



SoundCode Exchange MXF Users Guide

Version 2.0

**Quicktime Import Component
MXF To Pro Tools Utility Application
Pro Tools Export PlugIn (SoundCode Exchange Only)
for Macintosh OS X and Windows XP /Vista**

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Chapter 1

Introduction

Welcome To SoundCode Exchange MXF

SoundCode Exchange MXF and SoundCode Exchange MXF Import is a suite of tools for MXF file workflows using Quicktime and Pro Tools.

SoundCode Exchange MXF Features:

- Quicktime import OP1a and OP-Atom files into a Pro Tools video track.
- Quicktime import OP1a and OP-Atom files into a Pro Tools audio tracks.
- Lay back of multi-program audio to a MXF OP1a file (SoundCode Exchange MXF only).
- Extensive integration with Pro Tools.
- Compatible with most common OP1a files including D10, DV, DNxHD, AVC-Intra, and XDCAM formats.
- Compatible with Pro Tools And Quicktime 7 on Windows and Mac OS Systems.

System Requirements

To use SoundCode Exchange MXF as a Pro Tools plug-in, you need the following system:

- A Digidesign-qualified Pro Tools system running Pro Tools 7.4 or higher.

Important Sample Rate Information

SoundCode Exchange MXF operates on files at standard audio sample rates. However, note that files being prepared for broadcasting need to be at 48kHz. SoundCode Exchange MXF does not perform sample-rate conversion.

Important OS Compatibility Information

Windows XP, Vista, and Windows 7
Mac OS 10.4, 10.5, 10.6

Important Quicktime Compatibility Information

Quicktime 7 For Windows

You must install Quicktime 7 For Windows to use SoundCode Exchange MXF.

<http://www.apple.com/quicktime/download/>

Quicktime 7 Player For Snow Leopard (Mac OS 10.6)

Snow Leopard uses a new Quicktime Player that does not recognize MXF files and has no Quicktime Pro features. We recommend you install the Quicktime 7 Player that is available on the Snow Leopard install disk in the Optional Installs folder.

Important Pro Tools Compatibility Information

Pro Tools 7.4 and later is supported. Pro Tools 9.02 is highly recommended.

Pro Tools Quicktime Import Bugs

Pro Tools 9.0 and earlier have a problem where importing an eight channel Quicktime movie can result in incorrect audio to be imported or crashing. We have seen XDCam HD Quicktime files result in crashes. And we have seen movies with eight separate mono soundtracks import incorrectly. These problems are fixed in Pro Tool 9.02.

Important MXF File Compatibility Information

OP1a and OP-Atom files are supported.

These video essence types are supported - DV25, DV50, DVCProHD, IMX 30/40/50, AVC-Intra 100, DNxHD, XDCam HD

These audio essence types are supported - AES3, BWF

If you have an MXF file that is not readable by SoundCode Exchange MXF, please contact support at www.neyrinck.com/support.

Important Information About Quicktime Codecs

SoundCode Exchange MXF does not provide video codecs to decode and view video in MXF files. You may need to install a codec depending on what type of video codec is used in your MXF files.

Codecs Installed by Quicktime 7

DV25 - Apple provides a DV25 decode codec as part of Quicktime on both Mac and Windows systems.

DV50 - Apple provides a DV50 decode codec as part of Quicktime on Mac systems. Windows systems require a separate decode codec to be installed.

DVCProHD, XDCam HD, DNxHD, AVC-Intra - Mac and Windows systems require these Quicktime codecs to be installed.

Supported Codecs

DNxHD - Avid provides free DNxHD Quicktime codecs for Mac and Windows.

<http://avid.custkb.com/avid/app/selfservice/search.jsp?DocId=372311>

Final Cut Studio - Final Cut Studio on Mac installs decode codecs for DVCProHD, IMX 30/40/50, AVC-Intra, XDCam HD

Calibrated Software - Calibrated sells decode codecs for DV50, DVCProHD, IMX 30/40/50, AVC-Intra, and XDCam HD for both Mac and Windows.

Chapter 2

Installation

Installing SoundCode Exchange MXF

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 Exchange MXF:

1. If Pro Tools or any Quicktime application such as a web browser is running, Quit the application.
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/Done.

When you launch Pro Tools, you will be prompted to authorize your new software.

Authorizing SoundCode Exchange MXF

SoundCode Exchange MXF requires an authorized iLok USB Key to be connected to your computer. The 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](http://www.ilok.com) account, visit www.ilok.com to set up an account for free.

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 ToolsIHD-series systems), or purchase one separately.

Removing Expired Plug-Ins

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

To remove an expired Pro Tools 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).
Drag the expired plug-in to the Trash.

Chapter 3

SoundCode Exchange MXF Technologies

SoundCode Exchange MXF Technologies

SoundCode Exchange MXF features many professional audio and video technologies. This section describes those technologies.

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 files 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.

Quicktime

Quicktime is a software system made by Apple that is made up of many technologies and pieces. Quicktime is used by applications such as Pro Tools to read and write files that contain audio and video media. Quicktime allows software components to be made by third parties to add functionality to Quicktime. SoundCode Exchange MXF provides a Quicktime component that tells Quicktime applications how to read the audio and video in MXF files. The component specifically tells Quicktime where the audio and video is located in the file and detailed information about the audio and video such as the codec, frame rate, bit depth, and sample rate.

The SoundCode Exchange MXF Quicktime component allows Quicktime 7 to read and play back MXF files natively. Software applications that use Quicktime 7 can then directly play back MXF files however some applications such as Pro Tools that do not recognize the .xf extension as a Quicktime file have to use a reference movie.

Chapter 4

Using Quicktime Player

Overview

This section describes how you can play an MXF file in Quicktime player. This is made possible by the SoundCode Exchange MXF component which helps Quicktime read the file and identify the codecs used.

How To Play An MXF File In Quicktime Player

1. Launch Quicktime Player 7.
2. Open the MXF file with Quicktime Player 7.

Chapter 5

Importing MXF Into Pro Tools - MXF To Pro Tools

Overview

This section describes how you can import MXF video and audio into Pro Tools. Pro Tools can import Quicktime video into a video track and can copy the audio from the file into mono audio files. MXF To Pro Tools is used to create a small Quicktime ref movie of the MXF file. The ref movie is imported into Pro Tools and the SoundCode Exchange MXF component allows Quicktime to see the MXF video for the Pro Tools video track and to see the MXF audio to be converted into mono audio tracks.

How To Import MXF Media Into Pro Tools

1. Locate the MXF To Pro Tools utility application.
2. Drag and drop the MXF file on to MXF To Pro Tools.
3. MXF To Pro Tools will display a window that lets you save a Quicktime ref movie. Click Save to create the ref movie.
4. Locate the Quicktime ref movie and drag it into the Pro Tools region list.
5. Import the video using Pro Tools Quicktime video import feature.

Chapter 6

SoundCode Exchange MXF Export

Overview

SoundCode Exchange MXF Export operates as an AudioSuite plug-in in Pro Tools.

Open the Pro Tools plug-in window by selecting it from the AudioSuite menu. The plug-in is located in the Sound Field category.

How To Export To An OP1a File

1. Open the SoundCode Exchange MXF Export plug-in or standalone application.
 2. Select the Program Configuration that matches the number of audio channels you wish to export. The channels must be ordered from top to bottom in the timeline as you want to order them in the MXF file.
 3. In Pro Tools select audio across multiple tracks in the timeline.
 5. Set the output file name.
 6. Browse to select a location for the output file.
 7. Click on the "Export" button. This button is located at the bottom of the Pro Tools plug-in.
-

Description and Use Of Controls

The user interface is divided into sections. The CONFIGURATION section determines the audio program formats and whether the file includes Dolby metadata. 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 and OTHER SETUP section displays and controls the metadata and preprocessing settings for each program in the configuration and OP1a settings. 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 MXF 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 export to match the type of broadcast delivery you are making.

Program Configuration

OP1a files support multiple channels of audio. This control lets you select the number of channels to use. It must be set to match the number of channels in the OP1a file.

Dolby Metadata TBD

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 metadata 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.

Chapter 7

Workflows

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.

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.