

Dart Pro 98 Suite Cleans Up

by Carl Lindemann

Dart Pro 98 is a sophisticated suite of audio processing routines that cleans up a wide variety of noise and interference without introducing major processing artifacts.

Most digital tools designed to record and manipulate audio work fine, as long as the source material is good. The GIGO (Garbage In, Garbage Out) rule applies with any data processing.

The first step to creating a quality end-product is to control the sound-gathering process. It is a lot easier to fix audio on the front end than on the back, but that is not always possible.

Working under adverse field conditions can be problematic. Noises that crept into the sound chain can be missed when recorded and later discovered.

There is also the challenge of working with archival sound stored on various types of analog media.

Diagnosis

Sophisticated diagnostic tools enhance the program's power, which allows users to examine audio files in detail to help them identify, isolate and then remove problematic elements. Dart Pro 98 can open a new window on old audio, or retrieve recordings that might otherwise be lost.

Dart Pro 98 is marketed mainly to people looking to digitize old LPs into CDs. Its consumer use only touches the potential for audio professionals.

In addition to the audio processing capabilities, it is a recorder, editor and a CD burner. These functions are fairly self-explanatory and can be mastered quickly.

The audio processing interface takes a little more getting used to. At first look, it seems confusing, but the "online tour" included on the program disk and the comprehensive manual sort things out quickly.

The program has three major elements.

A thin overview window shows the complete sound file with the position of markers, blocks and other notations placed to indicate problem areas.

The sound file window shows the waveform and includes a small "info" window giving data such as the length, sampling rate and so forth.

Last, the Binary Window gives access to the various decisions made to manipulate files.

The standard windows menu and tool bars key into the various functions you can apply to the files.

There are two major pull-down menus — "Toolbox" and "Restore."

Toolbox accesses a familiar pallet of EQ, filters and fades found on many audio production packages.

The EQ has 10-bands starting at 31.5 Hz and doubling in each band up to 16 kHz. The faders can alter the frequency +/- 15 dB, and a master gain control sets levels. As with Dart's other processing options, the sound file can be played in a continuous loop while adjustments are made to it in real time.

The sample rate converter will also alter the "RPM" of a recording, like a pitch control with a far greater range of adjustment. For an example, a 78-RPM record can be played at 45 or 33 RPM and then altered if no turntable that plays 78s is available.

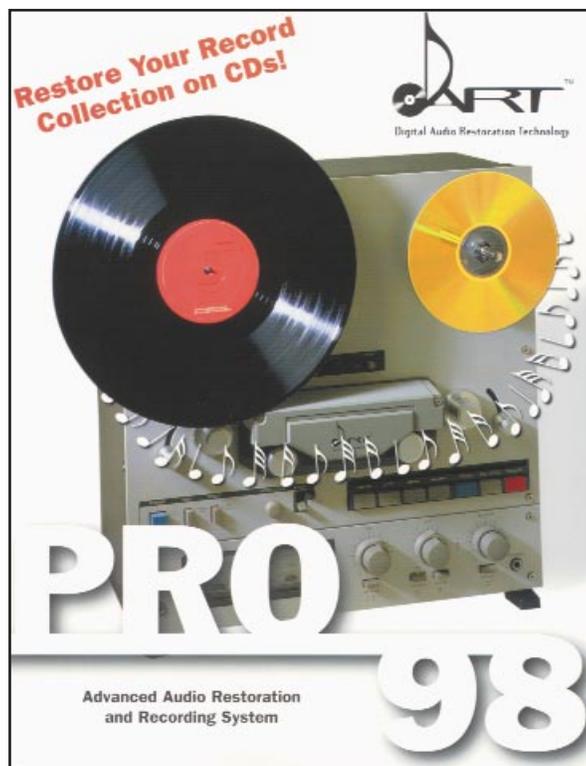
"RPM" can work with some less-conventional archived material, like 80-RPM Edison Diamond Discs and 125-RPM Brown Wax Cylinders. Reel-to-reel material recorded at an odd rate due to equipment malfunction can be reprocessed to correct for that error.

The "Find Pattern" tool is handy for cleaning up pops and ticks from vinyl. A scratched record will exhibit a repetitive pattern. When records are translated into linear, digital form, you have to search along the sound file to find where these repetitive disturbances crop up.

Scratch sound

The "Find Pattern" tool samples one scratch sound and then mark where it appears. It is similar to the way a word processor highlights a single word throughout a text. Once these are identified, they are removed easily.

The Restore menu gets to the heart and soul of the Dart Pro 98. DeClick



removes impulsive disturbances like pops and ticks and DeHum targets harmonic disturbances.

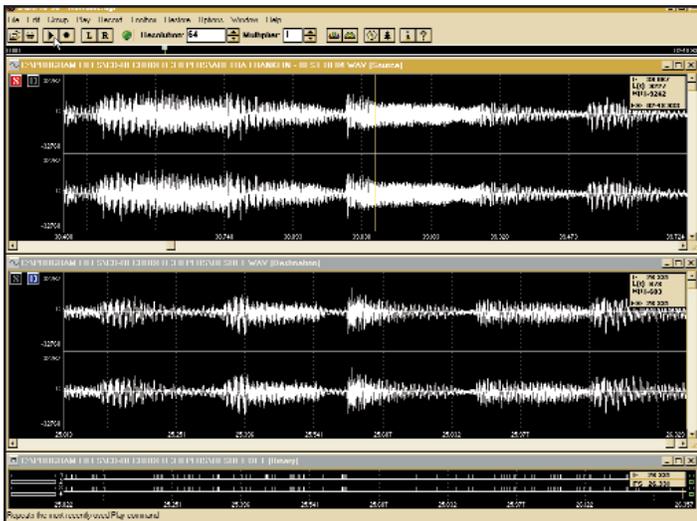
DeClick has control settings for adjusting the level of processing and the detec-

tion threshold. DeHum works with a standardized model of the hum typical to recordings. A user can adjust the frequency and bandwidth of the hum, with the default setting of 60 cycles.

DeNoise and DeHiss have similar functions of removing broadband noise, but go about it in different ways.

DeHiss works like DeHum with a standardized noise model. DeNoise operates by first taking a "noise print" of the file to identify the problematic pattern. This is simply done by highlighting a place in the sound file window and the program analyzes the noise. Then the program eliminates it from the entire recording. Noise prints can be labeled, stored and filed for future reference.

With all these tools, the preview option allows tweaking of the settings before applying them to the entire file. If used on a fast Pentium II 300MHz+ type system, this can be done in real time.



Screen Shot of Dart Pro 98

Tools are enhanced enormously by the system's spectrum and spectral analyzers, which give a terrific 2-D or 3-D representation of the audio. This is valuable information for the task of audio restoration, letting the user inspect a graphical representation of the material.

I tried Dart Pro 98 on two problematic recordings.

First, I had a phone interview rendered useless because the line was not

grounded to the simple phone patch used, which I missed in monitoring. The recording was polluted with a nasty 60-cycle hum.

Dart Pro 98's DeHum managed this well, by removing the repetitive pattern. The interview was revealed, and the program introduced only some minor alterations in the overall sound, which was impressive.

The only problem was the program required a good deal of processing power. Running this on my 233mmx laptop took a bit more than half the time needed to play back the whole file. A faster computer is definitely recommended.

The next project was a bit more challenging.

I interviewed a subject in less-than-favorable circumstances at a convention. My usual field recorder was out for repairs, so I was using a \$30 cassette with internal microphone. The intention was for intelligibility when comparing it with

my notes, not for broadcast.

The next handicap came from not having a quiet interview space. We sat down in a café with a high level of ambient noise.

Finally, I loaded this tape through the integrated soundcard on my laptop, which is a dubious proposition that added another level of hum.

As earlier, removing hum was easy, but isolating and removing the ambient sound was tricky. I managed to find a break in the interview to get a sound print and then subtracted the noise.

Depending on the fine-tuning, I could remove the ambient noise to a greater or less degree. The more radical the removal, the more it affected the interview.

I was able to tweak it to increase intelligibility. It managed to dredge up some words that had been lost in the muck, but

it was not magic.

I was not able to make it seem as if we had conducted the interview properly in a quiet space with a better recorder and mic combination. By the same token, I am confident that an old hand who had mastered the "tweaks" could have managed an even better restoration.

Product Capsule:

Dart Pro 98



Thumbs Up

- ✓ Incredible flexibility
- ✓ Excellent analysis tools



Thumbs Down

- ✓ Could use more presets and off-the-shelf noise reduction routines to help novice users

For more information contact the company in Minnesota at (800) 799-1692, check out the Web site at www.dartpro.com

Dart Pro 98 is a powerful tool. It is easy to get a handle on the most obvious functions, but audio restoration is an art. Achieving expert user status will take a good deal of practice and critical listening. Dart Pro 98 has the depth to support whatever level it is taken to.

The price for the program is \$399.95 and can be downloaded from the Web site at www.dartpro.com



The best in audio restoration and recording.

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