

tips

MP3

MP3 has become the standard way of downloading music files from the internet, as the relatively small amount of data needed makes transfers much faster than with conventional digital audio formats.

A potted history:

MP3 is short for MPEG-1 Layer 3. Getting to the bottom of this rambling acronym gives an excellent history of the technology's development. MPEG stands for Moving Pictures Expert Group, an association established in the '80s by the International Organization for Standardization (ISO). The group was asked to work on a standard for the coding of digital images. While developing this technology, they decided a coding standard was also needed for sound. MPEG-1 Layer 3 was born, later shortened for convenience to MP3.

How does it work?

In a nutshell, the technology uses highly complex algorithms to decrease music files to less than a tenth of their original size. For instance, four minutes of CD quality audio, which equates to roughly 40MBs of data, will end up requiring only four megabytes of data as an MP3 file.

This is known as compression and, to achieve this, MP3 removes the parts of the sound not always discernible to the human ear. The coding technique effectively fools the ear by eliminating the less essential parts of music. For example, if two notes are very similar, or if a high and low tone occur at exactly the same time, the brain perceives only one of them – so the MP3 algorithm selects the more important signal and discards the other.

A good way to look at it is to imagine an orchestra playing a chord. While you know they're there, you couldn't pick out every single violin from the mass of instruments and the effect would be the same if half the instruments were removed. The end result isn't as rich, but it still sounds like an orchestra.

Hardware:

Although the technology cannot reproduce music to quite the same standard as compact disc, or even minidisc for that matter, the format's popularity has seen an explosion of standalone MP3 players with built in hard drives.

Many of these designs are portable units. This allows users to transfer their computer-based music collections, which have either been downloaded from the internet or copied from compact disc, to be stored on the MP3 players and listened to on the move.

There are also separates-sized MP3 designs, which are often given the moniker 'digital jukeboxes'. This is because they can store entire music collections in one design. Music can then be retrieved via artist, track name or genre, while massive playlists can also be programmed, making a collection far more accessible.

Finally, it is worth noting that many DVD and CD players can play MP3 encoded discs.

