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Audio DiffMaker

signal difference extraction software

from [Liberty Instruments](#)

Audio DiffMaker is **completely freeware**, doesn't contain advertisements, and doesn't try to cajole you into "upgrading" to a non-free version. There are no strings attached.

Presented at the 125th AES convention
"Detecting Changes in Audio Signals by Digital Differencing"

Download the draft of the [AES paper here \(pdf format, 150k\)](#).

Download [Slides used for the technical paper presentation](#) October 3, 2008 at 125th AES Convention, San Francisco CA. USA.

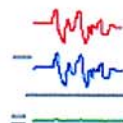
See an Article on Audio DiffMaker v1 in AudioXpress magazine, Jan 2008

Last Revision: 30 September 2008

-version 3.22-

New in V3:

- Frequency response compensation (equalization) of files
- Improved Sample Rate drift compensation
- Filesplitting capabilities



Audio DiffMaker Install Package, complete with online Help files (1.8MB).

[Click here to Download Audio DiffMaker](#)

For new pre-made Dyf files to listen to with DiffMaker,
[Downloadable DiffMaker 'Dyf' files](#)

Audio DiffMaker is a freeware tool set intended to help determine the absolute difference between two audio recordings, while neglecting differences due to level difference, time synchronization, or simple linear frequency responses.

The difference recording that results is *only* what has changed between the two recordings. If anything - a change of component, a treatment, mechanical damping, etc. - is having any audible effect on the audio signal in a system, the difference recording will have audible content. The end result is primarily intended to be evaluated *by ear*.

This relatively simple idea can be used to demonstrate whether some products can alter audio signals in audio equipment.

When to use Audio DiffMaker?

Testing for audible effects of

- Changing interconnect cables (compensation for cable capacitance may be required)
- Different types of basic components (resistors, capacitors, inductors)
- Special power cords
- Changing loudspeaker cables (cable inductance may need to be matched or compensated)
- Treatments to audio CDs (pens, demagnetizers, lathes, dampers, coatings...)
- Vibration control devices
- EMI control devices
- Paints and lacquers used on cables, etc.
- Premium audio connectors
- Devices said to modify electrons or their travel, such as certain treated "clocks"
- Different kinds of operational amplifiers, transistors, o

Changes detected by Audio DiffMaker are not necessarily audible changes for any given person. Some changes will not sound different, and some are too weak to be heard when accompanied by the unchanged part of the program material. But a silent difference track can *only* result if the two tracks being compared are unchanged (the same).

The DiffMaker process, by its very nature, avoids masking effects because it removes the large signal that masks subtle details. Unlike traditional listening tests, differences can be detected even when buried by program material or if affected by imperfect components in the system.

What Can Audio DiffMaker Do?

Some of the tools within Audio DiffMaker can be used to:

- Precisely align two similar audio tracks to the same gain levels and timing
- Extract and listen to even very tiny differences between pairs of audio tracks
- Quickly compare two or more recorded audio signals under precisely gain-matched and time-matched conditions.
- Measure the frequency response of the equipment being tested and apply it so the effects of linear frequency response can be removed from the testing.
- Record sounds at various sample rates and bit resolutions up to 24bit/192kHz with the "Recorder" tool.
- Select and copy sections of audio tracks, trim them, or "rip" them from audio CDs, with the "Trimmer/Ripper" tool.
- Quickly see the responses of devices or entire audio systems (even rooms) using the included high resolution 1/6th octave frequency/spectrum "Response Analyzer" and matched pink noise source.
- Compact multiple WAV files, and a text description, into one easily transported "DYF" file. Just double-click on a DYF file in Explorer and Audio DiffMaker will open and load the files, ready for listening.

vacuum tubes

- Different kinds of CD players
- Changing between power amplifiers
- General audio "tweaks" said to affect audio signals (rather than to affect the listener directly)
- Anything else where the ability to change an audio sig is questioned

What will you need to try it?

No \$\$, the software is free.

The computer used should have 512MB memory minimum a run at 700MHz or higher. It should ideally have a CDROM drive and about 1GB minimum spare hard space, and run the Windows 2000, Windows XP, or later operating system.

Audio DiffMaker can use one or two sound cards and operate in stereo or monophonic mode. If you only want to listen to files made by others, any computer soundcard should do.

Doesn't this process require ultra-high end recording equipment?

No, because DiffMaker doesn't try or need to accurately reproduce music -- it is only trying to help detect whether anything has *changed*, which is a *much* less demanding requirement. It doesn't matter if the difference that DiffMaker finds might not be perfectly reproduced -- only that the difference is left intact enough to hear.

The sound card used doesn't need to be completely transparent or of highest pedigree. It only needs to be capable of responding to any differences that may occur (even if those differences aren't reproduced perfectly) and of not burying a significant differences in added noise.

How can you tell whether the equipment was good enough in DiffMaker result? You can listen to the result, and note the level of any difference and/or decide if any remaining noise is high enough to be maybe covering something that may be important. In other words, **if the gear isn't good enough, you'll be able to hear it, it won't make a difference go silent.**

