



# FlipFactory®

## USING FLIPFACTORY TO INGEST PITCHBLUE® CONTENT

This App Note applies to FlipFactory versions 6.1 & later



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# Synopsis

Telestream's PitchBlue Manager automates the way TV stations ingest and process HD and SD syndicated programming sent from major media companies to their PitchBlue server. Using the FlipFactory workflow automation engine, PitchBlue Manager automates the entire process from ingest to delivery to the on-air server.

PitchBlue Manager provides a single collection point for ingest, aggregation, and review of incoming HD syndicated programming. Powerful transcoding automates direct file transfer from the PitchBlue server to the on-air server at suitable bit rates and SD or HD resolution. This eliminates dubbing to tape and the need to manually process content.

As the PitchBlue server is monitored for the arrival of new video content, the master control operator is notified as soon as content arrives, and a low resolution proxy can be made available for preview. Incoming program content is transcoded from H.264 into the video format supported by the on-air server.

Dolby E audio content can either be passed through as a clean copy or re-encoded to AC3 5.1, AC3 stereo, PCM, or MPEG-1 Layer 2 audio. VANC metadata including captions is preserved, and additional AFD metadata can be inserted into the output file. Notification and Format Sheet metadata can be sent to your station automation system, notifying it that content is ready for playout.

This app note describes how to obtain and install the required software patches for FlipFactory 6.1 UP3, 7.0, 7.1, and 7.2. Once installed, the FlipFactory PitchBlue Manager provides everything needed to support a PitchBlue workflow, which may include: SD and HD caption extraction, Dolby E decoding and pass-through, and PitchBlue monitoring with metadata extraction.

Licensing information is also provided in this app note, along with the required changes to the Windows registry on your FlipFactory server. Finally, a sample factory is provided that demonstrates how to decode Dolby E and produce HD.

**Note:** *This app note assumes you know how to create and configure factories in FlipFactory and how to submit jobs. Review the FlipFactory User's Guide for details.*

*If this is the first time you are processing PitchBlue content, create a new factory specifically for PitchBlue encoding.*

*If you are also using the same FlipFactory to process any syndicated Pathfire content with delivery to the Grass Valley Profile, create a new factory.*

# Installing FlipFactory PitchBlue Patches

To install FlipFactory PitchBlue software patches, first obtain the patch files and license file by contacting your Telestream sales representative. The designation “xxxxx” below represents the latest patch release number.

For FlipFactory V6.1, one executable and two patches are provided (the monitor patch is optional):

- vcredist\_x86.exe - Installs required prerequisites. (Run *before* installing the v6.1 patches).

**Note:** vcredist\_x86.exe is for 32-bit operating systems. If your operating system is 64-bit, use vcredist\_x64.exe

- PitchBlueMonitor\_6\_1\_xxxxx.zip - PitchBlue Monitor (Telestream license required)
- FlipFactoryPitchBlue\_6\_1\_xxxxx.zip - Adds transcoder capabilities in FlipFactory

For FlipFactory V7.0, two patches are provided (the monitor patch is optional):

- PitchBlueMonitor\_7\_0\_xxxxx.zip - PitchBlue Monitor (Telestream license required)
- FlipFactoryPitchBlue\_7\_0\_xxxxx.zip - Adds transcoder capabilities in FlipFactory

For FlipFactory V7.1, two patches are provided (the monitor patch is optional):

- PitchBlueMonitor\_7\_1\_xxxxx.zip - PitchBlue Monitor (Telestream license required)
- FlipFactoryPitchBlue\_7\_1\_xxxxx.zip - Adds transcoder capabilities in FlipFactory

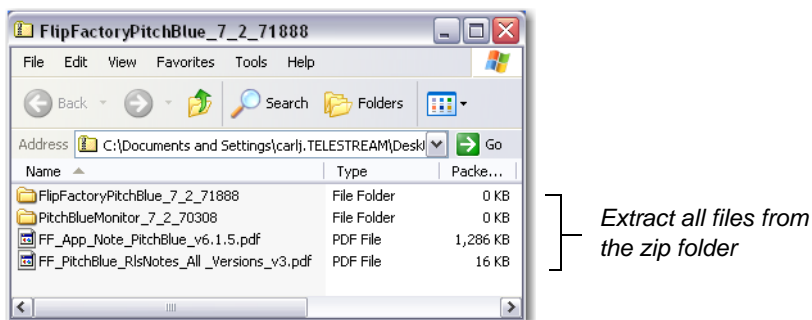
For FlipFactory V7.2, two patches are provided (the monitor patch is optional):

- PitchBlueMonitor\_7\_2\_xxxxx.zip - PitchBlue Monitor (Telestream license required)
- FlipFactoryPitchBlue\_7\_2\_xxxxx.zip - Adds transcoder capabilities in FlipFactory

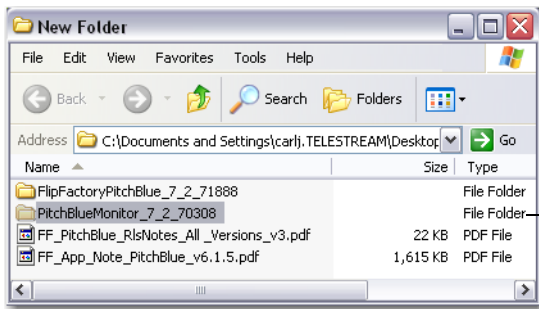
**Note:** Make sure you have obtained the PitchBlue monitor license from Telestream. To perform Dolby E decoding with PitchBlue in FlipFactory, you will also need to obtain a license for Dolby E from Telestream.

To install patches, place the ZIP file obtained from Telestream in a known location on your FlipFactory server hard drive. To install PitchBlueMonitor\_7\_2\_xxxxx patch follow these steps (and use these same steps to install the other patches as needed):

1. Double-click the ZIP file and extract all of its files into a new folder:

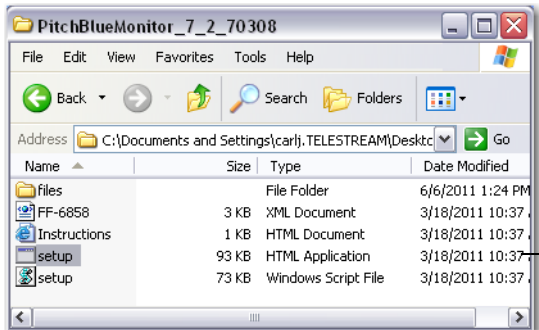


2. Double-click the *PitchBlueMonitor\_7\_2\_xxxx* folder to open it:



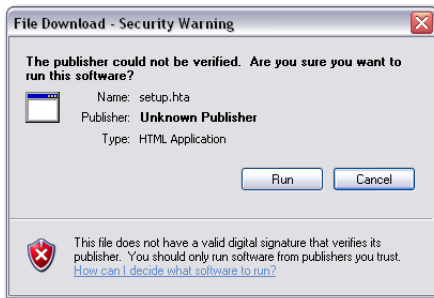
Double-click the monitor patch folder

3. Double-click the setup html application to execute the installer:



Double-click the setup html application

4. If the File Download dialog box displays, click Run:



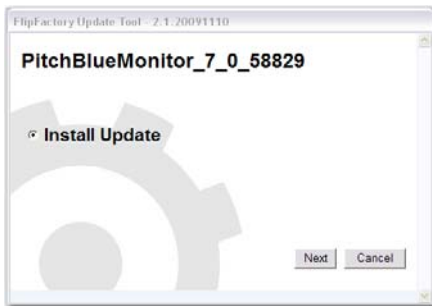
5. Click Next when this dialog box displays:



6. If the following warning displays, ensure that the patch version matches the installed version of FlipFactory:



7. Select Install Update and click Next:



8. Wait for installation to complete:



9. Click Finish:



To install the other patches, follow the above steps.

# Setting Registry Keys



## Caution

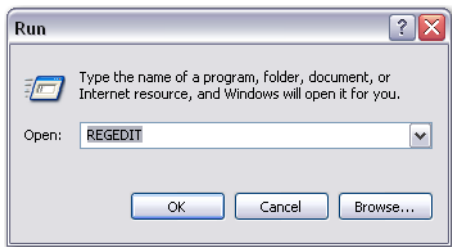
Editing the registry incorrectly may cause FlipFactory to fail, or your server to stop operating correctly. Back up your registry so you can restore it if you make an error. If you are unsure of how to back up the registry or perform editing correctly, check with your system administrator.

The following registry keys are automatically added to your FlipFactory server during installation:

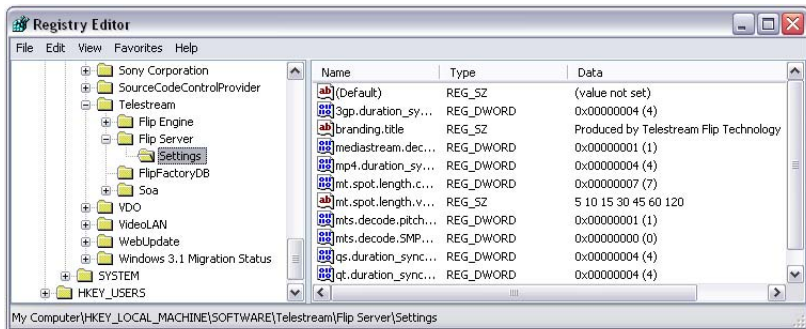
- mts.decode.pitchblue.vanc is set to 1 (allows VANC to be decoded from the PitchBlue files)
- mts.decode.SMPTE302.first is set to 0 (picks up MPEG1-Layer 2 audio from PitchBlue source).

To allow Dolby E audio to be picked up from the PitchBlue source, the registry key *mts.decode.SMPTE302.first* must be set to 1. To do this, follow the steps below:

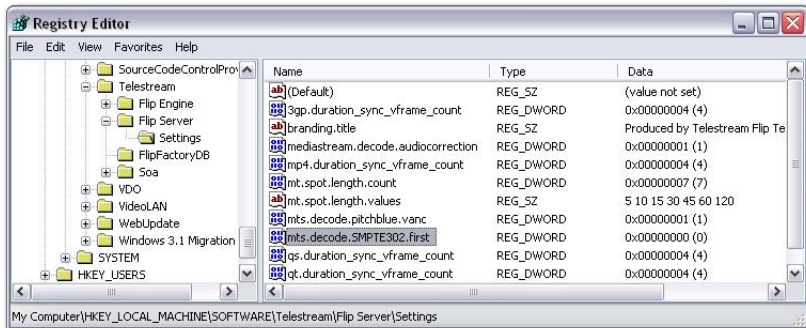
1. On the FF server, click Start > Run, then enter *REGEDIT* and click OK:



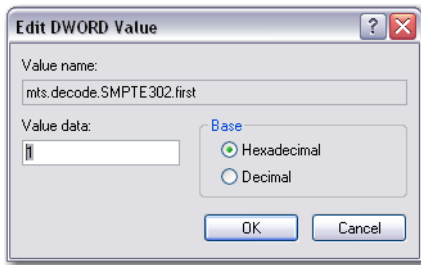
2. Navigate to *Telestream\Flip Server\Settings* directory:



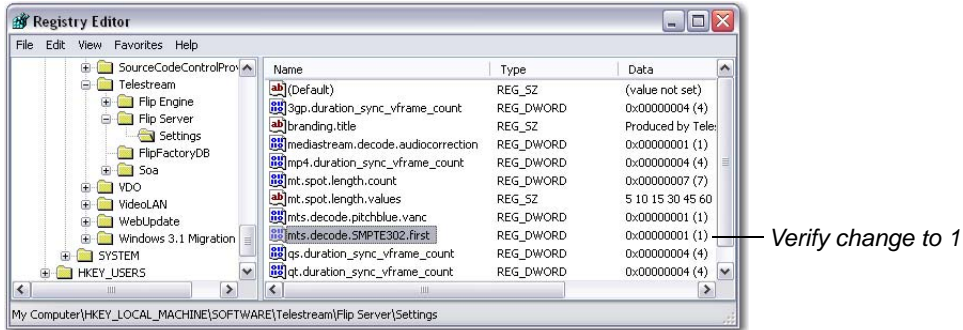
3. Find *mts.decode.SMPTE302.first* on the list and double click it:



4. Enter 1 in the Value data field and click OK:

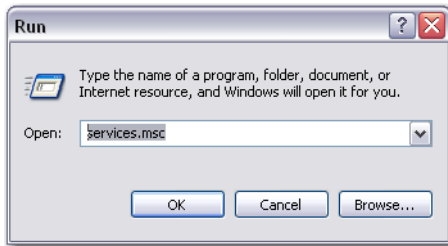


5. Verify that the REG\_DWORD data is now 1:

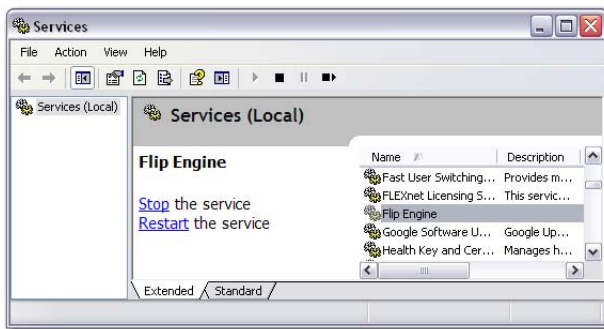


6. Close the Registry Editor window.

7. The Flip Engine service must be restarted to activate the registry changes. Click Start > Run, then enter *services.msc* and click OK:



8. In the Services window, select Flip Engine from the list of services and select Restart:



9. Wait for the Service Control progress window to finish and click Close:



10. Close the Services window.

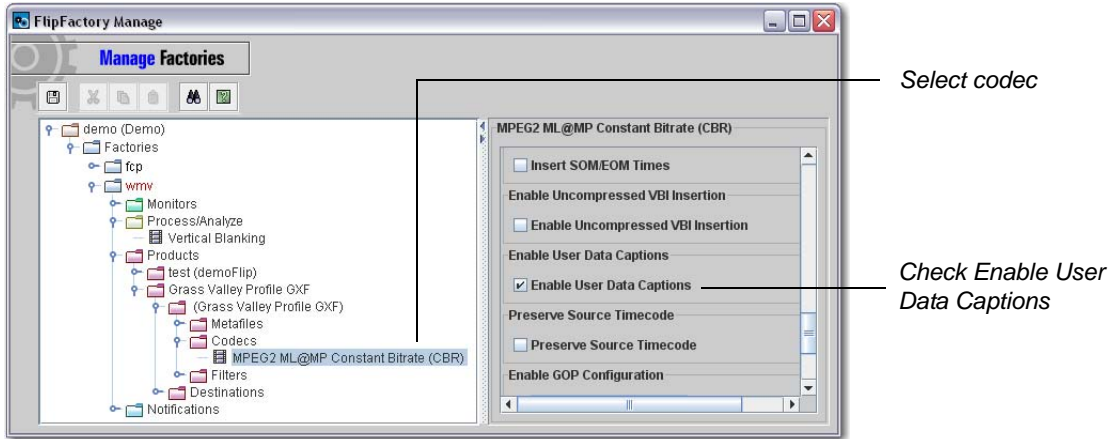
# Setting Up Closed Captions

In FlipFactory, closed caption setups depend on the on-air server used. Configuration setups for GV K2, GV Profile, Omneon, Harris, MediaStream, and Seachange BML are provided.

## GV K2 SD

To set up captions for GV K2 SD, follow these steps:

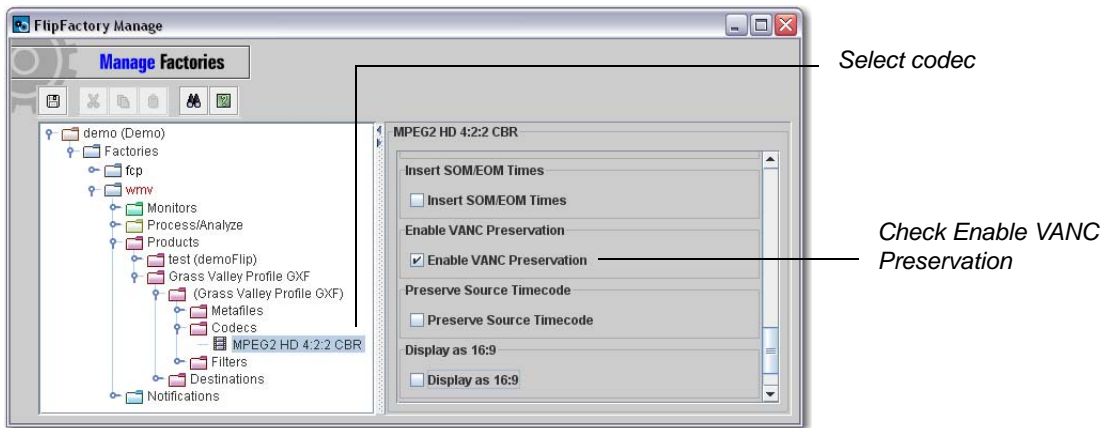
1. Select the desired codec and check Enable User Data Captions:



## GV K2 HD and GV Profile HD

To set up captions for GV K2 HD and GV Profile HD, follow these steps:

1. Select the desired codec and check Enable VANC Preservation:



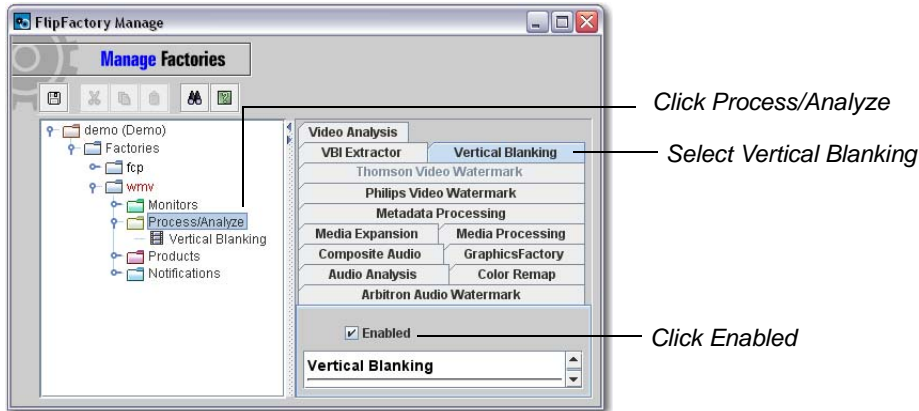


## GV Profile SD and Harris SD

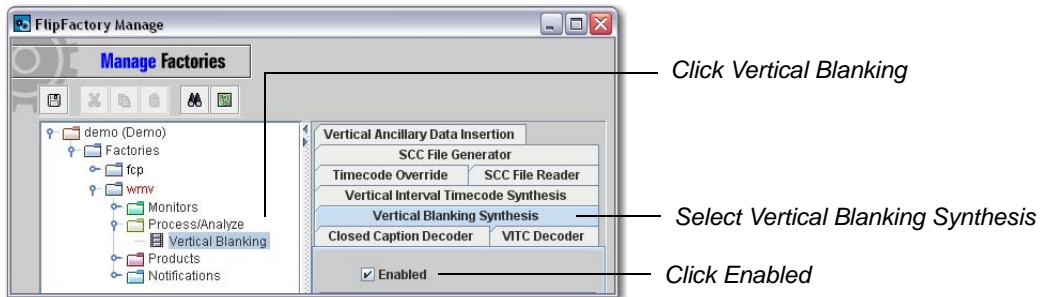
**Note:** Only the Harris SD setup is shown

To set up captions for GV Profile SD or Harris SD, follow these steps:

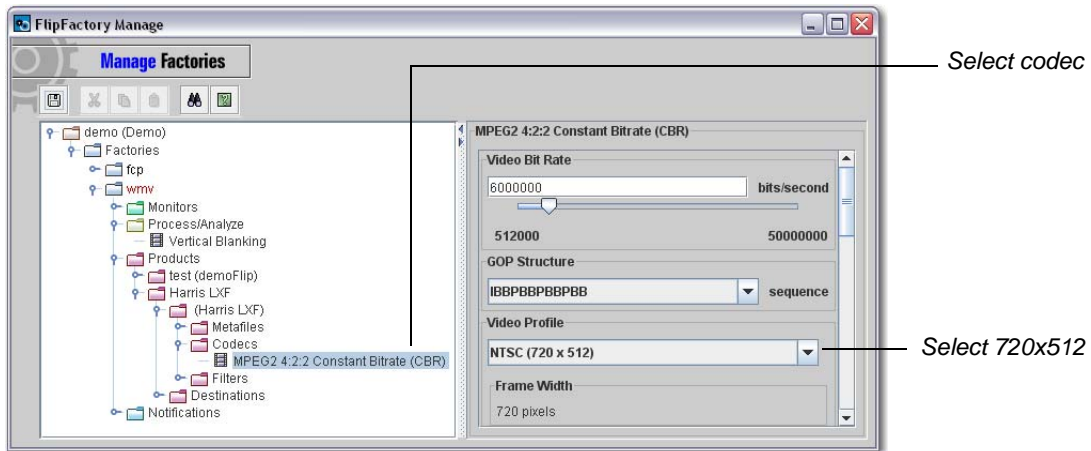
1. Click Process/Analyze, select Vertical Blanking tab, and click Enabled:



2. Click Vertical Blanking, click Vertical Blanking Synthesis tab, and click Enabled:



3. Select the desired codec and select 720x512 for Video Profile:

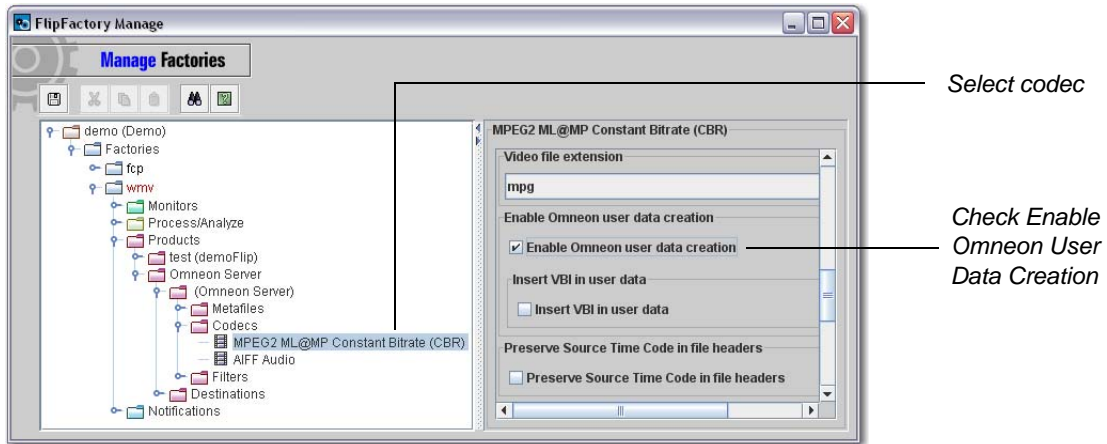


**Note:** Harris HD has no special requirements.

## Omneon SD/HD

To set up captions for Omneon SD or HD, follow these steps:

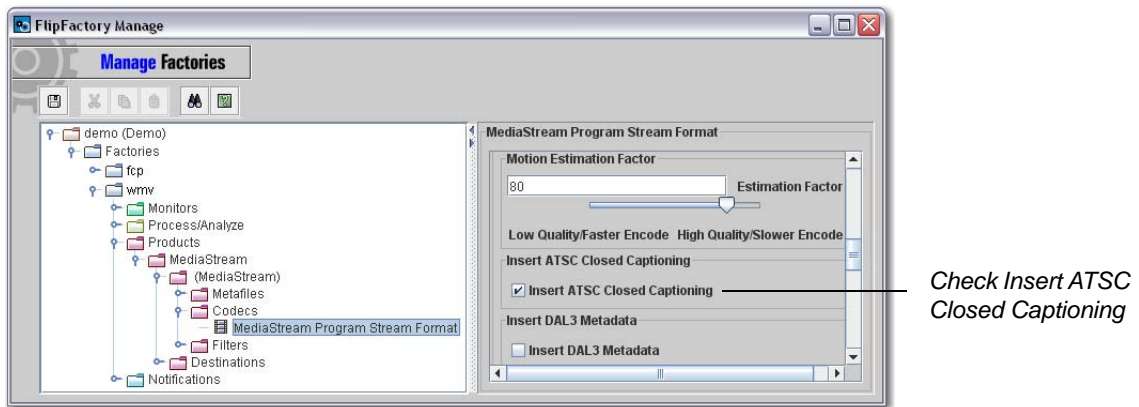
1. Select the desired codec and check Enable Omneon User Data Creation:



## MediaStream SD/HD

To set up captions for MediaStream SD or HD, follow these steps:

1. Check Insert ATSC Closed Captioning:



## Seachange BML SD/HD

**Note:** Seachange BML has no special requirements.

## Captioning Setup Summary

The table below summarizes how to set captions for the servers listed:

Server	Requirements to Set Captions
GV K2 SD	Enable User Data Captions
GV K2 HD	Enable VANC Preservation
Profile SD	720x512 Video Profile and PA Tool VBI Synthesis
Profile HD	Enable VANC Preservation
Harris SD	720x512 Video Profile and PA Tool VBI Synthesis
Harris HD	(no requirements)
Omneon SD/HD	Enable Omneon User Data Creation
MediaStream SD/HD	Enable Insert ATSC Closed Captioning
Seachange BML SD/HD	(no requirements)

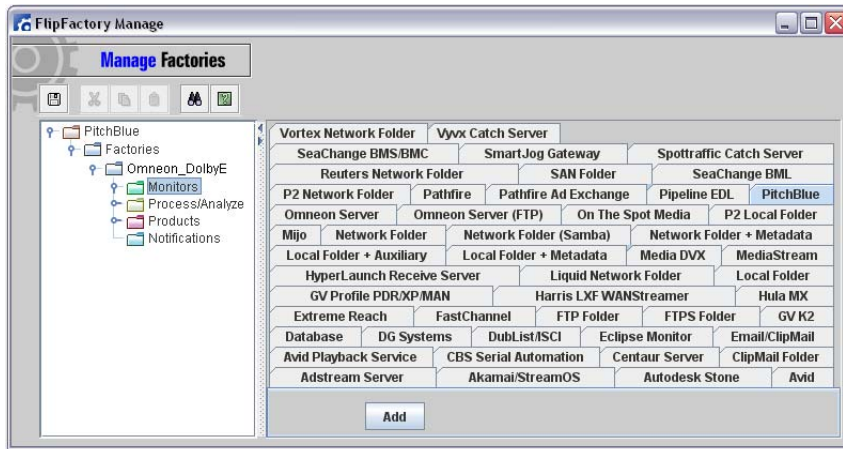
# PitchBlue Dolby E Workflow Example

This example uses the FlipFactory PitchBlue monitor, the Omneon HD transcoding product, and the Dolby E audio decoder to monitor and ingest source media files on the PitchBlue server, transcode, and deliver them to a selected destination.

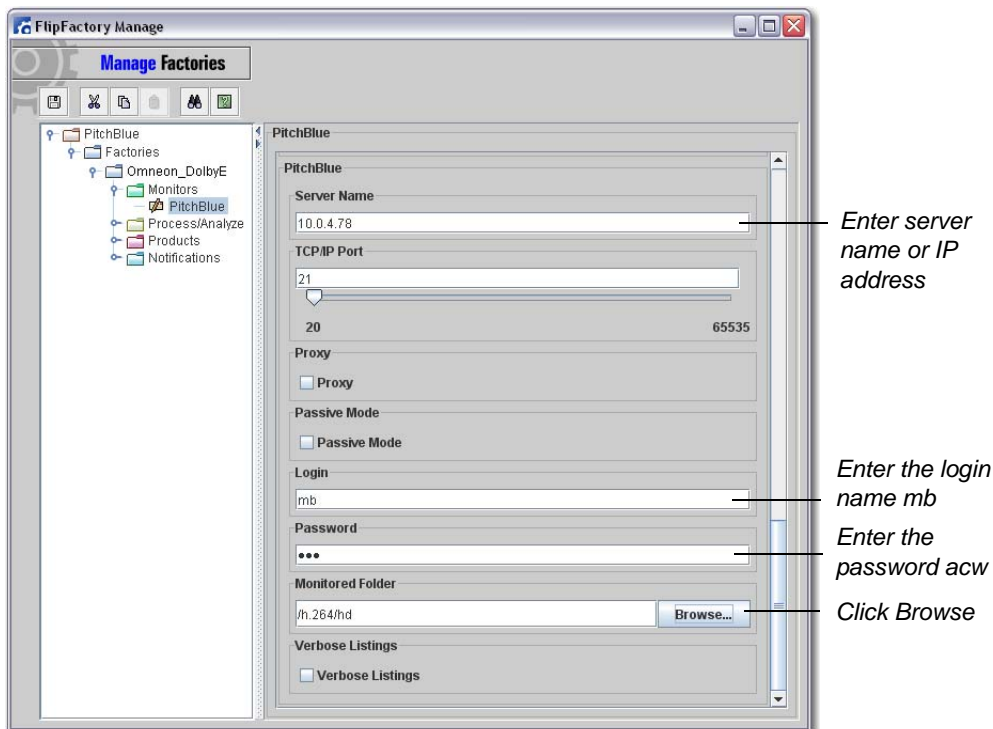
**Note:** Set the Registry Key settings for Dolby E ([Setting Registry Keys on page 6](#)).

To create a PitchBlue factory workflow, follow these steps:

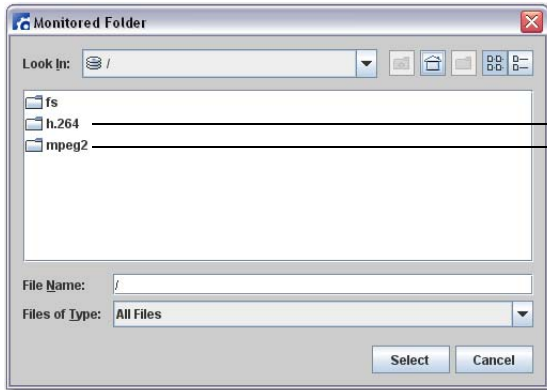
1. Create a new factory with a PitchBlue monitor. Select the PitchBlue tab and click Add:



2. To access source media on the PitchBlue server, enter the server name (or IP address) of the media port on the server. Enter the login name (always *mb*), and password (always *acw*), then click Browse and navigate to the location where source files are monitored:

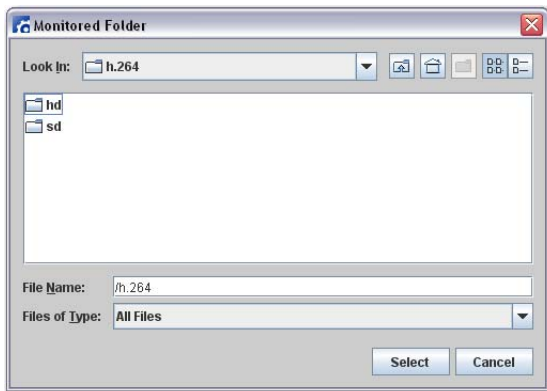


- To select a monitor location on the PitchBlue server, double-click H.264 to re-encode the source media in FlipFactory, or double-click MPEG2 to re-wrap the source media (available only in SD):

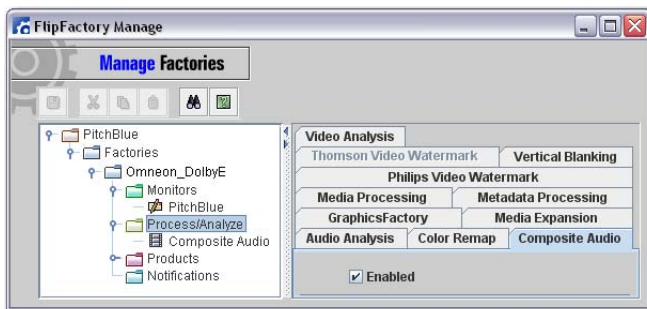


Double-click to re-encode source media  
 Double-click to re-wrap source media

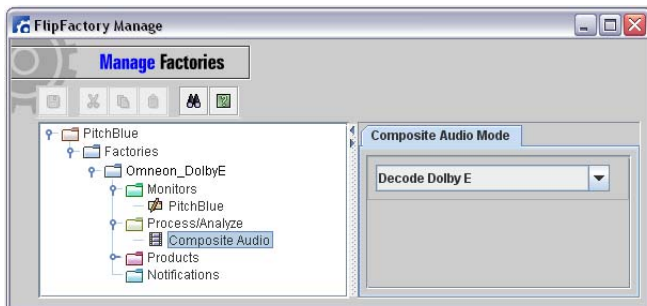
- If re-encoding the source media (H.264 directory selected in the previous step), double-click hd or sd to select HD or SD format:



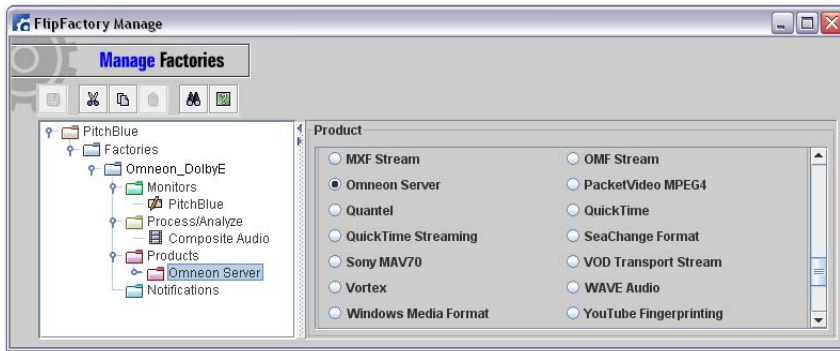
- To decode Dolby E audio from the source media, use the Composite Audio Process/Analyze tool. Select the Composite Audio tab and click Enabled:



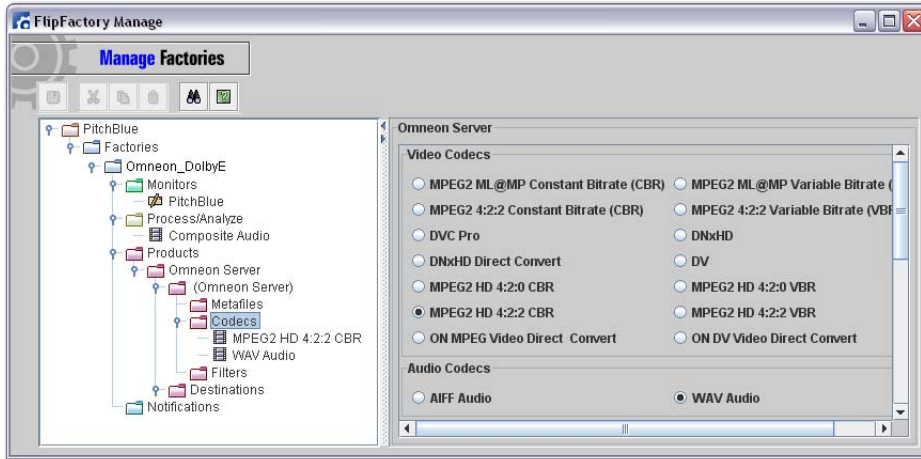
- Select Decode Dolby E from the Composite Audio Mode drop-down menu:



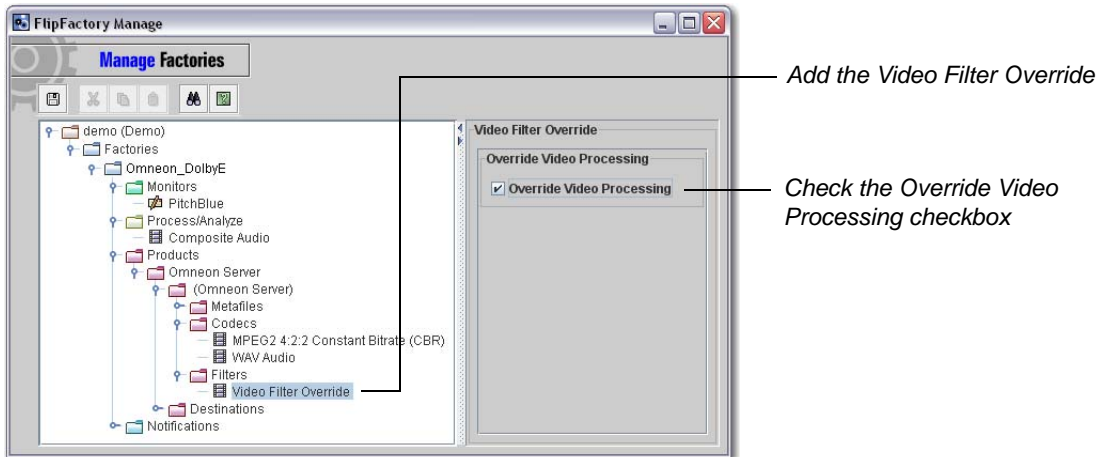
7. Select the Omneon Sever product for transcoding:



8. Select a video (HD) and an audio codec as required:



9. Add the Video Filter Override and check the *Override Video Processing* checkbox:



10. Create a destination where the output files will be saved.

When this factory's monitor detects a new source file, the H.264 HD video file and Dolby E audio are decoded to the desired output formats and delivered to the selected destination. At the same time, the Format Sheet and timing metadata is extracted and made available.

# Transcoding Performance for PitchBlue Content

Best performances are achieved using the Video Filter Override feature. This only applies when transcoding content to an output that has the same frame rate, resolution, and interlacing characteristics as the source (e.g. 1080i 60 input to 1080i 60 output).

The table below presents the performance for a thirty-minute clip of an HD H.264 1080i 60 source transcoded to an MPEG2 1080i 60 output at 50 Mbps. Performances were measured using a Dell R710 (Dual 6-core hyper-threaded CPUs) with FlipFactory 7.2 running under Windows Server 2008 R2 64-bit.

Two types of measurements were taken:

- Single transcode time: One output type is singly transcoded.
- Concurrent transcode time: Four identical output types are concurrently transcoded.

Output Type	Single Transcode Time (mm:ss)	Concurrent Transcode Time (mm:ss)
Omneon QT Reference	11:10	32:36
GXF	08:40	26:41
LXF	09:05	27:16
Seachange BML	16:10	26:51

**Note:** Overall Transcode times can be significantly improved by allowing FlipFactory to do concurrent transcodes. The number of concurrent transcoding jobs that can be performed is dependent on the server hardware, especially: the type of CPU, the number of CPUs, and the amount of available memory.

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