

# STRATEGIES TO USE WHEN YOUR COMPUTER SLOWS TO A CRAWL

Beginners' Kaffee Klatch  
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In Two Parts  
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Not all computer problems are caused by software glitches or viruses and malware. While most of us think of our computers as our little silicon-based lifeform pets, they are really just machines, and machines slow down and break down. Testing hardware failures usually involves either checking the cables or connections to make sure they are seated properly, or swapping out suspected parts with known-good parts. Here are some basic hardware troubleshooting steps that you may wish to pursue:

## 1. Check Your Computer's Fans

Open the computer and run it after cleaning out all dust bunnies. Be careful when you clean; use compressed air and be gentle. **CHECK OUT ALL FANS** (overheating will cause system freezing and/or crashing and could quickly lead to the total collapse of your system). Obviously you can't do this with a laptop, but you can hear if the fan is running and feel if the laptop is getting too hot.

## 2. Check Your Hard Drive's Health

<http://www.panterasoft.com/>

Wondering how long your hard drive has to live? This utility will help you make the most of your time together, so you can prepare for life without it once it's gone. From its vantage point in your system tray, **HDD Health** uses Self Monitoring and Reporting Technology (S.M.A.R.T.), which is built into all new hard disks to assess your hard drive's condition and send you alerts when it's time to put your hard drive's affairs in order. Neither these alerts nor the records the program logs for you will tax your system resources.

## 3. Power Supply Issues

The power supply may be going bad or be inadequate for the devices you have in the system. Test by swapping the power supply unit out for a known working one. If you have one of the higher-end video cards that requires a separate power supply connector, make sure it is in place.

## 4. Listen for the Beeps

A lot happens from the moment you turn on your computer to the moment a few seconds later when it makes a “beep!” sound. That short period is devoted to the power on self test (POST) in which the Basic Input/Output System (BIOS) checks out the PC’s hardware.

When things are working properly, you hear a quick little beep from the PC’s internal speaker, and the OS (operating system) begins to load. But if something is wrong with the hardware, the computer will alert you with a different sound: several ominous beeps. These BIOS beep codes usually form a pattern that can tell you what’s wrong, or at least tell you what component is having trouble.

The issue here is not to have you memorize the sequence of beeps, but rather to let you know that if your computer’s internal speaker emits more than a quick little beep at startup, you have a problem with a hardware component that will deserve your immediate attention.

There isn’t much standardization when it comes to beep codes. If your system is beeping rather than booting, check the users manual or the manufacturer’s Web site to find out what those beeps mean in your particular case.

Sometimes, you may need to consider removing a newly installed expansion card and trying to reboot your computer. If the PC boots, the card is causing a conflict. If not, consult the PC’s manufacturer.

To give you some examples of what various beep codes mean, listed below are some from two major BIOS manufacturers: Phoenix and AMI (American Megatrends Inc.).

If the developer of your system’s BIOS is AMI, there are specific problems associated with the number of beeps you hear upon startup.

Two or three beeps indicates **memory** problems. You can try unplugging the PC and reseating (removing and reinserting) the memory modules (taking all the precautions necessary to avoid a static electricity discharge, of course). If that doesn’t work, try replacing the memory.

Four, five, seven, nine, 10, or 11 beeps points to various problems with the **motherboard, processor, CMOS** (complementary metal-oxide semiconductor), **keyboard** controller, or **cache memory**—any of which can mean serious problems with the motherboard or CPU.

Six beeps specifies a problem with the **keyboard** controller chip. Try using a different keyboard. If that doesn’t work, there’s a problem with the motherboard.

Eight beeps means that there's a problem with your system's display memory. Try reseating the **video** card or using a different one. On the other hand, if the video adapter is part of the motherboard, it may be faulty.

Systems running a version of Phoenix's BIOS tend to use three groups of beeps to signify trouble. For instance, one beep, followed by four beeps, and then two beeps (1-4-2) indicates bad RAM. Other possible codes are listed below.

1-4-2 or 2-X-X (where X can be any number of beeps): There's a problem with your system's RAM. Reseat or replace the memory.

3-2-4 or 4-2-2 or 4-2-3: There's a problem with the keyboard controller chip. Try using a different keyboard. If that doesn't work, there's a problem with the motherboard.

3-3-4 or 3-4-X: There's a problem with the video card. Reseat it or try another one.

4-2-4: This code indicates that one of the expansion cards may be bad. Remove each card, one by one, to find out which one is causing the problem.

4-3-4: There's a problem with the internal clock. Use the BIOS setup utility to correct the date and time. The motherboard may need a new CMOS battery.

Any other beep codes indicate a problem with the motherboard.

## **NOW FOR THE SOFTWARE ISSUES:**

### **5. Eliminate programs that run at start-up**

A computer's poor performance could be due to the number of programs that run automatically at system start-up.

Virtually all program applications that you install using the default installation decide that they should start-up when Windows starts. If you allow these to take control, you can end up with a situation where (unless you have sufficient memory installed) every other program slows down to the point of being unusable. The reason for this is that all of these programs use a portion of the system memory and resources which leaves a smaller percentage for other programs once they're opened.

Stopping programs from running at start-up is especially daunting because there is no single place you can go to halt them all. Some run because they're in the Startup folder, others because they're part of logon scripts, others because of Registry

settings, and so on. But with a little bit of perseverance, you should be able to keep them from running.

The major problem with getting rid of startup items is that they can be hidden in one of four different places on your PC.

### **First Place to Look: msconfig**

1. Click Start.
2. Select Run.
3. Type **msconfig**.
4. Select the **Startup** tab.
5. Deselect the offending program(s). [Refer to one of these hyperlinks below for clues as to which programs are safe to deselect.]

**These links will provide up-to-date lists of all the programs (as of 8/5/07 more than 15,000 possibilities!) that might be operating in the background. It will save you many minutes of frustration as you attempt to decipher the identity codes for many of the programs.**

<http://castlecops.com/StartupList.html>

<http://www.sysinfo.org/startuplist.php>

6. Click OK.
7. Restart your computer.

### **Second Place to Look: Startup Folder**

1. Click Start.
2. Select **All Programs**.
3. Select the **Startup** folder. If the offending program is in that file folder, just delete it. (This action deletes the shortcut only, so you will not be deleting the actual program.)
4. Restart your computer.

### **Third Place to Look: One of the Registry Keys**

*Don't go here unless you are very comfortable with your computing skills. A mistake in dealing with the registry could cause your system to become inoperable! **BEFORE YOU CHANGE ANYTHING IN THE REGISTRY, CREATE A BACKUP COPY OF THE REGISTRY OR ESTABLISH A SYSTEM RESTORE POINT!***

*To back up the Registry:*

1. Click **Start**
2. Click **Run**
3. Type **regedit** at the command prompt and click **OK**
4. The Registry Editor opens
5. Click **File**, then **Export**

6. *Select a folder (the Desktop is a folder) in which to store the backup.*
7. *Enter a name for the file (such as Registry Backup) and click Save.*

*To create a system restore point:*

1. *From the **Start** menu, choose **All Programs**.*
2. *Go to **Accessories**.*
3. *Go to **System Tools**.*
4. *Click on **System Restore**.*
5. *Select “Create a restore point”; then click **Next**.*
6. *Provide a name for your new restore point and make it descriptive enough so as to be easily identified at a later date. Then click **Create**.*

*To check the first Registry key:*

1. Click on the **Start** menu.
2. Select **Run**.
3. Type **regedit** and press <enter>.
4. Click the plus sign (+) next to **HKEY\_CURRENT\_USER**.
5. Scroll down and expand (click on the + sign) **Software**.
6. Scroll down and expand (click on the + sign) **Microsoft**
7. Scroll down and expand (click on the + sign) **Windows**.
8. Scroll down and expand (click on the + sign) **CurrentVersion**.
9. Scroll down and expand (click on the + sign) **Run**.
10. Scroll through the pane on the right. One line should show the file name of the offending program.
11. Highlight the line in question and press <delete>.
12. Finally, close the Registry Editor and restart your computer. The program will no longer run at startup.

#### **Fourth Place to Look: Another of the Registry Keys**

*To check the second Registry key:*

1. Click on the **Start** menu.
2. Select **Run**.
3. Type **regedit** and press <enter>.
4. Click the plus sign (+) next to **HKEY\_LOCAL\_MACHINE**.
5. Scroll down and expand (click on the + sign) **Software**.
6. Scroll down and expand (click on the + sign) **Microsoft**
7. Scroll down and expand (click on the + sign) **Windows**.
8. Scroll down and expand (click on the + sign) **CurrentVersion**.

9. Scroll down and expand (click on the + sign) **Run**.
10. Scroll through the pane on the right. One line should show the file name of the offending program.
11. Highlight the line in question and press <delete>.
12. Finally, close the Registry Editor and restart your computer. The program will no longer run at startup.

**AS AN ALTERNATIVE TO LOOKING IN THE REGISTRY, TRY ONE OR BOTH OF THESE FREEBIES!**

**StartupRun** displays the list of applications that are launched automatically when Windows boots. For each application, additional information is displayed in order to allow you to easily identify the applications that are loaded at Windows startup. If StartupRun identifies a spyware or adware program that runs at startup, it automatically highlights it in pink color. In addition, you are allowed to edit, disable, enable and delete the selected startup entries.

<http://www.nirsoft.net/utils/strun.html>

**Autoruns** shows you what programs are running "in the background" during system bootup. These programs include ones in your startup folder, msconfig, and other Registry keys. There are a lot of programs running at startup. You will be able to see how much you can increase the speed of your boot up time. Always backup first before making changes.

<http://www.sysinternals.com/utilities/autoruns.html>

When stopping programs from running at start-up, it's best to deselect them one or two at a time rather than in larger groups. You want to make sure that you're not causing any system problems by stopping them. During each cycle, write down the names of the two programs that you have stopped so that you can restart them should there be a system problem. So stop one or two, then restart your PC. If it runs fine, then stop another set of two and restart. Continue doing this until you've cleared all the programs you don't want to run automatically.

**You do want your antivirus program and firewall to run at startup. DO NOT disable them!**

Each time you uncheck a box and restart your PC, you'll get a warning that you've used the System Configuration Utility to disable a program from starting automatically. If you don't want to see that warning, disable it by checking the box in the dialog itself.

A truly outstanding third-party utility is **StartupMonitor** (free; <http://tinyurl.com/33jpz> ) It lets you know when any application secretly tries to

register itself when you start up your computer. You won't have to worry about your Notification Area (System Tray) getting cluttered. As an added feature, the utility also protects your system from Trojan horses. After you download the small file, the utility runs transparently. You won't know it's there until a program attempts to load at startup. Then a screen pops up on your Desktop that gives you the option of accepting or refusing the change to your system startup.

Less-than-reputable programmers try to sneak in secret applications you don't want along with the program you download. With StartupMonitor, you'll have the power to keep them out. That's why this little utility is a huge help.

## **6. Adjust Your System for Best Performance**

If you want to have your computer adjust your system for “best performance”, click on **Start** > right click on **My Computer** > click on **Properties** > select the **Advanced tab** > in the **Performance** area, click **Settings** button > select the **Adjust for best performance** option > scroll down to last two items and select **use drop shadows for icon labels on desktop** and **use visual styles on windows and buttons** > click **OK** > click **OK** again.

## **7. Clean Out Your Scheduled Tasks Folder**

Clean out your Scheduled Tasks folder. In **Windows Explorer** (Windows key + E key), go to **C:>Windows>Tasks**, and delete the shortcuts of any programs that you don't want to run automatically on a schedule. An alternative route: **Start button** > **Control Panel** > **Scheduled Tasks**.

## **8. Disable Services that Run in the Background**

Constantly running in the background of XP are services--processes that help the operating system run or that provide support to applications. Many of these services launch automatically at start-up. While you need many of them, some are not required, and they can slow down your system when they run in the background.

To disable services at start-up, use the **Services** management console. Access **Services** by going to **Start** > **Run**, then typing **services.msc**. The **Services** management console includes a description of all services so that you can know ahead of time whether a particular service is one you want to turn off. It also lets you pause the service so that you can test your machine and see whether that service is needed.

After you access the console, click the **Extended tab** (you will find it at the bottom of the window). This view will show you a description of each service in the left pane when you highlight the service. The **Startup Type** column shows you which

services launch on start-up – any with “Automatic” in that field. Click that column heading to sort together all the services that automatically launch on start-up. Then highlight each of those services and read the descriptions.

When you find a service you want to disable, right-click it and choose **Properties**. In the Properties dialog box that appears, choose **Manual** from the **Startup Type** drop-down list. The service won't start automatically from now on, but you can start it manually via the console. If you want the service disabled so that it can't be run, choose **Disabled**. To test the results, turn off any services that you don't want to run by clicking **Stop** in the left pane, or by right-clicking the service in the right pane and choosing **Stop**.

Here is a list of some common services you might want to stop from running at start-up.

**Error Reporting Service:** Allows error reporting for services and applications

**Portable Media Serial Number:** Retrieves the serial number of a portable music player attached to your PC.

**Task Scheduler:** Schedules unattended tasks to be run. If you don't schedule any unattended tasks, turn it off.

**Uninterruptible Power Supply:** Manages an Uninterruptible Power Supply (UPS) connected to your PC.

**Automatic Updates:** Automatically checks for Windows updates. (You can check manually by going to <http://windowsupdate.microsoft.com/>.)

**Wireless Zero Configuration Service:** Automatically configures a Wi-Fi (802.11) network card. **Disable this only if you're not using a Wi-Fi (wireless) network card.**

## 9. Empty the Prefetch Folder

One of Microsoft's big selling points for Windows XP was that it loads applications much faster than its predecessors. To accomplish this feat, Windows XP uses what is called the "Prefetch technique," in which the operating system gathers information about each program that you launch and stores that information in the c:\Windows\Prefetch folder. Then on subsequent restarts, Windows XP uses the information in the Prefetch folder to essentially preload (fetch) parts of those programs at boot time. Thus, when you launch your application, it appears to load really fast.

However, the Prefetch folder can accumulate too much information over time. This makes the operating system so busy loading bits and pieces of lots of applications

into memory that it ends up slowing down the boot process. Fortunately, you can clean out the Prefetch folder at any time. Follow these six easy steps:

1. Click on the **Start** Menu.
2. Access the **Run** dialog box.
3. Type **Prefetch** in the Open text box and click **OK**.
4. Press [Ctrl]+A to select all the files.
5. Press [Delete].
6. Close the folder.

As you use your system, Windows XP will rebuild the contents of the Prefetch folder. **You will want to empty the Prefetch folder periodically.**

## **10. Dump the Splash Screen**

Every time you boot your computer, you see the Windows splash screen. Disable it and gain a couple seconds on the time that it takes to start up your computer.

To disable the Splash Screen, click on **Start** > click on **Run** > type **msconfig** > go to the **boot.ini** tab > check the box labeled **/NOGUIBOOT** > then reboot your computer. (Note: this option is not available on all computers.)

## **11. Change Your Virtual Memory Settings**

Before you consider resetting your virtual memory, it is important to know how much physical (RAM) memory you have on your system. To find out, click **Start** > right-click on **My Computer** > **Properties**. The amount of RAM you have will be listed toward the lower right corner of the Properties dialog box.

Now, to check your virtual memory settings, follow these steps:

Click on **Start** > right-click on **My Computer** > **Properties** > **Advanced** tab > in **Performance** area, click **Settings** > **Advanced** tab. In the **Virtual Memory** area, click **change**.

If you have less than 512 MB of RAM, set both the minimum and maximum to 2.5 times the amount of physical memory you have in your system. If you have 512 MB of RAM or more, set your minimum and maximum to the amount of your physical memory. Then click **OK** > **OK** > **OK**.

## **12. Delete Two Environmental Variables**

Click **Start** > right-click **My Computer** > **Properties** > **Advanced** tab > **Environmental Variable** button at the bottom of dialog box > scroll down to find **TMP** and **TEMP** and delete them both, one at a time. Click **OK** > **OK** > **OK**.

### **13. Reduce Disk Space Allocated for System Restore**

Click **Start** > right-click **My Computer** > **Properties** > **System Restore** tab > reduce Disk Space Usage to 1%. Click **OK** > **OK** > **OK**.

### **14. Reduce Disk Space Allocated for the Recycle Bin**

Right-click on the **Recycle Bin** icon > reduce the maximum size of the recycle bin to 1% of your hard drive.

### **15. Clean Up the Old “Stuff” on Your Hard Drive**

If you want to clean up your hard drive, the question becomes “What files are okay to remove without causing any trouble?”

#### **Remove old programs**

For starters, get rid of those programs that you no longer use. Click on **Start** and then **All Programs**, and look for no-longer-used programs listed there. For example, if you are no longer using Norton AntiVirus, look for a file folder called Norton AntiVirus. Within the folder should be an uninstall feature. If any program that you wish to remove from your computer has its own uninstall feature, it is best to use it. Otherwise, use the generic Add/Remove Programs feature built in to each version of the Windows operating system.

To access the Windows’ Program removal feature, Go to **Start** > **Control Panel** > **Add/Remove Programs**. You’ll see a listing of programs installed on your PC. When you find a program you no longer use, select it and click Change/Remove.

**MyUninstaller** is an excellent alternative to Windows’ Add or Remove Programs tool. But it does more than mimic what Windows provides. MyUninstaller shows much more information about your programs. And it can help you with programs that don’t include an uninstaller.

MyUninstaller provides extra information including product descriptions, registry entries and installation dates. It also displays programs lacking uninstallers and others that don’t show up in Windows Add or Remove Programs. You might discover old programs you had forgotten about.

Of course, you can also use MyUninstaller to remove programs just as you would the Windows tool. You can also select multiple programs to remove them at the same time.

<http://www.nirsoft.net/utils/myuninst.html>

## 16. Remove Old Internet Files

If you use Internet Explorer, select **Tools > Internet Options**. On the **General tab**, click the **Delete Files** and **Clear History** buttons. Also reduce the days to keep history to 0 or 1. Click **OK** when finished.

Also in Internet Explorer, select **Tools > Internet Options**. On the **Advanced tab**, scroll down to near the bottom of the list of options. Under **Security**, select **Empty Temporary Internet Files folder when browser is closed**. Click **OK**.

If you use the Firefox browser, select **Tools > Options > Privacy** button > press the **clear buttons** for both **History** and **Cache**. Click **OK** when finished. Also in Firefox, select **Tools > Options > Privacy** button > expand **Cache** by clicking on the + sign > set disk space for the cache to 0.

## WINDOWS' SOFTWARE TOOLS

Windows XP includes utilities such as **Disk Cleanup**, **Chkdsk**, and **Defrag**. These tools clean up files, check hardware status, and help you maximize your system's performance.

## 17. Use Windows Disk Cleanup

As the least complicated of the Windows maintenance utilities, **Disk Cleanup** helps you eliminate clutter and maximize storage space on your PC. It helps by deleting unwanted files, such as temporary files, downloaded program files, and Recycle Bin files. In addition, it helps by showing you how to reduce the amount of space consumed by System Restore, as well as how to remove unwanted software and Windows components.

To access the utility, click the **Start Button > All Programs > Accessories > System Tools > Disk Cleanup**. A **Select Drive** dialog box will ask you to specify which drive (almost always **C**) you want to clean. Select the drive from the Drives drop-down menu and click **OK** to continue. At this time, you may see a pop-up message indicating that Disk Cleanup is calculating how much space it will be able to free up for you. When Disk Cleanup finishes this task, the message will close automatically and the Disk Cleanup dialog box will open. When it does, choose the **Disk Cleanup** tab. Here, you'll see a list of file types in a **Files to delete** scroll-down area. To the right of each file type is a number indicating the amount of space that will become available if you remove files of that type from your system.

You can indicate which file types you want to include in the cleanup by selecting the appropriate checkboxes. If you're not certain whether to delete files of a certain type, highlight the file type and review its description in the Description area. You also can click the corresponding button (labeled as **View Files**, **View Pages**, or

Details), if one is available, to see exactly which files meet the description. After selecting the file types you want to eliminate, click the OK button. Disk Cleanup will present a message asking you to verify that you want to remove the selected files. Click Yes to continue and then wait for the process to finish. Disk Cleanup will close automatically when the cleanup is complete.

To access the other components of Disk Cleanup, open the utility and click the **More Options** tab. Here, you'll see multiple options, including **Windows Components** and **Installed Programs**, each with a corresponding Clean Up button. Clicking a button lets you access the Windows utility that handles the selected task. For example, clicking the Clean Up button next to the Installed Programs option launches the Add/Remove Programs utility that we covered earlier during this presentation.

**Many experts suggest that you review the options found on the Disk Cleanup tab on a regular (every two weeks) basis to ensure your system isn't lugging around a bunch of space-hogging files that you don't really need.**

Disk Cleanup might miss a few things. For instance, it won't delete anything that looks like a user-created file for fear that you might actually want it. With that in mind, it might be a good idea to browse around your My Documents folder for outdated documents you don't need or other folders on your hard drive for large graphics, video, and music files you no longer want.

## **18. Install a Free All-Purpose Cleaning Tool**

**CCleaner** is a system optimization and privacy tool that removes unused and temporary files from your system—allowing Windows to run faster, more efficiently and releasing more hard disk space. It's fast and free! Although it lacks a few features found in some commercial PC-cleaning applications, this program offers enough to make it a worthy download.

<http://tinyurl.com/6xoc5>

## **19. Remove Temporary Files**

It is not unusual for Disk Cleanup to miss some of the temporary files. To find some of the well-hidden temporary files that serve no useful purpose, click on **Start**, then **Run**. Type **%temp%** in the **Run** box, and then **Enter**. Except for the temporary files (those whose name has a tilde ~ prefix) that are still being used by your system (ones that will be deleted when you shut down your computer) you will be able to delete all of them from the right pane.

Another strategy for finding all the hidden temporary files: click on **Start**, then **Search**. Select **all files and folders**, type **\*.tmp** in the box, and then **Enter**. Follow

the same procedure for deleting the temp files as described in the preceding paragraph.

## 20. Use Windows Chkdsk

Your hard drive stores information in sectors on platters that spin at a very high speed. Over time, some of these sectors fail, and data stored in them is at risk. The **Chkdsk** utility will search for bad sectors and evaluate the surface of your hard drive.

To run this utility, click the **Start Button**, open **My Computer**, right-click your **hard drive**, and select **Properties**. Select the **Tools** tab, then click the **Check Now** button in the **Error-Checking** section. Select both disk options: 1) automatically fix file system errors, 2) Scan for and attempt recovery of bad sectors. Then click **Start** and **Yes** to the question, “Do you want to schedule this disk check to occur the next time you restart your computer?” The time required to check the disk at your **next boot** will vary with the size of your hard drive. Be patient, however, for the process takes many minutes even for a 40 gigabyte drive. **Some experts suggest that you should run this utility monthly.**

## 21. Use Windows Disk Defragmentation (Sparingly)

What happens when you save files on your computer’s hard drive? For one thing, Windows does its best to use your hard drive space efficiently. It tries to fill in small gaps left behind by deleted files. To do it, Windows may split some files into pieces that will fit. This happens again and again as you move, delete or save files.

Eventually, all those split files affect your computer's speed. Your favorite program might be stored as dozens of fragments. Your computer has to find them all just to start it up. Your waiting time will eventually test your patience.

To keep your computer up to speed, you should defragment the hard drive periodically, but probably not more than every six months! (see box below.)

In its **June 26, 2006** issue, *PC World* reported that its test center set out to determine the effectiveness of the defrag utilities in popular sets of suites. Much to their surprise, their analysts found no evidence that defragmentation enhanced performance. On a desktop system from the *PC World* office with a heavily used, never-defragmented hard drive, the lab conducted speed tests using a range of applications before and after defragmenting the drive with each utility. In the end, the **Test Center saw no significant performance improvement after defragmenting with any program.** This result flies in the face of the perceived wisdom that fragmentation hinders performance, though much older PCs (with

slower and smaller hard drives) and heavily used servers may benefit more from defragging.

Windows includes a handy tool for the job. It's aptly named Disk Defragmenter. Disk Defragmenter will sort those scattered fragments back together. You can find it by clicking **Start Button>All Programs>Accessories> System Tools**.

Disk Defragmenter can run into problems, however, so be very cautious about running it.

Disk Defragmenter will stop if it discovers errors on your hard drive. This could cause the Defragmenter to stop consistently at the same place. It could also leave your hard drive only partially defragmented. **For this reason, always run the Windows Chkdsk utility first.**

### *The Defragmenter needs lots of space*

A near-full hard drive is the bane of the Defragmenter. Windows requires at least 15 percent of your hard drive free to complete defragmentation. According to Microsoft, less space will result in an incomplete defragmentation.

(Check out your drive's free space by clicking on the **Start Button**, then clicking on **My Computer**. Right-click on your hard drive (generally named Local Disk C:), and then left-click on Properties. A pie graph will show you how much free space you have available.)

A nearly full hard drive is a likely culprit for older computers where hard drives are small by current standards. They could be quickly overwhelmed with videos and music. And new software packages tend to take more space than older versions. If you are running short on free hard drive space, consider using **Disk Cleanup** to free some hard drive space (described earlier in this document).

### *The Defragmenter must work alone*

Disk Defragmenter does not play well with others. In fact, it often won't play at all if something else is running in the background. So it is necessary that all other programs be shut down while Disk Defragmenter is doing its thing.

Most experts advise that you run Defragmenter in **Safe Mode**. (Safe Mode lets you start your computer with a minimal set of programs running, which can make troubleshooting your system easier.) To do that, reboot the computer and keep tapping the F8 key during the boot up process. That should get you into a menu of startup options, including Safe Mode. If it doesn't, reboot and try again.

Once you get the menu, pick Safe Mode. It will look odd, because only a minimum of drivers and other programs are started with Windows. You should be able to run Disk Defragmenter in Safe Mode.

## 22. Install Critical Patches From Microsoft

Microsoft periodically issues patches that fix vulnerabilities in the Windows operating system. Many of these are considered critical. However, if you are running a firewall, the danger is greatly reduced. Nonetheless, you should install these patches in a timely manner.

To activate the Automatic Update function:

1. Click on **Start**.
2. Right-click on **My Computer**.
3. Click on **Properties**.
4. Click on the **Automatic Updates tab**, and make your choices. It's best to select the option which will notify you of updates, but will not download them to your computer until you request them.

If you don't have automatic update turned on, you can update manually:

1. Open **Internet Explorer**.
2. Click **Tools**.
3. Click **Windows Update**.
4. Let Microsoft scan your computer.
5. Install any **Critical Updates** and **Security Packs**.

## 23. See What's Running At Any Given Moment

They're called **processes**. These are the programs that are running in your computer. One of them could be using up the system's CPU cycles and causing a system slowdown. Finding the culprit isn't that difficult. You just need to know where to look.

1. Press **Ctrl+Alt+Del**. (Alternative: right-click on the Taskbar and left-click on **Task Manager**.)
2. Windows **Task Manager** will appear.
3. Select the **Processes** tab. This will show you which processes are running.
4. Under **CPU**, you'll find the percentage of microprocessor time each process is taking. It should be easy to identify the hog. Make a note of its name, then click the name to highlight it. Click End Process. Then put the process name in a search engine and hunt for information about it on the Web.

Here is an alternative approach that is very effective:

1. Boot your computer into Safe Mode (continuously tap on the F8 during startup).
2. Press Ctrl+Alt+Delete. The Processes section will list only those units that are really essential to keep Windows running.
3. Make a handwritten list of the processes that are running in Safe Mode and use that as a reference.
4. Restart Windows.
5. Open the Task Manager and select the Processes tab.
6. **Now when you shut down or disable any process not on your short list, you can be confident that you won't inadvertently clobber your system while trying to improve its performance.**

## 24. Stop the Microsoft Indexing Service

If you are not indexing anything (and most of us don't), there's no need for the Indexing Service to run.

To disable it:

1. Click on **Start > Run > type Services.msc.**
2. Click on the **Standard** tab
3. Double-click on **Indexing Service.**
4. Note that in the properties, it's described as **CiSvc.**
5. Change the **Startup type** to **Disabled.**
6. Click on **Apply.**
7. Click on **Stop** (if available).

## 25. Increase the Speed of Your Computer's Shutdown

It's not only start-up that you'd like to speed up; you can also make sure that your system shuts down faster. If shutting down XP takes what seems to be an inordinate amount of time, you can speed up the process if you:

### *Don't Clear Your Paging File*

Don't have XP clear your paging file at shutdown. For security reasons, you can have XP clear your paging file (pagefile.sys) of its contents whenever you shut down. Your paging file is used to store temporary files and data, but when your system shuts down, information stays in the file. Some people prefer to have the paging file cleared at shutdown because sensitive information such as unencrypted passwords sometimes ends up in the file. However, clearing the paging file can slow shutdown times significantly, so if extreme security isn't a high priority, you might not want to clear it.

To shut down XP without clearing your paging file, run the Registry Editor (click **Start > Run**, then type **regedit** in the **Run** box) and carefully follow the steps below.

1. Click on the + sign immediately to the left of **HKEY\_LOCAL\_MACHINE**.
2. Click on the + sign immediately to the left of **SYSTEM**.
3. Click on the + sign immediately to the left of **CurrentControlSet**.
4. Click on the + sign immediately to the left of **Control**.
5. Click on the + sign immediately to the left of **Session Manager**.
6. Click on the **Memory Management** folder.
7. Double-click on **ClearPageFileAtShutdown**.
8. Change the value to 0.
9. Close the Registry, and restart your computer.

Whenever you turn off XP from now on, the paging file won't be cleared, and you should be able to shut down more quickly.

## **26. Eliminate Many of the Slowdowns that Occur During the Time Between Startup and Shutdown**

If your computer tends to bog down, it may be having its system resources sapped by one or more of the “nasties”, i.e. such things as Trojan horses, worms, viruses, and spyware. Listed below are brief definitions of the culprits.

**Viruses:** A program or piece of code that is loaded onto your computer without your knowledge and runs against your wishes. Viruses can also replicate themselves. All computer viruses are manmade. A simple virus that can make a copy of itself over and over again is relatively easy to produce. Even such a simple virus is dangerous because it will quickly use all available memory and bring the system to a halt. An even more dangerous type of virus is one capable of transmitting itself across networks and bypassing security systems

**Trojans:** Trojan Horses or Backdoors open your PC from the inside to attackers. Once a trojan is installed, someone can take full control of your computer. Most trojans are delivered via email and just previewing the email can activate the Trojan.

**Dialers:** Dialers are small programs which reconfigure your dial-up number to a premium rate number. If you use a dial-up modem to connect to your ISP (Internet Service Provider) you are at risk. Premium rate numbers can cost you hundreds in just a few days!

**Worms:** Worms are the most wide spread hazard on the Internet. Worms arrive as emails with harmful attachments. If you open an attachment the worm will then copy and send itself to as many other computers as possible, damaging yours and your friend's systems.

**Spyware:** Your personal data and your habits are a goldmine for some advertising companies who seek to infiltrate your computer. Often you are not aware that a spyware

program has been downloaded. This software can collect personal information about you and your internet habits, change your home page and even stop you going to some websites.

If you haven't already done so, please consider installing the following programs and **update** and **run** them frequently. Your due diligence will go a long way in keeping your computer running smoothly.

**Check out the free programs below. With one exception, all are available at absolutely no cost!**

A variety of popular programs contain spyware. In fact, Spyware-Guide ([http://www.spywareguide.com/product\\_list\\_full.php](http://www.spywareguide.com/product_list_full.php)) lists 2454 programs (as of August 2007) whose primary purpose is to add spyware to your computer.

**According to many experts, you should have a "cocktail" of anti-spyware programs installed on your computer, including ALL of these.**

**SpywareBlaster 3.5.1:** Prevents Spyware from being installed on your computer. <http://tinyurl.com/3vcux>

**Spybot-Search and Destroy 1.4:** Identifies and Removals Adware and Spyware. <http://tinyurl.com/2b7s7>

**Ad-Aware 2007 7.0.1.6:** Identifies and Removals Adware and Spyware. <http://tinyurl.com/5kgs1>

**CWShredder 2.19:** The best defense against malware that tries to hijack your browser. <http://tinyurl.com/pgxct>

**Bazooka Adware and Spyware Scanner 1.13.03** detects a multitude of spyware, adware, Trojan horses, keyloggers, and trackware components. The scanning process only takes a fraction of a second and tells you how to uninstall the invasive spyware or puts you in contact with the spyware developer for the most up-to-date and safe uninstall instructions. <http://tinyurl.com/9bxnz>

Microsoft's **Defender 1.1.1:** This Microsoft product is a free program that helps protect your computer against pop-ups, slow performance, and security threats caused by spyware and other unwanted software. It features Real-Time Protection, a monitoring system that recommends actions against spyware when it's detected, and a new streamlined interface that minimizes interruptions and helps you stay productive. <http://tinyurl.com/flws9>

The Microsoft **Windows Malicious Software Removal Tool** (Windows XP only) checks computers for infections by specific, prevalent malicious software and helps remove any infection found. When the detection and removal process is complete, the tool displays a report describing the outcome, including which, if any, malicious software was detected and removed. Microsoft releases an updated version of this tool on the second Tuesday of each month. New versions are available through the Microsoft Download Center at:  
<http://tinyurl.com/5lyxe>

**Important Reminder: You should never have more than one antivirus program running on your computer. Install only one of these.**

**AVG Anti-Virus 7.5.476:** a very popular antivirus program used by many members of the Computer Club. The professional version of this program is used on all the Club's PC's.  
<http://tinyurl.com/czbxm>

**Avast4Home 4.7.1029:** This is another popular antivirus program. (I have been using it on my home computers for over three years and am quite satisfied with its performance.)  
<http://tinyurl.com/h4akm>

**Trend Micro's Housecall: a Web-Based Anti-Virus Program.** To double-check the effectiveness of your one onboard antivirus program, use a free Web-based antivirus program such as HouseCall. Since this program is Web-based, it can be used as a complement to your installed anti-virus program.  
<http://housecall.trendmicro.com/>

**Virus Repair Utility.** If your anti-virus program is not able to quarantine or remove a virus from your system, select the virus that you need to remove from your computer and download the solution for free. Since this program is Web-based, it can be used as a complement to your installed anti-virus program.  
<http://tinyurl.com/gtr2>

**Have only one software firewall running on your system.**

**Zone Alarm 7.0.362:** a highly recommended Firewall that sets up a barrier against incoming and outgoing spyware.  
<http://tinyurl.com/qbzqd>

**You can use more than one registry cleaner. Here are three of the best FREE products and one commercial program (probably the best in the industry.)**

**RegScrubXP** is a very popular utility designed to delete unnecessary information from the System Registry of your Windows operating system. "Junk" is often left behind when programs are uninstalled, and the information is not needed anymore. Programmers mistakenly load the Registry with junk as well. The result of cleaning out the junk is a smaller, faster Registry. Your operating system accesses the Registry a lot, so keeping it clean is a good idea! RegScrubXP also helps you tweak your Registry to provide a more pleasant computer experience. **Within the linked page, refer to item #4.**

<http://tinyurl.com/cz4ed>

**Tweak Now Registry Cleaner 3.0.1:** Deletes obsolete files from your registry.

<http://tinyurl.com/8e9xu>

**EasyCleaner** went through some growing pains a few years ago, but has matured nicely into a small suite of system-maintenance tools that works well. (Look for file EClea2\_0.exe

<http://tinyurl.com/63732>

**RegSupreme 4.4.0.46: This is probably the best commercial registry cleaner product on the market today. Only \$12.95 (one time only charge)!**

Guru Fred Langa recommends an outstanding full version registry cleaner program that offers a 30-day trial. During the thirty days, you can put it through its paces before you decide whether or not you want to keep it. Program cost? Only \$12.95! It's practically free. Langa never recommends a product unless he has fully tested it. This may be the best \$12.95 you will ever spend! It's called **RegSupreme 1.4.0.46**, a stand alone component of JV16 Power Tools.

<http://tinyurl.com/27nqnl>