

Workflow Examples Overview

Workflow Examples

The included workflow examples are designed to help you learn about workflow design within Vantage, and to help you see how common media processing challenges can be automated.

This document outlines key products, installation tips, and learning points for each workflow. For more information about settings for each step in the workflow, you may use the “m” button in the top left of the action inspector to open the manual page for that action. If you have further questions, please contact support@telestream.net

Table of Contents

Workflow Examples Overview	1
Workflow Examples	1
Multi-Format Transcode	2
Automatic Black Detection & Removal	3
Correct Loudness	4
Create EDL from Catalog	5
Filename & Duration to XML File	6
Ingest XML File to Label	7
Interlacing Configuration Validation	8
Multiple Audio Overlays	9
Open STL Subtitle Application	10
Review & Approval	11
SCC Caption File Application	12
SCC Caption File Generation	13
Smart SD and HD Transcoding	14
SMPTE 2052 Caption File Generation	15
Telecine Detection & Removal	16
Workflow Portal Trimming	17

Multi-Format Transcode

This workflow illustrates a straightforward transcoding workflow. Incoming media is converted to QuickTime and 3GP, and then delivered to an output folder.

Products Required: Vantage Transcode or Transcode Pro

Installation: Import the workflow file *Multi-Format Transcode.xml*

Explanation

This workflow has three primary steps:

- 1) The Watch action triggers a new job when a media file is detected in a hot folder.
- 2) Each media file is transcoded to both a QuickTime and a 3GPP output file using the Flip action. In a Vantage Array configuration, each Flip might occur on separate machines. The outputs are given the nicknames "Mobile" and "Web" (note: This does not affect the actual file names; these nick names are used in subsequent steps to tell Vantage which files to use).
- 3) The output files are then delivered to a final destination using the Deploy action. Note that the Deploy action references the nicknames "Mobile" and "Web" during deployment.

Automatic Black Detection & Removal

This workflow automatically analyzes an incoming media file to identify up to 20 black segments, and removes them during a transcode.

Products Required: Vantage Transcode or Transcode Pro, and Vantage Analysis

Installation: Import the workflow file *Automatic Black Detection & Removal.xml*

Workflow Explanation

There are three parts to this workflow:

- 1) A Watch action watches a hot folder for incoming media files
- 2) An Examine action analyzes the media file to determine where the “active” (non-black) regions of video are. By default, this action will ignore any section of black less than 10 frames long, and audio will be ignored (this setting can be changed).

This action publishes the start and stop time codes for up to 20 segments of active video; any segments which are not used will have a start time code of 00:00:00:00 and a stop time code of 00:00:00:00

- 3) A Flip action which creates a QuickTime output, applying the Trim Filter to remove the black segments (or, preserve the active segments). Variables published by the Examine action are provided to this Trim filter. The Trim filter ignores segments where the start and end time codes are the same.

Correct Loudness

This workflow automatically analyzes an incoming media file to measure audio, and then intelligently adjusts audio levels to hit a specified target. It also creates a metadata label containing the audio information.

Products Required: Vantage Transcode Connect or Transcode Pro Connect, and Vantage Analysis (*note: Connect is only required for the label*)

Installation: Import the workflow file *Correct Loudness.xml*

Workflow Explanation

There are four parts to this workflow:

- 1) A Watch action watches a hot folder for incoming media files
- 2) An Examine action analyzes the media file to measure audio loudness. By default, the Left and Right channels are analyzed (on channels 1 & 2) and variables are published for a wide variety of measurements. Of those variables, only the following are used for correction by the Flip action:
 - a. Relative Gated Loudness (per the ITU specification)
 - b. True Peak Signal (avoids “clipping” when adjusting audio levels)
 - c. Dialog Loudness (Dolby Dialog Intelligence measurement)
 - d. Dialog Percentage (what percentage of the time line has dialog)
- 3) A Flip action which creates a Program Stream output, intelligently applying the variables above to adjust the audio:
 - a. If the measured dialog (“Dialog Percentage”) is greater than the specified amount (here, 50%) then “Dialog Loudness” is used as the source loudness for correction. Otherwise, “Relative Gated Loudness” is used.
 - b. The True Peak Signal is used to avoid over-amplifying the audio which would create clipping. This may result in the output audio being quieter than the desired target, but it will avoid unwanted popping sounds in the audio.
- 4) The Populate action creates a label with the variables from the Examine action

Create EDL from Catalog

This workflow allows you to stitch and trim files using the Workflow Portal using the TSEDL stitching engine. TSEDL allows stitching of MPEG-2 and I-frame codecs; this workflow uses IMX but the same workflow may be used for a variety of other codecs including MPEG-2 Transport Stream files.

Products Required: Vantage Transcode Pro, Vantage Workflow Portal

Installation:

- Import the workflow files *Ingest to Catalog for EDL.xml* and *EDL Trim & Stitch.xml*
- In the Workflow Designer, open the “Register” action in the *Ingest* workflow and select a catalog
- Import the Workflow Portal configuration *Create EDL from Catalog Workflow Portal.xml*
- In the Management Console, edit the Workflow Portal configuration and select the same catalog for asset browsing as was used in the previous “Register” action

Explanation

There are three steps to this workflow:

- 1) The *Ingest to Catalog from EDL* workflow creates a frame-accurate proxy, an IMX MXF file, and a thumbnail from any incoming media file. These media items are collected into a binder and registered in a Catalog
- 2) A user may view all binders registered in the catalog using the Workflow Portal configuration, select items, and use the frame-accurate proxy to mark in/out points to build an edit decision list. *Note: This capability is only available in the desktop application version of the Portal*
- 3) When the EDL is complete, the user submits to the *EDL Trim & Stitch* workflow which will process the EDL to create a single output. This creates an EDL file with the extension “.tsedl” which is given the nickname “Original” in an entirely new binder.
- 4) The EDL file will be processed in the Flip Action using “Direct Convert” which will re-wrap the original video frames (without transcoding) and place them into an MXF output. *Note: Direct Convert can also work for long-GOP codecs and will create new GOPs at stitch points. Alternatively, an EDL may be submitted directly to a Flip action for full transcoding to an entirely different codec.*

Filename & Duration to XML File

This workflow illustrates the creation of an XML file from labels or variables in Vantage. For each incoming media file, it will identify the file name and duration of the media file, then create a label containing that information; the label will then be saved as an XML file.

Products Required: Vantage Analysis (to extract duration) and either the Metadata Option, or Transcode Connect, or Transcode Pro Connect (for the label and XML processing)

Installation:

- Import the workflow file *Filename & Duration to XML File.xml*
- Within the Management Console, under Workflow Design Items, import the Style Sheet named *Label to XML Style Sheet.xml*. You will see the actual style sheet definition in the preview window after import.

Note: You can create your own style sheet .XSL files and add them to Vantage, but they must be customized to work for your specific needs and metadata requirements. Telestream offers professional services to assist with style sheet design and testing, please contact Telestream Sales for more information.

Explanation

This workflow has five primary steps:

- 1) The Watch action triggers a new job when files are detected in a hot folder
- 2) The two Identify actions publish variables for the file name and duration
- 3) These variables are published to a label using the Populate action
- 4) The label is then converted to an XML file using a style sheet. This style sheet converts Vantage's internal label XML definition into a human-readable XML file, and is specific to this example's label and XML output file format. *Note: The XML file is stored in the Vantage database until you Deploy or Copy it to a final location.*
- 5) The XML file is then delivered to a final location.

Ingest XML File to Label

This workflow illustrates ingesting XML metadata into a Vantage label and variables. It uses two style sheets to convert Reuters and AP news metadata into a label, and then publishes a single field from that metadata as a variable for use within the workflow.

Products Required: Either the Metadata Option, or Transcode Connect, or Transcode Pro Connect (for the label and XML processing)

Installation:

- Import the workflow file *Ingest XML File to Label.xml*
- Within the Management Console, under Workflow Design Items, import the Style Sheets named *AP Style Sheet.xml* and *Reuters Style Sheet.xml*. You will see the actual style sheet definitions in the preview window after import.

Note: You can create your own style sheet .XSL files and add them to Vantage, but they must be customized to work for your specific needs and metadata requirements. Telestream offers professional services to assist with style sheet design and testing, please contact Telestream Sales for more information.

Explanation

This workflow has four primary steps:

- 1) The Watch action triggers a new job when a media file is detected in one of two hot folders. Note that either watch folder may trigger a job, but for each job only the process branch following the triggering Watch action will be executed.
- 2) The Associate actions will look for an XML file that matches the incoming media file name. The XML file will be matched using the pattern `*[Name]*.xml`, where [Name] is the base name of the media file. For example, **Incoming.mpg** would match to **Incoming.xml**.
- 3) The XML file is transformed to a Vantage label using the appropriate style sheet and the Transform action.
- 4) The Populate action then extracts a single variable from the label for the Summary element.

Interlacing Configuration Validation

This workflow illustrates the use of Analysis to perform decision-making. The workflow identifies when a media file's header information does not match the measured interlacing configuration, and then quarantines the file if it is incorrect.

Products Required: Vantage Analysis

Installation: Import the workflow file *Interlacing Configuration Validation.xml*

Explanation

This workflow has three primary steps:

- 1) The Watch action triggers a new job when a media file is detected in a hot folder.
- 2) Identify and Examine each analyze the media file to measure interlacing configuration. Examine will perform this by actually looking at each frame to determine whether it is upper-field-first, lower-field-first, or progressive. This is done by statistically analyzing the video signal; the video file header is not used. In contrast, the Identify action will look at the video file header and encoding parameters, and will ignore the actual video signal. When completed, both actions will publish whether or not they believe the content is interlaced, and whether it is upper-field-first or lower-field-first.
- 3) The Compute action will compare the results of Identify and Examine to confirm that both found the material interlaced, or progressive, in the same manner. If not, the file will be quarantined (the Decide action is used to determine which process branch should execute). Similarly, the next Compute action will perform a similar check comparing the Identify and Examine results for interlacing configuration (upper-field-first or lower-field-first).

Multiple Audio Overlays

This workflow illustrates how to apply audio WAV files during a transcode to insert multiple languages.

Products Required: Vantage Transcode or Transcode Pro

Installation: Import the workflow file *Multiple Audio Overlays.xml*

Explanation

This workflow has three primary steps:

- 1) The Watch action triggers a new job when a media file is detected in a hot folder.
- 2) The Associate actions will look for audio WAV files that match the incoming media file name. Each WAV file is matched to a different pattern. For example, the French WAV file is matched using the pattern **[Name]*French*.wav*, where [Name] is the base name of the media file. For example, **Incoming.mpg** would match to **Incoming_French.wav**. Each Associate action also publishes a variable containing the full UNC path and file name of the WAV file.
- 3) The Flip action uses the UNC path variables to apply audio to the output file during a transcode. This is done using multiple Audio Overlay filters, each binding the source file name to a different WAV file path variable.

Open STL Subtitle Application

This workflow illustrates how to apply “burnt-in” subtitles (also known as “open” subtitles) during a transcode. These subtitles become part of the actual video signal and cannot be disabled by the viewer, but will display regardless of what device the video is played upon.

Products Required: Vantage Transcode or Transcode Pro, and the Screen Open Subtitling option

Installation: Import the workflow file *Open STL Subtitle Application.xml*

Explanation

This workflow has three primary steps:

- 1) The Watch action triggers a new job when a media file is detected in a hot folder.
- 2) The Associate action will look for an EBU STL subtitle file that matches the incoming media file name. The STL file is matched using the pattern [Name]*.stl, where [Name] is the base name of the media file. For example, **Incoming.mpg** would match to **Incoming.stl**. The Associate action also publishes a variable containing the full UNC path and file name of the STL file.
- 3) The Flip action uses the UNC path variable of the STL file to apply subtitles during a transcode. These subtitles are rendered directly into the output video using the Screen Subtitling video filter.

Review & Approval

This workflow allows operators to review and approve media within the Vantage Workflow portal. Vantage will trigger different workflow steps based upon their feedback. This workflow illustrates the use of labels to allow metadata entry in the Portal, and also shows how label metadata can be used to trigger decisions within Vantage.

Products Required: Vantage Transcode Connect or Vantage Transcode Pro Connect, and the Vantage Workflow Portal

Installation:

- Import the workflow files *Ingest Workflow.xml* and *Pass/Fail Workflow.xml*
- In the Workflow Designer, open the “Register” action in the *Ingest* workflow and select a catalog
- Import the Workflow Portal configuration *Review & Approval Workflow Portal Configuration.xml*
- In the Management Console, edit the Workflow Portal configuration and select the same catalog for asset browsing as was used in the previous “Register” action

Explanation

There are three steps to this workflow:

- 1) The *Ingest* workflow creates a frame-accurate proxy and a thumbnail from any incoming media file. It also creates a metadata label, containing a field for metadata entry. The media items and label are all collected into a binder and registered in a Catalog.
- 2) A user may view all binders registered in the catalog using the Workflow Portal configuration, select an item, review the proxy, and then submit the binder to the Pass/Fail workflow. When doing so, they may indicate whether the item has “passed” or “failed” in the label.
- 3) The *Pass/Fail* workflow will then extract the metadata from the label (using the Populate action), and use that information to decide which process branch to run. If the media has “passed” then an MPEG-2 file will be created, otherwise the file will be moved to quarantine.

SCC Caption File Application

This workflow illustrates how to insert 608 captions from a .SCC caption file during a transcode.

Products Required: Vantage Transcode or Transcode Pro

Installation: Import the workflow file *SCC Caption File Application.xml*

Explanation

This workflow has three primary steps:

- 1) The Watch action triggers a new job when a media file is detected in a hot folder.
- 2) The Associate action will look for a caption SCC file that matches the incoming media file name. The SCC file is matched using the pattern [Name]*.scc, where [Name] is the base name of the media file. For example, **Incoming.mpg** would match to **Incoming.scc**. The Associate action also publishes a variable containing the full UNC path and file name of the SCC file.
- 3) The Flip action uses the UNC path variable of the SCC file to insert captions during a transcode, using the “SCC Caption Insertion” filter. The new captions will replace any captions in the source media. Captions will be placed as specified in the transcode settings – in this example, 608 captions will be inserted as ATSC user data in the output MPEG-2.

SCC Caption File Generation

This workflow illustrates how to create a .SCC caption file from a media file containing 608 caption data.

Products Required: Vantage Analysis

Installation: Import the workflow file *SCC Caption File Generation.xml*

Explanation

This workflow has three primary steps:

- 1) The Watch action triggers a new job when a media file is detected in a hot folder.
- 2) The Examine action will read the media file, and create an SCC output file containing captions found in the media file. The SCC file name will be the same as the media file name (for example, **incoming.mpg** will create **incoming.scc**).
- 3) The Deploy action will deliver the output SCC file to a final destination.

Smart SD and HD Transcoding

This workflow automates the detection of black curtains and letterboxing in incoming SD or HD material, and intelligently chooses either a 4:3 or a 16:9 output encoding profile, and crops black accordingly.

Products Required: Vantage Transcode or Transcode Pro, and Vantage Analysis

Installation: Import the workflow file *Smart SD and HD Transcoding.xml*

Explanation

This workflow includes the following steps:

1. A Watch action which watches a hot folder for incoming media
2. An Identify which analyzes the header of the incoming media file to determine its frame height
3. Two Decide actions which determine whether to execute the top branch, or the bottom branch, of the process based upon the frame height. The top branch executes for HD material (where the frame height is greater than 700), and the bottom branch executes for SD material (where the frame height is less than or equal to 700)
4. Two Examine actions which analyze the video of the media file, to determine the aspect ratio of the active content, and the amount of black padding. The top action looks for curtains (black on the left or right of the active video); the bottom action looks for letterboxing (black on the top or bottom of the active video). These actions also publish variables indicating how much black was found, measured in pixels.
5. Several Decide actions which choose an encoding profile based upon the Examine analysis results
6. Two encoding profiles, one for 16:9 and one for 4:3 material. These profiles use the variables from the Examine actions to automatically crop off any black found.
7. A Deploy action which delivers the output to the final location

SMPTE 2052 Caption File Generation

This workflow illustrates how to create a SMPTE 2052 timed text caption file from a media file containing caption data. The SMPTE 2052 format is commonly used to ensure compliance for Internet Accessibility (web captions) in the United States.

Products Required: Vantage Analysis

Installation: Import the workflow file *SMPTE 2052 Caption File Generation.xml*

Explanation

This workflow has three primary steps:

- 1) The Watch action triggers a new job when a media file is detected in a hot folder.
- 2) The Examine action will read the media file, and create an .sttml output file containing captions found in the media file. The SMPTE 2052 file name will be the same as the media file name (for example, **incoming.mpg** will create **incoming.sttml**).
- 3) The Deploy action will deliver the output SMPTE 2052 file to a final destination.

Telecine Detection & Removal

This workflow illustrates the use of Analysis to perform decision-making before choosing a transcoding profile. The workflow identifies whether or not media has a telecine cadence. If so, it chooses a transcode which will remove the cadence using inverse telecine to create a 24p output, otherwise it chooses a transcode which creates broadcast 29.97 content from the original.

Products Required: Vantage Analysis, Vantage Transcode or Transcode Pro

Installation: Import the workflow file *Telecine Detection & Removal.xml*

Explanation

This workflow has four steps:

- 1) The Watch action triggers a new job when a media file is detected in a hot folder.
- 2) The Examine action analyzes the incoming media file to determine whether or not the video appears to have a Telecine cadence. This is done by performing a statistical analysis upon the actual video signal, looking for 3:2 or 3:3:2:2 cadence patterns in the media. This action publishes a single variable indicating whether or not a telecine cadence was detected.
- 3) The Decide actions will enable either the 29.97 transcode, or the 24p transcode with inverse telecine, based upon the variable published from Examine
- 4) The Flip actions represent the two final transcode options; only one of them will actually execute, depending upon the results of the Examine and Decide actions. The 24p transcode will perform inverse telecine (using the Inverse Telecine filter); the 29.97 transcode will create a 29.97 output.

Workflow Portal Trimming

This workflow allows operators to mark trim points for media within the Vantage Workflow portal, and then trigger subsequent transcoding applying those trim points. This workflow illustrates the use of labels to allow metadata entry in the Portal, and also shows how label metadata can be used to feed transcoding parameters within the Flip action.

Products Required: Vantage Transcode Connect or Vantage Transcode Pro Connect, and the Vantage Workflow Portal

Installation:

- Import the workflow files *Ingest to Catalog.xml* and *Trim from Catalog.xml*
- In the Workflow Designer, open the “Register” action in the *Ingest* workflow and select a catalog
- Import the Workflow Portal configuration *Trimming Workflow Portal Configuration.xml*
- In the Management Console, edit the Workflow Portal configuration and select the same catalog for asset browsing as was used in the previous “Register” action

Explanation

There are three steps to this workflow:

- 1) The *Ingest* workflow creates a frame-accurate proxy and a thumbnail from any incoming media file. It also creates a metadata label, containing timecode parameters to indicate trim points. The media items and label are all collected into a binder and registered in a Catalog.
- 2) A user may view all binders registered in the catalog using the Workflow Portal configuration, select an item, review the proxy, mark trim points, and then submit the binder to the trimming workflow. Trim points are provided using the label.
- 3) The *Trim from Catalog* workflow will then extract the metadata from the label (using the Populate action), and use that information to trim the media file. It does this by providing the “In” out “Out” variables to the Trim filter within the Flip action.