Sound Manager: Digitizing, Down-Sampling, and Static (5/96)

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TOPIC ---

I get static and distortion when I digitize sounds. This happens when I record
at low sound levels (soft music) with any application that uses the Sound
Manager, including Apple's Sound control panel. The resulting static is louder
than the originally recorded signal. The static appears to superimpose itself
over the whole recording.

The problem occurs on both a Macintosh 840AV and a Macintosh Performa computer.
I've tried different input devices, such as: a PlainTalk microphone, third party
microphones, audio CDs, and video sources. I've tried several software programs
including: the Sound Control Panel, SoundEdit Pro 1.0.5, SoundEdit 16, Fusion
Recorder, MoviePlayer, and Digitrax.

The only program that consistently works without static is called Digitrax. It
records fine at any bit-depth and any sampling rate. I can record a clean sound
with Digitrax, but as soon as I edit it with SoundEdit Pro, static is introduced
into the sound.

I have replaced logic board, clean installed system software, run Disk First
Aid, replaced PlainTalk microphone, reinitialized the drive, zapped PRAM and
rebuilt the desktop. What is wrong?

DISCUSSION --

The original recording is clean. The static you're getting comes from what is
done to the sound when you digitize (edit) it. There is a known problem with the
method that you're using. Recording in 16-bit 44kHz stereo audio and then
down-sampling the file to an 8-bit 22kHz mono file will result in a lot of
anti-aliasing artifacts (static).

The workaround for this problem is to record the file in 8-bit mode from the
beginning instead of downsampling. However, you must keep in mind that any
program which records in 8-bit mode such as Fusion Recorder, Sound Edit Pro, or
the Sound Control Panel will introduce some noise with the signal. Other
applications, such as Sound Sculptor, will allow you to record in either 8- or
16-bit mode, so the problem can be avoided. You may also want to make sure you
are using the latest version of Apple's Sound Manager extension (v 3.1). It is
no longer a separate extension in System 7.5 or later, but instead is built into

the System file.

There is also a known problem when using QuickTime 1.6.1 and MoviePlayer to record 16-bit audio from an audio CD. The recording that results from this combination of software will have a lot of static. The combination of QuickTime 2.0 and MoviePlayer 2.0 fix this problem.

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13 May 1996 - Added info about 16-bit-capable application.

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