

Field Recorder Workflows Guide

Version 8.0



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chapter 1

Introduction

Pro Tools® lets you import multichannel audio files and metadata recorded by field recorders. This guide documents the post-production workflows for using these files.

Field Recorder Terminology

This section provides a brief glossary of terms used in this guide.

Metadata

Metadata is used to describe the following:

- Information embedded in a media file. This may include scene, take, sample rate, bit depth, region names, the name of the videotape from which the media file was captured, and even time code values.
- Information embedded in Pro Tools sessions or other *sequences*, including what files are used, where they appear in a timeline, and automation.
- For AAF or OMF sequences, information about automation (clip-based gain or keyframe gain).

Digital Field Recorders

A *field recorder*, also known as a hard disk location audio recorder, is a device used by a production sound mixer during a film or video shoot to make a multichannel recording of multiple microphone inputs recorded simultaneously.

Depending on the capabilities and settings of a field recorder, multichannel recordings can include one or more tracks (up to 32) and are saved as monophonic or polyphonic audio files on a hard drive, DVD-RAM, or Flash media.

Multichannel recordings made by a field recorder should be encoded with start and end time stamps representing SMPTE time code, linear Field Recorder Workflows Guidetime code (or LTC). Most field recorders also allow manual entry of additional types of metadata, including Channel Name/Number, Scene, Take, Circled Take, User Bits, and more.

Pro Tools can import monophonic and polyphonic files and certain types of metadata entered on field recorders. (Polyphonic files will be converted to multiple monophonic files.)

Production Sound Mix

For each multichannel recording made by a field recorder, the production sound mixer may designate a *production sound mix* comprising either a representative channel or a mixdown of other selected channels in the recording.

The production sound mix is intended to function as a general reference of all audio recorded within an individual multichannel recording, and is typically used by the Avid® editor when assembling a sequence.

Broadcast WAV Files (BWF)

A WAV file containing a BEXT chunk is known as a Broadcast WAV file (or BWF) while still maintaining a .WAV file extension. Broadcast WAV files can contain both BEXT and iXML chunks, or a BEXT chunk by itself.

BEXT and iXML Chunks

BEXT and iXML chunks are sets of metadata found within a Broadcast WAV file.

Caveats

The following caveats apply to handling of imported metadata from field recorders.

- The BEXT specification as described here adds some features that conform to standards used by Avid applications and Pro Tools—specifically, Description metadata is interpreted differently.
- When you import multiple files in which the same metadata are populated with different values, Pro Tools imports the value that is first present based on the following order:
 - Avid OMF-wrapped media or MXF media
 - Any iXML chunk metadata in a BWF
 - Any BEXT chunk metadata in a BWF

Supported Field Recorder Audio Files and Metadata

Pro Tools supports the following audio files recorded by field recorders:

- OMF-wrapped media
- MXF
- Broadcast WAV (BWF) files with the following metadata:
 - Both BEXT and iXML chunks
 - BEXT metadata but no iXML metadata

Displaying Field Recorder Metadata in Pro Tools

You can enable or disable the display of field recorder metadata within regions in the Timeline and the Region List.

To enable or disable the display of field recorder metadata in playlists, do the following

- From View > Region, select or deselect either of the following options:
 - Channel Name
 - Scene and Take

To show or hide field recorder metadata in the Region List:

- 1 Click the Region List pop-up menu, and choose Show.
- 2 From the Show submenu, select or deselect either of the following options:
 - Channel Name
 - Scene and Take

When enabled in the Region List, Scene and Take metadata are added to every region when available in the corresponding audio file.

DigiBase Support for Field Recorder Metadata

DigiBase™ browsers display the following metadata from multichannel recordings made with field recorders.

- Duration
- File Comment
- Date Modified
- Date Created
- # Channels
- Format
- Sample Rate
- Bit-Depth
- Original Time Stamp
- User Time Stamp
- Tape
- TC Rate (renamed from FPS)
- Channel Names
- Scene
- Take
- Shoot Date
- Sound Roll
- Sound Roll TC
- Sound Roll TC Rate
- User Bits
- Tape ID
- Project
- Circled
- Clip Name

To show or hide field recorder metadata in DigiBase browsers:

- Control-click (Mac) or Start-click (Windows) the column header and select or deselect either of the following options:
 - Channel Name
 - Scene and Take

About Tape and Sound Roll Metadata

Avid application and field recorders use Tape to represent different kinds of metadata: Avid uses Tape to store the telecine videotape name, while a BWF file with a BEXT chunk or iXML chunk uses Tape to store the name of the sound roll.

To avoid this overlap, Pro Tools preserves Tape metadata from the Avid and populates Sound Roll with Tape metadata from BWF audio files.

About Shoot Date Metadata

Many field recorders do not populate the Shoot Date field, relying instead on the file's Creation Date to indicate date of production. When Pro Tools imports a field recorder file, it checks to see if the Shoot Date field is populated. If it is empty, Pro Tools copies the Creation Date of the original file to the Shoot Date field of the new files.

Editing the Channel Name

The Channel Name field in DigiBase displays the channel name, followed by the channel number in parentheses. When using Pro Tools 8 or higher, it is possible to edit the Channel name for mono BWF files. When editing the channel name, anything you enter in parentheses will be discarded. However, the channel number will always be preserved.

chapter 2

Field Recorder Workflows


Using Pro Tools to work with field recorder files from a film, video, or digital shoot involves the following steps:

- 1 Before receiving source files, ensure that metadata have been preserved.
- 2 Receive source files.
- 3 Import source files into Pro Tools.
- 4 Replace edits from the production sound mix with audio from different takes of the same scene.

Ensuring Metadata of Source Files Have Been Preserved

Before you receive source files, it is critical to ensure that the files have been prepared properly at each phase of the production process so that their original metadata are preserved.

If the original metadata have not been preserved, you cannot successfully complete the workflows described in this chapter.

 *For detailed information about preserving metadata during the production process, see Appendix A, “Overview of Production Workflows.”*

Receiving Source Files


When involved in the audio post-production of edited video sequences, you need both of the following sets of source files:

- AAF or OMF sequence with an edited production sound mix synced to video (such as referenced QuickTime movies or Avid video)
- Alternate source files representing multi-channel recordings from a field recorder

You will receive these files either separately (from the Avid video editor and production sound mixer) or together as part of an AAF or OMF sequence export including alternate source audio (from the Avid video editor).

Separate Deliveries of Source Files

When you receive an AAF or OMF sequence from the Avid editor and alternate source audio from the production sound mixer, you must import them separately before Pro Tools will be able to match them together.

 *See “Importing an AAF or OMF Sequence into Pro Tools” on page 7 and “Importing Alternate Source Audio Directly into Pro Tools” on page 8.*

Single Delivery of Source Files

When you receive only an AAF or OMF sequence from an Avid editor, this generally means that the sequence also contains alternate source audio recorded by the field recorder.

⚠ *If you are not sure the AAF or OMF sequence also contains the alternate source audio, contact the Avid editor to ensure that they were properly included.*

There are three methods the Avid editor may use to prepare the files before exporting them:

- Alternate source audio has been auto-synced in the Avid Bin but not placed on the Timeline
- Alternate source audio has been auto-synced in the Avid Bin and placed on the Timeline
- Alternate source audio has not been auto-synced and resides only in the Avid Bin

Alternate Source Audio in Bin Auto-Synced to Edited Production Sound Mix The alternate source audio residing in the Avid Bin has been auto-synced to the edited production sound mix residing in the Avid Timeline.

When you import this type of sequence into Pro Tools, the edited video and edited production sound mix are available to import directly into the Timeline. The alternate source audio does not appear as separate tracks in the Import Session Data dialog, but will import directly into the Region List.

When exporting the edited production sound mix as a sequence, the Avid editor should make sure to also select all of the alternate source audio in the Bin.

Alternate Source Audio in Timeline Auto-Synced to Edited Production Sound Mix The alternate source audio in the Avid Bin has been auto-synced to the edited located sound mix, and all audio channels reside in the Avid Timeline.

When you import this type of sequence into Pro Tools, the edited video, edited production sound mix, and all alternate source audio will be available to import directly into the Timeline.

Alternate Source Audio Not Auto-Synchronized to Edited Production Sound Mix In the Avid application, the alternate source audio has not been auto-synced to the edited production sound mix residing in the Avid Timeline.

⚠ *In such a case, the AAF or OMF sequence does not contain or reference the alternate source audio when imported into Pro Tools—the Avid editor must auto-sync the alternate source audio to the edited production sound mix, then re-deliver the sequence to you.*

Importing Source Files into Pro Tools

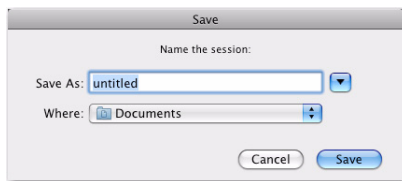
This section describes importing alternate source audio from the following types of files:

- AAF or OMF sequences
- Alternate source audio (if received separately from the AAF or OMF sequence)

Importing an AAF or OMF Sequence into Pro Tools

To open an AAF (or OMF) sequence as a Pro Tools session:

- 1 Launch Pro Tools.
- 2 Choose File > Open Session.
- 3 In the Open Session dialog, navigate to the AAF or OMF sequence you want to import.
- 4 Click Open.



Pro Tools New Session dialog

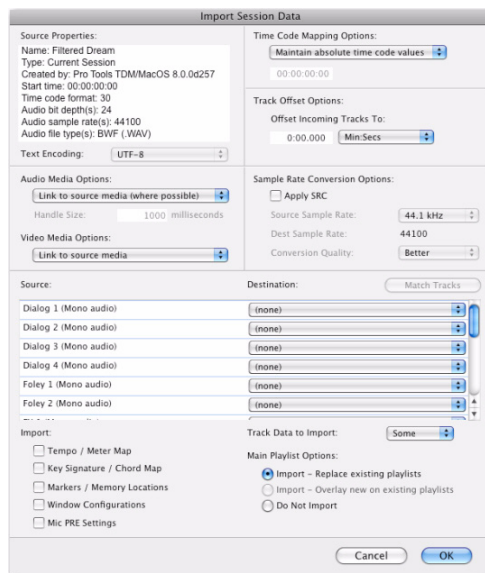
- 5 Name your session in the File Name field.
- 6 Select WAV from the Audio File Type pop-up menu.

⚠ Only WAV files can hold field recorder metadata. If you do not select WAV as the Audio File Type format, any files created in the session will not be able to hold the field recorder metadata.

7 Select the I/O Settings to use for the session. Several pre-configured I/O Settings are included with your system, or you can select a custom I/O Setting that you have created.

- 8 Click Save.

The Import Session Data dialog appears.




Import Session Data dialog


💡 Pro Tools lets you open and import OMF or AAF sequences that reference audio files with mixed sample rates and/or bit depths. Audio files will be converted to the highest sample rate and bit depth of the files being imported (for new sessions) or to the current sample rate and/or bit depth (for existing sessions). The DigiTranslator™ 2.0 option is required.

- 9 Choose Link to Source Media (Where Possible) from the Audio Media Options pop-up menu.
- 10 Choose Link to Source Media from the Video Media Options pop-up menu.

11 In the Source Tracks section, select tracks to import by clicking the pop-up menu to the right of each track name and selecting Import As New Track.

 *To select multiple tracks, Option-click (Mac) or Alt-click (Windows) on any track pop-up menu and select Import As New Track.*

Any tracks that were selected in the Avid Timeline when the sequence was exported appear in each pop-up menu.

 *If alternate source audio files were located only in the Avid Bin (and auto-synced to the location audio mix on the Timeline) when exported from the Avid application, they will not be available in the Source Tracks section. However, they will be imported directly into the Region List.*


12 Change other parameters as desired.

13 Click OK.

Pro Tools will create a new Audio Files folder, Fade Files folder, Video Files folder, cache.wfm file, and session file at the designated locations. This session will match the audio file type, sample rate, and bit depth of the audio in the selected AAF or OMF. Any selected tracks in the Source Tracks section of the Import Session Data dialog are automatically placed in the Timeline. Any auto-synced alternate source audio that was exported from the Avid Bin with the AAF or OMF appears in the Region List.

Importing Alternate Source Audio Directly into Pro Tools

If the AAF or OMF sequence you imported into Pro Tools did not include alternate source audio, you must import it into the session separately using media supplied by the production sound mixer.

 *After importing alternate source audio separately from the AAF or OMF sequence you imported into Pro Tools, you must offset the audio by as much as a half frame. See “Repairing Audio Misalignment When Importing Audio Not Exported from Avid” on page 8.*

You can import monophonic or polyphonic audio files from field recorders into Pro Tools using any of the following methods:


- Using File > Import > Audio, and selecting the files you want to import
- Dragging files to the Region List from Digibase browsers or the desktop (and then using the Audio Import Options dialog to place them in the Region List)

Repairing Audio Misalignment When Importing Audio Not Exported from Avid

When you use Pro Tools to import alternate source audio that was not exported from an Avid application—such as audio delivered separately from an AAF or OMF sequence—that audio will be offset with the audio in the AAF or OMF sequence by as much as half a frame.

This misalignment results from the incompatibility between frame-accurate time stamping in Avid applications and sample-accurate time stamping in Pro Tools. When you attempt to link the two, the misalignment results.

In order to repair this discrepancy, you must offset the alternate source audio after importing it into Pro Tools, either manually, or with a utility like SynchroArts Titan.

 See the Pro Tools Reference Guide for detailed information on using editing features (such as offsetting audio).

Displaying Multichannel Files from a Field Recorder in the Region List

When importing multichannel recordings from a field recorder, Pro Tools saves each channel as a separate region. Regions from the same multichannel recording are collected into a multichannel region, which displays as a single item in the Region List. An expand/collapse triangle next to an item in the Region List indicates a multichannel region.

For multichannel audio regions imported from field recorders to be shown as collective regions, both component regions must have the following properties:

- Same length
- Same region name prefix (such as *Audio File* or *Audio File_01*)
- Consecutively-numbered region name suffix, from *A1* through *A8*


For example, the regions *Audio File_01.A1* and *Audio File_01.A2* would be grouped as a multichannel region in the Region List.

If an existing stereo or multichannel region has been dragged onto multiple mono tracks and edited in such a way that one or more components are no longer the same length, the stereo display is removed and the regions are displayed as individual regions in the Region List.

Selecting an Alternate Channel to Replace a Region


(Pro Tools HD and Pro Tools LE with Complete Production Toolkit or DV Toolkit 2 Only)

Once you have imported an AAF or OMF sequence into the Timeline and alternate source audio into the Region List, you can replace the original production sound mix with an equivalent alternate channel while preserving the original edits.

 *If the Import Session Data process imported all alternate source audio directly into the Timeline, this procedure is unnecessary.*

Selecting an Alternate Channel to Replace a Region

You can replace a mono region (or selected portion of a mono region) with a matching segment of an alternate channel that was recorded simultaneously. Any fades performed on the original region are automatically recalculated against the replacement region, and any pre-existing automation on that track is unchanged.

 *Using this feature is especially useful when combining it with duplicating the production sound mix track. For example, you could replace the audio from a boom microphone with the audio from a lavalier microphone—while preserving any edits or fades from the original edited production sound mix in the AAF or OMF sequence.*

To replace a region with a matching alternate channel:

- 1 In the Timeline, make a selection that includes or overlaps the region or portion of the region you want to replace.

2 Do one of the following:

- With any Edit tool, Right-click the selection you want to replace, then select Matches from the pop-up menu.

– or –

- With the Selector tool, Command-click (Mac) or Control-click (Windows) the selection you want to replace.

3 From the Matches pop-up menu, select the name of the alternate region that you want to use to replace the original region.



If the production sound mixer entered the channel name (or some other descriptive reference) during shooting, the Matches pop-up menu displays this information.

4 Repeat this procedure for every region you want to replace on each track.

Conditions for Alternate Channel Availability

An alternate channel is available to replace the original channel (represented by the region or portion of a region selected on the Timeline) if all of the following are true:

- Both channels are part of a multichannel part of a recording made simultaneously on one or more field recorders.
- Certain metadata matches between the original channel and the alternate channel.
- The metadata embedded during shooting and recording has been preserved prior to import into Pro Tools.



For information on how to ensure that metadata have been properly preserved in your source files, see Appendix A, “Overview of Production Workflows.”

With multichannel recordings from one or more field recorders, both channels must overlap at least once between their start time code and end time code positions, and must also meet one of the following conditions:

- Matching Scene and Take
- Matching Shoot Date (applies only if Scene and Take contain any information for both channels)
- Matching Tape name
- Matching Sound Roll name
- Alternate channel Sound Roll name matches current channel Tape name
- Alternate channel Tape name matches current channel Sound Roll name

Expanding Alternate Channels to New Tracks

(Pro Tools HD and Pro Tools LE with Complete Production Toolkit or DV Toolkit 2 Only)

When working with a mono region that is part of a multichannel recording, you can expand that region (or a selected portion of it) to new tracks that reflect its matching alternate channels while preserving any edits or fades.



Matching alternate channels are mono channels that were recorded simultaneously with the original region (such as multichannel recordings made by one or more field recorders). For detailed criteria that alternate matching channels must meet, see “Conditions for Alternate Channel Availability” on page 10.

For example, this feature lets you easily create different versions of an edited dialogue track corresponding to multiple channel inputs (microphones) that were recorded simultaneously.

To expand alternate channels to new tracks:

1 In the Timeline, do one of the following:


- To expand only a portion of the regions on the track, make a selection that includes or overlaps any number of regions on a track, and Control-click (Mac) or Right-click (Mac or Windows) the selection.

– or –

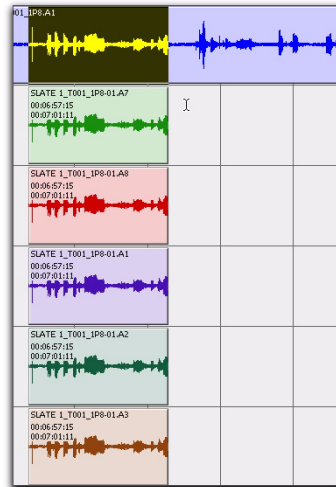
- To expand all of the regions on the track, Control-click (Mac) or Right-click (Mac or Windows) the track name.

2 Choose the Expand Channels to New Tracks submenu, and select one of the following methods by which to expand alternate channels for the selection to new tracks:

- By Channel Name
- By Channel Number
- By Channel Name and Number
- By Time Code Only

 See “Determining the Method of Expanding Alternate Channels to New Tracks” on page 12 for detailed information on how each of these options expand to new tracks.

If alternate channels are available, Pro Tools expands them (plus the channel represented in the original track) to new tracks according to the chosen parameters.



Result of expanding a selection to new tracks

Determining the Method of Expanding Alternate Channels to New Tracks

Alternate channels may be expanded to new tracks by channel name, channel number, channel name and number, or time code only, as follows:

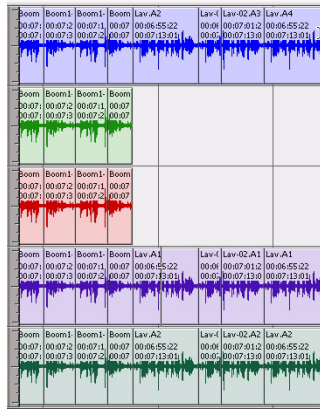
Expanding Alternate Channels by Channel Name

Choosing Expand Channels to New Tracks > By Channel Name creates a new track for each unique channel name (such as *Boom*) found in alternate channels of the selection.

If duplicate channel names are encountered, additional tracks are created for each duplicate channel name, as follows:

- If the duplicate channel has a different Sound Roll or Tape name from another channel with the same channel name, an additional track is created for that duplicate channel and its Sound Roll or Tape name is appended to the track name. (See “How Tracks Are Named When Expanding Alternate Channels by Channel Name” on page 12.)
- If the duplicate channel has the same Sound Roll or Tape name as another channel with the same channel name, only the topmost duplicate channel in that list of alternate matching channels will be expanded to a new track.

Each new track contains only channels sharing a particular channel name, with edits and fades preserved from the original selection. Gaps reflect regions from the original selection that did not have an alternate matching channel with that channel name.



Expanded channels with gaps representing regions that did not have an alternate matching channel with the channel name

How Tracks Are Named When Expanding Alternate Channels by Channel Name

Tracks expanded this way are named as follows:

- For unique channel names that create only one track, each track is named using the original track's name plus the channel name. For example, expanding the unique channel name *Boom* from the track *Guide.A1* would create a new track called *Guide.A1.Boom*.
- For unique channel names that create two or more tracks, each of the new tracks that share channel names are named by appending *SR* (for Sound Roll) plus the number of the sound roll or tape to the new track name. For example, expanding the duplicate channel names *Boom* from the track *Guide.A1* would create *Guide.A1.Boom.SR:100* and *Guide.A1.Boom.SR:101*, where *100* and *101* represent the Sound Roll or Tape name.

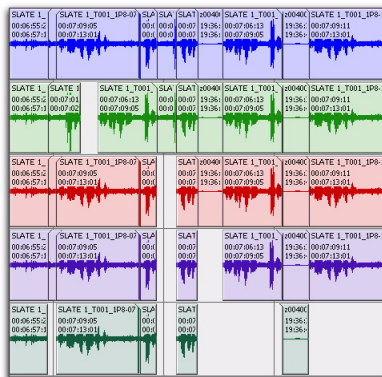
Expanding Alternate Channels by Channel Number

Choosing Expand Channels to New Tracks > By Channel Number creates a new track for each unique channel number (such as *A1*) found in the list of combined matching alternate channels for all regions in the selection.

If duplicate channel numbers are encountered, additional tracks are created for each duplicate channel number, as follows:

- If the duplicate channel has a different Sound Roll or Tape name from another channel with the same channel number, an additional track is created for that duplicate channel and its Sound Roll or Tape name is appended to the track name.
- If the duplicate channel has the same Sound Roll or Tape name as another channel with the same channel number, only the topmost duplicate channel in that list of alternate matching channels will be expanded to a new track.

Each new track contains only channels sharing a particular channel number, with edits and fades preserved from the original selection. Gaps reflect regions from the original selection that did not have an alternate matching channel with that channel number.



Expanded channels with gaps representing regions that did not have an alternate matching channel with the channel number

How Tracks Are Named When Expanding Alternate Channels by Channel Number

Tracks expanded this way are named as follows:

- For unique channel numbers that create only one track, each track is named using the original track's name plus the channel number. For example, expanding the unique channel number *A1* from the track *Guide.A1* would create a new track called *Guide.A1.A1*.
- For unique channel number that create two or more tracks, each of the new tracks that share channel numbers are named by appending *SR* (for Sound Roll) plus the number of the sound roll or tape to the new track name. For example, expanding the duplicate channel numbers *A1* from the track *Guide.A1* would create *Guide.A1.A1.SR:100* and *Guide.A1.A1.SR:101*, where *100* and *101* represent the Sound Roll or Tape name.

Expanding Alternate Channels by Channel Name and Number

Choosing Expand Channels to New Tracks > By Name and Number creates a new track for each unique channel name and number (such as *Boom.A1*) found in the list of combined matching alternate channels for all regions in the selection.

If duplicate channel names and numbers are encountered, additional tracks are created for each duplicate channel name and number, as follows:

- If the duplicate channel has a different Sound Roll or Tape name as another channel with the same channel name and number, an additional track is created for that duplicate channel and its Sound Roll or Tape name is appended to the track name.
- If the duplicate channel has the same Sound Roll or Tape name from another channel with the same channel name and number, only the topmost duplicate channel in that list of alternate matching channels will be expanded to a new track.

Each new track contains only channels sharing a particular channel name and number, with edits and fades preserved from the original selection. Gaps reflect regions from the original selection that did not have an alternate matching channel with the channel name and number.

How Tracks Are Named When Expanding Alternate Channels by Channel Name & Number

Tracks expanded this way are named as follows:

- For unique channel name and number combinations that create only one track, each track is named using the original track's name plus the channel name and number. For example, expanding the unique channel name and number combination *Boom.A1* from the track *Guide.A1* would create a new track called *Guide.A1.Boom.A1*.
- For unique channel name and number combinations that create two or more tracks, each of the new tracks that share channel name and numbers are named by appending *SR* (for Sound Roll) plus the number of the sound roll or tape to the new track name. For example, expanding the duplicate channel name and numbers *Boom.A1* from the track *Guide.A1* would create *Guide.A1.A1.SR:100* and *Guide.A1.A1.SR:101*, where *100* and *101* represent the Sound Roll or Tape name.

Expanding Alternate Channels by Time Code Only

The new Expand To New Tracks By Time Code Only command lets you expand an entire track or only selected regions to new playlists on the same track or to new separate tracks, thus revealing all other regions recorded at the same time code location, regardless of channel name or number. This is especially useful when expanding edited guide tracks to original source audio that was recorded while referenced to time code, but where channel names or numbers were not written to the audio files.

Example Workflow: Working with a Guide Track

For live concert videos, the video is captured separately while the audio is recorded in Pro Tools. The video editor will use a guide audio track that is edited along with the video in their video editing software (such as Avid Media Composer). The edited guide track is then returned to Pro Tools, but it needs to be expanded to the conformed original source tracks for mixing and mastering.

1 Multitrack audio is recorded in Pro Tools while chasing time code. A mono or stereo mix is recorded simultaneously as a guide track for the video editor.

2 The picture and audio guide tracks are edited in a video editing application (such as Avid Media Composer).

3 The edited audio guide tracks are exported from the video editor as an AAF (or OMF) sequence, including handles of at least 2 frames.

4 The AAF (or OMF) sequence is imported into Pro Tools as a new session.

5 The original source audio files and unedited guide track are also imported into the session.

6 The original unedited guide track is relinked to the session (see “Relinking the Original Unedited Guide Track” on page 15).

7 The Pro Tools editor Right-clicks the name of the guide track and selects Expand to New Tracks > By Time Code Only. The original source tracks expand to new tracks with edits and fades that match the guide track.

Relinking the Original Unedited Guide Track

After importing the AAF (or OMF) sequence and original source audio files into the session, it is recommended that you relink the edited guide track to the original unedited source audio.

To relink the original unedited guide track:

1 Open the Project Browser for the session and open the Audio Files folder.

2 Right-click the edited guide track audio file in the browser and choose Relink Selected.

3 In the upper pane of the Relink window, navigate to the original unedited guide track audio file that was recorded in Pro Tools.

If the original unedited file is not available, you can relink to any of the source audio files as long as they have the same start and end times as the guide track.

4 In the Select Files To Relink pane, select the edited guide track file.

5 Drag the original unedited guide track audio file into the Candidates pane. If a dialog appears stating that one or more files are shorter than the media file you are trying to relink, click Yes to select it for relinking anyway.

6 Check the box to the left of the file in the Candidates pane so that the Link icon appears.

7 Click Commit Links at the top of the Relink window and then close the Relink window.

- You can now Right-click the name of the guide and select Expand To New Tracks > By Time Code Only. All expanded tracks should be synchronous with the guide track.

appendix a


Overview of Production Workflows

This appendix 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 appendix 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.

 *If you are the Pro Tools editor, you should distribute this appendix to the appropriate parties listed below.*

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

For film workflows:

- Production sound mixer
- Telecine operator
- Camera assistant
- Camera operator
- Avid editor
- Pro Tools 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*.

SMPTE 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.

⚠ *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.*

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

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
- FLEEx file
- Shootlist
- Sound log



In some cases, you may also receive location audio from the production sound mixer.

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 FLEEx 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 FLEEx file that represent the scenes and takes you want to batch digitize from the videotape.

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



Any metadata required for matching (such as Tape name) should be visible in the un-digitized clips.

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 FLEEx 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.

Video and Fully Non-Linear Workflows

This section describes both video and fully non-linear 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.



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

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.



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.

 *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.*

- 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.

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.

 *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.*

- 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.



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