GV STRATUS Transcoding

APPLICATION NOTE

This application note addresses the following:

• How to setup and configure GV STRATUS for transcoding using Import and Export rules

• How to create new transcode profiles

• How to troubleshoot transcoding issues

## Basic GV STRATUS Transcoding Setup

Working Directory

GV STRATUS uses the working directory to gather files from various sources and make them available to connected transcoding engines.

This folder needs to be created and made accessible to the user accounts accessing the folder (STRATUS System Account, Transcoding Engines, etc.)

The working directory should be located on K2 high-performance storage and every machine accessing it should have a high-speed network connection to this location.
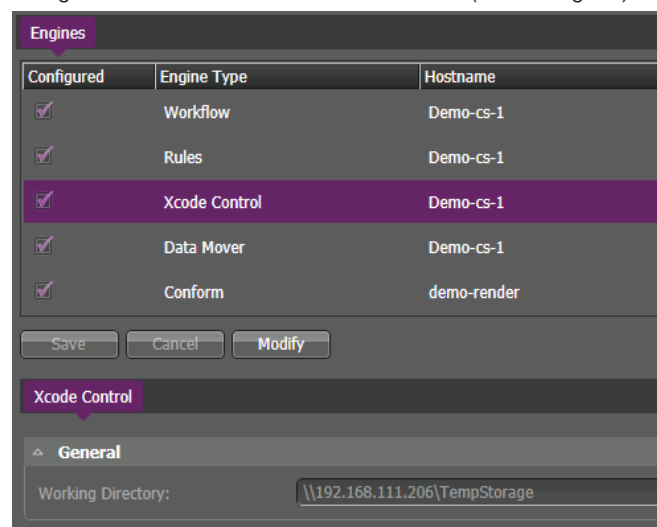
Workflow Engine

Enter the working directory into the Workflow Engine configuration in the GV STRATUS Control Panel (Core > Engines)
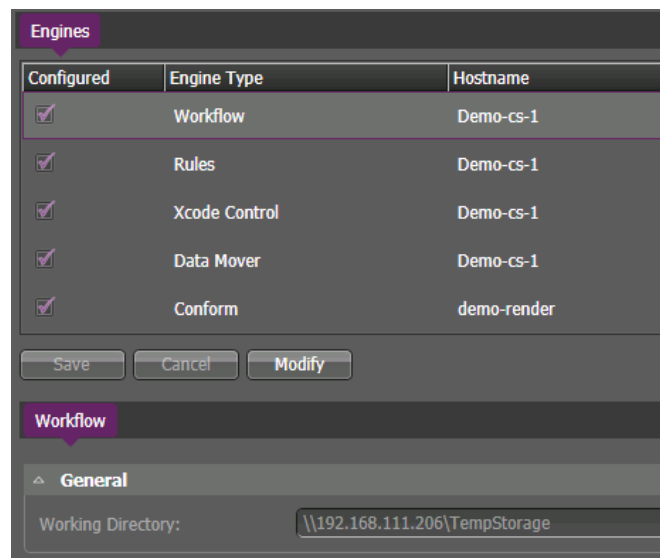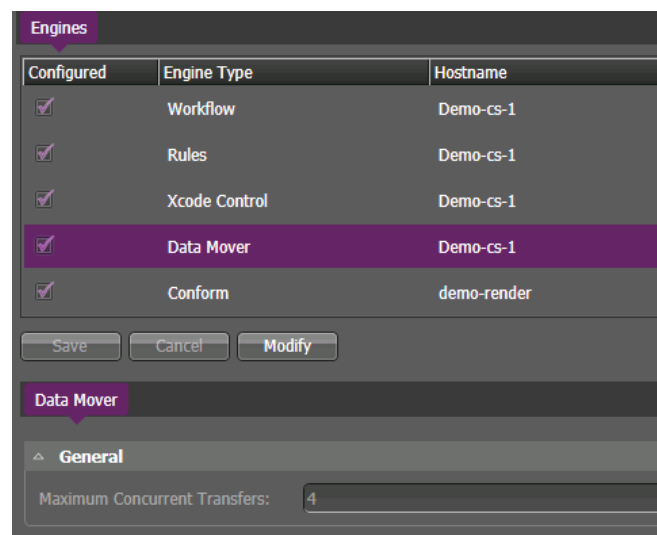

XCode Control Engine

Enter the working directory into the XCode Control Engine configuration in the GV STRATUS Control Panel (Core > Engines)

Data Mover Engine

Set the maximum number of concurrent transfers that can be executed by the Data Mover Engine in the GV STRATUS Control Panel (Core > Engines)

For Data Mover Engines running on the GV STRATUS Core server we recommend no more than two (2) concurrent transfers. If the Data Mover Engine is running on a separate server, start with four (4) and increase to no more than eight (8) if the transfer queues become very large.

Licenses

Add the appropriate licenses for:

• Rules Engine: STRATUS-RULES

• Archive (if you want to use archive/restore rules): STRATUS-ARCHIVE

• One or more transcoding engines:

  - Harmonic ProMedia Carbon/WFS: STRATUS-XCODECONTROLCARBONCODER

  - Telestream Vantage: STRATUS-XCODECONTROLVANTAGE

  - Elemental Server: STRATUS-XCODECONTROLELEMENTAL

Make sure all licenses are floating licenses (not node-locked).

Upon startup of the XCode Control Engine you can verify your license in the GV STRATUS logs:

TranscodeEngine	Notice RhozetController.Init: Valid license is available: LicenseType: Permanent
TranscodeEngine	Notice VantageController.Init: Valid license is available: LicenseType: Permanent
TranscodeEngine	Notice ElementalController.Init: Valid license is available: LicenseType: Permanent

Transcoder Interfacing Setup

The transcoding system should already be setup and working. Confirm this by using the transcoding engine's own UI.

Harmonic ProMedia Carbon WFS

Enter the IP address of the transcoding subsystem or its host name, choose the correct transcoding system type and select the number of concurrent transcoding jobs. Any transcoding jobs initiated above the selected number will be queued in GV STRATUS.

The number of concurrent transcodes depends on the capacity of the underlying transcoding system: A single ProMedia Carbon processes two (2) jobs in parallel by default; if you add more servers to a WFS you can process more.

GV STRATUS communicates with the API of the standalone ProMedia Carbon on port 1120.

GV STRATUS communicates with the WFS using WCF on port 1301.

Upon startup of the XCode Control Engine you can verify your configuration in the GV STRATUS logs:

| TranscodeEngine | Information RhozetController.Init: Using transcoder: 10.16.147.206 |
| TranscodeEngine | Information RhozetController.Init: Using protocol: HarmonicWFS |

Telestream Vantage

Enter the IP address of the transcoding subsystem or its host name and select the number of concurrent transcoding jobs. Any transcoding jobs initiated above the selected number will be queued in GV STRATUS.

The number of concurrent transcodes depends on the capacity of the underlying transcoding system.

GV STRATUS communicates with Vantage using WCF on port 8676.

On starting up the XCode Control Engine you can verify your configuration in the GV STRATUS logs:

| TranscodeEngine | Information VantageController.Init: Using transcoder: 10.16.147.189 |

Elemental Server

Enter the transcoding subsystem's IP or host name and select the number of concurrent transcoding jobs. Any transcoding jobs initiated above the selected number will be queued in GV STRATUS.

The number of concurrent transcodes depends on the capacity of the underlying transcoding system.

GV STRATUS communicates with the Elemental Server using the RESTful API on port 80.

On starting up the XCode Control Engine you can verify your configuration in the GV STRATUS logs:

| TranscodeEngine | Information ElementalController.Init: Using transcoder: 10.16.147.247 |

Elemental Live

There is no direct interfacing between Elemental Live and GV STRATUS. Elemental Live will accept a video stream via HD-SDI and convert it into one or more compressed formats.

If the video signal on the HD-SDI contains SCTE-104 control messages (i.e., inserted by the K2 video server), Elemental Live can process these messages.

Transcoder Setup

### Harmonic ProMedia Carbon/WFS

The user account running the transcoding process needs to have access to the temporary storage location. During setup the installer asks for this user account.
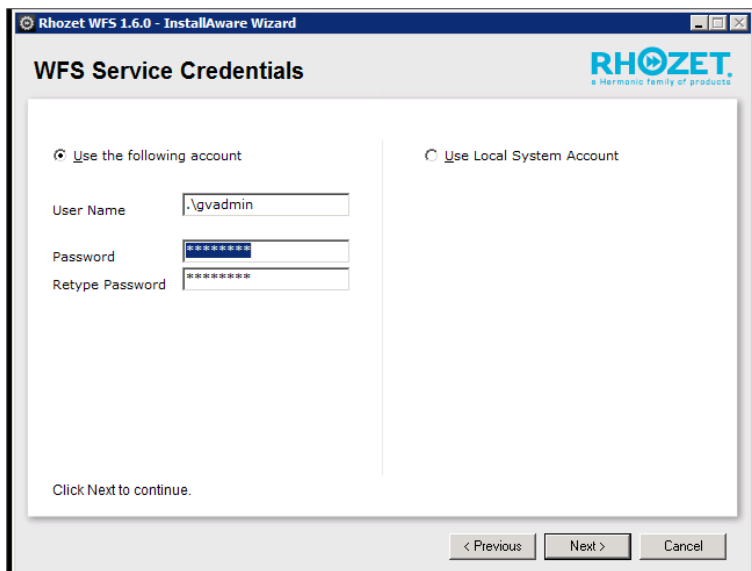
In the event that the transcoding system is installed with the [Local System Account], please refer to the Harmonic documentation on how to change this to another user account. The [Local System Account] cannot be used to access network locations.

Telestream Vantage

The temporary storage location needs to be accessible to the Vantage system. To facilitate that, open up the Vantage Management Console and navigate to [Settings & Options], choose the tab [Authorization] and enter the credentials for the temporary storage location.
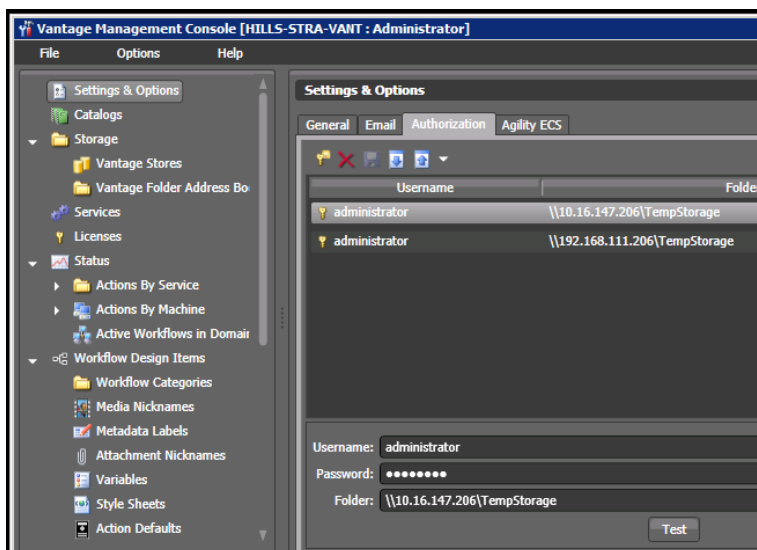
Elemental Server

The Elemental Server transcoder needs to access the temporary storage location — to do this, a "Mount Point" needs to be created.

Open up the Elemental Server web UI and navigate to [Settings] > [Mount points]. Create a new mount point with the correct credentials. Enter the path to the temporary storage into [Server Share]. Make sure that you are using the correct UNIX-conform path notation ("/" instead of "\").
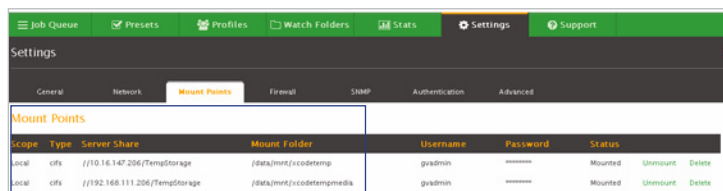
If you used an IP address for the temporary storage in GV STRATUS, you should also use an IP address for the mount point. If you used a host name in GV STRATUS, use a host name in Elemental.

The location to which you mount ([Mount folder]) can be chosen to your liking. It is good practice to keep it underneath "/data/mnt."

Check that the status changes to [Mounted] after the Elemental completes the setup.

On starting up the XCode Control Engine you can verify that your mount points are recognized in the GV STRATUS logs:

TranscodeEngine   Notice ElementalController.TxThread: 2 mount point(s) total. 2 mount point(s) mounted on Elemental @10.16.147.247
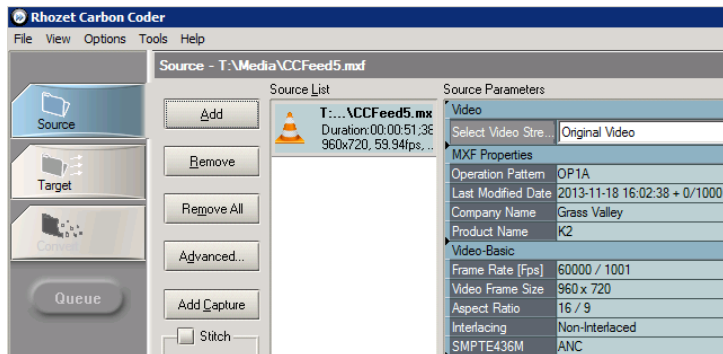
Elemental Live

There is no GV STRATUS-specific setup needed for Elemental Live.
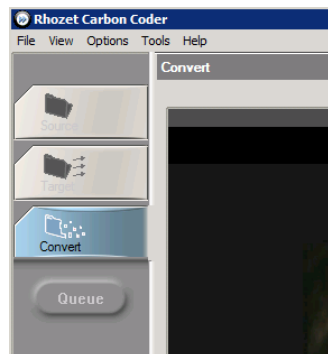
Profile Creation and Usage

Harmonic ProMedia Carbon/WFS

The ProMedia Carbon/WFS profiles are stored in XML files with the extension .pcp. The profile can be created using the ProMedia Carbon application.
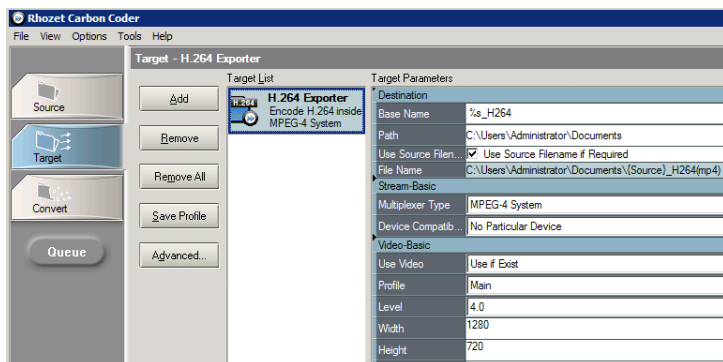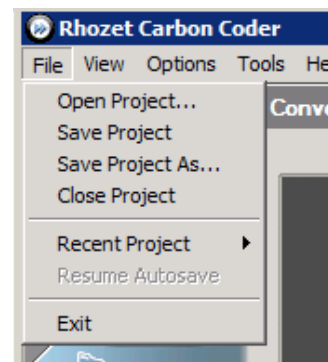
1. Add a source file

2. Add a target format and customize the parameters

3. Validate the resulting file

4. Save the project as a .pcp file

Do not remove the source file added in step 1. The GV STRATUS XCode Control Engine needs the reference to the source file in the .pcp XML structure to replace the entry by the actual file GV STRATUS performs the transcode job on.

To make the profile available to the XCode Control Engine for export rules, copy the .pcp file to the folder C:\Program Files\Grass Valley\ STRATUS Transcode Engine\Profiles\RhozetCC located on the machine where the XCode Control Engine runs.

To make the profile available to the XCode Control Engine for import rules copy the .pcp file to the folder C:\Program Files\Grass Valley\ STRATUS Transcode Engine\Profiles\RhozetCC\Import located on the machine where the XCode Control Engine runs. It is recommended — but not required — to name the profiles with the prefix Import_ to identify them correctly.

In both locations you can find some profiles which are delivered with the standard installation of GV STRATUS. Those can be used as samples and as a basis for modifications to create your own profiles.

The GV STRATUS XCode Control Engine scans the folders regularly and adds newly-found profiles to the selection in the "Transcode Format" drop-downs in the Export and Import rules.

Telestream Vantage

The Telestream Vantage profiles are stored in the Vantage database, but can be exported into, or imported from, XML files.

GV STRATUS will recognize only those Vantage profiles that exist in the Vantage Workflow Category [STRATUS]. This category needs to be created before importing any workflows. To create the category, open up the Vantage Workflow Designer and choose [Create New Category].
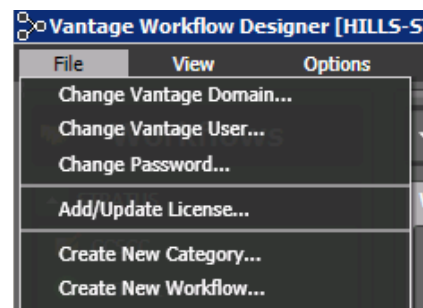
Name the category STRATUS.
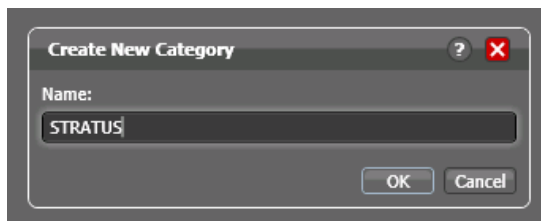
GV STRATUS is delivered with some sample Vantage profiles (located in C:\Program Files\Grass Valley\STRATUS Transcode Engine\Profiles\Vantage on the server where the XCode Control Engine runs), but they need to be imported into your instance of Vantage. Choose [File] > [Import Workflow] in the Vantage Workflow Designer.
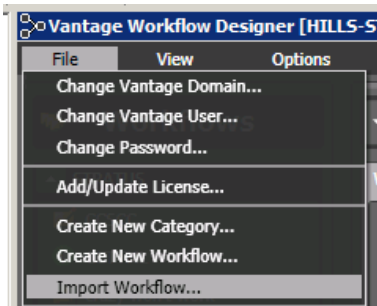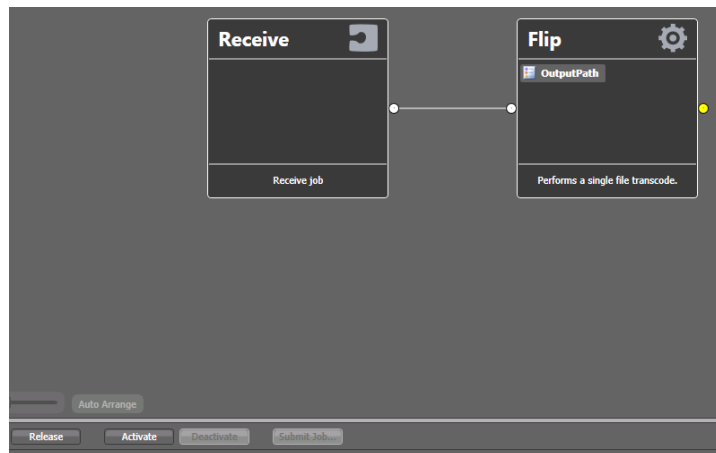

Select your XML file and make sure you select the STRATUS category for the import.
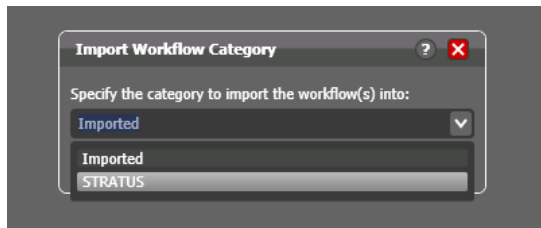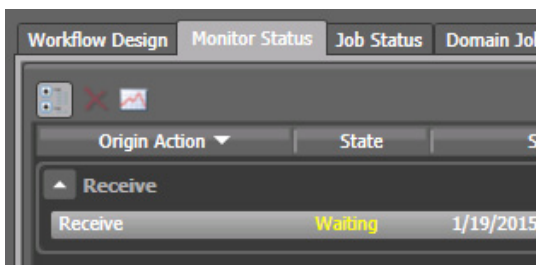

You can see the imported workflow in the list of workflows underneath the STRATUS category.
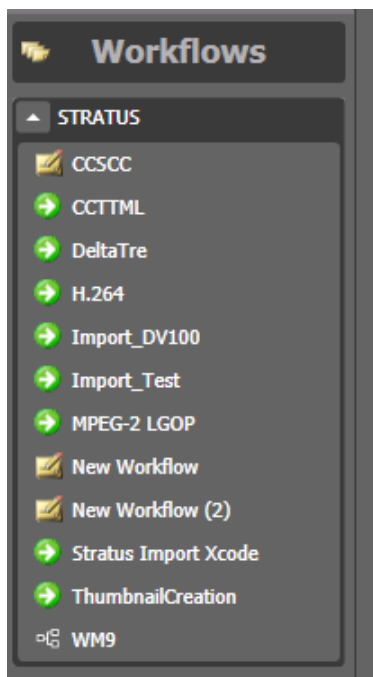
In Vantage before the workflow is ready and available for use, it needs to be Released and Activated.

Check that the status in the monitor reads "Waiting."

To differentiate between import and export workflows in the STRATUS category the Workflow Description field is used. The Description field can be found when opening the workflow's [Details Panel]. For any workflow that you want to use for Export rules in GV STRATUS, the [Description] field needs to start with "STRATUS".
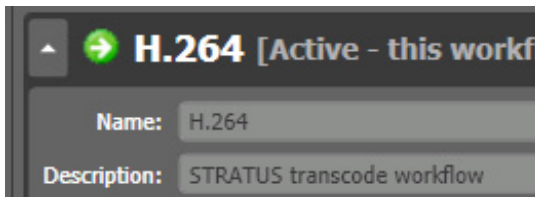
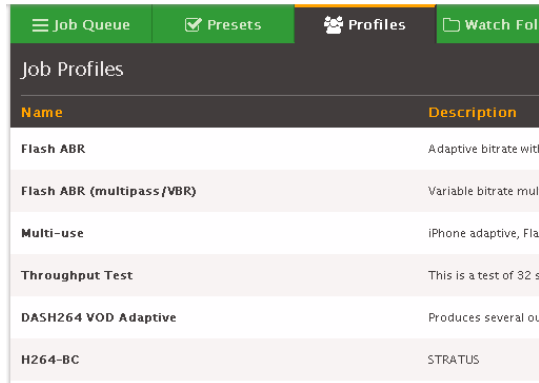For Import rules, [Description] should start with "STRATUS Import".
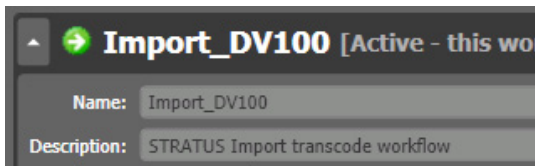
On starting up the XCode Control Engine you can verify that the Vantage workflows with the correct category/description are recognized in the GV STRATUS logs:

Elemental Server

The Elemental Server profiles are stored in the Elemental database, but can be exported into, or imported from, XML files.

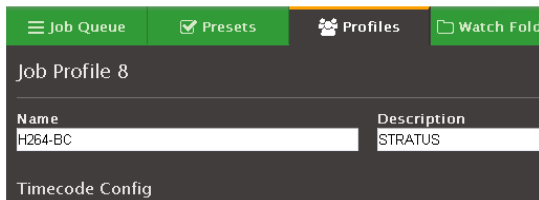To create a new profile, log into the Elemental web UI and navigate to [Profiles].

To create a new profile choose [New Profile +].

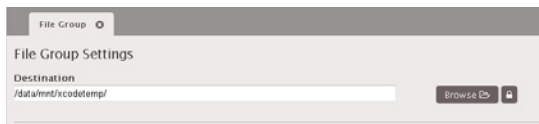To make the new profile available to GV STRATUS Export rules, start the profile [Description] with "STRATUS".

To make the new profile available to GV STRATUS Import rules, start the profile [Description] with "STRATUS Import".
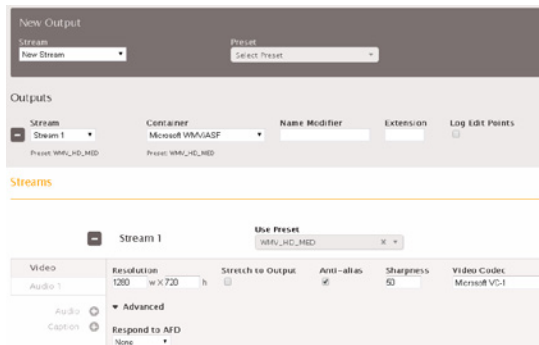
Make sure that the mount point corresponds to the temporary storage location set in [Destination] in [File Group Settings].

Create a new output stream, choose a preset and adjust the parameters accordingly.

Create the profile.

On starting up the XCode Control Engine you can verify that the Elemental profiles with the correct description are recognized in the GV STRATUS logs:

TranscodeEngine   Notice ElementalController.TxThread: 6 profile(s) total. 1 STRATUS profile(s) found on Elemental @10.16.147.247
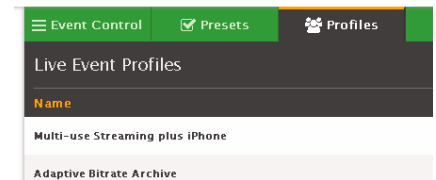
Elemental Live

To setup a profile on Elemental Live you need to know the following parameters from the destination you are streaming to:
- Streaming protocol (Apple HLS, DASH ISO, Adobe HDS, MS Smooth, Adobe RTMP, UDP/TS, RTSP)
- Detailed parameters related to the streaming protocol (endpoints, naming, retry intervals, etc.)
- Video codec (H.264, H.265, etc.)
- Detailed parameters related to the video codec (resolution, bitrate, buffer sizes, etc.)

These parameters vary greatly between the streaming recipients and there is no "gold standard." These parameters need to be checked with the streaming provider.

Once the parameters are known you can create a new profile on Elemental Live. Log in to the web UI and navigate to [Profiles].
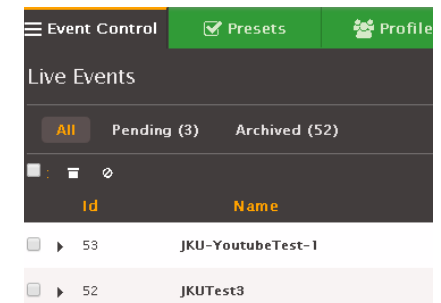

Select [New Profile +] and name your profile. Choose a source and one or more outputs appropriate to your streaming destination, and set up all the parameters for protocol and video codec. Finally, create your profile.

To start streaming navigate to [Event Control].
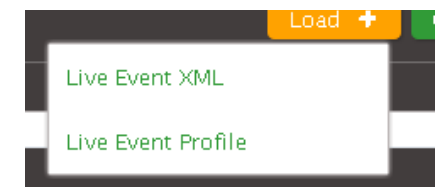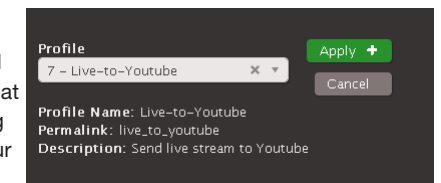

Create a new event.

Load the profile you created previously.

Apply the profile.

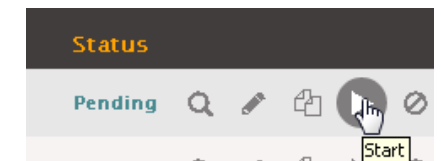Name your event and modify parameters that might need modifying (e.g., Input). Save your event.
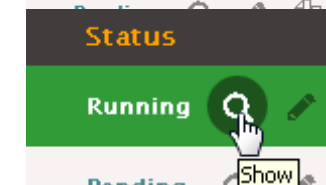

Start your event.

Supervise your streaming.

Troubleshooting

Q: Can I create profiles which generate more than one output format?

A: No, the XCode Control Engine only supports one output format per profile.

**Q: My profiles do not show up in the [Transcode Format] drop-downs. What can I do?**

A: The XCode Control Engine scans the profiles regularly. If the time between scans is too long, you can force a scan by restarting the XCode Control Engine. If the new profiles still do not show up, try restarting the GV STRATUS Control Panel.

Q: Does GV STRATUS process transcodes on growing files?

A: No. Although GV STRATUS starts copying the file to the temporary storage location while the file is still growing, the actual transcoding process only starts once the file stops growing and is fully transferred. In a later GV STRATUS version, this behavior might be changed for transcoding systems that support growing files.
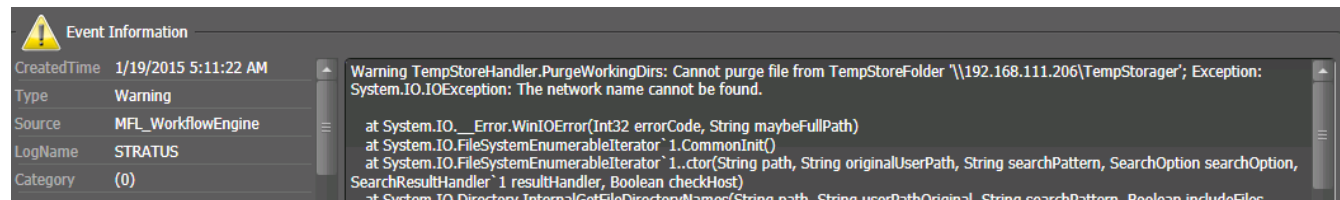
Working Directory
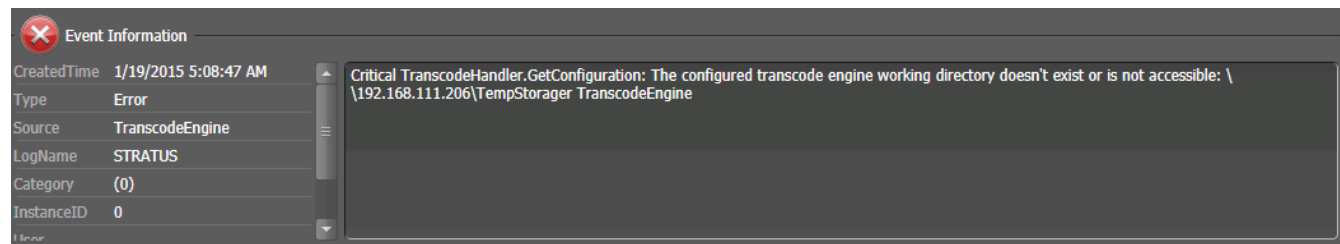
Errors when executing rules involving path:
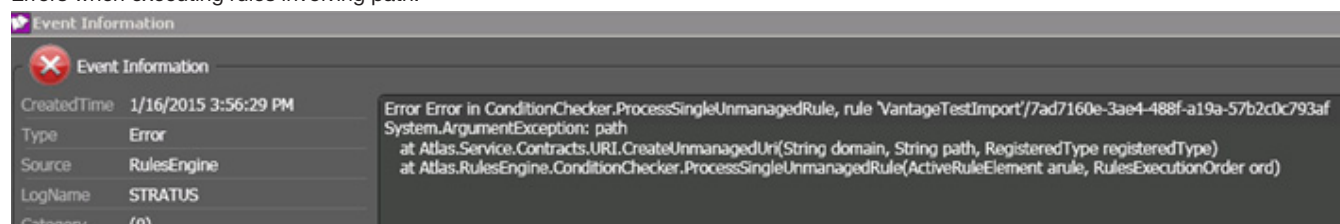
Check the configuration of the Workflow Engine and XCode Control Engine to determine if the [Working Directory] is valid and accessible.

When starting up the Workflow Engine, check for the following (or similar) warning:

When starting up the XCode Control Engine, check for the following (or similar) error:

Engine Availability

To check whether all the engines involved in the rules processing are online, open the GV STRATUS Control Panel ([General] > [Rules]) and check for the four green checkmarks:

If one or more engines are not running, try restarting them using the [Engines] tab in the GV STRATUS Control Panel.

8