Cool Edit Filter Version 3.0

WavPack Filter for Cool Edit and Adobe Audition Versions 1-3
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1.0 Introduction

This plugin allows you to load and save files in the WavPack format. It will work with Cool Edit and Adobe Audition versions 1 through 3. For newer versions of Adobe Audition (CS, CC), other plugins are available on the WavPack website.

It supports reading and writing both pure lossless and hybrid WavPack files (with correction files) and all bit depths, including Audition's native 32-bit floating point. It supports any sampling rates and there is no limit on the size of the audio file. WavPack files containing DSD audio can be loaded as 24-bit PCM decimated 8x for use, but DSD files cannot be written.

Also, extra information like cue and play lists, artist/title information, EBU extensions and even bitmaps can be stored and retrieved in WavPack files. If the source file contains metadata items in either ID3v1 or APEv2 tags (the standard for WavPack files), these will be lost when editing with this filter.

2.0 Installation

To install the plugin, copy (or extract) the file "cool_wv4.flt" into the standard directory that contains the executable for Audition or Cool Edit. For example, this would be somewhere like:

```
C:\Program Files (x86)\Adobe\Adobe Audition 3.0\
C:\Program Files (x86)\Cool2000\
```

3.0 Usage

Loading WavPack files works just like loading any other format. Note that files from before WavPack 4.0 can be loaded, but these files are deprecated and may be unusable in future versions of this plugin. A warning dialog will display when loading these files.

WavPack files containing DSD audio can be loaded. They are automatically decimated 8x and converted to 24-bit PCM. These will still be at a very high sampling rate (352.8 kHz for DSD64) and will have lots of quantization noise remaining, so they should be downsampled further before use. If you save them back to WavPack, they will still be PCM (there's no way to save again as DSD).

To save an audio file in the WavPack format, use the "Save As..." menu item and select "WavPack" in the "Files of type" drop down list. Click the "Options..." button to get the WavPack settings dialog, which looks like this:
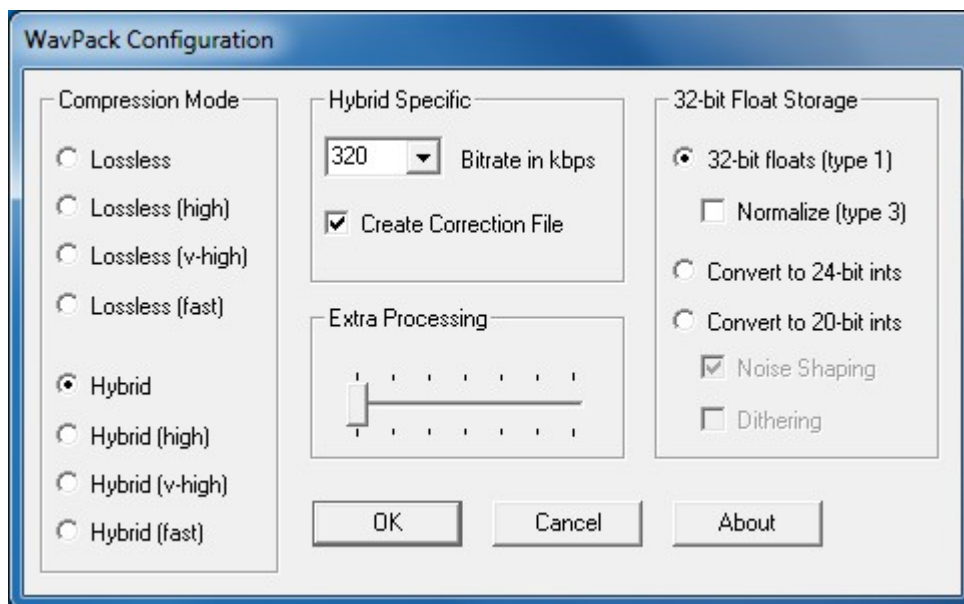
From here it's possible to configure the following WavPack-specific settings:

Compression Mode:
- **Lossless** – This is the default mode and provides a decent compromise between compression ratio and speed.
- **Lossless (high)** – This mode provides better compression in WavPack, but is somewhat slower than the default mode both in saving and loading files.
- **Lossless (v-high)** – This mode provides the highest possible compression in WavPack, but is significantly slower than the default mode both in saving and loading files and is **not** recommended for files to be played on hardware devices.
- **Lossless (fast)** – This mode provides the fastest operation with somewhat less compression.
- **Hybrid** – This enables the "hybrid" mode of WavPack (which can be either lossless or lossy depending on the creation of the "correction" file).
- **Hybrid (high)** – This is the high quality version of the hybrid mode which provides higher quality lossy files and somewhat smaller correction files, but at some cost in speed.
- **Hybrid (v-high)** – This is the highest quality version of the hybrid mode which provides higher quality lossy files and somewhat smaller correction files, but at significant cost in speed. This mode is **not** recommended for files to be played on hardware devices.
- **Hybrid (fast)** – This mode provides the fastest hybrid operation.

Hybrid Specific:
- **Bitrate in kbps** – This is where you select the target bitrate of the hybrid file in kbps; the values range from the minimum possible for the current file up to a reasonable maximum using standard bitrates (although you may type in a custom value if you like). If you are not able to

get a bitrate as low as you'd like, you could go back and reduce the sampling rate.
- **Create Correction File** – This option enables the creation of the "correction" file (extension .wvc) that stores the information that is discarded in creating the lossy file and may be used later, in conjunction with the lossy file, for lossless operation.

Extra Processing:

This slider selects the amount of extra processing used to improve the compression ratio and, in hybrid mode, the quality of the resulting lossy file. This is equivalent to the -x mode of the command-line encoder, and does **not** affect the decoding speed of the target file. When the slider is all the way to the left (0) no extra processing is done and the fastest possible operation is performed. The rightmost position (6) causes an exhaustive search for the best compression parameters and is very slow. In some cases this extra processing can significantly improve the compression ratio, especially for "non-standard" files like those containing synthesized signals or those at very high or very low sampling rates.

32-Bit Float Storage:
- **32-bit floats (type 1)** – This causes the filter to store 32-bit float data as is. If one of the lossless modes are selected (or correction files are selected) then this will store the audio with no changes whatsoever. Note that this stores the data in Audition's native format range which is not compatible with Windows standard wav files. This means that if the resulting files are unpacked with the command-line unpacker back to wav files they will not be playable with normal Windows players (however they will be usable by Audition). The WavPack files will be playable in all players compatible with WavPack.
- **Normalize (type 3)** – This forces the filter to normalize the audio to the standard wav range (+/-1.0) so that if a resulting file is unpacked by the command-line WavPack unpacker it will be fully compatible with standard Windows players. This does not affect the file's usability in either Audition or other WavPack compatible programs.
- **Convert to 20-bit int** – This causes the filter to create a 20-bit WavPack file. This is probably plenty of resolution for most applications because is provides a S/N ratio of about 120 dB and results in significantly smaller files than storing all 24 bits. Samples outside the normal +/-32K range will be clipped.
- **Convert to 24-bit int** – This causes the filter to create a 24-bit WavPack file. If the original source of the file was 24 bits (such as from a 24-bit DAC or DVD rip) and has not been "modified" and the dithering option below is *not* set, then this will result in a "lossless" storage operation. If modifications have been performed on the raw data (like EQ, mixing, etc.) then the data will probably be slightly changed during the save, however this added noise will be about 144 dB below full scale. Also, if the data exceeds the normal +/-32K range, these samples will be clipped.
- **Noise Shaping** – This option moves the noise generated by quantization up in frequency, making is less audible and providing more dynamic range in the midrange. In most situations this alone is sufficient for quality conversions and has the advantage that it will *not* alter the audio if it already fits losslessly into the specified bit depth.
- **Dithering** – Add low level dither noise to the signal before conversion. This can be useful in avoiding artifacts when storing very low level audio, but it has the disadvantages that it raises the noise floor slightly and alters the audio every save/load cycle.

4.0 History

- **Version 1.0** – May 31, 2003
- **Version 1.1** – June 5, 2003 (fixed bug in 20-bit headers)
- **Version 2.0** – June 7, 2004 (WavPack 4.0)
- **Version 2.1** – July 9, 2004 (fixed bug with 20 and 24-bit headers)
- **Version 2.2** – Aug 17, 2004 (fixed bug with mono encode in extra1.c module)
- **Version 2.3** – Aug 28, 2004 (enhanced RIFF / first block stuff, new libs)
- **Version 2.4** – Apr 2, 2005 (fixed 2gig+ problem, new libs)
- **Version 2.5** – Sept 1, 2005 (fixed encoder/decoder overflow on extra mode)
- **Version 2.6** – Nov 1, 2005 (updated to library version 4.3)
- **Version 2.7** – Dec 3, 2006 (updated to library version 4.40, added v.high mode)
- **Version 2.8** – May 6, 2007 (library ver 4.41, read RIFF header, not just trailer)
- **Version 2.9** – May 24, 2008 (library ver 4.50, add About, make "extra" into slider)
- **Version 2.10** – Sept 25, 2009 (library ver 4.60)
- **Version 2.11** – Nov 22, 2009 (library ver 4.60.1)
- **Version 2.12** – May 10, 2015 (library ver 4.75.0)
- **Version 2.13** – Sept 29, 2015 (library ver 4.75.2)
- **Version 2.14** – Mar 28, 2016 (library ver 4.80.0)
- **Version 2.15a** – Aug 26, 2016 (library ver 5.0.0-alpha4, DSD read with 8x decimation)
- **Version 2.15b** – Sept 27, 2016 (library ver 5.0.0-alpha5, new "high" DSD, **broken!**)
- **Version 3.0** – Nov, 30, 2016 (WavPack 5.0.0)

5.0 Summary

WavPack and this plugin are free programs; feel free to give them to anyone who may find them useful. There is no warranty provided and you agree to use them completely at your own risk. If you have any questions or problems please post at the Hydrogen Audio WavPack forum:

https://hydrogenaud.io/index.php/board,68.0.html

The latest version of this plugin and information on Wavpack is available at the WavPack website:

http://www.wavpack.com/