Basic Computer Maintenance

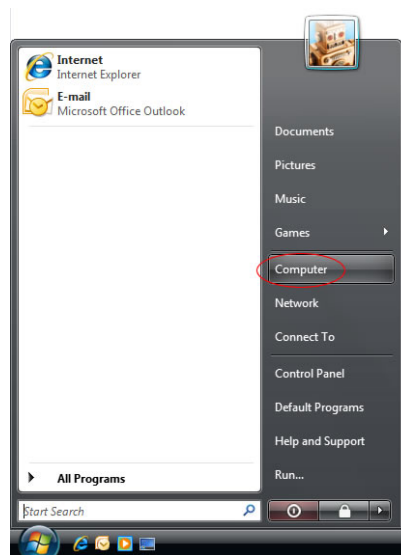## Contents:

Software Maintenance

1. Drive Error Correction: "Check disk"

Program: chkdsk.exe

Schedule: Only runs manually. Recommend full Check Disk be run once a month at least, or more often if abnormal events occur (i.e. files/folder/programs will not open, freeze ups, crashes, abnormal restarts, loss of power, etc.).
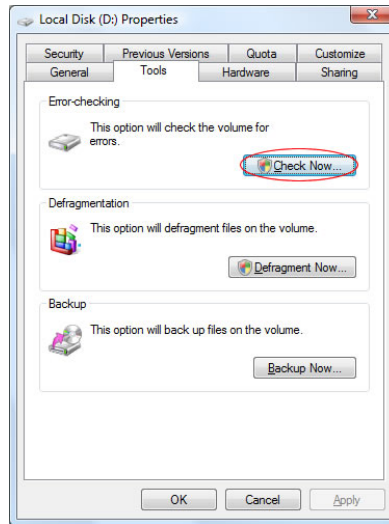
What you need to do:
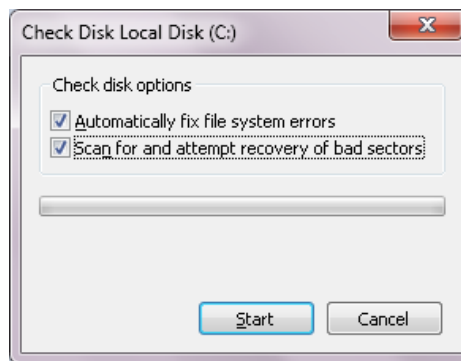
1. Click on the Start button, then Computer.

2. Secondary-click ("right-click") on "Local Disk (C:)" (or whichever hard disk you want to correct errors on) and select "Properties".
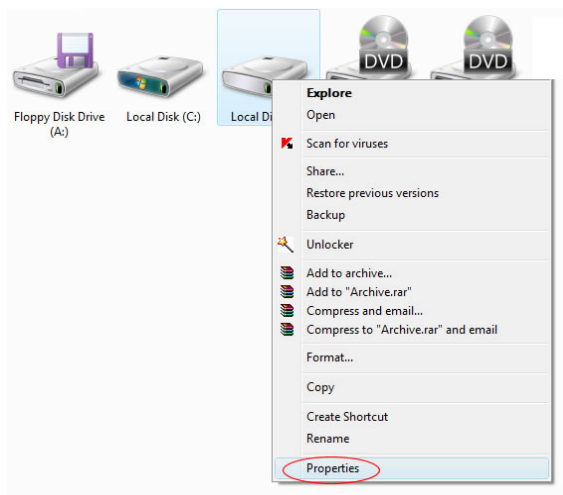
3. Click on the "Tools" tab, and then on "Check now..."

4. In the "Check disk options" window, place a check mark in both boxes and click "Start".

5. A window will open stating "Windows can't check the disk while it's in use". Click the button "Schedule disk check", and then on the "OK" button to close the Local Disk properties window. *The next time you restart your computer, just before Windows loads, Check disk will perform a 5 stage check and automatic repair (if errors found) of your drive. Note: if you notice that errors were indeed found during the last disk check, it is suggested to run the same procedure one more time.*
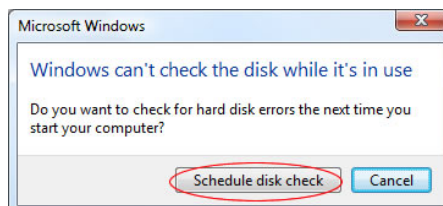
6. View Event Log in Event Viewer to determine if errors were found and fixed (Note: if you prefer not to find and read the event logs, running chkdsk two or three times in a row should correct all errors found):

Windows XP:
  I.   Open Control Panel > Administrative Tools > Event Viewer
  II.   Select "Application" under "Event Viewer (Local)"
  III. Look under the "Source" column for a recent entry called "Winlogon". Double-click the entry and read the results of the scan.
  IV.   If any errors were detected, follow steps 1-5 again, since some errors can conceal deeper errors. Subsequent scans will find and repair these additional errors. The goal of effective disk repair is to scan one entire pass without finding errors. (Note: if you scan a subsequent times and the same identical errors are found and supposedly repaired, you can cease from scanning. These additional errors will need to be repaired with a more advanced tool, such as "Spinrite".)

Windows 7:

  I.   Open Control Panel > Administrative Tools > Event Viewer
  II.   Select "Windows Logs" > Application
  III. Look under the Source column for a recent entry called "Wininit", with Event ID 1001. Double click the entry and read the results for the scan.
  IV.   If any errors were detected, follow steps 1-5 again, since some errors can conceal deeper errors. Subsequent scans will find and repair these additional errors. The goal of effective disk repair is to scan one entire pass without finding errors. (Note: if you scan a subsequent times and the same identical errors are found and supposedly repaired, you can cease from scanning. These additional errors will need to be repaired with a more advanced tool, such as "Spinrite".)

7. If you have other writable drives (i.e. second hard drive, thumb drive, etc.), it is advisable to perform the same function on these as well. Some secondary drives may not require a reboot in order to perform the check and repair.

2. Defragmentation

Program: "MyDefrag" or Windows built-in Defragment program: defrag.exe

Schedule: Runs automatically when you schedule the task; It is not necessary that it run every night. At least once a month is sufficient. The process may take a few hours, so it is best to schedule the task when the computer will not be used by anyone.

What you need to do: When you have scheduled the Defragmentation, make sure your computer is on (laptops: plug power cord in).

Windows Defragment procedure:

1. Click on the Start button, then Computer.

2. Secondary-click ("right-click") on "Local Disk (C:)" and select "Properties".

3. Click on the "Tools" tab, and then on "Defragment now…"
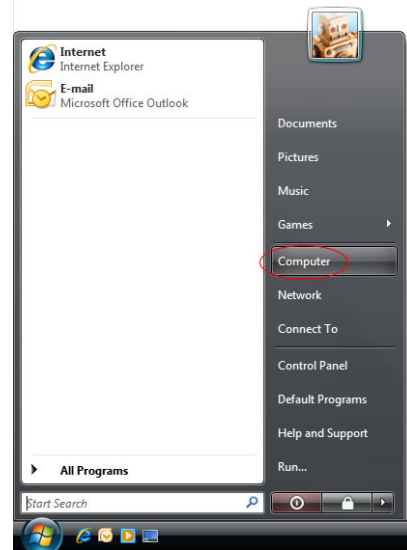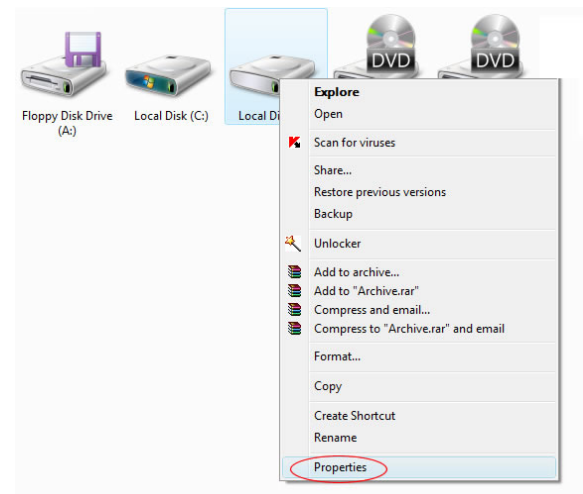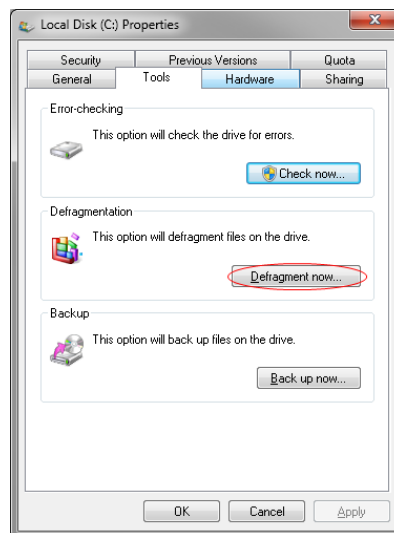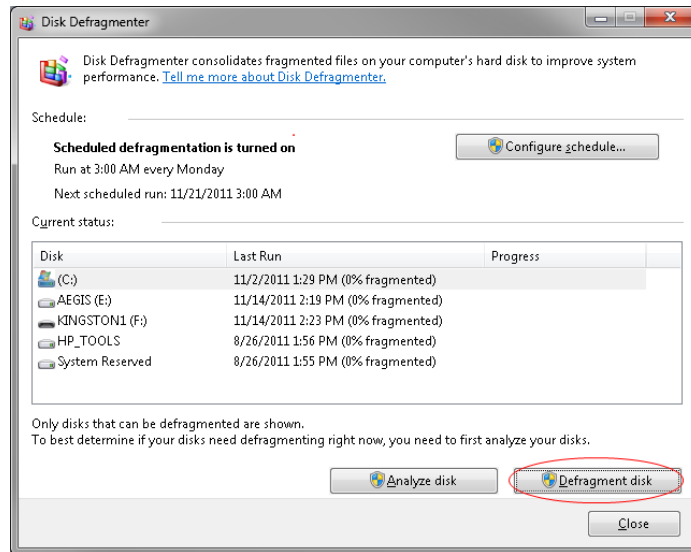
4. Select the hard drive you want to defragment, and click the "Defragment disk" button.
Note: In Windows 7, Defragmentation can now be easily scheduled. Before clicking the "Defragment disk" button in step 4 above, click the "Configure schedule…" button to schedule daily, weekly or monthly defragmentation procedures (once a month is sufficient).

3. Hard Drive free space

Typically a hard drive will maintain optimal performance (all other factors considered) when at least 10% of its working capacity/partition is free of data (some professionals suggest up to 20%). There are many ways to free up space on a full hard drive, including the "Software Inventory" topic below. Installing additional internal or external hard drives is almost always an option. To determine your hard drives free space, do the following:

1. Click on Start, then Computer.
2. Right-click on the hard drive in question and select Properties.
3. The General tab screen will reveal the total free space on that drive or partition:
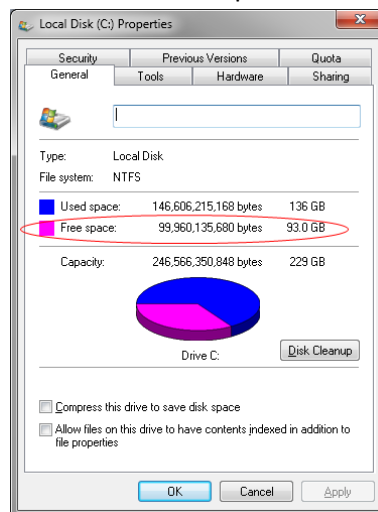
Note: One important aspect of hard drive free space that people often overlook is when deleting files. It is not enough to simply "delete" a file or folder (i.e. move to the Recycle Bin). You must "Empty" the Recycle Bin in order for free space to be effected. To empty the Recycle Bin, right-click on the Recycle Bin and select "Empty Recycle Bin".

4. Software Inventory

This step will require you knowing what software is needed/wanted on your computer. Please use caution when uninstalling software as this is an undoable procedure. In order to reinstall, you will need the original software installation files.

1. Click on the Start button, then Control Panel
2. Open "Programs and Features" for Windows 7/Vista, or "Add or Remove Programs" for Windows XP and earlier.
3. Review the list of programs installed on your computer thoroughly.
4. To install an unwanted program, click on the listed item and, in Windows 7/Vista, an "Uninstall" button will appear on the "Organize" toolbar above:
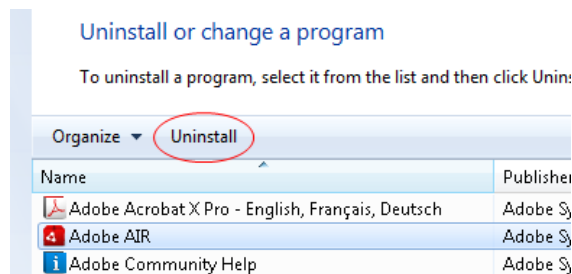
In Windows XP or earlier, each program will have its own "Uninstall" or "Remove" button to the right of the screen:
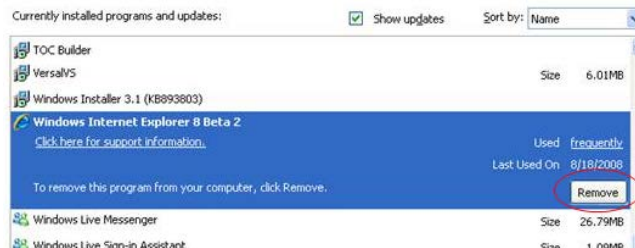

5. Click the appropriate button and the program will be uninstalled (depending on the program's manufacturer, a variety of windows will open asking to confirm the uninstall; please read each message carefully!). A reboot of your computer may be required to complete the uninstall.

5. Startup folder

Some programs will automatically put a shortcut in the Startup folder, forcing the program to automatically launch when you turn the computer on or log in. Sometimes this is desirable, sometimes not. Either way, this practice may slow your computer down to various degrees, and with the program running all the time, may slow down the performance of your computer. To verify if there are programs in the Startup folder, and to stop them from running automatically if desired, do the following:

1. Click on the Start button, then All Programs.
2. Scroll to find a folder called "Startup", right-click on it and select "Open"
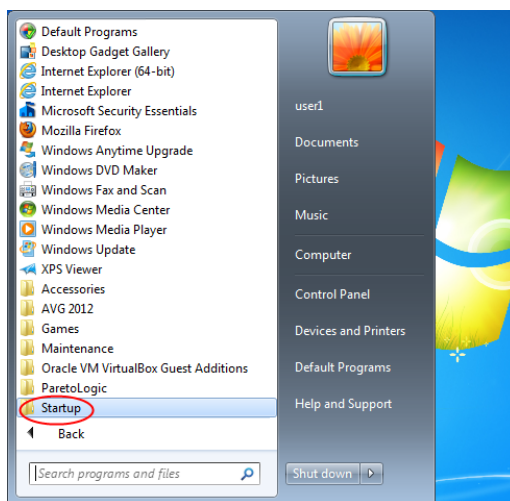
3. Windows Explorer (a folder) will open revealing the contents, if any.
4. Click on the shortcut icon, then press the Delete key (or whichever method you prefer for deleting files). Note: this procedure will NOT uninstall the program. It only removes the shortcut of the program. The actual program still exists and should be available in the All Programs list when you want to launch the program manually.

6. Security Updates:

Getting the "Important" (Windows 7/Vista) or "High-priority" (Windows XP and earlier) updates is most critical. "Optional" updates are inconsequential to your computer security, so are not *necessary*. Important or High-priority updates should be scheduled to downloaded and installed automatically. To ensure your computer is scheduled for this, do the following:

Windows 7/Vista:

1. Click on the Start button, then Control Panel
2. Open "Windows Update"
3. Click on "Change settings" in the left column
4. Under "Important updates", click on the pull down menu and select "Install updates automatically"
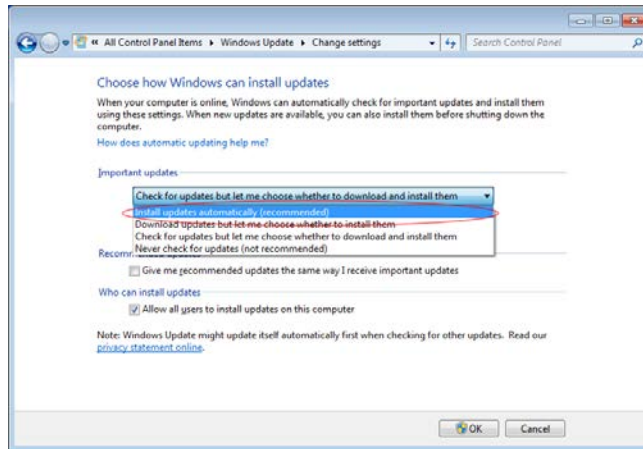
5. If you also want optional updates, place a checkmark in the respective selection box.
6. Click OK to save these changes

If you want to ensure your computer has the most recent updates, after step 2 above, click on "Check for updates" in the left column

Windows XP (or earlier)

1. Click on the Start button, then Control Panel
2. Open "Automatic Updates"
3. Click on the radio button next to "Automatic", and select a day and time when your computer will be on ("Every day" is a good idea).

If you want to ensure your computer has the most recent updates, click on the Start button, "All Programs", then "Windows Update". Internet Explorer will open automatically to the Microsoft Update web page. Click on the "Express" button. Your computer will be automatically scanned and its installed High-priority updates compared to those available on Microsoft's web site. If High-priority updates are available, you will be prompted to download and install these updates.
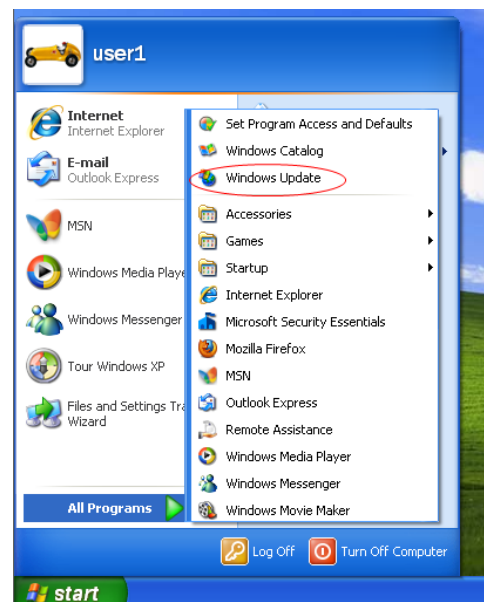
Hardware Maintenance

> ## Caution!!!
> - **This step for the mechanically-minded only!!**
> - **Always unplug the power cord from your computer before opening the case!!**
> - **After unplugging the power cord from your case, hold the power button in for at least 5 seconds. This will drain any residual electricity from the power supply.**
> - **Always ground yourself to the case frame while touching any inside components. This can be done by touching the case frame with your bare hand, or using a clamp-on grounding device made specifically for this purpose.**

- Vacuum case vents/openings (including cracks around CD/Floppy drives) from front and rear, inside and outside. All fans (case fans, power supply fans, CPU fan, etc.) and Heatsink.
- High pressure air (be aware of the resulting dust cloud!) on all of the above.
- How often you perform this aspect of maintenance depends entirely on your computer's environment. If its environment is extremely dusty, once a month is not unreasonable. If in a relatively non-dusty environment, once a year may be adequate. Determine this by opening the case periodically and examining the case and CPU fans.
- Always make sure your computer's front, rear, top and side (if applicable) air vents are unobstructed. Where vents exist, always ensure there is at least 4-6 inches of space surrounding this part of the computer.
- Never position your computer inside a closed in compartment, unless it is specifically designed for such an area.

Malware Protection:

Program: "Microsoft Security Essentials" (www.microsoft.com/security_essentials)

Microsoft Security Essentials is a free software program to those that have a "Genuine" copy of the Windows Operating System. It is by far the most effective Malware protection and removal software available for the Windows Operating System (Windows XP and future)

Schedule: Runs and updates itself and its virus definitions automatically, daily. A "Quick" scan is scheduled every day automatically.

What you need to do: Keep an eye on the right side of your taskbar (near the clock). The green house with white checkmark is Security Essentials' indicator. If the house turns orange, or worse yet red, click on the house and then click "Open" to find out what problem it has detected.

Performance Options:

The following are not sequential settings. They do not require each previous step be performed. Each are individual options that can be set, or not.

1. Use Windows Classic theme (turn off all animation):
   - Start > Control Panel > Personalization > "Classic Theme"
2. Set for "Best Performance" System Settings:
   - Start > Control Panel > System > Advanced System settings > Advanced > Performance > Settings > Adjust for best performance
3. Hard drive indexing (off): Hard drive indexing requires Windows constantly monitor and keep track of every file on your computer in an invisible database file. This enables Windows to more quickly find files, folders and programs when you use its built in search function. If you do not care about how quickly Windows searches for a finds files, this feature can be turned off (Note: this process will take some time, depending on the amount of files on your hard drive.):
   a. Start > Computer > Right-click your hard drive and select Properties
   b. On the General tab screen, deselect the bottom checkbox "Allow files on this drive to have contents indexed in addition to file properties". Click Apply.
   c. Select the second radio button "Apply changes to drive, subfolders and files" and click "OK"
   d. You will receive an error message stating "Access is denied" on certain files. These files are inconsequential t this setting. Click "Ignore All" to complete the indexing deactivation.
4. Turn off auto-updates on programs (*not* Windows security updates!!!). If you disable automatic updates for particular programs (i.e. Adobe Flash, etc.), be sure to update these programs manually once a month of so for security and stability issues.