



SoundCode For Dolby E Users Guide

Version 2.0

Standalone Application & Plugins
for Macintosh OS X and Windows XP /Vista

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Table Of Contents

Chapter 1	1
Introduction	
<i>Welcome To SoundCode For Dolby E</i>	1
<i>System Requirements</i>	2
Chapter 2	4
Installation	
<i>Installing SoundCode For Dolby E</i>	4
<i>Authorizing SoundCode For Dolby E</i>	4
<i>Removing Expired Software</i>	5
Chapter 3	5
SoundCode For Dolby E Technologies	
<i>Dolby E</i>	5
<i>BWF Files</i>	6
<i>Dolby DP600</i>	6
<i>RF64 Files</i>	6
<i>MXF Files</i>	8
<i>OP1a Files</i>	8
<i>OP-Atom Files</i>	8
Chapter 4	8
SoundCode Dolby E Encode/Export	
<i>Overview</i>	8

<i>How To Encode/Export A File With The Standalone Application</i>	8
<i>How To Encode/Export A File In Pro Tools</i>	9
<i>How To Encode/Export A File In Final Cut</i>	9
<i>Description and Use Of Controls</i>	9
Chapter 5	19
SoundCode Dolby E Monitor/Import	
<i>Overview</i>	19
<i>RTAS / Audio Unit / VST Window</i>	1
<i>AudioSuite Window</i>	1
<i>Standalone App Window</i>	1
<i>Hot Folder Processing</i>	1
<i>Dolby E Hardware Mode (RTAS Only)</i>	5
Chapter 6	6
Settings Files	
<i>Overview</i>	6
Chapter 7	6
Final Cut	
<i>Overview</i>	6
Chapter 8	7
Workflows	
<i>In Pro Tools, Dolby E encode a set of 5.1 + Stereo mixes and then lay back to a VTR</i>	7
<i>In Pro Tools, prepare a set of 5.1 + Stereo mixes for Dolby E encoding with the Dolby DP600 and then lay back to a VTR</i>	8
<i>Audition a SMPTE ordered multichannel BWF file in Pro Tools</i>	9
<i>Edit The Dolby Metadata In A BWF File</i>	9

<i>Export a multichannel, RIFF64 file from Pro Tools</i>	9
Chapter 8	10
Troubleshooting	
<i>Error Message: Updated Tpkd Driver Required</i>	10
<i>External Dolby E Decoder Won't Decode Data Stream</i>	10
Technical Support Information	

Chapter 1

Introduction

Welcome To SoundCode For Dolby E

SoundCode For Dolby E is a suite of software tools for encoding, decoding, and exchanging audio for broadcast applications. Designed for tape-based and file-based workflows, SoundCode For Dolby E lets you encode, export, import, and monitor Dolby E, BWF, and MXF OP1a audio. SoundCode For Dolby E operates on Mac OS X and Windows systems as a standalone application, Pro Tools plug-in, Audio Unit plug-in, VST plug-in, and Final Cut Plug-in.

SoundCode For Dolby E Features:

- Faster-than-realtime Dolby E encoding and decoding
- Real time Dolby E decoding, monitoring and metadata display
- File-based import/export of multi-program BWF and MXF OP1a files
- Real time audio monitoring of multi-program BWF and MXF OP1a files
- Dolby E metadata import/export
- Compatible with the Dolby DP600
- Integration with Pro Tools, Final Cut, Nuendo, and other workstations
- Batch processing
- Hot folder processing
- Tape-based and file-based workflows

SoundCode For Dolby E operates as two separate tools: SoundCode Dolby E Encode/Export and SoundCode Dolby E Monitor/Import.

SoundCode Dolby E Encode/Export Features:

- Faster-than-realtime Dolby E encoding and export to BWF and MXF OP1a
- Dolby E latency compensation
- Deliver Dolby E as a file or tape-based layback
- Faster-than-realtime multi-program PCM export to BWF and MXF OP1a
- BEXT Description, Dolby Digital, and Dolby E metadata export
- Automatic time code location and frame rate integration into metadata
- Selectable SMPTE or Film channel order input from Pro Tools timeline
- Export BWF files larger than 2 GB using the RF64 format
- Standalone, Final Cut Export plug-in, and Pro Tools Audiosuite plug-in

SoundCode For Dolby E Monitor/Import Features:

- Realtime Dolby E stream and file decoding and monitoring
- Faster-than-realtime Dolby E file decoding
- Dolby E metadata display and export
- Faster-than-realtime multi-program PCM import from BWF and MXF OP1a
- Realtime playback and monitoring multi-program BWF files and MXF OP1a
- Import to Pro Tools timeline using AudioSuite plug-in
- Sample accurate synchronization to Pro Tools timeline
- Extensive metadata display
- Output level metering
- Standalone, Pro Tools plug-in, Audio Unit plug-in, and VST plug-in
- Operates in the N-Mon monitoring utility for Mac OS X

System Requirements

SoundCode For Dolby E runs as a standalone application, qualified on Windows XP (SP2) and Mac OS X (qualified on OS X 10.4 and higher)

SoundCode For Dolby E runs as a Pro Tools plug-in on a Digidesign-qualified Pro Tools system running Pro Tools 7.0 or higher.

SoundCode For Dolby E runs as a plug-in on Final Cut Pro and Final Cut Express 6.0.5 and later.

SoundCode For Dolby E runs as a VST 2.4 compatible plug-in.

Important Pro Tools Non-Dithered And Dithered Mixer Information

SoundCode For Dolby E allows you to place a Dolby E data stream in the Pro Tools timeline and route it to an AES/SPDIF output. However, this requires you use the non-dithered mixer plug-in. This is because the Dolby E data stream cannot be altered. The dithered mixer sums a dither signal with the data stream and thus, alters it which makes the data stream unusable. The rule is that if using the dithered mixer, you cannot mix a Dolby E data stream to any bus. (Also note that any gain/pan or modification to the signal will render the data stream unusable).

Important Sample Rate Information

SoundCode For Dolby E operates on files at all Pro Tools sample rates. However, note that files being prepared for Dolby E encoding need to be at 48kHz. Most Dolby Digital encoding is also done at 48kHz. SoundCode For Dolby E does not perform sample-rate conversion. For example, if a multichannel BWF file is being prepared to send to the Dolby DP600 for Dolby E encoding, conversion to 48kHz needs to happen on the individual inputs before exporting the BWF file.

Important Dolby E Latency Information

The Dolby E encoder and decoder each have one video frame of latency. This is analogous to Dolby E hardware encoders and decoders. PLEASE NOTE THAT THE RTAS DECODER IS A SPECIAL CASE THAT MUST BE CAREFULLY USED FOR ONE FRAME OF LATENCY. The Dolby E Encoder tool has a "input offset" control to advance the input audio to compensate for these latencies. This is equivalent to sliding the audio to the left earlier in time. You might ask "why does the encoding process have any delay since it is an AudioSuite process?" We decided the best thing was to emulate Dolby real time hardware because many broadcast delivery specifications assume a hardware-based encoding system. When encoding Dolby E streams, be certain that you understand the delivery requirements so you can set the "input offset" correctly. For more information, see the section Titled Input Offset in chapter 4.

Important RTAS Dolby E Decoder Latency Information for Input Source = Track Stream

The RTAS Dolby E decoder allows live Dolby E stream confidence monitoring with one frame of latency. If you use a Pro Tools system to emulate a standalone hardware decoder, you must set the "hw mode" control to ON and you must set the RTAS buffer size to 256 in the playback engine dialog. This way you can monitor the audio from a live Dolby E stream input and compare it to other audio sources. For example, if you are playing back a video tape with a Dolby E stream on it, you can use the Pro Tools system to decode it and compare the audio to other audio tracks on the video tape and test that they are phase aligned. See the section titled "Dolby E Hardware Mode" for more information.

Chapter 2

Installation

Installing SoundCode For Dolby E

Installers can be downloaded from the Neyrinck website (www.neyrinck.com), or can be found on the plug-in installer CD-ROM (included with boxed versions of plug-ins).

Installation

To install SoundCode For Dolby E:

1. If Pro Tools, Final Cut, or any AudioUnit/VST based workstation is running, Quit it.
2. Locate and open (double-click) the plug-in installer.
3. Follow the instructions presented by the installation software.
4. When installation is complete, click Quit.

When you launch Pro Tools or the standalone application, you will be prompted to authorize your new software.

Authorizing SoundCode For Dolby E

SoundCode For Dolby E requires an authorized iLok USB Key to be connected to your computer or a license file to be installed on the computer.

iLok

An iLok authorization needs to be obtained online and downloaded onto your iLok USB Key. If you purchased a boxed version, the Activation Postcard included in your purchase contains your Activation Code and instructions on how to obtain your plug-in license online. You will need an iLok.com account to complete the process. If you do not yet have an iLok.com account, visit www.ilok.com to set up an account for free.

License File

If you choose to use a license file, then you must send a license request file to Neyrinck. To generate the license request file, follow the instructions in the PACE dialog presented when you use SoundCode. Send the license request file to support@neyrinck.com.

The iLok USB Smart Key is not supplied with your plug-in or software option. You can use the one included with certain Pro Tools systems (such as Pro Tools|HD-series systems), or purchase one separately.

Removing Expired Software

If you let a demo version of the plug-in software expire, you should remove it from your system. Otherwise, each time you open your workstation software you will be prompted with a message that the plug-in has expired.

To remove an expired plug-in:

Open the Plug-Ins folder on your Startup drive (Library/Application Support/Digidesign on OS X or c:\ProgramFiles\Common\Digidesign\DAE\PlugIns on Windows XP).

Drag the expired plug-in to the Trash.

Chapter 3

SoundCode For Dolby E Technologies

SoundCode For Dolby E Technologies

SoundCode For Dolby E features many technologies used in professional audio environments. This section describes those technologies.

Dolby E

Dolby E technology was developed by Dolby Laboratories to transport audio and metadata on digital videotapes or AES cables using two channels of PCM audio. Up to eight channels of audio and metadata are encoded by a Dolby E encoder which outputs a Dolby E stream that is two channels of PCM audio. If you listen to the Dolby E stream, you will hear loud bursts of noise that can damage your hearing or speakers if listened to at loud volume. A Dolby E decoder can be used to process the Dolby E stream and output the original encoded audio and metadata. Dolby E is often used to deliver audio and metadata on a digital videotape for television broadcasting. The audio being delivered (a 5.1 surround mix for example) is first Dolby E encoded to a Dolby E stream and recorded to two audio channels of the

videotape. The tape is played back by a broadcaster and fed to a Dolby E decoder. The Dolby E decoder will output the 5.1 surround mix and metadata. Often, the decoded audio and metadata is connected to a Dolby Digital encoder used in ATSC and digital cable television broadcasting.

SoundCode For Dolby E features a Dolby E Encode option and a Dolby E Decode option for use on nonlinear audio and video workstations. The Dolby E Encode option allows audio and metadata to be Dolby E encoded to a stereo WAV file that carries the Dolby E stream. The Dolby E stream can then be recorded to a video tape or stored as a file for delivery to a broadcaster. The Dolby E Decode option allows a Dolby E stream to be decoded for editing or quality-assurance testing.

BWF Files

BWF files are WAV files that can hold up to eight channels of audio, Dolby metadata, and BEXT metadata in a single file. Dolby metadata contains important information for broadcasting such as how loud the audio is, how it should be down mixed to stereo, and what the audio stem format is. Because a single BWF file holds the audio and metadata, it is a very convenient format for delivering and receiving audio between workstations and facilities. For example, a mixing engineer can make a 5.1 mix and a stereo mix of a television program. Then, the engineer can package the two mixes and the Dolby metadata into a single file and send it to a facility for Dolby E encoding. BWF files contain a Dolby metadata "chunk" that specifies the metadata. The metadata chunk applies to the entire file. BWF files are not capable of having metadata that changes over time.

Dolby DP600

The Dolby DP600 is a hardware product manufactured by Dolby that implements file-based processing of many Dolby technologies including Dolby E, Dolby Digital, Pro Logic, and loudness measurement/correction. SoundCode For Dolby E implements actual Dolby E encoding and decoding so it is not necessary to use a DP600. But if you are using a DP600, SoundCode For Dolby E The DP600 uses BWF files for input and output. A single BWF file can hold up to eight channels of PCM audio and Dolby E metadata. SoundCode For Dolby E can read and write BWF files allowing you to interface your audio/video workstation to a DP600.

RF64 Files

RF64 files are WAV files that can be larger than 4 GB. Pro Tools does not support files larger than 2 GB as of version 8.0. An RF64 WAV file can also include additional WAV "chunks" that define additional features such as BWF.

MXF Files

MXF files are files that contain video and audio media and are formatted according to open standards that follow the Material Exchange Format.

OP1a Files

MXF files can be very complicated and many systems do not need all features of MXF files so MXF file types have been defined that are limited. These file types are defined as 'operational patterns.' MXF OP1a files follow 'operational pattern 1a.' An OP1a file is limited to one video track and one set of audio tracks that all begin and end at the same time. It is analogous to a video tape.

OP-Atom Files

OP-Atom files are the simplest type of MXF file. An OP-Atom file can not have both video and audio. It must contain just video or just audio.

Chapter 4

SoundCode Dolby E Encode/Export

Overview

The SoundCode Dolby E Encode/Export tool operates as a standalone application window, an AudioSuite plug-in in Pro Tools, or as a Final Cut export plug-in.

How To Encode/Export A File With The Standalone Application

1. Launch the standalone application by locating "\\Applications\Neyrinck\SoundCode\SoundCode Dolby E" on OS X or c:\Program Files\Neyrinck\SoundCode\SoundCode Dolby E.exe" on Windows XP.
2. Click on an input file box and choose .wav files located in your system.

3. Select the Configuration Type (Dolby E 16-bit, Dolby E 20-bit, PCM Dolby E, PCM Dolby Digital, or PCM along with the Dolby E configuration if necessary).
4. Edit metadata for each program if necessary.
5. Set the output file type to Interleaved WAV, Multi-mono WAV, or MXF OP1a
6. Set the output file name.
7. Browse to select a location for the output file.
8. Click on the "Encode / Export" button located at the bottom right.

How To Encode/Export A File In Pro Tools

1. Open the SoundCode Dolby E Encoder from the AudioSuite menu.
2. In Pro Tools select audio across multiple tracks in the timeline. Or in the standalone app, click on an input file box and choose .wav files located in your system.
3. Select the Configuration Type (Dolby E 16-bit, Dolby E 20-bit, PCM Dolby E, PCM Dolby Digital, or PCM along with the Dolby E configuration if necessary).
4. Edit metadata for each program if necessary.
5. Set the output file type to Interleaved WAV, Multi-mono WAV, or MXF OP1a
6. Set the output file name.
7. Browse to select a location for the output file.
8. Click on the "Encode / Export" button. This button is located at the bottom of the Pro Tools plug-in

How To Encode/Export A File In Final Cut

1. In Final Cut select one or more sequences you would like to encode as Dolby E.
2. Open the SoundCode Dolby E Encoder from the Export... menu.
3. Click the input channel popups and select the Final Cut audio outputs to be encoded.
4. Select the Configuration Type (Dolby E 16-bit, Dolby E 20-bit, PCM Dolby E, PCM Dolby Digital, or PCM along with the Dolby E configuration if necessary).
5. Edit metadata for each program if necessary.
6. Set the output file type to Interleaved WAV, Multi-mono WAV, or MXF OP1a
7. Set the output file name.
8. Browse to select a location for the output file.
9. Click on the "Encode" button located at the bottom of the plug-in.

Description and Use Of Controls

The user interface is divided into sections. The CONFIGURATION section determines whether the file includes Dolby E metadata, Dolby Digital metadata, or no Dolby metadata. A WAV file out will always have a BEXT chunk that can op If Dolby E is chosen the Dolby E Configuration and Metadata Edit Select menus are enabled to set the Dolby E configuration and choose which of the Dolby E program metadata is currently being displayed/edited. The

METADATA section displays and controls the metadata and preprocessing settings for each program in the configuration. These settings can be saved as presets using the Pro Tools plug-in preset features. The OUTPUT section controls the name and location of the exported WAV file. These control settings cannot be saved as presets. Instead, the output file name and file location settings are persistent and are saved in a preferences file that is read when the plug-in window is opened. When the window is closed, the current settings are saved to the preferences file. The preferences file is associated with the currently logged in user of the computer. Each user account has a separate preferences file.

CONFIGURATION Controls

The configuration controls set up the processing to match the type of broadcast delivery you are making.the type of processing to be performed.

Type

This popup menu control selects the type of file to be encoded or exported. Three types of Dolby E file types can be chosen from: 16-bit, 20-bit, or 24-bit. The bit depth selected should match the type of digital video tape the Dolby E stream will be layed back to or if a file-based delivery, ask for delivery requirements. Three types of MBWF (Multichannel Broadcast Wave Format) types can be chosen from: MBWF Dolby E, MBWF Dolby Digital, or MBWF BEXT. MBWF files are PCM audio and can be used to exchange audio with embedded metadata.

Dolby E Configuration

Dolby E supports many different audio stem formats as well as supporting multiple audio programs being grouped together. There are 22 separate configurations to choose from. This control lets you select the configuration to use. This control is disabled when the Type control is set to a type that is not using Dolby E.

Input Offset

Dolby E encoding and decoding processing each have a latency of one video frame. This control allows you to "advance" the audio to compensate for that latency. This is equivalent to "sliding" the audio to the left in the timeline to an earlier time. The value you choose will depend upon the broadcast delivery specification you need to meet. Typically, you will set it to +2 frames to compensate one frame each for encoding and decoding. If set to 0, the output of a Dolby DP572 will be two frames late. . If set to +1, the output of a Dolby DP572 will be one frame late. . If set to +2, the output of a Dolby DP572 will be zero frames late.

Dolby E Timecode

A Dolby E stream may optionally carry an active time code value in each frame. This control lets you enable or disable that time code. It defaults to a value of ON.

METADATA Controls

Dolby E and Dolby Digital encoding have many features and options which are described via metadata. Please see the separate document titled [Dolby Encoding Guidelines.pdf](#) for a thorough explanation of how the metadata is used. The following is a simple explanation of the metadata controls for each audio program (selected by the "metadata edit select" menu choice when using the Dolby E configuration)

Program

This popup menu control selects which Dolby E program corresponds to the following meta-data controls.

Coding Mode

This popup menu control selects the channel configuration of the primary audio channels and does not include the LFE channel.

Data Rate

This popup control selects the data rate of the Dolby Digital data stream. For example, a lower setting uses less space on a DVD, but will have lower audio quality. A higher setting uses more space on a DVD, but has higher audio quality

Bitstream Mode

This popup control selects the type of audio that is being encoded. Complete Main is the most common setting.

Dialog Norm

This popup control selects the level of the dialog in the source material relative to 0 dbFS. Its purpose is to allow the decoder to adjust playback level so that dialog loudness will be consistent. When set to -31 , a decoder will not change the playback level. When set to 0, the decoder will reduce the level by 31 dB.

LFE Enable

This button sets whether or not you are encoding an LFE channel.

Center Mix

This popup menu selects the gain applied to the center channel when downmixing to stereo. This control is only available when a center channel is being encoded.

Surround Mix

This popup menu selects the gain applied to the rear channels when downmixing to stereo. This control is only available when a rear channels are being encoded.

Dolby Surround Mode

This popup menu selects whether a stereo mix has been Dolby Surround encoded, or not, or is not known. This control is only available when encoding stereo program material.

Copyright

This button turns off or on a flag that indicates the audio is copyright protected or not..

Original

This button turns off or on a flag that indicates the audio being encoded is the original audio or is a copy of the original audio.

Room Type

This popup menu selects the type of room used when mixing the audio that is being encoded.

Mix Level

This popup menu selects the audio playback levels used when mixing the audio being encoded.

Info Exists

This button turns off or on a flag whether the datastream indicates the Room Type and Mix Level controls.

LoRo Cntr Mix

This popup menu selects how the center channel will be downmixed for a normal, stereo downmix.

LoRo Surr Mix

This popup menu selects how the rear channels will be downmixed for a normal, stereo downmix.

LtRt Cntr Mix

This popup menu selects how the center channel will be downmixed for a DolbySurround compatible stereo downmix.

Dolby Surround EX Mode

This popup menu selects whether the data stream is indicated to be Dolby Surround EX encoded.

Stereo Downmix Preference

This popup menu selects what downmix type is preferred when decoded.

BSI Extension Enable

This button enables/disables whether the bitstream info extensions are used in the datastream.

Dynamic Range Compression

This popup menu selects the "profile" used to encode a dynamic range compression side-chain signal into the data stream.

Surr 3 dB Attenuation

When this button is ON, the encoder will attenuate the rear channels by 3 dB. This is necessary for mixes that were made for cinema and are being encoded for DVD.

Surr Phase Shift

When this button is ON, the encoder will apply a 90 degree phase shift to the rear channels. This control should always be enabled unless the material will never be downmixed. If not used, an LtRt downmix might sound unbalanced to the right side.

Lowpass Filter

When this button is ON, the encoder will apply a lowpass filter to all the audio channels.

LFE Filter

When this button is ON, the encoder will apply a lowpass filter to the LFE channel.

DC Filter

When this button is ON, the encoder will apply a highpass filter to all the audio channels.

METADATA Controls – Default Settings

The metadata controls default to settings recommended by Dolby. You can change the default settings by using Pro Tools ability to save a user preset and set it as the default setting. Please consult the Pro Tools Plug-Ins User Guide for more information.

OUTPUT Controls

The output controls allow you to select a file name and location to save the exported BWF file.

File Name

This control sets the name of the file that will be written by the encoder. It is not used to set the file name extension. Click on it and use the keyboard to set the name and press Enter/Return when finished. The file name will have an extension of WAV appended to.

Browse

This control launches a Choose Folder dialog. You use it to select a location to add to the list of locations managed by the "Location" control.

Location

This is a popup menu control that manages a list of locations to choose from. The location is where the WAV file(s) will be written. If the list is empty, then you must select a location with the "Browse" control. Once you have one or more locations in the list, you can use this

popup control to select the one you want to use. The last two entries in the popup allow you to remove the current entry or all entries.

File Type

This is a popup menu control that lets you select the type of file to encode/export to. The "interleaved WAV" choice writes a single WAV file containing all channels of audio interleaved together. The "split WAV" choice writes multiple WAV files, one of each channel of audio. Because Pro Tools can not directly use interleaved files, it might save you time to use the split WAV file if you need to import the audio back into Pro Tools. An interleaved file has the advantage that it is a single file and is simpler to exchange and archive.

Pro Tools Controls At Bottom Of Window

The "Export" control at the bottom of the window will start the export process and will write a WAV file containing the PCM audio and Dolby metadata.

Additional Controls In Standalone Application

INPUT Controls

The input section allows you to select WAV files to export. Up to eight separate mono or multichannel files can be selected to allow up to eight total channels of input. The channel for each file is indicated to the left of each file path. The length of the file is displayed to the right as a SMPTE timecode value.

File Path

Click on a file path and a Choose File dialog will open. Select one or more .wav files.

OUTPUT Controls

The standalone application features additional output controls.

Auto

This control will set the timecode start and frame rate automatically by examining the BEXT timestamp or Dolby E metadata in the first input file.

Start Time

This indicates the SMPTE timecode to use for the exported BWF file. If the Auto button is enabled, the time values can not be edited. If Auto is disabled, the time values can be changed by clicking on a value.

End Time

This control displays the end time of the exported file. It is not editable. It is based on the length of the first input file.

Length

This control displays the length time of the exported file. It is not editable. It is based on the length of the first input file.

Encode / Export

This button will start the process of encoding a Dolby E file or exporting a MBWF file.

Additional Controls In Final Cut

Sequence

This control selects and displays the sequence to encode the audio to a Dolby E WAV file.

Use In/Out

This check box determines the start and end time of the sequence to be encoded. If selected, the sequence in and out points will be used. If not selected the sequence begin and end times will be used.

Batch

This check box allows you to encode all sequences in the sequence list at one time.

INPUT Controls

In Final Cut the input section allows you to select up to eight Final Cut audio outs to be encoded. Final Cut has up to twenty-four audio outputs and each of those is available in each of the eight audio input popup controls.

OUTPUT Controls

The standalone application features additional output controls.

Start Time

This indicates the SMPTE time code to use for the exported WAV file. This is set automatically to match the sequence settings and if the In/Out control has been checked. It can not be edited.

End Time

This control displays the end time of the exported file. It is not editable. It is based on the the Final Cut sequence settings and if the In/Out control has been checked.

Length

This control displays the length time of the exported file. It can not be edited. It is based on the length of the first input file.

Menu Commands

The standalone application and Pro Tools plug-in feature menu commands.

Export XML Process...

This command allows you to export an XML process file that specifies all information needed to perform an encode/export or import process. The file can be used later to run a process, as part of a batch process, or can be used as a template for a hot folder import operation.

Import XML Process...

This command allows you to read an XML process file that specifies all information needed to perform an encode/export or import process. All information specified in the file will be imported to the corresponding user interface controls.

Run XML Process... (batch processing)

This command allows you to choose one or more XML process files and perform the encode/export or import process described in the file(s).

Import Pro Tools Settings...

This command allows you to choose a SoundCode Dolby E settings file. The file format is the same as a Pro Tools plug-in preset and uses the extension .tfx. Several presets are placed on the computer when SoundCode Dolby E is installed. They are located at "\\Library/Application Support/Digideson/DAE/Plug-In Settings/SC Broadcast" on OS X and at "c:/Program Files/Common Files/Digidesign/DAE/Plug-In Settings/SC Broadcast" on Windows XP. The preset stores the controls in the CONFIGURATION and METADATA sections.

Export Pro Tools Settings...

This command allows you to save a SoundCode Dolby E settings file. The format is compatible with the Pro Tools plug-in preset system and use the .tfx extension. The preset stores the controls in the CONFIGURATION and METADATA sections.

Import XML Settings...

This command allows you to choose a SoundCode Dolby E settings file encoded in XML format. XML files are text files that can be edited with a text editor and use the extension .xml. Several settings files are placed on the computer when SoundCode Dolby E is installed. They are located at "/Library/Application Support/Neyrinck /Settings/SoundCode Broadcast" on OS X and at "c:/Program Files/Common Files/Neyrinck/Settings/SoundCode Broadcast" on Windows XP. The preset stores the controls in the CONFIGURATION and METADATA sections.

Export XML Settings...

This command allows you to save a SoundCode Dolby E settings file encoded in XML format. The file stores the controls in the CONFIGURATION and METADATA sections.

Import Dolby Metadata From BWF File...

This command allows you to import the Dolby metadata in a BWF file that contains Dolby metadata. This will affect the controls in the CONFIGURATION and METADATA sections and the TIMECODE section of the OUTPUT section.

Overwrite Dolby Metadata In BWF File...

This command allows you to overwrite the Dolby metadata in a BWF file that contains Dolby metadata. The controls in the CONFIGURATION and METADATA sections and the TIME-CODE section of the OUTPUT section are used to overwrite the file. The Configuration Type and the Dolby E Configuration must match the file being overwritten.

Chapter 5

SoundCode Dolby E Monitor/Import

Overview

The Dolby E Monitor/Import tool operates as a standalone application, realtime RTAS/AU/VST plug-in, or a non-real time AudioSuite plug-in. It implements Dolby E decoding and multi-channel, multi-program audio playback and import. The standalone application can decode and import faster-than-realtime or decode-and-monitor in realtime. The standalone application also features hot folder decode-and-import processing. The Pro Tools plug-in types are located in the Sound Field category.

The AUDIO PLAYBACK section features the ability to monitor/import polyphonic/multi-program WAV or MX OPIa files. Polyphonic or multi-program means that the file contains multiple mixes similar to a professional video tape. SoundCode can choose which program to monitor. This allows you to, for example, monitor a WAV file that has a 5.1 PCM mix and a stereo Dolby E pair.

RTAS / Audio Unit / VST Window

The Dolby E Monitor operates as these real time RTAS / AU / VST types: stereo-to-stereo, stereo-to-5.1, and stereo to 8-outputs (auxiliary output stems in Pro Tools). In Pro Tools, open them by clicking a channel insert on a stereo track and navigating the RTAS multi-channel popup menu. The user interface is divided into three sections. The INPUT section is where you select the input to be decoded and monitored. The RTAS plug-in allows a file to be decoded-and-monitored using Direct File Monitor technology which file to be played and what time code it should synchronize to when playing. The AUDIO PLAYBACK section controls which program(s) should play. The STATUS section displays information about the file and metadata contained within it as well as output meters.

AudioSuite Window

Open the AudioSuite plug-in window by selecting it from the AudioSuite menu in Pro Tools. The AudioSuite user interface has the same INPUT, AUDIO PLAYBACK and STATUS sections as the RTAS user interface. It has an additional popup control at the top for choosing the output order (Film or SMPTE) that the files should be imported into the session.

Standalone App Window

The standalone application user interface has the same INPUT, AUDIO PLAYBACK and STATUS sections as the RTAS user interface. It also has an IMPORT section that lets you perform a faster-than-realtime operation and set up hot folder processing.

Hot Folder Processing

The standalone application features hot folder importing. This allows you to drop Dolby E stream files, for example, into a folder and SoundCode will automatically detect them and decode them to a consistent location. SoundCode looks for a special file named SoundCodeProcessTemplate.xml in the hot folder to tell it how to perform the import process. The easiest way to create a SoundCodeProcessTemplate.xml file is to set the import window controls (the location most important) and then select the menu item "Export XML Process..." When you export it, set the name as SoundCodeProcessTemplate.xml. Next, tell SoundCode where your hot folder is by clicking the "browse" button in the HOT FOLDER section.

Description and Use Of Controls

INPUT Controls – Monitor

The INPUT section controls the source BWF or MXF file to be imported (AudioSuite/ Standalone) or played (RTAS). These settings cannot be saved as presets using the Pro Tools plug-in preset features. Instead, these control settings are persistent and are saved in a preferences file that is read when the plug-in window is opened.

Source

This control selects whether a WAV file is being used as the source audio, a live audio stream is the source audio, or "off" to only output zeros. (note that bypassing the plug-in via the Pro Tools bypass control will allow the track audio to pass through in the RTAS version).

Browse

Clicking this button launches a dialog that is used to browse the file system and choose a WAV file for subsequent importing (AudioSuite) or playback (RTAS).

Spot To (AudioSuite)

This popup controls how the audio from the WAV file will be located when imported into the Pro Tools timeline. When "Selection" is chosen, the audio will be located to the start of the selection in the timeline. If the WAV file has embedded time code information, the other choice is Timecode. When Timecode is chosen, the audio will be located at the time code start of the WAV file. If the WAV file does not have embedded time code, the other choice is "Session Start." If "Session Start" is chosen, the audio will be located to the start of the Pro Tools timeline.

Sync To (RTAS)

Similar to the AudioSuite version, this popup controls the timing for playing back the WAV file audio. When "Session Start" is chosen, the audio will be played as though the start of the file is aligned with the start of the timeline. If the WAV file has embedded time code information, the other choice is Timecode. When Timecode is chosen, the audio will be played aligned with the time code start of the WAV file.

Length (AudioSuite)

This popup control selects how much of the WAV file will be played. When set to Entire, the entire WAV file will be played no matter what length is selected in the timeline. When set to Partial, the length of the timeline selection is used to determine how much of the file will be played.

Counter (RTAS)

The counter display shows the running timecode counter when playback is engaged. It shows "waiting" when the timecode has not yet reached the start of the file (assuming the file did not start at the beginning of the timeline). This display will show "finished" if the running timecode has gone beyond the end time of the file.

Play (Standalone)

This control lets you play back the selected WAV or MXF file. Adjust the slider position to change the playback location.

AUDIO PLAYBACK Controls

Configuration

This control selects the audio channel layout of the BWF or MXF file. If the file already contains information about the file, this will be automatically set. But many MXF files, for example, are just eight channels audio with no information about the channel layout. This lets you set it as 5.1 + Stereo, for example.

Program

This control selects the audio program to be imported (AudioSuite) or played (RTAS). If the file contains more than one audio program then each program will be shown as a choice here, including the choice of "all programs" at the end of the list.

Dolby E Decode Enable

This control enables the Dolby E decoder.

Dolby E Decode PCM Pass Thru

This control allows the Dolby E decoder.

Dolby E Decode Program

This control sets which Dolby E program to import or monitor. You can select the last entry to monitor or import all programs simultaneously.

Output Channel Order (Audio Suite Only)

This sets the output channel order used for importing the audio from a BWF file into the session. For example, if the individual channels in a 5.1 multichannel file are in SMPTE order (L,R,C,Lfe,Ls,Rs) this control can be used to choose between Film order (L,C,R,Ls,Rs,Lfe) or SMPTE order when importing the individual mono elements.

STATUS Controls- Monitor

Main. Dolby, Prog1. Prog2...Prog8

These controls select between different sets of metadata information for display. Clicking on them will switch the status display between these pages.

Main STATUS Items



File / Stream

This displays the type of audio being monitored.

Stem Format

This displays the stem format of the audio being monitored.

Sample Rate

Shows the sample rate of the audio being monitored.

Timecode or Timestamp

This displays the start SMPTE time code of the audio being monitored. The frame rate is displayed at the end of the value where ND indicates non-drop frame and DF indicates drop frame. If the file does not contain Dolby E metadata and it does contain a BEXT chunk, the BEXT timestamp is displayed

Dolby STATUS Items



This page displays Dolby E metadata associated with the audio being monitored.

Prog1...Prog8 STATUS Items



Each page displays detailed metadata information for each audio program being monitored. Please refer to the document "Dolby Encoding guidelines.pdf" for more information about these values.

Dolby E Hardware Mode (RTAS Only)

The RTAS Dolby E Monitor features an additional control called "hw mode." This control is enabled when the Pro Tools system is used as a standalone Dolby E decoder decoding a live Dolby E stream that is being monitored. It is only available when the Input Source is set to Track Stream. When enabled the Dolby E decode latency is one video frame. To operate correctly, the RTAS buffer size must be set to 256 in the Playback Engine dialog.

Chapter 6

Settings Files

Overview

SoundCode For Dolby E has the ability to save and recall settings. Four kinds of Settings files are saved in a file that is one of three categories: Metadata Settings, Process Settings, and Process Sets.

Chapter 7

Final Cut

Overview

SoundCode For Dolby E version 2.0 integrates with Final Cut Pro and Final Cut Express workflows. The Dolby E encoder operates as an export plug-in. Select one or more sequences and select SoundCode Dolby E from the export menu. The encoder will export a stereo WAV file. If you need to bring the Dolby E stream into a Final Cut project, just import the WAV file.

You can monitor a Dolby E stream in Final Cut by using the N-Mon utility. The N-Mon utility will use the Audio Unit Dolby E decoder. Open the Audio/Video Settings dialog. Set the Audio Playback to N-Mon. See the N-Mon Help system for more information on using N-Mon.

Chapter 8

Workflows

In Pro Tools, Dolby E encode a set of 5.1 + Stereo mixes and then lay back to a VTR

In this scenario, you are mixing an audio soundtrack in both 5.1 surround as well as stereo and need to deliver a Dolby E encoded stream onto a video tape.

1. Finish the mixes by bouncing them to disk in Pro Tools.
 2. Import the bounced files into Pro Tools tracks. In this example, import the bounced mixes into a 5.1 tracks for the 5.1 mix and a stereo track for the stereo mix (or you can use eight mono tracks if you prefer).
 3. Make sure the imported mix files are positioned in the timeline at the correct location. Typically, they will be placed at the far left of the timeline.
 4. Select the imported mix in the timeline.
 5. Select the SoundCode Dolby E Encoder plug-in in the AudioSuite menu.
 6. Set the configuration controls to "Dolby E 20 bit" and "5.1 + Stereo"
 7. Setup the metadata for both the 5.1 program and the stereo program.
 8. Name the output file and location, and click on the "Encode" button.
 9. Create a new stereo track to be used for outputting the Dolby E encoded stream.
 10. Import the stereo WAV Dolby E stream created in step 8 and spot it to the stereo track created in step 9.
 11. Place a hardware insert on the stereo track to send the Dolby E stream to the VTR inputs and return the Dolby E stream from the VTR.
 12. Insert a stereo-to-5.1 RTAS SoundCode Dolby E Monitor plug-in after the hardware insert.
 13. Enable the "dolby e" control so that the Dolby E stream returning from the VTR can be monitored.
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In Pro Tools, prepare a set of 5.1 + Stereo mixes for Dolby E encoding with the Dolby DP600 and then lay back to a VTR

In this scenario, you are mixing an audio soundtrack in both 5.1 surround as well as stereo and need to deliver a Dolby E encoded stream onto a video tape.

1. Finish the mixes by bouncing them to disk in Pro Tools.
 2. Import the bounced files into Pro Tools mono tracks. In this example, import the bounced mixes into a 5.1 tracks for the 5.1 mix and a stereo track for the stereo mix (or you can use eight mono tracks if you prefer).
 3. Make sure the imported mix files are positioned in the timeline at the correct location. Typically, they will be placed at the far left of the timeline.
 4. Select the imported mix in the timeline.
 5. Select the SoundCode Dolby E Encoder plug-in in the AudioSuite menu.
 6. Set the configuration controls to "Dolby E" and "5.1 + stereo"
 7. Setup the metadata for both the 5.1 program and the stereo program.
 8. Name the output file and location, and click on the "Export" button.
 9. Send the exported file to the DP600 (by dragging to the hot folder, for instance). Bring the newly encoded file back to your desktop.
 10. Create a new stereo track to be used for outputting the Dolby E encoded stream.
 11. Select the SoundCode Dolby E Monitor plug-in in the AudioSuite menu. On the stereo aux track, and browse to the encoded Dolby E WAV file.
 12. Now playing the session will output the encoded stream synchronized to the Pro Tools timeline (and the video being delivered). Adjust the "frame offset" as needed to account for Dolby E decoding.
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Audition a SMPTE ordered multichannel BWF file in Pro Tools

In this scenario, you would like to listen to a 5.1 interleaved BWF file synchronized to Pro Tools video playback.

1. Create a stereo aux track and instantiate the RTAS stereo-5.1 SoundCode Dolby E Monitor plug-in.
 2. Click the browse control and select the multichannel WAV file to be played.
 3. Place the timeline cursor as appropriate for playing the file according to the timecode in the file or session start. (which may be the same).
 4. Select the program to play (in this case the 5.1 program is the only choice)
 5. Start the transport and listen.
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Edit The Dolby Metadata In A BWF File

In this scenario, you would like to modify the Dolby metadata in an existing Dolby BWF file. This can be done in the standalone SoundCode Broadcast application by using a menu command to import the metadata into SoundCode Broadcast, altering the metadata controls, and using a menu command to overwrite the metadata in the Dolby BWF file.

1. Open the standalone SoundCode Broadcast application.
 2. Select the menu command "Import Dolby Metadata From BWF File..."
 3. Select a BWF file to edit.
 4. Use the controls in SoundCode to change the metadata.
 5. Select the menu command "Overwrite Metadata In BWF File..."
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Export a multichannel, RIFF64 file from Pro Tools

In this scenario, you would like to export a single, multichannel mix to a file larger than 2 GB.

1. Finish the mixes by bouncing them to disk in Pro Tools.
2. Import the bounced files into Pro Tools mono tracks. In this example, import the bounced mixes into a 5.1 track for the 5.1 mix (or you can use six mono tracks if you prefer)..
3. Make sure the imported mix files are positioned in the timeline at the correct location. Typically, they will be placed at the far left of the timeline.
4. Select the imported mix in the timeline.
5. Select the SoundCode BWF Export plug-in in the AudioSuite menu.
6. Set the configuration controls to "BEXT"
7. Setup the mode control LCRLsRs and enable the LFE control.
8. Name the output file and location, and click on the "Export" button

Chapter 8

Troubleshooting

Error Message: Updated Tpkd Driver Required

If you see this message when Pro Tools is launching on Windows XP, it means that your PACE iLok driver needs to be updated to a newer version. Go to PACE's website at www.paceap.com to download a driver installer

External Dolby E Decoder Won't Decode Data Stream

If the decoder is not recognizing an encoded Dolby E data stream that you are playing with the RTAS Monitor, it suggests that the data stream has been altered. It is very important that a Dolby E or Dolby Digital data stream not be altered. Sample rate conversion, gain change, dithering (including use of the Pro Tools dithering mixer), EQ, compression, and any other type of audio signal processing will alter a data stream and make it unusable.

Technical Support Information

Maintenance updates will be posted on the Neyrinck web site as they become available. Neyrinck's web site is: www.neyrinck.com. Technical support is available by e-mail at support@neyrinck.com.