

Home Computer **HELP!**

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How Big is Big?

If you've used a computer for any length of time, you've heard the terms "Kilobyte" and "Megabyte". You probably know this has to do with storage space, but it's not obvious how much space the terms represent. What follows is a short explanation of the various terms for computer "space", along with some estimates of the space required to store some familiar objects. Most of it is in English, but watch out for some unavoidable geek-speak!

Before we get started, I should differentiate between **Hard Disk** space and **RAM** storage. To use an office metaphor, your Hard Disk is like file drawers (how much stuff you have stored, like pictures and documents) and RAM is like the size of your desk (how many things you can pull out of those drawers and work on at the same time).

Bit - The smallest quantity of space. Bits are the "1's and 0's" that computers use to store and manipulate data. On a Hard Disk, a Bit is an unimaginably small space that can be positively or negatively magnetized. A positively magnetized space is a "1" and a negatively-magnetized space



Interior of a typical Hard Disk

is a "0". You can think of this as little bar magnets with "North" and "South" poles facing one direction or the other.

Byte - 8 Bits of data, the smallest amount necessary to represent a single character (letter or number).

Kilobyte (KB) - 1,000 bytes. It takes about 2 Kilobytes to store a single page of text. It takes about 100 Kilobytes to store a low-quality photograph.

Megabyte (MB) - 1 Million (1,000,000) Bytes = enough space to store a short novel. A 3.5" floppy disk holds 1.44 MB. A high-quality photograph takes up about 3 MB of space.

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Practice Safe Surfing

- Beware of pop-up web pages that mimic Windows dialog boxes. Never click on the buttons offered, always close them with the "X" in the upper-right corner
- Turn on your Pop-Up Blocker (built into Internet Explorer version 6)

Internet Explorer Keyboard Shortcuts

- **Ctrl-N** Open a new window without closing the current window (have two web sites open at once).
- **Ctrl-F** Open the "Find on this Page" dialog box
- **Ctrl-I** Open Favorites Listing
- **Ctrl-H** Open History Listing

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2 Fewer Free Firewalls For Frugal Folks

In the past, I have heartily recommended both Sygate and Kerio personal firewall software. Both are very good, easy-to-use "donationware" products.

Donationware is software that is free to download and use, but whose authors encourage users to voluntarily pay or donate a small amount to help defray the expense

of offering the product. Unfortunately, both products have recently been acquired, and the acquiring companies have announced that the free versions of the softwares are being discontinued. You can keep using these products for now, but should put their eventual replacement on your "to do" list.





The next version of Windows ("Vista") is now on the horizon. Look for it sometime during early- or mid-2007.

Vista will have an optional spiffier user interface, and many, many security improvements (some of which will undoubtedly make the average computer user's experience more annoying).

Many (but not all) computers purchased today will be capable of running Vista. Requirements include:

- a discrete graphics card (w/128MB of graphics memory to run the fancy new interface)
- a minimum of 512MB of RAM (1GB for the fancy new interface)
- a DVD drive (required to load the software)

If you're buying a new computer, look for the sticker that says "Windows Vista Capable" to be sure it meets the minimum requirements.

Malware (mä'l' - wâr) n. Computer Science

Any software, such as viruses, intended to damage or disable a computer system; short for malicious software. Middle English, from Old French, from Latin, from male, *badly*, and malus, *bad*.

How Big is Big?

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- 5 Megabytes = the complete works of Shakespeare
- 10 Megabytes = one minute of high-fidelity sound
- 100 Megabytes = 3 feet of shelved books
- 700 Megabytes = the amount of space on a CD-ROM Disk

Gigabyte (GB) - 1 Billion (1,000,000,000) Bytes = a pickup truck filled with books

- 5 Gigabytes = the amount of space on a single-sided DVD Disk
- 20 Gigabytes = the complete works of Beethoven
- 100 Gigabytes = An entire floor of an average library
- 750 Gigabytes = largest computer hard disk currently available (6/2006)

Terabyte (TB) - 1 Trillion (1,000,000,000,000) Bytes = 50,000 trees made into paper and printed

- 2 Terabytes = Amount of information in an academic research library
- 10 Terabytes = The print collections of the Library of Congress
- 400 Terabytes = Current size of the National Climactic Data Center (NOAA) database

Petabyte (PB) - 1 Quadrillion (1,000,000,000,000,000) Bytes = 3 years of EOS data (NASA's Earth Observing System project)

- 2 Petabytes = All US academic research libraries
- 20 Petabytes = Storage represented by total hard disks manufactured in 1995
- 200 Petabytes = All printed material in existence

Exabyte (EB) - 1 Quintillion (1,000,000,000,000,000,000) Bytes

- 2 Exabytes = Estimated total volume of information generated by the human race in 1999
- 5 Exabytes = Enough space to store all words ever spoken by human beings
- 12 Exabytes = The estimated sum of all human knowledge (including audio, video and text) as of the end of 1999

Zettabyte (ZB) - 1 Sextillion (1,000,000,000,000,000,000,000) Bytes

- 1.6 Sextillion = the approximate number of molecules in a drop of water.

Yottabyte (YB) - 1 Septillion (1,000,000,000,000,000,000,000,000) Bytes. Ok, stay with me here. Every living cell contains about 6 GB of data in it's DNA. A typical living animal has about 100 Trillion living cells. That means that the total amount of data "stored" by the animal is about 600 YB. If anyone ever invents a working "Transporter" à la Star Trek, it would have to store this much information to disassemble and reconstruct a single person.which just goes to prove the adage "let a computer nerd talk long enough and eventually they will bring Star Trek into any conversation".



Update or Perish!

You may think you're well protected from the countless internet ne're-do-wells because you have a good anti-virus software, a good firewall, and multiple malware detection softwares.

Unfortunately, unless you keep your soft-

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Update or Perish! (continued from page 2)

wares updated, their protection quickly wanes. Most scanner softwares work by using "signature" files. Signature files are essentially a list of currently-known bad guys and/or their identifying characteristics. In order to identify and stop a virus, for example, the anti-virus software has to have a signature file that includes the correct identifying information about that virus. Viruses not in the signature file can sneak through the defenses of even the best anti-virus software.

Because of this, anti-virus (and anti-malware) software vendors issue updates frequently. In some cases, there is a new update made available every single day.

Worse yet, you are vulnerable against new viruses during the period of time that passes before the update is made available. Here is an example timeline:

Sunday - a new virus is "released into the wild"

Tuesday - your anti-virus software vendor discovers or otherwise learns about the new virus, and programming work begins

Wednesday - Programming of the updated signature file is completed and testing begins

Thursday - Testing is completed and the new signature file is made available for download

Friday - You download the new signature file and

are protected against the new virus.

Here's the scary part - You can have the best anti-virus software and download updates every single day, **BUT** - as illustrated in our example above, if you stumble across the new virus between Sunday and Thursday, *you could be infected anyway.*

This means that for every day that passes since your last update, your softwares become less and less effective.

"...about 500 new viruses [are] identified every month, and one estimate puts the total number of viruses currently in circulation at about 65,000."

To give you some idea about what you are up against, there are currently about 500 new viruses identified every single month and one estimate puts the number of viruses currently in circulation at about 65,000.

To make things worse, Viruses aren't the only bad guys out there. Spybot

Search & Destroy, a popular spyware scanner currently scans for over 41,000 different malwares.

In our example above, the turnaround time necessary to get your virus software's update largely defines your risk level for new viruses. The faster your anti-virus software vendor gets the update to your computer, the better your protection.

As you might suspect, it's hard to find real data regarding the average response time by anti-virus companies. In addition, no one company is better than others all the time. Every new virus is different and provides a new opportunity for your anti-virus software company to win or lose the game.



Software to Avoid

I've run into more and more of what are generally known as "Rogue" softwares lately. These softwares install without warning when you are on the internet (called "Drive-By Downloads") and attempt to frighten you into buying their product by displaying persistent hyperbolic warning messages that "Your computer is Infected!!" or "A Virus has been Detected!!". Most of these products masquerade as helpful softwares and many people fall victim to the "Click Here to Fix the Problem" button they inevitably display. Unfortunately, the problems begin once you click that fateful button.

Some of the names I've seen include "Winfixer", "WinAntiVirusPro", "SpyFalcon", "PestTrap", "SpywareStrike", "SpyAxe" and "SpySheriff." Here is a description of Winfixer from one of the popular anti-virus vendor websites:

"WinFixer is a Security Risk that may give exaggerated reports of threats on the computer. The program then prompts the user to purchase a registered version of the software in order to remove the reported threats."

These softwares are notoriously hard to remove, typically requiring multiple attempts, manual registry edits and

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Backups Made Easy - Part 2

My last newsletter extolled the virtues of USB flash drives as a quick and easy solution to backing up your most important files.

This installment addresses a way to quickly and easily backup your *entire* computer - by using an external hard drive. These drives are available from different companies, but the best ones come pre-bundled with backup

software to make the job easier (or even completely automate it). The drives are not cheap (about \$150 to more than \$600, depending on capacity), but can give you invaluable peace of mind.

If you're looking for a specific recommendation of the current crop of devices, I like the Maxtor One-Touch™ Drives.



Software to Avoid *(continued from page 3)*

manual file deletion. If you think you have been infected with one of these softwares, try the following procedures first, and call me for help if you need it.

- Download the latest updates for your anti-virus, spyware & adware scanner softwares
- Shut off your Internet connection
- Clear your internet cache and temporary folders
- Boot into Safe Mode (Tap the "F8" key repeatedly while your computer is booting, then choose "Safe Mode" from the text menu that displays)
- Run full scans with your anti-virus, spyware & adware scanners, deleting or quarantining everything found
- Reboot into the "Normal" mode of Windows
- Run full scans again, deleting or quarantining everything found
- Reboot one last time, Turn your Internet connection back on and hope for the best

Good luck, and be careful out there!