Vantage 6.3

Post Producer©
Cookbook

telestream

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Composition Cookbook

The purpose of this cookbook is to illustrate practical ways to approach and implement many aspects of compositions. This chapter provides examples of workflows that are typically used in Post Producer applications.

- Fade to Black
- Basic Image Overlays
- Animating Image Overlays
- Image Scaling and Placement
- Creating a Squeezeback

Note: All of the examples in this guide are complete compositions. To test them, you can copy and paste the example into a text editor. Change the references to the media files you are supplying, and save the file as XML. Then, submit it to a suitable Post Producer workflow.

A library of composition examples and media generated by the composition are provided to illustrate various features of Post Producer. To access these examples, go to the www.telestream.net Web site and log in as an authorized user.

Click on the Post Producer link and select the CML examples tab to view each CML example, which includes the CML file, the exported workflow it can be processed with, source media, and a sample proxy video clip that was produced from it.

Fade to Black

This example shows you how to fade a video clip to black.

In this example, which has one Segment, a Canvas is applied at layer 1, with the color black as background. The Video is applied at layer 2. The Head and Tail are set at 0 and 10 seconds, respectively: the Fade is set to 2 second each, with Opacity at 0 percent.

Thus, from 0 to 2 the movie fades up from the black background, and at 8 seconds, the movie fades down to black at 10 seconds; the end of the movie.

Composition

```
<?xml version="1.0" encoding="utf-8"?>
<Composition xmlns="Telestream.Soa.Facility.Playlist">
<!-- Fade to Black DUR=1 min, AR=16x9, res. 1920x1080, DolbyE 5.1+2 -->
<!-- All PNG files: 600 x 420 -->
<!-- Input: 1080i -->
<!-- Output: 1080i x264 -->
<!-- Conforming Workflow: 1080 VOD -->
  <Source identifier="1">
    <File location="\\share\path\fade_to_black.mov" />
  </Source>
  <Sequence layer="0">
    <Segment>
      <Canvas align="head" adjust="body" duration="00:00:10.00"
background="black" layer="1" />
     <Video source="1" layer="2" >
       <Head>
         <Opacity level="0%" />
         <Fade duration="00:00:02.00" />
         <Edit time="00:00:00.00"/>
       </Head>
       <Body>
         <Opacity level="100%" />
       </Body>
       <Tail>
         <Opacity level="0%" />
         <Fade duration="00:00:02.00" />
         <Edit time="00:00:10.00"/>
       </Tail>
     </Video>
    </Segment>
  </Sequence>
<Composition>
```

Basic Image Overlays

This example—from the Alpha Channel Image composition—illustrates a typical method of overlaying an image on a video.

Figure 1. Overlaying an Image with alpha channel on video

Composition

```
<?xml version="1.0" encoding="utf-8"?>
<Composition xmlns="Telestream.Soa.Facility.Playlist">
<!-- Purpose: Demo overlaying video with an image with alpha channel -->
<!-- Source Video: 1920 x 1080 @25 fps -->
<!-- Image: 720 x 405 PNG (16 x 9) with alpha channel -->
<!-- Output: 1920 x 1080 @25 fps plus proxy -->
<!-- Be sure to modify the path to your video and audio files so that they
are accessible to your Vantage domain -->
  <Source identifier="1">
    <File location="\\share\path\Queensboro_Bridge_NY_Cab.mov" />
  </Source>
  <Sequence layer="0">
    <Segment>
      <Video align="head" adjust="edge" fill="none" source="1" layer="0"/>
      <Image align="head" adjust="body" fill="loop" layer="1"
location="\\share\path\alpha_channel.png" frames="1"
duration="00:00:00:01@25" layout="stretch" />
    </Segment>
  </Sequence>
</Composition>
```

The key things to note in this example:

- The video and image are in the same segment (and start playing at the same time.) Because the image has no duration (after all, its an image), use the fill and adjust attributes to play the image for the duration of the segment.
- The image is on layer 1, so that it displays on top of the video (at layer 0).
- The duration of the image is a time value... 1 frame at 25 FPS. You could also have specified duration as 0.04 seconds, the equivalent of 1@25.

- Layout is specified as *stretch*, which makes the image the same size as the output frame. In this case, because the image is also 16 x 9, no distortion takes place. However, had it been any other aspect ratio, it would have been distorted. You can specify Layout as *zoom* or *fill* to maintain the correct aspect ratio.

Animating Image Overlays

This example—from the Alpha Channel Image Animation composition—illustrates how to animate an image overlaid on a video file.

Composition

```
<?xml version="1.0" encoding="utf-8"?>
<Composition xmlns="Telestream.Soa.Facility.Playlist">
<!-- Purpose: Demonstrate animating overlay image with alpha channel -->
<!-- Source Video: 1920 x 1080 @25 fps -->
<!-- Image: 720 x 405 PNG (16 x 9) with alpha channel -->
<!-- Output: 1920 x 1080 @25 fps plus MOV proxy -->
<!-- Be sure to modify the path to your video and audio files so that they
are accessible to your Vantage domain -->
  <Source identifier="1">
    <File location="\\share\path\Queensboro_Bridge_NY_Cab.mov" />
  </Source>
  <Sequence layer="0">
    <Segment>
      <Image align="head" adjust="body" fill="loop" layer="1" layout="zoom"
frames="1" duration="00:00:00:01@25"
location="\\share\path\Alpha_channel.png" />
      <Video align="head" adjust="edge" fill="none" source="1" layer="0">
        <Tail>
          <Edit time="00:00:02.000" />
        </Tail>
      </Video>
    </Segment>
    <Segment>
      <Image align="head" adjust="body" fill="loop" layer="1" layout="zoom"
duration="00:00:00:01@25" frames="1"
location="\\share\path\Alpha_channel.png" >
        <Head>
          <Fade duration="00:00:02.000"/>
          <Opacity level="100%" />
          <Scaling x="100%" y="100%" />
        </Head>
        <Body>
          <Scaling x="20%" y="100%" />
        </Body>
        <Tail>
          <Fade duration="00:00:02.000"/>
          <Opacity level="100%" />
          <Scaling x="100%" y="100%" />
        </Tail>
      </Image>
      <Video align="head" adjust="edge" fill="none" source="1" layer="0">
        <Head>
          <Edit time="00:00:02.000" />
        </Head>
```

```
    </Video>
   </Segment>
  </Sequence>
<Composition>
```

Key things to note in this example:

- There are two segments, so that each can be configured independently to achieve animation more easily.
- In the first segment the image is configured to display statically, just as it is in the *Basic Image Overlays* example above.
- The second example implement X-axis animation by implementing effects in the Head, Body, and Tail:
- In the Head:
  - Duration 2 seconds, with scaling at 100%—just as in the first segment.
  - Scaling at 100% is, in effect, no scaling—so this element could be deleted with no change.
  - The Opacity is set to 100% as well—but the default value of opacity in Head and Tail is zero, so you must set it if you don't want an invisible image or a fade-in effect.
- In the Body:
  - Scaling is 20% on the X axis, shrinking it to the left because the image is aligned on the head.
  - No duration is ever specified in a Body. The Image is set to adjust on body, and, given that this clip is about 8.92 seconds long, the body duration is 8.92 - 4 seconds long (2 for Head, 2 for Tail).
- In the Tail:
  - The fade again is 2 seconds, opacity is set to 100% for the same reason noted in Head, and scaling is set back to 100%, bringing the image back to its original shape and size.

Image Scaling and Placement

This example scales and places an image in the lower right-hand portion of the frame, and aligns it in time with an underlying video sequence.

```
<?xml version="1.0" encoding="utf-8"?>
<Composition xmlns="Telestream.Soa.Facility.Playlist">
  <Source identifier="1">
    <File location="\\share\path\Mystic River Seg 1.mov" />
  </Source>
  <Source identifier="2">
    <File location="\\share\path\vod\FTD_Start_at_16.21.mov" />
    <Mask left="12.5%" right="87.5%" top="0%" bottom="100%"/>
  </Source>
  <Sequence layer="0">
    <Segment>
      <Image align="both" adjust="body" fill="loop" layer="1"
location="\\share\path\Vantage-logo_small.png" frames="1" layout="none"
offset="00:00:02.000">
        <Head>
          <Scaling x="30%" y="30%"/>
          <Translation x="80%" y="70%" />
          <Opacity level="0%"/>
          <Fade duration="00:00:01.000"/>
        </Head>
        <Body>
          <Scaling x="30%" y="30%"/>
          <Translation x="80%" y="70%" />
          <Opacity level="100%"/>
        </Body>
        <Tail>
          <Fade duration="00:00:01.000"/>
          <Scaling x="30%" y="30%"/>
          <Translation x="80%" y="70%" />
          <Opacity level="0%"/>
        </Tail>
      </Image>
      <Sequence>
        <Segment>
          <Video source="1" >
            <Tail>
              <Edit time="00:00:8.933"/>
            </Tail>
          </Video>
        </Segment>
        <Segment>
          <Video source="2" >
            <Tail>
              <Edit time="00:00:10.330"/>
            </Tail>
          </Video>
        </Segment>
```

```
      </Sequence>
    </Segment>
  </Sequence>
</Composition>
```

Creating a Squeezeback

Here's how to create a squeezeback from two videos—where one video fades in, while another fades out. To create the squeezeback, you create 3 segments (which play sequentially, within the sequence), and specify playback attributes to create this clever squeezeback, regardless of the length of either clip.

Example

In this example, the first segment plays video 1 and 2 concurrently: video 1 is aligned at the head (by default), and fades out at the end for 1 second (due to the Tail Fade duration of 1 second.

Video 2 on the other hand, is aligned at the tail (at the end of the longest running segment in the sequence), and the mark out point (Tail Edit time) is 1 second—meaning, that for this instance of use, the file is effectively 1 second long. So, it begins its fade 1 second prior to the end of the segment and runs for 1 second.

Finally, in the second segment, video 2 is played again. This time, it is aligned at the head by default, and the mark in point (Head Edit time) is also 1 second—to start immediately where it left off in the first segment, and it plays to the end of its length.

```
<?xml version="1.0" encoding="utf-8"?>
<Composition version="1.0" xmlns="Telestream.Soa.Facility.Playlist">
<!-- Up Next Promo DUR=1 min, AR=16x9, res. 1920x1080, DolbyE 5.1+2 -->
<!-- All PNG files: 600 x 420 -->
<!-- Input: 1080i -->
<!-- Output: 1080i x264 -->
<!-- Conforming Workflow: 1080 VOD -->
  <Source identifier="1">
    <File location="\\share\source\Source_video_1.mov" />
  <Source identifier="2">
    <File location="\\share\source\Source_video_2.mov" />
  </Source>
  </Source>
  <Sequence layer="1">
    <Segment>
\\ video 1 plays to the end and fades out for 1 second.
     <Video source="1" layer="0">
       <Tail>
         <Fade duration="00:01:00">
       </Tail>
     </Video>
\\ video 2 is aligned at the tail - it fades in and plays for 1 second.
     <Video source="2" layer="1" align="tail">
       <Head>
         <Fade duration="00:01:00">
       </Head>
       <Tail>
         <Edit time="00:00:01:00">
       </Tail>
```

```
      </Video>
    </Segment>
    <Segment>
\\ video 2 now plays from the 1 second mark in to the end.
      <Video source="2">
        <Head>
          <Edit time="00:00:01:00">
        </Head>
      </Video>
    </Segment>
  </Sequence>
</Composition>
```

Audio Processing

This chapter provides examples of compositions and workflows that are typically used for audio processing in Post Producer applications.

- Mixing Audio Tracks to Create a Mixed Stereo Pair
- Routing Audio Without Decoding
- Creating a Master File with Multiple Audio Tracks
- Setting Up Audio Tracks in Premiere / FCP for Multi-track Audio Mapping
- Downmixing Dolby E Encoded Audio
- Converting Stereo to Dolby E Encoded Audio

Note: All of the examples in this guide are complete compositions. To test them, you can copy and paste the example into a text editor. Change the references to the media files you are supplying, and save the file as XML. Then, submit it to a suitable Post Producer workflow.

A library of composition examples and media generated by the composition are provided to illustrate various features of Post Producer. To access these examples, go to the www.telestream.net Web site and log in as an authorized user.

Click on the Post Producer link and select the CML examples tab to view each CML example, which includes the CML file, the exported workflow it can be processed with, source media, and a sample proxy video clip that was produced from it.

Mixing Audio Tracks to Create a Mixed Stereo Pair

Post Producer enables you to perform audio mixing—mapping source to output channels—directly in a *Source*, as you identify your input media files. You use the *Mix* element to map audio (*source* attribute) tracks from the associated input file to the *target* tracks in the output. During mixing, Vantage decodes and re-encodes the audio.

You can approach mixing in two different ways: adding a Mix for every input or output channel, or by combining common channels, using the *source* and *target* attributes.

Creating the Mixed Stereo Pair

Both of these snippets combine a stereo pair with a mono track to make a mixed stereo pair. Here are two samples that perform the same task:

```
...
<Source identifier="2"> <!-- English -->
  <File location="\\share\path\Master Oh_Susanna.mov"/>
  <Mix source="1 2" target="1 2"/>
  <Mix source="3" target="1" level=".707"/>
  <Mix source="3" target="2" level=".707"/>
</Source>
```

OR

```
...
<Source identifier="2"> <!-- English -->
  <File location="\\share\path\Master Oh_Susanna.mov"/>
  <Mix source="1 2" target="1 2"/>
  <Mix source="3" target="1 2" level=".707"/>
  </Source>
```

The first Mix maps channels 1 and 2 respectively into the same channels in the output.

In the first example, source 3 is mixed to targets 1 and 2 using two Mix elements. In the second example, the mix is performed with a single Mix, by specifying targets 1 and 2 in combination.

The level of audio from source channel 3 mixed into channels 1 and 2 is dropped by 3 db (0.707) to compensate for acoustic doubling.

Routing Audio Without Decoding

Routing (performed using Route) allows you to move audio from tracks in the source to other tracks in the output, without decoding the audio. It simply passes it through. You can not mix audio channels, or change audio levels using the Route element.

Mixing 2 or more channels together or adjusting audio levels requires audio decoding—use the Mix instead of the Route element, which decodes audio first.

Here are some tips for using Route effectively:

- When routing tracks other than 1 or 2, tracks 1 and 2 must explicitly be mixed at a level of 0 (`<Mix source="1 2" target="1 2" level="0"/>`) in addition to your intended Route commands.
- If audio is fully conformed in Avid Pro Tools and it should be left untouched, you can use Route to map audio from the input file into other tracks of the output file without decoding it.

Passing Dolby E to Output

A common use of the Route element is to pass compressed Dolby E stereo to the output without decoding it, as shown in this example.

```
...
<Source identifier="2"> <!-- English -->
  <File location="\\share\path\Master_DolbyE_Stereo.mov"/>
  <Route source="1 2" target="1 2"/>
</Source>
...
```

Creating a Master File with Multiple Audio Tracks

Here is a composition that generates a media file of mp4 video, with several audio tracks in various languages.

Note that the level of audio level of source channels 3, 4, and 5 is dropped by 3 db (0.707) to compensate for acoustic doubling.

Example

```
<?xml version="1.0" encoding="utf-8"?>
<Composition version="1.0" xmlns="Telestream.Soa.Facility.Playlist">
  <Source identifier="1">
    <File location="\\share\path\Master.mov"/>
    <Mix source="1 2" target="1 2" level="0%"/>
  </Source>
  <Source identifier="2">
  <!-- English -->
    <File location="\\share\path\Master.mov"/>
    <Mix source="1 2" target="1 2"/>
    <Mix source="3" target="1" level=".707"/>
    <Mix source="3" target="2" level=".707"/>
  </Source>
  <Source identifier="3">
  <!-- French -->
    <File location="\\share\path\Master.mov" />
    <Mix source="1 2" target="3 4"/>
    <Mix source="4" target="3" level=".707"/>
    <Mix source="4" target="4" level=".707"/>
  </Source>
  <Source identifier="4">
  <!-- Italian -->
    <File location="\\share\path\Master.mov"/>
    <Mix source="1 2" target="5 6"/>
    <Mix source="5" target="5" level=".707"/>
    <Mix source="5" target="6" level=".707"/>
  </Source>
  <!-- stereo audio in video source and 5 VOs      -->
  <!-- map source mono track to a track in the     -->
  <!-- output file. Channel map must be set in the -->
  <!-- Compose action in the vantage workflow.     -->
  <Sequence layer="1">
    <Segment>
      <Video source="1"/>
      <Audio align="head" source="2" />
      <Audio align="head" source="3" />
      <Audio align="head" source="4" />
      <Audio align="head" source="5" />
    </Segment>
  </Sequence>
</Composition>
```

Downmixing Dolby E Encoded Audio

You can use Post Producer to decode and remix Dolby E encoded audio programs in a variety of ways.

Note: Note the requirement in these examples, that the Mix element in the Source mutes channel 1 and 2—the stereo channels—in preparation for decoding and mixing the DolbyE audio.

The Dolby E Mix elements map L and R to stereo L and R respectively, without changing the level. The center channel (3) is being split left and right, lowering by 3 dB (level="0.707107") to account for the increase in volume that happens when playing back from two speakers. The LFE effect channel in this example is dropped completely, since it shouldn't have any essential audio, except for rumble. Left Rear and Right Rear are also mapped to stereo L and R, and again dropped by 3 dB to avoid over-modulation from combining channels.

For a complete list of DolbyE programs and channel order, see *DolbyE Program and Channel Specifications* in the *Post Producer Developer's Guide*.

The Conform action decodes the Dolby E audio as specified in the CML, down-mixes the channels, and presents the conformed media with audio to the Transcoder.

Topics

- Downmixing 5.1 to Stereo
- Downmixing 5.1+2 to Stereo
- Conform Action Configuration
- Creating a Left/Right Downmix for Pro Logic Compatibility from Compressed Dolby E Audio
- Creating a Dolby Pro Logic Mix from Discrete 5.1 Audio

Downmixing 5.1 to Stereo

This composition illustrates a method for downmixing Dolby Digital 5.1 Surround Sound to 2-channel stereo.

The Source element identifies a media file containing a Dolby E-encoded surround sound program, on channels 3 and 4. The DolbyE element is configured based on the decoding order for program 1011, sequence 5.1:

Track 1: 0L
Track 2: 0C
Track 3: 0Ls
Track 4: 0R
Track 5: 0LFE
Track 6: 0Rs.

```
<?xml version="1.0" encoding="utf-8"?>
```

```
<Composition version="1.0" xmlns="Telestream.Soa.Facility.Playlist">
  <Source identifier="1" timecode="ltc">
    <File location="\\share\Dolby_E\dolbye_audio.GXF" />
  <!-- Mute track 1 and 2 in prep for decoding -->
    <Mix source="1 2" target="1 2" level="0" phase="0°" />
    <DolbyE channels="3 4" program="5.1">
  <!-- Mix Left (1) > Stereo Left (1) -->
      <Mix source="1" target="1" />
  <!-- Mix Right (4) > Stereo Right (2) -->
      <Mix source="4" target="2" />
  <!-- Mix Center (2) > Stereo Left & Right (2)at -3dB -->
      <Mix source="2" target="1 2" level="0.707107" />
  <!-- Mix Left Rear (3) > Stereo Left (1)at -3dB -->
      <Mix source="3" target="1"/>
  <!-- Mix Right Rear (6) > Stereo Right (2)at -3dB -->
      <Mix source="6" target="2"/>
    </DolbyE>
  </Source>
  <Sequence>
    <Segment>
      <Video source="1" />
    </Segment>
  </Sequence>
<Composition>
```

Downmixing 5.1+2 to Stereo

This composition illustrates a method for downmixing Dolby Digital 5.1 + 2 Surround Sound to 2-channel stereo.

The Source element identifies a media file containing a Dolby E-encoded surround sound program, on channels 3 and 4. The DolbyE element is configured based on the decoding order for program 0, sequence 5.1 +2:

Track 1: 0L
Track 2: 0C
Track 3: 0Ls
Track 4: 1L
Track 5: 0R
Track 6: 0LFE
Track 7: 0Rs
Track 8: 1R.

```
<?xml version="1.0" encoding="utf-8"?>
<Composition version="1.0" xmlns="Telestream.Soa.Facility.Playlist">
  <Source identifier="1" timecode="ltc">
    <File location="\\share\Dolby_E\dolbye_audio.GXF" />
  <!-- Mute track 1 and 2 in prep for decoding -->
    <Mix source="1 2" target="1 2" level="0" phase="0°" />
    <DolbyE channels="3 4" program="5.1">
  <!-- Mix Left (1) > Stereo Left (1) -->
      <Mix source="1" target="1" />
```

```
  <!-- Mix Right (5) > Stereo Right (2) -->
     <Mix source="5" target="2" />
  <!-- Mix Center (2) > Stereo Left & Right (2)at -3dB -->
     <Mix source="2" target="1 2" level="0.707107" />
  <!-- Mix Left Rear (3) > Stereo Left (1)at -3dB -->
     <Mix source="3" target="1" />
  <!-- Mix Right Rear (7) > Stereo Right (2)at -3dB -->
     <Mix source="7" target="2" />
    </DolbyE>
  </Source>
  <Sequence>
    <Segment>
      <Video source="1" />
    </Segment>
  </Sequence>
<Composition>
```

Conform Action Configuration

The channel mapping in the transcoder lets you pick out channels from the composited set of channels for a particular transcoder.

When you are downmixing DolbyE, you should configure the Conform action in certain ways (in addition to all other components/codecs you specify and configure for your desired output media):

In the transcoder audio codec that you select, configure it as follows:

- For AAC and AC3, do not enable the Dolby E Decoding filter. At this point, the Dolby E audio has already been decoded in the compositing stage, prior to encoding the output.
  Enable the Channel Map Filter and specify the two channels for your stereo pair in your output file.

Creating a Left/Right Downmix for Pro Logic Compatibility from Compressed Dolby E Audio

This example illustrates how you can decode and mix a Dolby E encoded audio 5.1 or 5.1+2 program into your output to make a left/right stereo pair for Pro Logic compatibility.

This example illustrates a classic use-case for the phase attribute.

```
...
<Source identifier="1">
  <File location="\\share\path\DolbyE_5.1_audio_program.mov"/>
<!-- Configuration uses audio mapping from a Dolby E encoded 5.1 program
in source channels 1 and 2: source channels 1-6 are ordered Left, Center,
Left surround, Right, LFE, Right surround -->
  <Mix source="1 2" target="1 2" level="0" phase="0°" />
```

```
  <DolbyE channels="1 2" program="5.1">
    <!-- Mix Left (1) > Stereo Left (1) -->
    <Mix source="1" target="1" phase="0°" />
    <!-- Mix Right (4) > Stereo Right (2) -->
    <Mix source="4" target="2" phase="0°" />
    <!-- Mix Center (2) > Stereo Left & Right (2)at -3dB -->
    <Mix source="2" target="1 2" level="0.707107" phase="0°" />
    <!-- Mix Left Surround (3) > Stereo Left (1) at -1.2 dB and phase shift
by 90 deg-->
    <Mix source="3" target="1" level="0.87178" phase="90°"/>
    <!-- Mix Left Surround (3) > Stereo Right (2) at -6.2 dB and phase
shift by 90 deg-->
    <Mix source="3" target="2" level="0.489898" phase="90°"/>
    <!-- Mix Right Surround (6) > Stereo Left (1) at -6.2 dB and phase
shift by -90 deg-->
    <Mix source="6" target="1" level="0.489898" phase="-90°"/>
    <!-- Mix Right Surround (6) > Stereo Right (2) at -1.2 dB and phase
shift by -90 deg-->
    <Mix source="6" target="2" level="0.87178" phase="-90°"/>
  </DolbyE>
</Source>...
```

The DolbyE element identifies the program type, and the channels it is on in the input.

Now, we can mix the decoded 6 channels

```
Track 1: 0L
Track 2: 0C
Track 3: 0Ls
Track 4: 0R
Track 5: 0LFE
Track 6: 0Rs
```

into our output.

(where Ls and Rs are phase-shifted 90°).

Note: Remember that the first Mix in the File drops the decibel level to 0, in preparation for the mixing of the decoded Dolby E audio, so you are certain to start out with silent channels.

Creating a Dolby Pro Logic Mix from Discrete 5.1 Audio

This example illustrates how you can decode and mix a Dolby Pro Logic mix from a source with discrete 5.1 audio channels into your output to make a left/right stereo pair for Pro Logic compatibility.

```
...
<Source identifier="1">
  <File location="\\share\path\DolbyE_5.1 audio program.mov"/>
```

```
<!-- Configuration uses audio mapping from a Dolby E encoded 5.1 program
in source channels 1 and 2: source channels 1-6 are ordered Left, Center,
Left surround, Right, LFE, Right surround -->
  <Mix source="1 2" target="1 2" level="0" phase="0°" />
  <DolbyE channels="1 2" program="5.1">
    <!-- Mix Left (1) > Stereo Left (1) -->
    <Mix source="1" target="1" phase="0°" />
    <!-- Mix Right (4) > Stereo Right (2) -->
    <Mix source="4" target="2" phase="0°" />
    <!-- Mix Center (2) > Stereo Left & Right (2)at -3dB -->
    <Mix source="2" target="1 2" level="0.707107" phase="0°" />
    <!-- Mix Left Surround (3) > Stereo Left (1) at -1.2 dB and phase shift
by 90 deg-->
    <Mix source="3" target="1" level="0.87178" phase="90°"/>
    <!-- Mix Left Surround (3) > Stereo Right (2) at -6.2 dB and phase
shift by 90 deg-->
    <Mix source="3" target="2" level="0.489898" phase="90°"/>
    <!-- Mix Right Surround (6) > Stereo Left (1) at -6.2 dB and phase
shift by -90 deg-->
    <Mix source="6" target="1" level="0.489898" phase="-90°"/>
    <!-- Mix Right Surround (6) > Stereo Right (2) at -1.2 dB and phase
shift by -90 deg-->
    <Mix source="6" target="2" level="0.87178" phase="-90°"/>
  </DolbyE>
</Source>...
```

The DolbyE element identifies the program type, and the channels it is on in the input.

Now, we can mix the decoded 6 channels

```
Track 1: 0L
Track 2: 0C
Track 3: 0Ls
Track 4: 0R
Track 5: 0LFE
Track 6: 0Rs
```

into our output.

(where Ls and Rs are phase-shifted 90°).

Note: Remember that the first Mix in the File drops the decibel level to 0, in preparation for the mixing of the decoded Dolby E audio, so you are certain to start out with silent channels.

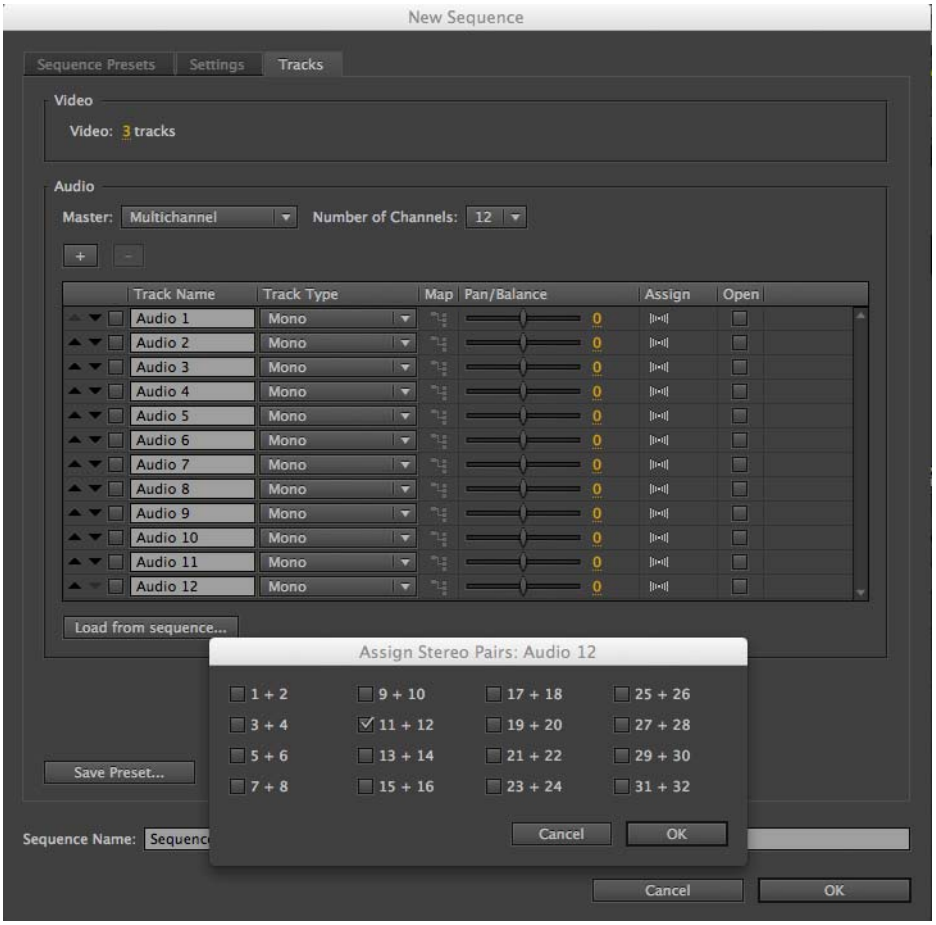
Setting Up Audio Tracks in Premiere / FCP for Multi-track Audio Mapping

Post Producer supports audio mapping from a Premiere or Final Cut sequence. When working with multiple audio tracks in the Premiere or Final Cut editors, audio mapping may be required to avoid unintentional mixing or summing of audio tracks when conforming XMEML, which can lead to audio levels in the output that are higher than intended, or distorting.

In Premiere, if you are working with more than 1 stereo track, the sequence must be set up as a Multichannel audio track, with as many Mono channels as needed to accommodate the audio.

See the New Sequence > Tracks tab, below, where the Master set to Multichannel, with the number of channels as needed in multiples of 2—with Track Type set to Mono.

Figure 2. New Sequence > Tracks Tab



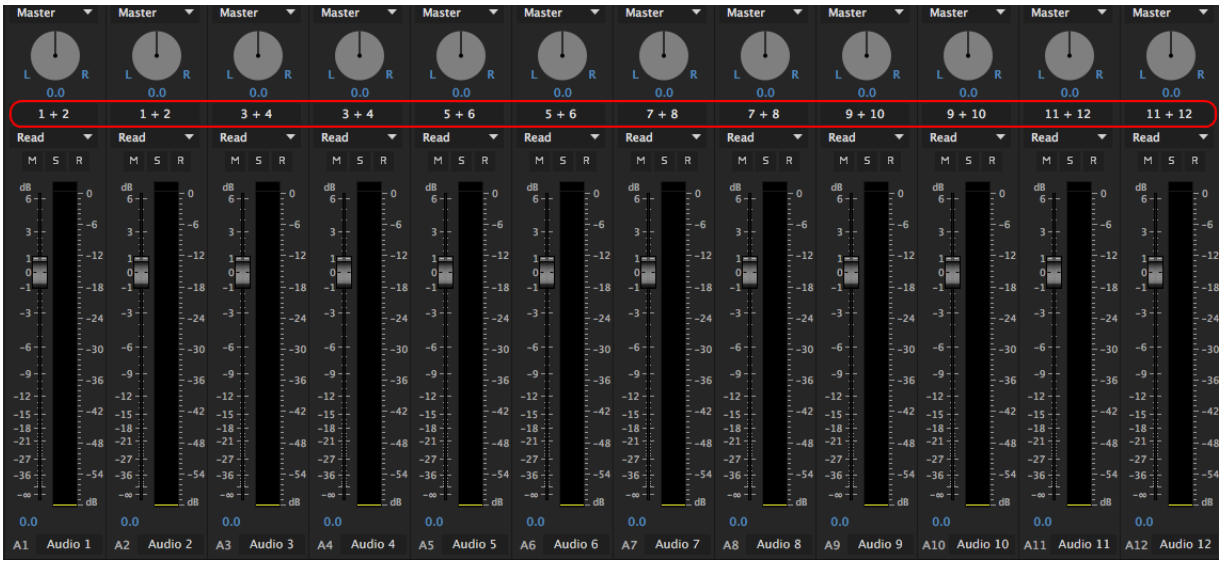
By default, the assignment of each channel is to tracks 1+2. If the audio is intended to be transcoded in Vantage as discreet channels, the assignments for audio channels

greater than 1 and 2 need to be reassigned. Click the Assign button for each track and de-select the default assignment of 1 + 2, and change it to match the output.

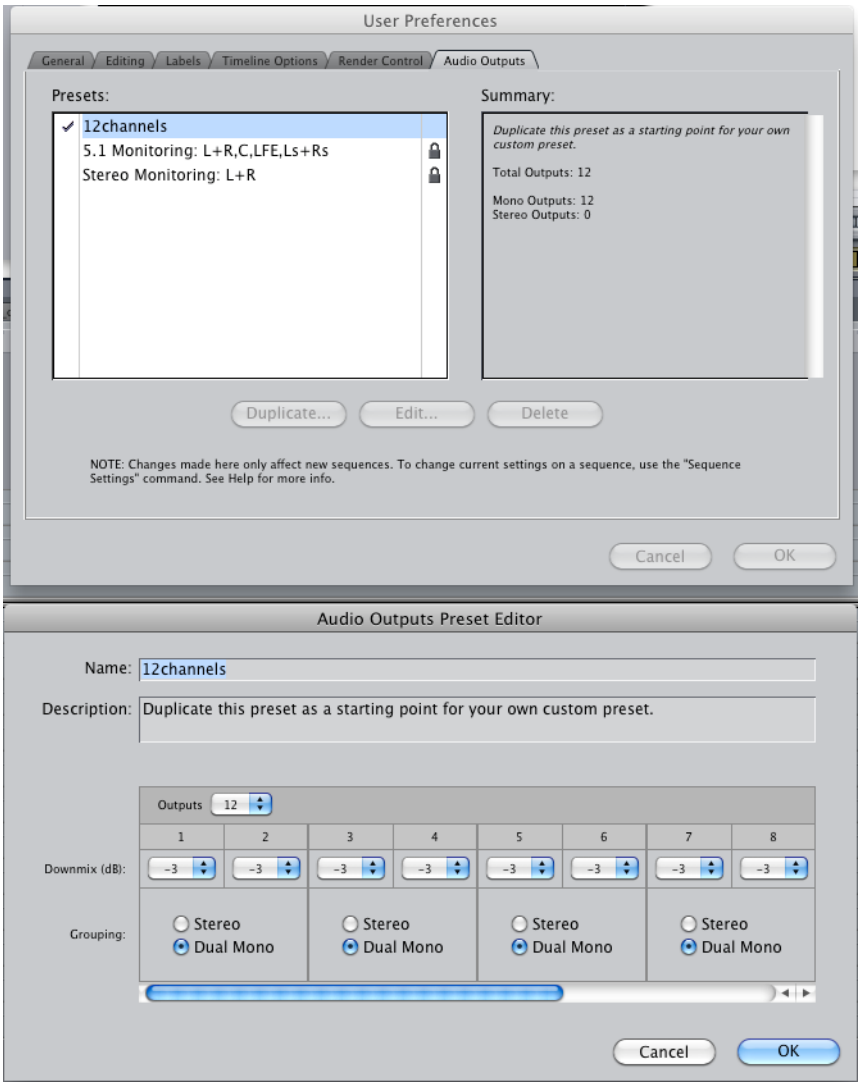
Note: Note that the assignment assumes stereo pairs. The tracks are mono, so Audio 1 and Audio 2 both are assigned to 1+2, and so on for Audio 3 and 4 both to 3 + 4, and so on for the amount of source tacks.

Ultimately, the Premiere Audio Mixer for this sequence should look like the mixer shown below. Each track has an assignment button, and they are assigned to successive stereo output in sets of two. An imported sequence may not look like this, in which case, you must create and configure a new sequence that can handle multiple outputs.

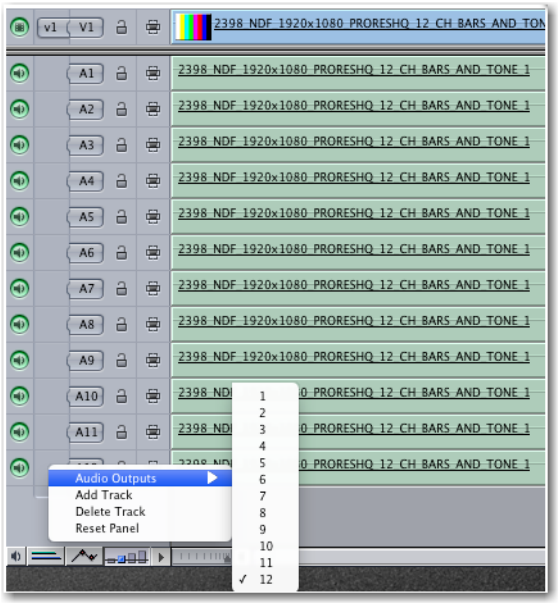
Figure 3. Premiere Audio Mixer



In Final Cut, a sequence can be changed to use multiple audio channels. First, the Audio Outputs User Preferences must be set up for multichannel audio, as shown below.



Then, an existing sequence can be changed to use all the audio tracks, as shown here.



The Final Cut Pro 7 composer will use the audio mapping configuration from the XMEML to set up Mix sources and targets for the CML.

Converting Stereo to Dolby E Encoded Audio

This topic illustrates a set of Mix elements, showing how you can synthesize a Dolby E encoded audio 5.1program into your output from a left/right stereo audio pair. This mix configuration basically reverses the algorithm applied in *Creating a Left/Right Downmix for Pro Logic Compatibility from Compressed Dolby E Audio*.

```
...
< Mix source= "1" target= "1" level= "1.0" phase= "0°” />
< Mix source= "2" target= "2" level= "1.0" phase= "0°” />
< Mix source= "1" target= "3" level= "0.5" phase= "0°" />
< Mix source= "2" target= "3" level= "0.5" phase= "0°" />
< Mix source= "1" target= "4" level= "0.7071" phase= "0°" />
< Mix source= "2" target= "4" level= "0.7071" phase= "0°" />
< Mix source= "1" target= "5" level= "0.8718" phase= "90°" />
< Mix source= "2" target= "5" level= "0.4819" phase= "90°" />
< Mix source= "1" target= "6" level= "0.4819" phase= "-90°" />
< Mix source= "2" target= "6" level= "0.8717" phase= "-90°" />
```

Ad Insertion

This chapter provides examples of Post Producer ad insertion applications.

■ BlackArrow SCTE-35 Ad Insertion Workflow

Note: All of the examples in this guide are complete compositions. To test them, you can copy and paste the example into a text editor. Change the references to the media files you are supplying, and save the file as XML. Then, submit it to a suitable Post Producer workflow.

A library of composition examples and media generated by the composition are provided to illustrate various features of Post Producer. To access these examples, go to the www.telestream.net Web site and log in as an authorized user.

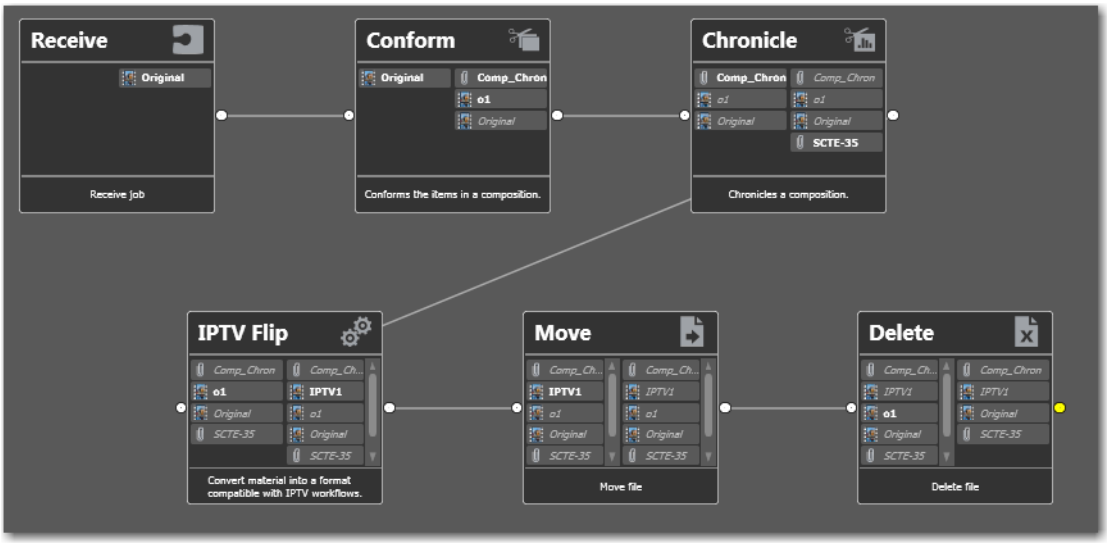
Click on the Post Producer link and select the CML examples tab to view each CML example, which includes the CML file, the exported workflow it can be processed with, source media, and a sample proxy video clip that was produced from it.

BlackArrow SCTE-35 Ad Insertion Workflow

This prototypical workflow ingests a Composition file, which is which is processed by the Conform action configured to generate an As Run CML file. The As Run CML is processed by a Chronicle action to create an SCTE-35 compatible file, for delivery to a BlackArrow ad insertion system.

The output is transcoded into Manzanita format, and moved to a production server.

Figure 4. BlackArrow SCTE-35 Ad Insertion Workflow



This workflow implements the following actions to perform these tasks:

Receive—The Receive action starts jobs when you submit a composition file for processing. The Receive action is used so that you can submit jobs from other workflows, programs, or systems using the Vantage SDK. If this type of submission is not required, you can replace this with a Watch action.

Conform—The Conform action processes the ingested CML file, generating an MPEG4 file from the MPEG video with AAC audio. It is also configured to create an As Run CML file, for use in Black Arrow SCTE-35 ad insertion systems.

Chronicle—The Chronicle action uses the incoming As Run CML file to create an SCTE-35 file. The action is configured to write the file to a Black Arrow folder for pickup by the Black Arrow system.

IPTV Flip—The IPTV Flip action wraps the MPEG4 media in a Manzanita wrapper, for use in IPTV media processing workflows.

Move—The Move action moves the file to an appropriate production server.

Delete—After the Move action completes, the Delete action deletes the mezzanine MPEG4 file generated by the Conform action.

Miscellaneous Applications

This chapter provides examples of compositions and workflows that are used in a wide range of Post Producer applications.

- Simple Conforming Workflow
- Agility Compose and Conform Workflow
- Submitting Jobs with Workorders
- Using Variables in Conform Workflows
- Adding Titles
- Adding a Content Advisory

Note: All of the examples in this guide are complete compositions. To test them, you can copy and paste the example into a text editor. Change the references to the media files you are supplying, and save the file as XML. Then, submit it to a suitable Post Producer workflow.

A library of composition examples and media generated by the composition are provided to illustrate various features of Post Producer. To access these examples, go to the www.telestream.net Web site and log in as an authorized user.

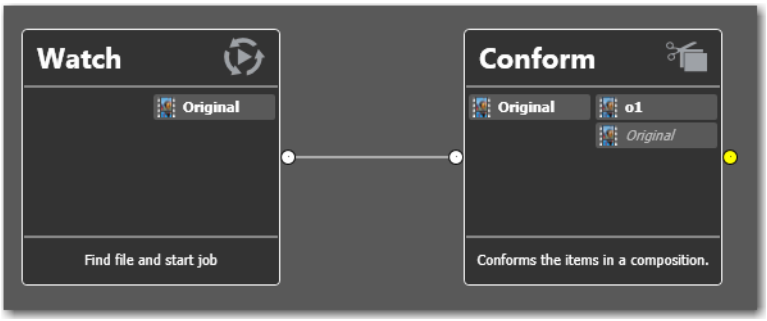
Click on the Post Producer link and select the CML examples tab to view each CML example, which includes the CML file, the exported workflow it can be processed with, source media, and a sample proxy video clip that was produced from it.

Simple Conforming Workflow

This workflow is a basic Post Producer conform workflow, where you submit a composition file for encoding.

You can use this basic workflow as the basis of all other conforming workflows; you add and configure other actions to create a workflow that meets your operational requirements.

Figure 5. Basic Post Producer Conforming Workflow



This workflow utilizes the following actions to perform these tasks:

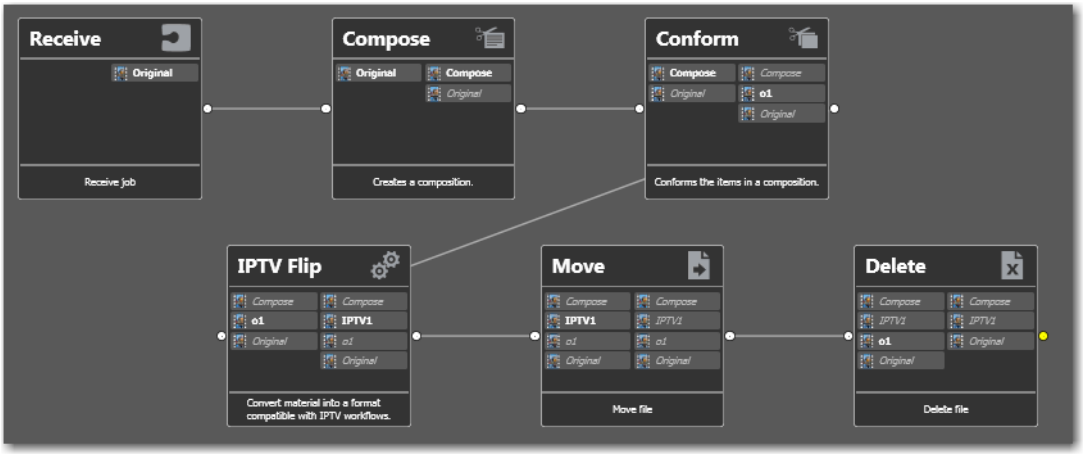
Watch—The Watch action starts jobs when you submit a composition file for processing. The Watch action can be configured to watch a wide variety of systems for files; commonly a conforming workflow would monitor a Windows computer or share for CML files. Under the File Match Pattern, you could specify *.cml | *.xml to only pick up files with these extensions. You can replace Watch with a Receive action, so that you can submit jobs from other workflows, programs, or systems using the Vantage SDK.

Conform—The Conform action processes the CML file, generating an MPEG, QuickTime, or TIFO file from six different supported video formats and three audio formats (see *Post Producer and Related Formats* in the *Post Producer Developer's Guide*). If you require your output in other formats, just add a Flip, IPTV VOD, or Multiscreen Flip action after the Conform action to encode the output into the required format.

Agility Compose and Conform Workflow

This prototypical workflow ingests an Agility AN2 file and converts it to CML, which is processed by the Conform action. The output is transcoded into Manzanita format, and moved to a production server.

Figure 6. Compose and Conform Workflow Diagram



This workflow utilizes the following actions to perform these tasks:

Receive—The Receive action starts jobs when you submit an AN2 file for processing. The Receive action is used to submit jobs from other workflows, or programs using the Vantage SDK. If this type of submission is not required, you can replace this with a Watch action.

Compose—The Compose action automatically converts the AN2 file (or other media descriptor files, such as TSEDL) into a CML file for processing by the Conform action. File names are unchanged, so the Edit service that processes the CML file must have access to the input media files specified in the AN2 file.

Conform—The Conform action processes the auto-generated CML file, from the Compose action, generating an MPEG4 file from the MPEG video with AAC audio.

IPTV Flip—The IPTV Flip action wraps the MPEG4 media in a Manzanita wrapper.

Move—The Move action moves the file to an appropriate production server.

Delete—After the Move action completes, the Delete action deletes the mezzanine MPEG4 file generated by the Conform action.

Submitting Jobs with Workorders

This example illustrates how you can submit multiple jobs to a workflow, at the same time. (For an introduction to batch processing jobs using workorders, see *Batch Processing Jobs with Workorders* in the *Post Producer Developer's Guide*).

When using workorders, you need:

- A Workorder-based Post Producer workflow (workorders can be processed in any workflow that starts with a Workorder action—the example here focuses on Post Producer of course.)
- One or more CML files to use processing jobs
- A schema to define the workorder format
- A workorder file with one or more jobs that matches the schema
- Media for processing by the jobs you submit.

Sample Composition

This composition renders a title on video, in various languages. The same baseline media is used in every job. Only the title text changes. It is identified in the CML as `$welcome_overlay`.

```
<?xml version="1.0" encoding="utf-8"?>
<Composition xmlns="Telestream.Soa.Facility.Playlist">
  <Source identifier="1">
    <File location="\\share\PostProducer\Source\1_A2_Show_ONLY_NO-
GFX2.mov" />
  </Source>
  <Sequence layer="0">
    <Segment>
      <Title align="head" adjust="edge" fill="none" layer="2"
duration="00:00:04.00" offset="00:00:01.000" font="Helvetica" size="50pt"
style="italic" weight="bold"
        foreground-color="bisque" background-color="transparent"
wrap="false" horizontal-align="left" vertical-align="middle"
overflow="overflow" layout="stretch">
       <Area top="70%" left="20%" bottom="90%" right="80%" />
       <Shadow color="black" softness="10%" vertical-offset="2%"
horizontal-offset="2%" />
<!-- This variable (welcome-overlay) is resolved from a column in the
workorder, which is used in the workflow to apply the text using the Title
element -->
     {$welcome_overlay}
     </Title>
     <Image align="head" adjust="body" fill="none" layer="1"
location="\\share\PostProducer\Source\frame-000000.png" frames="132"
duration="00:00:00.000" layout="stretch">
     </Image>
     <Video align="head" adjust="edge" fill="none" source="1" layer="0">
       <Head>
```

```
        <Edit time="00:00:00.000" />
      </Head>
      <Tail>
        <Edit time="00:00:07.000" />
      </Tail>
    </Video>
  </Segment>
 </Sequence>
</Composition>
```

In workorder applications, your compositions and media are typically stored in folders that are not the target of any workflow origin action. Instead, you identify the composition(s) by a fully-qualified path, in each job in the workorder.

Depending on the application, you can also specify one or more common media files in the CML (by fully-qualified path) or you can use a variable, and supply the unique file name of the media in the job, along with any other variables you need to conform the media.

When this CML is processed by the conform action, the variable is replaced by the text in the third column of each job in the workorder file submitted.

Sample Workorder File

title_from_csv,CML_source,overlay_from_csv

```
Dutch,D:\CML\Lower Third With Text.cml,welkom op IBC
English,D:\CML\Lower Third With Text.cml,Welcome to IBC
Spanish,D:\CML\Lower Third With Text.cml,Bienvenido a IBC
Italian,D:\CML\Lower Third With Text.cml,Benvenuti a IBC
French,D:\CML\Lower Third With Text.cml,Bienvenue a IBC
German,D:\CML\Lower Third With Text.cml,Herzlich Willkommen auf
der IBC
```

Using Variables in Conform Workflows

In Post Producer workflows, it is standard-procedure to submit a CML file (composition)—instead of media—to a Conform workflow. The media, instead, is referenced inside the CML and the Conform action identifies it and ingests it using this method. Thus, there is no opportunity to analyze or otherwise process the media file prior to the Conform action.

In this novel approach, the media is submitted directly, much like any other transcoding workflow. Now, we can use an Analyze action (or other methods) to obtain the values we need. For example, video height and width, and frame rate.

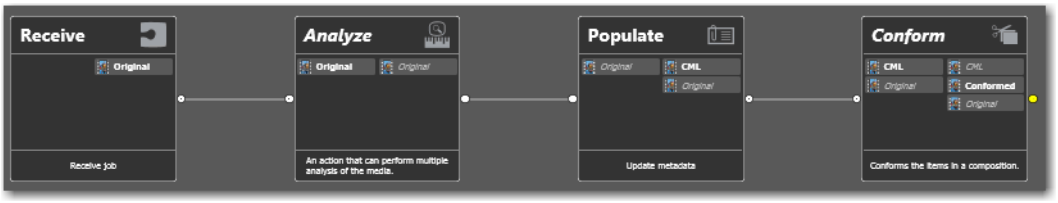
How do we ingest the CML then? The CML is ingested using the Populate action. And, the media is referenced by nickname, not a fully-qualified path in the CML.

Note: The Populate action identifies the file to ingest as a fully-qualified path, limiting its use. For more flexibility in ingesting a media file in this same scenario, use the Associate action with the Media Files option. This allows you to specify the file to ingest by using a filtering value in the Accept Pattern control.

In this example, we need to know the frame size and rate of the media so that it can be processed correctly.

This workflow shows you how you can obtain run-time values from media being utilized in CML.

Figure 7. Workflow to Examine Media Before Conforming via CML



The key to success in this workflow is revealed in this prototype composition, where the media is referred to using the *Original* nickname.

```
<<?xml version="1.0" encoding="utf-8"?>
<Composition name="" version="1.0" created="2014-02-12T18:41:16.1973932-
05:00" xmlns="Telestream.Soa.Facility.Playlist">
  <Source identifier="0" timecode="ltc">
    <File location="{$#Original}" />
  </Source>
  <Sequence>
    <Segment>
      <Video source="0" />
    </Segment>
  </Sequence>
</Composition>
```

This workflow utilizes the following actions to perform these tasks:

Receive—The Receive action starts jobs when you manually submit a file for processing. It is assigned the nickname *Original*. (It could just as effectively be a Watch action). In this case, we submit the media file for processing instead of the CML.

Analyze—The Analyze action is configured to extract the frame size and frame rate, and assign the values to three variables: Video Width, Video Height, and Video Framerate.

Populate—The Populate action is configured with the Item to File option, which enables you to select a file and assign it a nickname (*CML*, in this case), making it available to the Conform action.

Conform—The Conform action processes the CML file, generating an MPEG, QuickTime, or TIFO file from six different supported video formats and three audio formats (see *Post Producer and Related Formats* in the *Post Producer Developer's Guide*). The main media file is referenced with a nickname in the MCL, *Original*, which is already present in the workflow.

Adding Titles

Titles are a frequent element of many promos. These examples show you some typical applications of titles you can adapt to your own requirements.

Adding a Basic, Static Title

This example illustrates how to set the area exactly where you want it displayed, using the Area element, set off the left edge 10%, slightly taller than the font for good measure. For this example, the background rectangle of the text (not the Area—just the text rendering rectangle) is set to blue so it stands out.

```
<?xml version="1.0" encoding="utf-8"?>
<Composition xmlns="Telestream.Soa.Facility.Playlist">
<!-- Basic Title DUR=NA, AR=16x9, res. 1920x1080 -->
<!-- Input: 1080i -->
<!-- Output: 1080i x264 -->
<!-- Conforming Workflow: 1080 + proxy -->
  <Source identifier="1">
    <File location="\\share\path\1_A2_Show_ONLY_NO-GFX2.mov"/>
  </Source>
  <Sequence layer="0">
    <Segment>
      <Title align="head" adjust="edge" fill="none" layer="1"
duration="00:00:006.00" font="Helvetica" size="50pt" style="italic"
weight="bold" foreground-color="bisque" background-color="blue"
wrap="false" horizontal-align="center" vertical-align="middle"
overflow="overflow" layout="none">
        <Area top="10%" left="20%" bottom="60px" right="80%" />
        <Shadow color="gold" softness="10%" vertical-offset="6%"
horizontal-offset="6%" />
Post Producer Titles
      </Title>
      <Video align="head" adjust="edge" fill="none" source="1" layer="0" />
      </Segment>
    </Sequence>
<Composition>
```

Sliding a Title On or Off Screen

This example illustrates how to set the title to an offscreen value (using a negative percent value), and then move the title onscreen, using a head/body/tail Translation. Also note the use of the motion-blur to smooth the motion.

```
<?xml version="1.0" encoding="utf-8"?>
<Composition xmlns="Telestream.Soa.Facility.Playlist">
<!-- Up Next Promo DUR=1 min, AR=16x9, res. 1920x1080, DolbyE 5.1+2 -->
<!-- All PNG files: 600 x 420 -->
<!-- Input: 1080i -->
<!-- Output: 1080i x264 -->
  <Source identifier="1">
```

```
    <File location="\\share\path\1_A2_Show_ONLY_NO-GFX2.mov" />
  </Source>
  <Sequence layer="0">
    <Segment>
      <Title align="head" adjust="edge" fill="none" layer="2"
duration="00:00:006.00" font="Helvetica" size="50pt" style="italic"
weight="bold" foreground-color="bisque" background-color="blue"
wrap="false" horizontal-align="left" vertical-align="middle"
overflow="overflow" layout="stretch">
      <Area top="0%" left="20%" bottom="90%" right="80%" />
      <Shadow color="gold" softness="10%" vertical-offset="6%" horizontal-
offset="6%" />
Post Producer Titles
    <Head>
      <Opacity level="100%"/>
      <Translation x="00%" y="-20%"/>
      <Fade duration="00:00:02.000" motion-blur="3" />
    </Head>
    <Body>
      <Translation x="0%" y="50%"/>
    </Body>
   </Title>
      <Video align="head" adjust="edge" fill="none" source="1" layer="0">
        <Head>
          <Edit time="00:00:00.000" />
        </Head>
        <Tail>
          <Edit time="00:00:07.000" />
        </Tail>
      </Video>
    </Segment>
  </Sequence>
<Composition>
```

Adding a Content Advisory

You add a content advisory (an Advisory element) to a segment to provide USTV, MPAA, CELR, or CFLR V-chip encoding to a segment, and optionally provide a graphic on your video, as shown below.

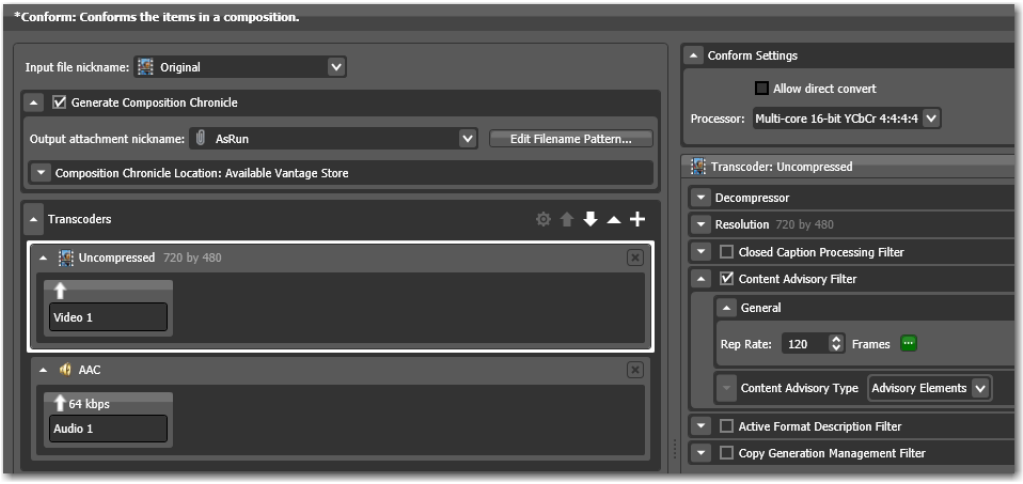
Figure 8. Typical Content Advisory Graphic Overlay

When using the USTV rating system, Post Producer allows you to use default icons, as shown below. The icon displayed is determined by the rating you specify using the *rating* attribute. You can override the default icons by supplying your own, with a *location* attribute. When using other rating systems, you must supply your own icons.

Figure 9. Typical Advisory Image for USTV.

When you add a content advisory, you also need to enable the Content Advisory filter in the Transcoder section of the Conform action, so that the rating information you've configured in the Advisory element is inserted properly into the VANC.

Figure 10. Enabling the Content Advisory Filter in the Conform Action



Example

This example, creates a promo for a movie with a USTV rating of TV-14, FV. It uses the default icon for the rating supplied, and fades in and displays it in the upper left corner for 5 seconds.

```
<?xml version="1.0" encoding="utf-8"?>
<Composition xmlns="Telestream.Soa.Facility.Playlist">
<!-- Up Next Promo DUR=1 min, AR=16x9, res. 1920x1080, DolbyE 5.1+2 -->
<!-- All PNG files: 600 x 420 -->
<!-- Input: 1080i -->
<!-- Output: 1080i x264 -->
<!-- Conforming Workflow: 1080 VOD -->
  <Source identifier="1">
    <File location="\\<share>\<path>\My_TV_14_S_Show_Promo.mov" />
  </Source>
  <Sequence layer="1">
    <Segment>
      <Advisory align="head" adjust="body" fill="none" layer="1"
duration="00:00:05.000" type="USTV" rating="TV-14 FV">
        <Head>
          <Fade duration="00:00:02.000" />
        </Head>
        <Body>
          <Translation x="5%" y="5%" />
        </Body>
      </Advisory>
    </Segment>
  </Sequence>
<Composition>
```

Because the default *layer* is 0, a layer attribute should be added to the Advisory. To display the icon on top of all other visual material, it should be the highest numbered of all the material in the segment. For the same reason, you need to add a *duration*, so that the advisory logo displays for the time you specify, in the format HH:MM:SS.SSS.

You can supply a single rating value, or multiple rating values, by separating each value in the string with a space. For example, `"TV-14 FV"` represents *Parent Strongly Cautioned* + *Fantasy Violence*. Post Producer displays the proper icon for your rating. If it is not a logical combination, no icon is displayed.

Yes, we should list what we do support: