

# PC Maintenance Schedule & Procedures

Like cars, computers operate best and last the longest when they're well-maintained. There are some simple maintenance procedures you can do regularly to help keep your computer running at its peak performance. This guide will outline a schedule and step-by-step procedures for maintaining your PC. Please note that this guide is tailored more for a home PC than an office PC, which can have different maintenance requirements.

## Weekly Procedures

- Scan for spyware.
- Check for important updates, and updates to your antivirus and anti-spyware programs.
- Backup any critical data (Such as financial or medical information).
- Defragment hard drives.

## Bi-weekly Procedures

- Scan for viruses.
- Clear temporary files, cookies, and caches.
- Check startup list for new or unnecessary items.

## Monthly Procedures

- Backup other important data. If you save email to your PC (as opposed to saving your email on the server), this is a good time to back it up. Pictures, music, documents, etc... should be backed up occasionally if they're important to you.

## Seasonal/Quarterly procedures

These steps should be performed every 3 months or so.

- Check for other updates, including your Web browser, firewall, router, email handler, etc...
- Use Add/Remove Programs to check for programs you don't need or use anymore, and uninstall them. Delete files and documents you don't need anymore while you're at it.
- Clean the dust out of your PC.

## Yearly procedures

- Some experts recommend reformatting your PC once a year, but this is overkill for many home users. If your computer is operating much slower than when it was new, you might want to consider reformatting. Reformatting involves backing up all the important information on your machine's hard drive to an external media (CDs or DVDs, an external hard drive or USB drive, another computer, etc...) and then wiping the computer's hard drive completely blank. Then, re-install the operating system and programs, and transfer files back to the hard drive from the backup media. The procedure takes most of an afternoon, but returns your computer's software to "factory condition". It's a big task for a beginner to undertake, so if you're not confident in your abilities, consider enlisting the help of a computer-savvy friend or a professional.
- If you're not going to reformat, some other suggested yearly maintenance procedures include: Re-install any programs that are running slowly, make a complete backup of all your important data, and update your drivers and firmware.

# Order of Operations

Here's the order I suggest doing things in, for each round of maintenance.

- Run msconfig and use the Startup tab to trim down your startup list as far as possible. Restart.
- Clear the temporary files, and empty the recycle bin.
- If you're going to uninstall old software or delete old files, do so now.
- Spyware and/or Virus Scan (Don't forget to check your programs for updates).
- Backup.
- Defragment.

## Startup List

By default, almost every program on your computer wants to run in the background whenever your machine is on, taking up valuable memory and other system resources. Disabling a program from the startup list doesn't uninstall or disable the program; when you un-check a program from the startup list, that program simply won't run in the background every time you boot your machine up. The program is still accessible from the Start menu or desktop shortcuts. You can always re-enable a program if you decide you want it to run in the background. Before we go further, let me say that (with two exceptions, described below) disabling anything in this list can't harm your computer. Any change you make is undoable, so there's nothing to fear. The shorter you keep your startup list, the better.

Here are some rules to follow:

- If you have Windows 98, ME, or 2000: NEVER DISABLE "systray" OR "explorer".
- If you see "explorer" or "systray" on Windows XP, it's probably a virus pretending to be a real system component and should be disabled.
- Leave your antivirus and antispyware programs enabled.
- If you use AOL or MSN, leave the AOL or MSN applications enabled (respectively) and so on for Earthlink, Compuserve, and etc...
- If you have an HP or Epson printer, leave the HP or Epson applications enabled (and so on).

Things to disable:

- Blank spaces are usually viruses or spyware. Always uncheck blank spaces.
- "qtask" and "mmtray" are popular music player programs. They don't need to run in the background all the time.
- CD burning software, Office software, Adobe software, etc... can all safely be disabled from startup.
- Any application you recognize that you don't want to run in the background every time you boot up.

To get to the startup list, click Start > Run > type "msconfig" (without the quotes of course) and hit Enter. Go to the Startup tab (ignore all the other tabs; do not modify those settings unless you know exactly what you're doing).

**If you're unsure of an item in the list, type the item's name into Google.** Also, you can expand the Command column (by clicking and dragging the line that divides the Startup Item and Command columns). Frequently, the file address in the Command column will give you a clue about what an item is.

When you're done, click Apply, then OK. You'll be asked to reboot; go ahead and do so.

**When you boot back up, a window will appear that says "System Configuration Utility – you've used the system configuration utility to make changes to the way Windows starts up, etc....". Check the box for "Don't show me this window again" and then click OK.**

It may be useful to look at the Startup list before and after installing a new program, to see what entries that program makes on the Startup list. If you check the list before and after installing every program, you can keep the list perfectly clean and know exactly which item belongs to which program.

## Temp Files

As you surf the Internet and use your PC, temporary files and “cookies” can build up. Removing them periodically helps to free space on your hard drive, and keep your computer running more efficiently. It will also help to reduce spam and junk mail.

To get started, first reboot your PC. Rebooting before clearing temporary files is a good idea because files cannot be deleted when they’re in use – if a background program is using some of those temporary files, they can’t be deleted. Rebooting should free up the files so that they can be deleted. After you reboot:

- Click Start > Run and type “%temp%” (without the quotes). The Percent sign is Shift + 5. This will pull up all the Windows temporary files. Press Control + A on the keyboard (Select All) and then Shift + Delete (not backspace). Holding Shift during the Delete process bypasses the recycle bin and permanently deletes the files.
- If you use Internet Explorer, you can clear its cache by clicking Tools > Internet Options. Click “Delete Cookies”, then “Delete Files”, then “Clear History”. Confirm each action as required. Exit Internet Explorer when you’re done.
- If you use Firefox, just press Ctrl + Shift + Del in Firefox to open the Clear Private Data tool.
- Go to My Computer and right-click your hard drive. Go to Tools, then Disk Cleanup. Run the Disk Cleanup wizard, and check all of the boxes except for “Compress files”. This will remove any other temporary files and empty the recycle bin.

## Uninstalling old software

Use the Control Panel > Add/Remove Programs options to check for programs you don’t need anymore. If you see one you’re not familiar with, simply enter that program’s name into Google or another search engine to find out what it is. Highlight a program and click Change/Remove to uninstall it.

## Virus Scans

A virus is, by dictionary definition, any program that replicates itself. However, by that definition, many programs could be considered viruses, so the term “virus” has come to refer to any program that spreads from computer to computer for malicious purposes. Most viruses these days try to use your computer as a soldier in an electronic army (called a botnet) to attack a more significant target, for example, the MSBlaster worm virus infected several hundred thousand PC’s and then used them to “flood” several of Microsoft’s servers. There are other types of viruses, but this is the most common type today.

Antivirus programs help to stop these malicious programs from getting in, and help to detect and delete them if they do get in. Norton and McAfee are the most common antivirus programs (though not necessarily the best), and both cost \$30-50 per year depending on the options you purchase. Avast and AVG are two common free antivirus programs, and work very well. I personally recommend Avast to anyone who doesn’t have an antivirus program, or would like to try a new one. If you don’t have an antivirus program, or you’re tired of paying for antivirus, give Avast a try. You can get it at [www.download.com](http://www.download.com).

Whatever antivirus program you have, make sure you update it and do a full-system virus scan regularly.

## Spyware Scans

Spyware programs are frequently similar to viruses, in that they can reproduce and spread from computer to computer. However, viruses generally intend to harm your computer or use your computer as a soldier in an electronic army to attack a more significant target. Spyware, on the other hand, simply broadcasts spam and advertising, and sometimes collects your personal data for malicious purposes, such as junk mail or, potentially, identity theft.

There are many free programs available to find and defeat spyware. My two favorite ones are both free and are available from [www.download.com](http://www.download.com) (just use the Search box on that page). They are, in order, SuperAntiSpyware and AdAware.

Both programs are very easy to download and install. If you're only going to use one, use Super. SuperAntiSpyware wants to run in the background 24/7 (see Startup List above). Unless you have a particularly fast computer, I recommend disabling it from the startup list so that it will only run when you ask it to.

Both programs have a "quick scan" and a "full scan" mode. The quick scan generally takes 10 minutes or less, while the full scan can take an hour or more depending on the amount of data on your PC. I recommend doing a quick scan weekly and then a full scan once a month or so.

## **Backing Up your Data**

### **"What exactly does 'backing up' mean?"**

Backing up means creating a duplicate copy of your important files, and putting the duplicate copy somewhere outside of your computer for safekeeping. Putting your files on a flash drive, a CD, an external hard drive, floppy drive, or any other storage medium will work.

### **"Why backup, and how often?"**

Theoretically, the worst thing that can possibly happen to your computer is that you'll lose all your data. In the event that your computer was destroyed, you could always go out and buy a replacement machine and re-load your data, as long as you have backups. Making frequent backups means that your data is safe, even from viruses or hard drive failures.

How often to backup your data and what to backup depends on what your files contain, how important they are to you, and how irreplaceable they are. You only need to update your backups when the files are changed.

Financial data, information on your healthcare, etc... that's critically important and frequently changed/updated/added to should be backed up frequently (once a week or more).

Important emails, address lists, family photos, etc... probably don't need to be backed up as frequently, maybe once a month or so.

### **Choosing a Backup Media**

If you're planning on doing frequent backups, you might want to buy a USB hard drive. A USB (external) hard drive is a hard drive just like the one in your machine, but put in an external enclosure. Once it's hooked up, you can read and write files to it just like your computer's internal (built-in) hard drive. You can even drag-and-drop files to it, just like a folder on your desktop.

When choosing a USB hard drive, size is the biggest concern. 40GB is a good minimum. If you have lots of files to backup, there are drives as big as 750GB available. A 200GB drive is enough for almost anyone, and is available under \$150. Any good name-brand drive will work, but Western Digital's are my recommendation. At the time of this writing, a 250GB Western Digital USB drive goes for \$105, while an 80GB goes for \$65 on [NewEgg.com](http://NewEgg.com).

Another good backup media is flash drives (also called "thumb drives"). These are excellent if the data you need to backup is less than about 2GB (see below to determine how big your backup storage needs are).

One more valid backup media option is to simply put your data on CDs or DVDs. Most newer machines have a CDRW or DVDRW drive, but if yours doesn't, a CDRW/DVD+/-RW drive (a so-called "universal" CD/DVD writer drive) sells for as little as \$30, so it's easy enough to get one. A blank CD

holds 650 MB of data, and if you buy them bulk (in 100 packs) they cost about \$.10 each. A blank DVD holds 4.7GB and cost less than \$1 each when purchased bulk. This makes storing even large amounts of data reasonably economical.

Floppy disks are rapidly becoming outdated, so I recommend avoiding backing up to floppy disks unless you have no other choice. A floppy disk holds 1.44 MB of data (very little compared to CDs, DVDs, or external drives), and can get corrupted (lose their data) after a few years. CDs/DVDs, flash drives, or an external drive are all a much better choice.

## **What to Back Up**

Once you've decided what media you are going to back up to, you have a few things to do: Decide what files to back up, locate those files, and put them on the backup media.

Here's a general list of what to backup.

- Financial data. If you use programs such as Quicken, TurboTax, Microsoft Money, etc... those applications have built-in backup utilities. Use the Backup utility from the File menu to save a copy of your data. Put it in a place you can easily access it (such as My Documents), then transfer to your backup media.
- Email. If you use AOL, MSN, Hotmail, Gmail, or another webmail-based service, then your messages are stored on your ISP's servers, not your computer, and thus don't need to be backed up. If you use any other email service, you should consider backing up your email and address list.
- Documents. You can backup your entire My Documents folder (including pictures, music, etc...) and files on your desktop quickly and easily (see below).
- Internet Favorites. If you've bookmarked any favorite sites, you may want to save them.

Remember, you do not need to back up your programs as long as you have the installation CD. Make sure to keep the CDs for all your programs, and if you have a CD burner, consider making a duplicate of the program's installation CD for safe keeping.

There's no point in backing up the "Program Files" folder. Even if you backup the program files for all of your applications, most of them won't run without the registry keys too, and would need to be re-installed from CD anyway.

Finding all of your documents should be reasonably easy, but sometimes finding the file locations of emails, favorites, etc... can be tricky. Here's where to look:

On Windows XP:

Your Favorites are located in:

C:\Documents and Settings\Your User Account\Favorites

Your Outlook data files (not Outlook Express) are located in:

C:\Documents and Settings\Your User Account\Local Settings\Application

Data\Microsoft\Outlook . If you use Outlook, make sure to backup this folder.

## **Backing up Email from Outlook or Outlook Express**

If you use Outlook or Outlook Express for your email client, this system makes backing up your email incredibly easy.

First, create a folder on your desktop (or inside the backup folder described below) called Email. For each subfolder in your email (inbox, sent messages, etc...), create another folder inside the Email folder. For

instance, I have a folder on my desktop called “Email”. Inside that folder, I have folders called “Work”, “Jokes”, “Sent mail”, etc...

Now open your email client, and resize the window (make it take up about half of the screen. To do this, make sure the window is not maximized. Then click the bottom right corner of the window and drag it to the size you want.), so that you can see the Email folder on the desktop while you’re in the email program. Then, go to the folder you want to back up in your mail program (such as the Inbox) and press Control + A on your keyboard (for Select All). Now, with all the messages highlighted, click (and hold down the mouse button) on any one of them and drag it into the appropriate folder inside your Email folder on the desktop (then let go of the mouse button). This will copy all the messages selected into that folder. Repeat the process for each of your email folders, and your email will be successfully backed up.

Backing up the address book in Outlook Express is a simple task: Just open your address book and click File > Save As. This will bring up a window asking you where you want to save the address book and what you want to call it. Save it in an easy to find location (or your backup folder, as mentioned below) and name it something you’ll remember.

For Outlook 2002 and before, the Outlook Express process applies. For Outlook 2003, the process is identical to backing up your email, but instead of selecting messages, just select entries from the Contacts screen using the same procedure above.

### **Copying the Files**

There are multiple ways to back up your files. I’ll line out a simple procedure that works well for me. Note that this method will not work with floppy disks unless you have a very small amount of data to back up.

Create a folder on your desktop (right-click any blank area of the desktop, then click New > Folder. Name it “Backup (date)” or something similar) and copy all your important files into that folder. The easiest way to do this is to copy-and-paste all of your files. For instance, to backup My Documents:

Create a folder inside the Backup folder called “My Documents”. Go inside this new, empty folder. Leave it up on the screen.

Go into your My Documents folder. Press Control + A on the keyboard or Edit > Select All. This highlights all files. Press Control + C on the keyboard, or Edit > Copy to copy the files to memory. Now, go back to the My Documents backup folder you created in the Backup folder on the desktop. Press Control + V on the keyboard, or Edit > Paste to make a duplicate of all the files in My Documents. If any warning boxes pop up (this is normal), click Yes or Yes to All to continue copying. You can use this same procedure to copy any file or folder.

Once you have everything you want to save put into your Backup folder, you can transfer it to your backup media.

To put the entire folder on a CD or DVD (assuming your machine has a compatible CD/DVD drive), just right-click the folder, then click Send To > CD drive. Make sure there’s a blank disk in your burner drive. A wizard (step-by-step guiding process) will come up and walk you through burning the disc.

To put the whole folder on an external hard drive, just copy and paste (right click it, click Copy, go to the external drive from My Computer, and then Paste it) onto the external drive.

After you’ve made your backup, it’s a good idea to check the files. Open the disk or drive you’ve backed up to and make sure all the files are there. Open a few files to make sure they open correctly.

Using this method, it should be quick and easy to backup all your files.

## Defragmenting

“What is defragmenting, and why should I defragment?”

Imagine your drive as three disks about the size of teacup saucers (these are the disks), with delicate little magnetic “fingers” between them (these are the “heads”, which read and write data to and from the disks). Hard drives work by storing binary (1 and 0) data, in the form of magnetism on the disks – there are billions of “slots” on the disks that can be magnetized (read as a 1) or not magnetized (read as a 0).

When you write data to the hard drive – for instance, installing a program such as Microsoft Word – it should be put into the first block of free space big enough to hold that data. However, as you install and uninstall programs, add and delete files, etc..., bits of Microsoft Word could eventually get spread all over the 3 disks, in lots of small chunks. When Word is spread over different parts of the drive, when you want to use Word, your computer must collect data from several different parts of the hard drive instead of just one, which takes more time. This is what’s called data fragmentation.

Defragmenting compacts (or organizes) the files together again to speed up disk usage. The more often you defragment, the better, within reason. Weekly is sufficient for most users.

To defragment your hard drive, click Start > All Programs > Accessories > System Tools > Disk Defragmenter. Or for a shortcut, go to My Computer, right-click your hard drive, click Tools, and then Defragment Now. Either method takes you to the same place.

Select the drive to defragment and click Defragment (if you have multiple drives, defragment each one).

## Critical Updates

Keeping your system up to date is just as important as protecting your computer against viruses and spyware. Having an outdated system is a bigger security risk than having no antivirus software.

The Automatic Updates service will keep Windows up to date, but it’s a good idea to periodically double-check that it’s on.

To do this, go to the Control Panel and open Automatic Updates. You should either be using the fully Automatic setting (Recommended for anyone on broadband internet. Set the time option to a time your computer is likely to be on) or the Notify Me option (recommended for dial-up internet users). If you’re using the Notify Me option, make sure to download updates when the Updates box periodically pops up in the bottom-right corner of the screen.

Use the menus built-into your antivirus/antispyware software and firewall (if you’re using one) to check them for updates, too.

## Other Updates

Periodically you should check for updates to your firewall (or router), Web browser, Email client, etc... Simply go to the manufacturer’s website and check to see what the latest version of the software is. You can check what version you have by going to Help > About in almost any program. If the latest version is newer than the version you have, download and install it. Check the manufacturer’s site or Google (i.e., “how to update firmware [brand name here] router”) for instructions on updating a hardware router/firewall.

## Cleaning your PC's Hardware

Dust is the #1 enemy of your computer's hardware. As little as 1 millimeter of dust on the chips and motherboard can make your system run 10-15% hotter, which can reduce the efficiency and lifespan of your hardware.

To get started, first unplug the power to your machine. You can leave the rest of the cables in if you intend to clean the computer in-place, but many people prefer to bring their machine outdoors for cleaning, to avoid getting dust all over the house or office.

Check the owner's manual for instructions on opening the case. For most machines, you'll need to remove one side panel. If you're facing the back of the machine (where you plug in all the cables), you'll probably be removing the right side panel. Unscrew any screws holding it down, and slide the panel towards you. For most Dell machines, press and hold the two black "buttons" at the back of the case (one on top, one on bottom) and then the case will open like a clam shell, hinged at the front of the machine.

Once you have the case open, use can of compressed air (\$3 at Staples or Office Depot) or an air compressor at low pressure (if you have one) to blow out the dust from inside the case. If using canned air, make sure to keep the can upright the whole time – tilting it can cause it to spray propellant, which is bad for your PC's components.

Use a screwdriver or a pencil to hold the fans still as you blow out the dust from each one. Forcing the fans to spin backwards can damage them.

Use the canned air to blow the junk out of your keyboard, too. Start at one side and work to the other side. Remember that new keyboards are as cheap as \$10, so if your keyboard is gummed up and sticky, consider just replacing it.

If you don't have or can't get compressed air, use the brush attachment for your vacuum cleaner. Make sure not to apply any pressure to the components inside the machine.

Clean your screen with a 50-50 mix of rubbing alcohol and water on a soft cotton cloth. Don't use ammonia-based cleaners; they can damage your screen's anti-glare coating.

Following this guide should help ensure your PC's well-being, and prepare you incase something goes wrong.

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