

# PRO AUDIO REVIEW

Reprinted from October 1999

equipment  
review

## Dartech DART PRO 98 Audio Restoration and Recording Software for Windows *by Bruce Bartlett*

**D**artech's DART PRO 98 is a slick piece of software that records a noisy audio program — from any source — onto your hard drive and then greatly reduces hiss, hum, ticks and scratches. DART PRO 98 (\$399) does a lot more as well and does it all extremely well.

### Features

Requirements are minimal: Pentium with Windows 95/98 or NT, 16 MB RAM, 16-bit sound card and a CD-R or CD-RW recorder (if recording CDs is desired). Dartech gives a fine description of how its program works:

"Connect your stereo signal to your PC sound card via a standard stereo patch cable. Start up DART PRO 98, make the desired sound card settings and play the music into the computer. The audio will be captured on the hard drive as WAV files. Then with a few button clicks, automatically unpack the audio into separate tracks, clean up the audio and listen while fine-tuning the restore adjustments, edit the audio and add audio effects if desired, organize the songs into playlists, set the gap times while managing the CD space, and then with one button click, record the playlist onto a music CD. DART PRO 98 will automatically convert all of the files into the proper CD format. It does the work for you."

A year ago, I reviewed the earlier version

### At a Glance

#### Applications:

Recording studios; project studios; forensic

#### Key Features:

Audio restoration; editing/effects; CD recorder

#### Price:

\$399; CD Recorder software available separately

#### Contact:

Dartech at Dartech at 800-799-1692; Web site [www.dartpro.com](http://www.dartpro.com)

of this software, DART PRO 32 (*PAR*, October 1998, p. 46). Rather than covering the same ground, I'll describe the features both programs have in common and then cover what is new in DART PRO 98.

### Restoration

Both DART versions offer advanced audio restoration:

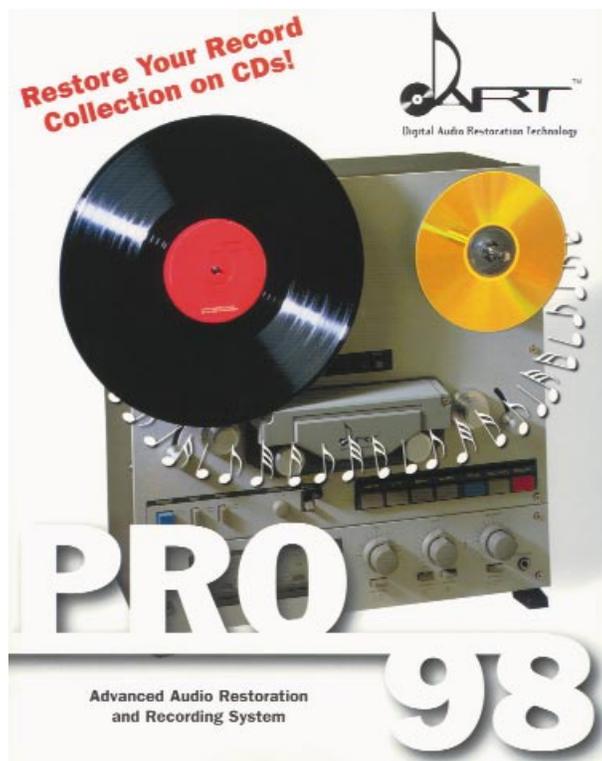
- DeClick removes clicks and quiet wideband noise.
- DeHiss removes wideband noise using a standard noise sample.
- Noise Print takes a sample of noise in the audio program.
- DeNoise removes wideband noise by subtracting the noise print from the entire program, in an adjustable way.
- Retouch fills gaps and dropouts.
- Duplicate replaces large dropouts.
- FilterBuilder/My Filter lets you build and store combinations of filters and other functions.

A new feature in DART PRO 98 is DeHum, which removes hum or buzz fundamentals and harmonics by comb filtering (a series of notch filters). This function is tunable to the exact hum frequencies that are displayed in a spectral plot. The bandwidth of the filter notches is adjusted until hum is inaudible. Another new feature is the NoisePrint Manager, which shapes and corrects a noise print.

### Editing/Effects

Both DART PRO versions have extensive signal processing, editing and effects:

- Trim length (alter the length of an audio program to a specified value by changing the pitch slightly).
- Unite short files into a long one.
- Find noise patterns similar to a reference pattern.



- Mix files, reverse a section of audio, do fades, filters, equalizer, resample, mute, spectrum analyzer, scale (change gain) normalize.

The mix utility in the old version is called "add" in the new. Add mixes two soundfiles together. Compare in the old is called "subtract" in the new. Subtract actually subtracts one audio file from another. One file might be an input signal to a device; the other might be the output signal. The difference is the distortion caused by the device.

Smart editing is a feature new to DART PRO 98. To mute a short noise in an audio program, highlight the noise area, then select smart mute. It will search for signal zero-crossings on either side of the block, and will adjust the left/right boundaries of the selected block to those zero points. This prevents clicks when the signal is muted.

If you select smart cut instead, it will look for a natural continuation of the waveform before and after the cut and will continue the wave between them. The ear is fooled into believing that no material is lost. Or use crossfade cut, which fades from the signal before the cut into the signal after the cut. The results can be auditioned before being made permanent.

Direct-X is another new function that provides access to all the DirectX audio plug-ins on your computer. The unpack feature splits a long recording into separate WAV files by searching for silences.

The equalizer and mixer have been improved in DART PRO 98. Adjust RPM converts nonstandard record speeds. There's also a background processing option.

### CD Recorder

Both versions of DART PRO let you compile a playlist of all sorts of files, then burn a CD-R of that playlist. In version 32, this function was called Wave Manager and it was found in the Play menu. In DART PRO 98, the CD Recorder is a standalone program, which makes more sense. CD Recorder compiles audio tracks from any source — CD, DAT, LP, cassette, radio, video — and arranges them in a playlist. You can control the silent gaps between songs or even specify no gap between songs (say, for crossfades). A button-click lets you change the order of files in the playlist.

### In use

I used CD Recorder to make a four-song demo CD-R for a client. He wanted to use two songs from a CD, one song from a DAT tape and one from a cassette. CD

Recorder made it easy to accommodate all these sources, put the songs in a playlist and cut a flawless CD-R.

A cool new feature in CD Recorder converts MIDI files to WAV files — take any MIDI file, synthesize the audio from that file (in your MIDI synth card), and record the audio as a WAV file. You can control the audio level, choose the sampling rate, and select 8- or 16-bit sampling. Convert MP3 to WAV changes MPEG 3 files to standard WAV files so they can be recorded onto a CD.

Other features in CD Recorder:

- Read Track reads tracks from a CD and writes them to hard disk.
- CD Format converts any soundfile to a CD format.
- Timer Recording programs your computer to start and stop recording at specified times (as for radio programs).

Despite its sophistication, DART PRO 98 is easy to use. It includes an online tutorial, online help, a printed manual, and graphic displays and controls. You can adjust parameters and hear the results in real time.

For the most part, the user manual is excellent, but it does have some flaws. For example, in CD Recorder, Auto Read Speed is not explained. The manual tells you to click on the record button, but does not designate this button until later.

A section called "How to Create Your Own CD" refers to creating a playlist, but does not tell where to find this information. Another section, Recording Soundfiles from an Analog Source, neglects to mention that the source can also be digital, such as a DAT.

## Product Points

### Dartech DART PRO 98 Audio Restoration Software

#### Plus

- Feature-packed
- Good price point

#### Minus

- Manual

#### The Score

An effective program at a good price point; works as claimed and then some.

Also, the manual's table of contents is merely a long list of topics — it needs to be organized into sections, such as Audio Restoration, Signal Processing and Making CDs.

### Summary

That minor quibble aside, I found DART PRO 98 to be highly effective and full of useful functions. It's a serious program for audio restoration, processing, editing and CD recording.

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