



Larson Studios Production Workflows

Overview

This document describes overviews of various workflows for preparing the following media during and after shooting picture:

- Film
- Video
- Non-linear file-based

Distributing this Document to Intended Audiences

The purpose of this document is to ensure that the Pro Tools editor receives original source files containing usable metadata that was entered or captured during a shoot, and is therefore written for a broad range of audiences.

It is strongly recommended that the following parties read and understand this Document:

For film workflows:

- Production sound mixer
- Telecine operator
- Camera assistant
- Camera operator
- Avid editor
- ProTools editor

For all other workflows:

- Production sound mixer
- Avid editor
- Pro Tools editor

Terminology

This section provides a glossary of terms involving workflows that occur before files are delivered to Pro Tools editors.

General Terminology

The following terminology applies to all workflows.

Time Code

There are four types of time code, depending on your production:

Keycode Each frame of film stock is embedded during manufacturing with a unique identifying time code position known as *keycode*.

SMPTÉ Time Code Also known as LTC or linear time code. The generating clock of this time code can be based on the time of day or can be set to ascend beginning from a certain starting time of day.

Minutes:Seconds Time code based on minutes and seconds.

Wild; No time code. Most consumer digital video recorders do not have the ability to generate time code.

Production Sound Mixer

The production sound mixer uses a field recorder to record multichannel audio during a shoot, and later delivers those source files to one or more parties:

- Telecine operator (film workflow only)
- Avid editor
- Pro Tools editor

Film Terminology

The following terminology applies only to film workflows:

Shootlist

The shootlist is a document in which the camera assistant records each scene and take relative to

its keycode value on the film stock. It is later used by the telecine operator to synchronize the audio and video together.

Sound Log

The sound log is a document in which the production sound mixer records each scene and take relative to its beginning time code position.

Slate Operator and Clapboard Information

The slate operator holds and labels the slate (also known as a *clapboard*) for each new scene and take. At the start of each take, the slate operator claps the slate, which simultaneously captures the following information:

- The scene, take, and time code information is captured visually on film.
- The sound of the slate clapping is captured by the field recorder, which should be using the same time code as displayed on the slate.

The telecine operator uses all of the information above to synchronize used film stock to the recorded audio in order to create the telecine videotape.

Telecine and Telecine Videotape

The *Telecine* is a machine used to transfer film footage and synchronized audio to videotape (referred to as the *dailies*).

The telecine videotape contains the dailies. The SMPTE time code on the telecine videotape will be different from the time code recorded on location.

FLEx File

The FLEx file is a text file generated during a telecine session that relates film keycode, field recorder time code, and telecine videotape time code. When the telecine videotape is batch digitized in the Avid application, the information in the FLEx file is used to assign the original (location) time code to the resulting audio and video source files.

Film Workflow

This section describes the film workflow from shooting to the point where the Avid editor is ready for editing, and is intended for the following parties:

- Camera assistant
- Camera operator
- Production sound mixer
- Telecine operator
- Pro Tools editor

Overview of Film Workflow

The following describes an overview of the steps necessary to a film workflow:

- 1 Set up before shooting
- 2 Shoot
- 3 Telecine transfer
- 4 Batch digitize in Avid application

Following these steps ensures that time code metadata are preserved from the moment shooting begins to the final delivery of source files to the Pro Tools editor.

Setting Up Before Shooting

Before each day's shooting begins, the production sound mixer should decide on a unique name—preferably ascending by day—and enter that exact name in the Tape BEXT or iXML metadata field inside the Broadcast WAV file. For example, the production sound mixer might use *T001* for the first day's shooting, *T002* for the second day's shooting, and so forth.

Shooting

1. *Shooting proceeds as follows:*

- Film camera begins rolling.
- One or more field recorders begin recording. The production sound mixer has designated one or two channels as a *production sound mix*, which is a consolidation of one or more channels in each multichannel recording.

2. *During shooting, the following time code information*

is captured:

- The camera captures images to film, each frame of which is embedded during manufacturing with a unique identifying time code position known as *keycode*.
- One or more field recorders simultaneously make multichannel recordings that are embedded with SMPTE time code based on time of day (or *longitudinal time code*).

3. *During shooting, the following information is noted:*

- The camera assistant keeps a written record (called a *shootlist*) documenting each scene and take with a corresponding keycode position.
- The production sound mixer also keeps a written record (also called a *sound log*) documenting each scene and take with a corresponding time code position.

4. *The slate operator claps the slate to indicate the beginning of the take.*

The field recorder records the audio of the clap, and the film camera captures the following images:

- Scene and take number (written on the slate)
 - Exact moment the slate closes
 - Time code position of the slate closing
- 5 Shooting ends and the take is complete.

Telecine Transfer

When shooting is complete for the day, the following components are delivered to the telecine operator:

- Processed film stock
- Multichannel location audio
- Written shootlist and sound log

The telecine operator generates the *dailies* (a videotape containing the day's shots) by transferring the film and audio to a videotape. The shootlists will be used as a guide.

To use a telecine to create dailies:

1 Load film and audio into the telecine.

2 Enter the Tape name or Sound Roll name (whichever was used during the production) character for character into the telecine.

3 Using the camera assistant's shootlist, locate the film frame representing the first keycode position of the film in the shootlist (which should be just before the slate is clapped).

4 Locate the film to the first frame where the slate clap occurs, and note the time code position displayed on the slate.

5 Locate the audio to the exact time code position listed on the slate in the film frame (which lines up the audio with the film).

6 Play back the film and audio to test that they are synchronized. If they are not synchronized, make small manual adjustments as needed until the film and audio are synchronized.

7 Once the film and audio are properly synchronized, lock the film and audio in place.

8 Insert a blank videotape into the VTR connected to the telecine, and manually assign linear time code (LTC) information to the videotape.

9 Begin the telecine capture. During the telecine capture, the following occurs:

- The telecine begins capturing the synchronized film and audio to the videotape, with linear time code (LTC) being assigned to the videotape beginning from where you entered the start time code.
- A FLEx file is created, where scene and take information is automatically written and associated to the film keycode and telecine videotape time code relative to audio time code.

10 When the telecine transfer is complete, deliver the following to the Avid editor:

- Telecine videotape
- FLEx file
- Shootlist
- Sound log
- Location audio media

To ensure that metadata are preserved for

the Pro Tools editor, it is critical to enter the Tape name or Sound Roll name character for character. For example, if the metadata was T001 (with two zeroes), enter T001 with two zeroes—not T01 with one zero or T0001 with three zeroes.

Batch Digitizing the Telecine Videotape to Digital Files

This phase of the workflow begins after the Avid editor receives the following components from the telecine operator:

- Telecine videotape
- FLEx file
- Shootlist
- Sound log

In a film workflow, the Avid editor batch digitizes the telecine videotape to digital video and audio files in order to edit them.

To batch digitize a telecine videotape to digital source files:

1 *In the Avid application*, import all relevant FLEx files into Avid Log Exchange.

Avid Log Exchange displays a list of all scene and take combinations, with associated film keycode, audio time code, and relative videotape time code.

2 *In Avid Log Exchange*, select the items in the FLEx file that represent the scenes and takes you want to batch digitize from the videotape.

3 *Process* the selected scenes and takes in the FLEx file. Avid Log Exchange sends the selected items to the Avid application, where they are loaded into the Bin as offline media.

4 *In the Avid Bin*, select the items you want to capture.

5 *Load the telecine videotape* into the Avid, and begin the batch digitize.

The Avid automatically batch digitizes the scenes and takes selected in the Avid Bin, and uses the FLEx file to assign each of the digitized video and audio files with the time code information matching the original keycode and time code information from the shoot.

6 *When the batch digitize is complete, use the Avid application to edit audio and video as desired.*

7 *When you are finished editing, export the edited sequence as an AAF or OMF sequence so that it can be imported into Pro Tools.*

In some cases, you may also receive location audio from the production sound mixer. Any metadata required for matching (such as Tape name) should be visible in the undigitized clips

Video and Fully Non-Linear Workflows

This section describes both video and fully nonlinear workflows from shooting to the point where the Avid editor is ready for editing, and is intended for the following parties:

- Camera assistant
- Camera operator
- Production sound mixer
- Avid editor
- Pro Tools editor

Overview of Video and Fully Non-Linear Workflows

The following describes an overview of the steps that are necessary in these workflows:

1 *Set up before shooting*

2 *Shoot*

3 *Digitize video in Avid application (video workflow only) or import digital video files directly into Avid application (fully non-linear workflow only).*

Following these steps ensures that time code and other metadata are preserved from the moment shooting begins to the final delivery of source files to the Pro Tools editor.

Setting Up Before Shooting

Before shooting begins, the camera operator and the production sound mixer should ensure the following:

- The field recorder's audio output feeds the

video camera's audio input.

- Both the field recorder and the video camera should be locked to the same production time code.

Matching Tape Name to Sound Roll Metadata for Video Shoots

Before loading the videotape into the video camera, the camera operator physically labels the videotape with a unique name. The production sound mixer must enter that exact name in the Tape BEXT or iXML metadata field inside the Broadcast WAV file.

Matching Tape Name to Sound Roll Metadata for Fully Non-Linear Shoots

After loading the digital video storage into the camera, the camera operator gives it a unique name. The production sound mixer must enter that exact name in the Tape BEXT or iXML metadata field inside the Broadcast WAV file.

After you import a file containing Tape metadata into Pro Tools, the metadata displays in the Sound Roll field in DigiBase browsers.

To ensure that metadata are preserved for the Pro Tools editor, it is critical to enter the Tape name character for character. For example, if the metadata was T001 (with two zeroes), enter T001 with two zeroes—not T01 with one zero or T0001 with three zeroes.

Shooting

1 Shooting proceeds as follows:

- Camera begins rolling.
 - One or more field recorders begin recording.
- The production sound mixer has designated one or two channels as a *production sound mix*, which is a consolidation of one or more channels in each multichannel recording.

2 During shooting, the following time code information is captured:

- The camera captures images to video or file

embedded with SMPTE time code based on time of day (or *longitudinal time code*).

- One or more field recorders simultaneously make multichannel recordings that are embedded with SMPTE time code based on time of day (or *longitudinal time code*).

3 *The slate operator claps the slate to indicate the beginning of the take.*

The field recorder records the audio of the clap, and the film camera captures the following images:

- Scene and take number (displayed on the slate)
- Exact moment the slate closes
- Time code position of the slate closing

4 *Shooting ends and the take is complete.*

Digitizing a Videotape in the Avid Application

(Video Workflow Only)

This phase of the workflow begins after the Avid editor receives the following components from the camera operator and the production sound mixer:

- Videotape
- Multichannel recordings

In a video workflow, the Avid editor digitizes the videotape to digital video and audio files in order to edit them. Before doing so, however, the Avid editor must name the tape.

To digitize a videotape to digital source files:

- 1 Load the videotape into the Avid system.
- 2 When prompted to name the videotape, enter the exact Tape name used by the camera operator and the production sound mixer.
- 3 Digitize the videotape loaded into the Avid.
- 4 When the digitize is complete, use the Avid application to edit audio and video as desired.
- 5 When you are finished editing, export the edited sequence as an AAF or OMF sequence so that it can be imported into Pro Tools.

To ensure that metadata are preserved for the Pro Tools editor, it is critical to enter the Tape name character for character. For example, if the metadata was T001 (with two zeroes), enter T001 with two zeroes—not T01 with one zero or T0001 with three

Importing Digital Video Directly into the Avid Application

(Fully Non-Linear Workflow Only)

This phase of the workflow begins after the Avid editor receives the following components from the camera operator and the production sound mixer:

- Digital video (on flash card, hard drive, or some other file-based storage)

- **Multichannel recordings**

In a fully non-linear workflow, the Avid editor simply has to import the video and audio media into the Avid application in order to edit them. To import video into the Avid application:

- 1 In the Avid application, create a Bin.
- 2 Import the video files directly into the Bin.
- 3 When the Disk Label Import dialog appears, enter the exact Tape name used by the camera operator and the production sound mixer.
- 4 Use the Avid application to edit audio and video as desired.
- 5 When you are finished editing, export the edited sequence as an AAF or OMF sequence so that it can be imported into Pro Tools.

To ensure that metadata are preserved for the Pro Tools editor, it is critical to enter the Tape name character for character. For example, if the metadata was T001 (with two zeroes), enter T001 with two zeroes—not T01 with one zero or T0001 with three