

## **DIGITAL SOUND FORMAT**

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## Digital Sound Formats

Windows-compatible personal computers (PCs) generally did not offer sound capabilities in the early 1990s. To play sound, users could purchase and install a sound card and speakers.

Add the proper software, and the computer could then play sounds.

In most cases, the software only provided the capability to play back sound in the .WAV, MIDI, and CD audio formats. Today, sound cards, speakers, and software come standard on most PCs, including notebooks.

## **SOUND FORMATS**

Sound formats have proliferated as well, as the technology industry searches for a format that's efficient to transfer over the Internet. While .WAV, MIDI, and CD audio have been commonplace for years, sound files in these formats can be rather large. For example, a single minute of music can take 10M (10 megabytes) of space or more. While it is possible to download such a large file from a location on the Internet, downloading such large files generally takes too much time to be practical. A number of software companies have worked for years to create a more compact digital sound format.

## **MPEG**

MPEG layer 3—or MP3, for short—finally offers the promise of Internet- and PC-friendly sound. MP3 compression squeezes audio files by 11-to-1, so a three-minute song that previously occupied 33M only uses about 3M in the MP3 format.

Songs in the MP3 format sound just as great as CD-quality sound files in other formats. The MP3 format achieves this blend of small size and high quality by leaving out sounds that humans can't actually hear. This includes sounds in very high and low frequencies, as well as quieter frequencies hidden by louder frequencies in the song.

MP3 is a new technology using MPEG compression, shrinking down data by a factor of 12 and still retaining CD-like quality. Factors of up to 24 and more still allow for a quality significantly better than just reducing linearly the sampling frequency and the number of bits. This is realized by "perceptual coding" techniques taking into account the limited resolution of the human ear. Maybe you already heard about MP3. As interest in audio over the Internet increased, MPEG Layer-3 files, music files that are capable of storing long audio tracks with CD quality sound in a fraction of the space, appeared. With this ease of piracy, it's a shock to the entire music industry.

MP3 Legal information - MP3s can be owned legally, providing the following: you encode songs off of your own CDs and keep them for yourself, obtain written permission from the copyright holder of the music, or the music is available with the copyright owner's consent. It is Illegal to encode MP3 files and share them with any other entity unless you have written permission of the copyright holder of the music. It is also Illegal to download any songs or music off of the Internet for CDs you do not have in your own possession and rightfully own or have no copyright holders consent.

## **ADVANTAGES**

Here are a few of the advantages the MP3 format offers:

1. Songs download faster.



2. You can purchase and download a single song for about a dollar rather than downloading and buying an entire CD.
3. You can create your own CD-Recordable (CD-R) full of favorites.
4. Downloaded songs can be stored indefinitely on a hard disk, Zip disk, or CD-R disk.
5. You can buy a special player to play the downloaded songs independent of your computer.

## DISADVANTAGES

Before you begin purchasing MP3 software or downloading songs, you should understand these drawbacks and controversies:

Recording companies have expressed concerns that MP3 encourages piracy (illegal copying). Software for converting CD-audio songs to MP3 doesn't cost much and the process doesn't take long.

- If a song becomes corrupted, you have to download and purchase it again.
- Existing audio CD players cannot play the MP3 format.
- The sound quality for MP3 files differs slightly from the original CD-quality sound.

## NEWEST TRENDS

**iPod;** Windows-compatible sound card is a brand of portable media players designed and marketed by Apple and launched on October 23, 2001. The line-up currently consists of the hard drive-based iPod classic, the touchscreen iPod touch, the video-capable iPod nano, and the screenless iPod shuffle. Former products include the compact iPod mini (replaced by the iPod nano) and the spin-off iPod phpt (re-integrated into the main iPod classic line). iPod classic

models store media on an internal hard drive, while all other models use flash memory to enable their smaller size (the discontinued mini used a Microdrive miniature hard drive). As with many other digital music players, iPods, excluding the iPod Touch, can also serve as external data storage devices.

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