

Simple “Do-it-Yourself” tips for speeding up your Computer

So your computer is running slow. There are numerous things that can cause a slow PC.

They are:

- Spyware Programs running in the background without your knowledge. (Programs that spy on your surfing habits, etc, and report this info to someone else.)
- Viruses, Trojans and other forms of Malware (Malicious Software).
- Fragmented File Systems.
- Lack of Hard Drive Space.
- System Tray Overload

After we look at these 5 “Anti-Productivity” Scenarios, we will look at ways of dealing with them, and bringing your system back up to speed.

Spyware

Let’s start off with Spyware. Spyware is software installed without your knowledge. How does this software get installed without you knowing about it, you ask? Remember the old saying, “The best things in life are free.” Well, as it turns out, Software isn’t one of them. You see, just because it is free for you (financially speaking), the company is still making money on it. Yes, I know.. you have the free version, and there is a full version, which you can buy. But, even the free version is making the software company money. How you ask? Spyware. This is how it works. A Big Software Company, lets call them “**Company A**”, has a product that they want to put on the market, but they don’t want the user to have to pay for it. They still however, want to make money off it though. How, you ask? This is where the Little Software Company (“**Company B**”) comes into the picture. Company B approaches Company A and says, “I will pay you X amount of dollars per year, if you let me incorporate my software package into yours. Company A thinks this is a great idea, because now they can put their “free” product on the market, and still get paid for it. Company B also likes this idea, because normally, no one would ever buy their software package alone if they knew what it did. So Company B signs on with Company A, the Spyware is incorporated into the legitimate software application, and the completed software package is released to the public.

This type of infection is very prevalent among many different software applications. The most common being Peer-to-Peer (P2P) file sharing programs, such as Kazaa or Freewire.

Other applications include:

ABC Scrabble	Drive Cleaner 2006	Fast MP3 Search
Fun-cade	Italian Soccer	Jessica Simpson Screensaver
Mediapipe	PC MightyMax	Puzzle Desktop
SpyAxe	UnSpyPC	WinAntiSpyware2006
WinAntiVirus2006	WinFixer	www.themeXP.org

...just to name a few. Notice how the ones near the end of the list sound legitimate?! (SpyAxe, UnSpyPC, WinAntiSpyware2011, WinAntiVirus2011 & WinFixer)

This is to entice the user to download them as a preventative measure or as a means of eradicating Viral Infections & Spyware that are already on their system. Tricky, hey?

Viruses, Trojans, and other forms of Malware

Next on our list are these little guys. They do the most damage. Viruses come in two forms. Email Viruses and Trojan Horse Viruses. Email Viruses have been around for a long time. They typically arrive as an attachment to an email you've received. When you open the attachment. VOILA! You're infected. But they don't stop there. They can send out mass mailings via your email address book, change settings on your computer, corrupt files and even erase your hard drive.

Trojan Horse Viruses are closely related to Spyware in the sense that they both come into your computer hidden within another program. The Trojan Horse virus is named just that because of the way it delivers its payload. It's named after the Mythological Gift Statue that allowed the invading army inside the city walls to destroy the city, because it uses the same strategy. It hides itself within a program that the user typically wants but when the user installs it, the Trojan Horse is released as well. Until recently, Trojan Horses have only been limited to applications, but in 2002, the first JPEG Digital Image Virus was found. Almost immediately, all the Antivirus Companies as well as Microsoft, released countermeasures for this new form of virus. Trojan Horse Viruses are generally more destructive than their email counterparts. They can cause file system damage, unexpected system behaviour, compromise network security or even transmit Financial Information back to a 3rd party. They are equally just as hard to remove, as they are usually hidden deep within the host application.

Worms

Worms are new breed of threat that have emerged in recent years. Computer Worms move from computer to computer, infecting each one as it moves along. Not only does the worm move from system to system, but it also leaves a copy of itself on the previous machine to infect any other machines that become connected to that computer later on. Worms are very dangerous and very fast. They usually arrive as attachments to emails, but, unlike viruses, the user doesn't have to open the attachment to release the worm. All they have to do is open the email! They are capable of deleting files, opening up backdoors to allow hackers into your computer, and exploiting system resources, just to name a few. Worms are also a big risk for people using Peer-to-Peer file sharing programs. Once you're connected to the other computer, you are essentially networked, and Worms can propagate very easily. This is why P2P or Peer-to-Peer file sharing programs have been receiving so much media attention as security risks.

Think about this. You download a file from a legitimate company online. You can be pretty sure that this company has done their homework, and kept their servers up-to-date and virus free. If they haven't, well, they wouldn't be in business very long, and quite possibly would have a few pending legal cases against them.

Now take Peer-to-Peer file sharing, or the "P2P Networks" as their called. Let's say you download a file via a P2P Network. First of all, you have no idea who this other person is, where he is located out of, and whether or not he even has AntiVirus or AntiSpyware applications running on his computer. For all you know, he could be infected with a Trojan Horse Virus that captures and sends out sensitive financial info. This is why P2P Networks are deemed as a huge security risks. Getting viruses via this type of connection is very prevalent.

File Fragmentation

The next thing on our list is File Fragmentation. File Fragmentation occurs as a natural part of Running Windows. Imagine your Hard Drive as a filing cabinet. When you want a file, you open the drawer, go into the appropriate folder, and retrieve the document. Computers try to do this as well, but they are still a little challenged when it comes to organization. When it comes to retrieving a file, computers have no problem. The problem arises when you save the file back to the Hard Drive. Lets say you open a letter you have been writing to your relative. You add a couple pages to the letter, then save it. Unlike the filing cabinet scenario where the entire letter goes back into the original location, the computer (depending on space requirements), is most likely to save bits and pieces of it all over your Hard Drive. This is because parts of the Hard Drive already have data on them, and therefore, the newly created "Larger" file has to be split up and put into multiple locations. Take a look at the image below.

Before Fragmentation



After Fragmentation



Windows has adopted a “next free spot” methodology for writing the data back to the Hard Drive. You can see this in the image above. Now imagine every file on your computer is fragmented like this. This process of fragmentation slows computers down significantly, as they now have to read data from multiple locations to retrieve just one file. Just to let you know, on a typical Windows XP machine, you have in excess of 18,000 files just in the Windows Directory alone. That makes for some real slow computing if your Hard Drive is fragmented. Also, keep in mind that because Disk Defragmenter checks the drive’s condition before attempting to defragment it, it may ask you to run Scandisk depending on what it finds.

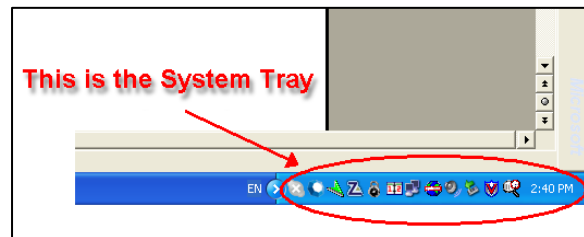
Lack of Hard Drive Space

Hard Drive Space is a very crucial factor when it comes to having a fast computer. Recent developments in Operating System Design, and the downward spiral of Manufacturing Costs have lessened this factor to a point where is now no longer a sensitive issue. But we must always be aware of it.

Available hard drive space has a lot to do with how fast your computer is able to keep up. You see, operating systems such as Windows, use part of the Hard Drive as if it were a piece of memory. This section of the Hard Drive is known as the “Swap File”. Computers like to use what is fastest first. This makes sense. The computer uses the memory (RAM) you have on your computer as a temporary storage facility for files that it needs to access quickly and frequently. When this memory (RAM) is used up, it reverts to using the swap file. The swap file is significantly slower than memory, and that is why it is used as an alternative. However, if your computer’s Hard Drive is filled up with downloaded movies, music, or other files, then the swap-file starts to become encroached upon, and the computer begins to slow down. Windows doesn’t allow you to write overtop the swap file with your own data, but it likes to have a buffer around it in case sudden expansion is required.

System Tray Overload

Where is the System Tray you ask? The System Tray is the collection of icons in the bottom right hand corner of your screen. These icons represent programs that are currently running in the background. The more icons you have in the system tray, the more memory you are using. We know from the previous section that memory is used for “temporarily holding files that Windows needs quick and frequent access to”. If this memory is utilized instead by Programs running in background, the computer then has to use the Swap-File for these important files, and again, the computer gets slower.



the

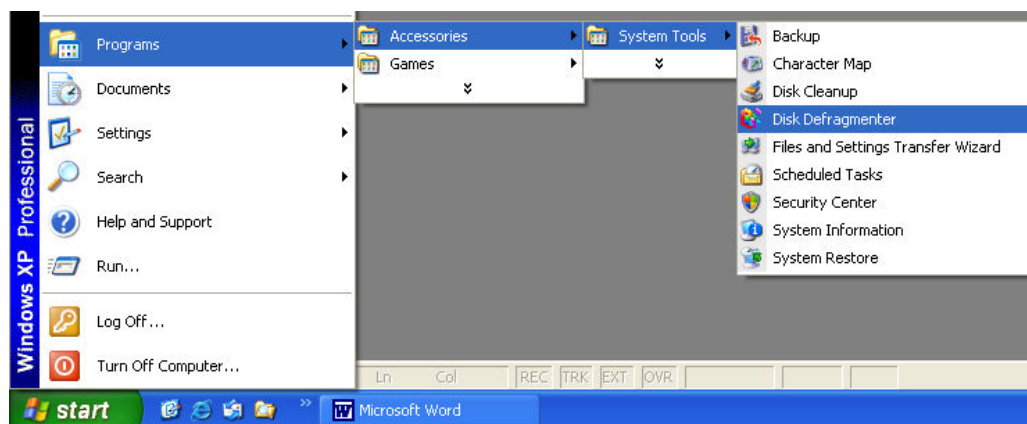
How can I fix this?

Well, there are a few things that can be done to speed up your system. Most of them are pretty easy.

1. Make sure you have AntiVirus Software running onboard, and that it is up to date. Simply having AntiVirus Software on your computer, isn't enough. There are always new threats being released, and therefore, your AntiVirus program needs to be constantly updated. Most AntiVirus programs on the market today have an Auto-Update feature, which retrieves the latest updates for your particular program, and automatically installs them. If however, your AntiVirus program is old & outdated, or the Subscription has run out, then will need to Upgrade, not just Update. What is the difference between Upgrading and Updating? Upgrading involves purchasing the latest version of the software. Updating simply refers to making sure the Virus Definition files on your computer are up to date.
 - Upgrade or Update your AntiVirus Software
 - Run a complete System Scan to remove any Viruses on your Computer
 - System Scans should be done at least Once-a-Month, if not more.
2. AntiMalware programs are in great abundance on the Internet. There are 2 programs that I highly recommend. One is **Malwarebytes Antimalware**. It can be downloaded from the Company's Website located at: <http://www.malwarebytes.org/>. The other is **Spybot Search & Destroy**, which you can get from <http://www.safer-networking.org/en/index.html>. Not only are both these programs free, but they are also very easy to install and manoeuvre around in. In addition, they do an incredibly thorough job of removing spyware lingering on your system. I have personally had clients whos Computers were so slow, that you wondered how they ever got any work done at all. But after running both of these programs, and having them remove 1400+ pieces of Malware off their Systems, my clients are usually quoted as saying, "WOW!, this is like having a new computer, it's running so fast!" Again, making sure your Spyware Definition Files are up to date is crucial to the program's success.
 - Install or Update your AntiSpyware software.
 - Run a *complete* system scan to remove any Spyware on your Computer
 - Spyware System Scans should be done once every 2 weeks (at a minimum).
3. Fragmented File Systems are a common occurrence. Windows offers it's own version built into the Operating System, but there are also other Companies that create software, which addresses this need. If you are planning to use the Windows Defragment Utility, keep in mind that you may be prompted to run Scandisk prior to Disk Defragmenter. Windows Defragment Utility is stored here.

Start Menu → Programs → Accessories → System Tools → Disk Defragmenter

(see picture below)

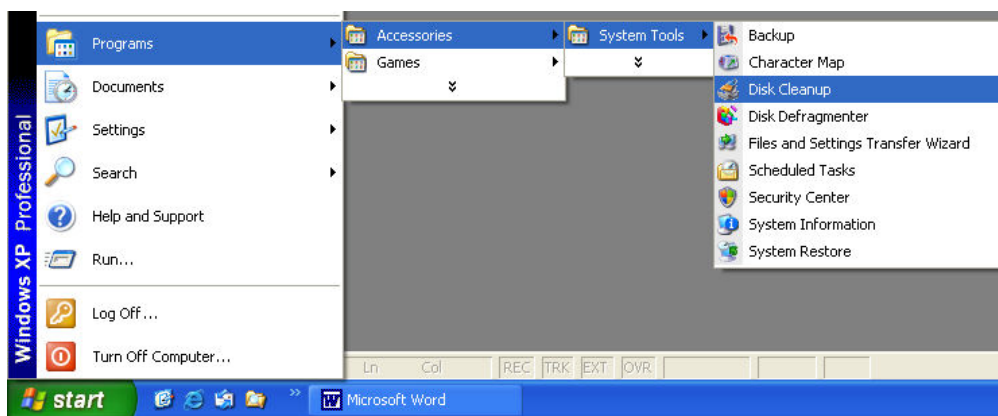


As for other Disk Defragmenting programs, simply doing a search on Google for “Disk Defragmenter” will yield you plenty of results.

4. Lack of Hard Drive space is quite easy to address. Simply put, there are 2 ways to increase hard drive space on your Computer. Sure, there are programs out there that claim to increase your existing hard drive space, but this is done through file compression. Truth be told, this is not a good way to increase Drive Space. It can lead to catastrophic results. (ie. Losing all the data on your Hard Drive!) The best ways to increase space are as follows:

- Use the Windows Disk Cleanup Utility to free up wasted space.
 Start Menu → Programs → Accessories → System Tools → Disk Cleanup

(see picture below)



This utility removes a lot of unnecessary files from your computer. Don't worry, it doesn't remove any files that the user has saved to the computer. It simply removes such files as Temporary Internet Files, Event Logs, Files in the Recycle Bin, etc. It explains what files are going to be deleted, and does a very good job of walking the user through the program.

- Downloaded programs are another source of “clogged” Hard Drives. Look at the programs you have installed on your computer. Often times, programs are downloaded to the computer, installed and used for a brief period of time. But after a while, these programs just start taking up space, as they are never used again. By uninstalling these programs, you will definitely increase your computer efficiency. This can have a large effect on the Swap-File, which we discussed earlier.
 - Remember to perform a Disk Defragment after either of the above procedures. When you remove files from your Hard Drive, you are left with holes. Defragmenting will consolidate your Hard Drive and fill these holes with the appropriate data.
5. The Windows System Tray is a very important part of keeping your computer running quickly and smoothly. Programs that are in the System Tray are usually programs that you use on a regular basis, but occasionally, programs that are more for entertainment and serve no real purpose end up in the system tray as well. These are the programs that should be removed from the System Tray, and even possibly, the computer. Some of these programs can be customized to NOT start on System Start-Up through internal option menus within the applications. Others however, have to be removed from the Computer entirely, as this is the only way of removing them from the System Tray. Once these are removed however, your computer won't take as long to load, and will perform faster.



Summary

Today, we covered 5 different areas of possible issues with regards to speeding up your computer. Following these steps will help to ensure that you have a smooth running system.

If you have any other questions or concerns, please do not hesitate to email us at info@tsgcs.ca or, we can be reached by phone at (604) 803-2824.

To your Success,
Chad Rushka
TSG Computer Services

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