

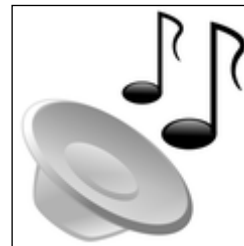
## What is this Thing Called MP3?

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Over the past few years, I have received numerous questions about the meaning of various terms, such as MP3, BlackBerry, etc. These questions have come from FRPCUG members, participants in the computer classes taught by FRPCUG and offered through the Fort Collins, CO Senior Center, and many others.

Those questions led to a Digital Gadgets presentation at a FRPCUG meeting with the presentation material posted on the FRPCUG web site, and to this article. Actually, to a series of articles, because it is not possible to include sufficient information in just one article.

In this article I examine one piece of computer jargon: MP3. I expect that almost everyone that has any interest in music knows that the term MP3 is closely related to music. The interesting fact about those three characters is that they are used to describe both hardware and software.



The software description applies to

“ . . . a patented digital audio encoding format . . . . It is a common audio format for consumer audio storage, as well as a de facto standard of digital audio compression for the transfer and playback of music on digital audio players.”  
(<http://en.wikipedia.org/wiki/MP3>).

The primary advantage of the MP3 format (from the same Wikipedia article) is that it:

“ . . . greatly reduce(s) the amount of data required to represent the audio recording and still sound like a faithful reproduction of the original uncompressed audio for most listeners. An MP3 file that is created using the setting of 128 kbits/s will result in a file that is about 11 times smaller than the CD file created from the original audio source.”

That data reduction is called “lossy compression,” which means exactly what it says. Using the MP3 format means that some audio information is lost when the music is encoded. And therein lies the primary disadvantage of the MP3 format—for some. A number of tests have been performed on MP3 music files, and that lost information is not discernable by a large majority of listeners. There are those, however, who claim that they can tell the difference between an MP3 music file and, for example, the same music on a CD (which is not compressed).

There is your trade-off:

- With MP3 you have smaller files, which give you the ability to store many more songs on your computer or other storage device. The price you pay is reduced audio quality (which you may not be able to hear).

- With uncompressed audio files, you get better sound quality, but files sizes are large. Depending on several factors, a one minute clip can take over 10 MB. That's right; 10 MB for each minute of music (see reference at the end of this article).

There are other digital audio encoding formats available today, including several that are open source. In fact, if you connect to [http://en.wikipedia.org/wiki/Comparison\\_of\\_audio\\_codecs](http://en.wikipedia.org/wiki/Comparison_of_audio_codecs), you will find a comparison of 35 audio formats (including MP3). Some provide lossy compression, others encode music without compression. You may have heard of a few of them:

- AAC (used with Apple's iTunes)
- Ogg Vorbis
- Windows Media Audio

There are "better" formats available than MP3. "Better" in the sense that audio output quality is better even though the format uses compression. So why is MP3 the "de facto standard"? I don't have a good answer for that question. Perhaps it was a question of availability. For an overview of digital audio players (including a variety of devices), connect to:

[http://en.wikipedia.org/wiki/Digital\\_audio\\_player](http://en.wikipedia.org/wiki/Digital_audio_player)

Whatever the reason, the MP3 format is the industry standard—at least for portable media players. Because the MP3 format is so widely used, the hardware (actually hardware and software) used to play MP3 formatted music is also identified as MP3—or perhaps as an MP3 device.

Therefore, when you say "MP3," you are actually talking about a software program located on a hardware storage device of some sort that takes a digital file of music and converts it to something a human can understand (unless, of course, you are involved directly with the MP3 encoder).

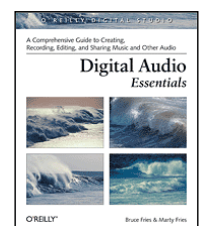
There are probably hundreds of variations of portable media player devices available today. Virtually all of them will play the MP3 format. Many newer products will play several formats. Connect to ([http://en.wikipedia.org/wiki/Comparison\\_of\\_portable\\_media\\_players](http://en.wikipedia.org/wiki/Comparison_of_portable_media_players)) for a comparison of 34 media players (as of mid 2010). There are products available with a very wide range of features and in many different price ranges.

With all those choices, don't try to buy something before you do your homework. One web site that can help you sort through the choices is the CNET MP3 Player Finder at [http://reviews.cnet.com/4247-6490\\_7-10.html](http://reviews.cnet.com/4247-6490_7-10.html). You can search by price range, or by manufacturer, or among other options, by audio format.



An excellent reference that will help you understand digital audio is:

Digital Audio Essentials. Bruce Fries and Marty Fries. O'Reilly Media, Inc, 2005. ISBN 0-596-00856-2.



Not only will this book help you understand digital audio and digital audio formats, but there is whole chapter that talks about recording music on CDs.

Spend a few minutes browsing through the web sites in this article. Find a copy of the Digital Audio book and browse through that. That will be time well spent because then you will be an informed consumer.