

Megabytes, Gigabytes, Terabytes... What Are They?

These terms are usually used in the world of computing to describe disk space, or data storage space, and system memory. For instance, just a few years ago we were describing hard drive space using the term Megabytes. Today it is not uncommon to hear the term Gigabytes to describe a hard drive. In the not so distant future, Terabyte will be a common term. But what are they? This is where it turns into a nightmare because there are at least three accepted definitions of each term.

According to the IBM Dictionary of computing, when used to describe disk storage capacity, a megabyte is 1,000,000 bytes in decimal notation. According to the Microsoft Press Computer Dictionary, a megabyte means either 1,000,000 bytes or 1,048,576 bytes. According to Eric S. Raymond in The New Hacker's Dictionary, a megabyte is always 1,048,576 bytes on the argument that bytes should naturally be computed in powers of two. So which definition do most people conform to?

When referring to a megabyte for disk storage, the hard drive manufacturers use the standard that a megabyte is 1,000,000 bytes. This means that when you buy an 80 Gigabyte Hard drive you will get a total of 80,000,000,000 bytes of available storage. This is where it gets confusing because Windows uses the 1,048,576 byte rule so when you look at the Windows drive properties an 80 Gigabyte drive will report a capacity of 74.56 Gigabytes. Anybody confused yet? With three accepted definitions, there will always be some confusion so I will try to simplify the definitions a little.

This is the simplest way to look at them:

- 1 Bit = Binary Digit
 - 8 Bits = 1 Byte
 - 1000 Bytes = 1 Kilobyte
 - 1000 Kilobytes = 1 Megabyte
 - 1000 Megabytes = 1 Gigabyte
 - 1000 Gigabytes = 1 Terabyte
 - 1000 Terabytes = 1 Petabyte
 - 1000 Petabytes = 1 Exabyte -
 - 1000 Exabytes = 1 Zettabyte
 - 1000 Zettabyte = 1 Yottabyte
 - 1000 Yottabyte = 1 Brontobyte
- Now let's go into a little more detail.

Bit: A Bit is the smallest unit of data that a computer uses. It can be used to represent two states of information, such as Yes or No.

Byte: A Byte is equal to 8 Bits. A Byte can represent 256 states of information, for example, numbers or a combination of numbers and letters. 1 Byte could be equal to one character. 10 Bytes could be equal to a word. 100 Bytes would equal an average sentence.

Kilobyte: A Kilobyte is approximately 1000 Bytes, actually 1,024 Bytes depending on which definition is used. 1 Kilobyte would be equal to this paragraph you are reading, whereas 100 Kilobytes would equal an entire page.

Megabyte: A Megabyte is approximately 1000 Kilobytes. In the early days of computing, a Megabyte was considered to be a large amount of data. These days with an 80 Gigabyte hard drive on a computer being common, a Megabyte doesn't seem like much anymore. One of those old 3-1/2 inch floppy disks can hold 1.44 Megabytes or the equivalent of a small book. 100 Megabytes might hold a couple volumes of Encyclopedias. 600 Megabytes is about the amount of data that will fit on a CD-ROM disk.

Gigabyte: A Gigabyte is approximately 1000 Megabytes. A Gigabyte is a very common term used these days when referring to disk space or drive storage. 1 Gigabyte of data is almost twice the amount of data that a CD-ROM can hold. But it's about one thousand times the capacity of a 3-1/2 floppy disk. 1 Gigabyte could hold the contents of about 10 yards of books on a shelf. 100 Gigabytes could hold the entire library floor of academic journals.

Terabyte: A Terabyte is approximately one trillion bytes, or 1,000 Gigabytes. Now we are getting up there to a size that is so large that it is not a common term yet. To put it in some perspective, a Terabyte could hold about 3.6 million 300 Kilobyte images or maybe about 300 hours of good quality video. A Terabyte could hold 1,000 copies of the Encyclopedia Britannica. Ten Terabytes could hold the printed collection of the Library of Congress. That's a lot of data.

Petabyte: A Petabyte is approximately 1,000 Terabytes or one million Gigabytes. It's hard to visualize what a Petabyte could hold. 1 Petabyte could hold approximately 20 million 4-door filing cabinets full of text. It could hold 500 billion pages of standard printed text. It would take about 500 million floppy disks to store the same amount of data.

Exabyte: An Exabyte is approximately 1,000 Petabytes. Another way to look at it is that a Petabyte is approximately one quintillion bytes or one billion Gigabytes. There is not much to compare an Exabyte to. It has been said that 5 Exabytes would be equal to all of the words ever spoken by mankind.

Zettabyte: A Zettabyte is approximately 1,000 Exabytes. There is nothing to compare a Zettabyte to but to say that it would take a whole lot of ones and zeroes to fill it up.

Yottabyte: A Yottabyte is approximately 1,000 Zettabytes. Again, there is nothing to compare a Yottabyte with.

Brontobyte: A Brontobyte is (you guessed it) approximately 1,000 Yottabytes. The only thing there is to say about a Brontobyte is that it is a 1 followed by 27 zeroes!

There is a very handy free converter tool located [here](#) that you can use to convert Bytes to Megabytes to Kilobytes to Gigabytes, and Vica Versa.

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<http://www.pcsndreams.com/Pages/Articles/Megabytes.htm>