



# Deluxe Media

Title: CFF File Creation: Muxing v1

W.I. #: N/A Yet

Date: March 27, 2014

## 1. Purpose

The purpose of this work instruction is to inform **Authors** how to create (mux) a UVU compliant disc image.

## 2. Application

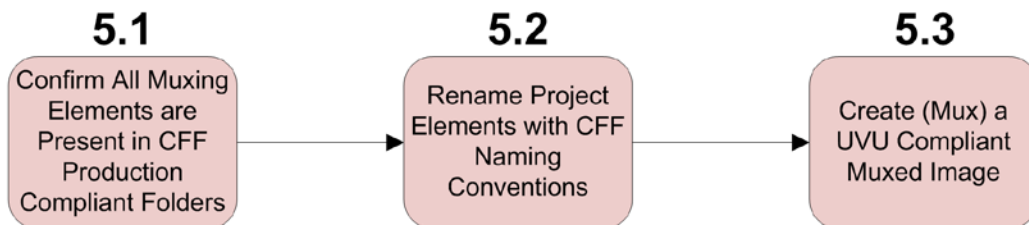
This work instruction applies to the third of five steps in the UltraViolet CFF (Common File Format) file creation process.

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If this document seems incorrect/outdated, please contact the below person for updates: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





## 5. Procedure Details

### 5.1. Confirm All Muxing Elements are Present in CFF Production Compliant Folders

Verify all muxing source files are in the proper folders:

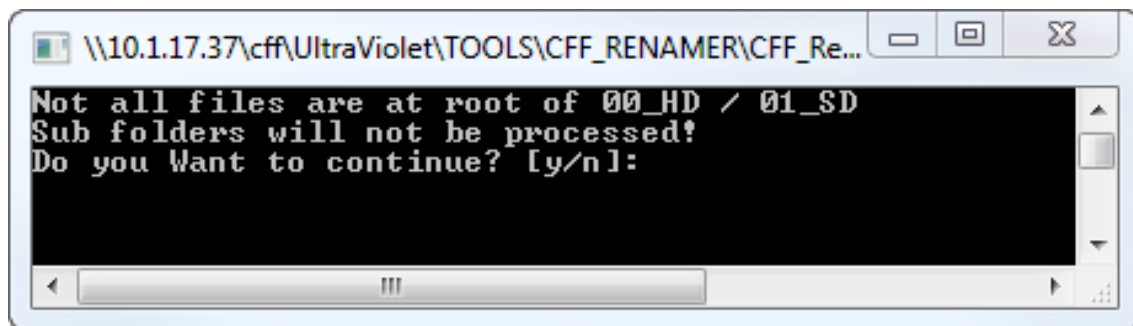
- Video
- Audio
- Subtitles (retrieve from Subtitling department if not already done so)
- Required and Optional Metadata
- Required and Optional Metadata images
- Chapter Assets
- Warning Cards

### 5.2. Rename Project Elements with CFF Naming Conventions

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.

Note: Files previously renamed using the CFF Renamer will not be adversely affected if run through the tool twice.



### 5.3. Create (Mux) a UVU Compliant Muxed Image

Once you have all your source elements, including required images, chapter thumbs, warning cards, and subtitles renamed (CFF compliant), you can make the final UVU output (either HD or SD... one at a time) using the UltraViolet Muxer UI.



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The screenshot shows the UltravioletMuxer application window. The interface includes a menu bar (File, Tools, Help), a toolbar with buttons for 'New Job', 'Start All', 'Add to Queue', 'Clone & Add to Queue', 'Show Queue', 'Show Script', and 'Activity Window'. The 'New (Drag'n Drop Project Folder)' field contains a file path, marked with a red '1'. Below this is a 'Tracks' table with columns for Type, Filename(s), Language, and Edit Segments. The table lists several tracks including Counselor\_FBI\_HD\_ENG\_45Secs\_Fox\_3PASS\_1437k.264, Counselor\_AP\_HD\_ENG\_45Secs\_Fox\_3PASS\_1045k.264, Counselor\_MPAA\_HD\_ENG\_5Secs\_Fox\_3PASS\_828k.264, Counselor\_HD\_Mezz\_1920x800\_3PASS\_7998k.264, and 4sec\_51ch\_384kbps\_Seg1.ec3. Below the tracks are buttons for 'Add Tracks', 'Remove Tracks', 'Clear Tracks', 'Import DFXPs', and 'Edit Track Groups'. The 'Settings' section includes 'Required Images Collection' and 'Optional Images Collection' fields, both with 'Load' and 'Clear' buttons, marked with a red '2'. There are also fields for 'Custom Moov Size' (marked with a red '3'), 'Custom Duration to Mux' (marked with a red '4'), and 'Subtitle Offset' (marked with a red '5'). The 'Profile' section has radio buttons for 'PD', 'SD', and 'HD', with 'HD' selected, marked with a red '6'. The 'Thumbnail Output Resolution' section has radio buttons for '480x270', '960x540', '1920x1080', 'Half Video Resolution', and 'Match Video Resolution', with 'Match Video Resolution' selected, marked with a red '7'. The 'Chapters' field contains a file path, marked with a red '8'. The 'Required Metadata' and 'Optional Metadata' fields have 'Browse...' buttons, marked with a red '9'. The 'Content ID', 'APID', and 'ALID' fields are present, with 'Version' dropdown set to '-', marked with a red '10'. The 'Container Version' field is set to 'US v1.0', marked with a red '11'. The 'Output' section includes 'Encrypted' radio buttons (marked with a red '13'), 'SHA-1', 'MD5', and 'Verify' checkboxes (marked with a red '14'), 'Stream Concatenation Output' field, and 'File' and 'Verifier Output' fields with 'Browse...' buttons (marked with a red '15').

5.3.1. In the Tracks area of the UltraViolet Muxer UI, to begin with, you can potentially drag and drop the whole project folder into the New (Drag'n Drop Project Folder) field, and all fields requiring file paths to required files will be automatically populated *if* you've placed all the correct files in the correct folders inside the project folder. If the tool finds discrepancies between what it's looking for (in the project folder you've placed in the New (Drag'n Drop Project Folder) field) and what it's expecting to find, various alert windows offering manual options to direct the tool how to access the proper files will appear. But if after dragging



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and dropping the project folder all file path fields successfully populate, in the Tracks field you'll see your video, audio, and additional content files automatically appear.

Below that field the row of buttons (Add Tracks, Remove Tracks, etc., including the blue up and down arrows at the right) allow you to adjust the files (add, delete, reorder, etc.) after field population. If you find reordering is necessary, consult additional materials provided by your supervisor or department regarding required file order.

5.3.2. The Load and Clear buttons to the right of the Required and Optional Images fields offer manual control if necessary. The Short Optional Metadata checkbox is to include (checked) or exclude (unchecked) optional metadata.

5.3.3. Leave unchecked.

5.3.4. Leave unchecked.

5.3.5. Set the Subtitle Offset (take client video start time and subtract warning card timing from it).

Example: 01:00:00:00 – 13 seconds of warning cards = 00:59:47:00.

5.3.6. Set the Profile.

5.3.7. Select the Thumbnail Output Resolution based on client requirement. Default is Match Video Resolution.

5.3.8. Buttons to manually control Chapter asset selection. If the Match Video Resolution option above is selected, then the images get auto-scaled accordingly.

5.3.9. Button to manually control Required and Optional Metadata XML. Load the Optional Metadata XML.

5.3.10. Content ID (CID), APID, and ALID fields are auto-populated.

5.3.11. At the right, users can select a Version option based on client requirements.

5.3.12. If not automatically populated enter the Container Version number (US v1.0).

5.3.13. In the Output section, make an encryption selection if that is requested (HD is one key per stream, SD is one for all).

5.3.14. At the right, select both the SHA-1, MD5, and Verify options.

5.3.15. Finally, if not automatically populated, direct the Stream Concatenation Output, File, and Verifier Output to the desired output folder.

5.3.16. Once all settings are complete, at the top of the window click the Add to Queue button.

5.3.17. Once job is added to the queue, click the Show Queue button.

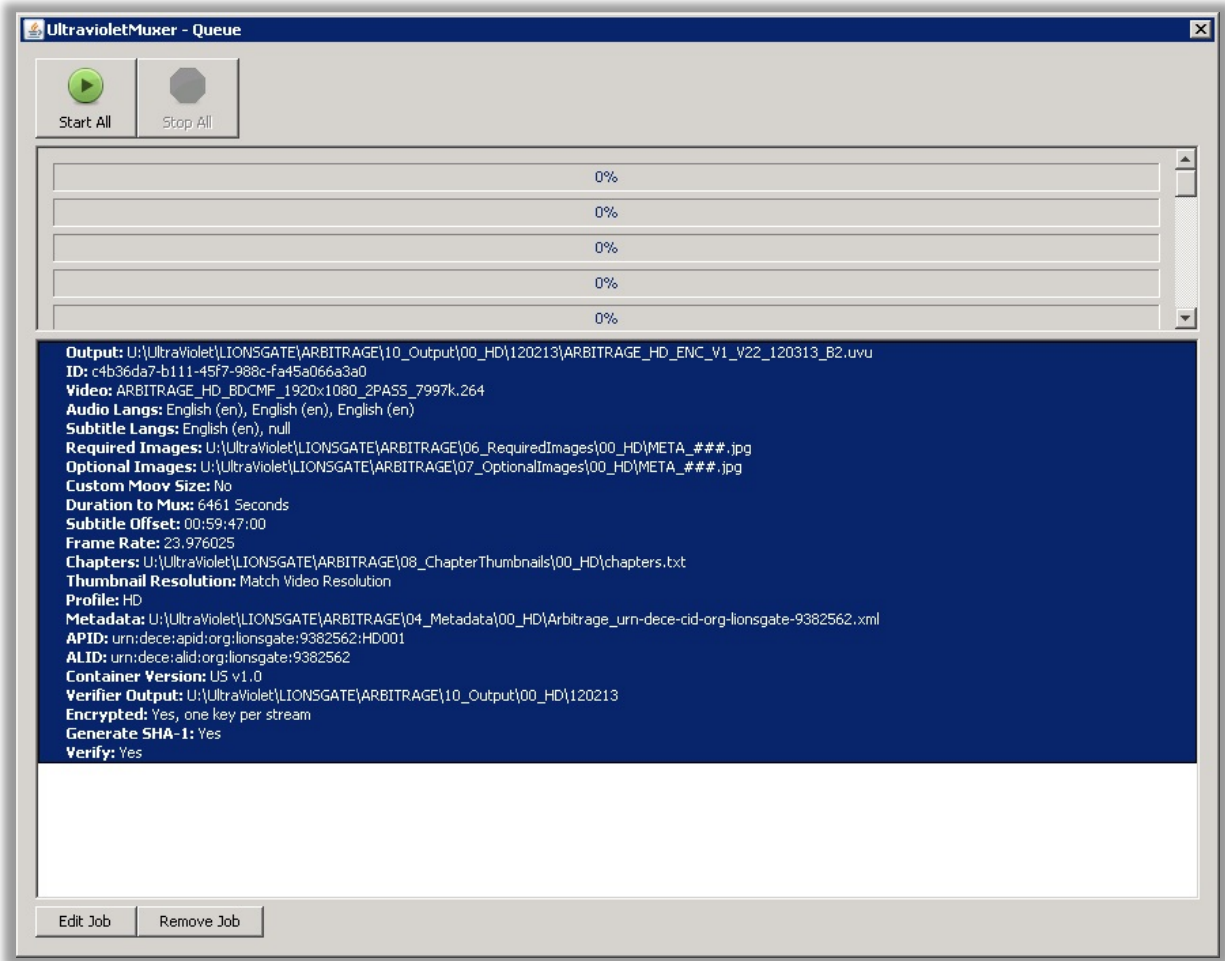


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At the top of the UltraViolet Muxer Queue window, click the Start All button.

Back on the UltraViolet Muxer UI, view the muxing activity by clicking the Activity Window button at the upper right (shows log).

During muxing, three processes occur:

- Muxing
- Generation of SHA-1
- Verification using third party Solekai Verifier, which certifies that files comply with UltraViolet specifications

This completes the work instructions for CFF File Creation: Muxing.