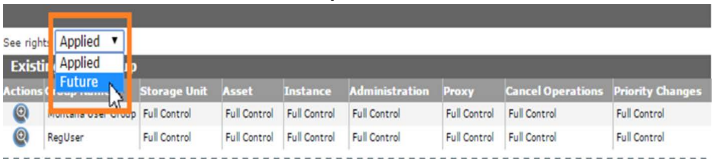
Remove an Attachment Template Resource Filter From a Group (Optional)

Use the following procedure to remove an attachment template resource filter from a group; this is optional:

1. Select Security > Group Information from the top menu.

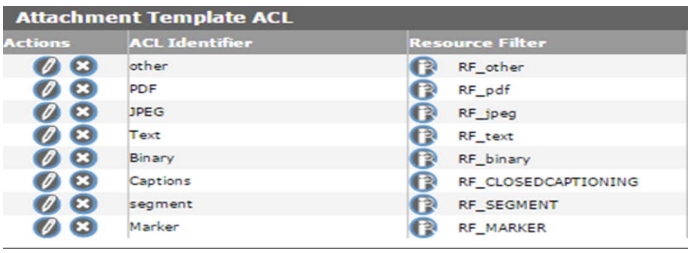


2. Select Future from the pull down menu.

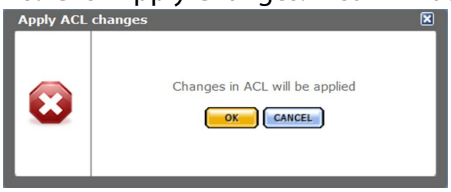


3. Select the group to edit.
4. Under Attachment Template ACL, click the X icon to delete the ACL identifier associated with the deleted template's resource filter.

Note: Resource filters created automatically by Kumulate will be named RF_<TemplateName>. For example, the resource filter associated with the binary attachment template will be named RF_binary.

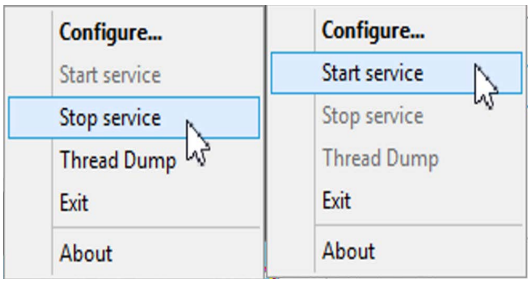


5. Click OK to save the changes and return to the Modify User Group page. An attention symbol will remain next to the group until all the changes are applied or canceled.
6. Click Apply Changes. A confirmation window will open; click OK to continue.



The message Changes are scheduled to be applied will appear after the dialog box closes.

7. Kumulate must be restarted for the changes to take effect. Stop and start the Tomcat server to restart Kumulate.

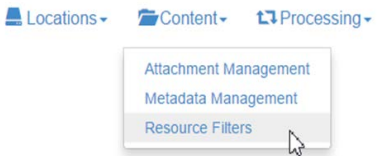


8. After Kumulate has restarted, return to the Groups page to verify that the changes were applied.

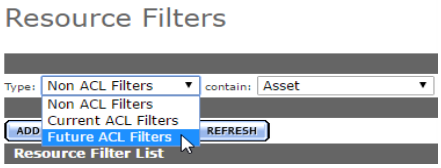
Delete the Resource Filter (Optional)

Use the following procedure to delete the resource filter; this is optional:

1. Open the list of resource filters by selecting Content > Resource Filters from the top menu.

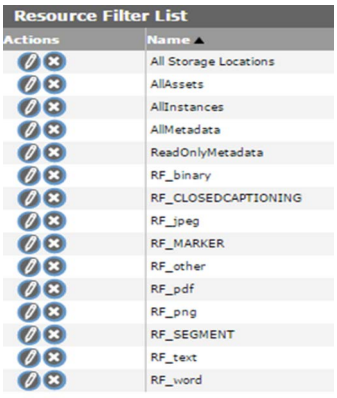


2. Select Future ACL from the Type pull down menu to bring up the list of ACL resource filters.



3. Find the resource filter associated with the deleted template.

Note: Resource filters created automatically by Kumulate will be named RF_<TemplateName>. For example, the resource filter associated with the binary attachment template will be named RF_binary.



4. Click the X icon to delete the resource filter. Do not delete any resource filter still used by a group.

Caution: Never delete RF_CLOSEDCAPTIONING, RF_MARKER, RF_SEGMENT, All Unmanaged Storage Repositories, AllVirtual Objects, AllRenditions, AllMetadata, or ReadOnlyMetadata.

DataMovers

DataMovers are used to transfer media between locations.

One DataMover is installed by default on the Kumulate server host. Additional DataMovers can be deployed to other machines and added to the list of DataMovers.

Renditions can only be transferred between locations if both locations are endpoints of the same DataMover. Locations must be added to DataMovers manually.

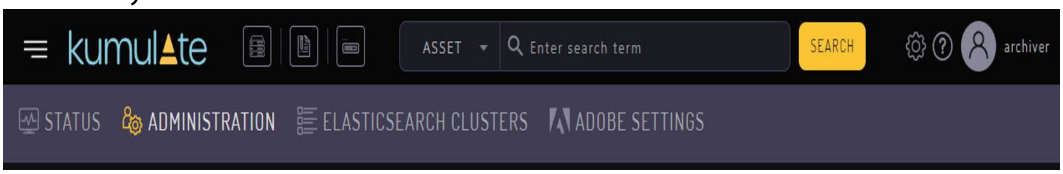
- Add an External DataMover
- Add a DataMover Endpoint

Add an External DataMover

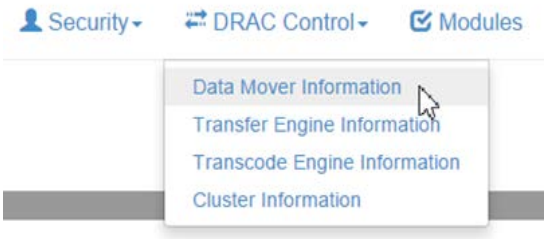
Additional DataMovers can be installed on hosts other than the Kumulate server host. These external DataMovers must be added to the Kumulate system before they can be used. Information on installing external DataMovers is available in the Kumulate Deployment document.

Use the following procedure to add an external DataMover:

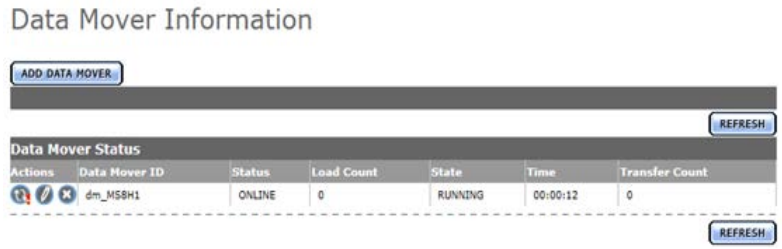
1. Click System > Administration in the menu bar in the Kumulate web interface.



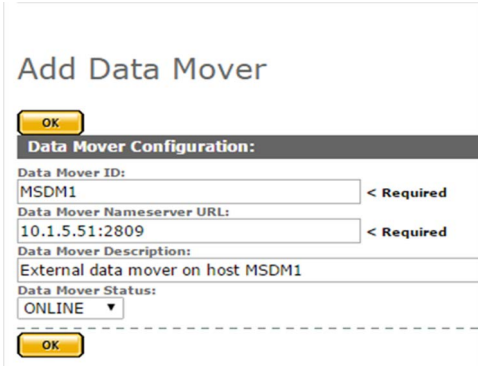
2. Select DRAC Control > DataMover Information.



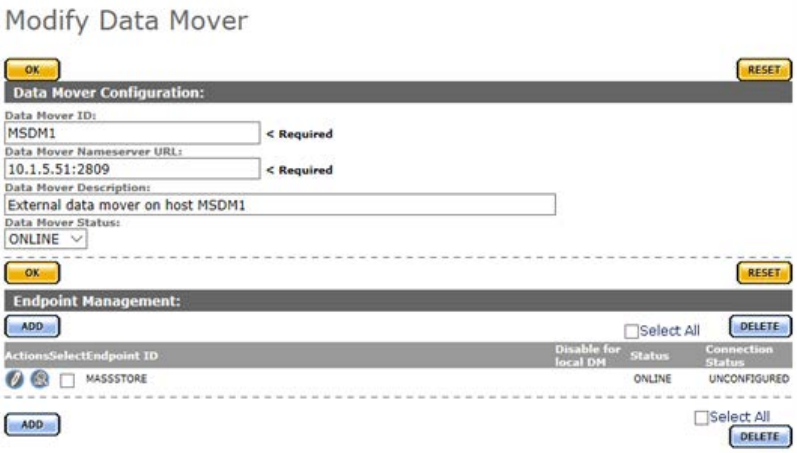
3. The list of DataMovers will open. The internal DataMover is always named with the prefix dm. Click the Add DataMover button to add a new DataMover.



4. Give the DataMover a name that easily identifies it. Set the nameserver URL to the DataMover's IP address and its listener port. The default DataMover listener port is 2809.



5. Click OK to save the information. The end point information will open immediately. Add endpoints to the DataMover. The DataMover can only move Renditions between locations that are in its list of endpoints.



6. The newly added DataMover will appear in the list of DataMovers.

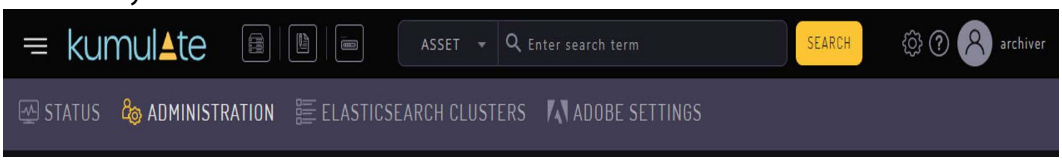
Add a DataMover Endpoint

DataMovers are used to transfer Renditions between locations. Locations must be added as DataMover endpoints for Renditions to be transferred between them.

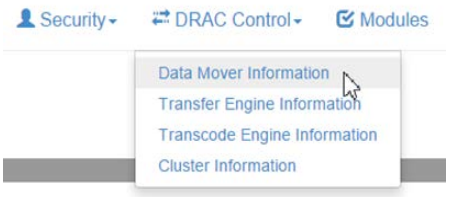
The internal DataMover runs on the Kumulate server host. In the case of a clustered installation, it will run on the master host. When an endpoint is added to a DataMover on a Kumulate server that is part of a cluster, the Disable for local DM option can be used to remove the endpoint when the DataMover's host becomes the cluster master.

Use the following procedure to add an end point to a DataMover:

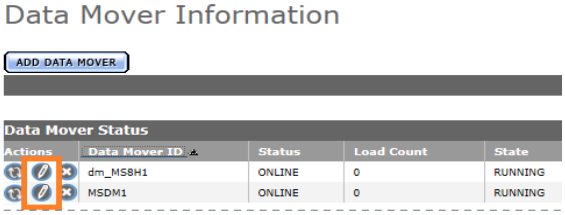
1. Click System > Administration in the menu bar in the Kumulate web interface.



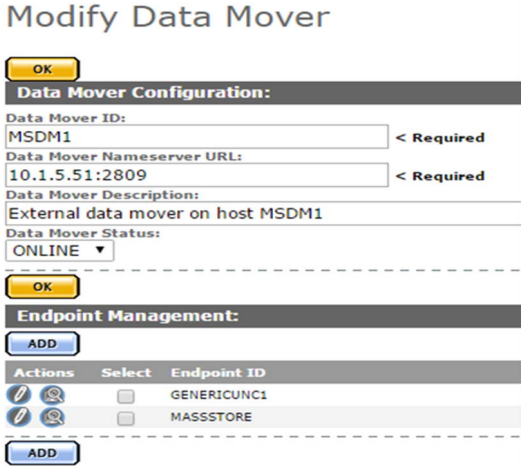
2. Select DRAC Control > DataMover Information.



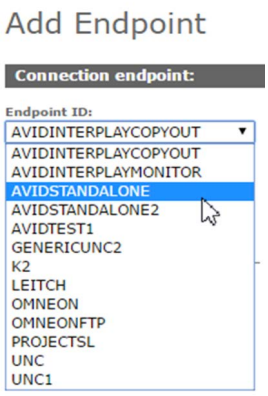
3. Click the Pencil icon next to the DataMover to modify it.



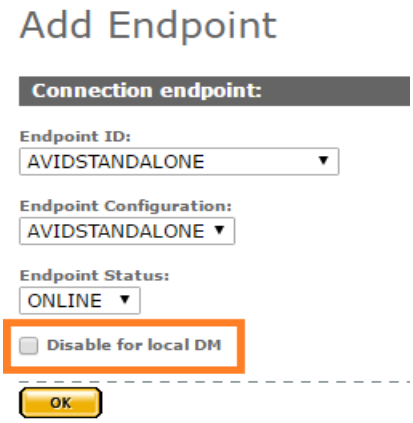
4. Click ADD under Endpoint Management.



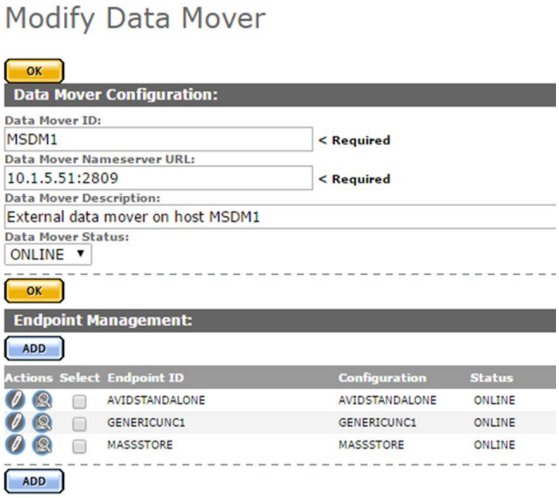
5. Select the Unmanaged Storage Repository from the Endpoint ID pull down menu.



6. If the DataMover is located on a Kumulate server that is part of a clustered Kumulate installation, the Disable for local DM option can be selected so that the endpoint is not used when the DataMover's host is the Cluster Master.



7. Click OK to add the endpoint. The location will appear in the Endpoint Management List. Its status should be ONLINE; disregard the Connection Status.



Metadata Management

All the metadata in Kumulate can be viewed through Metadata Management. Additional custom metadata can also be added to Kumulate from the Metadata Management page. Administrators can assign a default set of pinned metadata fields starting with release 2.1 and later.

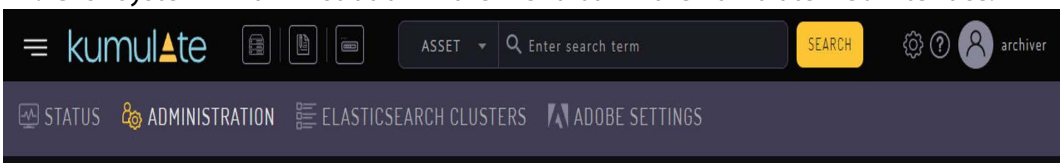
- Accessing the List of all Metadata
- Add Custom Metadata
- Create List Metadata
- Add Custom Virtual Object Metadata to an ACL
- Delete Unused Combo Metadata

Accessing the List of all Metadata

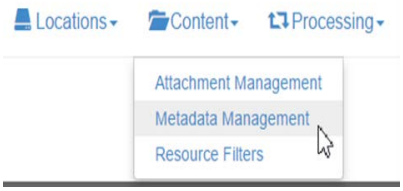
Metadata Management is used to view and edit Virtual Object and Rendition metadata, and create custom Rendition and Virtual Object metadata.

Use the following procedure to access the list of all metadata:

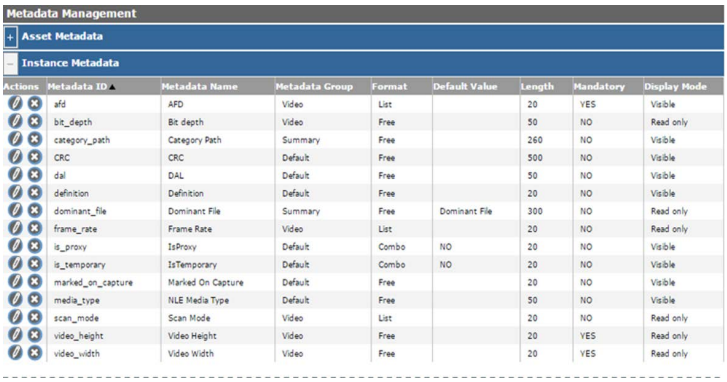
1. Click System > Administration in the menu bar in the Kumulate web interface.



2. Select Content > Metadata Management.



3. Expanding the Virtual Object or Rendition headers shows all metadata, including custom metadata. For example, in this case, the is_proxy and is_temporary metadata were custom created for this installation of Kumulate.



Actions	Metadata ID	Metadata Name	Metadata Group	Format	Default Value	Length	Mandatory	Display Mode
	afd	AFD	Video	List		20	YES	Visible
	bit_depth	Bit depth	Video	Free		50	NO	Read only
	category_path	Category Path	Summary	Free		260	NO	Visible
	CRC	CRC	Default	Free		500	NO	Visible
	dal	DAL	Default	Free		50	NO	Visible
	definition	Definition	Default	Free		20	NO	Visible
	dominant_file	Dominant File	Summary	Free	Dominant File	300	NO	Read only
	frame_rate	Frame Rate	Video	List		20	NO	Read only
	is_proxy	IsProxy	Default	Combo	NO	20	NO	Visible
	is_temporary	IsTemporary	Default	Combo	NO	20	NO	Visible
	marked_on_capture	Marked On Capture	Default	Free		20	NO	Visible
	media_type	NLE Media Type	Default	Free		50	NO	Visible
	scan_mode	Scan Mode	Video	List		20	NO	Read only
	video_height	Video Height	Video	Free		20	YES	Read only
	video_width	Video Width	Video	Free		20	YES	Read only

The fields in the table provide the following information about the metadata:

Metadata Parameter	Description
Metadata ID	The unique, internal metadata identifier. By convention, the ID is in lowercase characters with words separated by underscores (_).
Metadata Name	The name used to identify the metadata. This is the name used when the metadata is displayed and is the name that should be used when creating resource filters, or searching using metadata.
Metadata Group	The group to which the metadata belongs. Groups can be added as needed. Metadata will appear under its group in the Virtual Object or Rendition view.

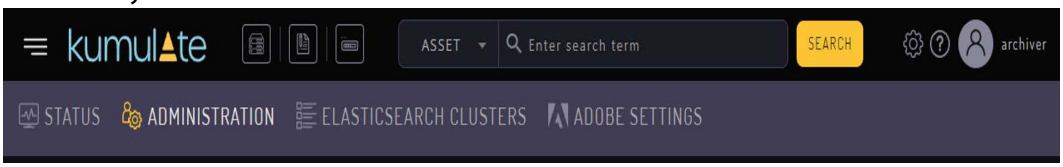
Metadata Parameter	Description
Format	The format of the metadata. The following options are available: Free: The metadata can have any value assigned by the user. Combo: The metadata value can be selected from a list of values or entered by the user. List: The metadata value can only be selected from a list of values. Date: The metadata value is a date.
Default Value	The value assigned to the metadata by default.
Length	The maximum character length of the metadata value.
Mandatory	The metadata must be populated when set to `YES`.
Display Mode	The metadata value cannot be set or modified by a user when set to Read Only.

4. Use the Add Metadata button to add new Virtual Object or Rendition metadata.

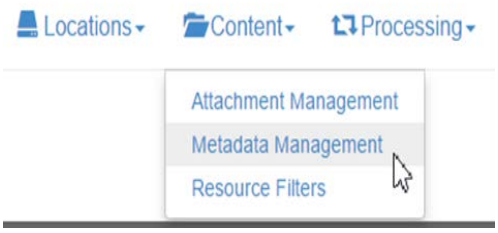
Add Custom Metadata

Custom metadata can be added from the Metadata Management screen. Administrators can now assign a default set of pinned metadata fields. Use the following procedure to add custom metadata:

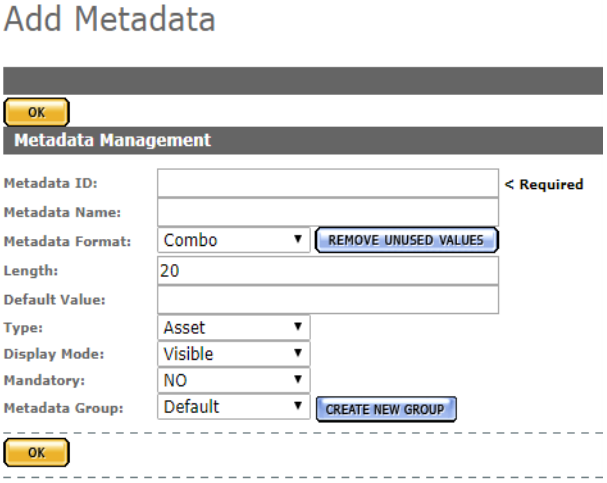
1. Click System > Administration in the menu bar in the Kumulate web interface.



2. Select Content > Metadata Management.



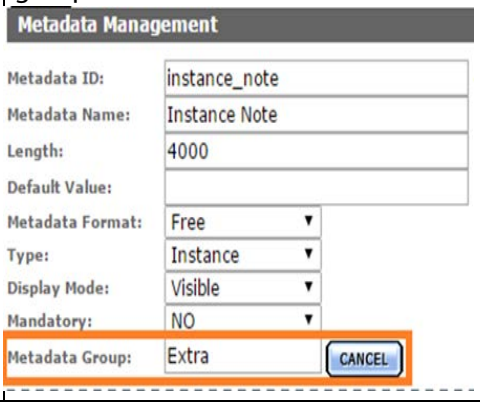
3. Click Add Metadata and enter the parameters for the new metadata element.



The fields in the following table provide information about the metadata:

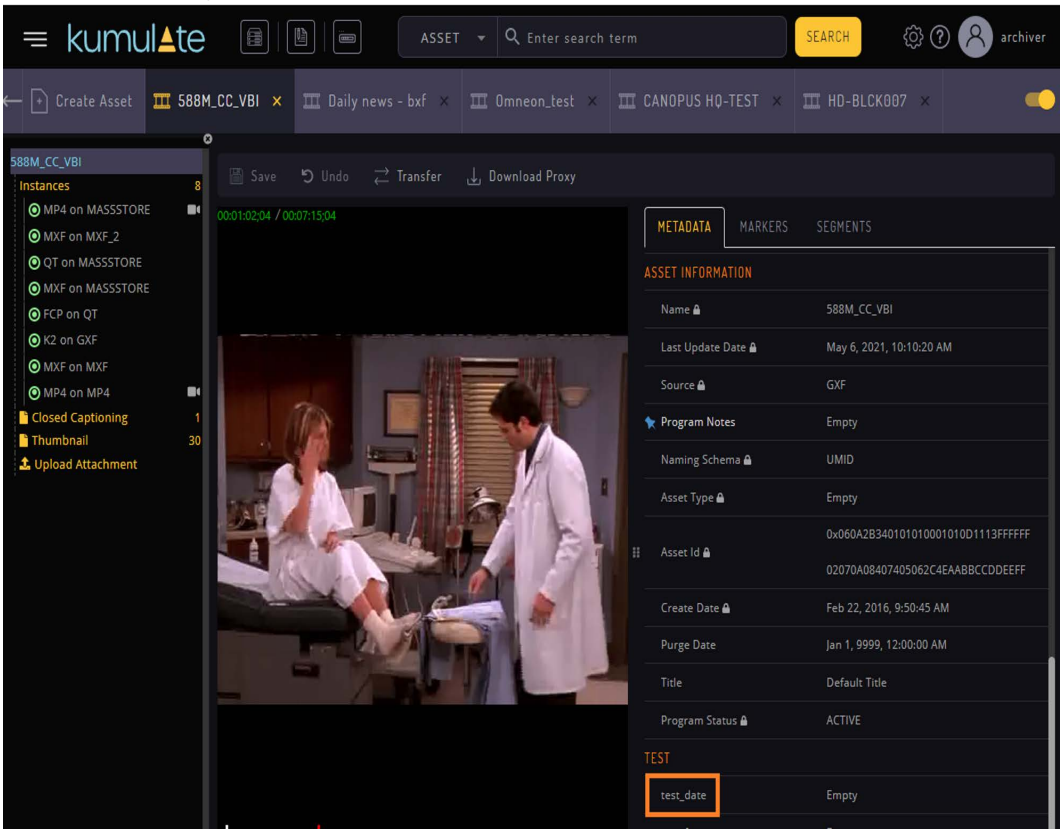
Metadata Parameter	Description
Metadata ID	The unique, internal metadata identifier. By convention, the ID is in lowercase characters with words separated by underscores (_).
Metadata Name	The name used to identify the metadata. This is the name used when the metadata is displayed and is the name that should be used when creating resource filters, or searching using metadata.

Metadata Parameter	Description
Metadata Format	The format of the metadata. The following options are available: Combo: The metadata value can be selected from a list of values or entered by the user. Date: The metadata value is a date. **Note:** Never set a default value when creating date metadata. Free : The metadata value can be in any format. The length is capped at 4000 characters . List: The metadata value is selected from a set list of values. See *Create List Metadata* for detailed information on configuring this metadata format. Number: The metadata value is a number entered by the user. Large Text: The same as Free, except that the length is capped at 32000 characters instead of 4000 characters.
Length	The maximum character length of the metadata value.
Default Value	The value assigned to the metadata by default. **Note:** Keep this field empty when creating date metadata.
Type	Indicates whether this is Virtual Object or Rendition metadata.
Display Mode	The metadata value cannot be set or modified by a user when set to Read Only.
Mandatory	The metadata must be populated when set to YES.

Metadata Parameter	Description
Metadata Group	The group to which the metadata belongs. Groups can be added as needed. Click Create New Group if a new metadata group is needed. 

4. Click OK to save.

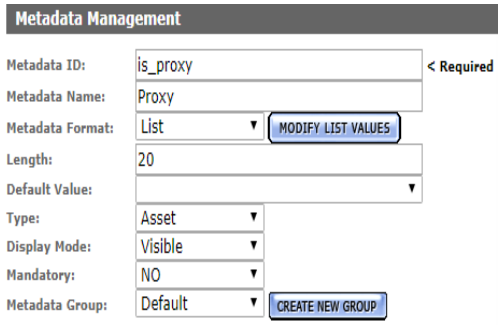
If new Virtual Object metadata was added, it must be added to a group ACL to be visible by users. When viewing a Virtual Object or Rendition, the new metadata will be visible under its group.



Create List Metadata

List metadata is metadata that uses pre-set values that can be selected from a list. Use the following procedure to create list metadata:

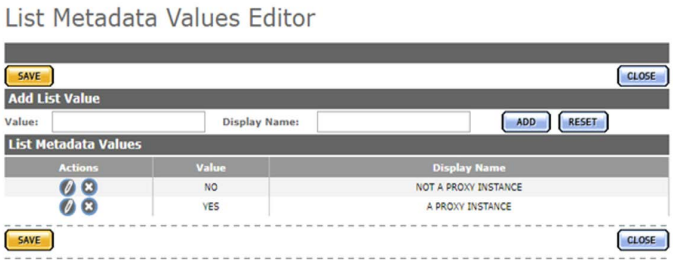
1. Select List as the Metadata Format after filling in the Metadata ID and Display Name.



2. Click Modify List Values to open the Metadata Values Editor.

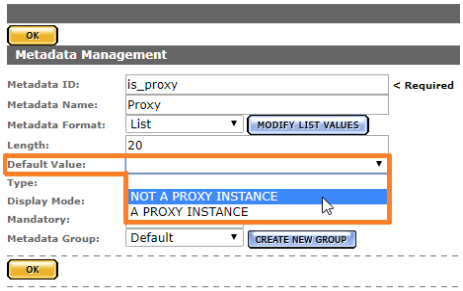
3. Enter the metadata value that will be used internally by Kumulate and the display name that users will see. Spaces are not allowed in the internal value, but are allowed in the display name.
4. Click ADD to add the value to the list of values.

5. Add in as many values as required before clicking Save. Clicking Close cancels the operation.



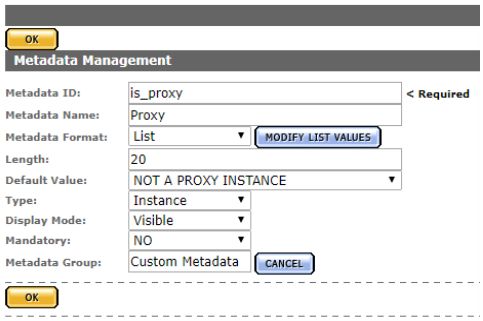
6. Choose a Default Value if required.

Add Metadata

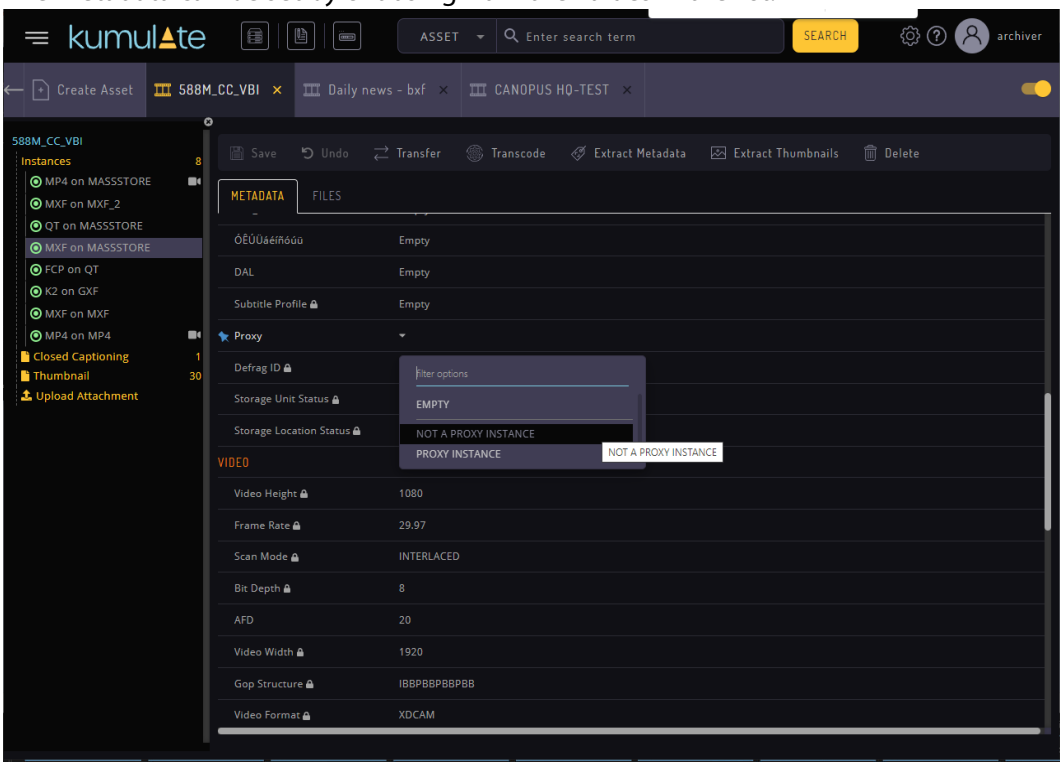


7. Set the rest of the parameters as required, then click OK to save.

Add Metadata



The metadata can be set by choosing from the values in the list.

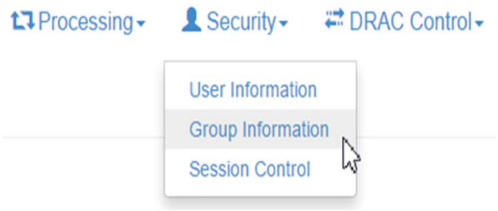


Add Custom Virtual Object Metadata to an ACL

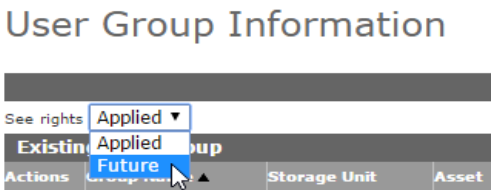
When new custom Virtual Object metadata is created, it must be added to group ACLs for users to be able to see the new metadata.

Use the following procedure to add custom Virtual Object metadata to an ACL:

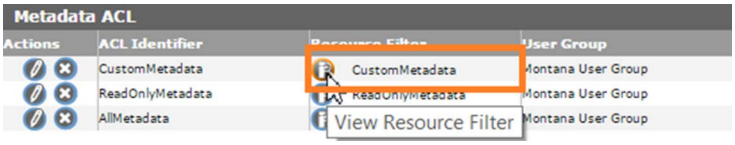
1. After creating the new custom Virtual Object metadata, click Security > Group Information.



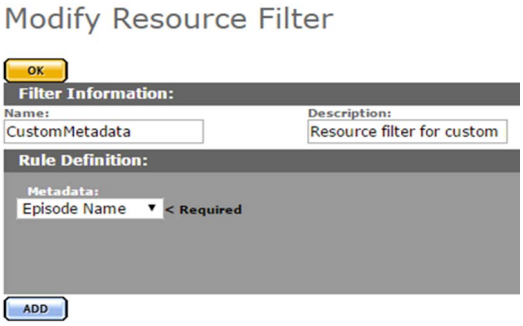
2. Select Future from the See rights pull down menu.



3. Click the Pencil icon next to the user group to modify.
4. Under Metadata ACL, click the metadata Resource Filter to add the new metadata to.



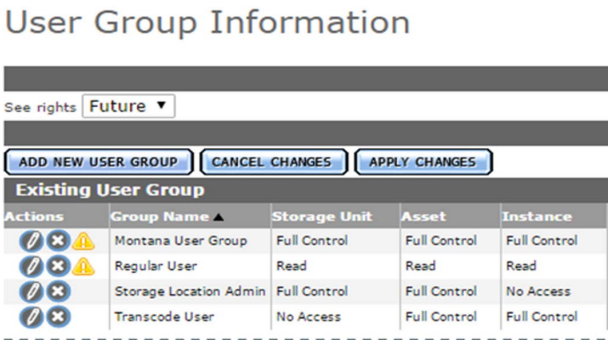
5. Select the new Virtual Object metadata to add to the ACL on the Modify Resource Filter page, then click ADD.



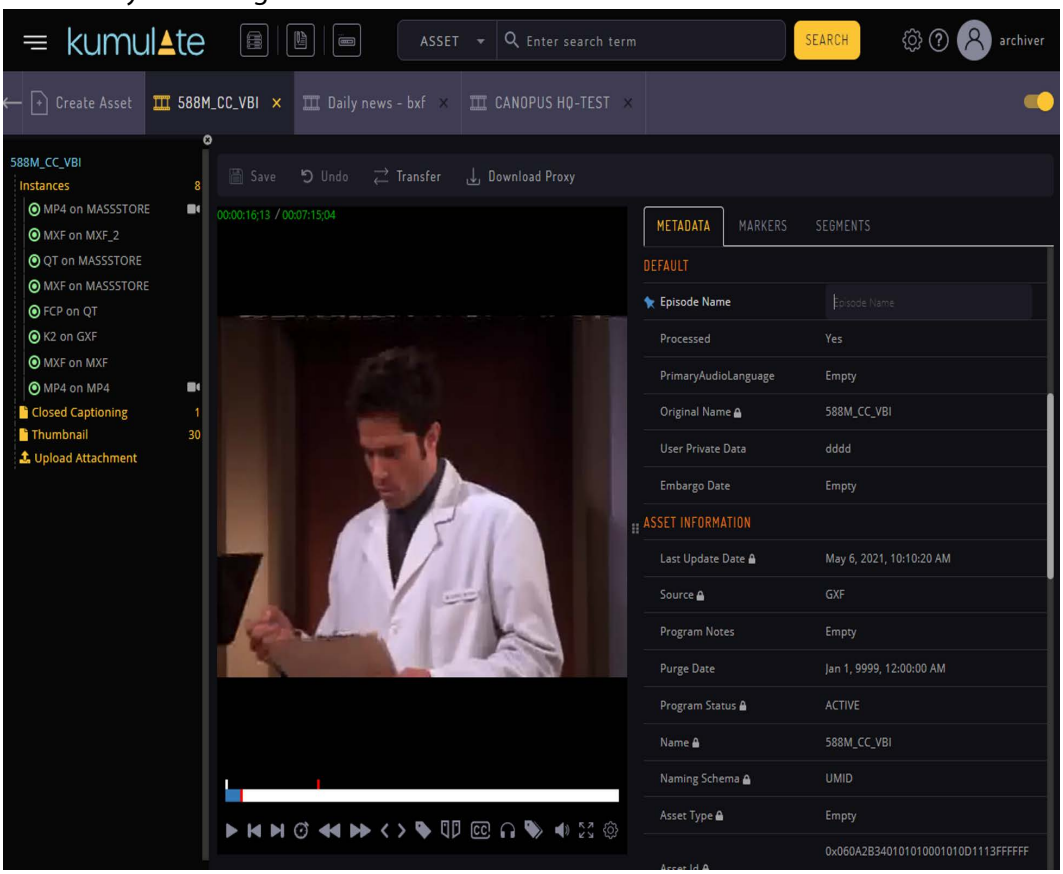
6. Click OK to save changes and return to the Modify User Group page.
7. Click OK to save changes to the user group and return to the User Group Information page.

Note: A hazard sign may appear next to the groups affected by the change to the resource filter.

8. Click Apply Changes for the changes to take effect.

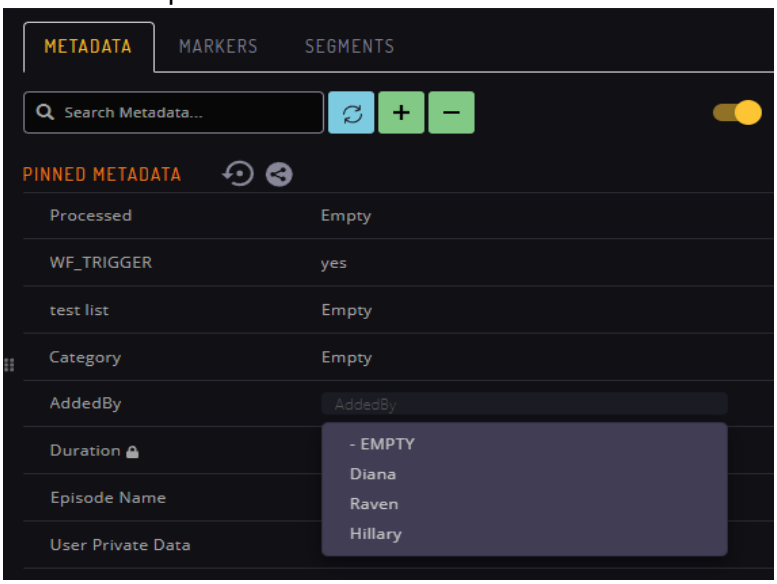


The new Virtual Object metadata will now be visible to users belonging to the groups affected by the change.



Delete Unused Combo Metadata

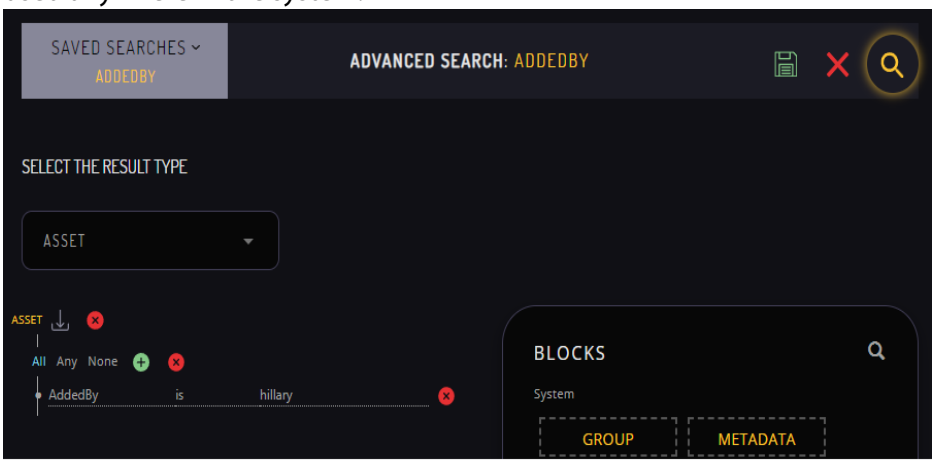
Combo metadata is metadata where the value is entered manually and then stored in the database. When editing a combo metadata, any previously used values will be available in a pull down menu.

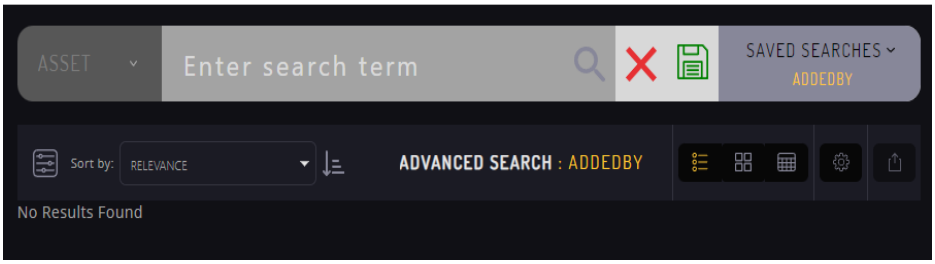


All previously-used values will be available in the pull down menu regardless of whether these values are currently assigned to the metadata.

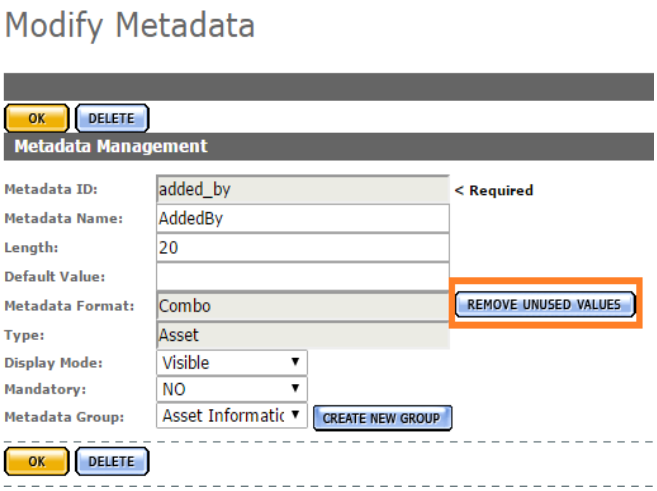
For example, if the AddedBy metadata had once been assigned three different values, all three of these values are made available as options in the pull-down menu.

The search will return no results if a search is performed for a metadata value that is not used anywhere in the system.

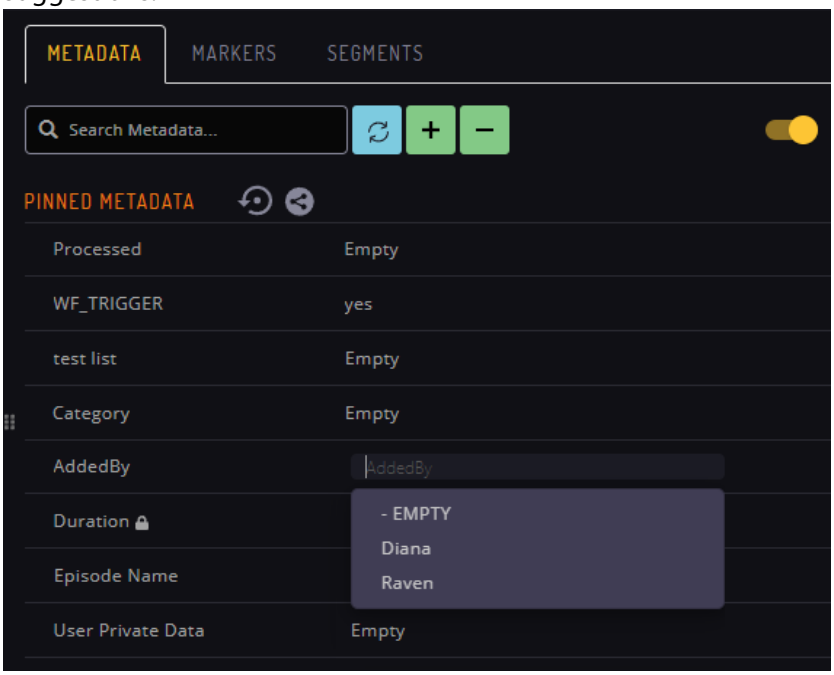




The Remove Unused Values button removes any combo metadata values that are no longer assigned to the metadata.



These values will no longer appear in any pull down menus of metadata value suggestions.



Note: The Kumulate web interface will need to be reloaded for the changes to take effect. The cache may also need to be cleared.

Resource Filters

Resource filters are used to select specific Virtual Objects, Renditions, Unmanaged Storage Repositories, metadata, and attachments based on the requirements.

Resource filters are separated into ACL and non-ACL filters. ACL Resource Filters are used in group configurations to control access to attachment templates, Unmanaged Storage Repositories, and metadata elements. Non-ACL Resource Filters are used by workflow and transcode to narrow triggers, sources, and destinations.

Non-ACL and ACL Resource Filters can share the same names. However, it is best practice to not duplicate resource filter names.

Because resource filters can be changed from several different administrative pages, always verify that modifications to resource filters will not impact workflows, transcodes, or groups.

- Adding a Virtual Object Resource Filter
- Add a Rendition Resource Filter
- Audio Metadata in Non-ACL Rendition Resource Filters
- Add a Metadata Resource Filter
- Add an Unmanaged Storage Repository Resource Filter
- Add an Attachment Template Resource Filter
- Add a Video Essence Resource Filter
- Add an Audio Essence Resource Filter
- Using Date Metadata in a Resource Filter
- Metadata-Based Resource Filter Search

Types of Resource Filters

Resource Filters are used to select Virtual Objects, Renditions, metadata, Unmanaged Storage Repositories, and attachments using specific criteria. The type of the resource filter dictates what is filtered.

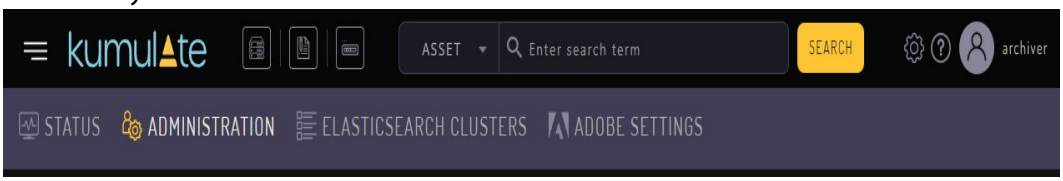
Type of Resource Filter	Description
Virtual Object	Selects Virtual Objects with metadata that matches the defined criteria.
Rendition	Selects Renditions with metadata that matches the defined criteria.
Metadata	Selects only the listed metadata elements.
Unmanaged Storage Repository	Selects only the listed Unmanaged Storage Repositories.
Attachment Template	Selects attachments created with the listed attachment templates by the listed user groups.
Video Essence	Selects video essences with the matching metadata.
Audio Essence	Selects audio essences with the matching metadata.

Adding a Virtual Object Resource Filter

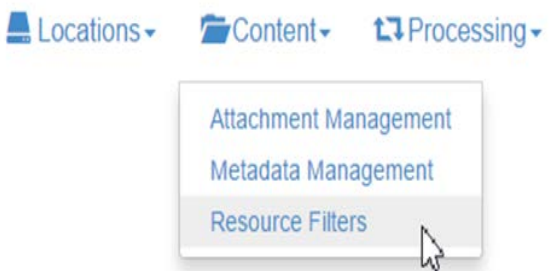
Virtual Object Resource Filters select Virtual Objects based on metadata values. They are used in workflows and group ACLs (Access Control Lists). Always ensure that any changes made to a Virtual Object Resource Filter will not negatively affect existing workflows or groups.

Use the following procedure to create a Virtual Object Resource Filter from the Resource Filters page:

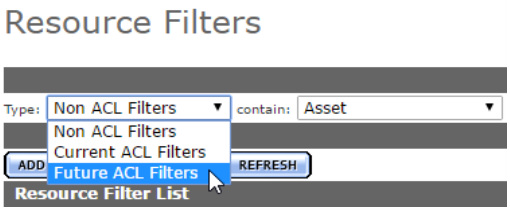
1. Click System > Administration in the menu bar in the Kumulate web interface.



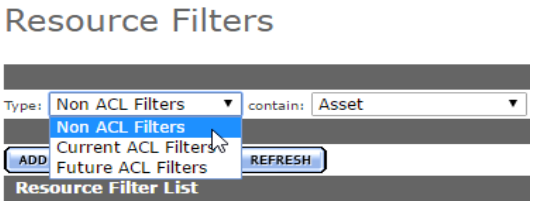
2. Select Content > Resource Filters.



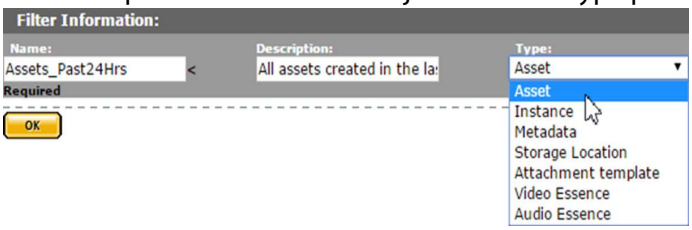
3. Virtual Object Resource Filters can be used in workflows and ACLs. If the resource filter will be used in a group ACL, select Future ACL Filters from the Type pull down menu.



4. If the resource filter will be used in a workflow, select Non ACL Filters from the Type pull down menu.



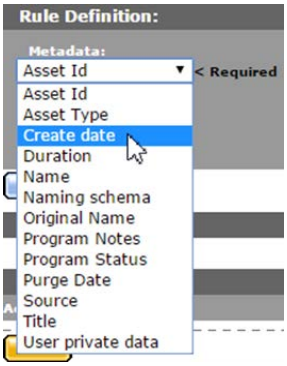
5. Click Add New Resource Filter and give the resource filter a useful name and description. Select Virtual Object from the Type pull down menu.



6. Click OK.

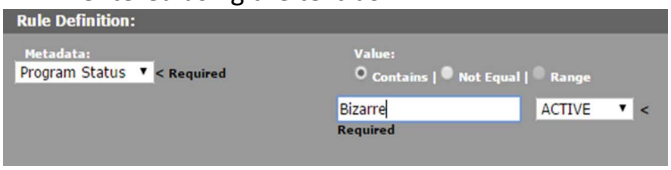
7. On the Modify Resource Filter page, enter the Virtual Object metadata to use as a filter.

   a. Select the metadata from the Metadata pull down menu.

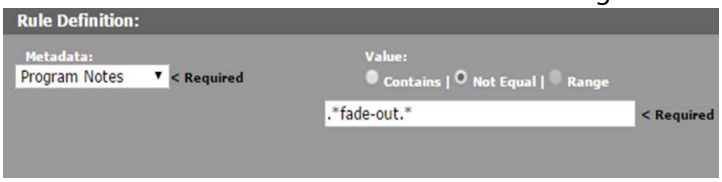


   b. Enter the metadata value. The resource filter will select Renditions that satisfy the metadata conditions.

   The Program Status metadata value can be selected from a pull down menu, or entered using the text box.

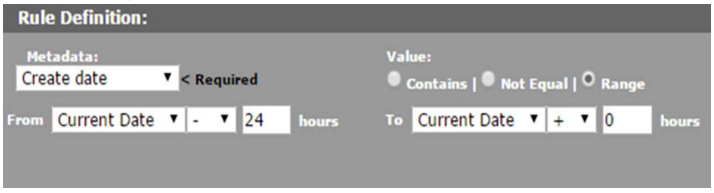


All other metadata values are entered using the text box.



All metadata values are treated as regular expressions except Create Date, Duration, and Purge Date. The Contains option finds all values that match the regular expression, and the Not Equal option finds all values that do not match the regular expression.

The Range option is disabled for all metadata except Create Date, Duration, and Purge Date.



The Contains option is interpreted as is equal to for Create Date, Duration, and Purge Date.

See *Using Date Metadata in a Resource Filter* before using date metadata.

c. Click Add to save the metadata condition.

d. Repeat these steps for each attachment to include in the resource filter.

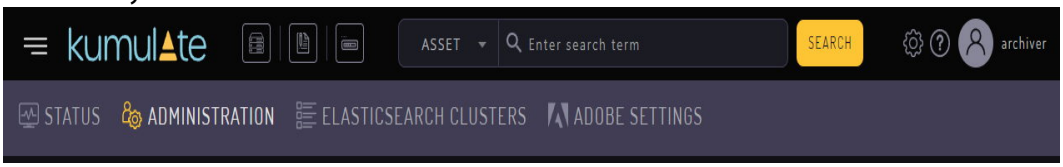
8. Click OK to save the resource filter.

Add a Rendition Resource Filter

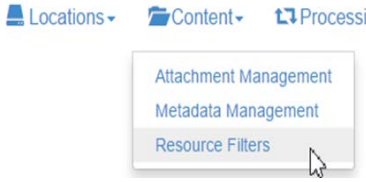
Rendition Resource Filters select Renditions based on metadata values. They are used in workflows and group ACL (Access Control Lists). Always ensure that any changes made to a Rendition Resource Filter will not negatively affect existing workflows or groups.

Use the following procedure to create a Rendition Resource Filter from the Resource Filters page:

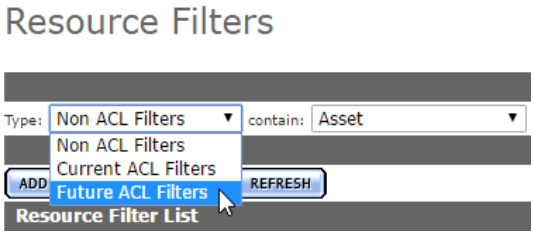
1. Click System > Administration in the menu bar in the Kumulate web interface.



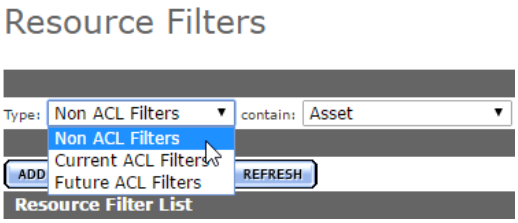
2. Select Content > Resource Filters.



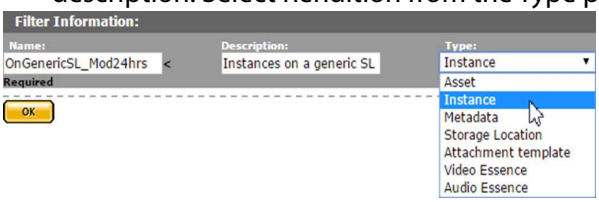
3. Rendition Resource Filters can be used in workflows and ACLs. If the resource filter will be used in a group ACL, select Future ACL Filters from the Type pull down menu.



4. If the resource filter will be used in a workflow, select Non ACL Filters from the Type pull down menu.



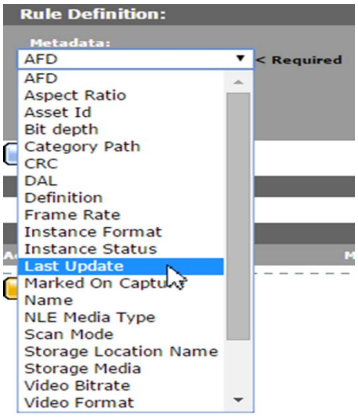
5. Click Add New Resource Filter and give the resource filter a useful name and description. Select Rendition from the Type pull down menu.



6. Click **OK**.

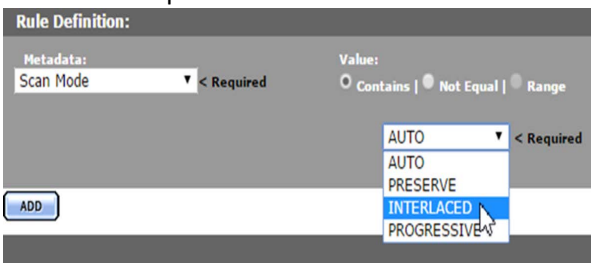
7. On the Modify Resource Filter page, enter the Virtual Object metadata to use as a filter.

a. Select the metadata from the Metadata pull down menu.

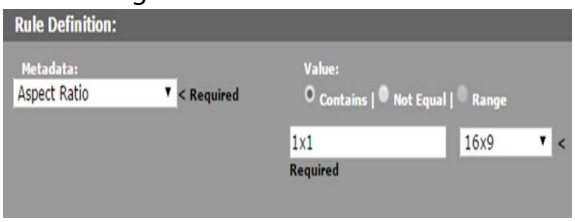


b. Enter the metadata value. The resource filter will select Renditions that satisfy the metadata conditions.

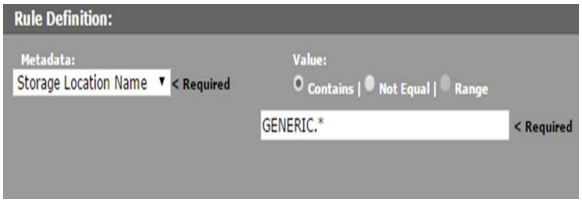
The AFD, Frame Rate, and Scan Mode metadata values are selected exclusively from a pull down menu.



The Aspect Ratio, Rendition Format, Rendition Status, Storage Media, and Video Format metadata values can be selected from a pull down menu, or entered using the text box.

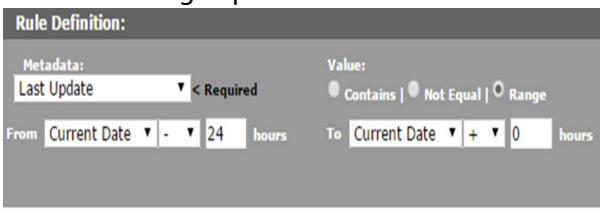


All other metadata values are entered using a text box.



All metadata values are treated as regular expressions except Last Update. The Contains option finds all values that match the regular expression, and the Not Equal option finds all values that do not match the regular expression.

The Range option is disabled for all metadata except `Last Update`.



The Contains option is interpreted as is equal to for Last Update.

See *Using Date Metadata in a Resource Filter* before using date metadata.

See *Audio Metadata in Non-ACL Rendition Resource Filters* before using audio metadata.

c. Click Add to save the metadata condition.

d. Repeat these steps for each attachment to include in the resource filter.

8. Click OK to save the resource filter.

Audio Metadata in Non-ACL Rendition Resource Filters

Audio metadata can be used to select Renditions in non-ACL Rendition Resource Filters.

Note: Metadata must be extracted from Renditions before using these resource filters.

Types of Audio Metadata

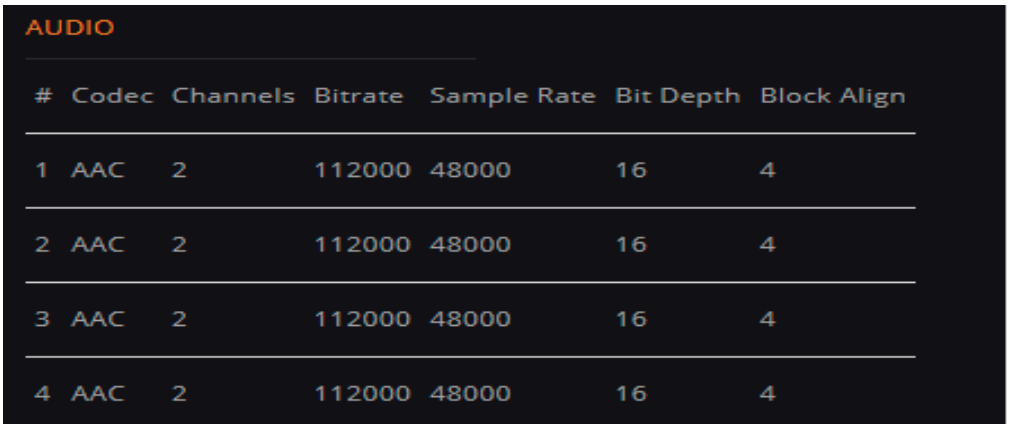
Renditions can be filtered by the bit depth, bitrate, block align, sample rate, codec used in one or more essences, the number of essences, and audio channels in a Rendition.

Metadata	Description
Audio.Bit depth	Used to filter Renditions by the bit depth of one or more of their audio essences.
Audio.Bitrate	Used to filter Renditions by the bitrate of one or more of their audio essences.
Audio.Block align	Used to filter Renditions by the block align of one or more of their audio essences.
Audio.Sample rate	Used to filter Renditions by the sample rate of one or more of their audio essences.
Audio.Codec	Used to filter Renditions by the codec used in one or more of their audio essences.
Audio.Channels	Used to filter Renditions by the number of channels in one or more of their audio essences.
Audio.Channel count	Used to filter Renditions by the total number of channels over all its essences.
Audio.Essence count	Used to filter Renditions by the number of essences in the Rendition.

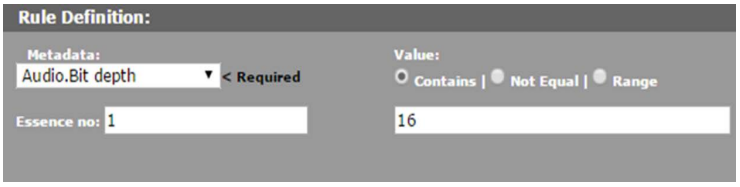
Using Audio Metadata

With the exception of Audio.Channel count and Audio.Essence count, the audio metadata is matched to one or more audio essences in the Rendition. The Essence no: field specifies the essence to which the metadata must be matched.

Note: Essence numbers are visible from the Rendition audio metadata.



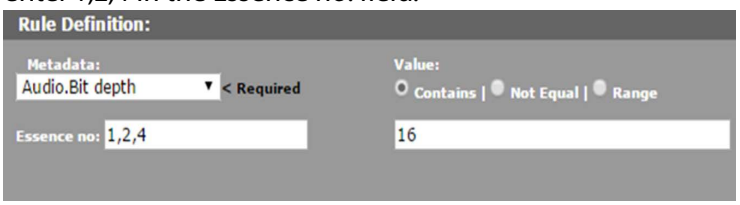
To apply the filter to one specific essence, enter the essence number in the Essence no: field. For example, to select Renditions where audio essence 1 has a bit depth of 16, enter *1* in the Essence no field.



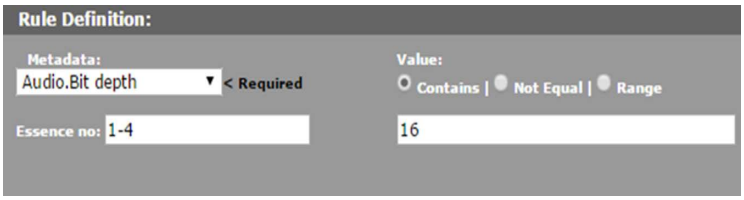
To apply the filter to more than one essence, essence numbers can be separated by commas, or specified by a range.

Note: The metadata must match each essence in the list.

For example, to select Renditions where essences 1, 2, and 4 have a bit depth of 16, enter *1,2,4* in the Essence no: field.



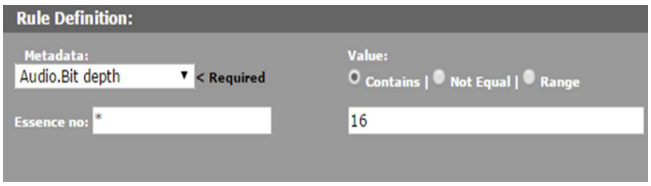
To select Renditions where essences 1, 2, 3, and 4 have a bit depth of 16, enter *1-4* in the Essence no: field.



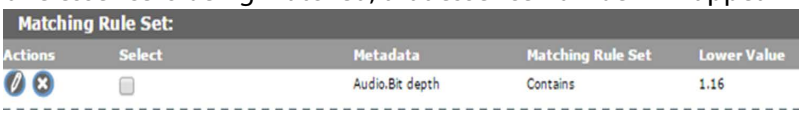
Note: All ranges are inclusive, meaning that the lower and upper limits will be included in the range.

Use the * to match the metadata to any essence in the Rendition.

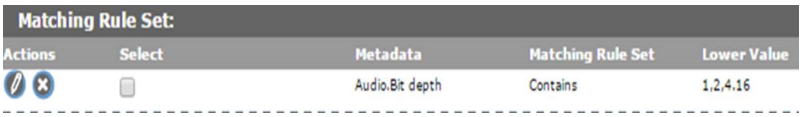
For example, to select Renditions that have at least one essence with a bit depth of 16, enter * in the Essence no: field.



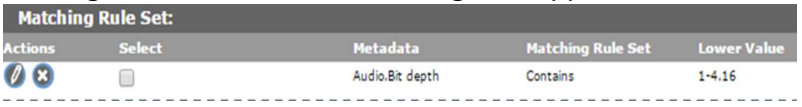
In the Matching Rule Set list, the matched values are displayed as essence.value. If only one essence is being matched, that essence number will appear in the value:



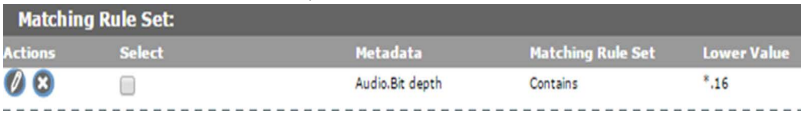
If a comma-separated list of essences is used, the comma separated list will appear in the value:



If a range of essences is used, the range will appear in the value:



If the value can match any essence, the * will appear in the value:

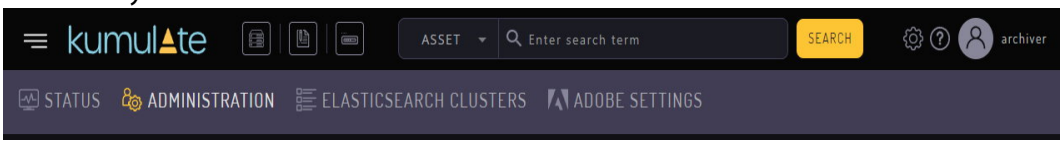


Add a Metadata Resource Filter

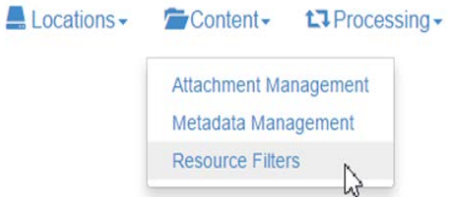
Metadata Resource Filters select the listed metadata elements and are used to limit the metadata elements a user group can access. They are generally used in ACLs.

Use the following procedure to create a Metadata Resource Filter from the Resource Filters page:

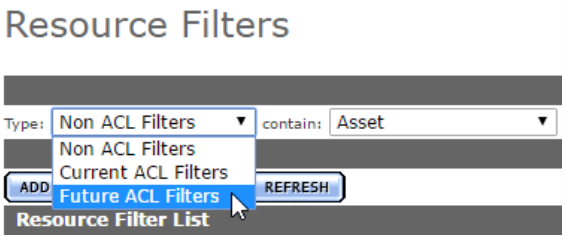
1. Click System > Administration in the menu bar in the Kumulate web interface.



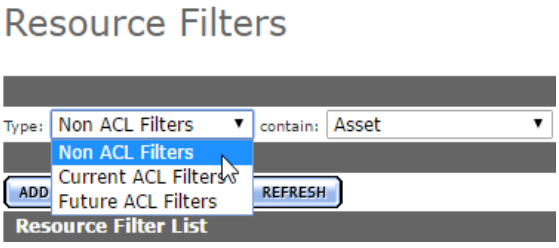
2. Select Content > Resource Filters.



3. Metadata Resource Filters can be used in workflows and ACLs. If the resource filter will be used in a group ACL, select Future ACL Filters from the Type pull down menu.

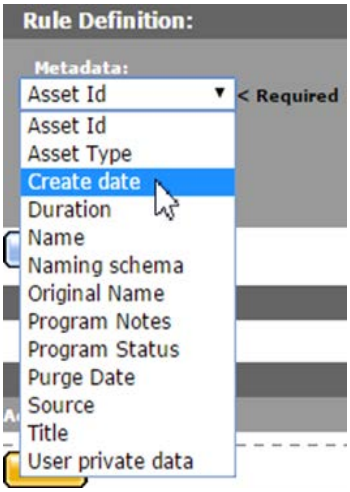


4. If the resource filter will be used in a workflow, select Non ACL Filters from the Type pull down menu.

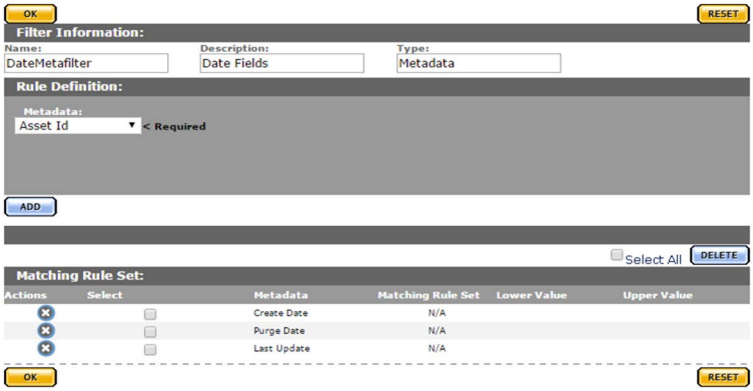


5. Click Add New Resource Filter and give the resource filter a useful name and description. Select Metadata from the Type pull down menu.

6. Click OK.
7. On the Modify Resource Filter page, enter the Virtual Object metadata to use as a filter.
   a. Select the metadata from the Metadata pull down menu.



   b. Click Add to save the metadata element.
   c. Repeat these steps for each attachment to include in the resource filter.
8. Click OK to save the resource filter.

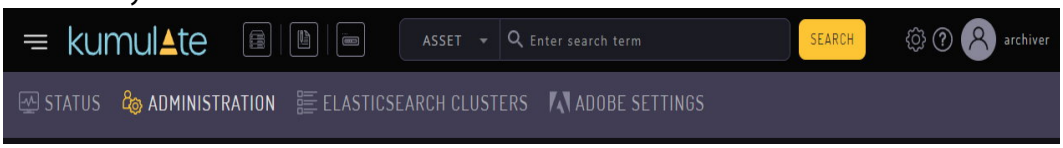


Add an Unmanaged Storage Repository Resource Filter

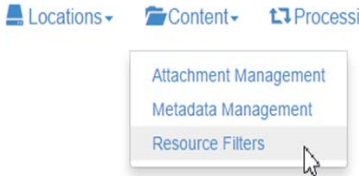
Unmanaged Storage Repository Resource Filters are a list of Unmanaged Storage Repositories. They can be modified from Group Settings or from the Resource Filters page. Always ensure that any changes made to an Unmanaged Storage Repository Resource Filter will not negatively affect group configurations.

Use the following procedure to create an Unmanaged Storage Repository Resource Filter from the Resource Filters page:

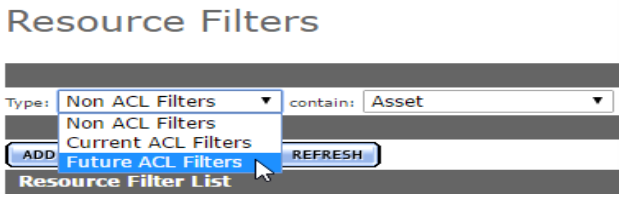
1. Click System > Administration in the menu bar in the Kumulate web interface.



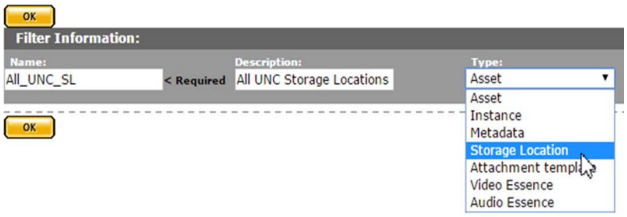
2. Select Content > Resource Filters.



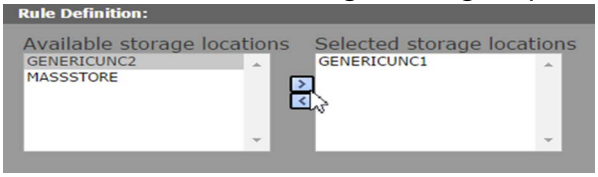
3. Unmanaged Storage Repository Resource Filters are used exclusively in group ACLs (Access Control Lists). Select Future ACL Filters from the Type pull down menu.



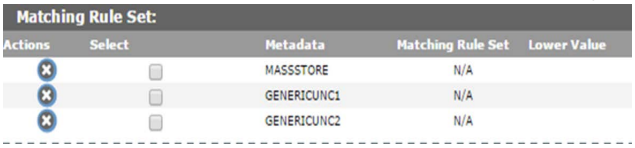
4. Click Add New Resource Filter.
5. Give the resource filter a useful name and description. Select Unmanaged Storage Repository from the Type pull down menu.



6. Click OK.
7. On the Modify Resource Filter page, select the Unmanaged Storage Repositories returned by this filter.
   a. Select Unmanaged Storage Repositories from the left hand Available Unmanaged Storage Repositories list, then use the right arrow to add them to the Selected Unmanaged Storage Repositories list.



   b. Click Add to add the location to the filter.
   c. The location will be added to the Matching Rule Set list.



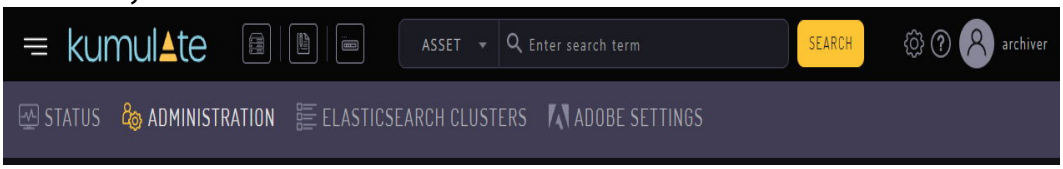
8. Click OK to save the resource filter.

Add an Attachment Template Resource Filter

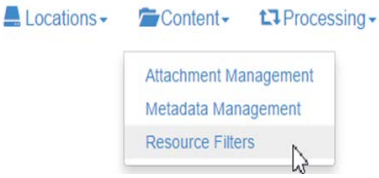
Attachment Template Resource Filters select attachments created by specific user groups, using specific templates. They are used by ACLs (Access Control Lists). Always ensure that any changes made to an Attachment Template Resource Filter will not negatively affect group configurations.

Use the following procedure to create an Attachment Template Resource Filter from the Resource Filters page:

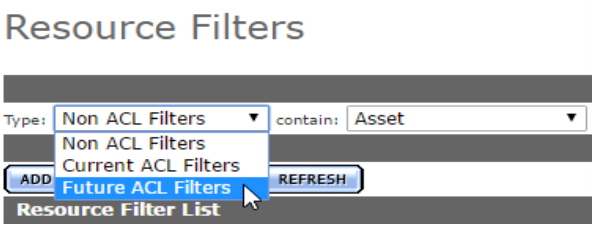
1. Click System > Administration in the menu bar in the Kumulate web interface.



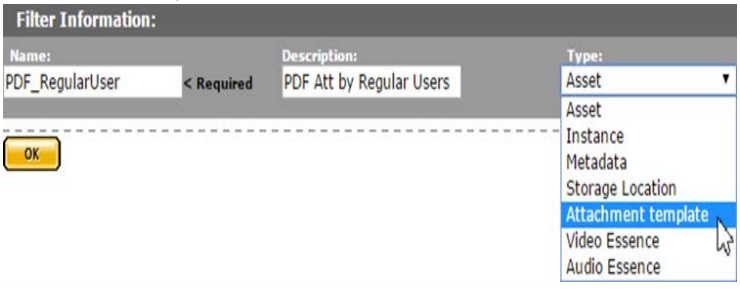
2. Select Content > Resource Filters.



3. Attachment Template Resource Filters are used exclusively in group ACLs (Access Control Lists). Select Future ACL Filters from the Type pull down menu.



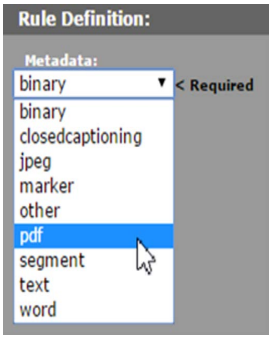
4. Click Add New Resource Filter.
5. Give the resource filter a useful name and description. Select Attachment Template from the Type pull down menu.



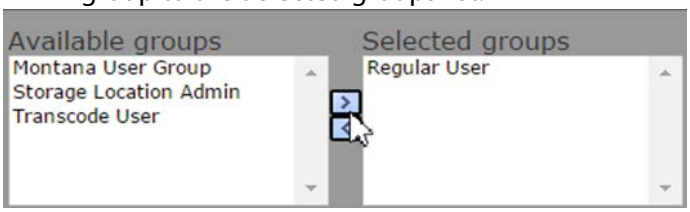
6. Click OK.

7. On the Modify Resource Filter page, add the attachments created by the specific user groups that will be returned by this filter.

   a. Select an attachment template from the Metadata pull down menu. The menu will show all built-in attachment templates, as well as any user-created templates.

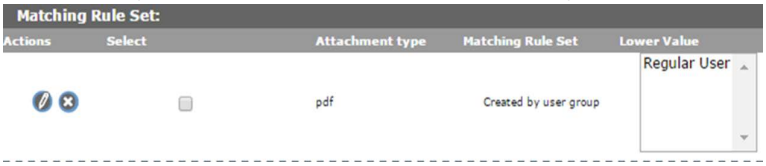


   b. Select a group. This group is the group that created the attachment. The filter will only return attachments created by the selected group. Select as many groups as needed from the Available groups list, then Click the right arrow to add the group to the Selected groups list.



   c. Click Add.

   d. The group will be added to the Matching Rule Set list.



   e. Repeat these steps for each attachment to include in the resource filter.

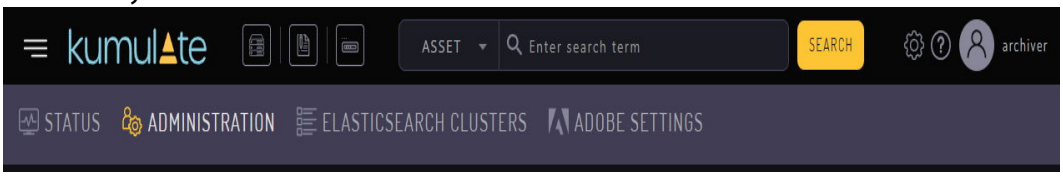
8. Click OK to save the resource filter.

Add a Video Essence Resource Filter

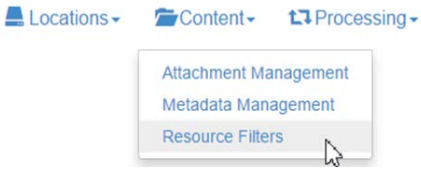
Video Essence Resource Filters select Renditions based on their video metadata. They are used in workflows and transcode profiles. Always ensure that any changes made to a Video Essence Resource Filter will not negatively affect existing workflows and transcode profiles.

Use the following procedure to create a Video Essence Resource Filter from the Resource Filters page:

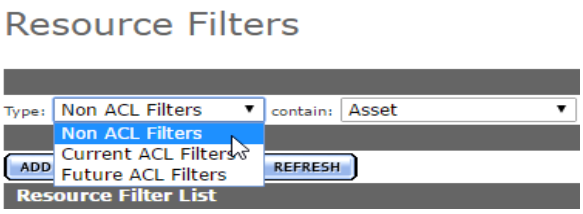
1. Click System > Administration in the menu bar in the Kumulate web interface.



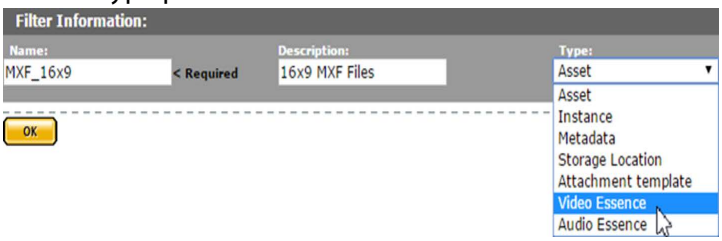
2. Select Content > Resource Filters.



3. Video Essence Resource Filters are not used in ACLs. Select Non ACL Filters from the Type pull down menu.



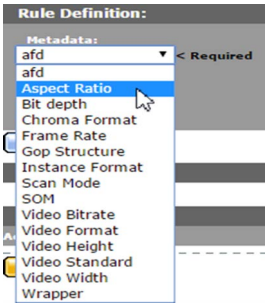
4. Click Add New Resource Filter.
5. Give the resource filter a useful name and description. Select Video Essence from the Type pull down menu.



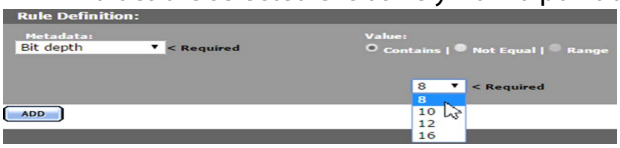
6. Click OK.

7. On the Modify Resource Filter page, add the attachments created by the specific user groups that will be returned by this filter.

   a. Select the metadata from the Metadata pull down menu.

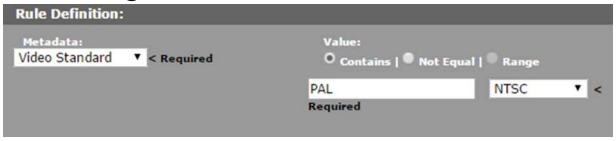


   b. Enter the metadata value. The resource filter will select Renditions that satisfy the metadata conditions. The afd, Bit depth, Frame Rate, and Scan Mode metadata values are selected exclusively from a pull down menu.

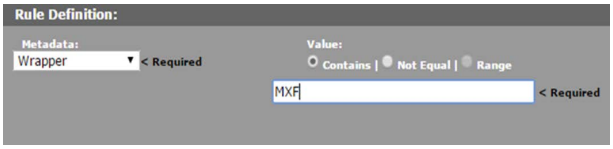


   The Aspect Ratio, Chroma Format, GOP Structure, Rendition Format, Video Format, and Video Standard metadata values can be selected from a pull down menu, or entered using the text box.

   A value entered into the text box will be added to the pull down menu if it is also assigned to a Rendition.



   The SOM, Video Bitrate, Video Height, Video Width, and Wrapper metadata values are entered in the text box.



Note:

- Text metadata values are interpreted as regular expressions. The Contains option finds all values that match the regular expression, and the Not Equal option finds all values that do not match the regular expression.
- The Contains option is interpreted as is equal to when the metadata value is a numeric type, such as SOM.
- The Range option is disabled for all metadata except SOM and Video Bitrate.

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   c. Click Add to save the metadata condition.

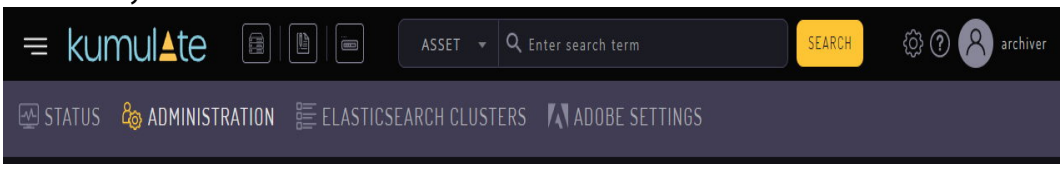
8. Click OK to save the resource filter.

Add an Audio Essence Resource Filter

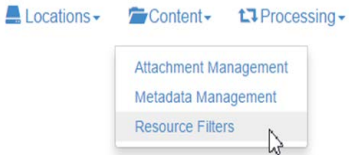
Audio Essence Resource Filters select Renditions based on their audio metadata. They are used in workflows and transcode profiles. Always ensure that any changes made to an Audio Essence Resource Filter will not negatively affect existing workflows and transcode profiles.

Use the following procedure to create an Audio Essence Resource Filter from the Resource Filters page:

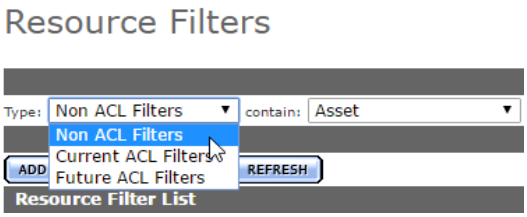
1. Click System > Administration in the menu bar in the Kumulate web interface.



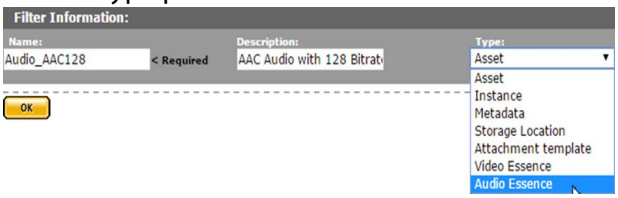
2. Select Content > Resource Filters.



3. Audio Essence Resource Filters are not used in ACLs. Select Non ACL Filters from the Type pull down menu.



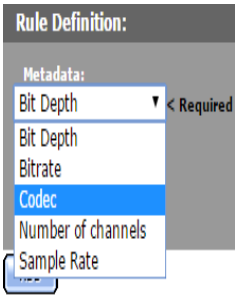
4. Click Add New Resource Filter.
5. Give the resource filter a useful name and description. Select Audio Essence from the Type pull down menu.



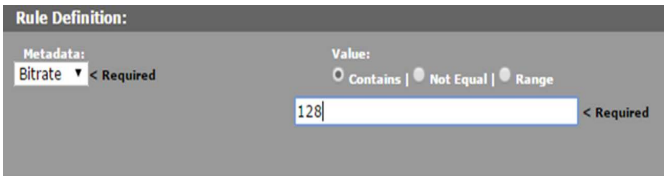
6. Click OK.

7. On the Modify Resource Filter page, enter the audio metadata to use to filter Renditions.

   a. Select the metadata from the Metadata pull down menu.



   b. Enter the metadata value. The resource filter will select Renditions that satisfy the metadata conditions. The Bit Depth, Bitrate, Number of channels and Sample Rate metadata can be set to either be equal to a value (Contains), not equal to a value (Not Equal), or between two values (Range). The Range option includes the lower bound, but excludes the lower bound in the match.



   The Codec metadata values can be set to either match a codec (Contains) or not match a codec (Not Equal). The codec can either be selected from the pull down menu or entered in the text box. The Range option is disabled for codec metadata.

   c. Click Add to save the metadata condition.

   d. Click OK to save the resource filter.

Using Date Metadata in a Resource Filter

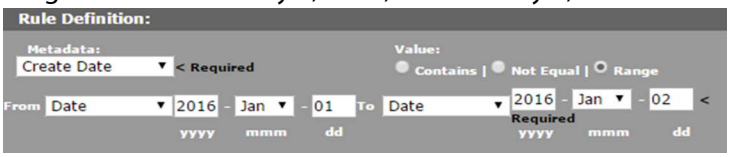
Date metadata, such as Purge Date, Create Date, and Last Update Date are stored with second precision; meaning the metadata contains date, hour, minute, and second information.

When creating a Date Resource Filter, the Contains option exactly matches the date and time of the metadata. An exact match with stored metadata is almost impossible because a resource filter only allows you to match a date without the time component.

For example, a resource filter that selects Virtual Objects where Create Date Contains January 1, 2016 will only return Virtual Objects that were created on January 1, 2016 at 00:00:00, instead of all Virtual Objects that were created on January 1, 2016.

Instead, use the Range option to select date metadata that contains a particular day. The range includes the lower limit, but does not include the upper limit.

For example, to select all Virtual Objects that were created on January 1, 2016, use a range between January 1, 2016, and January 2, 2016.

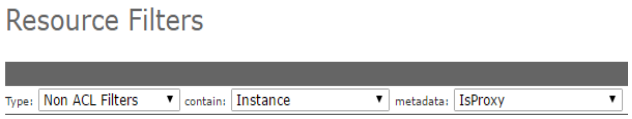


Because the upper limit of the range is not included, this range only matches Virtual Objects with a Create Date of January 1, 2016.

Metadata-Based Resource Filter Search

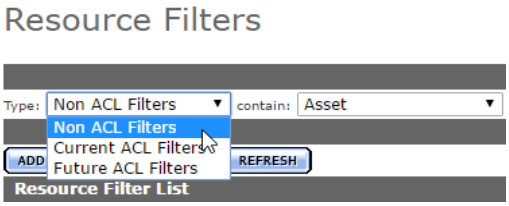
In some cases it may be necessary to find all the resource filters that use specific metadata. For example, this may be necessary in cases where metadata needs to be deleted or replaced.

Searching for resource filters is accomplished using the search bar at the top of the Resource Filter list.

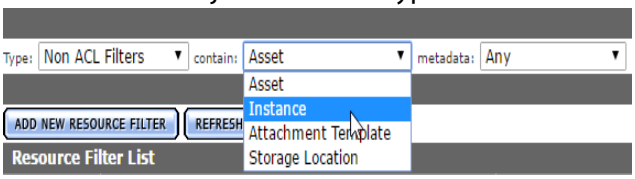


Use the following procedure to search resource filter metadata:

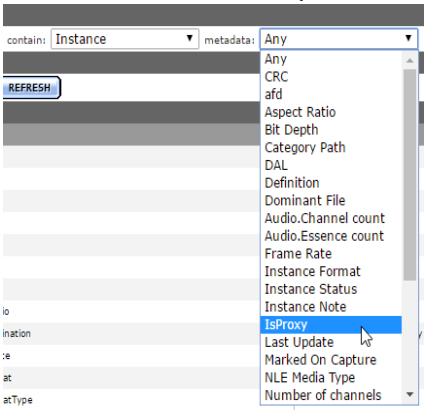
1. Select the type of resource filter to search.



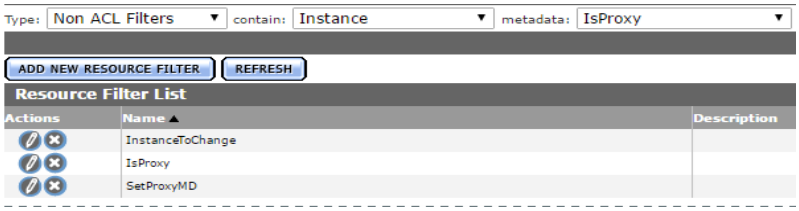
2. Select the object metadata type.



3. Select the metadata. Only the metadata associated with the object type selected will be visible in the pull down menu.



4. After the metadata is selected, the Resource Filter list will only show resource filters that use the selected metadata.



Access Control Lists and Access Privileges

User access to Kumulate is regulated by the access controls and privileges assigned to groups.

ACLs (Access Control Lists) use resource filters to give groups access to specific Virtual Objects, Renditions, attachments, locations, and metadata. Access Privileges are used to give group access to administrative tasks.

It is important to understand how ACLs and access privileges work together before creating a user group.

- Access Control Lists
- Access Privileges
- Privileges and Permissions for Common Operations

Access Control Lists

ACLs are used to control how users interact with particular groups of resources. They are granular, allowing different access permissions for different groups of resources. ACLs use resource filters to specify the exact resources users in groups have access to.

There are four types of ACLs:

- *Unmanaged Storage Repository*
- *Metadata*
- *Attachment Template*
- *Virtual Object and Rendition*

Unmanaged Storage Repository

The ACL for Unmanaged Storage Repositories allows or denies users the ability to view or modify storage and Managed Storage Repositories and their contents.

Access is given to groups of locations defined by resource filters. A group will have no access to locations that are not selected by a resource filter.

Access	Description
View	The minimum access level needed for users to view locations and their contents. If a location is not visible to the user, the user cannot access the Renditions on that location, even if their Virtual Objects are visible.
Modify	Allows users to move and transcode Renditions to the locations in the resource list. If a user does not have modify access to a location they will not see the location as a transcode or transfer destination.

Metadata

The Metadata ACL sets whether users in the group can search, view, or modify metadata. Access to metadata ACLs must be set at least to Search for search operations to work properly. Administrators can now assign a default set of pinned metadata fields.

Attachment Template

Attachment Template ACLs give a group's users permission to access Virtual Object attachments. These include marks, segments, closed captions, formatsheets, and any user-created attachment types.

Resource filters are automatically created for each individual attachment type, including user-created attachment types. This allows ACLs to be set for each attachment type, giving groups specific permissions to specific attachments.

Access	Description
View	The minimum access level required for users to view and download attachments.
Add	Allows users to upload attachments. The Add access level depends on the View access level. View access is automatically added when Add is selected. If View is deselected then Add is automatically deselected.
Modify	Allows users to modify existing markers and segments, and modify attachment metadata. The Modify access level depends on the View access level. View access is automatically added when Modify is selected. If View is deselected then Modify is automatically deselected.
Delete	Allows users to delete attachments. The Delete access level depends on the View access level. View access is automatically added when Delete is selected. If View is deselected then Delete is automatically deselected.

Virtual Object and Rendition

Virtual Object and Rendition ACLs give a group's users permission to access Virtual Objects and Renditions. ACLs for Virtual Objects and Renditions are set separately. However, the two ACLs work together. Renditions within a Virtual Object are not visible unless the Virtual Object is visible. Virtual Objects must have at least View permissions for the Renditions within them to be visible.

Virtual Object ACL permissions provide the following access levels:

Access	Description
View	The minimum access level needed for users to view Virtual Objects. No information about Virtual Objects or Renditions is available unless the ACL access is set to View.
Modify	Allows users to modify Virtual Object metadata. The Modify access level depends on the View access level. View access is automatically added when Modify is selected. If View is deselected then Modify is automatically deselected.

Access	Description
Delete	Allows users to delete Virtual Objects, including all Renditions in the Virtual Object, regardless of the Rendition Access Control Level. The Delete access level depends on the View access level. View access is automatically added when Delete is selected. If View is deselected then Delete is automatically deselected.
Copy	Allows users to transfer Renditions from the Virtual Object search results page. The Copy access level depends on the View access level. View access is automatically added when Copy is selected. If View is deselected then Copy is automatically deselected.
Transcode	Has no effect on the ability to transcode Renditions. Access to transcoding is set exclusively by the Rendition ACLs.

Rendition ACL permissions provide the following access levels:

Access	Description
View	The minimum access level needed for users to view Renditions and extract thumbnails. No information about Renditions is available unless the ACL access is set to View.
Modify	Allows users to modify Rendition metadata and extract thumbnails. The Modify access level depends on the View access level. View access is automatically added when Modify is selected. If View is deselected then Modify is automatically deselected.
Delete	Allows users to delete Renditions and extract thumbnails. The Delete access level depends on the View access level. View access is automatically added when Delete is selected. If View is deselected then Delete is automatically deselected.
Copy	Allows users to transfer Renditions and extract thumbnails. The Copy access level depends on the View access level. View access is automatically added when Copy is selected. If View is deselected then Copy is automatically deselected.
Transcode	Allows users to transcode Renditions and extract thumbnails. The Transcode access level depends on the View access level. View access is automatically added when Transcode is selected. If View is deselected then Transcode is automatically deselected.

Access Privileges

Access Privileges control which parts of the Kumulate system users in the group can access. Privileges can be set at different levels for the following:

- *Unmanaged Storage Repository Administration*
- *Virtual Object Access*
- *Rendition Access*
- *Administrative Functions*
- *Proxy Access*
- *Cancel Operations and Priority Changes*

Unmanaged Storage Repository Administration

A Storage Administrator group and a default Storage User were added in release 2.0 to provide access to storage administration tasks on the Locations page without giving the user access to all Administration capabilities.

The following privileges apply to archive, cache, and Unmanaged Storage Repository configuration functions:

Privilege Level	Description
Storage Administrator	Users in this group have full control as identified in the next entry.
Full Control	Users in the group can create, delete, modify, and view Unmanaged Storage Repositories.
Add	Users in the group can create, modify, and view Unmanaged Storage Repositories, but cannot delete them.
Modify	Users in the group can modify and view Unmanaged Storage Repositories, but can neither create nor delete locations.
Read	Users in the group can only view the Unmanaged Storage Repository configuration, and cannot modify, create, or delete locations.
Storage User	Users in the group have access to limited administrative Unmanaged Storage Repository functions.
No Access	Users do not have access to the Unmanaged Storage Repository Administration page, but they can still view Unmanaged Storage Repositories and their contents from the Locations page.

Virtual Object Access

The following privileges set access to Virtual Objects:

Privilege Level	Description
Full Control	Users in the group can create, delete, modify, and view Virtual Objects.
Add	Users in the group can create, modify, and view Virtual Objects, but cannot delete them.
Modify	Users in the group can view Virtual Objects, and change Virtual Object metadata, but cannot create or delete Virtual Objects, nor can they add attachments; including segments and markers.
Read	Users in the group can only view the Virtual Objects and cannot modify, create, or delete Virtual Objects.
No Access	Users have no rights to Virtual Objects and cannot search for Virtual Objects, nor can they search for Renditions.

Note: Only No Access prevents users from manipulating Renditions. All other privilege levels allow users to create and delete Renditions, transcode and transfer Renditions, extract metadata and thumbnails, and extract Rendition segments into new Virtual Objects (Partial Restore).

Rendition Access

The following privileges set access to Renditions:

Privilege Level	Description
Full Control	Users in the group can create, delete, modify, and view Renditions.
Add	Users in the group can view, create, transfer, transcode Renditions, and extract thumbnails and metadata, but cannot delete Renditions.
Modify	Users in the group can view Renditions and change Rendition metadata, but cannot create, delete, transfer, or transcode Renditions, nor can they extract thumbnails or metadata.
Read	Users in the group can only view and play Renditions.
No Access	Users have no rights to Renditions or Virtual Objects.

Administrative Functions

The Administration Privileges set the access privileges for the entire administration section of the Kumulate web interface. If these privileges are set to a stricter value than the other settings, these settings will take precedence.

Privilege Level	Description
Full Control	Users in the group have full access to all administrative functions.
Add	Users in the group can create, modify, and view configurations, but cannot delete elements such as Unmanaged Storage Repositories, groups, resource filters, and so on.
Modify	Users in the group can modify and view configurations, but cannot create nor delete elements such as Unmanaged Storage Repositories, groups, resource filters, and so on.
Read	Users in the group can only view configurations, but cannot modify, create, or delete elements such as Unmanaged Storage Repositories, groups, resource filters, and so on.
No Access	Users do not have access to the Unmanaged Storage Repository Administration page.

Proxy Access

These privileges govern how users in the group interact with proxy Renditions.

Note: If the Virtual Object privileges are set to No Access, users in the group will be unable to access proxy Renditions.

Privilege Level	Description
Full Control	Users in the group can view, play, create, and delete proxy Renditions.
Add	Users in the group can view, play, and create proxy Renditions, but cannot delete them.
Modify	Users in the group can view, play, create, and delete proxy Renditions.
Read	Users in the group can only view proxy Renditions, but cannot modify, create, or delete them.
No Access	Users cannot see proxy Renditions.

Cancel Operations and Priority Changes

The Cancel Operations and Priority Changes privileges set whether users in the group can cancel operations, and change priorities on operations, respectively. These privileges are set to either No Access or Full Control.

Setting the privilege to Full Control allows users to cancel or change priorities. Setting the privilege to No Access prevents users from canceling or changing priorities.

Privileges and Permissions for Common Operations

The following sections outline the minimum group privileges and permissions needed for common operations.

Privileges and Permissions for Searching

Searching requires access to the metadata of the objects being searched and read access to the objects themselves.

There must be access to Renditions and Virtual Objects at a minimum. To successfully search attachments, including captions, marks, and segments, the group additionally needs access to the type of attachment they are allowed to search.

Minimum Requirements to Search Virtual Objects and Renditions

The following are the minimum requirements to successfully search and view Virtual Objects and Renditions. These permissions and privileges do not give the group the ability to modify Virtual Objects, Renditions, or their metadata in any way.

Privilege	Level
Virtual Object	Read
Rendition	Read

ACL Resource Filter	Action	Description
All Metadata	Search, View	The ACL must use the AllMetadata resource filter.
Read Only Metadata	Search, View	The ACL must use the ReadOnlyMetadata resource filter.
Virtual Objects	View	The Virtual Object resource filter used with the ACL must include Virtual Objects the group should have access to and exclude any Virtual Objects the group should not have access to.
Renditions	View	The Rendition resource filter used with the ACL must include any Renditions the group should have access to and exclude any Renditions the group should not have access to. Renditions that are on locations the group does not have access to will not be visible.

Minimum Requirements to Search Attachments

The following are the minimum requirements to successfully search attachments. These permissions and privileges give the group the ability to view and download attachments, but do not give the group the ability to modify, delete, or upload attachments, or to modify attachment metadata.

Note: Virtual Objects and Renditions can be viewed only.

Privilege	Level
Virtual Object	Read
Rendition	Read

ACL Resource Filter	Action	Description
All Metadata	Search, View	The ACL must use the AllMetadata resource filter.
Read Only Metadata	Search, View	The ACL must use the ReadOnlyMetadata resource filter.
Virtual Objects	View	The Virtual Object resource filter used with the ACL must include Virtual Objects the group should have access to and exclude any Virtual Objects the group should not have access to.
Renditions	View	The Rendition resource filter used with the ACL must include any Renditions the group should have access to and exclude any Renditions the group should not have access to. Renditions that are on locations the group does not have access to will not be visible.
Attachments	View	Multiple ACLs can be created, each corresponding to a resource filter for a specific attachment type. Kumulate automatically creates resource filters for attachment types. These resource filters are named RF_<attachment_type>. The ACLs and their resource filters must cover all the attachments the group should have access to.

Privileges and Permissions for Transferring

Transferring a Rendition to another location is a copy operation, not a move operation. When a Rendition is transferred to a location, a new Rendition is created on the target location, but not removed from the original location.

A group needs privileges and permissions to create new Renditions on a location to successfully transfer Renditions to the location.

A group does not need the rights to modify Virtual Objects or Unmanaged Storage Repositories to create new Renditions.

Note: Groups with only transfer privileges are still able to perform dissimilar transfers, which include transcode operations.

Privilege	Level
Storage Unit	Read
Virtual Object	Read
Rendition	Add

ACL Resource Filter	Action	Description
Unmanaged Storage Repositories	Modify	The Rendition resource filter used with the ACL must include all the locations that the group should be able to transfer Renditions to.
Virtual Objects	View	The Rendition resource filter used with the ACL must include all the locations where the group should be able to view Renditions.
Renditions	Copy	The Rendition resource filter used with the ACL must include all the locations that the group should be able to copy Renditions to.

Privileges and Permissions for Transcoding

Transcoding requires access to the cache. The cache acts as a staging area for transcoding Renditions. If the group does not have permission to access the cache, users in the group will be unable to transcode Renditions and create low-resolution proxy Renditions.

A group needs privileges and permissions to create new Renditions to successfully transcode Renditions.

A group does not need the rights to modify Virtual Objects or Unmanaged Storage Repositories to create new Renditions.

Privilege	Level
Storage Unit	Read
Virtual Object	Read
Rendition	Add

ACL Resource Filter	Action	Description
Unmanaged Storage Repositories	Modify	Transcoding requires access to the Kumulate cache. The resource filter used must include the cache otherwise all transcode operations will fail.
Virtual Objects	View	Transcoding requires access to the Kumulate cache. The resource filter used must include the cache otherwise all transcode operations will fail.
Renditions	Transcode	Transcoding requires access to the Kumulate cache. The resource filter used must include the cache otherwise all transcode operations will fail.

Privileges and Permissions for Marking

Marks made using the Kumulate player are stored as attachments. Because of this, access to the mark attachment type regulates the way a group can use marks.

Different access levels are available for marks. Groups can be given permission to view, add, modify, or delete marks.

The following privileges and permissions are required for any group that needs to access marks:

Privilege	Level
Virtual Object	Read
Rendition	Read
Proxy	Read

ACL Resource Filter	Action
Virtual Objects	View
Renditions	View

The group must use an ACL with an attachment resource filter that includes the Marker Attachment Type.

A Marker Attachment Resource Filter (RF_MARKER) is already included in Kumulate. However, the ACL can use any attachment resource filter that includes the marker attachment template. See *Add an Attachment Template Resource Filter* for more information.

The following ACL permissions are needed for access to different actions on marks:

Mark Action	ACL Action	Description
View Marks	View	Allows users in the group to view marks. This action is selected automatically when any of the other actions are selected. If View is deselected all the other actions will also be deselected automatically.
Add Marks	Add	Allows users in the group to create marks.
Edit Marks	Modify	Allows users in the group to edit the mark comment and color.
Delete Marks	Delete	Allows users in the group to delete marks.

Note: For users in the group to have access to the marks they created, the Group Name must be added to the Marker Attachment Resource Filter. Users in the group will be unable to view, modify, or delete the marks they have created if the Group Name is not added to the resource filter. See *Add an Attachment Template Resource Filter* for more information.

Privileges and Permissions for Segmenting

Segments created using the Kumulate player are stored as attachments. Because of this, access to the segment attachment type regulates the way a group can use segments. Different access levels are available for segments. Groups can be given permission to view, add, modify, or delete segments.

Note: The privileges and permissions needed to extract (partial restore) segments are covered in *Privileges and Permissions for Extracting Segments*.

The following privileges and permissions are required for any group that needs to access segments:

Privilege	Level
Virtual Object	Read
Rendition	Read
Proxy	Read

ACL Resource Filter	Action
Virtual Objects	View
Renditions	View

The group must use an ACL with an attachment resource filter that includes the Marker Attachment Type.

A segment attachment resource filter (RF_SEGMENTS) is already included in Kumulate. However, the ACL can use any attachment resource filter that includes the segment attachment template. See *Add an Attachment Template Resource Filter* for more information.

The following ACL permissions are needed for access to different actions on segments:

Segment Action	ACL Action	Description
View Segments	View	Allows users in the group to view segments. This action is selected automatically when any of the other actions are selected. If View is deselected all the other actions will also be deselected automatically.
Add Segments	Add	Allows users in the group to create segments.
Edit Segments	Modify	Allows users in the group to modify the start and end times of segments, and their metadata.
Delete Segments	Delete	Allows users in the group to delete segments.

Note: For users in the group to have access to the segments they created, the Group Name must be added to the Segment Attachment Resource Filter. If the Group Name is not added to the resource filter, users in the group will be unable to view, modify, or delete the segments they have created. See *Add an Attachment Template Resource Filter* for more information.

Privileges and Permissions for Extracting Segments

A new Rendition and Virtual Object is created for a segment when it is extracted (partially restored). Because of this, the group needs the privileges and permissions required to create a Rendition.

The following permissions are required to be able to extract segments:

Privilege	Level
Storage Unit	Read
Virtual Object	Read
Rendition	Add

ACL Resource Filter	Action
Unmanaged Storage Repository	View, Modify
Virtual Objects	View
Renditions	View
Segment Attachments	View See *Privileges and Permissions for Segmenting* for details.

Groups and Users

Access to Kumulate is accomplished through its groups.

Each Kumulate group specifies how users assigned to it interact with Kumulate. Access privileges and controls are used to grant access to features, Virtual Objects, Renditions, attachments, locations, and metadata.

Note: Because a group is assigned to a user when the user is created, groups must be created before their users.

The Montana User Group, Transcode Engine Group, and News Group are created by default.

The Montana User Group gives users full read and write administration privileges for the entire Kumulate system.

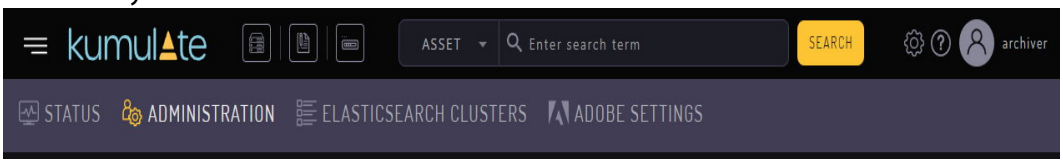
The Transcode Engine Group is used internally by the transcode engine.

- Creating a New Group
- Setting Group Privileges and Permissions
- Applying Changes Made to a Group
- Creating a New Kumulate User
- Managing User Sessions

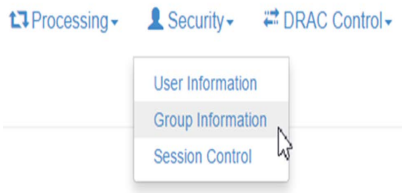
Creating a New Group

Use the following procedure to create a new group:

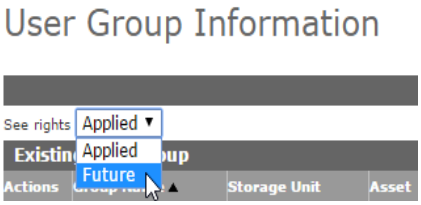
1. Click System > Administration in the menu bar in the Kumulate web interface.



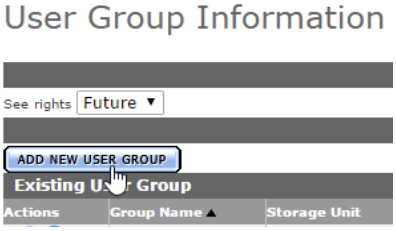
2. Select Security > Group Information.



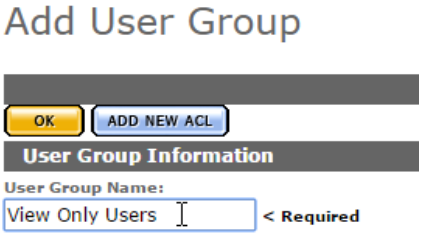
3. Enable editing by selecting Future from the See rights pull down menu.



4. Click Add New User Group to create a new group.



5. On the Create User Group page enter a name for the group in the User Group Name text box and then continue to the following section describing *Setting Group Privileges and Permissions*.



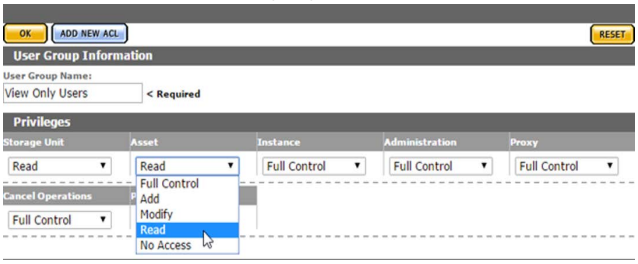
Setting Group Privileges and Permissions

Groups set the privileges and permissions for users. These must be set appropriately to allow users to perform their tasks without accessing forbidden media and features.

See *Privileges and Permissions for Common Operations* for examples of how to set privileges and permissions.

Access privileges control which parts of the Kumulate system users in the group can access.

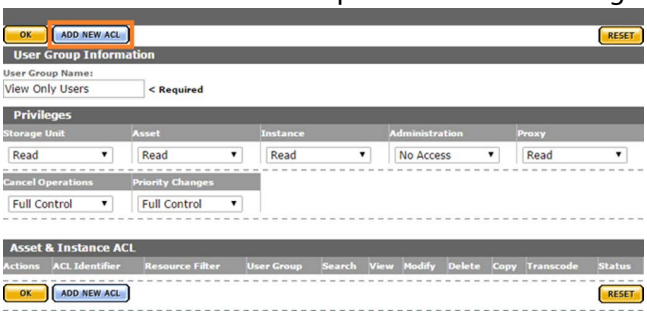
Group access to administrative functions is set using the privilege pull down menus as shown in the following figure:



After the privileges are set, you must add permissions to particular resources by adding ACLs. ACLs need to be set for Unmanaged Storage Repositories, metadata, attachments, Virtual Objects, and Renditions. If an ACL is not set for any of these items, the users will not have access to them at all.

Use the following procedure to add an ACL to a group:

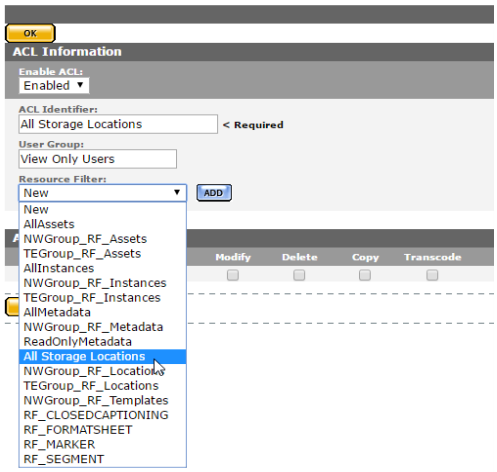
1. Click Add New ACL to open the Add ACL dialog.



2. Provide a unique ACL Identifier and select a Resource Filter to use in the Add ACL dialog, or create a new resource filter by selecting New from the pull down menu. Resource filters are used to select particular Virtual Objects, Renditions,

Unmanaged Storage Repositories, metadata, and attachments based on a set of requirements.

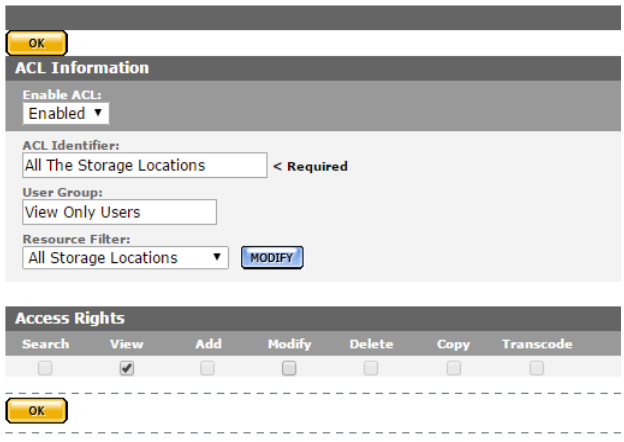
Add ACL



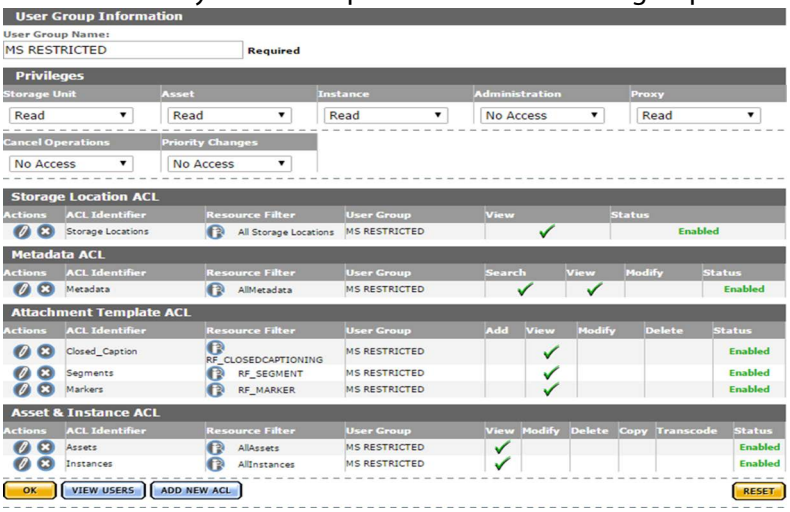
Note: The selected Resource Filter can be modified. However, modifying a resource filter will modify all ACLs and groups that use that filter. It is recommended to create a new Resource Filter rather than modifying an existing filter.

3. Select the access rights for the Resource Filter, then click OK to save and return to the Add User Group page.

Add ACL



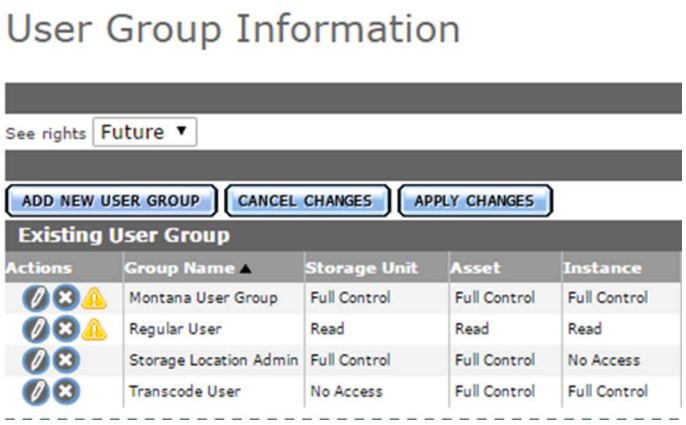
Add as many ACLs as required. The ACLs will be grouped according to type.



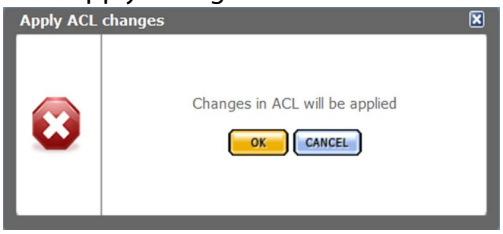
4. Click OK to save and return to the User Group Information page after all the ACLs have been added to the group.

Applying Changes Made to a Group

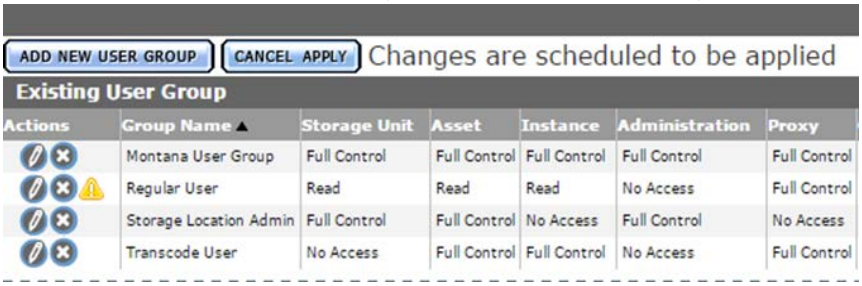
Clicking OK will not automatically apply the changes when a group's ACLs and privileges have been configured or modified. The changes need to be applied from the User Group Information page. An attention symbol will remain next to the group until all the changes are either applied or canceled.



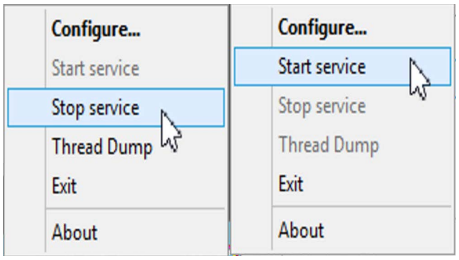
Click Apply Changes. A confirmation dialog will open; click OK to continue.



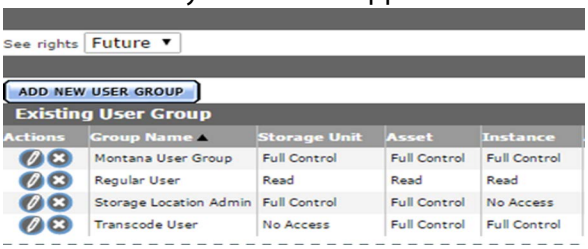
Changes to the Virtual Object and Rendition ACLs only take effect after Kumulate is restarted. Kumulate must be restarted for the changes to take effect if the Changes are scheduled to be applied message appears after the dialog box closes.



Stop and start the Tomcat server to restart Kumulate.



The attention symbol will disappear after the changes are applied.

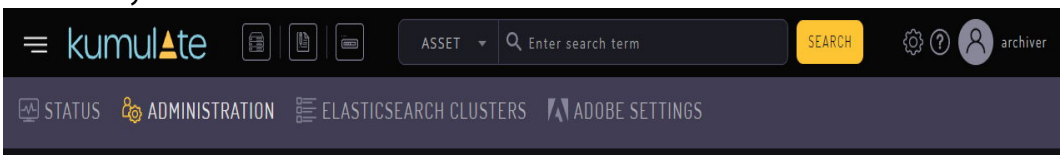


Creating a New Kumulate User

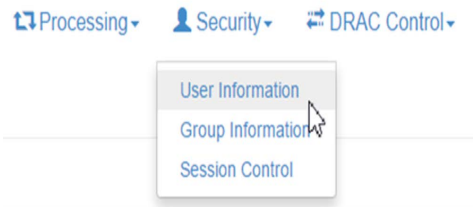
When a user is created, it is assigned to a group which controls its access and privileges. Because of this workflow, users should be added to Kumulate after their groups have been created. A user's group can be changed after the user has been created.

Use the following procedure to create a new user:

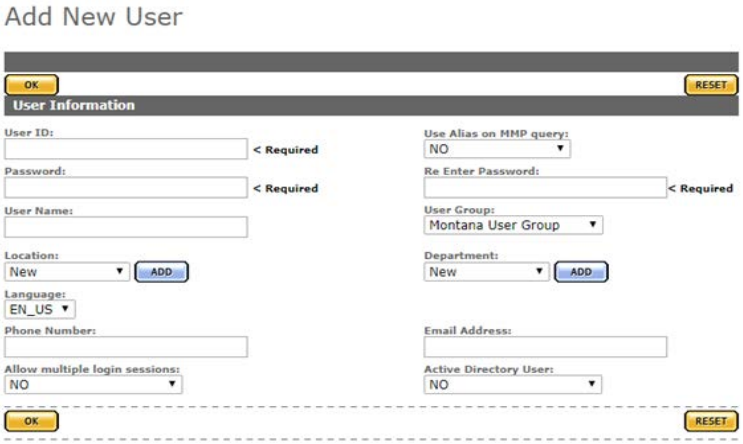
1. Log in to the Kumulate web interface with the mntn account, or any account with full administrative privileges.
2. Click System > Administration in the menu bar in the Kumulate web interface.

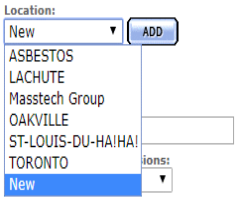


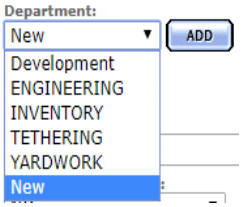
3. Select Security > User Information.



4. Click Add New User on the User Information page and enter the following information for the user:



Parameter	Description
User ID	The ID the user will use to log in to Kumulate. This is required.
Password	The user's Kumulate password. This is required.
User Name	The user's actual name. This is not the name used to log in.
Location	The user's location. The pull down menu is populated with Masstech Group by default, and by any previously-entered locations. A new location can be entered by selecting New, then clicking ADD and entering the new location in the text box. This is required. 
Allow multiple login sessions	Allows the user to be logged in to Kumulate multiple times simultaneously. This is useful in cases where the user may be logged in through the web interface from multiple locations.
Use Alias on MMP query	Allows using an alias for MMP queries rather than the User ID.

Parameter	Description
User Group	The group assigned to this user; this is required.
Department	The user's department. The pull down menu is populated with Development by default, and by any previously-entered departments. A new department can be entered by selecting New, then clicking ADD and entering the new department in the text box. This is required. 
Active Directory User	Identifies whether the user is an Active Directory user.

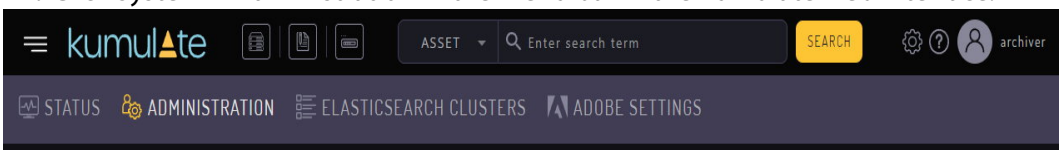
5. Click OK to create the user.

Managing User Sessions

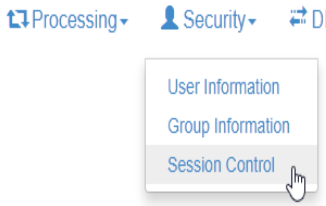
A list of all users connected to the Kumulate system can be viewed from the Session Control page.

Use the following procedure to view the Session Control page:

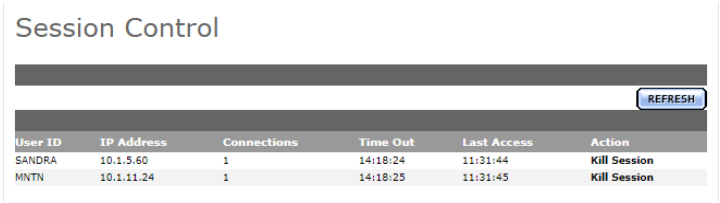
1. Click System > Administration in the menu bar in the Kumulate web interface.



2. Select Security > Session Control.



3. A list of all users currently connected to Kumulate will be visible as shown on the following figure:



Parameter	Description
User ID	The user connected to Kumulate.
IP Address	The IP address from where the user has connected to Kumulate.
Connections	The number of connections this user has made from this IP address to Kumulate.
Time Out	The amount of idle time left before the user is automatically disconnected.
Last Access	The time the user last accessed Kumulate.
Action	Kill Session automatically disconnects the user from Kumulate. The system will not ask for confirmation of this action.

Authentication, Authorization, and Access Control

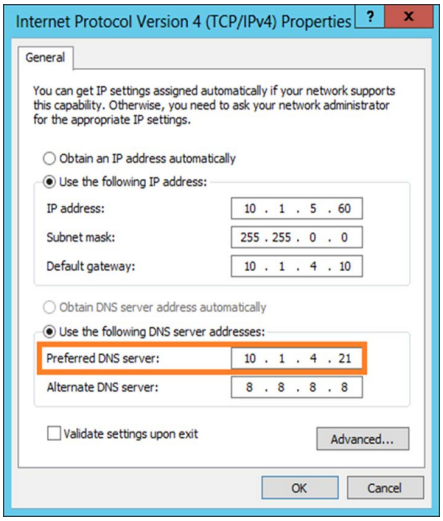
Kumulate User Groups control access to the Kumulate system. Each group sets privileges and access levels for the users in the group. Authentication is accomplished either through Kumulate, or optionally, through LDAP or SSO (Single Sign On).

Enable Optional Kumulate LDAP Authentication

The groups used by Kumulate must have LDAP group counterparts with exactly matched names to use LDAP. Users are added automatically to the LDAP user groups.

When users log in to Kumulate for the first time, they are automatically added to the Kumulate group with the same name as their LDAP group. The Kumulate group sets the authorization and privileges for users belonging to the LDAP group of the same name. LDAP groups are only used to authenticate the users.

The Public IP adapter's Preferred DNS server must be configured to point at the LDAP server IP address on the Kumulate server host.

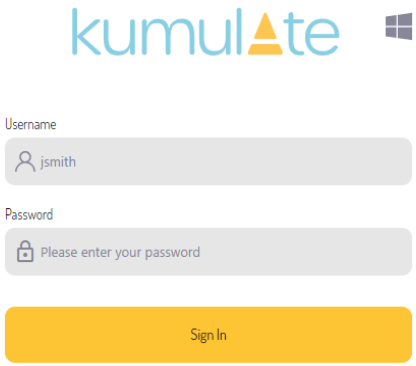


Enable Optional Single Sign-On Authentication

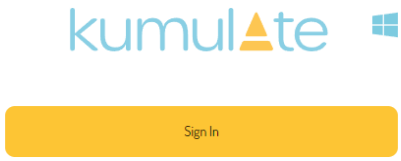
Note: LDAP authentication must be enabled to use SSO authentication.

A Kumulate system configured to use LDAP authentication can optionally use SSO authentication.

A user belonging to a Kumulate LDAP user group has the option to use Windows credentials to log in to Kumulate when SSO authentication is enabled.



Clicking the Windows icon from the standard login screen passes the user to the SSO login screen.



Transcode Engines, Transcode Profiles, and Thumbnail Profiles

A Transcode Engine and a Transcode Profile are required to successfully transcode media. A Thumbnail Extraction Profile is required to successfully extract thumbnails.

The transcode engine is the external application that transcodes video and extracts thumbnails. A Kumulate system can be connected to more than one transcode engine.

Transcode Profiles provide information about how to transcode specific sources to specific destinations.

Thumbnail Extraction Profiles describe rules for extracting thumbnails from video sources.

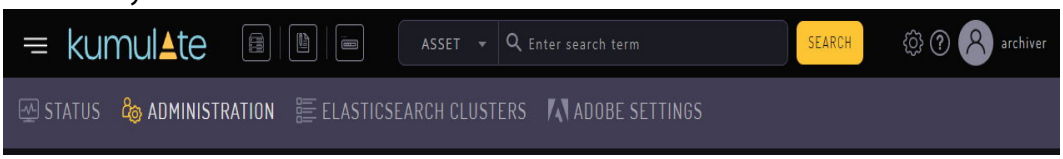
- Adding a Transcode Engine
- Add a Transcode Profile
- Restore Profiles
- Add a Thumbnail Extraction Profile

Adding a Transcode Engine

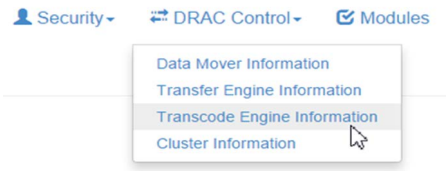
Transcode engines are external applications used to transcode Renditions and extract thumbnails. Kumulate must be configured to connect to a transcode engine before it can be used. More than one transcode engine can be connected to the same Kumulate system.

Use the following procedure to add a transcode engine to Kumulate:

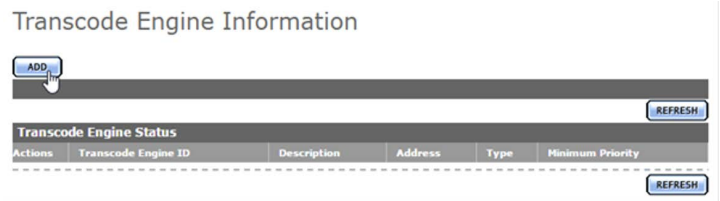
1. Click System > Administration in the menu bar in the Kumulate web interface.



2. Select DRAC Control > Transcode Engine.



3. Click ADD on the Transcode Engine Information page.



4. Enter values for the Transcode Engine and click OK to add the engine.

Parameter	Description
Transcode Engine ID	Provide a unique name for the transcode engine.
Description	Provide an optional description for the transcode engine.
Transcode Engine Hostname/IP	The IP address of the transcode engine.
Transcode Engine Port	The transcode engine's connection port.

Parameter	Description
For transcode	The transcode engine can be used to transcode Renditions when this option is selected. When the option is deselected, transcode jobs will not be sent to this engine.
For extract metadata	The transcode engine can be used to extract metadata from Renditions when this option is selected. When the option is deselected, extracted metadata jobs will not be sent to this engine.
Minimum Priority	The minimum priority job this transcode engine will accept. The transcode engine will not accept any job with a priority below this value. This is useful for creating dedicated transcode engines that only process high-priority jobs.

Add a Transcode Profile

Transcode Profiles are used to provide a template for transcodes to Kumulate.

The Source Filter option provides information about what type of Renditions are handled by this profile. The profile is only made visible to Renditions that satisfy the source criteria.

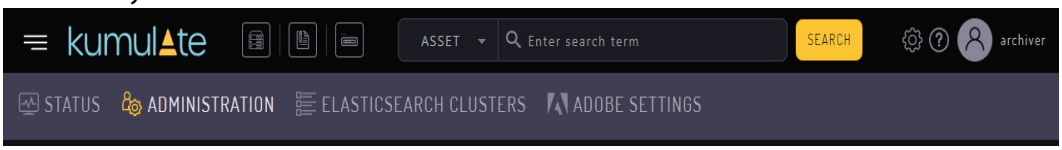
The Destination Filter provides information about the format to transcode the source Rendition into.

A Transcode Profile provides the option of performing additional metadata mapping, as long as this mapping is supported by HQS.

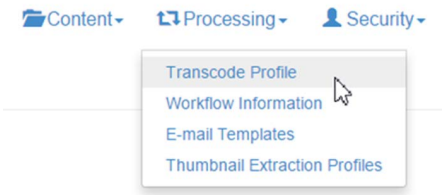
A default Transcode Profile is available for creating proxy Renditions.

Use the following procedure to create additional profiles:

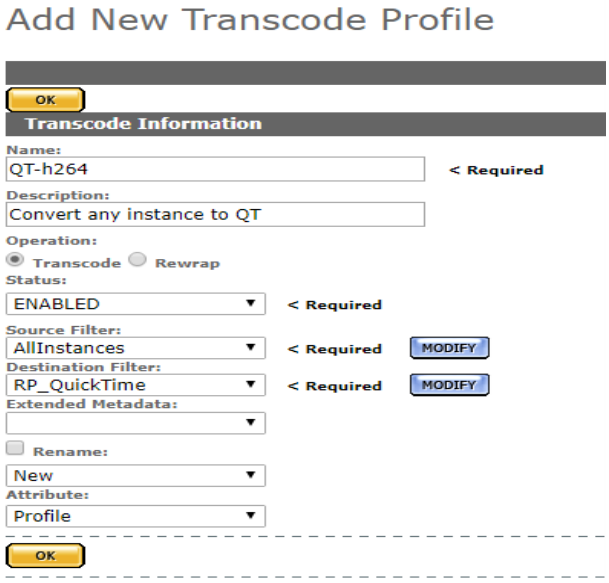
1. Click System > Administration in the menu bar in the Kumulate web interface.



2. Select Processing > Transcode Profile.



3. Click Add Transcode Profile on the Transcode Information page.
4. Enter the configuration parameters for the transcode profile and click OK to add the profile.



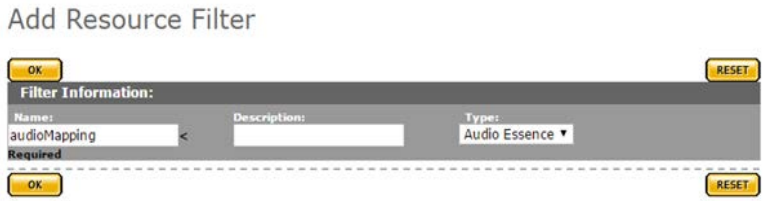
Parameter	Description
Name	Provide a unique name for the transcode profile.
Description	Provide an optional description of the profile.
Status	The status is Enabled by default. Select *Disabled* to prevent users from using the profile.
Source Filter	Select a resource filter that returns the type of Renditions to transcode.
Destination Filter	Select a resource filter that defines the parameters of the final result of the transcode.
Transcode/Rewrap	Select Rewrap to rewrap MXF Renditions with additional metadata without modifying the video essence. Rewrap can only be used when rewrapping MXF OP_ATOM and MXF OP_1A Renditions. This is set to Rewrap by default.
Extended Metadata	Use this parameter to set metadata values for the destination. Extended metadata must agree with the HQS parameters.
Rename	This parameter has been deprecated.
Attribute	Select the type of transcode to perform. Set to Proxy to create a low-resolution proxy. Set to Profile for all other types of transcodes. The Required option has been deprecated.

5. Select Set Audio Mapping if audio channels need to be remapped.

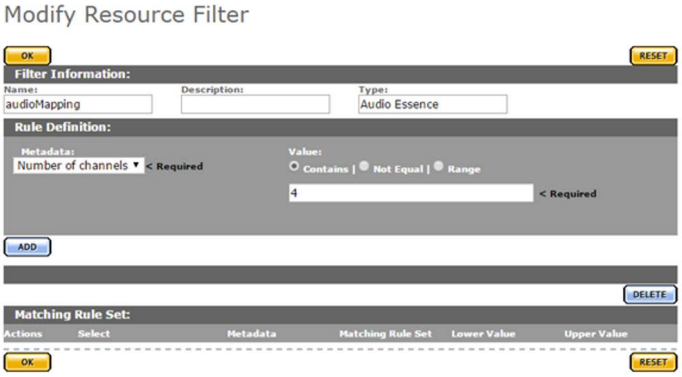
Select an audio essence resource filter from the Audio Filter pull down menu. The audio essence filter selected must only contain the Number of channels metadata.

The pull down menu will show all audio essence resource filters in the system regardless of whether they are appropriate resource filters.

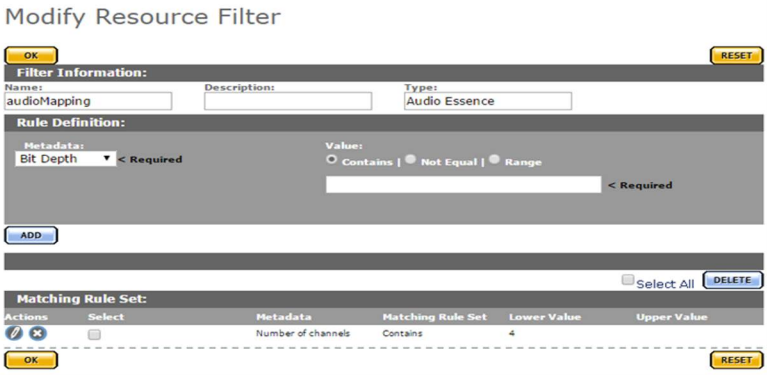
If no appropriate resource filter exists, click ADD to create a new resource filter.



a. Select Number of channels as the metadata, then add the number of channels for the destination Rendition in the Value text box.

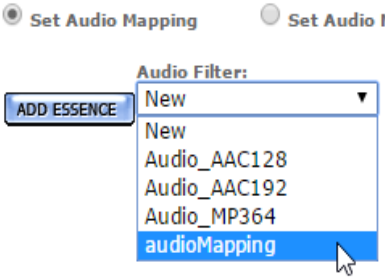


b. Click ADD to add the metadata to the rule set.

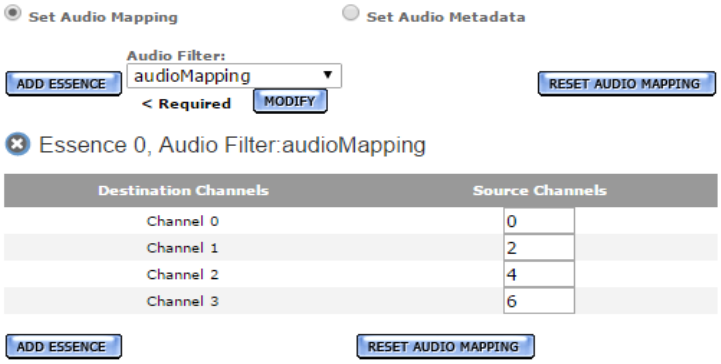


c. Click OK to save the resource filter and return to the Transcode Profile page.

d. Select the new resource filter from the pull down menu on the Transcode Profile page (in the following figure this is audioMapping).



e. Click Add Essence to map the channels.



Additional mappings can be added by clicking Add Essence.

Caution: Do not use Set Audio Metadata.

6. Click OK to save the profile.

Restore Profiles

Restore Profile configurations are used by Unmanaged Storage Repositories to specify the Rendition formats that can be copied to them.

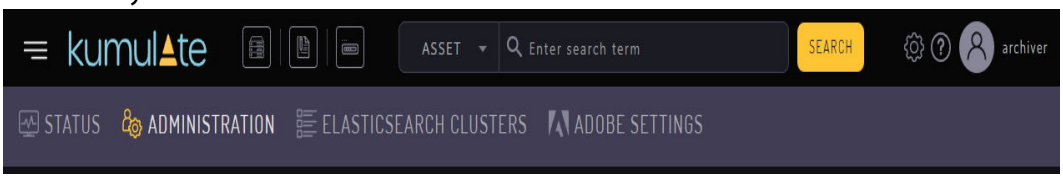
When a Rendition does not match an Unmanaged Storage Repository's Restore Profile is copied to the Unmanaged Storage Repository, Kumulate searches for a transcode profile that matches the source and destination Rendition and uses it to transcode the Rendition to the appropriate format before copying it.

Note: an Unmanaged Storage Repository can use more than one Restore Profile and each can describe a different Rendition format.

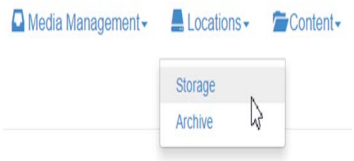
Restore Profiles can be created from an Unmanaged Storage Repository's configuration page, or from the Restore Profile Information page.

Use the following procedure to create a Restore Profile:

1. Click System > Administration in the menu bar in the Kumulate web interface.

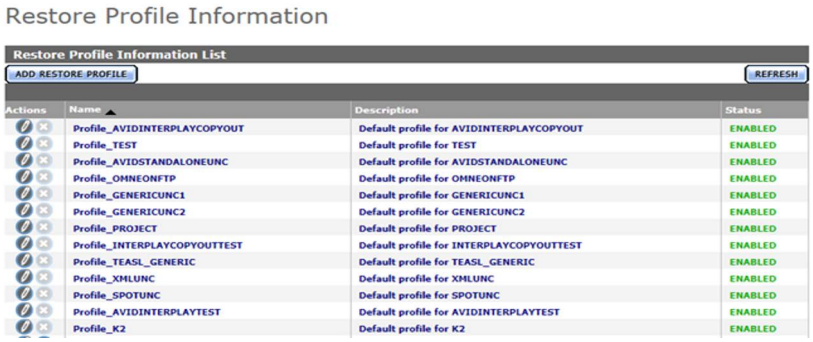


2. Select Locations > Storage.



3. Click Restore Profile Information on the Unmanaged Storage Repository Manager page.

All Restore Profiles available in Kumulate are visible on this page.

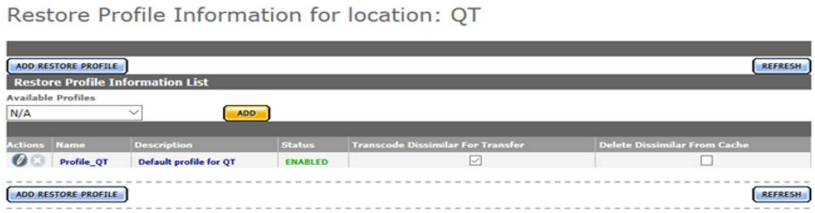


Restore Profiles can be created, modified, and deleted from this page. However, since Restore Profiles are used by individual Unmanaged Storage Repositories, technical support advises creating them from the Unmanaged Storage Repository where they are intended to be used.

4. Open the Unmanaged Storage Repository Configuration page of the Unmanaged Storage Repository that will use the Restore Profile and click Restore Profile Information.

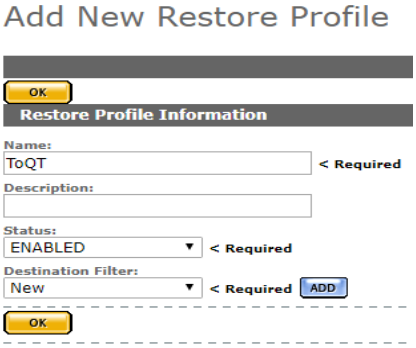
5. One profile is always created by default with the Unmanaged Storage Repository. However, The default profile does not contain enough Video Essence metadata to use with a Transcode Profile.

Note: The default profile should not be modified. Instead, a more appropriate restore profile should be added to the Unmanaged Storage Repository.



6. If there is no suitable available profile in the system that can be used by the Unmanaged Storage Repository, click Add Restore Profile to create a new profile.

7. Provide the new profile a name in the Name text box.



8. Select a Destination Filter to use with the Restore Profile, or click ADD to add a new Destination Filter. The Destination Filter is a Video Essence Resource Filter that describes the target Rendition.

Note: Do not use the default Resource Filter created with the Unmanaged Storage Repository.

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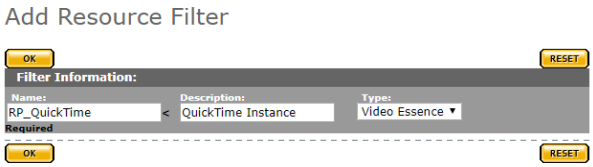
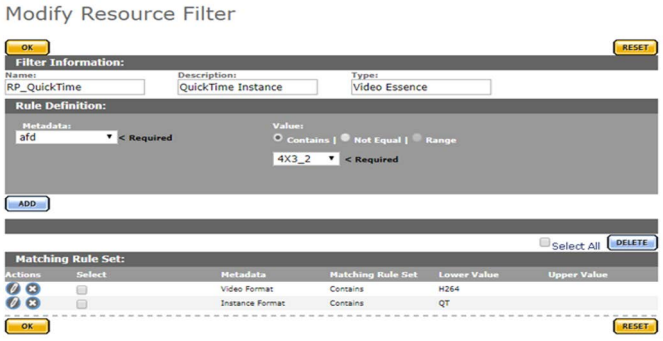
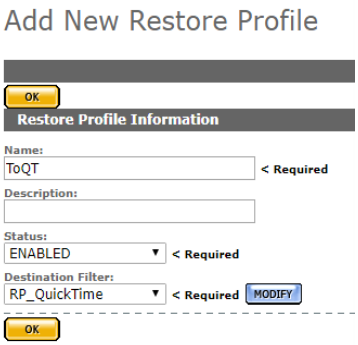
9. If a new Destination Filter is being used, provide the filter with a name and (optionally) a description, then click OK.



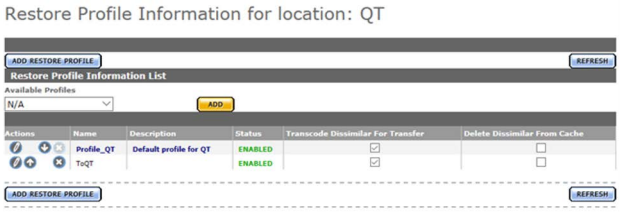
10. Set the metadata for the filter.



11. Click OK to return to the Restore Profile page after all metadata has been set.



12. Click OK to save the profile. It will appear in the list of Restore Profiles associated with the Unmanaged Storage Repository.

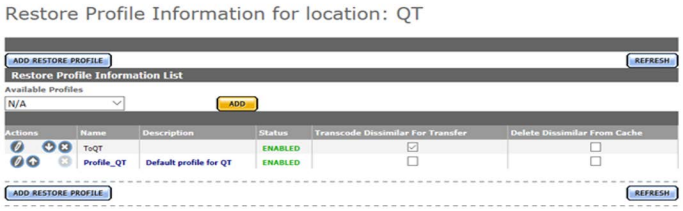


The Transcode Dissimilar For Transfer checkbox will already be selected. This option must be selected for the profile to be used to transcode a Rendition to the right format before copying it. The process of transcoding a Rendition before copying it is referred to as a dissimilar transfer.

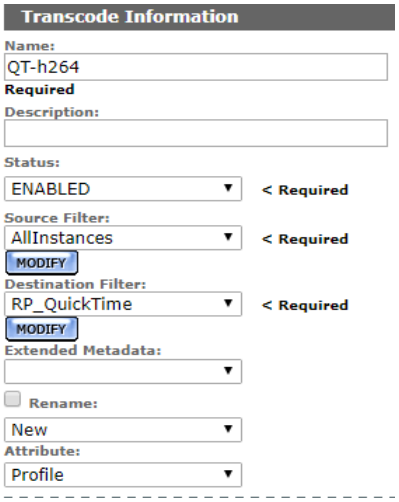
A Transcode Profile that uses the same destination metadata as the Restore Profile must exist for a dissimilar transfer to succeed.

When a dissimilar transfer is made to the location, the Rendition is transcoded to the cache; then the transcoded Rendition is copied to the destination location. The Rendition on the cache will be kept unless the Delete Dissimilar From Cache check box is selected.

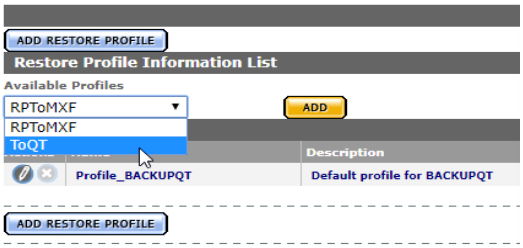
If a Transcode Profile that can convert Renditions to the Destination Profile format exists, the default profile's Transcode Dissimilar For Transfer check box can be deselected, and its priority can be lowered.



Note: If no Transcode Profile exists, create one using either the same destination filter, or a destination filter with the same metadata as used in the Restore Profile



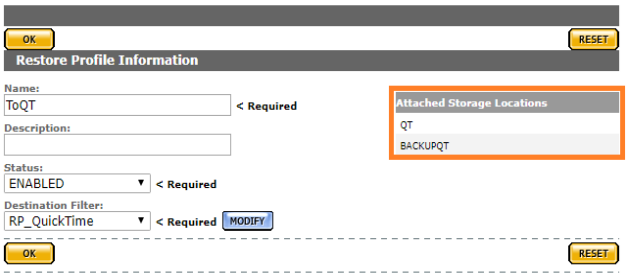
Restore Profiles will be visible in the Available Profiles pull down menu and can be used by any Unmanaged Storage Repository after the profile has been created.



Profiles can be edited by clicking the Pencil icon.

A list of Unmanaged Storage Repositories that use the Restore Profile is located on the right of the Modify Resource Profile dialog.

Modify Restore Profile



Note: Any changes to the Restore Profile will affect all listed Unmanaged Storage Repositories.

Add a Thumbnail Extraction Profile

Thumbnail Extraction Profiles are used to specify how to extract thumbnails from a Rendition.

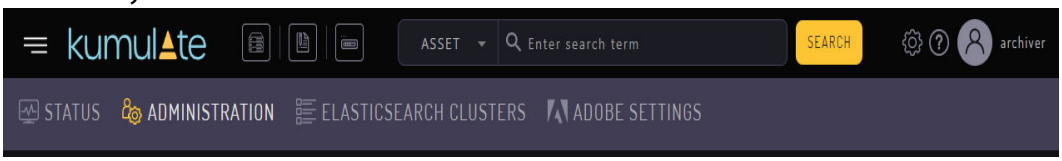
The default Thumbnail Extraction Profile uses scene detection to create up to ten thumbnails per video. This profile is not suitable for Renditions that are longer than five minutes.

New Thumbnail Extraction Profiles can be created that are better suited to different types of Renditions.

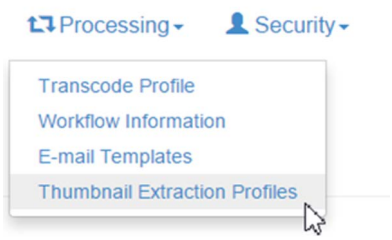
Caution: Do not edit the default Thumbnail Extraction Profile.

Use the following procedure to create a Thumbnail Extraction Profile:

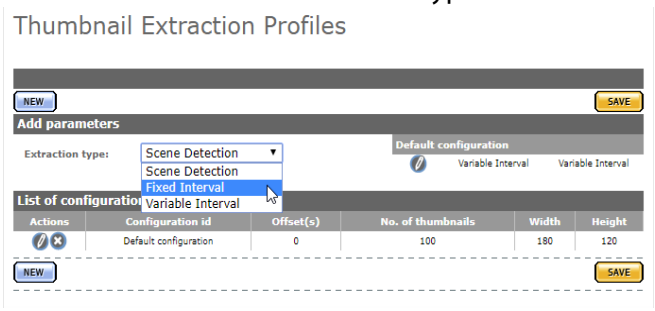
1. Click System > Administration in the menu bar in the Kumulate web interface.



2. Select Processing > Thumbnail Profile.



3. Select a Thumbnail Extraction Type from the Extraction type pull down menu.



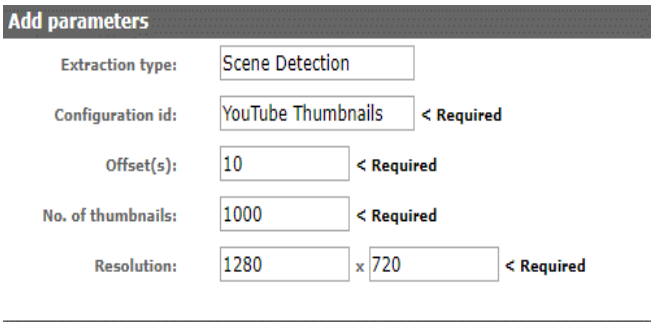
There are two main extraction types to choose from: Scene Detection and Fixed Interval.

Note: Fixed Interval profiles are not supported on HQS prior to release 1.14.3.

4. Click New to open the Thumbnail Extraction Configuration page and create a new profile.

Scene Detection Profiles

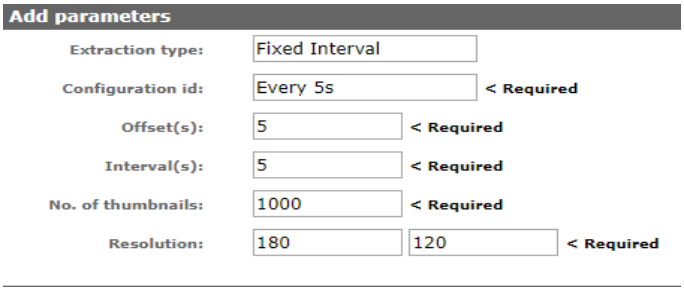
Scene Detection selects thumbnails based on scene changes in the video source.



Parameter	Description
Configuration ID	A unique name for the Thumbnail Extraction Profile.
Offset(s)	The time (in seconds) from the start of the Rendition and the end of the Rendition. Thumbnails will begin being extracted from the offset time after the start of the Rendition and stop being taken at the offset time before the end of the Rendition.
Number of Thumbnails	The maximum number of thumbnails to extract.
Resolution	The resolution to extract the thumbnails (width x height)

Fixed Interval Profiles

Fixed Interval extracts thumbnails at fixed intervals in the video source.



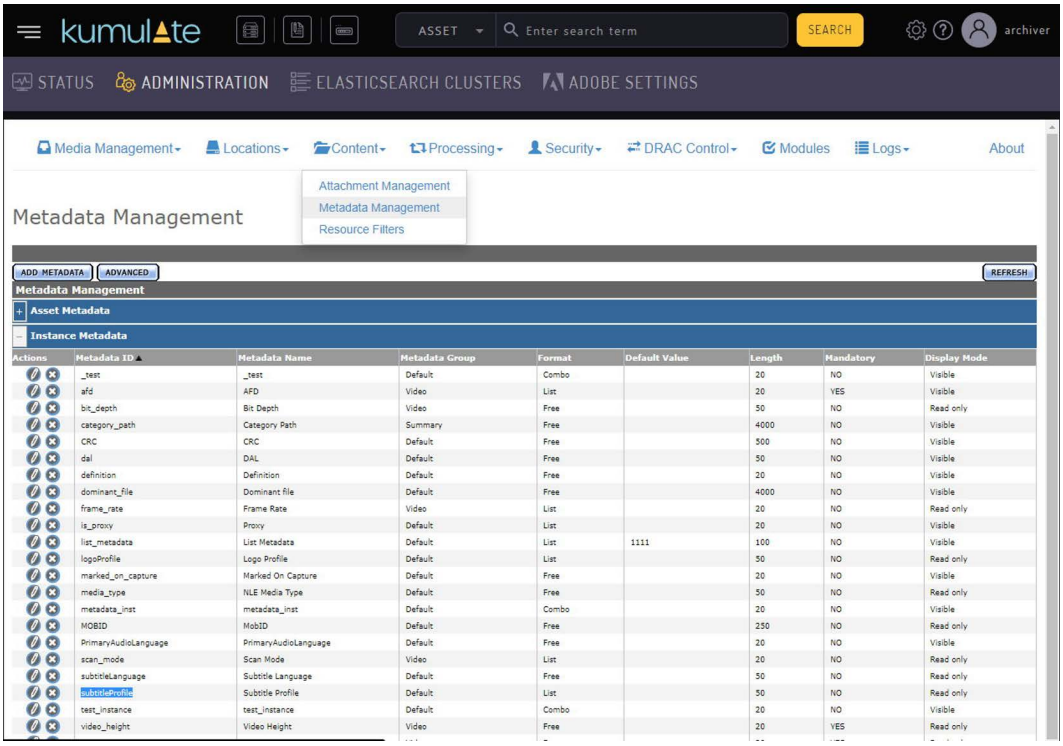
Parameter	Description
Configuration ID	A unique name for the Thumbnail Extraction Profile.
Offset(s)	The time (in seconds) from the start of the Rendition and the end of the Rendition. Thumbnails will begin being extracted from the offset time after the start of the Rendition and stop being taken at the offset time before the end of the Rendition.
Number of Thumbnails	The maximum number of thumbnails to extract.
Resolution	The resolution to extract the thumbnails (width x height)

Subtitle and Logo Burn-ins

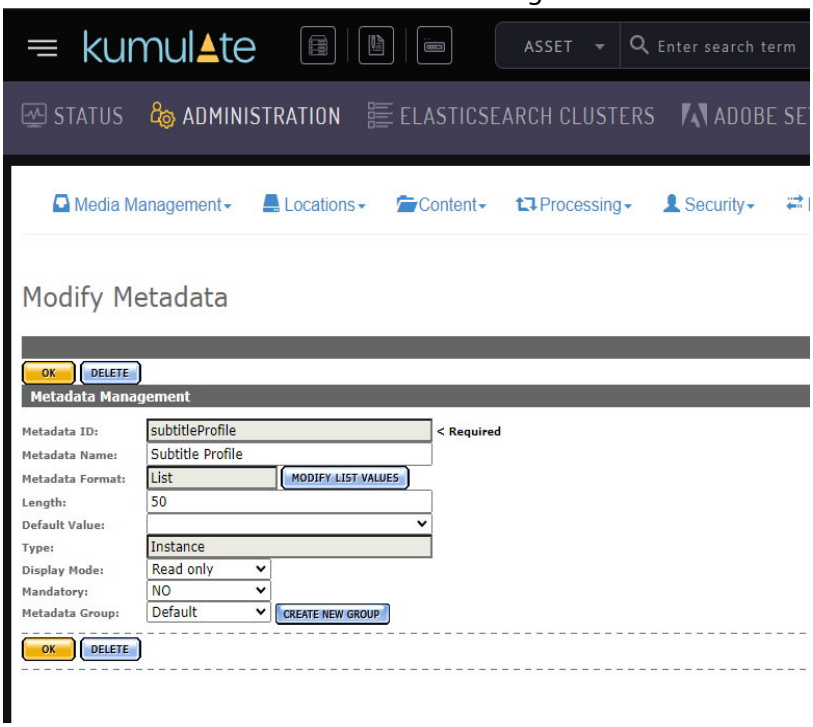
Kumulate now provides the ability to burn subtitles and/or a logo into a video file as part of a transfer.

The burn in details and properties, such as subtitle size and logo position, are configured in the Masstech Transcode Engine using strings set up in the transcode profiles. After they are configured, these strings must be added to Kumulate as possible profiles using the following procedure:

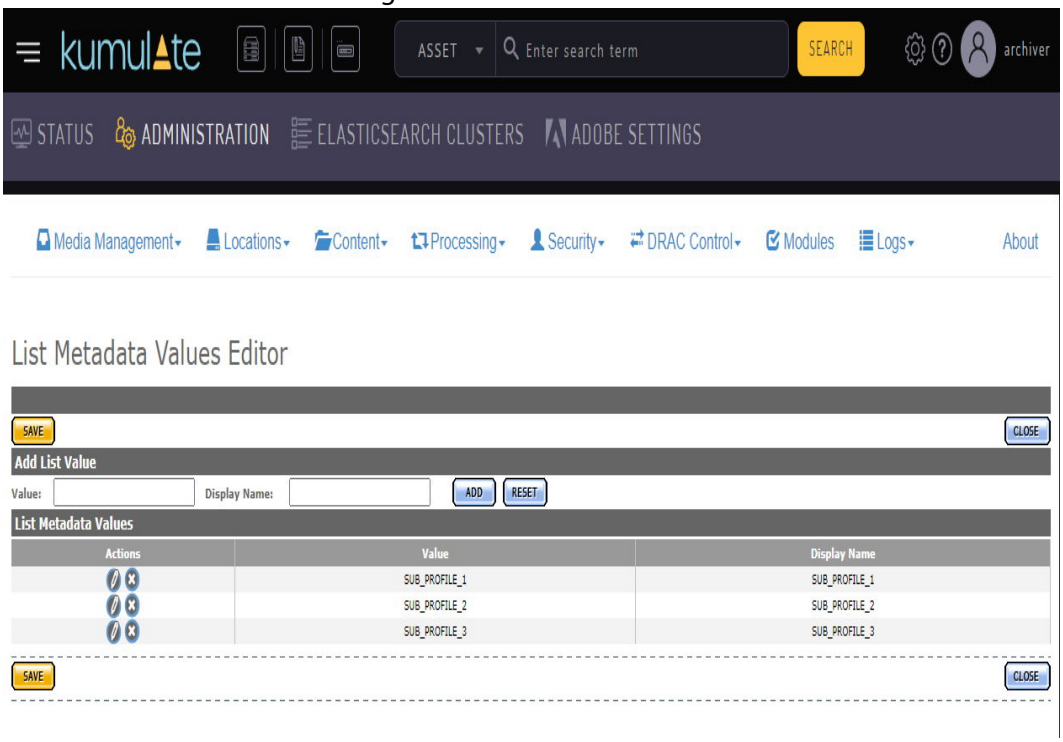
1. Navigate to System > Administration > Content > Metadata Management > Rendition Metadata.



2. Find and edit either subtitleProfile or logoProfile.

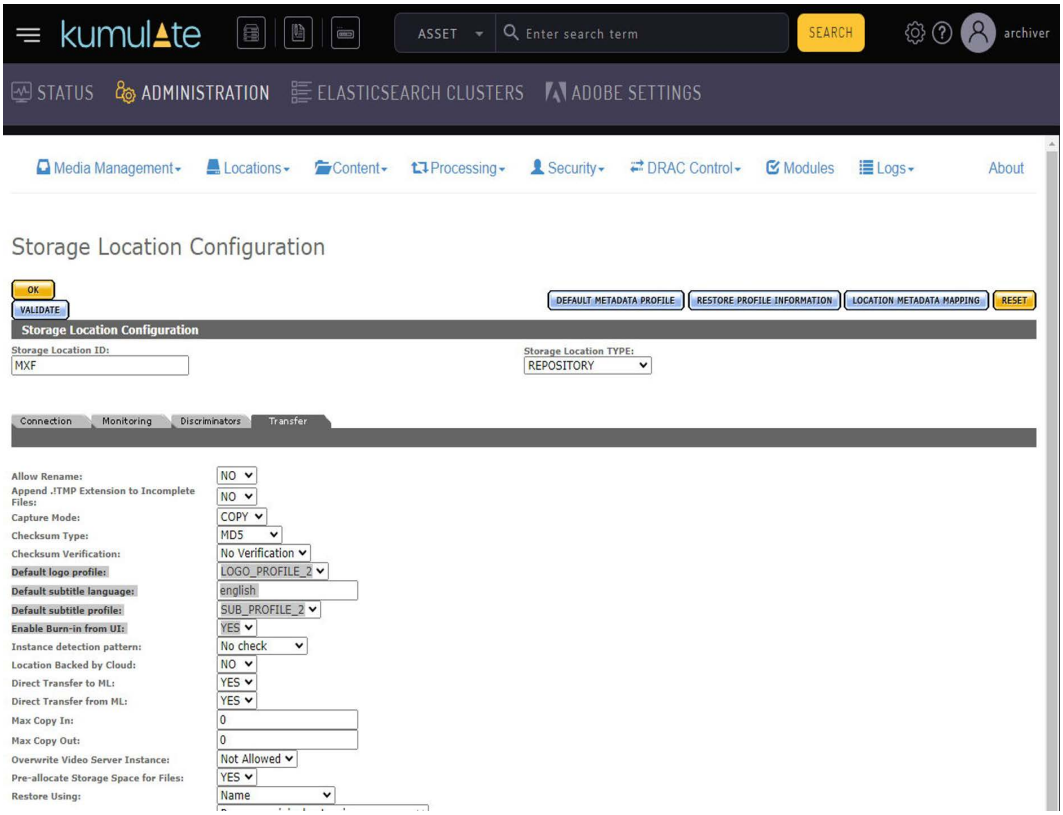


3. Select Modify List Value > Add new profiles. Enter the burn-in profiles configured in the Masstech Transcode Engine.

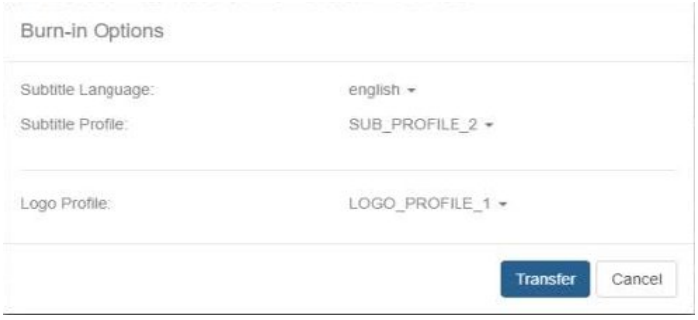


After this is done, the Unmanaged Storage Repository(s) must be set up. The burn-in options work with video servers, but not the cache or a media library. There are two modes that can be used to generate a burned-in file:

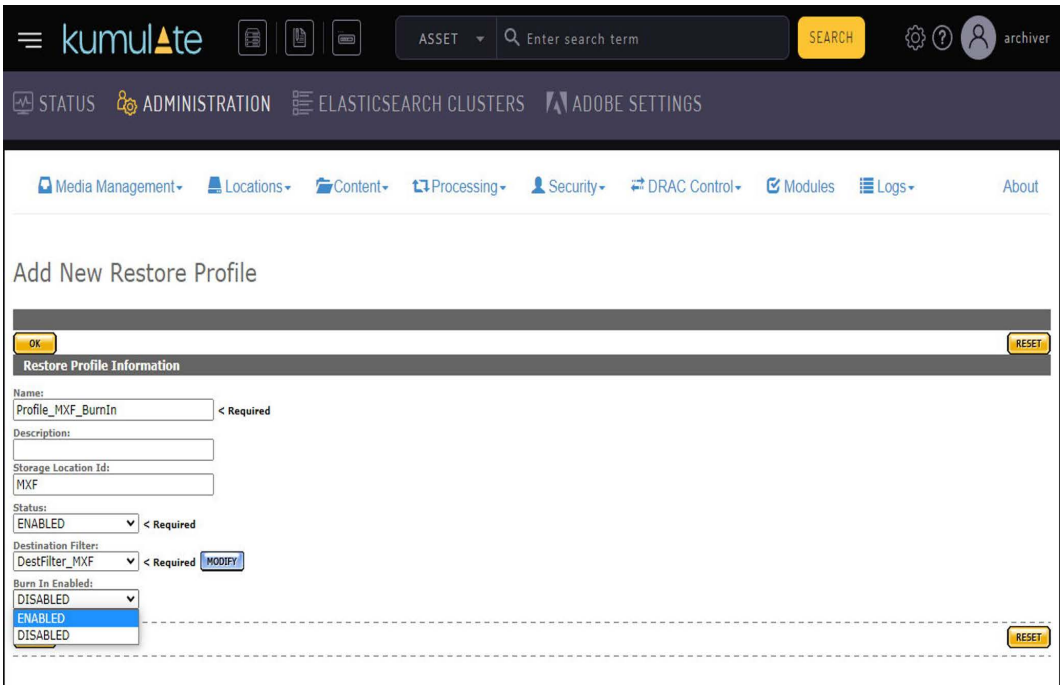
- Manual: In manual mode the user chooses the settings for each file as part of the transfer action. To enable manual burn-in for a location, navigate to Modify Unmanaged Storage Repository > Configure > Transfer Tab and set the Enable Burn-in option to *Yes*. After saving, three new default settings appear related to Burn-in options that are configurable defaults for the UI:
  - Subtitle Language
  - Default Subtitle Profile
  - Logo Profile



To perform a manual burn-in for a Virtual Object, transfer it and select a location that has been configured for manual burn-in. A dialog will appear that has the burn-in options available for selection.



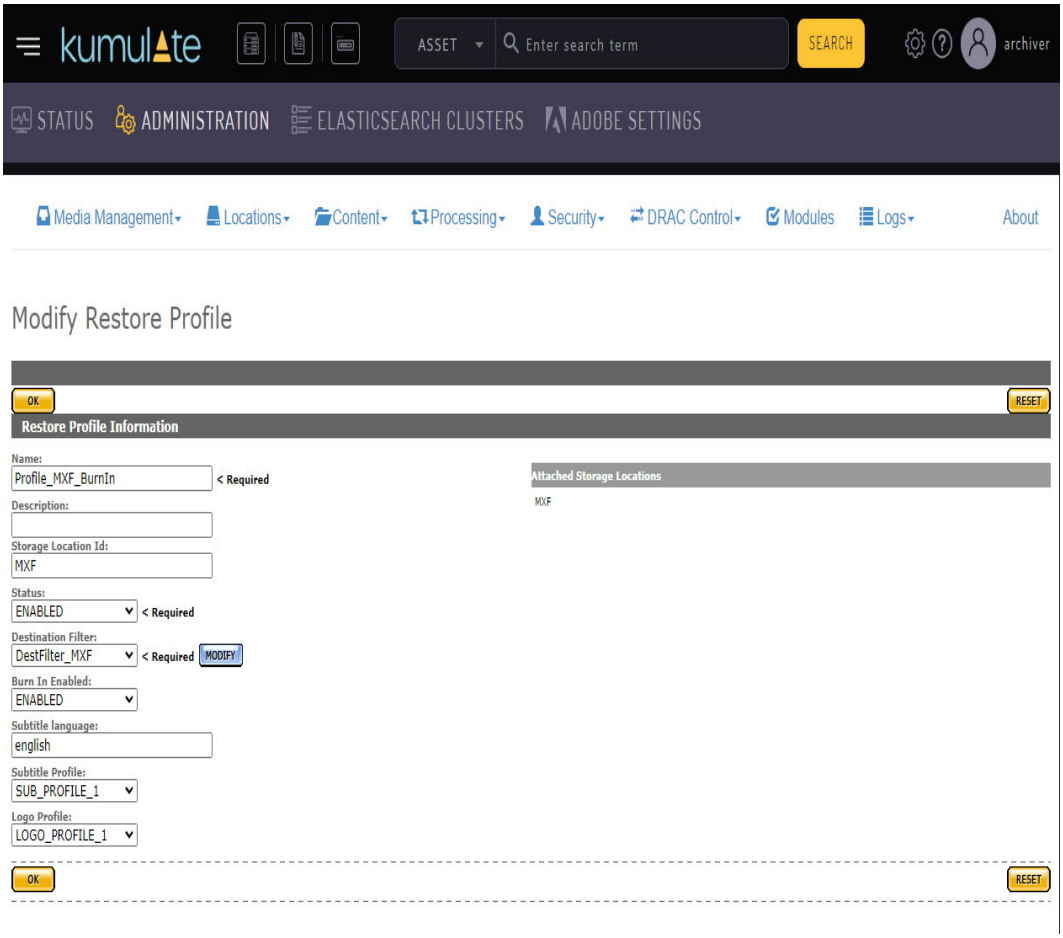
- Automatic: In automatic mode the settings are added automatically using predetermined parameters added in Restore Profiles. To enable automatic burn-in for a location, navigate to Modify Unmanaged Storage Repository > Configure > Restore Profile Information, select a profile and then select Modify Profile. Set Burn In Enabled to *ENABLED*.



This adds the options this restore profile will use for a burn-in:

- Subtitle Language
- Subtitle Profile
- Logo Profile

Set up either Subtitle Language and Subtitle Profile for a subtitle burn-in, logo profile for a logo burn-in, or both.



This restore profile will now use these settings. When a Virtual Object is transferred to a location that has automatic burn-in configured, the burn-in process will be executed as part of the transfer.

Note: Multiple restore profiles with different settings can be configured on the same location.

Workflows

Workflows automate operations on Virtual Objects and Renditions. Each workflow consists of one or more profiles, each consisting of a trigger and a command.

Profiles are triggered on Kumulate events, such as creating new Renditions or changing metadata, or they can be triggered by the completion of another profile. More than one profile can be triggered on the same event, allowing them to run in parallel.

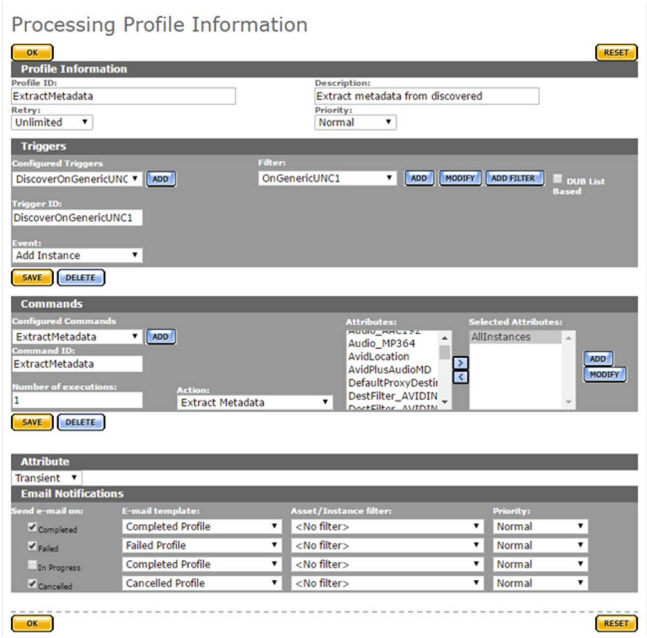
A workflow is considered completed once all its profiles are completed.

Note: If a workflow includes a profile that deletes a Virtual Object, the workflow will not enter the completed state even if the Virtual Object was successfully deleted.

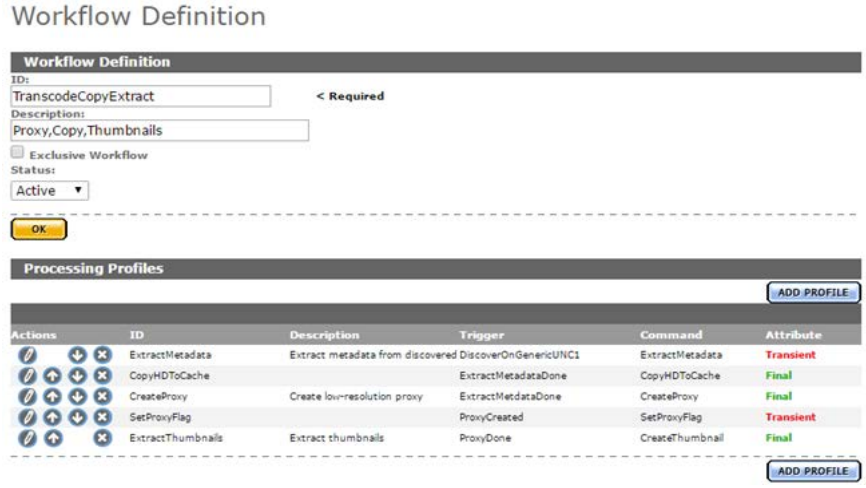
- Profiles
- Triggers
- Commands
- Create a Workflow

Profiles

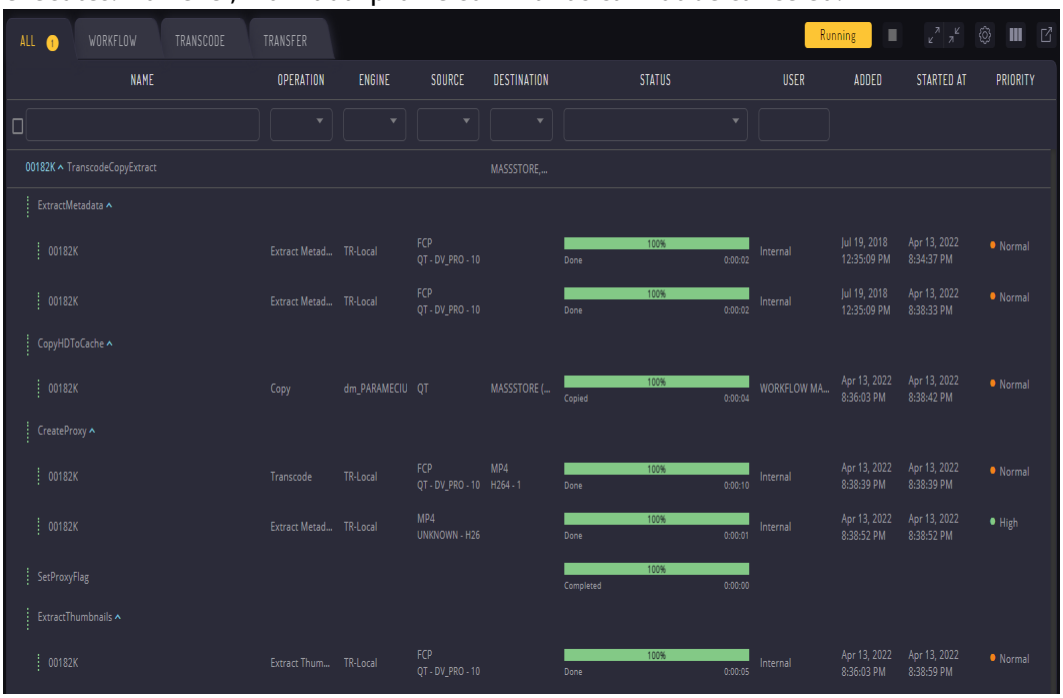
A workflow profile consists of a trigger and a command. The command is executed when the conditions for the trigger are met.



A workflow consists of one or more profiles.



Each profile command will have its own entry on the Jobs page when the workflow executes. However, individual profile commands cannot be canceled.



Note: If a profile is configured to run the delete command, this command will not appear in the Jobs view.

Triggers

A workflow profile's command executes on the event defined by the trigger. If the trigger is not configured properly, the command will not execute, or will not execute under the right conditions.

Triggers are configured with a unique ID, an event, and one or more filters. Filters are non-ACL resource filters that narrow down the trigger to events that occur to specific types of Virtual Objects or Renditions, on specific Unmanaged Storage Repositories, or with specific metadata.

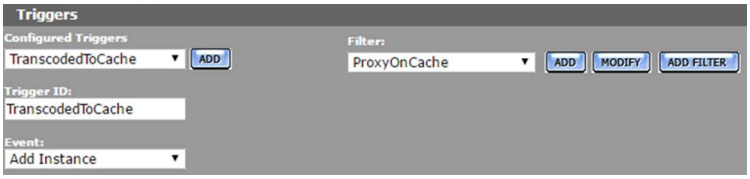
The following events can be used as triggers:

Trigger	Description
Add Rendition	The command is triggered when a Rendition is added to a Virtual Object.
Add Virtual Object	The command is triggered when a Virtual Object is added to Kumulate.
Add Segment	The command is triggered when a segment is created.
Delete Rendition	The command is triggered when a Rendition is deleted.
Delete Virtual Object	The command is triggered when a Virtual Object is deleted.
Delete Segment	The command is triggered when a segment is deleted.
PreparedCompleted	The command is triggered when the metadata in the Workflow Manager Module's Prepare Completed Virtual Object Metadata field is modified.
PreparedCompletedRenditio n	The command is triggered when the metadata in the Workflow Manager Module's Prepare Completed Rendition Metadata field is modified.
ProfileCompletion	The command is triggered by the completion of another profile's command.
Rename Virtual Object	The command is triggered when a Virtual Object is renamed.
Timer	Used to trigger the command at specific times, or at specific time intervals.
Update Virtual Object	The command is triggered when Virtual Object metadata is updated.
UpdateList	

Add Rendition Event

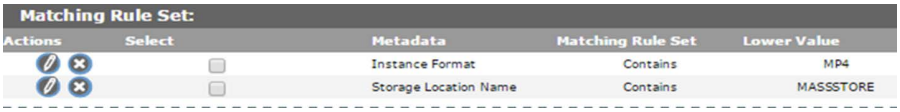
The profile's command is triggered when a Rendition is added to a Virtual Object.

This event is used in situations where a command must be executed when a new Rendition is discovered or created. The filter is used to refine the type of new Rendition that will trigger the command.

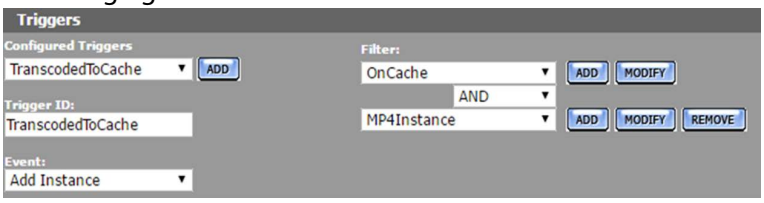


In this case, the command is triggered when a new low-resolution proxy is created on the cache.

The ProxyOnCache resource filter is a Rendition resource filter that selects cache Renditions with MP4 Rendition format.

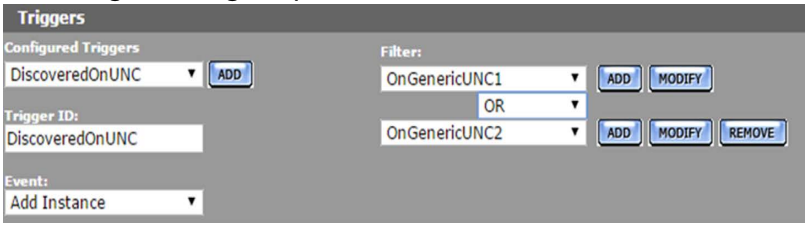


More than one filter can be used instead of one specific filter and shown in the following figure:



In this case, the OnCache filter selects Renditions on the cache, and the MP4Rendition filter selects Renditions with MP4 Rendition format. The command will be triggered when a new Rendition is added that is selected by both resource filters.

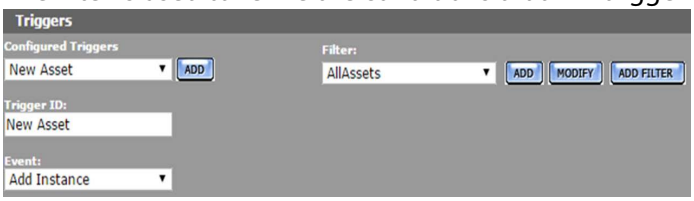
To trigger the command if a new Rendition is discovered on either of two Unmanaged Storage Repositories, two Rendition resource filters that select Renditions on specific Unmanaged Storage Repositories can be used instead of one resource filter.



In this case, the command will be triggered when a new Rendition is detected on either the GenericUNC1 or GenericUNC2 locations.

Add Virtual Object Event

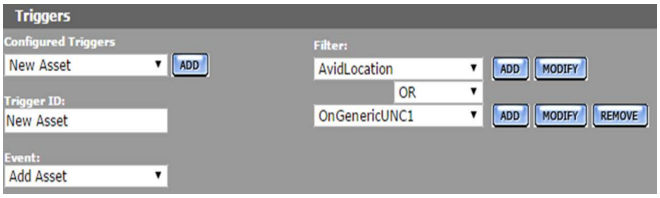
The profile's command is triggered when a new Virtual Object is created. This event is used when a command must be executed whenever a new Virtual Object is created. The filter is used to refine the conditions that will trigger the command.



In this case, the command is triggered when any Virtual Object is created. Use a different resource filter to trigger the command when a Virtual Object is created with a certain set of metadata attributes.

The AvidLocation resource filter is a Virtual Object resource filter that selects Virtual Objects with sources on the AVIDSTANDALONE Unmanaged Storage Repository.

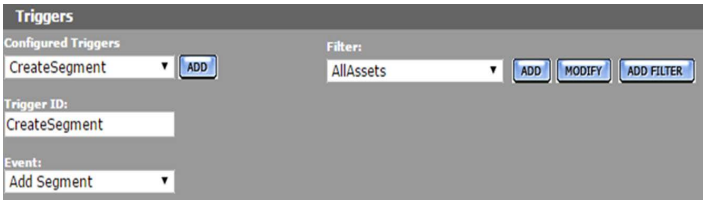
More than one filter can be used as shown in the following figure:



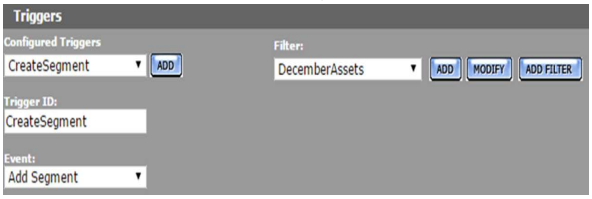
In this case, the AvidLocation filter selects sources on the AVIDSTANDALONE location, and the OnGenericUNC1 filter selects sources on the GENERICUNC1 location. The command will be triggered when a Virtual Object with a source on either of these Unmanaged Storage Repositories is created.

Add Segment Event

The profile's command is triggered when a segment is created. This event is used when a command must be executed when a segment is created in a Virtual Object that satisfies the resource filter.



In this case, the command is triggered when a segment is created in any Virtual Object. Use a different resource filter to trigger the command when a segment is created in a particular set of Virtual Objects.



The DecemberAssets resource filter is a Virtual Object resource filter that selects Virtual Objects that were created in December.

Delete Virtual Object Event

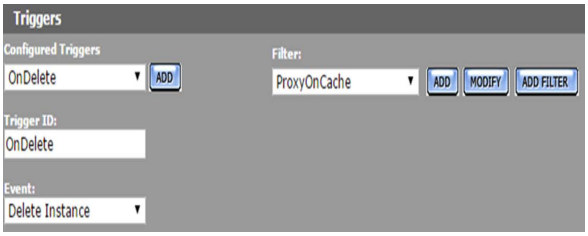
The profile's command is triggered when a Virtual Object is deleted. This event is used when a command must be executed whenever a Virtual Object that satisfies the conditions of the filter is deleted.

In this case, the command is triggered when any Virtual Object created in December 2015 is deleted. The DecemberAssets resource filter is a Virtual Object resource filter that selects Virtual Objects created in December 2015.

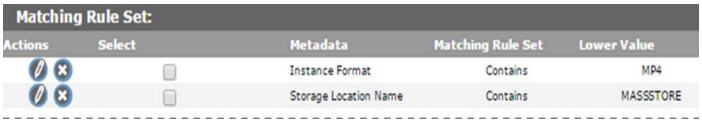
A profile that triggers on the deletion of a Virtual Object cannot operate on that Virtual Object. The profile can only use the Notify or Synchronize command.

Delete Rendition Event

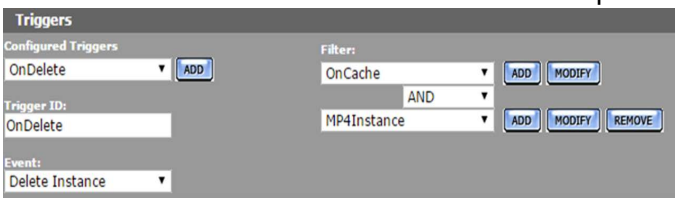
The profile's command is triggered when a Rendition is deleted. This event is used when a command must be executed when a Rendition that satisfies the conditions of the filter is deleted.



In this case, the command is triggered when a low-resolution proxy is deleted from the cache. The ProxyOnCache resource filter is a Rendition resource filter that selects cache Renditions with MP4 Rendition format.

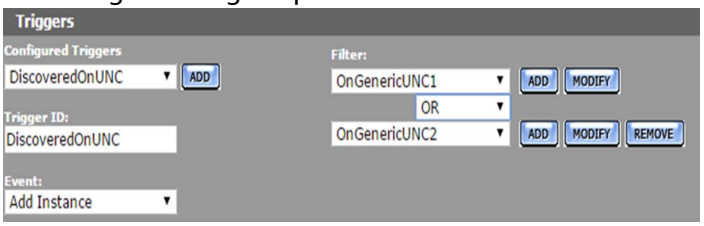


More than one filter can be used instead of one specific filter.



In this case, the OnCache filter selects Renditions on the cache, and the MP4Rendition filter selects Renditions with MP4 Rendition format. The command will be triggered when a Rendition selected by both resource filters is deleted.

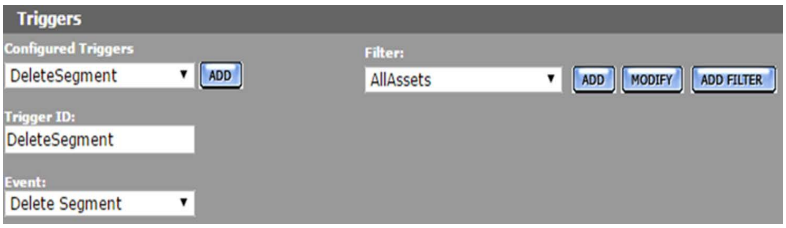
To trigger the command if a Rendition is deleted on either of two Unmanaged Storage Repositories, use two Rendition resource filters that select Renditions on specific Unmanaged Storage Repositories.



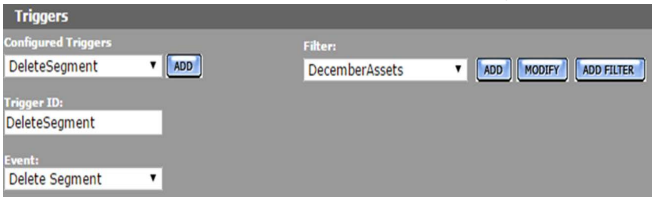
In this case, the command will be triggered when a Rendition is deleted from either the GenericUNC1 or GenericUNC2 locations.

Delete Segment Event

The profile's command is triggered when a segment is deleted. This event is used when a command must be executed when a segment is deleted from a Virtual Object that satisfies the resource filter.



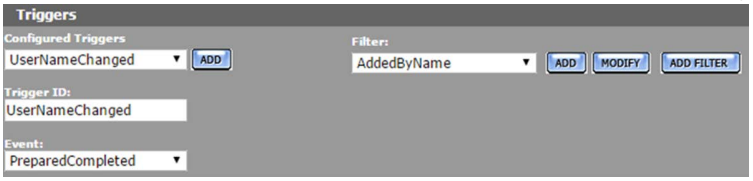
In this case, the command is triggered when a segment is deleted from any Virtual Object. Use a different resource filter to trigger the command when a segment is deleted from a particular set of Virtual Objects.



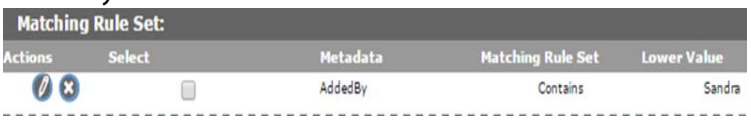
The DecemberAssets resource filter is a Virtual Object resource filter that selects Virtual Objects that were created in December.

PreparedCompleted Event

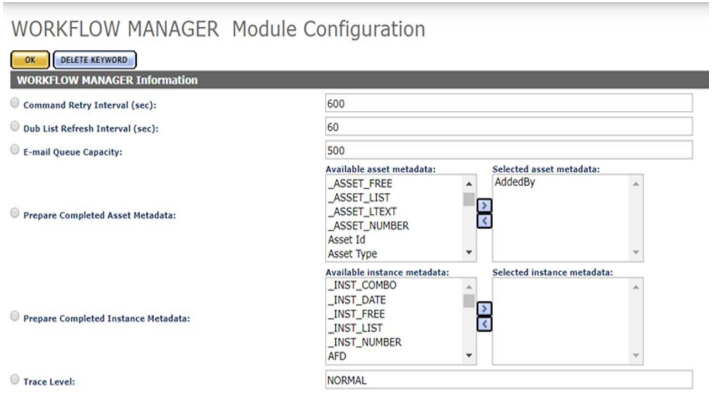
The profile's command is triggered when the specific Virtual Object metadata listed in Workflow Manager Module's Prepare Completed Virtual Object Metadata parameter is modified. The filter specifies the metadata values that will trigger the command.



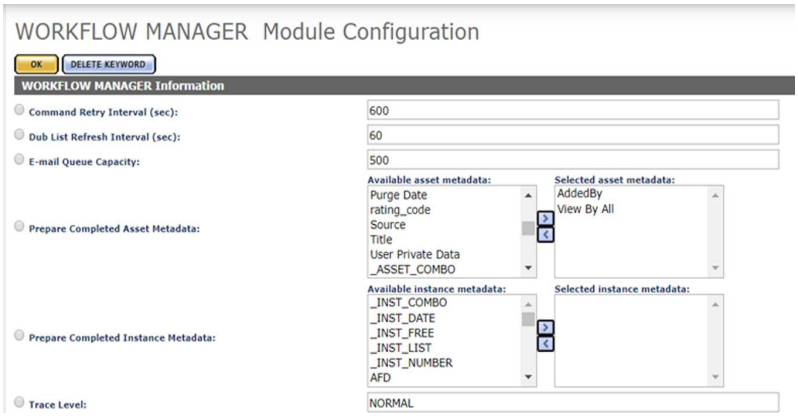
In this case, the command is triggered when a particular user name is added to the AddedBy custom metadata element.



In the Workflow Manager Module, the Prepare Completed Virtual Object Metadata will list this metadata.

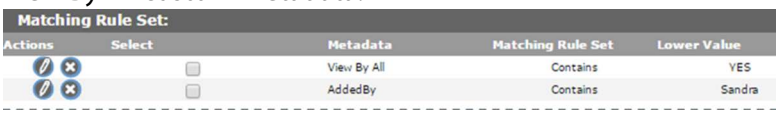


To trigger the command on more than one metadata element, enter a comma-separated list of metadata in the Workflow Module's Prepare Completed Virtual Object Metadata parameter.

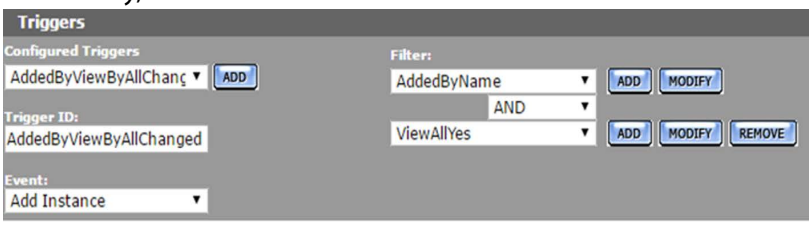


In this case, the PreparedCompleted trigger can use changes to the AddedBy and View By All custom metadata to trigger the command. If changes to both the metadata are required to trigger the event, both metadata can be set in the same filter.

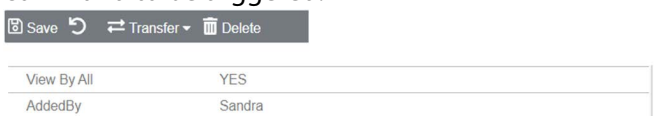
In this case, the AddedByViewAll Virtual Object resource filter filters both AddedBy and View By All custom metadata.



Alternately, two filters can be used:



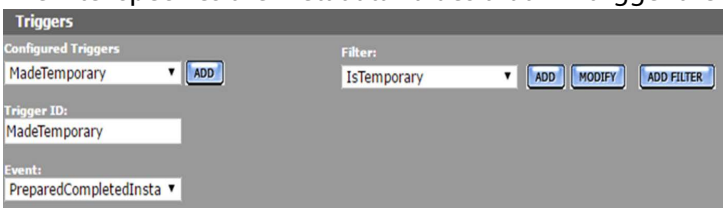
In either case, all the metadata listed must be modified at the same time for the command to be triggered.



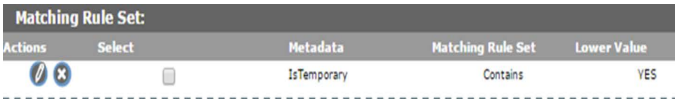
Use an OR operator to allow the command to be triggered using any of the metadata listed in the Workflow Manager Module.

PreparedCompletedRendition Event

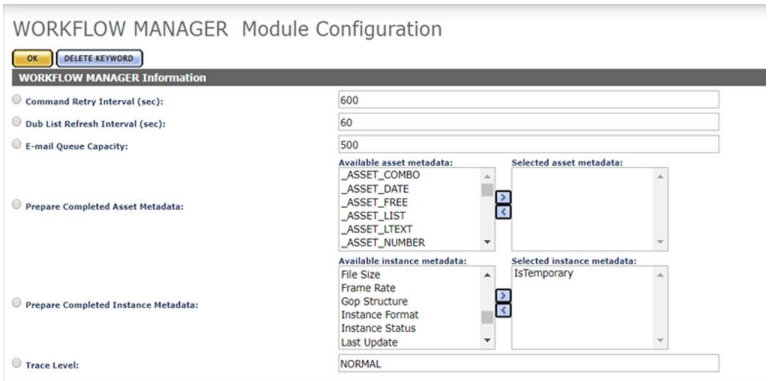
The profile's command is triggered when the specific Rendition metadata listed in Workflow Manager Module's Prepare Completed Rendition Metadata field is modified. The filter specifies the metadata values that will trigger the command.



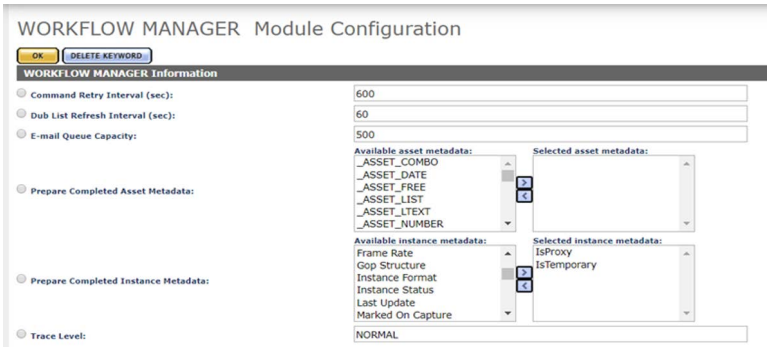
In this case, the command is triggered when a Rendition's IsTemporary custom metadata element has been set to YES.



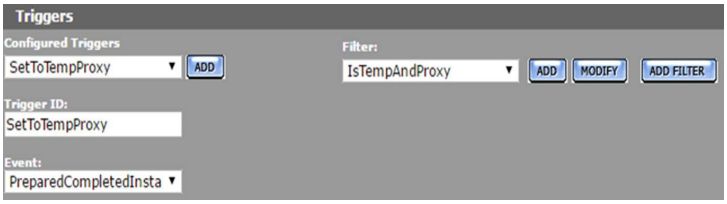
In the Workflow Manager Module, the Prepare Completed Rendition Metadata will list this metadata.



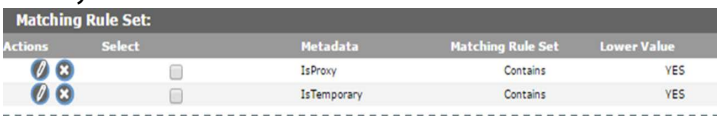
To trigger the command on more than one metadata element, enter a comma-separated list of metadata in the Workflow Module's Prepare Completed Rendition Metadata parameter.



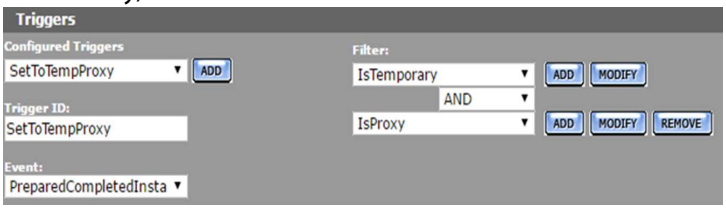
In this case, the PreparedCompletedRendition trigger can use changes to the IsTemporary and IsProxy custom metadata to trigger the command. If changes to both the metadata are required to trigger the event, both metadata can be set in the same filter.



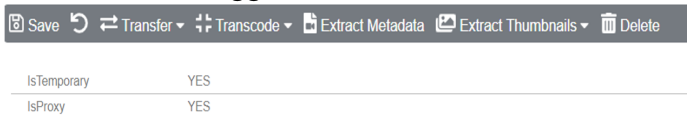
In this case, the IsTempAndProxy Rendition resource filter filters both AddedBy and IsProxy custom metadata.



Alternately, two filters can be used:



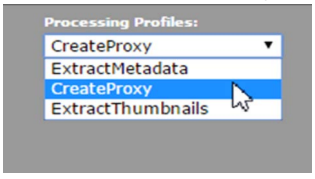
In either case, all the metadata listed must be modified at the same time for the command to be triggered.



Use an OR operator to allow the command to be triggered using any of the metadata listed in the Workflow Manager Module.

ProfileCompletion Event

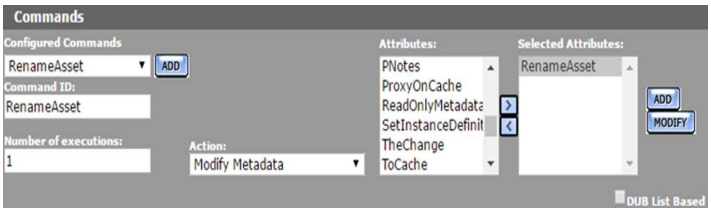
The profile's command is triggered when another profile's command completes. This event is used when a the command must be executed after a previous command has completed. The Processing Profiles pull down menu will list the profiles used in the workflow that is being modified. Select the profile that will trigger this profile.



For example, a profile that extracts thumbnails will be executed after CreateProxy, a profile that creates a low-resolution proxy, completes.

Rename Virtual Object Event

The profile's command is triggered when a Virtual Object is renamed. This event is used when a command must be executed when a Virtual Object that satisfies the resource filter is renamed.



In this case, the command is triggered when any Virtual Object is renamed. Use a different resource filter to trigger the command when only certain Virtual Objects are renamed.

The DecemberAssets resource filter is a Virtual Object resource filter that selects Virtual Objects that were created in December.

Timer Event

The Timer trigger is used to trigger the command at specific times, or at specific time intervals. Unlike other profiles, a profile that use a timer profile must be started manually using the Start button.

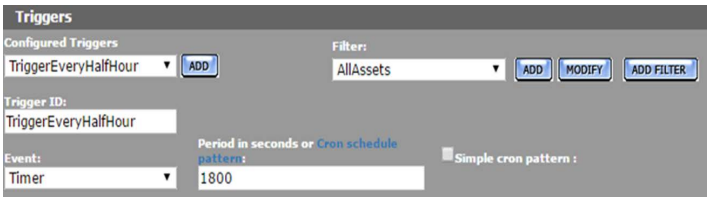
After the Start button is pressed, the profile is triggered according to the timer configuration.

Note: The Start button is active even though it appears grayed out.

The Start button changes to a Stop button when it is clicked. The Stop button stops the profile from being triggered. The profile should be stopped before it is edited.

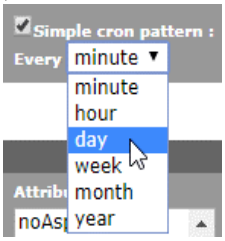
The Run button is used to run the profile only one time. Clicking the Run button triggers the command immediately, regardless of the timer settings.

To configure the command to be triggered at specific time intervals, keep the Simple cron pattern option deselected, and add the time interval (in seconds) to the field.

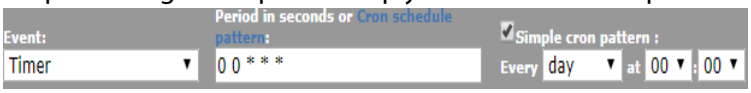


To configure the command to be triggered according to a schedule, select the Simple cron pattern check box; an interval pull down menu will open.

Select whether you want the profile triggered every minute, hour, day, week, month, or year.



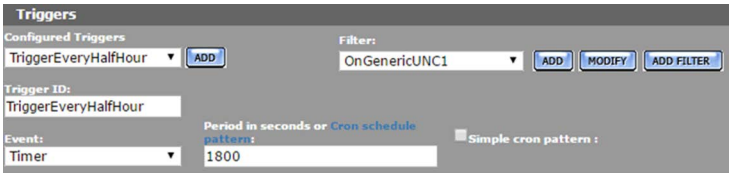
Helpful dialogs will open to help you create the cron pattern.



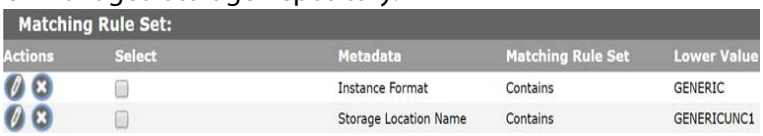
You can click Cron schedule pattern for more information.

Note: Cron scheduled jobs that cross between standard time and daylight savings time may behave unexpectedly when the time change happens.

The filter is used to select Virtual Objects or Renditions on which to run the command. To run the command on any Virtual Object, use AllAssets, and to run the command on any Rendition, use AllRenditions. Otherwise, select the appropriate filter. For example, to only run the command on Renditions on a specific Unmanaged Storage Repository, select a Rendition resource filter that selects Renditions on that location.



In this case, the OnGenericUNC1 resource filter selects Renditions on the GenericUNC1 Unmanaged Storage Repository.



Matching Rule Set:

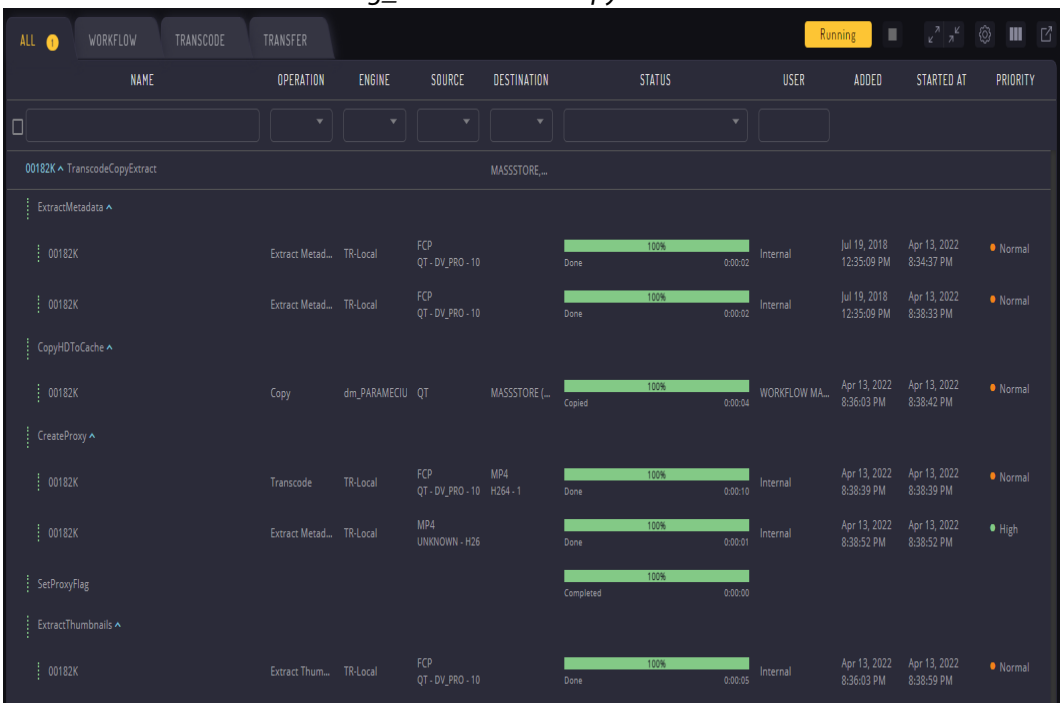
Actions	Select	Metadata	Matching Rule Set	Lower Value
		Instance Format	Contains	GENERIC
		Storage Location Name	Contains	GENERICUNC1

Commands

A profile's command defines the action to perform on the Virtual Object or Rendition that triggered it. Commands are configured with a unique ID, an action, and one or more attributes. Attributes are non-ACL resource filters that select the Rendition or Virtual Object on which to perform the action, or select and set the metadata that needs to be modified, depending on the type of action.

The command's action will appear under the workflow name in the Jobs view of the web interface when the workflow executes.

Executed command: *Processing_WF TranscodeCopyExtract*



Kumulate performs a check on the command prior to its execution. If there is nothing to do for a command because a Rendition it creates already exists, its metadata is already extracted, or no Renditions or Virtual Objects match its attributes, the command will not be executed, its profile will not complete, and the workflow will never enter the completed state.

The following actions can be taken by the command:

Command	Description
Batch	This has been deprecated. This will be replaced with the upcoming Story Board feature.
Copy	Copy a Rendition from one Unmanaged Storage Repository to another.
CreateThumbnail	Extract a thumbnail from the proxy Rendition.

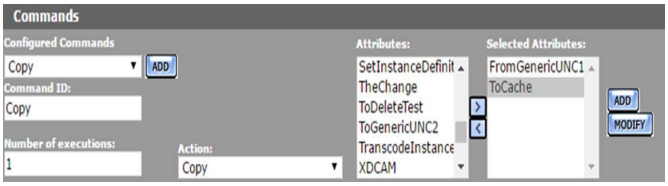
Command	Description
Delete	Delete a Virtual Object or a Rendition.
Extract Content Info	Extracts clip Rendition information.
Extract Metadata	Extract metadata from the Rendition that triggered the command.
Modify Metadata	Modify the metadata of the Virtual Object or Rendition that triggered the command, using the attributes set in the command.
Notify	Used only with Harris databases. Sends a notification to a Harris database.
Rename Virtual Object	Used to rename the Virtual Object.
Synchronize	Synchronizes two connected Kumulate systems.
Transcode	Transcode a Rendition using the transcode profile specified in the command attributes.

Copy Command

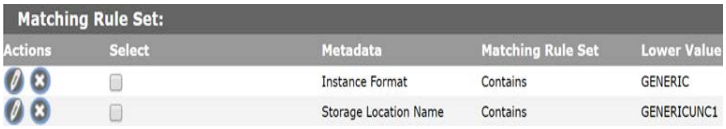
The Copy command copies the Rendition that triggered the command, or a Rendition of the Virtual Object that triggered the command, from one location to another.

Note: Kumulate checks whether a Rendition belonging to the Virtual Object being processed exists on the destination before running the command. If a Rendition exists on the destination, the command will not be run. No message will be generated.

The command needs two attributes. The first attribute is the source location, and the second attribute is the destination location.



Both attributes are Rendition resource filters. The source location attribute must include the source location's name. a Rendition format can be provided if only certain Rendition formats should be copied to the destination.



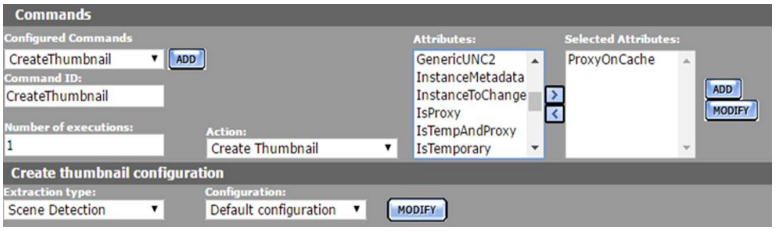
Only the destination location name is required in the destination location attribute. However, to ensure that Kumulate does not attempt to copy an incompatible Rendition to a location, the expected Rendition format should also be included in the attribute.

Create Thumbnail Command

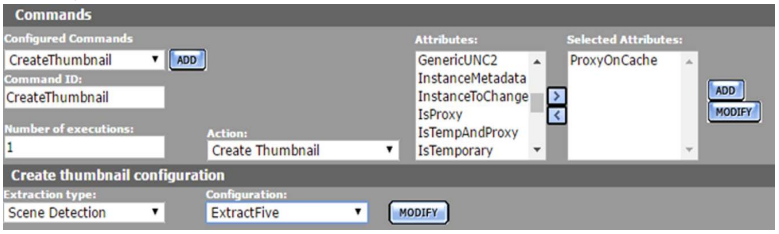
The Create Thumbnail command extracts thumbnails from a Rendition.

Note: If thumbnails have already been extracted for the Rendition's Virtual Object, the command will not be run. No message will be generated.

The command requires a Rendition resource filter attribute that selects the type of Renditions from which to extract the thumbnails, and the thumbnail extraction profile to use.



In this example, the default thumbnail extraction profile is used to extract thumbnails from Renditions selected using the ProxyOnCache Rendition resource filter. If custom thumbnail extraction profiles have already been created, they can be selected from the Configuration pull down menu.



In this example (see the previous figure), the ExtractFive thumbnail extraction profile is used to extract thumbnails.

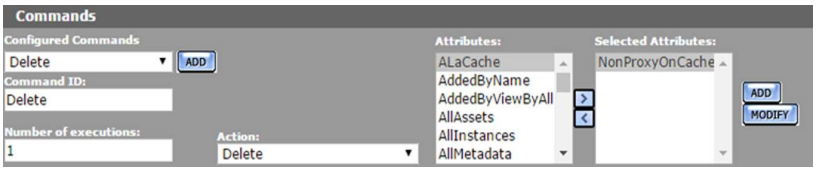
New thumbnail extraction profiles can be created by clicking Modify next to the Configuration pull down menu. Follow the instructions in the section on thumbnail extraction profiles.

Note: Only the Scene Detection extraction type is currently supported.

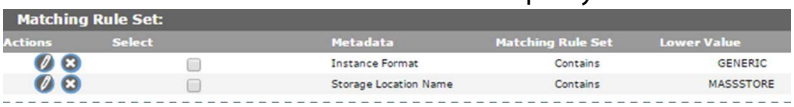
Delete Command

The Delete command deletes Virtual Objects or Renditions that satisfy the conditions set in the command's attributes. If no Virtual Object or Rendition exists that satisfy the attribute, the command will not run.

The Delete command requires one attribute that selects the Virtual Object or Rendition to delete. To delete a specific Rendition from the Virtual Object, select a Rendition resource filter from the list of attributes.



In this case, the NonProxyOnCache attribute is a resource filter that selects a Rendition on the cache that is not the low-resolution proxy.



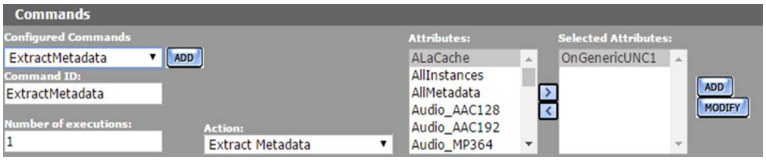
Note: If the command deletes the Virtual Object that was passing through the workflow, the action will not appear in the list of jobs. The workflow will also never enter the completed state even if all its commands were completed successfully.

Extract Metadata Command

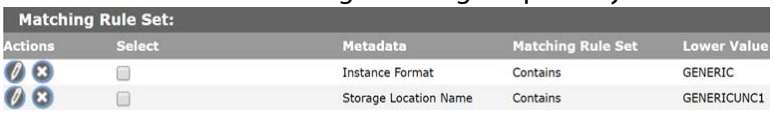
The Extract Metadata command extracts metadata from one or more Renditions.

Note: Kumulate checks the metadata before running the command. If metadata has already been extracted from the Rendition, the command will not run. Consequently, the workflow may not enter the completed state.

Select a Rendition resource filter attribute that narrows down the type of Rendition from which to extract the metadata.



In this case (see previous figure), OnGenericUNC1 selects Renditions that are located on the GENERICUNC1 Unmanaged Storage Repository.



Note: The Extract Metadata command only runs on Renditions.

Modify Metadata Command

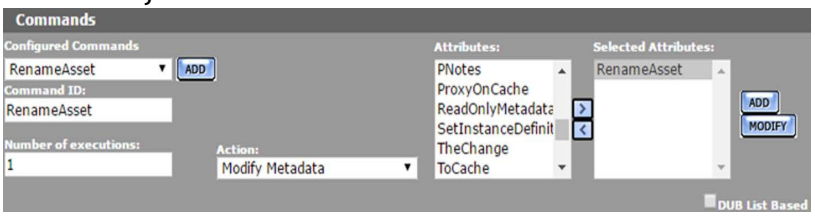
The Modify Metadata command modifies the metadata of the Virtual Object being processed, or of a Rendition being processed. Administrators can now assign a default set of pinned metadata fields.

Note: Kumulate checks the metadata before running the command. If the Virtual Object or Rendition metadata is already set, the command will not be run. No message will be generated.

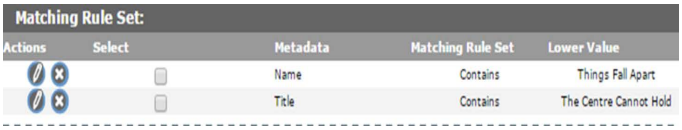
When modifying Virtual Object metadata, the command takes only one attribute that defines the new metadata values. When modifying Rendition metadata, an additional attribute selecting the Renditions to modify must be used.

Note: Only select one metadata-modifying attribute. The profile will not be triggered if more than one attribute is used.

To modify the metadata of the Virtual Object being processed, select an attribute that is a Virtual Object resource filter that modifies metadata.

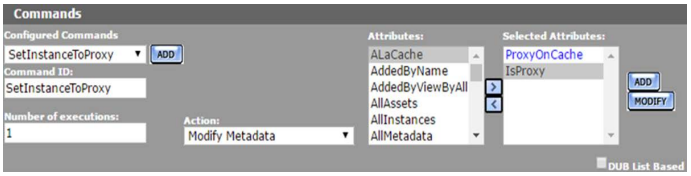


In this case (see previous figure), the RenameAsset attribute changes the Virtual Object name and title.

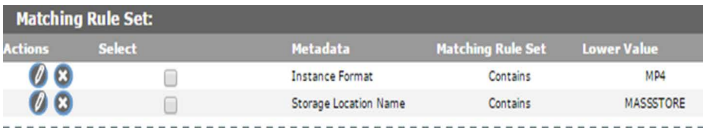


Select two Rendition resource filter attributes to modify the metadata of a Rendition. The first attribute in the list filters the Renditions that will be modified, and the second attribute modifies the Rendition metadata.

Note: If no Rendition satisfies the first attribute, the command will not run.



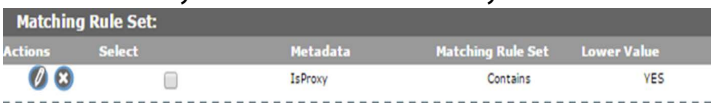
In this case (see previous figure), ProxyOnCache selects the low-resolution proxy on the cache.



Matching Rule Set:

Actions	Select	Metadata	Matching Rule Set	Lower Value
		Instance Format	Contains	MP4
		Storage Location Name	Contains	MASSSTORE

And the IsProxy attribute sets the IsProxy custom Rendition metadata to YES.



Matching Rule Set:

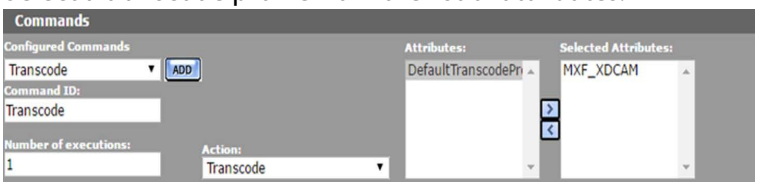
Actions	Select	Metadata	Matching Rule Set	Lower Value
		IsProxy	Contains	YES

Transcode Command

The Transcode command transcodes the Rendition the workflow is operating on using the selected transcode profile.

Note: Kumulate checks whether a Rendition that matches the transcode profile exists on the destination before running the command. If a Rendition that matches the profile exists on the destination, the command will not be run. No message will be generated.

Select a transcode profile from the list of attributes.



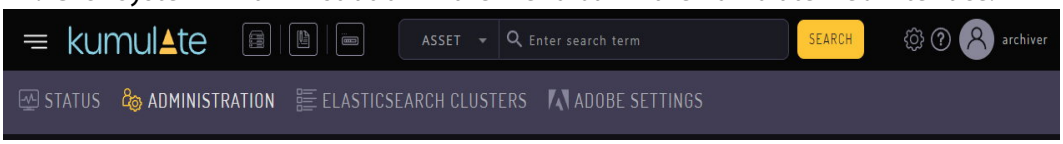
Only one transcode profile can be used at a time. If more than one transcode profile is selected, the command will not run. No message will be generated.

Create a Workflow

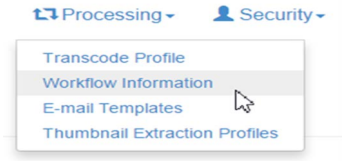
Workflows are used to automate tasks. Each workflow is composed of a set of profiles that execute commands when triggered by specific events in Kumulate.

Use the following procedure to create a workflow:

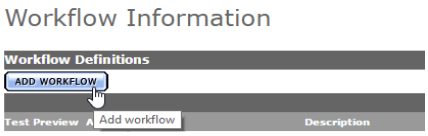
1. Click System > Administration in the menu bar in the Kumulate web interface.



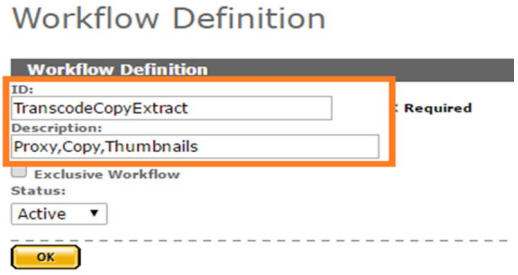
2. Select Processing > Workflow Information.



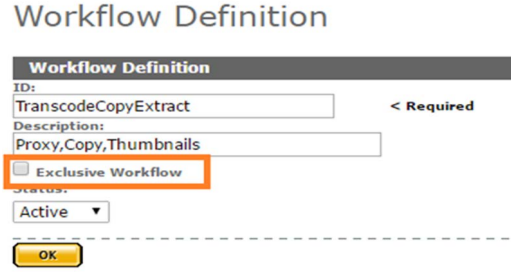
3. Click Add Workflow on the Workflow Information page.



4. Use the ID field to provide a unique name for the workflow. Optionally, a description of the workflow can be added. The workflow name should reflect the actions performed by the workflow.

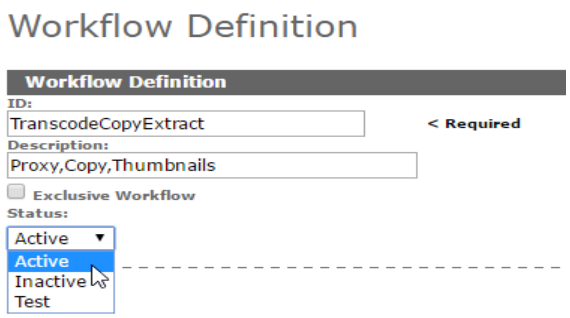


5. Select the Exclusive Workflow check box if this workflow should run only when no other workflow is running.

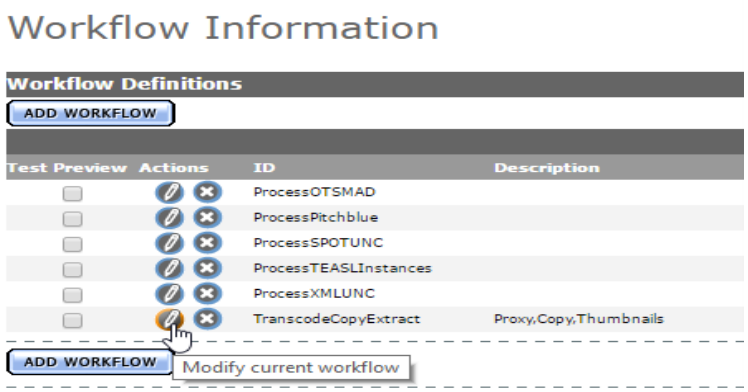


6. The workflow Status can be set to Active or Inactive. An inactive workflow is not executed.

Note: Do not use the Test status.

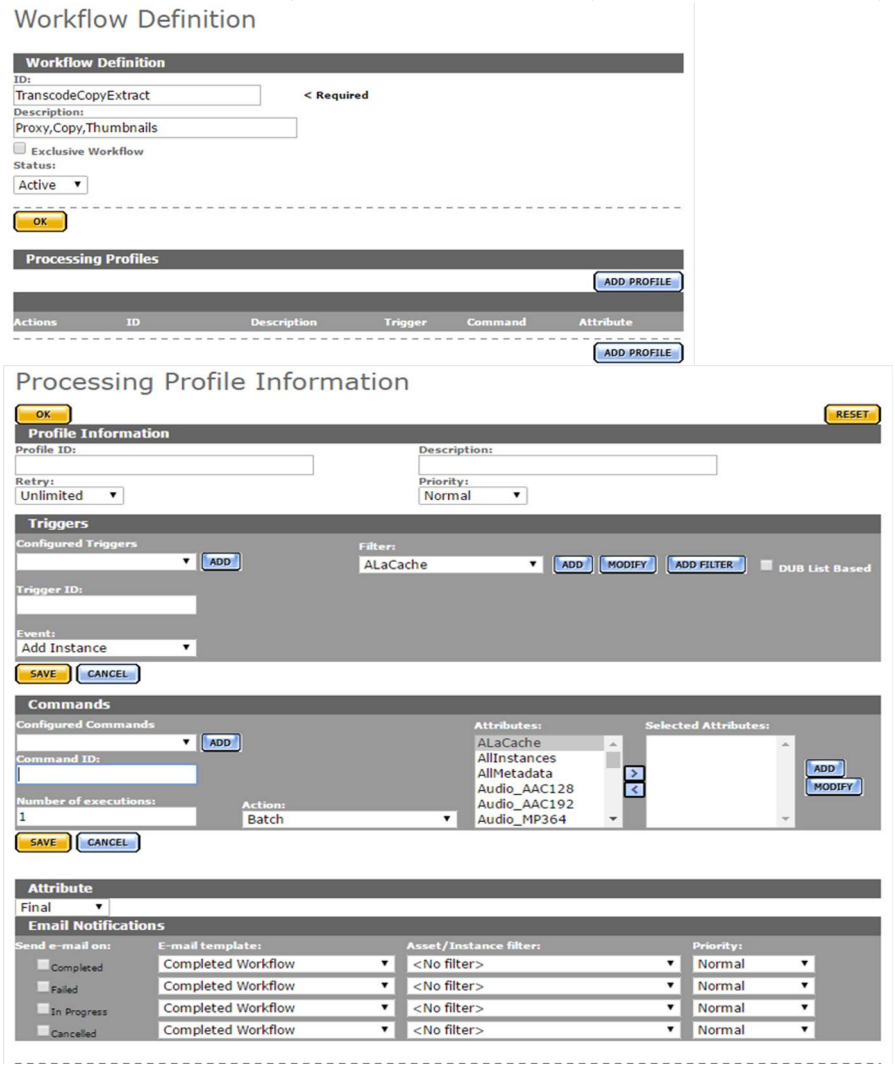


7. Click OK to save the workflow. You will be returned to the Workflow Information page.
8. Click the Pencil icon next to the workflow to add profiles to the workflow.

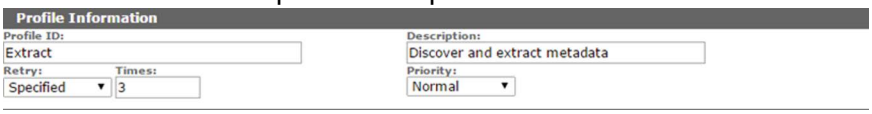


Create a Profile

A workflow is composed of at least one profile. Profiles execute commands when they are triggered by an event. After creating a workflow, click Add Profile from the Workflow Definition page to open the Processing Profile Information page.



The profile must be given a unique name. The name should reflect what the profile does, so it should include an action word such as extract, transcode, or copy. Because several profiles may exist that perform the same action, a way of differentiating between the different profiles that perform the same actions should be used.



The maximum number of times its command can be retried upon failure, and its priority must also be provided.

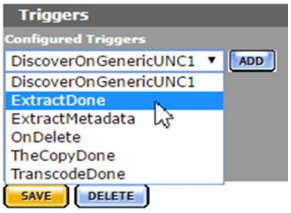
Parameter	Description
Profile ID	A unique profile name. Completed profiles can be used as triggers in their workflows. A descriptive name helps differentiate between the profiles in the workflow, making it less likely that a trigger will be misconfigured. Profiles should be named after the function they perform. For example, a profile that extracts metadata from a newly-discovered Rendition could be ExtractMetadataFromNew.
Description	A description of the profile can help differentiate between similar profiles. This is optional.
Retry	The number times to retry the command if it fails. By default, retry is set to unlimited, meaning that the command will be retried infinitely. The retry interval is set in the Workflow Manager Module.
Priority	The command's execution priority. This defaults to normal.

Configure the Trigger

The profile's command is executed when a trigger event is detected. If the trigger is not configured properly, the command may not execute, or it may execute at an unexpected moment.

The section on *Triggers* provides additional information about configuring different types of triggers.

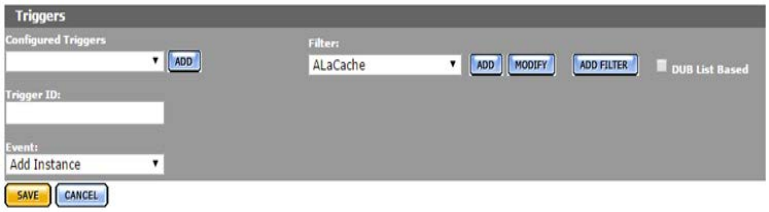
To use a previously-configured trigger, select a trigger from the Configured Triggers pull down menu.



This will automatically populate the trigger fields. Do not forget to save the trigger.

Use the following procedure to create a new trigger:

1. Click ADD in the Triggers page.



2. Enter a unique name for the trigger in the Trigger ID field.

   The trigger name should reflect the event associated with the trigger; for example, RenditionDiscoveredOnSL, or TranscodeCompleted. Because several triggers may exist that are triggered on similar events, a naming scheme that differentiates between the similar triggers should be used.

3. Select the event that will trigger the command from the Event pull down menu. More information about events can be found in the *Triggers* section.

4. Select a resource filter that identifies the conditions that will trigger the command for the event from the Filter drop-down menu.

   Click Add to create a new non-ACL resource filter if no suitable filter is available.

Note: Do not modify an existing resource filter unless it is certain that this resource filter is not used in another profile or workflow, and is not used in another part of Kumulate. Filters can be used in more than one trigger, and also in commands. To prevent confusion, filter names should reflect the types of objects that it selects; for example, NewRenditions or RenditionsOnCache.

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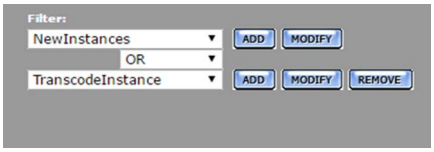
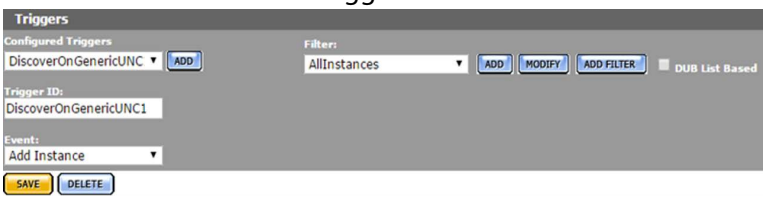
5. To add more than one filter, click Add Filter and select whether both or either filter condition must be satisfied.



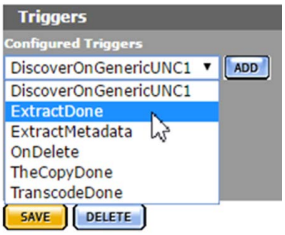
6. Click Save to save the trigger.



Configure the Command

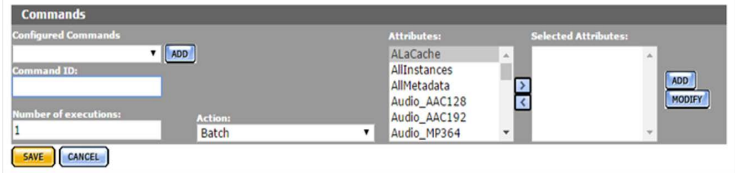
Configure the command that will execute when the trigger conditions are detected. If the command is not configured properly, it might not execute, or it may produce unexpected results. See the *Commands* section for more information.

To use a previously configured command, select a command from the Configured Commands pull down menu.



Use the following procedure to create a new command:

1. Click ADD on the Commands page.



2. Enter a unique name for the command in the Command ID text box. The command's name should reflect the type of action it will execute; for example, CreateProxyRendition, or ExtractThumbnails. Because several commands may exist that perform similar actions, a naming scheme that differentiates between the similar commands should be used.
3. Enter the number of times to execute the command in the Number of executions text box.
4. Select the command to execute from the Action pull down menu. See the *Commands* section for more information.
5. Select a resource filter the command will act on from the Attributes pull down menu. Click Add to create a new non-ACL resource filter if no suitable filter is available.

Note: Do not modify an existing resource filter unless it is certain that this resource filter is not used in another profile or workflow, and is not used in another part of Kumulate. Attributes can be used in more than one command and in triggers. To prevent confusion, attribute names should reflect the types of objects selected; for example, CacheLocation or RenditionsOnCache.

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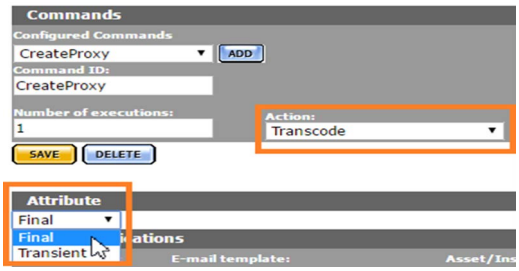
6. Click Save to save the command.

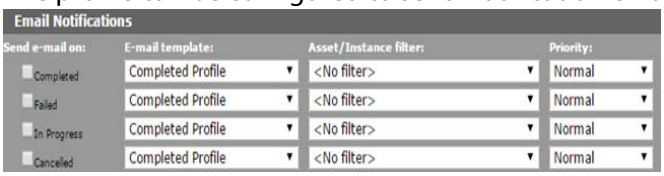
Set the Final/Transient Setting

The only profiles that should be marked as final are profiles that appear last in a workflow, or profiles that create a Rendition through a copy or a transcode. All other profiles must be set to transient.



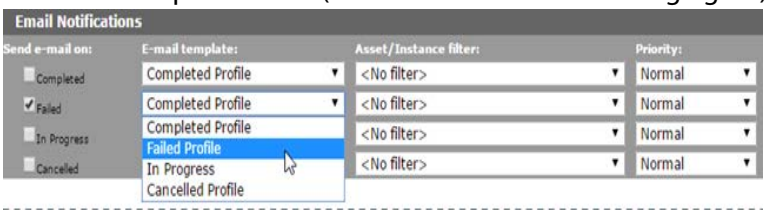
Configure Email Notifications (Optional)

The profile can be configured to send notification emails.



Note: The email alert feature must be enabled, and email templates must be created to use this feature.

Select the condition to send a notification (Failed in the following figure), then select the email template to use (Failed Profile in the following figure).



Optionally, a Virtual Object or Rendition filter can be used, and a priority for the email can be set. The notification will only be sent if the Virtual Object or Rendition processed by the profile match the filter.

Email Alerts and Notifications

Kumulate can be configured to send logs, alerts, and notifications via email.

When the email alerts feature is turned on, operator emails will automatically start being sent to the specified emails. Workflow notifications will only be sent if the email alerts feature has been enabled. The email notification system can also be configured to send zipped log files to the recipient.

- Configure the Email Service
- Email Notification Templates

Configure the Email Service

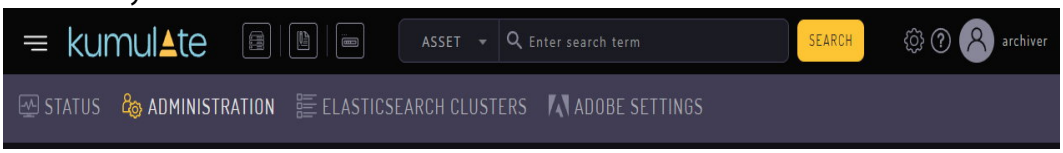
The email service that sends workflow notifications, log messages, and operator alerts is configured in the System module.

Before configuring the email service, ensure that the address that will be used to send emails can send emails, that the SMTP port and server are known, and that the TSL or SSL port is known.

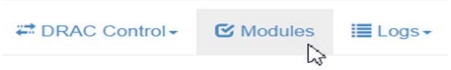
Note: The password for the address that will send email is visible in the System module.

Use the following procedure to configure the email service:

1. Click System > Administration in the menu bar in the Kumulate web interface.

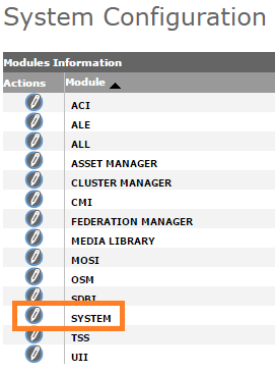


2. Select Modules.

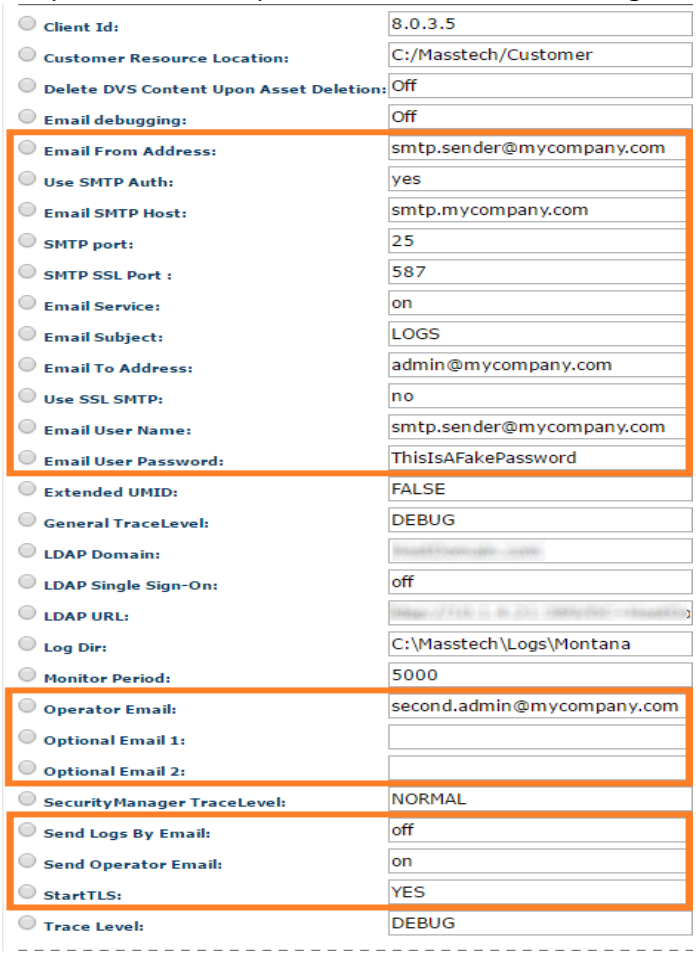


3. Click the Advanced button on the System Control page.

4. Click the Pencil icon to the left of the SYSTEM module.



5. Enter the information in the parameters identified in the following figure (the parameter descriptions are in the table following the figure):

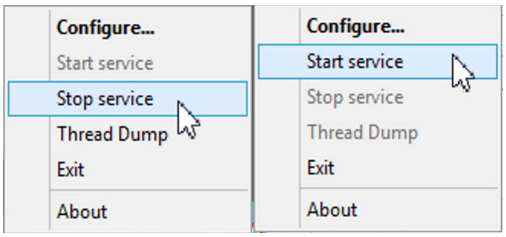


Parameter	Description
Email From Address	The sending email address for notification emails. This must be identical to the email address specified in Email User Name.
Use SMTP Auth	When set to YES, authentication is done through SMTP. Generally, this should be set to *YES*.
Email SMTP Host	The SMTP host being used to send emails.
SMTP Port	The non-SSL SMTP port. This is typically port 25.
SMTP SSL Port	The SSL or TSL SMTP port. SSL uses port 465 by default. TLS uses port 587 by default. If TLS is used, ensure that StartTLS is set to *YES*.

Parameter	Description
Email Service	Turns the email service on and off. If the email service is off, no emails will be sent by the system. **Note:** Most operator messages are not sent using email, even when the service is on.
Email Subject	The subject line for emails containing logs and operator messages. Subject lines for emails sent by workflows are set in their respective email templates.
Email To Address	The email address of the recipient of log and operator messages. Recipients for emails sent by workflows are set in their respective email templates.
Use SSL SMTP	Set to *YES* to use SSL; set to *NO* if TSL will be used instead.
Email User Name	The email address of the sender. This must be identical to Email From Address.
Email User Password	The sender's SMTP authentication password.
Operator Email Optional Email 1 Optional Email 2	Additional email address which can receive operator email. Any or all of these parameters can contain an email address. **Note:** If more than one Operator Email parameter is present, only the second one is active. If only the first of the two has been assigned an email address, emails will never be received at that address. Send Operator Email must be set to *YES* for emails to be sent to these recipients.
Send Logs By Email	Zipped log files are sent to the Email To Address when this is set to ON.
Send Operator Email	Operator emails are sent to the email addresses specified by Operator Email, Optional Email 1, and Optional Email 2 when this is set to ON.
Start TLS	Set to *YES* to use TSL; set to *NO* if SSL will be used instead.

6. Click OK to save the configuration.

7. Restart Kumulate for the changes to take effect. On the Kumulate server host, stop and restart Tomcat.

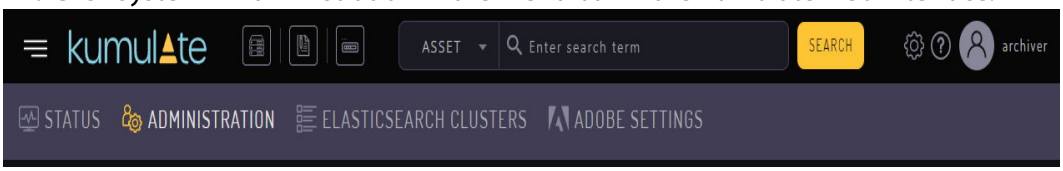


Email Notification Templates

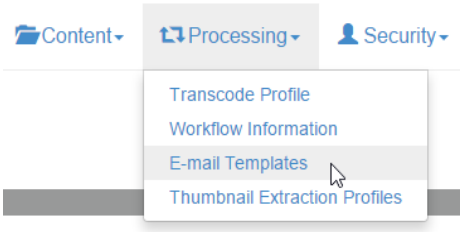
Email templates must be created for Kumulate to send workflow notifications by email. Workflows will only send notifications if the email alerts feature is enabled.

Use the following procedure to create an email template:

1. Click System > Administration in the menu bar in the Kumulate web interface.

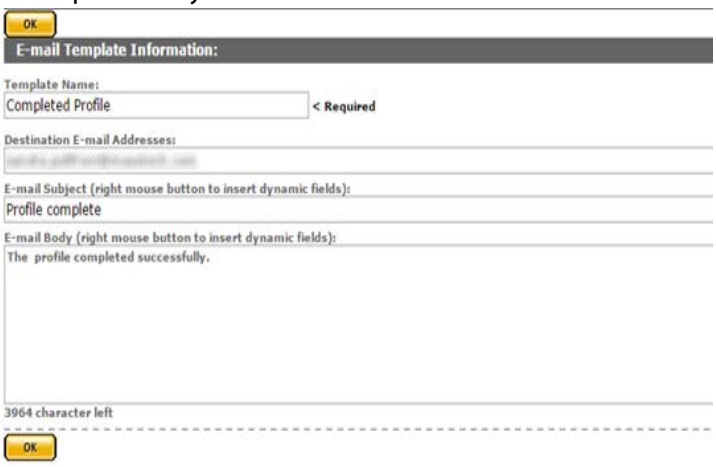


2. Select Processing > Email Templates.



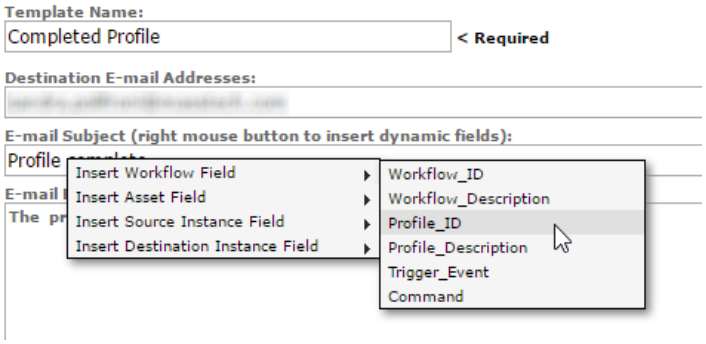
3. Click the ADD button on the E-mail Templates page.
4. Provide the template with a unique name, the email address of the recipient, a subject for the email, and body text for the email.

   To send the notification to two or more recipients, the email addresses must be separated by commas.

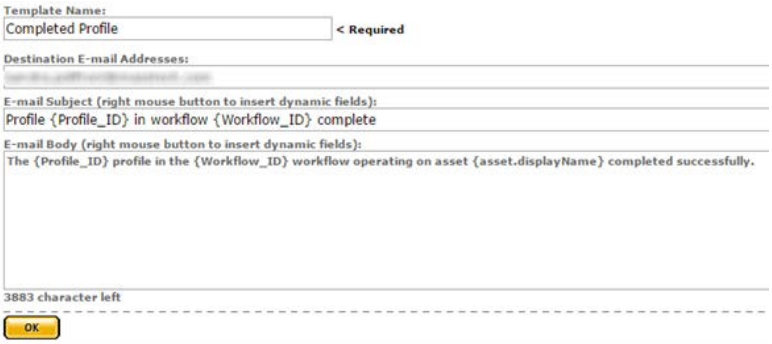


   The email subject and body can include dynamic fields which specify workflow, Virtual Object, and Rendition information, making the email more informative.

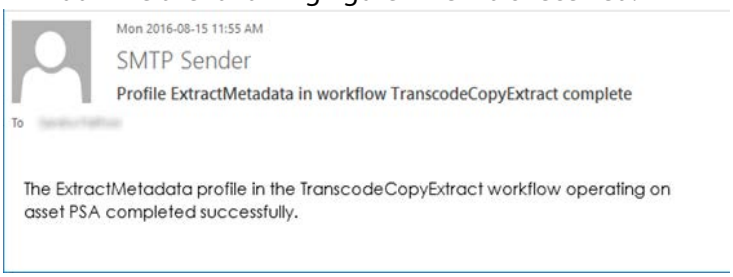
To add a dynamic field, right-click on the email subject or body where the field should appear, and select the field from the pull down menu.



The dynamic field to insert will appear enclosed in curly braces in the subject or body text.



5. Click OK to save the template. The email generated using the previous template will look like the following figure when it is received:



System Control and Configuration Modules

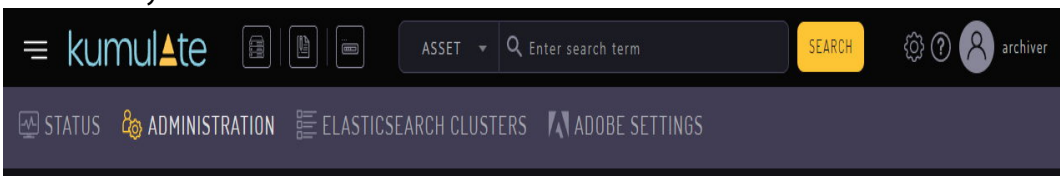
System control and configuration modules control how Kumulate operates. Settings for transcoders, indexers, loggers, email servers, and DataMovers are accessible through Kumulate system modules.

- Accessing System Modules
- ALL Module Configuration
- Virtual Object Manager Module
- CMI Module
- DM Manager Module
- Media Library Module
- MMC Module
- Reports Manager Module
- SSC Module
- System Module
- UII Module
- Workflow Manager Module
- XMTI Module
- SDBI Module

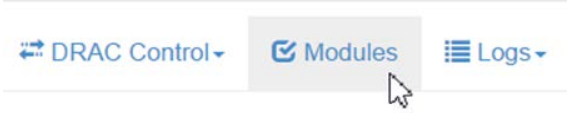
Accessing System Modules

Use the following procedure to access system modules:

1. Select System > Administration from the menu in the Kumulate web interface.

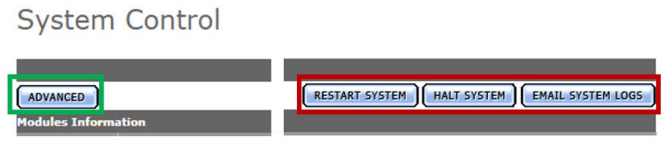


2. Select Modules from the top menu.



System configuration modules, and disabled system control modules are accessible from the System Configuration page; accessible by clicking the Advanced button.

Caution: Do not use the Restart System and Halt System buttons.



ALL Module Configuration

Caution: Do not modify any parameter not in this list without consulting Technical Support.

Parameter	Description
Default StandardID	The video system standard used in the Kumulate system. Defaults to NTSC.
Default Title	Use this as a Virtual Object's title if the information cannot be extracted from the Virtual Object itself.
Default VideoServer Type	Sets the video server that is selected by default when creating a new Unmanaged Storage Repository. The default is Repository. Setting this to an invalid Unmanaged Storage Repository name, or simply misspelling the Unmanaged Storage Repository name, will cause the following message to appear when attempting to create a new Unmanaged Storage Repository: Unfortunately the information you requested is not available at this time... Please contact your system administrator We apologize for any inconvenience...

Virtual Object Manager Module

Caution: Do not modify any parameter not in this list without consulting Technical Support.

Parameter	Description
Delete Virtual Object with No Renditions	When set to ON, Kumulate automatically deletes Virtual Objects that have no Renditions associated with them.
Trace Level	Sets the logging level for the module. • OFF: Only errors are logged. • NORMAL: Errors and trace messages are logged. • DEBUG: Logs all messages, including debug messages.

CMI Module

Used to mark already discovered Renditions.

Caution: Do not modify any parameter not in this list without consulting Technical Support.

Parameter	Description
Processed Keyword	Used as a mark that is inserted into a Rendition wrapper to indicate that the Rendition has already been discovered and copied in by the Kumulate system. Because this mark cannot be longer than 32 characters on Leitch Unmanaged Storage Repositories, this setting can be overwritten on Leitch Unmanaged Storage Repositories only using the Marking Key parameter. This value must be unique to each Kumulate system.
Trace Level	Sets the logging level for the module. • OFF: Only errors are logged. • NORMAL: Errors and trace messages are logged. • DEBUG: Logs all messages, including debug messages.

DM Manager Module

The DM Manager module is responsible for configuring the DataMovers.

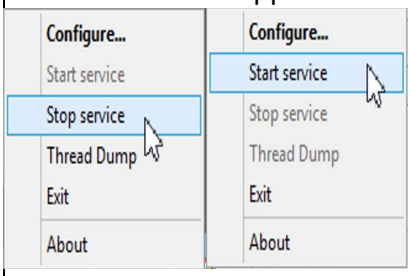
Caution: Do not modify any parameter not in this list without consulting Technical Support.

Parameter	Description
Local DataMover Port	The Kumulate server DataMover listening port. Defaults to port 2089.
Process Restart Timeout (seconds)	If the DataMover does not restart in this time, it remains offline.
Trace Level	Sets the logging level for the module. • OFF: Only errors are logged. • NORMAL: Errors and trace messages are logged. • DEBUG: Logs all messages, including debug messages.

Media Library Module

This module must be enabled and running to connect Kumulate to tape libraries.

Caution: Do not modify any parameter not in this list without consulting Technical Support.

Parameter	Description
Enabled	Must be set to *YES* to connect to tape libraries. Tomcat must be stopped and restarted for the change to take effect.  Enabled modules are visible under System Control. Disabled modules are visible under System Configuration. Make sure that the module is also running.
Trace Level	Sets the logging level for the module. • OFF: Only errors are logged. • NORMAL: Errors and trace messages are logged. • DEBUG: Logs all messages, including debug messages.

MMC Module

Caution: Do not modify any parameter not in this list without consulting Technical Support.

Parameter	Description
Archive Buffer Size	The size in KB of the buffer used for transfers to and from Managed Storage Repositories. The default is 5120KB.
Failed reads threshold when Force Read Tape is YES	When Force Read Tape is set to YES, read operations from a tape library will take precedence over write operations to the library. In cases where the read operations are unsuccessful, the queued write operations may never be executed. Failed reads threshold when Force Read Tape is YES sets a limit on the number of failed read attempts to make before attempting the write operations.
Force Read Tape	When set to YES, read operations from a tape library will take precedence over write operations to the library. Works with Failed reads threshold when Force Read Tape is YES and Max writes to allow before read again.
Max Archive Transfers	Maximum number of transfers to and from the tape archive. The default is 1.
PMRUpdater Path	Path to the PMRUpdater executable. This only applies when using the PMRUpdater with Avid Standalone Unmanaged Storage Repositories.

Parameter	Description
Trace Level	Sets the logging level for the module. • OFF: Only errors are logged. • NORMAL: Errors and trace messages are logged. • DEBUG: Logs all messages, including debug messages.
Write In New Thread	When set to ON improves archiving performance by creating separate threads for reading from and writing to archive.
Max writes to allow before read again	Max writes to allow before read again works with Force Read Tape and Failed reads threshold when Force Read Tape is YES. Max writes to allow before read again specifies the number of write operations to attempt when read operations to a tape library are suspended.

Reports Manager Module

The Reports Manager Module is responsible for polling the system for information used in reports.

Caution: Do not modify any parameter not in this list without consulting Technical Support.

Parameter	Description
Cache polling interval (seconds)	Cache polling interval in seconds. Information from the cache is entered into the database each time the cache is polled. Set to 30s by default.
Maximum thread count (more than 1, less than 100)	The maximum number of database entry threads. Set to 50 threads by default.
Maximum cached Virtual Objects age (minutes)	The maximum age of Virtual Object events kept in the cache, in minutes. Any events older than this value are removed from the cache during cache cleanup. Cache cleanup occurs every five minutes. Set to 30min by default.
Maximum cached Virtual Objects count (less than 10000)	The maximum number of Virtual Object events than can be cached. Any additional events are removed from the cache during cache cleanup. The oldest events are removed first. Cache cleanup occurs every five minutes. Set to 1000 events by default.
Maximum cached Renditions age (minutes)	The maximum age of Rendition events kept in the cache, in minutes. Any events older than this value are removed from the cache during cache cleanup. Cache cleanup occurs every five minutes. Set to 30min by default.
Maximum cached Renditions count (less than 10000)	The maximum number of Rendition events than can be cached. Any additional events are removed from the cache during cache cleanup. The oldest events are removed first. Cache cleanup occurs every five minutes. Set to 1000 events by default.

Parameter	Description
Maximum cached transfer information age (minutes)	The maximum age of transfer events kept in the cache, in minutes. Any events older than this value are removed from the cache during cache cleanup. Cache cleanup occurs every five minutes. Set to 10min by default.
Maximum cached transfer information count (less than 2000)	The maximum number of transfer events that can be cached. Any additional events are removed from the cache during cache cleanup. The oldest events are removed first. Cache cleanup occurs every five minutes. Set to 200 events by default.
Trace Level	Sets the logging level for the module. • OFF: Only errors are logged. • NORMAL: Errors and trace messages are logged. • DEBUG: Logs all messages, including debug messages.

SSC Module

Controls cache operations, such as space management and logging.

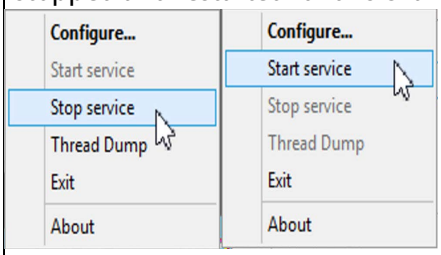
Caution: Do not modify any parameter not in this list without consulting Technical Support.

Parameter	Description
Free Limit	Generates an operator message if the storage space on the cache drops below this percentage. The level is a percentage of the total amount of storage space on the cache. **Note:** An operator message will be generated, but it will not be sent by email regardless of whether the email service has been enabled.
FreeSet Point	Renditions will be deleted from the cache when the free space on the cache drops below this percentage.
Trace Level	Sets the logging level for the module. • OFF: Only errors are logged. • NORMAL: Errors and trace messages are logged. • DEBUG: Logs all messages, including debug messages.

System Module

This module contains configuration settings for a variety of Kumulate features.

Caution: Do not modify any parameter not in this list without consulting Technical Support.

Parameter	Description
AVID Interplay WebService TraceLevel	Controls the logging of messages to and from the Avid Interplay web service. Messages are logged when set to DEBUG. Messages are not logged if set to NORMAL or OFF. Set to NORMAL by default.
Client Id	The client ID of the Kumulate system appears in the Kumulate UI tab; allowing you to differentiate between multiple systems. The Tomcat service on the Kumulate server host must be stopped and restarted for this change to take effect. 
Email debugging	This enables or disables debugging email errors; leave this disabled unless emails are not operational. Can be Off or On.
Email From Address	The email address that will be used to send logs and operator messages. Credentials must be known for this email address. **Caution: The email user's password is visible and stored in clear text; not encrypted.**
Use SMTP Auth	When set to YES, authentication is done through SMTP; when set to NO SMTP authentication is disabled. Generally, this should be set to YES.
Email SMTP Host	The SMTP server host of the sender's email.
SMTP Port	The non-SSL SMTP port; this is port 25 by default.

Parameter	Description
SMTP SSL Port	The SSL or TSL SMTP port. SSL uses port 465 by default. TLS uses port 587 by default. This parameter is set to port 465 by default. The Use SSL SMTP parameter must be set to *YES* for SSL to be used. StartTLS must be set to *YES* for TLS to be used.
Email Service	Turns the email service on and off. If the email service is OFF, no emails will be sent by the system. Set this to *ON* to allow Kumulate to send emails.
Email Subject	The subject line for emails containing log messages.
Email To Address	The email address of the recipient of log and operator messages. Recipients for emails sent by workflows are set in their respective email templates.
Use SSL SMTP	Set to *YES* to use SSL; set to *NO* if TSL will be used instead.
Email User Name	The email address of the sender.
Email User Password	The sender's SMTP authentication password. **Caution: The email user's password is visible and stored in clear text; not encrypted.**
General TraceLevel	The logging level to use for general trace logs.
LDAP Domain	The customer's LDAP client domain. Used when Kumulate is configured to use LDAP. See *Enable Optional Kumulate LDAP Authentication* for more information.
LDAP Single Sign-On	Enables the single sign-on feature when set to ON. This parameter is set to OFF by default. LDAP must be enabled to use single sign-on. If this parameter is set to ON, but LDAP is not configured and enabled, setting this feature will change the login screen, but single sign-on will not work. See *Enable Optional Single Sign-On Authentication* for more information.
LDAP URL	The customer's LDAP server location, with appropriate search terms. Used when Kumulate is configured to use LDAP. See *Enable Optional Kumulate LDAP Authentication* for more information.

Parameter	Description
Log Dir	The directory where the Kumulate logs are saved. This parameter is set to C:\Masstech\Logs\Montana by default.
Monitor Period	Set to *YES* to keep track of periods; otherwise, set to *NO*.
Operator Email Optional Email 1 Optional Email 2	Additional email address which can receive operator email. Any or all of these parameters can contain an email address. **Note:** If more than one Operator Email parameter is present, only the second one is active. If only the first of the two has been assigned an email address, emails will never be received at that address. Send Operator Email must be set to *YES* for emails to be sent to these recipients.
Send Operator Email	When set to ON, operator messages will be sent to the email addresses specified in Email To Address, Operator Email, Optional Email 1, and Optional Email 2.
System Id	A unique ID generated by Kumulate used in clustering.
Trace Level	Sets the logging level for the module. • OFF: Only errors are logged. • NORMAL: Errors and trace messages are logged. • DEBUG: Logs all messages, including debug messages.

UII Module

Parameter	Description
Low Res Streaming Server	The streaming server to use when the Stream Proxy is set to Yes, True, or On.
Stream Proxy	Set this parameter to Yes, True, or On to stream proxies using the server specified by the Low Res Streaming Server parameter when a request to http://<machineName>/montana/Proxy?userID=XXX&program_Rendition_num=999 or http://<machineName>/montana/Proxy?program_Rendition_num=999&userID=XXX&retrieveCCFileOnly=Yes is made through XMMPI. Set this parameter to *No*, *False*, or *Off* to download the proxy instead.
Trace Level	Sets the logging level for the module. • OFF: Only errors are logged. • NORMAL: Errors and trace messages are logged. • DEBUG: Logs all messages, including debug messages.

Workflow Manager Module

The Workflow Manager module controls workflow operations.

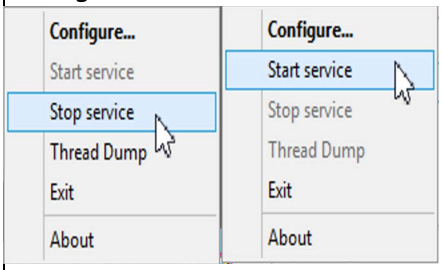
See *Workflows* for more information.

Caution: Do not modify any parameter not in this list without consulting Technical Support.

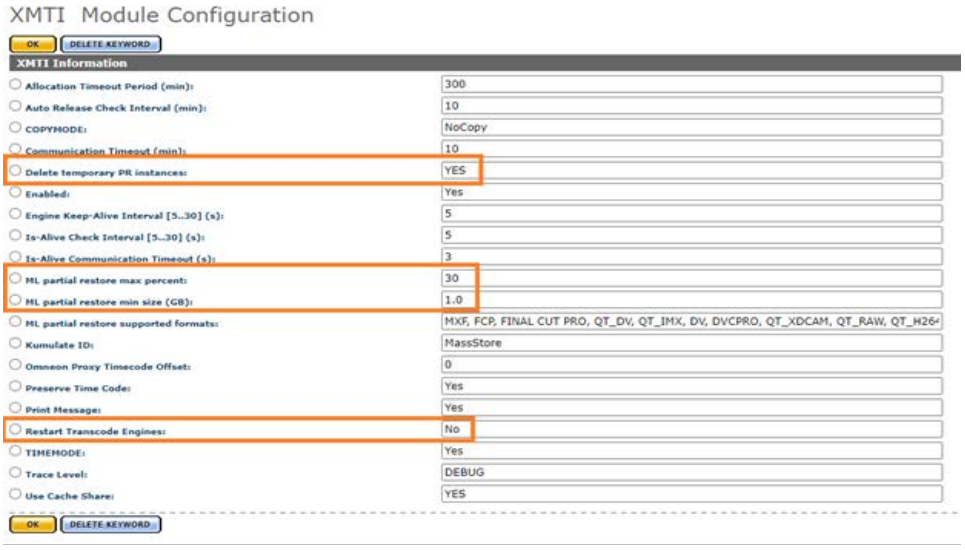
Parameter	Description
Command Retry Interval (sec)	The amount of time to wait between attempts to retry a workflow command. This is set to 600 seconds (10 minutes) by default.
E-mail Queue Capacity	The total number of emails that can be queued when workflows are configured to send notification emails.
Prepare Completed Virtual Object Metadata	The Virtual Object metadata that must be modified to trigger a profile with a PreparedCompleted trigger. Kumulate must be stopped and restarted for changes to take effect. See *PreparedCompleted* for more information.
Prepare Completed Rendition Metadata	The Rendition metadata that must be modified to trigger a profile with a PreparedCompletedRendition trigger. Kumulate must be stopped and restarted for the changes to take effect. See *PreparedCompletedRendition* for more information.
Trace Level	Sets the logging level for the module. • OFF: Only errors are logged. • NORMAL: Errors and trace messages are logged. • DEBUG: Logs all messages, including debug messages.

XMTI Module

Caution: Do not modify any parameter not in this list without consulting Technical Support.

Parameter	Description
Delete temporary PR Renditions	When an PR restore to an Unmanaged Storage Repository is requested, the PR is first created on CACHE and after that the PR-ed Rendition is transferred to desired Unmanaged Storage Repository. If this flag is set to YES, the Rendition from CACHE is automatically deleted at the end of restore. If set to NO, the intermediate Rendition from CACHE will remain in the system. This is particularly useful when you want to do a PR to multiple Unmanaged Storage Repositories or if you want to preserve the PR-ed content in the archive for a period of time.
Enabled	Set Enabled to *YES* to enable the module; set it to *NO* to disable the module. Tomcat must be stopped and restarted for the change to take effect.  Enabled modules are visible under System Control. Disabled modules are visible under System Configuration. **Note:** Enabling the module does not necessarily start the module.
ML partial restore max percent	This percent represents the value after a partial restore from tape is always performed as a full restore to CACHE followed by a partial restore versus a direct partial restore from tape. In this example (see the following figure), if the part to restore is greater the 30% of the full media file, the entire file will be restored from tape.

Parameter	Description
ML partial restore min size (GB)	This value represents the minimum size of a partial restore from tape to be performed directly from tape. If the partial restore section is estimated to be less than this size, then a full restore is performed to CACHE followed by a partial restore.
Omneon Proxy Timecode Offset	**A value of 100 is recommended unless the version of HQS is prior to release 1.12.** Omneon files include pre-frames. In versions of HQS prior to 1.12, an offset had to be specified to prevent HQS from transcoding the pre-frames. Starting with release 1.12, HQS is capable of handling the pre-frames. However, Kumulate still sends the offset to HQS. In order for HQS to ignore the offset, a number that is larger than the number of pre-frames should be used. This will effectively cause HQS to ignore the offset altogether.
Restart Transcode Engines	If this value is set to YES, all Transcode Engines connected to Kumulate will be restarted when Kumulate starts.
Trace Level	Sets the logging level for the module. • OFF: Only errors are logged. • NORMAL: Errors and trace messages are logged. • DEBUG: Logs all messages, including debug messages.

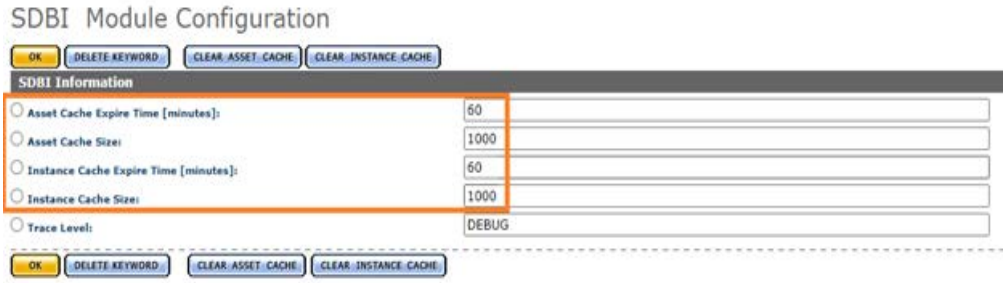


SDBI Module

Kumulate has a memory cache that maintains information about a number of Virtual Objects and Renditions as an optimization to reduce the number of accesses to the database for frequently used Virtual Objects and Renditions. If Kumulate needs details about a Virtual Object or Rendition that is found in that cache, the details are obtained directly from the cache, without querying the database. If a Virtual Object or Rendition is not found in the cache it will be automatically added at first use.

Sometimes it is useful to disable the caching mechanism when performing investigations related to metadata values that are not correct in Kumulate.

Parameter	Description
Virtual Object Cache Expire Time [minutes]	The expiration time for a Virtual Object in cache. The Virtual Object is removed automatically from cache after a certain time period from when it was inserted into the cache.
Virtual Object Cache Size	The maximum number of Virtual Objects that are preserved in memory cache. If this value is set to 0, the cache for Virtual Objects is disabled.
Rendition Cache Expire Time [minutes]	The expiration time for a Rendition in cache. The Rendition is removed automatically from cache after a certain time period from when was inserted into the cache.
Rendition Cache Size	The maximum number of Renditions that are preserved in memory cache. If this value is set to 0, the cache for Renditions is disabled.



Elasticsearch and Kibana

Kumulate uses Elasticsearch to index object metadata and system activities. These Elasticsearch indexes are used by all Kumulate searches. They are also used to create Kibana visualizations and dashboards; which are displayed in Kumulate's Reports page.

- Elasticsearch Configuration
- Index Alias Indicators
- Import Default Kibana Dashboards Into Kumulate
- Creating and Modifying Dashboards and Visualization

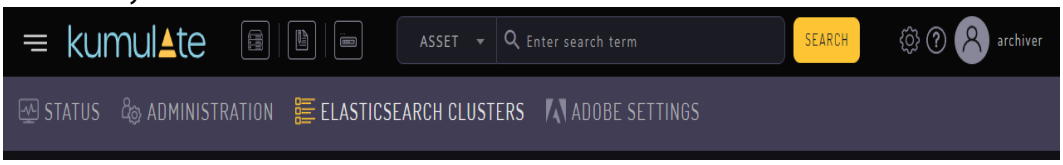
Elasticsearch Configuration

Elasticsearch will be configured as part of your initial configuration.

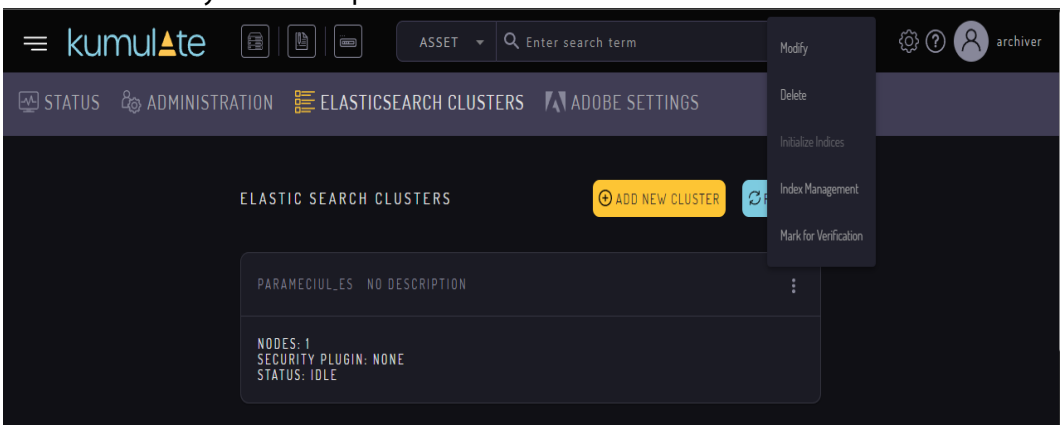
Caution: Do not modify settings without conferring with Technical Support.

Use the following procedure to configure the Elasticsearch and Kibana server:

1. Click System > Elasticsearch clusters in the menu bar in the Kumulate web interface.



2. Select Modify from the options listed.

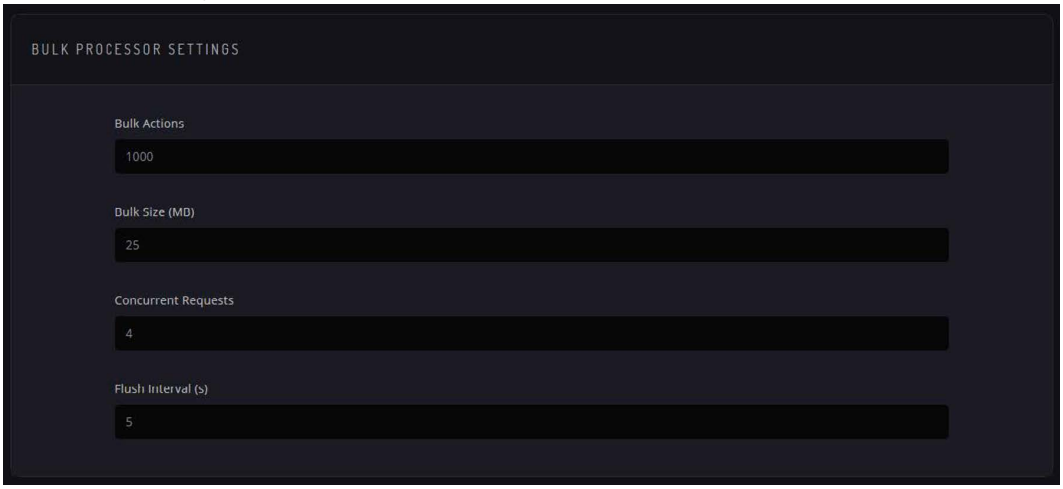


Parameter	Description
Cluster Name	The name of the Elasticsearch cluster that was created during the Kumulate system installation. The cluster name can be determined by viewing the Elasticsearch.yml file; typically found in C:\ProgramData\Elastic\Elasticsearch\config\.
Description	The descriptive name of the cluster.
Enable	Set to *Yes*.
Use Sniffer	Set to *No*.
Security Plugin	Set to *X-Pack Security*.
Authentication Scheme	Set to *Basic*.
Use SSL	Set to *Yes*.
Username	The user that Kumulate will use to send REST API requests to Elasticsearch.

Parameter	Description
Password	The password associated with the Username.
Kibana Server URL	The address that Kumulate will use to send REST API requests to Kibana.
Kibana Server URL (User)	The address used by Kumulate GUI to access Kibana.
Kumulate Kibana User	The user that Kumulate will use to send REST API requests to Kibana. This does not need to be configured if security plugins were not configured for Kibana.
Kumulate Kibana Password	The password that Kumulate will use to send the account above.
Elasticsearch nodes	

Bulk Processor Configuration

A new section in the Elasticsearch Cluster configuration allows configuring the bulk processor settings.

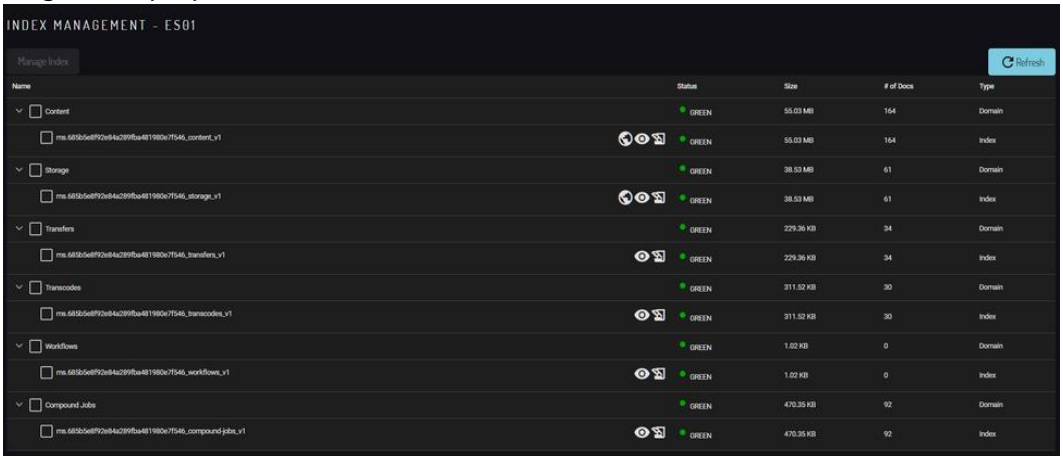


The Bulk Processor accumulates indexing requests until it exceeds the number of Bulk Actions configured, or the Bulk Size (MB) configured, or at every Flush Interval (s). Up to Concurrent Requests bulk requests can be sent for processing at once to Elasticsearch while accumulating more bulk requests.

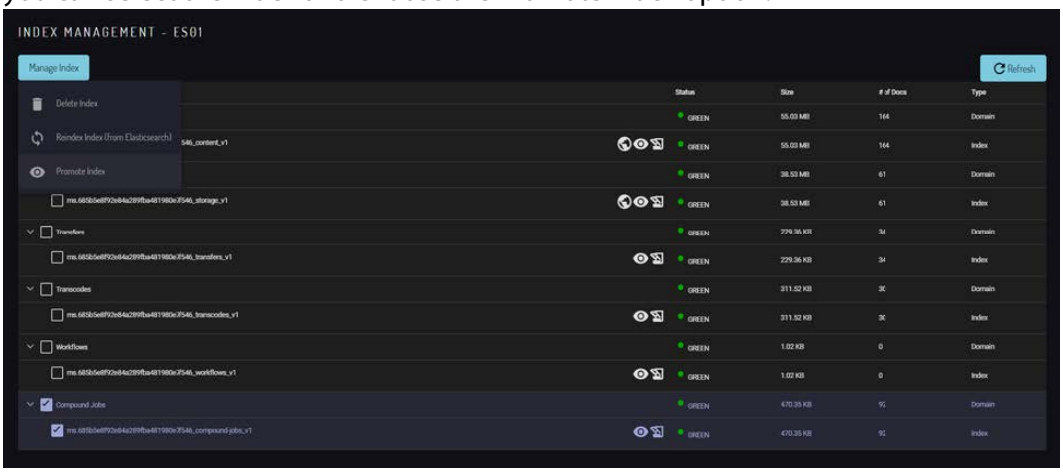
Note: Do not use excessive values, as the Elasticsearch coordinating node has to hold the entire bulk request in memory and you can potentially run out of memory if you have too many large requests simultaneously. Official advice from Elastic is not to exceed tens of MB for the bulk size, even if it appears to perform better.

Index Alias Indicators

Index Alias Indicators are now displayed to the left of the Status on the Index Management page as seen in the following figure. This is useful for viewing if an index has an alias associated with it without having to enter Kibana and use the API for diagnostics purposes.

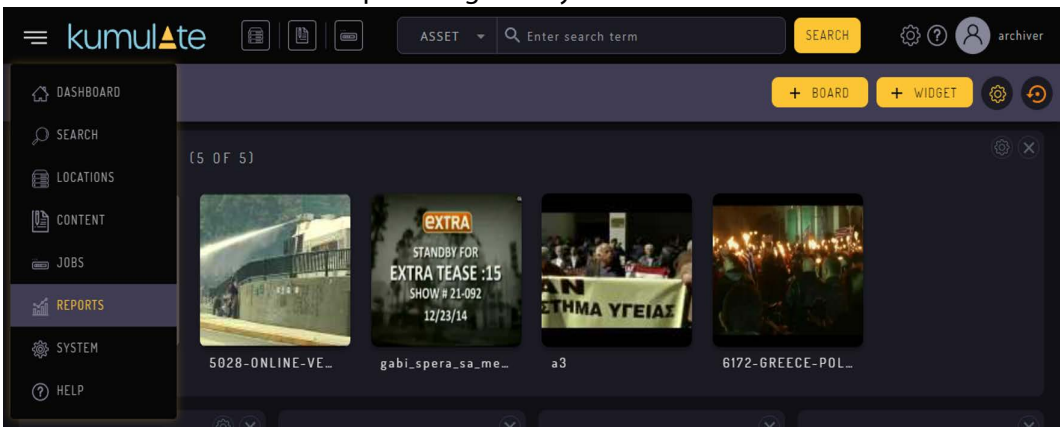


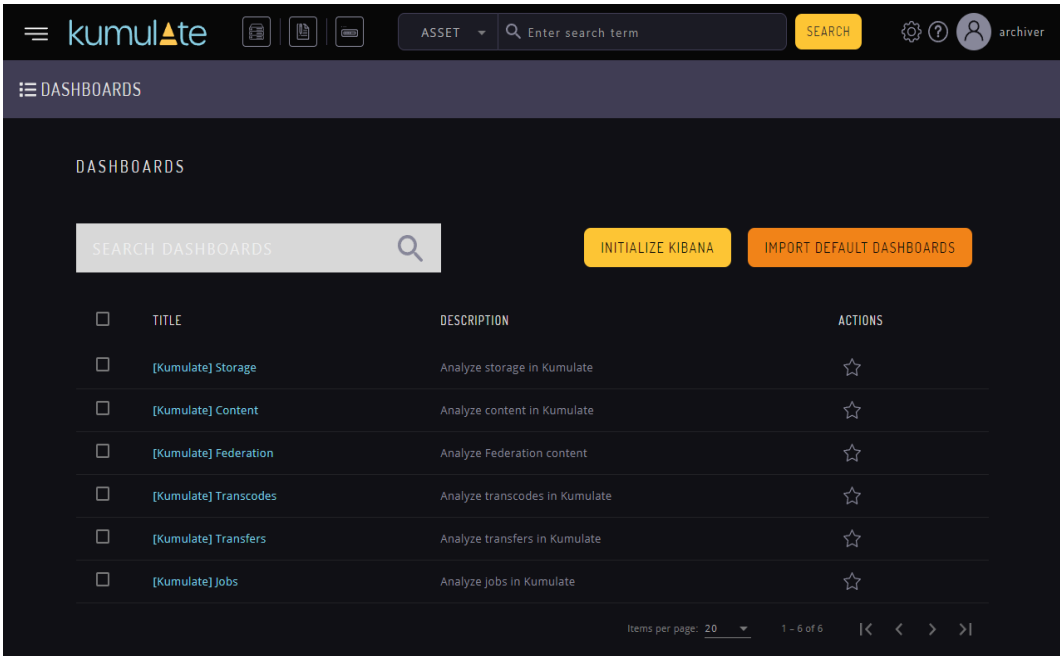
If one of the indexes does not have its index aliases but should have it (for example, from a snapshot restore, or if re-indexing from the Elasticsearch was interrupted), then you can select the index and choose the Promote Index option.



Import Default Kibana Dashboards Into Kumulate

When the Kumulate system is initially installed, no dashboards will be displayed on the Reports page. Click Import Default Dashboards from the Reports page to import the default dashboard into Kumulate. This imports a set of dashboards and their visualizations that have been preconfigured by Telestream.





Creating and Modifying Dashboards and Visualization

Kibana provides the ability to create custom visualizations using any of the information stored in Elasticsearch indices. Tutorials can be found at www.elastic.co. Alternatively, Telestream can create custom visualizations as a professional service.

Contact your Telestream Account Manager for more information.