

Recording 48kHz ADAT tracks onto an audio CD

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If you have a final stereo mix on a standard ADAT tape and want to record the mix onto a CD, you need to transfer the audio mix onto your computer, convert the sample rate of the audio to 44.1kHz, and then burn an audio CD. You'll need an ADAT deck, a PC with either WaveCenter/PCI or Dakota installed, a copy of Cool Edit Pro SE (which comes with each soundcard), and a CD "burner" (CD-R or CD-RW drive).

Standard ADAT tapes are recorded at a sample rate of 48kHz, which is typical of many professional digital audio devices. Newer ADAT decks can also record at 44.1kHz, which we recommend if your target media is an audio CD. The performance benefits of recording at 48kHz have been largely eliminated due to improvements in modern converter electronics. Recording at 44.1kHz eliminates the need for sample rate conversion. [Note: On an original ADAT deck, you can record at 44.1kHz by setting it to -147 cents.]

To transfer the stereo mix onto the computer, follow your soundcard's manual to set-up and record from an ADAT deck. You'll need an optical cable to connect the ADAT's optical output to the soundcard's optical input. Typically, the ADAT will be the audio clock master (set to "Internal" sync), and WaveCenter/PCI or Dakota will be slaved to the ADAT deck (by setting the card's clock source to "Dig In ADAT" or "Dig In Opt"). You can use Cool Edit Pro SE to record the stereo track on the computer:

1. Select Single Waveform (Edit) view rather than Multitrack View.
2. Select New from the File menu.
3. Specify a 48000 Hz, stereo file. (Use 16-bit resolution, unless the data is from a 20-bit ADAT in which case use 32-bit resolution.)
4. To transfer the audio from the ADAT deck to the computer, click Record in Cool Edit Pro SE and press Play on the ADAT.

Once the mix is on the computer, you need to convert its sample rate to 44.1kHz, since that's the **only** sample rate used for audio CDs.

1. In Cool Edit Pro SE's Edit menu, select "Convert Sample Type..." and then select 44100 Hz. (Do **not** use "Adjust Sample Rate..." which only relabels the recorded information without converting the sample rate.)
2. The Low-High Quality slider affects how long the conversion will take versus how good the filtering is. We recommend that you set the slider to the highest-possible quality, and also enable the "Pre/Post Filter" checkbox.
3. Make sure the channels are set to stereo.
4. Select 16-bit resolution (the maximum that an audio CD can handle). If you started with 20-bit data on the ADAT, and recorded in 32-bit mode, then you should also enable dithering to improve the transition from 20-bit to 16-bit data. Cool Edit Pro SE offers many p.d.f. and noise shaping options as well as bit depth options — click on Cool Edit's Help button for more details. In general, a dither depth of 0.5, a Triangular p.d.f, and Noise Shaping (44.1kHz) will give good results.
5. Select "Save" from the File menu to save the converter .wav file.

CD burners usually come with software that can import a set of .wav files and write them to a CD-R (recordable CD) as a set of audio tracks. Follow the instructions that came with the software to record the 44.1kHz file onto a CD.