

## System Maintenance

You change the oil in your car to keep it running well, so we need to “lubricate” our computer system to have it run faster and smoother. Maintenance is a nasty eleven-letter word that means work. Do we really want to do that? Well, yes, sometimes a little maintenance can prevent a bad event. Is it worthwhile doing some maintenance once a month or a few times a year, to prevent needing to buy a new computer once a year?

Okay, now that I have your attention, let's look at some of the things you can do to maintain your computer's system software and hardware. Some of the following information came from “Smart Computing” (a great magazine and computer resource) <http://www.smartcomputing.com/>

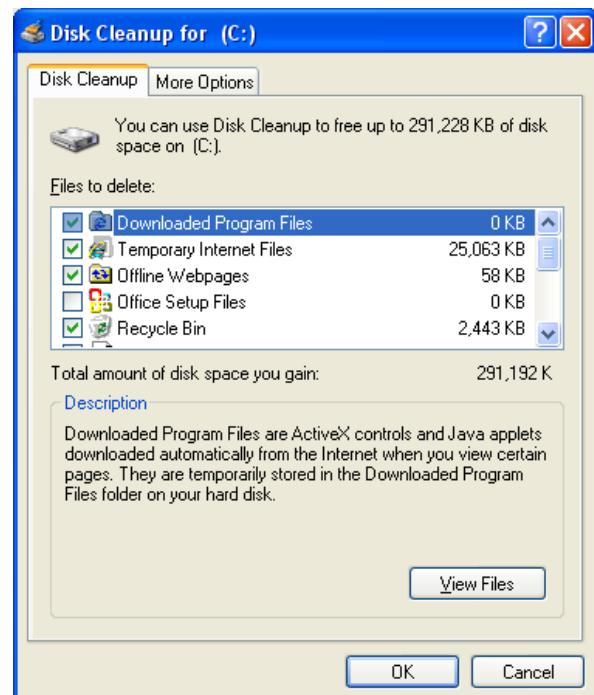
But wait; before you do the following items, you need to back-up your data, in case any of the items malfunction and result in data loss. Data back-up can be to a floppy, Zip disk, CD, or an external drive such as a hard drive or a USB thumb drive.

It is good to empty the recycling bin prior to starting system maintenance. You can do this separately, or as part of the following “Disk Cleanup” procedure.

### Disk cleanup

Running low on space on your hard drive? Giving your drive more room to operate will speed-up your computer. Right-click your “C” drive and select “Properties”. Click on “Disk cleanup”. Disk Cleanup will calculate how much space you will be able to free up. You can probably accept the recommendations and click on “OK”. I opened up 5GB of disk space by using Disk Cleanup. Several days later, the graphic to the right shows that 291MB can now be made available.

Deleting temporary files (both internet and system) also frees-up disk space. This is part of the process that is accomplished by using the “Disk Cleanup” procedure, above. CCleaner ([www.ccleaner.com](http://www.ccleaner.com)) can also be used for deleting temporary files if you don't want to use Disk Cleanup. This program allows you to select which files to delete in one step.



### Defrag

Files on the hard drive become fragmented, which take longer to load. Windows XP comes with a defragmentation tool appropriately called Disk Defragmenter. The Windows Disk Defragmenter can only defragment files that are not in use. So, although you can continue to work as your computer is defragmenting its hard drive, you will get a more complete defragmentation if you do not have programs or files open during the defragmentation process. Right-click your “C” drive and select “Properties”. Click on the “Tools” tab, then on “Defrag now”. Moving file fragments, so each file becomes contiguous, improves the speed of the hard drive and therefore the computer.

## System Maintenance

If you are looking for a complete program that defragments everything that can possibly be defragmented on a hard drive, then Diskeeper 2007 Home (\$29.95; [www.diskeeper.com](http://www.diskeeper.com)) is one recommendation. Diskeeper will defragment your normal files and folders, as well as your page file and many areas that the Windows Disk Defragmenter utility will not touch.

Regularly defragmenting your hard drive will take all of the file fragments that are scattered about your drive and organize them into complete files.

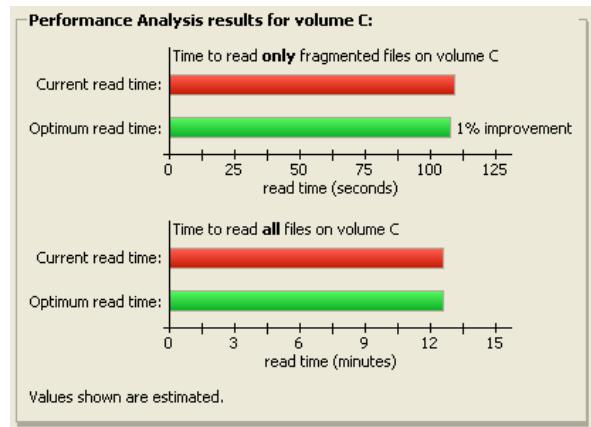
Because your hard drive can now read the fragments as one organized file, your computer will perform faster than it did in its fragmented state. If you use Diskeeper, “Smart schedule” allows Diskeeper to run any time defragmentation is needed.

The graphic to the right is a fragmentation map of my “C” drive. Blue is for defragmented files; red is for fragmented files; yellow is for paging files; white is unused space. What you see is a HUGE improvement over the mostly-red fragmentation map prior to using Diskeeper.

Diskeeper also shows the Performance Analysis for each analyzed drive. Because the “C” drive is largely defragmented, there can only be a 1% improvement by doing additional defragmentation. Again, what you see is a HUGE improvement over the Performance Analysis prior to using Diskeeper.

Closing all programs and disabling the screen saver speeds up the defrag process. End It All (superceded by TaskPower 2) is a good program to use here.

<http://www.pcmag.com/article2/0,1759,1935,00.asp>



### Registry cleaner

The registry is a large database containing all the settings for Windows and other software on the computer. The registry often becomes larger than necessary, which then takes the Windows operating system longer to start. Registry cleaners, such as Registry Mechanic (\$29.95 at [www.pctools.com](http://www.pctools.com)) can clean the registry and enable Windows to start a few seconds faster. Registry cleaner programs must be used with extreme caution because removing one wrong entry can prevent Windows from booting.



# System Maintenance

Almost eight million people have downloaded Registry Mechanic from download.com ([http://www.download.com/3000-2094\\_4-10566526.html](http://www.download.com/3000-2094_4-10566526.html))

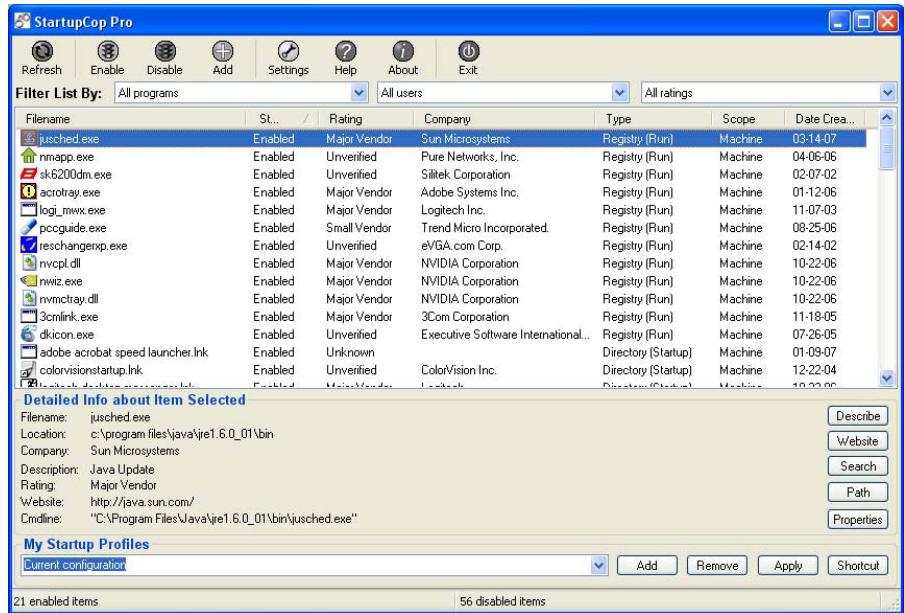
## Startup programs

The best way to speed-up the system booting process is to stop unnecessary programs from launching during the booting process. Third-party tools such as Startup Cop Pro, version 1 (versions 2 and 3 have technical difficulties). <http://www.pcmag.com/article2/0,1895,1554244,00.asp> and CodeStuff Starter (free; <http://www.snapfiles.com/get/starter.html>) may be easier to use than Windows XP msconfig.

While choosing items to disable is never easy, there are a few rules of thumb that can help. When in doubt, you should leave the application or process alone, as a slower startup is much better than no startup at all. You can also avoid trouble with applications by looking for options within the software itself to disable associated startup programs instead of simply deleting the program from the Startup folder or process list. Finally, when you are looking at a list of processes to disable, always look for the words "Microsoft" or "Windows" somewhere in the description or other columns and leave those entries alone.

The graphic on the right is from Startup Cop Pro, version 1.

If you want information about a specific entry, it often is easy to find as long as you know where to look. For example, the CastleCops (<http://www.castlecops.com/StartupList.html>) web site has descriptions of nearly every startup entry imaginable, along with information on whether it is safe to uninstall or disable. Simply enter the name of the unknown item.



## Nasties

**Trial software.** If you bought your computer from a big brand-name vendor such as HP or Dell, you'll find the Desktop littered with trial offers from ISPs (Internet service providers), antivirus companies, business software companies, and more. You be using few, or none, of these programs. Open Add Or Remove Programs in the Control Panel and remove any that you don't wish to use. While you're there, remove any software that you may have installed yourself and no longer use.

**Malware.** This software includes: Trojans, worms, and viruses that you might pick up while using email, browsing the Web, or installing some software. One of the best-regarded tools for removing this software is

## System Maintenance

Lavasoft's **Ad-Aware** 2007 (free; [http://www.download.com/Ad-Aware-2007-Free/3000-8022\\_4-10045910.html?part=dl-ad-aware&subj=dl&tag=top5](http://www.download.com/Ad-Aware-2007-Free/3000-8022_4-10045910.html?part=dl-ad-aware&subj=dl&tag=top5)) which removes a great deal of malware by providing a mechanism to update its definitions, much like an anti-virus package.

Ad-aware Free is shown in the graphic to the right. There are two other versions of Ad-aware (Plus and Pro) that are sold by Lavasoft. This is a comparison chart of the three levels of Ad-aware:

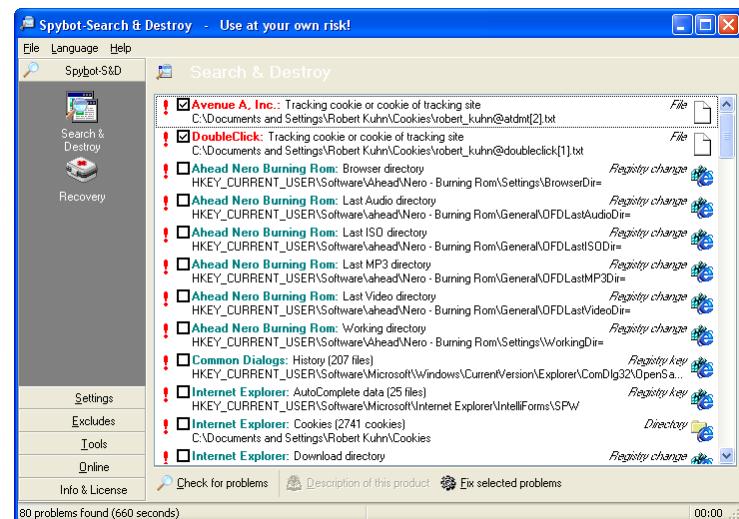
[http://www.lavasoftusa.com/download\\_and\\_buy/product\\_comparison\\_chart.php](http://www.lavasoftusa.com/download_and_buy/product_comparison_chart.php)



Viruses are another matter. Ad-Aware won't remove this software; instead, look to specific software packages such as Norton AntiVirus (\$39.99; [www.symantec.com](http://www.symantec.com)). However, if you're looking for something that won't cost a monthly fee or for a subscription, consider an open-source alternative such as ClamWin (free; [www.clamwin.com](http://www.clamwin.com)) or Grisoft's AVG Antivirus Free Edition (<http://free.grisoft.com/doc/download-free-anti-virus/us/frt/0>). The ClamWin regular virus definitions don't update as frequently as they do for commercial vendors, but it should be enough for most users. The AVG virus definitions are frequently updated.

### Spybot – Search & Destroy

(<http://www.safer-networking.org/en/index.html>) will search for spyware and delete it. Spybot is free, but will function only if the included ad software is not deleted by Ad-Aware (see the above paragraph). Spyware silently tracks your surfing behavior to create a marketing profile for you that is transmitted without your knowledge to an outside computer and sold to advertising companies. Isn't it ironic that Spybot searches for spyware but won't run unless its own spyware is enabled!

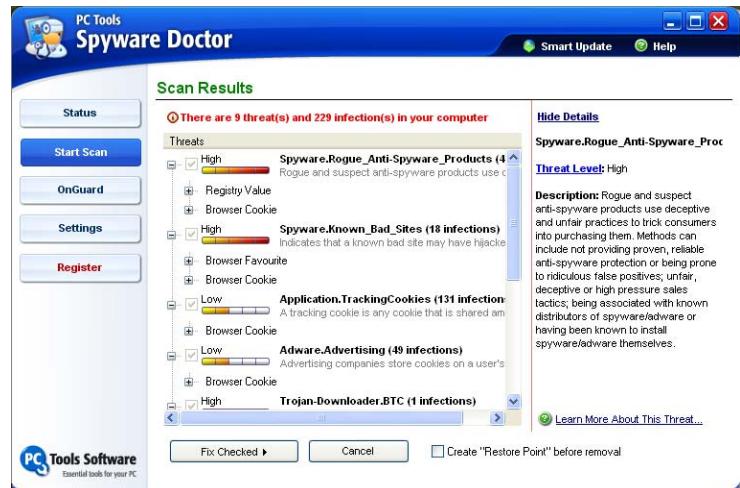


## System Maintenance

### Spyware Doctor 5.0

(<http://www.pctools.com/spyware-doctor/>) is the highest rated spyware program, as tested by PC World, with a rating of 95. Spybot – Search & Destroy had the lowest rating, at 59.

The graphic to the right shows that after running Spybot – Search & Destroy, Spyware Doctor still found 9 threats and 229 infections!



### Windows Vista Defender

The free spyware program that comes with Windows Vista fared poorly on the PC World test, with a rating of 72. This was the second-worst program, ahead of only Spybot – Search & Destroy.

This is a summary of test results, as published in the October 2007, issue of PC World:

Software	Rating	Inactive adware detected	Inactive spyware detected	Inactive rootkits detected	Found changes to startup folder	Scan time, seconds
PC Tools Spyware Doctor	95	81%	38%	89%	Yes	380
Grisoft AVG Anti-Spyware	81	69%	80%	100%	Yes	496
Webroot SpySweeper	76	26%	10%	44%	Yes	132
Microsoft Windows Defender	72	48%	5%	0%	Yes	320
Safer Networking Spybot Search & Destroy	59	2%	0.4%	0%	No	588

Some of the information in this paper came from “Smart Computing” (a great magazine and computer resource) <http://www.smartcomputing.com/>.

Spyware tests were run by PC World (another great magazine and computer resource) <http://www.pcworld.com/>.

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## Glossary

**Defrag:** Improve file access by rearranging data so that whole files are stored in contiguous sectors on a hard disk. This makes it quicker for applications to find the files they need and frees up disk space, making the computer run more efficiently.

**Disk Cleanup:** Calculates the amount of space you can save by emptying the Recycle Bin, deleting temporary Internet files, and compressing old files on NTFS drives (when formatted by Win XP).

**Registry cleaner:** A utility program that scans the Windows Registry and looks for outdated and invalid entries. Applications often create Registry entries for temporary data and pointers to other files, but never delete them. In addition, if folders are manually deleted by the user, Registry entries may point to files that do not exist.

**Windows registry:** A directory which stores settings and options for the Microsoft Windows operating systems.

**Startup programs:** Programs that start when the computer is turned on.

**Malware:** Software designed to destroy, wreak havoc, hide information, and/or disrupt and damage computer systems. Also known as “Malicious software”. Types of malware can include viruses, worms, Trojans, malicious content and denial of service attacks (where your computer is used to bombard a company’s computer, thereby preventing the company’s computer from responding to businesses or individuals attempting to send or receive information from the company). In the case of invasion of privacy for the purposes of fraud or the theft of identity, software that observes the use of your computer (such as looking for passwords and personal information) is also malware (or “spyware”).