



## **Guidelines for Digital Cinema Source Material Delivery**

**Important:** This document, like the industry it serves, is subject to change without notice. Failure to provide 100% accurate data and/or deliver content conforming to this specification may result in inaccurate color reproduction, additional charges and may delay otherwise agreed upon project completion time(s).

QC of source material is not performed unless specifically requested.

### **Color and bit-depth information requirements**

All Images **MUST** be provided with Color Space, Gamma, Code Value Range (e.g. Full Range 0-1023 vs. Legal Range 64-940), bit-depth and file type information. Some valid examples would be:

- DCDM - 16 bit TIFF XYZ, Gamma 2.6, Full Range (Preferred format)
- 10 bit DPX - Rec-709 (ITU-R BT-709), Gamma 1.8, Legal Range (AKA Head)
- 10 bit DPX - Rec-709 (ITU-R BT-709), Gamma 2.2, Full Range
- HDCAM-SR - Rec-709 (ITU-R BT-709), Gamma 2.2, Full Range 4:4:4
- HDCAM-SR - P7v2, Gamma 2.4, Legal Range 4:2:2
- D5 - DCI-P3, Gamma 2.6, Full Range 4:2:2

### **NOTE:**

- Files in LOG (or any other custom) color space **MUST** be accompanied by the appropriate LUT (Autodesk 3dl, or DVS Clipster formatted) needed to convert the content to X'Y'Z'.
- If geometry conversions are required a reticule must be provided in a format matching that of the source material.

### **Supported Image (File based) formats:**

#### **TIFF**

- 3 Channel, interleaved, 16 bit files.
- Uncompressed, or LZW compressed (LZW compression valid only for delivery of between 1-192 frames)
- Big Endian
- Single Strip/One tile per image

#### **DPX/Cineon**

- 3 Channel, Interleaved RGB, 10 bit files.
- Big Endian

#### **J2C**

**QuickTime - NOTE:** Because there are several thousand codec and format combinations available, we cannot guarantee support for all QuickTime files. It is recommended you send a small test clip prior to delivering the final source material to ensure 100% compatibility.

## General Image File Requirements:

- 24fps
- File numbering scheme:
  1. 01:00:00:00 = 0086400.tif = "Picture Start" (8 second Academy leader) Reel 1
  2. 01:00:08:00 = 0086592.tif = program start (first frame of action) Reel 1
  3. 02:00:00:00 = 0172800.tif = "Picture Start" (8 second Academy leader) Reel 2
  4. 02:00:08:00 = 0172992.tif = program start (first frame of action) Reel 2
  5. 03:00:00:00 = 0259200.tif = "Picture Start" (8 second Academy leader) Reel 3
  6. 03:00:08:00 = 0259392.tif = program start (first frame of action) Reel 3And so on... (60 mins X 60 secs X 24 frames = 0086400)
- **Important Note:** Please pad filenames using leading zeroes, so that all filenames in a sequence are comprised of the same number of characters, as shown above.
- Each Pickup/Replacement shot file sequence must be delivered in a separate clearly labeled directory.
- File numbers for Pickup/Replacement shots must match respective OV file numbers. Failure to number files correctly and/or provide accurate, 24fps EDL information may result in additional editorial charges.
- Image must be provided with 8 second Academy leader, with 2pop **AND** tail pop matching the audio.
- Image size - **2K**:
  - 1.85/FLAT = 1998x1080
  - 1.85/SCOPE (for scope OAR trailers accompanying flat features) = 1998x836 (padded to 1998x1080)
  - 2.39/SCOPE = 2048x858
  - 2.39/FLAT (for flat OAR trailers accompanying scope features) = 1588x858 (padded to 2048x858)
- Image size - **4K**:
  - 1.85/FLAT = 3996x2160
  - 1.85/SCOPE (for scope OAR trailers accompanying flat features) = 3996x1672 (padded to 3996x2160)
  - 2.39/SCOPE = 4096x1716
  - 2.39/FLAT (for flat OAR trailers accompanying scope features) = 3176x1716 (padded to 4096x1716)

## Supported Image (Tape based) formats:

- Tape Format - 1080/24p HDCAM (SRW-5800), D5. 24p Digi-Beta can be used, but it is not recommended.
  - Note: Currently, Left and Right eye images must be supplied separately when delivered on tape. HDCAM Dual (4:2:2) Stream (created with SRW-5800 with HKSR-5803HQ and SRW-5100 with HKSR-510) tapes must be sent out for L/R eye separation.
- Image must be provided with 8 second Academy leader, with 2pop **AND** tail pop matching the audio.
- Image format
  - 1920 X 804 (2.39/SCOPE), 1488 X 804 (2.39/FLAT)
  - 1920 X 1038 (1.85/FLAT)
  - Tape based content will not be resized from HD to 2K unless requested. And when required, the appropriate LUT and Reticule (in the same format as the source to be resized) **MUST** be provided. Additional charges and delays may apply.

## IMPORTANT INFORMATION REGARDING 3D CONTENT!!!

Currently there is no standardized image size specification for 3D DCPs. If supplying 3D content that will be accompanying 3D feature (trailers, advertisements, etc...), please check to ensure your content conforms to the specifications of the feature.

- 3D Image size – **1920**:
- 1.85/FLAT = 1920x1038
- 2.39/SCOPE = 1920x804
- 2.39/FLAT (for flat OAR trailers accompanying flat features) = 1488x804 (padded to 1920x804)

3D Image size - **2K**:

- 1.85/FLAT = 1998x1080
- 1.85/SCOPE (for scope OAR trailers accompanying flat features) = 1998x836 (padded to 1998x1080)
- 2.39/SCOPE = 2048x858
- 2.39/FLAT (for flat OAR trailers accompanying flat features) = 1588x858 (padded to 2048x858)

Left and Right Eye, file based image sequences **MUST** be delivered in separate directories.

### Audio

- Files **MUST** be provided in reels matching the image (including 2pop and Tail pop).
- Stereo interleaved WAV files – channel config: (1) Left/Right, (2) Center/Sub, (3) Left surround/Right surround, (4) Left Rear Surround/Right Rear Surround, **OR** single channel (monaural) WAV files.
- 24 bit 48Khz @ 24 FPS (2000 samples per frame), Ref level = -20dBFS, Output level = 85dBc.
- Reels **MUST** be delivered with 8 seconds of pre-roll. 1<sup>st</sup> Modulation of 2 pop must land at exactly 6 seconds (288000 Samples). 2 pop must be exactly 1 frame (2000 Samples) in duration, and must be exactly 2 seconds (96000 samples) from the start of program.
- Pull-up audio of the reels before and after **MUST** be provided, and should not be longer than 1 second.
- If providing Audio on tape, Channel assignments must be clearly labeled.
- LFE channel audio should be low passed (e.g. ~24-48db roll-off above ~125-160Hz) applied to prevent unwanted frequency ranges from finding their way to exhibition locations that may not have low pass filters in-line.

### Subtitle XML files

- 2D Subtitle XML files **MUST** conform to the Texas Instruments DCinema Subtitle Specification V1.1 available at the link below:  
[http://www.deluxecd.com/dcinema/reference/ti\\_subtitling\\_spec\\_v1\\_1.pdf](http://www.deluxecd.com/dcinema/reference/ti_subtitling_spec_v1_1.pdf)
- 3D subtitle XML files (for use in 3D subtitle compositing) **MUST** conform to the SMPTE ST 428-7:2014 DCDM Subtitle specification. See [www.smpte.org](http://www.smpte.org).
- The Doremi Stereoscopic Subtitle XML Specification is also currently supported and available at the link below:  
[http://www.deluxecd.com/dcinema/reference/DCDM\\_StereoSubtitles\\_000474\\_v2\\_0.pdf](http://www.deluxecd.com/dcinema/reference/DCDM_StereoSubtitles_000474_v2_0.pdf)

## Electronic Content Delivery Methods

- Aspera
  - Point to Point – For content deliveries up to ~250GB (not to be used for full-feature DCDM deliveries)
  - Faspex – For content deliveries up to ~50GB
- TDC Transfer – For content deliveries up to ~10GB

### NOTES:

- Successful transfer to a Deluxe Technicolor location **DOES NOT** constitute an established connection to any other locations. First time electronic transfers must be arranged a minimum of 3 business days in advance.
- Excessive transfer times due to slow connection and/or download speeds may result in additional charges and delay otherwise previously agreed upon turnaround times.

## Physical Media

All media **MUST** be labeled, or be accompanied by a shipping list that clearly identifies the contents (including any associated file system information), project (security titles accepted) and contact information. Virus or erroneous file detection, improper packaging or labeling (or lack thereof) will result in rejection, and the asset will be returned to the point of origination. And excessive scanning or ingesting for non-project related activities may result in project delays and or additional charges.

- Files may be delivered on (in order of preference):
  - LTO-6, LTO-5, LTO-4, LTO-3 (Linux tar format, with blocking factor clearly specified on the label and/or insert).
    - NOTE: Tar-per-frame tapes take significantly longer to ingest and as a result, additional charges may be incurred when tapes are delivered in this manner.
  - HDD – EXT2, EXT3, HFS, NTFS (SATA/eSATA, Thunderbolt, USB3.0, FW800, FW400, USB2.0)
  - CD/DVD
- Tape Format - 1080/24p HDCAM-SRW, D5. 24p Digi-Beta can be used, but is not recommended for theatrical exhibition.
  - Note: Currently, Left and Right eye images must be supplied separately when delivered on tape. HDCAM Dual (4:2:2) Stream (created with SRW-5800 with HKSR-5803HQ and SRW-5100 with HKSR-510) must be sent out for L/R eye separation.
  - Excessive transfer times due to low speed media (transfer speeds < FW800) may result in an inability to make agreed upon deadlines and additional data charges.
  - Any revised files **MUST** be delivered on media labeled in such a way that all revisions are uniquely identifiable.
  - For first time content exchange between Deluxe Technicolor and an outside facility, it is recommended that a file transfer and compatibility test be performed prior to the mastering project start date.