MP3 Export Option for Pro Tools 5.0

(Macintosh Only)

MPEG Layer-3 audio compression technology licensed by Fraunhofer IIS and Thomson multimedia.

Introduction

The MP3 Export Option for Pro Tools 5.0 and later lets you export or bounce audio to the MP3 file format. MP3, which stands for "MPEG Layer 3", is an audio compression format that utilizes perceptual audio coding techniques to compress audio while retaining high quality. MP3 has become a very popular audio format on the Internet.

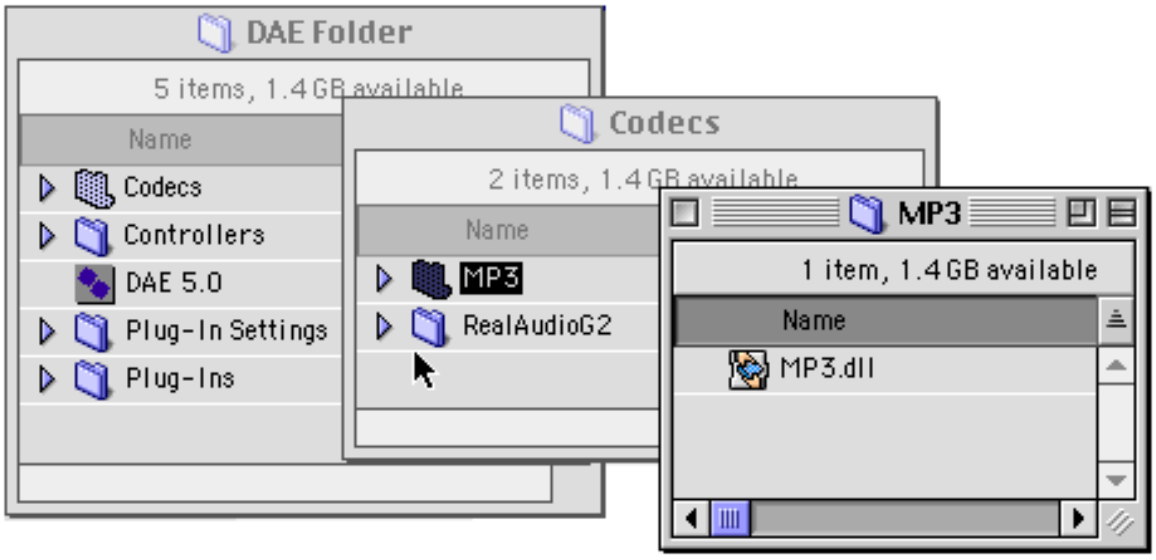
The MP3 Export Option features the very latest encoding technology from Germany's Fraunhofer Institute, offering dramatic improvements in processing speed, enhanced processing quality and support of constant bit rate (CBR) and variable bit rate (VBR) encoding at bit rates of up to 320 kbps.

Playing Back MP3 Files

There are a number of free and/or shareware applications available on both the Macintosh and Windows platforms that can playback MP3 files. Popular MP3 players on the Mac include the "QuickTime 4 Player" and "MacCAST". Popular MP3 players on the PC include "WinAmp", "RealJukeBox", and "Windows Media Player".

MP3 Encoder Files

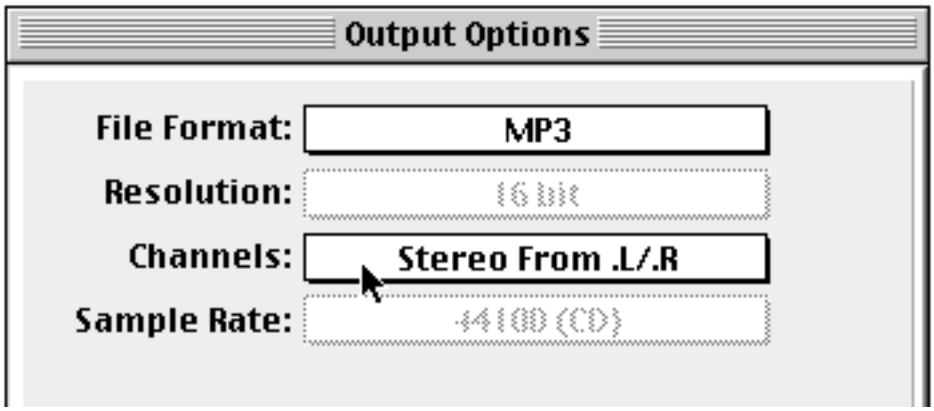
In order to compress files to MP3 format, Pro Tools requires that a particular file called "MP3.dll" be present in a particular location. Pro Tools looks for this file inside a folder called "MP3" which in turn resides inside the "Codecs" folder inside the "DAE Folder". This "MP3.dll" file contains the actual MP3 encoding engine.



Exporting To MP3

To export to the MP3 file format, select the “MP3” option from the file format popup in the Output Options dialog (see Figure below). This dialog is accessible when you select either the “Export Selected As Files” menu item or the “Bounce” command.

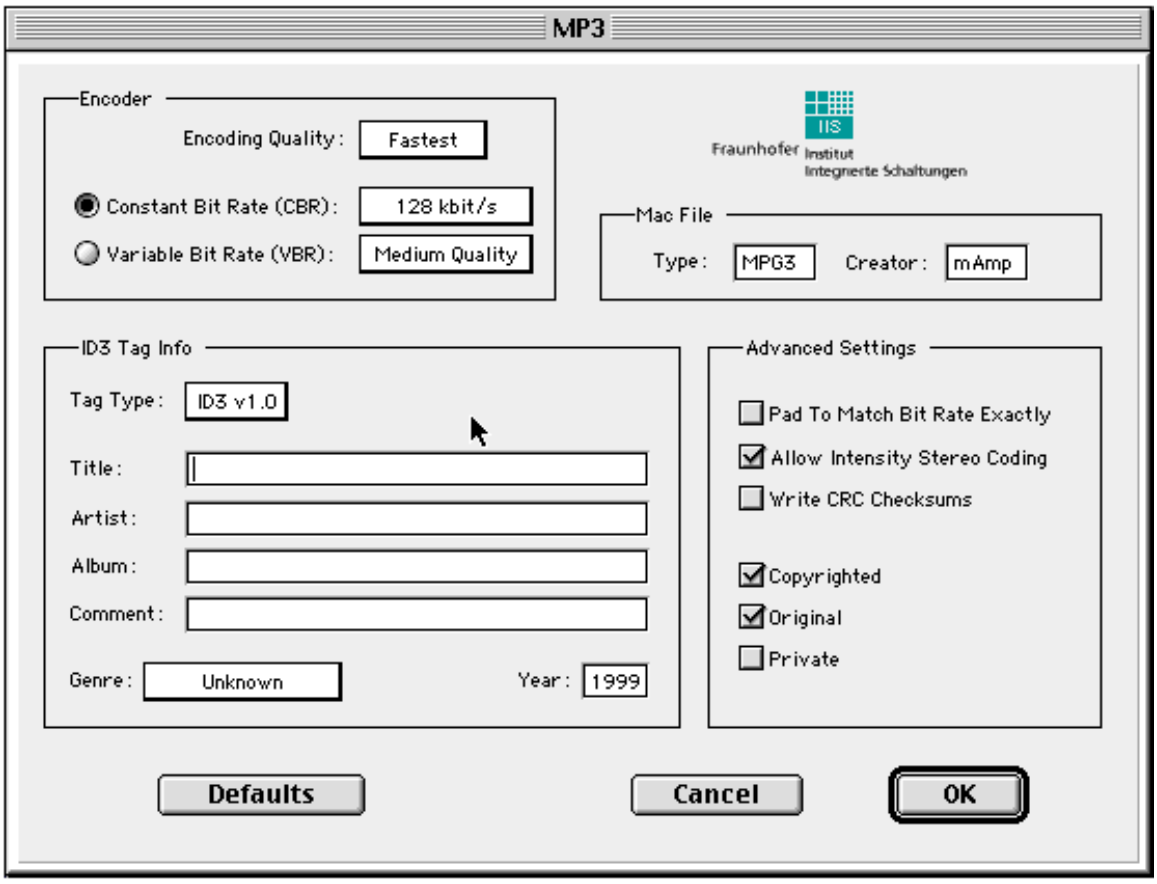
When this option is selected, the resolution and sample rate popups are unavailable. This is because “MP3” stores audio in a compressed format and hence sample rate and bit depth are not applicable.



Output Options Dialog

You select whether you will be compressing mono files or stereo files by using the “Channels” popup. Selecting “Mono” in this popup will result in all selected regions being individually exported as mono MP3 files. Selecting “Stereo From .L/.R” from this popup will result in only selected .L/.R region pairs being exported as stereo MP3 files. Regions which don't have matching .L/.R pairs won’t be exported.

When you select “MP3” in the Output Options dialog and hit “OK”, a secondary dialog appears. This secondary dialog is titled “MP3” (see Figure below).



MP3 Dialog

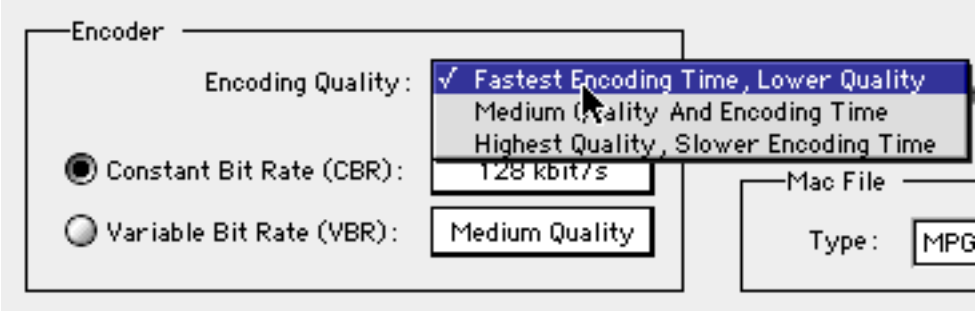
The MP3 dialog allows you to specify a number of settings regarding how the file will be compressed and what information the resulting file will contain.

Encoder Pane

The “Encoder” pane contains a collection of controls that govern how the MP3 encoder will operate.

Encoding Quality

At the top of the “Encoder “ pane is the “Encoding Quality” popup. This popup allows you to trade-off time to encode versus resulting audio quality. The encoding quality popup has three choices: Fastest Encoding, Medium Encoding, and Highest Quality. Selecting “Fastest Encoding” will result in the fastest encoding time. Selecting “Highest Quality” will result in the highest quality file, however, it will also take significantly longer to encode the file.

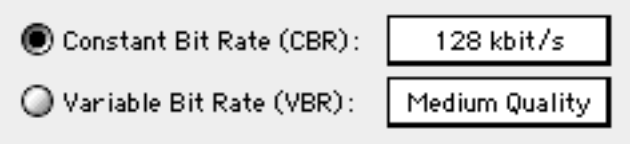


Encoding Quality Popup

If what you desire is the absolute highest quality output file, and you are not pressed for time, you should select “Highest Quality” in the quality factor popup. You should however experiment with the other encoding quality settings. Depending on your application, they can provide acceptable quality with a significantly shorter encoding time.

Encoding Method

Pro Tools MP3 encoding provides two encoding methods: Constant Bit Rate (CBR) and Variable Bit Rate (VBR). You select which method to use by clicking its corresponding radio button.



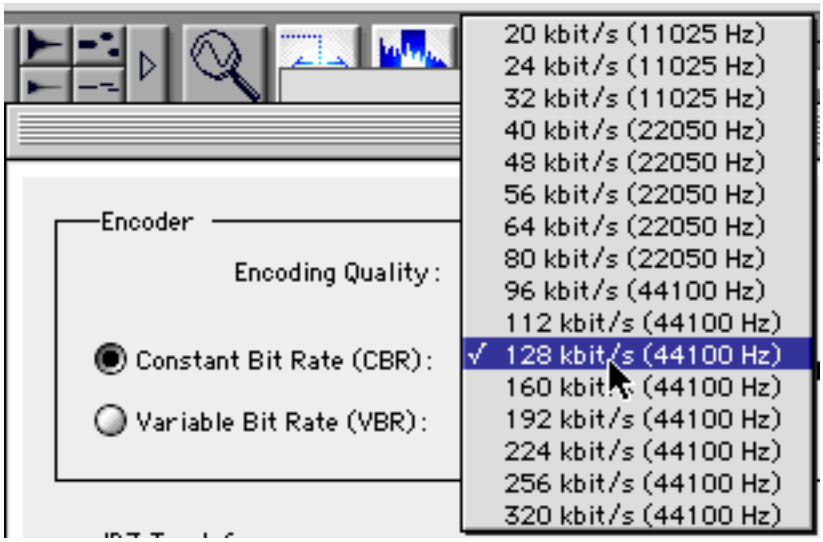
Encoding Methods

CBR encoding uses a constant number of bits per second to encode material. VBR, on the other hand, varies the bit rate over time based on how difficult or easy the material is to compress. In CBR encoding the bit rate is kept constant and the quality of the encoding will vary over time. In VBR encoding the quality of the encoding is kept relatively constant and the bit rate varies over time.

CBR is popular in Internet streaming applications since it has a very predictable bit rate. VBR is popular with personal jukebox applications since the same size MP3 file produced with VBR encoding will sound better than one encoded with CBR.

Constant Bit Rate

When using CBR, you specify what bit rate to encode to using the "Bit Rate" popup. Lower bit rates result in a smaller file but also a lower quality file. Similarly, higher bit rates result in a larger but higher quality file.

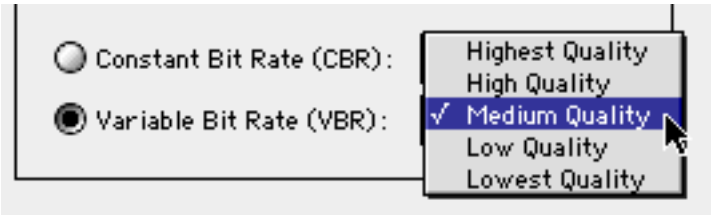


Bit Rate Popup

The exact number of bit rate choices available will be different when encoding mono versus stereo files. At low bit rates, the encoder must reduce the high frequency content of the source audio by downsampling. The bit rate's effective sample rate is displayed in parentheses following the bit rate.

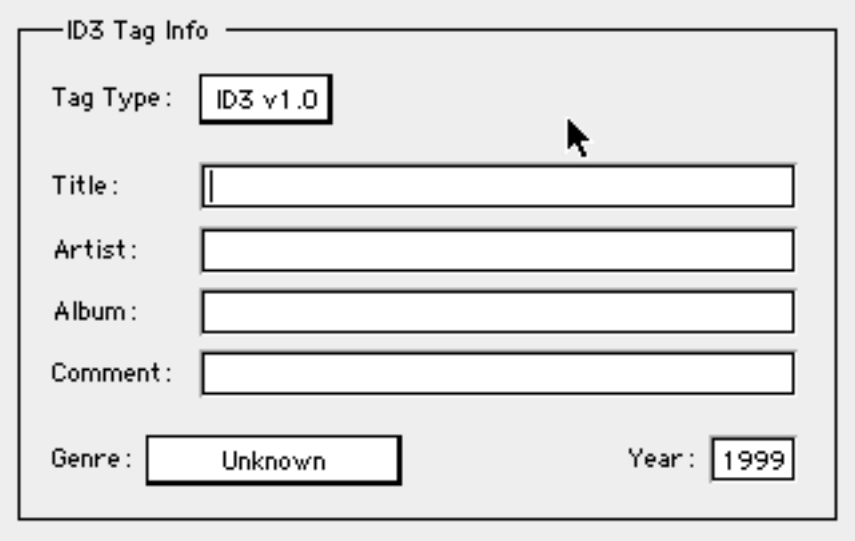
Variable Bit Rate

When using VBR, you specify a quality rather than a specific bit rate. Higher qualities result in larger files.



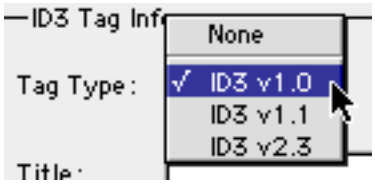
ID3 Tag Info Pane

In the lower left of the dialog is the "ID3 Tag Info" pane. This pane allows you to specify information that will go into the ID3 tag. An ID3 tag is a chunk of data stored in the MP3 file separate from the actual MP3 bit stream. The ID3 data describes particular characteristics of the audio in the file such as the track's name, artist's name, etc.



Tag Type

Pro Tools supports three different ID3 tag versions.



ID3 Tag Type

ID3 v1.0 was the original version of the ID3 tag. It consisted of 128 bytes of data that were written at the end of an MP3 file. ID3 v1.1 is similar to v1.0 with the exception that it also allows you to include the track number of the song.

Both v1.0 and v1.1 versions of the ID3 tag are written at the end of the file. As a result, when streaming an MP3 file, this ID3 tag information is not available until the end.

ID3 v2.3 solves the streaming problem by including the ID3 tag at the start of the MP3 file rather than the end. Since the data is at the start of the file, it is available as soon as the file starts to stream.

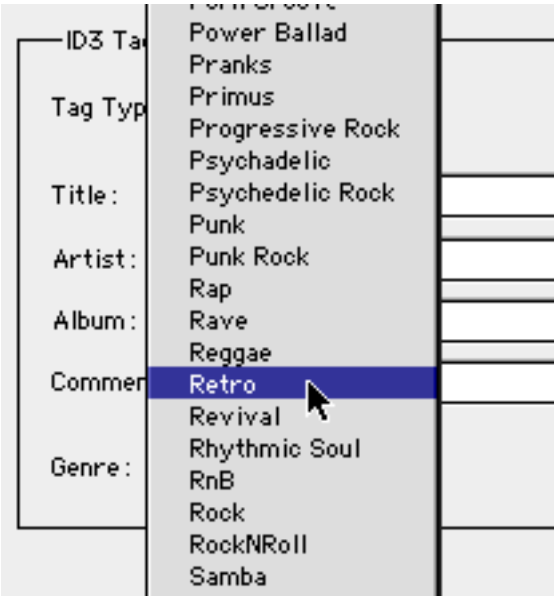
Over time ID3 v2.3 is becoming the standard format. However, not all MP3 players may support this newer version. Therefore, the other options are also provided.

Text Boxes

Below the Tag Type popup are four text boxes that allows you to enter the title, artist, album, and a comment for the track. The text entered in these boxes is usually displayed in user interface for various MP3 players.

Genre

The "Genre" popup allows you to identify the genre of music for this track. This genre is often displayed in various MP3 players UI and also can be searched for in certain MP3 cataloging/database programs.



Genre Popup

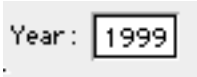
Track Number

If you select a tag type of v1.1 or v2.3, an edit box labeled "Track" will appear to the right of the "Genre" popup.

This edit box allows you to specify which track on a CD the particular track came from.

Year

In the lower right corner of the “ID3 Tag Info” pane is an edit box labeled “Year”.



This edit box allows you to specify the year for the track. It defaults to the current year.

Advanced Settings Pane

On the right side of the dialog is the “Advanced Settings” pane. This pane contains a collection of checkboxes that control advanced settings of the encoder. Under normal situations you will not need to change these checkboxes from their default values.

Pad To Match Bit Rate Exactly

The “Pad To Match Bit Rate Exactly” checkbox determines whether the encoder will, if necessary, pad MP3 frames in order to maintain the target bit rate very precisely. You should only check this box if your application demands that the target bit rate be exact (e.g. synchronous transmission over a plain ISDN line).

Note, this padding can cause problems with some versions of Internet streaming software (e.g. NetShow). If your files are destined for desktop or Internet delivery, keep this checkbox unchecked.

Allow Intensity Stereo Coding

At lower frequencies the spatial perception of the human auditory system relies on magnitude and phase of both stereo signals. However, at higher frequencies only the energy-time envelopes are evaluated. Intensity Stereo coding takes advantage of this fact to achieve additional compression at low bit rates.

Under normal situations you should allow the encoder to use Intensity Stereo coding. However, it can cause adverse affects when used with phase dependent material such as Dolby Surround.

Write CRC Checksums

MP3 frames can optionally contain CRC checksums. These checksums can be used by some decoders to detect bit errors that occurred in transmission. Note, however, that the bits used for the CRC take away from the bits used to encode the audio.

Undetected transmission errors are not a problem in today's computer environment. As a result, for normal applications (e.g. desktop/Internet delivery) this checkbox should remain unchecked (i.e. don't write CRC's)

Only check this checkbox if you have very good reason to want to add CRC's.

Copyrighted

Checking the "Copyrighted" checkbox will set the "copyright" bit in the MP3 bitstream to indicate that the audio is copyrighted. Note that this simply results in a bit being set in the MP3 data stream. It is up to the player application to determine how to interpret this bit. Checking this box provides no guarantee that the audio will not be copied.

Original

Checking the "Original" checkbox will set the "original" bit in the MP3 bitstream. When this bit is set, it indicates that the MP3 is the original media for this track. When not set, it indicates that it is a copy of the original media. This bit is not widely used.

Private

Checking the "Private"checkbox will set the "private" bit in the MP3 bitstream. The use and interpretation of the "private" bit is application dependent and normally not used.

Mac File Pane

On the lower right of the dialog is the "Mac File" pane. Two edit boxes in this pane allows you to specify the file type and file creator of the resulting MP3 file.

Defaults

The button named "Defaults" allows you to quickly return the various settings in the dialog to their default values.