Deluxe Media

Title: **CFF File Creation: Collection of Assets and Transcoding** v1

W.I. #: N/A Yet

Date: March 26, 2014

1. Purpose

The purpose of this work instruction is to inform **Authors** how to gather assets and complete transcoding of video and audio content in preparation for muxing.

The set of assets to collect are:

Video and Audio Assets

i. Prores – For client FOX, collected from IQC (Incoming QC dept.)
ii. BDCMF – For client Lionsgate, extract from Blu-ray disc, or get from Studio

Chapter Assets

iii. Chapter Assets – Get from client or extract from source video using timecode information from either video compression log or CEA QC.

Subtitles, AVI Scripts and Content Traveler XML Assets

iv. Subtitle - Collect from Subtitling dept. (they'll provide a subtitle file based on the HD or BD release aspect ratio that users send them)
v. AVI Scripts and Content Traveler XML – User generated with Video Source Editor tool

Metadata and Required/Optional Images

Metadata information (assets) and required and optional images are created using the **CFF Metadata Generator** tool, eventually placed in the applicable CFF Production Compliant Folders once the folders are created (see step 5.1 below). Because of the extent of the metadata gathering process, gathering metadata information is documented in its own work instruction document titled, "CFF File Creation: Getting Metadata Information," as the CFF file creation step *preceding* collection of assets and transcoding. Please see the document, "CFF File Creation: Getting Metadata Information," for more information.

Note that steps may vary between clients.

2. Application

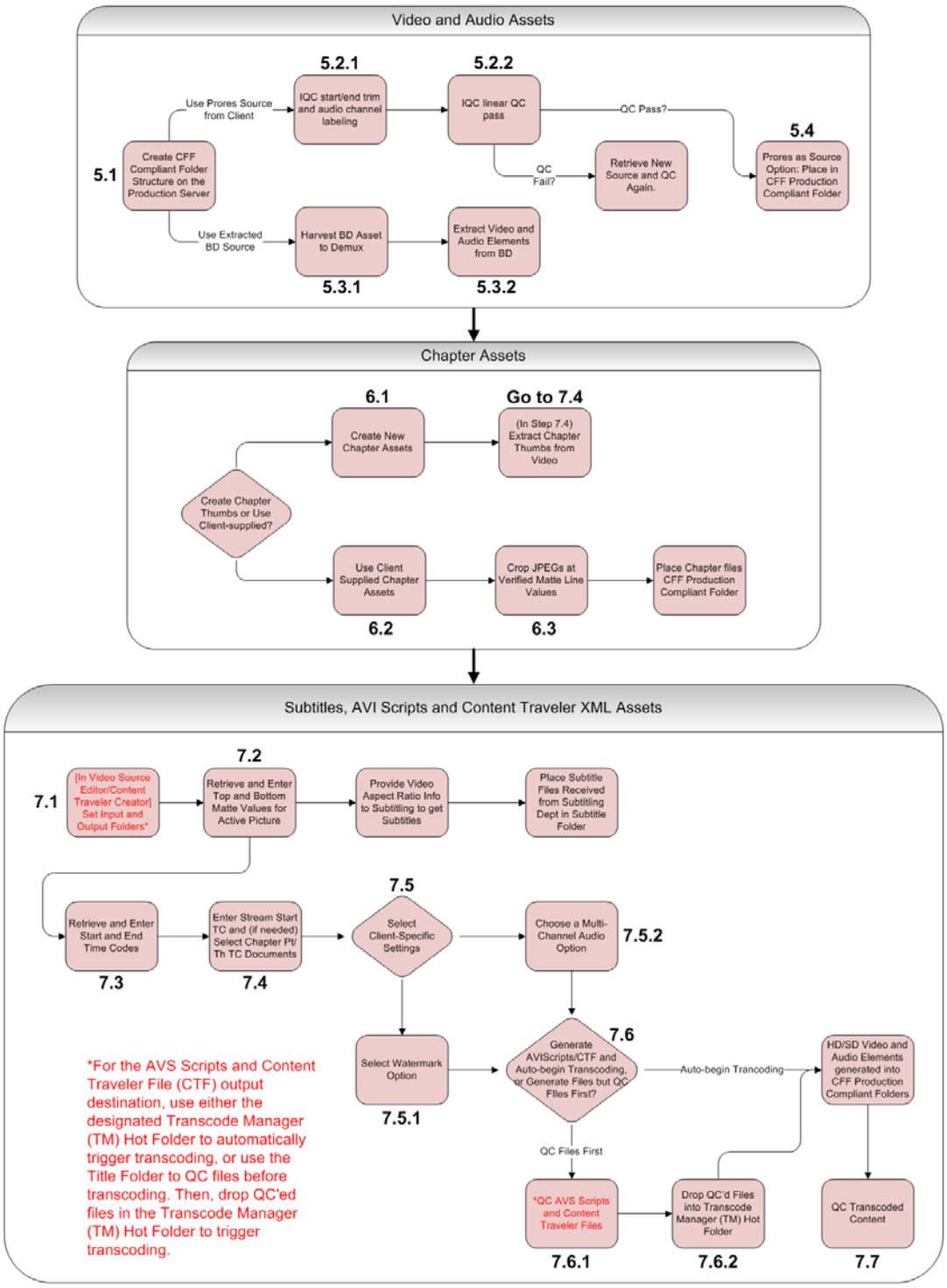
This work instruction applies to the second of five steps in the UltraViolet CFF (Common File Format) file creation process.

3. Process Owner(s)

If this document seems incorrect/outdated, please contact the below person for updates:

Role (BU & Dept.)	**Contact Person**
Technical Writer, Applications Development	Aaron Pillar (818-565-3893)
POD Leader, DDS Burbank 4 BD	Tom Lai
Director of Global Quality Assurance, Global QA	Justine Mannino

4. Flow Chart: Gathering of Assets in Three Parts



5. Setting Up Productions Folders and Collecting Video and Audio Assets

5.1. Project Folders Setup: Create CFF Compliant Folder Structure on Prod

For the title you're working on, on the production server create a folder with the film name, and then in that folder create a CFF compliant folder structure as seen in the example below. It is critical all folder structures and source files are not renamed for the automation processes to work.

00_Source
01_Video
02_Audio
03_Subtitle
04_RequiredMetadata
05_OptionalMetadata
06_RequiredImages
07_OptionalImages
08_ChapterThumbnails
09_WarningCard
10_Output
11_Verifier
12_MuxingScript
13_Others

NOTE: Usually you can find a pre-made Folder Template to use. Currently, templates are located (for example), at these locations:

- \\10.1.17.37\cff\UltraViolet\FOX_Wave2_Folder_Template
- \\10.1.17.37\CFF\ULTRAVIOLET\LIONSGATE_FOLDER TEMPLATE

5.2. Prores as Source Option: IQC Processing

The client will provide a prores file.

5.2.1. File Editing

IQC will trim the start and end of the file, as well as label the audio channels.

5.2.2. File QC

IQC will conduct a linear QC pass of the edited file. If it fails, a new source is needed. If it passes, the file will be placed on the Xsan server (IQC_FS01 or IQC_FS02), ready for retrieval by authors. See section 5.4 below.

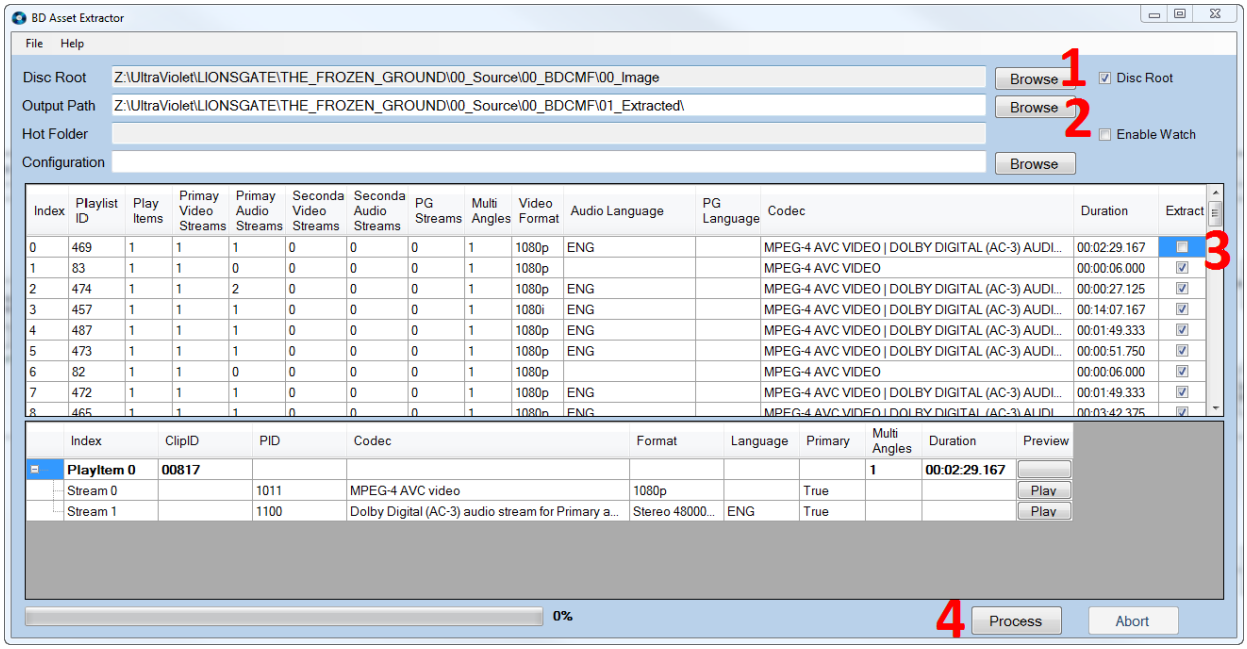
5.3.BD as Source Option

5.3.1.Harvest BD Asset to Demux

Make sure the application AnyDVD is installed on your computer (consult your supervisor for info on this), so you can access protected BD discs. Make sure the application Process Monitor is running on your computer and that its filters are set to capture data only from PowerDVD. Play the physical BD in Cyberlink PowerDVD Player and in Process Monitor take note of the feature playlist ID. This is the ID you'll select to extract in BD Asset Extractor below.

5.3.2.Extract Video and Audio Elements from BD

With a BD as source (either a disc or an image), from the CFF servers launch the BD Asset Extractor (currently located at \\10.1.17.37\cff\UltraViolet\TOOLS\BDAssetExtractor). On the tool's interface, follow the steps below.



5.3.3.Browse and select either the disc or disc image you want to extract the data from.

5.3.4.Browse and select the Output Path for the extracted data to land:

UltraViolet\Client\Title\00_Source\00_BDCMF\01_Extracted

5.3.5.Select the streams you want to extract (you can right-click then Select All to select all streams at once).

5.3.6.Click the Process button to begin the extraction process.

5.4. Prores as Source Option: Place Prores in CFF Production Compliant Folder

IQC will place the edited and QC'ed prores on the Xsan server (IQC_FS01 or IQC_FS02). Collect the feature prores you'll be using for muxing and place it in 00_Source folder you just created on the production server.

Example: 00_Source\01_mez\00_Video

6. Collecting Chapter Assets

Either clients will provide you with chapter images as source files or you'll have to create them yourself. Select 6.1 or 6.2 below depending on which workflow applies to your situation.

6.1. Create New Chapter Assets

If you have to create chapter thumbnails and you don't already have the required time code information, either access the video compression log file or contact CEA QC and retrieve both the chapter point time codes and the chapter thumbnail time codes for the film you're working on. Then, save the chapter point time codes into one Notepad document, and the chapter thumbnail time codes into another Notepad document, at these location:

UltraViolet\Client\Film_Title\08_ChapterThumbnails\chapStops.txt

UltraViolet\Client\Film_Title\08_ChapterThumbnails\chapThumbs.txt

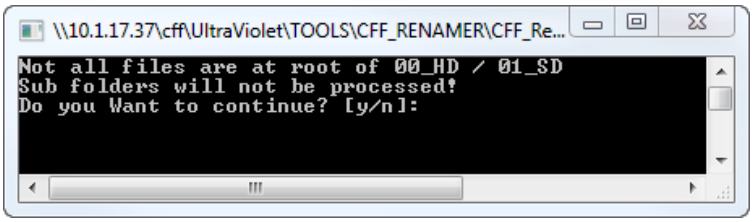
Generation of chapter assets will continue later in the CFF creation process. For this workflow, skip the rest of chapter 6, and continue with chapter 7, step 7.4 of this document.

6.2. Use Client Supplied Chapter Assets

If the client has already provided chapter thumbnails, they now need to be converted to the .jpg file format (even if they're already jpegs) to ensure no header information was lost when the Coordinator downloaded the images. They will also be given a CFF production compliant name.

6.2.1. Go to and open the prod folder UltraViolet\TOOLS (current location is \\10.1.17.37\cff\UltraViolet\TOOLS\CFF_RENAMER). Make sure the source chapter files are in the 00_HD and 01_SD folders in the ChapterThumbnail folder inside the CFF Production Compliant folder you created for the title you're working on (UltraViolet\Client\Film_Title\08_ChapterThumbnails).

6.2.2. Drag and drop the title folder (for example: \\10.1.17.37\cff\UltraViolet\LIONSGATE\PULP_FICTION) onto the CFF_Renamer.exe executable (icon). The application will begin to launch with a publication security window asking if you trust this publisher. Click "yes." The application will open with a yes or no question (see below). Type "y" and the files will be converted and renamed.

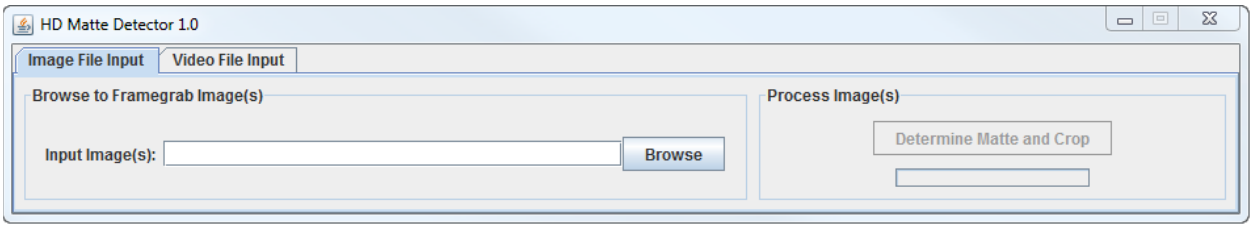


6.2.3. Ensure Thumbnails Match Blu-Ray Release

Locate the supplied Blu-ray check-disc for the title you're working on. Compare the check-disc chapter images with the chapter images you generated and make sure they are identical. If they are not identical, inform your supervisor, fix any incorrect time code data that may have been used, then repeat the thumbnail generation process until the generated images and the check disc images all match.

6.3. Crop JPEGs at Verified Matte Line Values

Launch the executable Jar File HD Matte Detector application (currently located at \\10.1.17.37\cff\UltraViolet\TOOLS\HDMatteDetector).



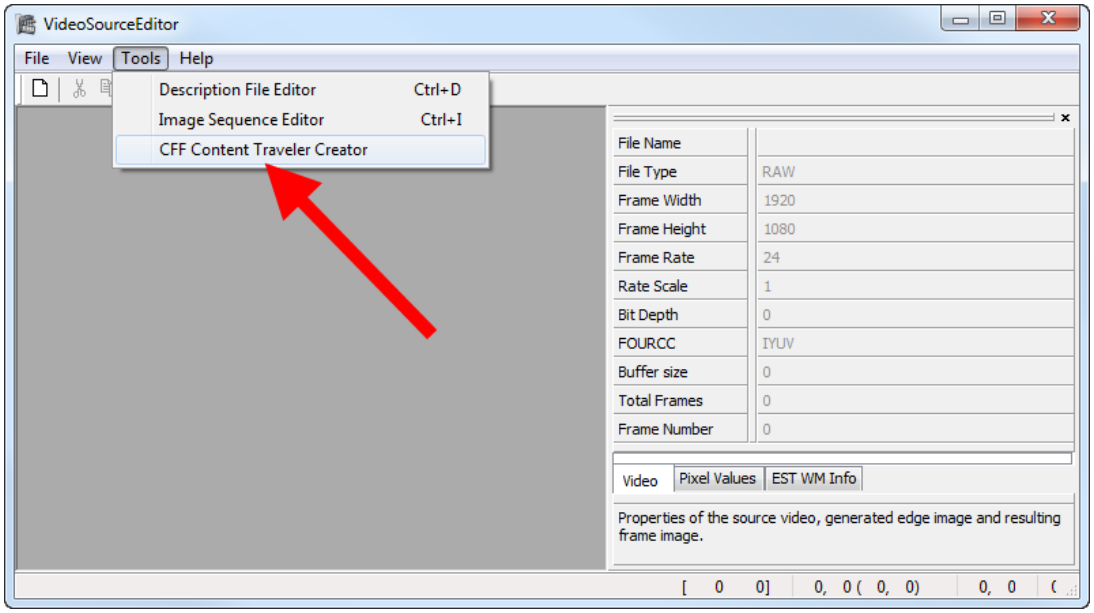
In the 08_ChapterThumbnails folder for the title you're working on, select the 00_HD folder and drag and drop it into the Input Image(s) field. Then click the Determine Matte and Crop button in the Process Image(s) section at the right.

Once processing has finished, a folder called _CroppedImages will appear in the 00_HD folder.

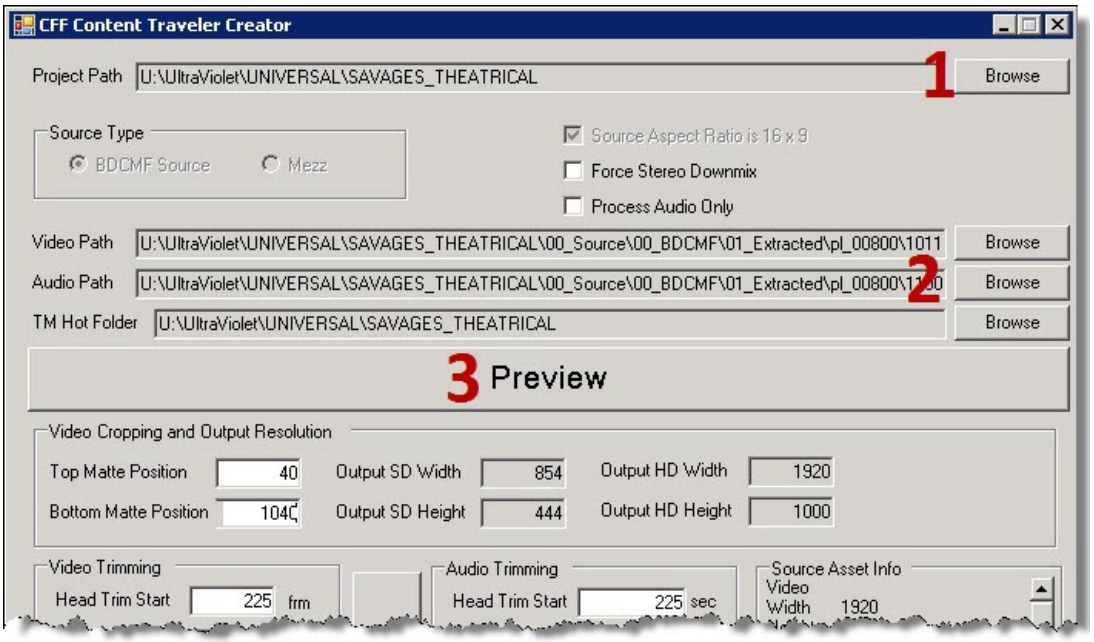
6.3.1. Remove all original chapter pics in 00_HD and 01_SD and copy the new pics into *both* folders.

7. Collecting Subtitle, AVI Script, and Content Traveler XML Assets

Launch the Video Source Editor (currently located at \\10.1.17.37\cff\UltraViolet\TOOLS\VideoSourceEditor\1.4.10) and in the Tools menu select the CFF Content Traveler Creator option.



7.1.Set Input and Output Folders



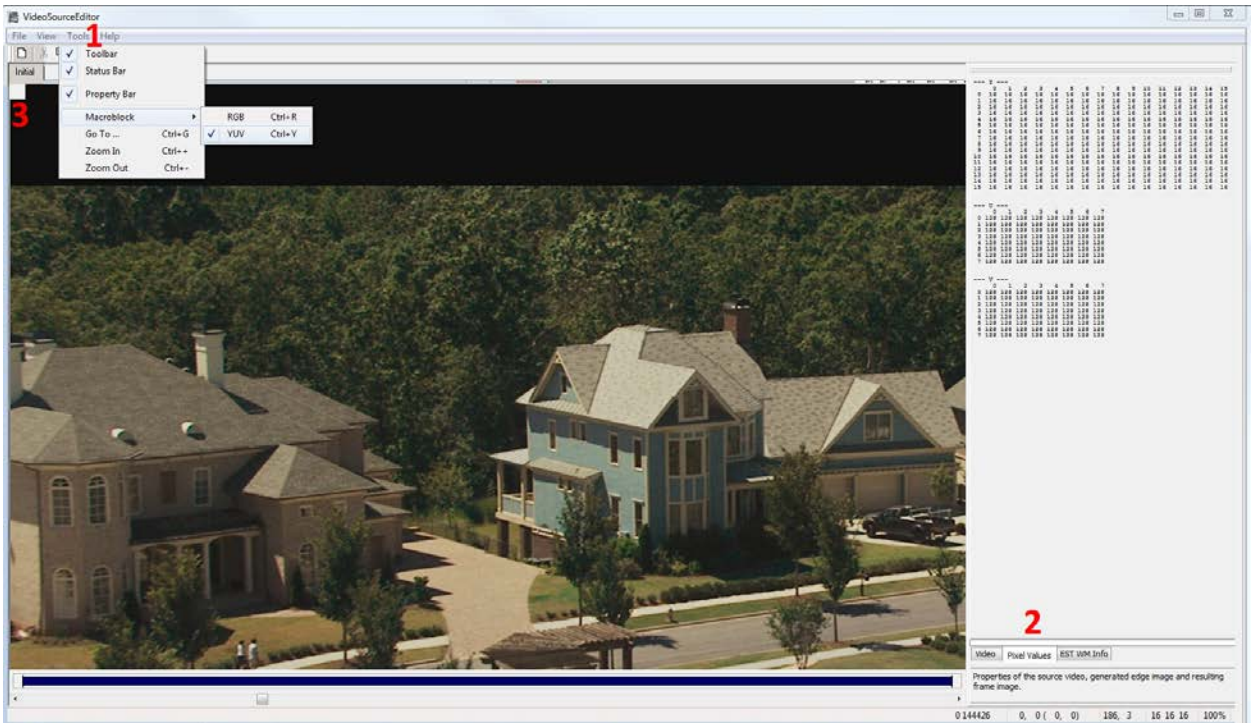
7.1.1. Browse, locate, and select the **Project Path**.

7.1.2. Browse, locate, and select the **Video**, **Audio**, and **TM** (Transcode Manager) **Hot Folder** paths.

Note: For the Content Traveler File (CTF) output destination, use either the designated Transcode Manager (TM) Hot Folder to automatically trigger transcoding, or use the Title Folder for QC of CTF before transcoding. Then, drop QC'ed CTF file in the Transcode Manager (TM) Hot Folder to trigger transcoding.

7.1.3. Click the **Preview** button to open the **Video Source Editor Preview** window.

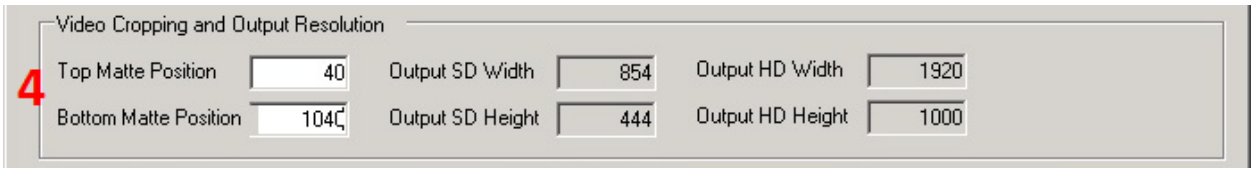
7.2. Retrieve and Enter Top and Bottom Matte Values for Active Picture



7.2.1. Go to the **View** menu, to the **Macroblock** item, and then check **YUV**.

7.2.2. Make sure the **Pixel Values** tab at the bottom right is selected.

7.2.3. Use keyboard arrow keys to navigate the onscreen gray block to identify the matte value.

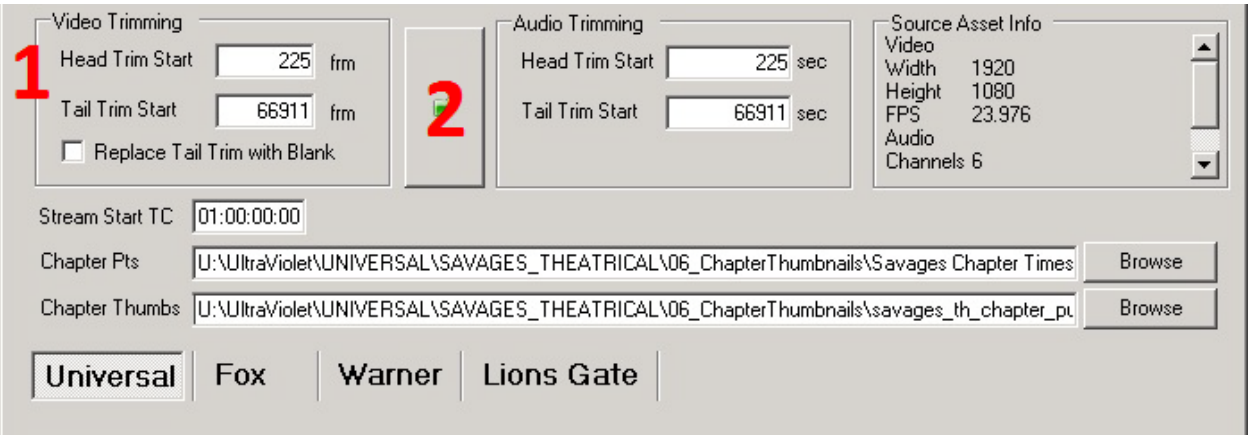


7.2.4. Enter matte values into **Video Cropping and Output Resolution** section of the **Content Traveler Creation** page.

7.2.5. Provide Video Aspect Ratio Information to the Subtitling Department to get subtitles.

7.2.6. Place subtitle files received from the subtitling department in the CFF production compliant folder (03_Subtitle).

7.3. Retrieve and Enter Start and End Time Codes



7.3.1. Start time: Find out the starting timecode of the pro res file (it is usually on the file name), and find out the actual starting timecode of the encoded video (from the video log file from compression), and find the difference in seconds between them, Then, times the result by 24. This will be your Head Trim Start. You can open the pro res file in quick time and on the bottom left where the time code is click on it and choose “Timecode in Non-Drop-Frame”. This will give you timecode which the video starts.

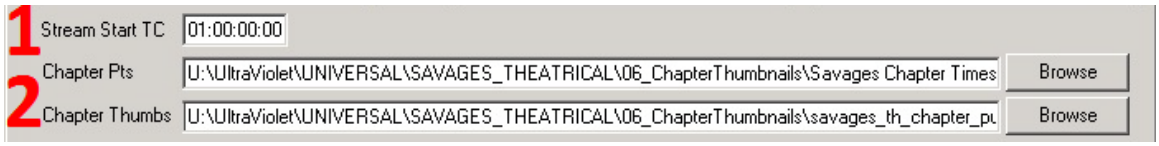
End Time: Find the first frame of black after the credit and add a couple more frames to accommodate fading audio. This will be your Tail Trim Start.

7.3.2. Click the copy button to duplicate the Head Trim Start and Tail Trim Start times to the Audio Trimming fields.

7.4. Enter Stream Start Timecode and (if needed) Select Chapter Point and Chapter Thumb Time Code Documents

7.4.1. Enter the **Stream Start TC** (timecode). It’s always 01:00:00:00.

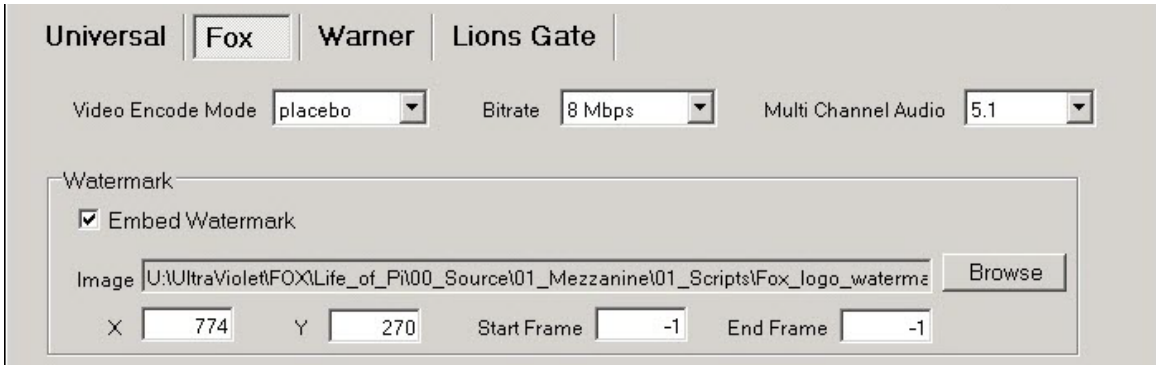
7.4.2. Browse and select **Chapter Pts.** and **Chapter Thumbs** .txt documents.



7.5.Select Client-Specific Settings

Select Client (click client-named tabs at bottom) and apply client-specific settings.

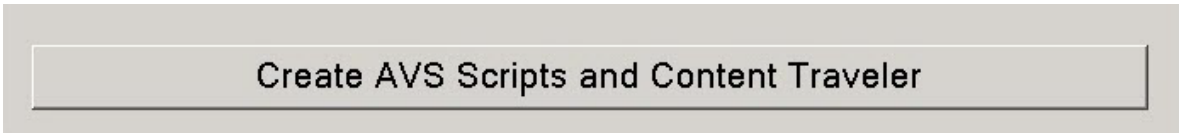
7.5.1.Select Watermark Option



For clients using a watermark file can be applied by dragging and dropping file from UltraViolet\Client\Title\00_Source\01_Mezzanine\01_Scripts folder into Image field.

7.5.2.Choose a Multi-Channel Options

7.6.Generate AVISynth Scripts and Auto-Begin Transcoding, or Generate Scripts but QC Files First

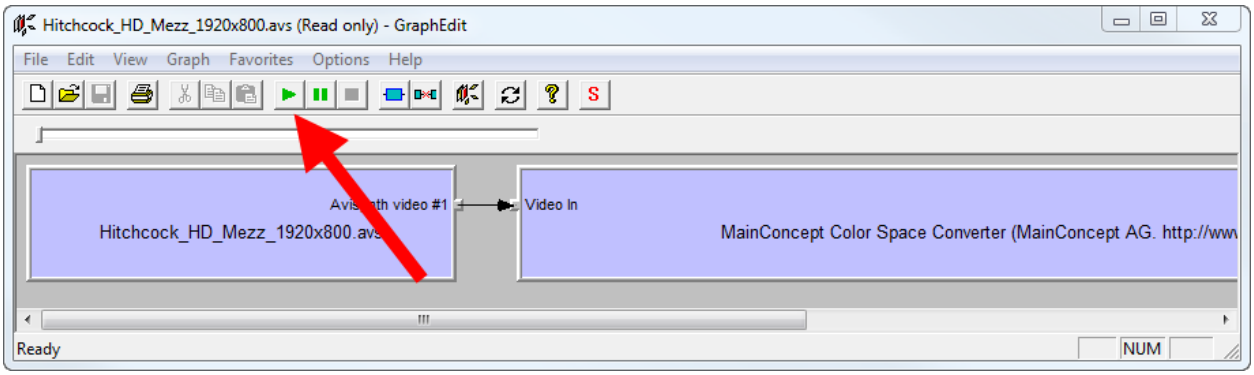


Click the **Create AVS Scripts and Content Traveler** button to create the file. Depending on the output folder you selected in step 7.1.2, files will either be generated into the Transcode Manager (TM) hot folder to automatically begin the transcoding process, or they will be generated into the CFF production compliant title folder for pre-transcode QC.

7.6.1. QC AVS Scripts and Content Traveler Files generated into the CFF production compliant title folder

AVS Script QC

Launch the application GraphEdit (currently located at \\10.1.17.37\cff\UltraViolet\TOOLS\GraphEdit) and drop the generated AVS file onto the application and click the play button.



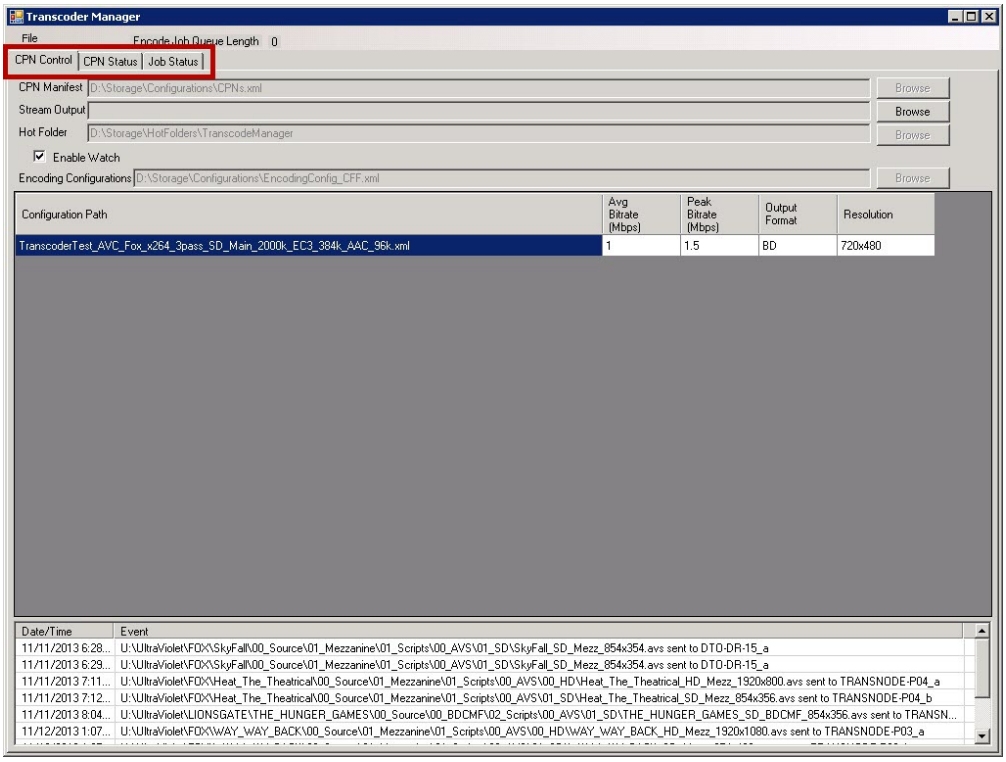
Do a 5-spot visual (and aural) check on the file (Beginning, Beginning/Middle, Middle, Middle/End, End).

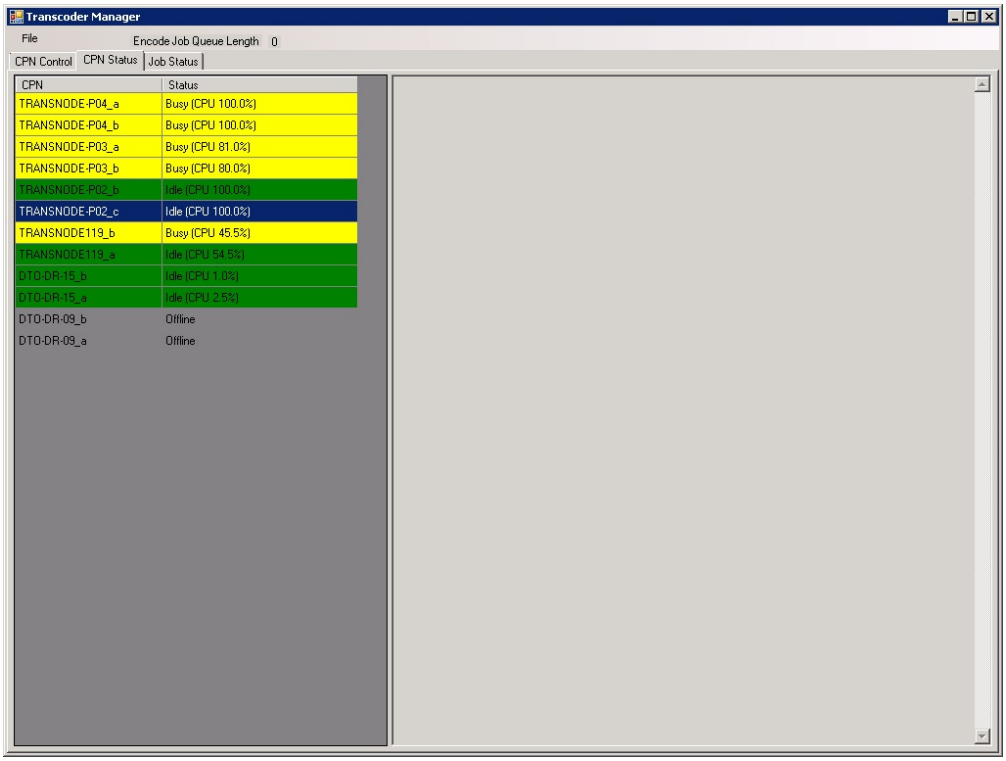
Content Traveler File QC

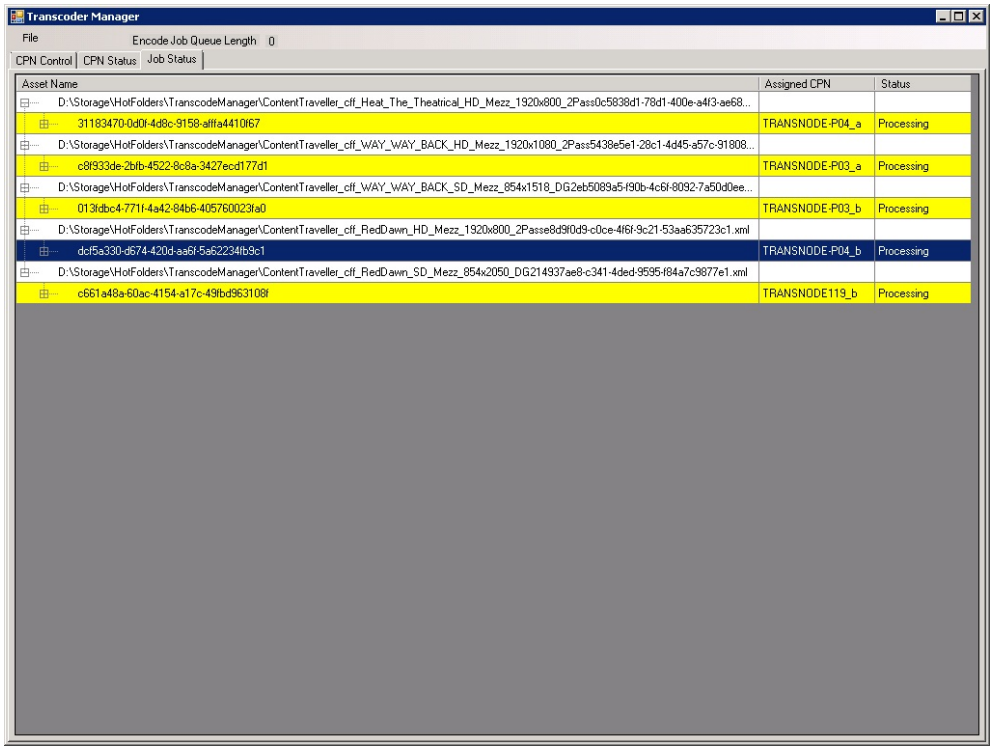
Follow checklist for QC.

7.6.2. Drop QC'd Files into the Designated Transcode Manager Hot Folder.

Once the **Content Traveler** is placed in the TM hot folder, the **Transcode Manager/BD Live Transcoder** automatically picks it up and, based on the available nodes, encodes the video source into HD and SD formats, and encodes the audio sources into 2.0, 5.1 or 7.1 channel configurations. Various progress parameters are available on three different **Transcode Manager** tabs, shown in the three screen shots below.


Transcoder Manager
File
Encode Job Queue Length 0
CPN Control
CPN Status
Job Status
CPN Manifest
D:\Storage\Configurations\CPNs.xml
Stream Output
Hot Folder
D:\Storage\HotFolders\TranscodeManager
Enable Watch
Encoding Configurations
D:\Storage\Configurations\EncodingConfig_CFF.xml
Browse
Configuration Path
Avg Bitrate (Mbps)
Peak Bitrate (Mbps)
Output Format
Resolution
TranscoderTest_AVC_Fox_x264_3pass_SD_Main_2000k_EC3_384k_AAC_96k.xml
1
1.5
BD
720x480
Date/Time
Event
11/11/2013 6:28... U:\UltraViolet\FOX\SkyFall\00_Source\01_Mezzanine\01_Scripts\00_AVS\01_SD\SkyFall_SD_Mezz_854x354.avs sent to DTO-DR-15_a
11/11/2013 6:29... U:\UltraViolet\FOX\SkyFall\00_Source\01_Mezzanine\01_Scripts\00_AVS\01_SD\SkyFall_SD_Mezz_854x354.avs sent to DTO-DR-15_a
11/11/2013 7:11... U:\UltraViolet\FOX\Heat_The_Theatrical\00_Source\01_Mezzanine\01_Scripts\00_AVS\00_HD\Heat_The_Theatrical_HD_Mezz_1920x800.avs sent to TRANSNODE-P04_a
11/11/2013 7:12... U:\UltraViolet\FOX\Heat_The_Theatrical\00_Source\01_Mezzanine\01_Scripts\00_AVS\01_SD\Heat_The_Theatrical_SD_Mezz_854x356.avs sent to TRANSNODE-P04_b
11/11/2013 8:04... U:\UltraViolet\LIONSGATE\THE_HUNGER_GAMES\00_Source\00_BDCMF\02_Scripts\00_AVS\01_SD\THE_HUNGER_GAMES_SD_BDCMF_854x356.avs sent to TRANSN...
11/12/2013 1:07... U:\UltraViolet\FOX\WAY_WAY_BACK\00_Source\01_Mezzanine\01_Scripts\00_AVS\00_HD\WAY_WAY_BACK_HD_Mezz_1920x1080.avs sent to TRANSNODE-P03_a


Transcoder Manager
File
Encode Job Queue Length 0
CPN Control
CPN Status
Job Status
CPN
Status
TRANSNODE-P04_a Busy (CPU 100.0%)
TRANSNODE-P04_b Busy (CPU 100.0%)
TRANSNODE-P03_a Busy (CPU 81.0%)
TRANSNODE-P03_b Busy (CPU 80.0%)
TRANSNODE-P02_b Idle (CPU 100.0%)
TRANSNODE-P02_c Idle (CPU 100.0%)
TRANSNODE119_b Busy (CPU 45.5%)
TRANSNODE119_a Idle (CPU 54.5%)
DTO-DR-15_b Idle (CPU 1.0%)
DTO-DR-15_a Idle (CPU 2.5%)
DTO-DR-09_b Offline
DTO-DR-09_a Offline



7.7.QC Transcoded Content

QC the transcoded content using GraphEdit and any other programs your department uses to watch video and listen to audio, which is all indicated in the department provided QC checklist.

This completes the work instructions for CFF File Creation: Collection of Assets and Transcoding.