

Understanding your computer's storage: Memory, RAM and Hard Drives

One of the technical topics that is both misunderstood and a mystery to many computer users is the difference between memory (also referred to as RAM) and hard drive space. In this article I will explain the purposes and differences of the two.

We will start by reviewing the definition of hard drives. Every computer has a hard drive for storage, this drive is inside a small metal case that is the size of a small paperback (desktop computer) or deck of cards (laptop computer). The hard drive is simply storage space- the computer equivalent of a file cabinet. The contents on your computer are often seen in Windows Explorer or the Mac's Finder as folders and files that are stored on the hard drive- including documents, photos, music and programs.

Hard drive space is measured in gigabytes (written as 250GB, 320GB, etc.) One gigabyte of data is almost twice the amount of data that a CD-ROM can hold. One gigabyte of data is 1000 times the capacity of a 3-1/2 floppy disk (when was the last time you used one of those?). One gigabyte of storage can hold the contents of about 30 feet of books on a shelf.

You may also see external hard drives which are commonly used for portable storage or backup of another hard drive. There are also small USB Flash Drives, which are extremely small and portable storage devices.

Most hard drives contain moving parts, platters which spin to record data and access files. Like all machines, these moving parts will eventually fail. A good backup plan is much less expensive than a data recovery operation, and I will review backup options for protection of your files in a future column.

Computer memory or RAM (random-access memory) is an important component of a computer's performance. The physical RAM is on small chips that are inserted into slots inside the computer. RAM is what allows your computer to process the contents of the hard drive. To illustrate the function of RAM we will compare it to a physical desktop. With a small desk, you may be able to view 3 or 4 pages of a document if spread out, and possibly have a small calculator and calendar on the desk as well. With a larger desk, more documents could be seen at the same time, as well as a larger calendar and calculator. This is similar to how computer memory affects your computer's workspace. With more memory, you can view and work with more programs and documents at once, while also listening to music and browsing the web.

If you often see the spinning hourglass (Windows) or spinning beach ball (Mac), your computer may not have the memory to process the tasks you have given it in a timely manner. Adding more RAM is the least expensive and most effective upgrade available for most computers, and it will delay the need to upgrade to a newer system for a while.

Jeff Bohr
Naples Mac Help
jeff@naplesmachelp.com

