

What are MP3 and how do they work?

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3.1 Advantages and disadvantages

Introduction

We know how musical sounds can be turned into numbers and recorded on a CD. A three-minute song on the CD requires 30 megabytes of data, that would take several hours to download

MPEG (Moving Picture Experts Group) has developed compression systems to fit video and movie data into smaller spaces. It has a subsystem to compress sound that we know it by MP3 (MPEG Audio Layer 3)

So, 30-megabyte sound file from a CD reduces to 3 megabytes or so in MP3. This MP3 file sounds just as good as the original file.

Development

The MP3 format

We are familiar with compression algorithms for images and words (JPG, ZIP, etc.). The MP3 format is a compression system for music.

The MP3 format reduce the number of bytes in a song without hurting the quality of the song's sound.

This lets you download a song in minutes rather than hours, and store hundreds of songs on your computer's hard disk without taking up that much space.

It is possible to compress a song without hurting its quality because MP3 uses a technique called perceptual noise shaping.

The MP3 format uses characteristics of the human ear to design the compression algorithm. For example, there are sounds that the human cannot hear, and there are sounds that the human ear hears better than others. If there are two sounds playing simultaneously, we hear the louder one but cannot hear the softer one.

(POTO DE LOS WAVES!) Using facts like these, certain parts of a song can be eliminated without significantly hurting the quality of the song for the listener.

When you are done creating an MP3 file, what you have is a near CD quality song.

The MP3 movement

What you can do?:

- Download an MP3 file from a Web site and play it.
- Rip a song from music CD and play it directly or encode it as an MP3 file
- Record a song yourself, convert it to an MP3 file and make it available to the world
- Convert MP3 files into CD files and create your own audio CDs from MP3 files on the Web
- Rip songs off of various music CDs and recombine them into your own custom CDs
- Store hundreds of MP3 files on data CDs
- Load MP3 files into tiny portable players and listen to them wherever you go

What do you need?:

- A computer
- A sound card and speakers for the computer
- An Internet connection
- An MP3 player

Using MP3

The MP3 format has done several things for music: It has made easy for anyone to distribute music at nearly no cost, and find music and access it instantly.

A big part of the movement is the fact that it has brought an incredible array of powerful tools to desktop computers. Because of this tools, it is now extremely easy for you to:

- Download an MP3 file from a Web site and play it.
- Rip a song from music CD and play it directly or encode it as an MP3 file
- Record a song yourself, convert it to an MP3 file and make it available to the world
- Convert MP3 files into CD files and create your own audio CDs from MP3 files on the Web
- Rip songs off of various music CDs and recombine them into your own custom CDs
- Store hundreds of MP3 files on data CDs
- Load MP3 files into tiny portable players and listen to them wherever you go

Let's look at many of the different things you can do with MP3 files and the software that makes it possible

Downloading and listening

If you would like to download and then listen to MP3 files on your computer, then you need:

- A computer
- A sound card and speakers for the computer
- An Internet connection
- An MP3 player

When you are going to download MP3 files, most songs range between 2 and 4 MB, so it will take 10 to 15 minutes unless you have a high-speed connection.

If you find that you cannot play it, then you need to download an MP3 player. There are dozens of players

available, and most of them are free or shareware. One of the most popular is WinAmp. (Poto del winamp)

Conclusion

Many people have hundreds of songs they have collected, and they create jukebox-like playlists so that their computer can play them all day long!