The Villages Computer Club
Intermediate and Advanced Users Group
Computer Maintenance

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The following information on computer maintenance has been prepared for the membership of The Villages Computer Club. It is intended to help assist you in the maintenance of your computer system and prevent problems before they caused major problems.

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Sorry, but we just had to put that in.

Now, what can you do to keep your computer running smoothly?

Use power strips with surge protectors, both for power and for telephone line.

Most people don't even think about surge protection when they buy a PC, but when you go out and spend a lot of money on a machine it is wise to think about protection.

- Surges/Spikes are bursts of electricity up to 3,000 volts caused by electrical load switching and the on/off action of equipment.
- Noise can enter power lines from nearby electrical equipment, such as vending machines and heavy industrial equipment.
- A single brief surge/spike of electricity could render your machine useless and/or destroy the Power Supply Unit.
- Electrical noise can corrupt data.
- The cost of a surge protection unit is a lot cheaper than the repair bill for a new Power Supply Unit.
- Surges are common in power cuts (which we all have from time to time) when power is restored.

Surge protection units come in various shapes and sizes, the most common is similar to an extension lead, some have built-in protection for data lines too.

When you choose one take into account the amount of outputs you will need and if you want any data protection as well, some of them boast certain specifications, but the cheaper ones barely live up to it.

Install a UPS to protect your system from spikes, brown outs and power lose.

Power strips with surge protection are an important part of protecting your computer, but they are not the whole answer. Your computer can also be damaged by low power line voltage (brown outs) or a complete loss of power. To solve these problems, and provide additional protection from spikes and surges, you need to add a UPS (uninterruptible power supply) to you system.

A UPS with a capacity of 500VA to 750VA is more than adequate for a home computer system. The are available from many companies and can be purchased for less than $100.00. Many also have built in protection for your modem/cable/network lines. If you don't have one, buy one before you buy that new camera, DVD-burner, etc. They won't be of much use to you when they get sapped.

Two of the most popular brands are APC and Belkin.

Update your operating system to get the latest patches!

If it is not set automatically for some reason, you should perform Windows Updates (**windowsupdates.microsoft.com**) and install any vital security patches and updates. You can also update any drivers for your hardware. These are important steps. If you have never done this, and/or are on a dialup Internet connection, it can take quite some time.

If you are running Windows XP, we highly recommend you upgrade to Service Pack 2. Service Pack 2 has so many additional features and security fixes that is almost a new operating system. See appendix 4 for more details.

Create a Start up Disk for your computer.

A startup disk is used to repair your computer from a major fault. Be sure to backup your data before doing a system restore or re-installing windows.

Windows 98SE and Windows ME

You can use the Windows 98 startup disk to start your computer from its floppy drive if it will not start from the hard drive. Using the disk, you can get your computer running again, so you can start fixing what is wrong. The startup disk will also restore minimal display settings, which will help if something has gone wrong with your settings and you are unable to see your desktop.

Normally, you would create a startup disk when you installed Windows 98. If you never made a startup disk, if you have lost it, or if yours is old (Startup disks created with previous versions of Windows are not compatible with Windows 98.), now is the time to make a new one. It's easy.

To create a boot disk, you will need a blank, 1.2 megabyte (MB) disk. You may also need your Windows 98 CD, so be sure to have it handy. To create a startup disk:

- Click **Start**, point to **Settings**, click **Control Panel**, and then click **Add/Remove Programs**.
- Click the **Startup Disk** tab, and then click the **Create Disk** button.
- Label a floppy disk "Windows 98 Startup Disk," insert the disk in your floppy disk drive when prompted, and then click **OK**. Click **OK** again, and then follow the instructions on your screen.

To use your start up disk, simple put it in your floppy disk drive and cold boot your computer. If the computer doestn't boot from the floppy, check the boot up options in your BIOS.

Windows XP

The Windows XP CD-ROM contains the start up files and repair utility. If you haven't upgraded the operating system since it was first installed, you can use this by booting from the CD-ROM and pressing R (repair) when the system boots.

If you have upgraded the operating system to Service Pack 2 (recommended), **you *can't use the original CD unless you remove the service pack***. What needs to be done is to create a new installation CD with Service pack 2 included. To do this, you must combine the original OS with SP2. This process is called Slipstreaming. This is not a process for the faint of heart.

If you want to do this, either follow the directions in **appendix 1** or do a Google search on Slipstreaming Windows XP.

You will fine some programs (not for free) that will make the process easier. Service pack 2 is a large file. If you have a dial up connection, it is recommended that you get the disk from Microsoft. You get it for free from www.microsoft.com. Microsoft has been considering not making this CD available any longer, so if it has been discontinued, find a friend with broadband access and have them make a CD for you. Friends are a good thing to have, and a bottle of wine will go a long way to ease the pain of making the CD.

Do backups -- back up information that is important to you!

Backing up files is a very important part of maintaining a PC and can save a lot of hassle if ever the PC has a problem. Computers have a tendency to go wrong from time to time, these days total hard drive failure is rare but it does happen. One of the more common problems nowadays is the threat from viruses, with some of the more serious infecting the master boot record of a hard drive's file system. If the master boot record is infected with a virus then the Fdisk utility would most likely have to be run and the chances are the data on the drive would be lost (or at least difficult to recover).

Operating system failure and bad software installation are other things that can cause problems when it comes to recovering files. How frequently you back up will depend on how often you use your PC and what you use it for. The average home user will probably just have to back up any important files as and when they are changed and do a full back-up once a week/month (depending on PC use).

When PCs are used in a home office scenario then backing up should be done more frequently.
Remember, you are not trying to backup your entire system, only the data files, pictures, etc If you want to backup your entire system, you will have to add a second hard drive (at least as large as your primary drive) and use a program such as Norton Ghost 2005. This program is easy to use and makes a clone copy of your primary drive.

Floppy Disks
Floppy disks are great for backing up small files, the average 3.5" floppy disk can hold up to 1.44 Mb of data, which is sufficient for any letters or important text documents.

Backing up with floppy disks is as simple as copying the file, or saving the file to the floppy drive, a ZIP program such as Winzip can be useful to compress any files that are too big to fit on a standard floppy disk.

CD Writers
With CD Writers becoming ever more affordable, these are ideal for making back-ups of large amounts of data, with typical CDR disks holding up to 800Mb of data and costing pennies.
CD Writers are also very easy to use, the software that comes with them is normally very straight forward and can create back-ups in minutes.

External Hard Drives
External hard drives that connect to your computer through the USB port are now very affordable. Units of 60GB to 120GB Can backup all of your data including large picture and music files. These units will back up your data quicker than either a floppy drive or a CD-ROM drive.

Flash Drives

Flash drives are now available with capacities exceeding 1GB. However, a 512MB is probably enough to hold your important documents, pictures and music. I use a flash drive as a temporary backup solution while creating new documents, preparing taxes, etc. For a permanent backup I still prefer to copy my data to a CD or DVD.

Use Anti-virus software and keep it updated!

All anti-virus programs contain a configuration file. Use this file to setup live updates of the virus definition files and scans of your computer. Set the live update to the shortest possible time and the complete scan for at least once a week.
Note: If you receive an attachment to an e-mail that you are not sure of, but want to open; and wait a few days before opening to give antivirus providers a chance to catch up. Remember, If it looks like a virus and smells like a virus, it probably is a virus

The virus
The internet is an excellent tool, and no doubt has changed the way most people communicate, unfortunately the internet, email in particular, has created an easy to target medium for the spread of computer viruses, as you have probably heard these viruses can cause absolute chaos to whole networks of computers at a time.

A virus is basically a malicious computer program, the effect of viruses differ, some either modify, delete or steal data and others may give control of your PC over to their creators via the internet, one thing they all have in common is that if you get infected and you don't have antivirus software you might not know you have it until it is too late.

A **Worm** refers to a virus that can replicate and spread by itself over a network (the internet for instance), these are getting very common and are among the biggest trouble makers on the internet.

A virus/worm can sit on your machine for months (potentially even years) without doing anything and then be triggered by a certain date/time to do what it has been designed to do, this is referred to as its **payload**.

As these viruses/worms become ever more advanced, the need for antivirus software has never been so great.

Antivirus software
Antivirus software is designed to keep your PC free of these computer viruses & worms, it does so by scanning your PC's file system looking for known viruses, if a virus is found it will inform you and then take steps to remove the virus threat.

Good antivirus software will automatically check any files being transferred to and from your computer, any antivirus software should at **least** scan attachments of incoming emails automatically (even if the option can be turned off).

Virus definition files
Antivirus software usually works by checking a file for certain patterns of binary code, the patterns which it uses to identify viruses are stored in what is known as a virus definition file, when a new virus comes out the virus definition file needs to be updated to include the new virus' pattern.

The importance of keeping these definition files updated cannot be overstated, basically antivirus software without updated definition files is **useless**.

Most good antivirus software will update these files automatically (or at least have the option to do so), the update of the definition files is usually achieved by having the software connect via the internet to the vendors website (server), and then downloading and installing the latest virus patterns.

This is why it is important to purchase antivirus software from an established company, imagine you bought antivirus protection and then 6 months later the company went bankrupt, where would you get your virus definition updates from ?

If you don't have antivirus software then check out these antivirus products from established developers:

- McAfee VirusScan, www.mcafee.com
- Norton Antivirus, www.symantec.com
- Trend Micro, www.trendmicro.com

Hoaxes -- check on-line in public section of most anti-virus sites
There are a lot of viruses out there. But some aren't really out there at all. Virus hoaxes are more than mere annoyances, as they may lead some users to routinely ignore all virus warning messages, leaving them vulnerable to a genuine, destructive virus.
Next time you receive an urgent virus warning message, be sure to check a list of known virus hoaxes.
Remember: Never open an email attachment unless you know what it is--even if it's from someone you know and trust.
Remember that virus writers can use known hoaxes to their advantage. For example, AOL4FREE began as a hoax virus warning. Then somebody distributed a destructive trojan attached to the original hoax virus warning! The lessons are clear.

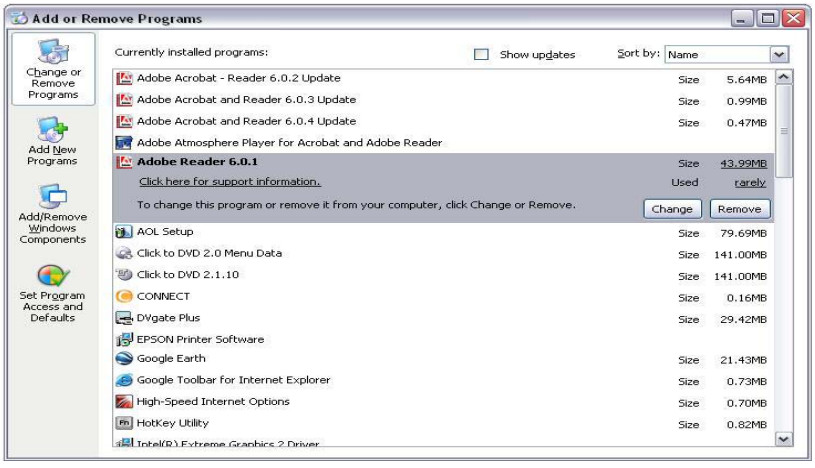
Remove Spyware and adware.

Did you know that when a PC is infected with spyware that every keystroke, every website and every conversation could be recorded or monitored by the people or companies that may have secretly installed software on your PC. The consequences of spyware and adware infections can include banking and identity theft, unusual computer problems, slow Internet access, changed browser homepage, search pages or favorites, and excessive numbers of adware generated adverts.
Anti-virus software and firewalls do not fully protect your system against the majority of spyware and privacy threats. Because spyware is commonly bundled with software downloads, attached to e-mails, or transmitted through networks it can appear to be legitimate software, but once installed it can be nearly impossible to detect and remove without the help of a dedicated spyware removal tools.
Check with your ISP to see what programs they have available. Most will also have Popup blocking software available for a free.
Three popular programs to remove and block spyware and adware are:

Ad-aware http://www.lavasoftusa.com/software/adaware/
Spybot http://free-spybot.com/
Microsoft http://www.microsoft.com/athome/security/spyware/default.mspx

Clean up your system by removing programs you no longer use.

Over time, programs get installed on your system that you no longer use or need. Sometimes this is happens when you download a trial program. In other cases, simply clicking "accept terms and conditions" when entering a web site will download a program. Nobody reads the fine print buried in those ten page long documents.
In many cases, it is also important to remove a program before installing a new version or replacing a program with one from another vendor. This is almost always the case when switching from one anti-virus program to another (eg. Replacing Norton antivirus with McAfee).
To remove a program:
Go to Start/All Programs, and look for the program. If it has an uninstall option, use that.
Next goto Start/Control Panel/Add or remove programs. A list of all programs will be displayed. Select the program you want to remove and select change/remove.



Run the Disk Clean Up and Scan Disk utilities.

Note:
If you are having problems with scandisk or disk defragmenter not completing the task or having to restart a lot, try starting windows in safe mode and then run the program. To start in safe mode tap the F8 key after you start your computer but before the windows screen pops up. You will see a box that explains your running in safe mode. Click O.K. and proceed to run scandisk or defrag. When running in safe mode your video display will change to 16 color and you will not have sound. Do not be alarmed, everything should be back to normal when you restart your computer.

Disk Clean Up- The disk Clean up should be performed weekly and will delete all of your unused and unwanted files. it will also delete your garbage and old internet files. Just click on **Start**, **Programs**, **Accessories**, and then **System Tools** and then **Disk Cleanup**.

Delete .tmp files that have been created prior to the current day. It will surprise most people to learn how much hard drive space has been used by .tmp files. Delete files that begin with a tilde(~). Again, make sure that all your application programs, such as word-processing, spreadsheet, and graphics programs, are closed first since sometimes the temporary file you are currently viewing do use a tilde(~). If the application programs are closed, the tilde files can be deleted. Some users find they have a lot of these on their systems! To identify temp files that aren't found or deleted by the Disk Clean up program, click on START, RUN and type in %temp% and then OK. This will find all the remaining Temp files and you can then select them and delete them. Remember, if they are sent to the Recycle Bin, you still have to delete them from there by Empting the Recycle bin.

Delete old .zip files. Users tend to unzip the files but then leave the zipped file on their computer.

Scan Disk - Use the scandisk program located in your system tools under Accessories to check for any possible problems with the logical configuration of your hard disk(s). This can not only speed up your machine but spot potential errors as well. The easiest way to find this utility in all Windows Operating Systems is to go into **My Computer** and click on the drive you want to scan. Then right click on it and click **Properties**. Then click **Tools**.

Defrag your hard drive.

Defrag your hard disk monthly if you use you computer daily. You can extend this time if you only use your computer once or twice a week.
Fragmentation is caused when an operating system breaks a file into pieces because there is not enough space on the storage device where the file was originally saved.

One example of this would be where a file was originally saved, then modified causing the file to be larger in physical space than first anticipated, the operating system will then break the file into 2 or more pieces and store them in different parts of the storage area.

The system would then keep a record of where the different parts of the file are stored, this is achieved through the use of a File Allocation Table (FAT) or similar file system such as NTFS.

Then, when the operating system requires the file again, it will query the file system (FAT/NTFS/or other) to find out where the different parts of the file are located on the partition (drive).

Defragmentation is the term given to the process of scanning the file system and rejoining the split files back into consecutive pieces.

The process of defragmenting can be time consuming, but it is one of the easiest ways to increase the performance of your PC, the frequency of which a PC should be defragmented will directly depend on the amount of usage.

Defragmenting in Windows 98/ME

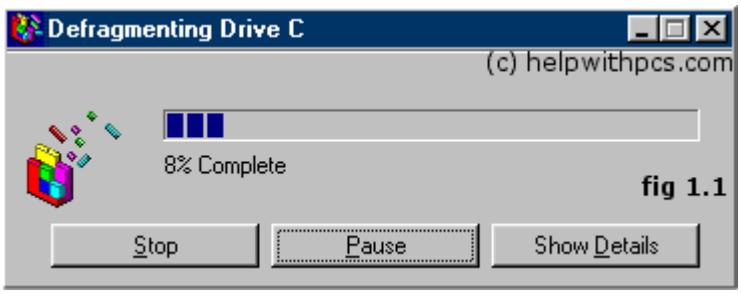
Before you start ensure you have enough time to complete the defragmentation process, it can be anything from 30 mins up to several hours depending on how much use the PC has had since the last defrag was completed. Also, turn off any screen savers or power schemes you might have running. To ensure the cleanest and most trouble free running of the defrag program, restart your computer in safe mode. To do this, press the F8 key continually while your system is booting up.

To set the Defrag utility to run automatically, see appendix 2.

To start the defrag utility, click on the **Start** button, then hover your mouse over **Programs**, then hover over **Accessories**, then hover over **System Tools**, then click on **Disk Defragmenter**.

Windows 98/ME will now ask you which drive you wish to defrag, select the drive you want to defrag (usually **C:**) from the pull down menu and then click the **OK** button.

The Defrag utility will then start defragmenting the selected drive as seen in **fig 1.1** below:



note: *Sometimes the defrag utility will report that it can't defrag the selected drive because the drive has errors, if this is the case then run the Scandisk utility first, to start the Scandisk utility, click on the **Start** button, then hover your mouse over **Programs**, then hover over **Accessories**, then hover over **System Tools**, then click on **Scandisk***

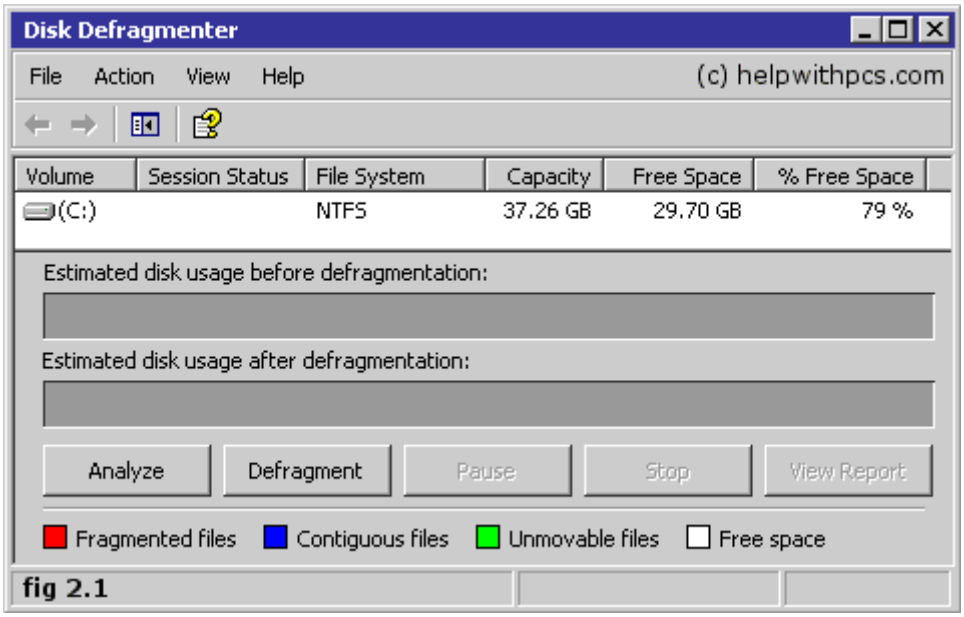
Once it is complete simply close the defrag utility.

Defragmenting in Windows XP

First of all make sure you have enough time to complete the defragmentation, the amount of time will depend on how much use your PC has had since the last defragmentation.

To start the defrag utility, click on the **Start** button, then hover your mouse over **all programs**, then hover over **Accessories**, then hover over **System Tools**, then click on **Disk Defragmenter**.

This will start the defrag utility, you will see the defrag dialogue box as shown in **fig 2.1**.



In our example in **fig 2.1** we have just one hard drive, if you have more than one hard drive then it will be visible in the window.

The next step is to highlight the drive you wish to defragment (one left click on the drive), then click on the **Analyze** button, this will check the selected drive for fragmentation, the utility will then tell you whether the drive needs defragmenting or not.

If the drive needs defragmenting simply click the **Defragment** button, once clicked the utility will begin defragmentation of the drive, it may take a few hours depending on the size of the drive.

Once it is complete simply close the defrag utility.

Create a restore point in Windows XP

One of Windows XP's features is the System Restore utility, an update of the registry rollback tool first seen in Windows ME. It uses 'restore points' which are snapshots of your registry and system condition at a specific time. The points are stored on disk and can be used to effectively move your PC back through time to a previous condition.

As you can imagine, this utility comes in quite handy for heavy-duty tweaking (though it wastes a LOT of disk space by default), acting as a safety net. Use this utility whenever you make major changes to your system or install new drivers or cards.

To create a restore point:
Go to 'start/all programs/accessories/system tools/system restore.'
Click 'create a restore point.'
Give your restore point a name and click 'ok.'

That's all. To restore your system to its previous condition, fire up system restore again and select 'restore my system to an earlier time.' You will be presented with a calendar view of all current restore points. Windows creates them automatically by default under certain conditions such as program installs. Choose the one you created, click 'next' and follow the instructions.

Now, as for the amount of drive space that System Restore eats up, we have a tweak for that. See Appendix 3 for additional information.

Widows 98SE and ME restore points.

The utilities in these operating systems, especially Windows ME don't work as well as the Restore Point utility in Windows XP. In practice, I have found that they have caused more problems then they solved. If you want this functionality, it is recommended that you purchase a utility such as Roxio's GoBack from Symantec.

Keep your computer clean.

Keyboard cleaning
Computer Keyboards can get dirty very easily, to clean the surface of a keyboard is very straight forward, in this guide however we will show you how to clean your keyboard thoroughly as well as giving it a quick once over, we will guide you through with the aid of photos and diagrams.

We have split the guide into two parts, the first part is for keyboards that just need a quick clean, the second part is for membrane keyboards (most standard keyboards) and includes removing the keys for a thorough cleaning.

What you will need:

- lint free cloth.
- dry cloth or duster.
- suitable cleaning fluid (isopropyl alcohol).
- cotton buds.
- Can of compressed air or vacuum cleaner.
- Flat tip screwdriver (optional for thorough clean).

Moderate cleaning (quick and easy)

First, shutdown your PC and remove the mains plug, unplug the keyboard (remember which socket) and hold it upside down to release any debris from inbetween the keys (pressing the keys is a good way to release it).

If you have a can of compressed air then use it to blow any debris from around and under the keys, if not then use the hose of a vacuum cleaner to remove it.

Now take one of the cotton buds and put a couple of drops of the cleaning fluid on it, use the cotton bud to clean the sides of the keys as seen in **fig 1.1**.

After cleaning the sides of the keys take your lint free cloth and dampen it with your cleaning fluid (don't put the liquid directly on the keyboard), give the surface of the keyboard a good wipe over using the cloth to trace the contours of the keys (see **fig 1.2**).

When you have finished give the keyboard a wipe over with the dry cloth/duster, you should now have a nice clean keyboard, to clean it more thoroughly follow the guide below.

Thorough cleaning (takes longer and requires patience)

Standard membrane keyboards only
(not laptops or non-membrane keyboards)

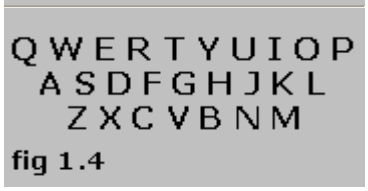
Shutdown your PC and remove the mains plug, unplug the keyboard (remember where it was plugged in) and hold it upside down to release any debris from inbetween the keys.

This is where the patience comes in, make a note of the position of all the keys or you will have trouble putting them back correctly, alternatively just remove the letter keys **A - Z** from the keyboard (which is where the most of the dust/debris will be) and refer to **fig 1.4** as a reference to put them back.

All the keys can be removed although the larger keys (space bar, enter key, shift keys, backspace, caps lock, etc) can be difficult to put back so you might avoid removing them.

Remove the keys using the screwdriver, ease the screwdriver under the key and gently lift the key top off (see **fig 1.3**).

note: don't forget to make a note of their position !!



When you have removed all the keys (except any keys you wish to avoid) use the compressed air (or vacuum cleaner) to remove any dust and debris from inside the keyboard.

Now is a good time to give the keys a proper clean, for best results clean each one individually (the patience thing again) with the cloth and cleaning fluid, when clean, wipe them over with the dry cloth.

Before replacing the keys, take your lint free cloth and dampen it with your cleaning fluid (don't put the liquid directly on the keyboard), give the surface of the keyboard a good wipe over ensuring to clean as much as possible any keys that you haven't removed.

When the keyboard is nice and clean replace the keys according to your notes or if you have just removed the letter keys use **fig 1.4** as a guide, to put the keys back on position the key in place and press gently but firmly until it clicks home.

After replacing all the keys give the keyboard a quick wipe over with your dry cloth and you have a nice clean keyboard.

Cleaning The Computer

In dusty climates especially, dust is a big enemy of computer circuitry. A can of compressed air will blow out dust buildup. It's amazing how much dust can collect in a computer over time.

Most people prefer a professional for anything that involves the inside of a computer and if your machine has not been cleaned inside please do get a professional to do so, but for those do-it-yourselfers here is what to do:

Air blowing out the inside of the computer has a couple of pitfalls that must be addressed. First, since the pressure is much higher with canned air, don't direct the air at an unsecured fan. It can damage it. Try using a pencil erasure to hold the fan down and keep the fan from turning while you clean out the power supply and CPU. Blow out the power supply from the inside out first, or you'll get tons of dust blown into the computer. Take the computer to a place that doesn't mind the dust, outdoors preferably.

Clean the CD drives and the floppy drive. Use a floppy drive and CD drive cleaning kit. It consists of a cleaning disk and a bottle of solution that you apply to the disk. First, apply the solution to the cleaning disk. Second, insert the cleaning disk into the drive. In some locations PCs are located in areas where the drive collects quite a lot of dust and grime, so canned air alone does not remedy this problem.

Firewalls

A software based firewall is included with Service Pack 2, intended to protect the system from access by unauthorized individuals on the internet or local network. The firewall is activated automatically by Windows, but users have the option to disable it. If you don't have service pack 2 or are running Windows 98, you can download a free Firewall from Zonealarm.com. A very effective firewall that includes anti-virus protection, spyware and adware blockers, and a pop up blocker is the Norton Internet Security Suite from Symantec. This is one of the best all around security programs I have found. The current cost is $69.95 for a one year subscription.
If you install a new firewall and have Windows XP with service pack 2 installed, turn off the XP firewall. Having two Firewalls present can prevent access to the Internet.

When you cycle power on a computer, wait at least ten seconds before turning it back on.

This lets all the power discharge and lets the hard drive spin down.
If your system is locked up and you can't shut it down, DON'T pull the power plug. Press and hold the power off button for five seconds. This will power down the system gracefully. When you restart the system, if it asks if you what to start up in safe mode, click on this selection. After the system starts up and is stable (your disk activity light stops flashing) shut down the system normally and then restart.

Create an email address to use for on-line registration or other activities that might generate spam.

Everyone should have at least two e-mail addresses. Your "real" address is the one you give out to friends and family, people that you really want to keep in touch with. A second address should be used when an Internet site requires you to register and for times when you need to register a program or hardware you have bought. If you belong to any users groups, you may what a separate address for these as well. For your "extra" e-mail addresses, use services such as hotmail.com, yahoo.com gmail.com, etc. to set these up. They are free and are self limiting in the size of the storage space.

Acknowledgements

The following resources were used in the preparation of this document

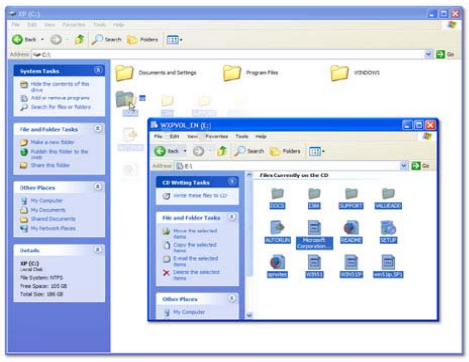
essortment.com
bestcomputerguy.com
helpwithpcs.com
Microsoft.com
winsupersite.com
apcc.com
pctools.com
labmice.techtarget.com
sprysoft.com

Appendix 1

Slipstreaming Windows XP with Service Pack 2 (SP2)

Step 1: Copy your XP CD-ROM contents to the hard drive

First, you need to find your Windows XP CD-ROM (any bootable and/or retail version; including Full and Upgrade versions; XP Home or Pro "gold" release) and copy the contents of the CD to your hard drive. Create a folder in the root of your C: drive called xp (C:\xp) and use My Computer to simply drag and drop the files between the two locations.



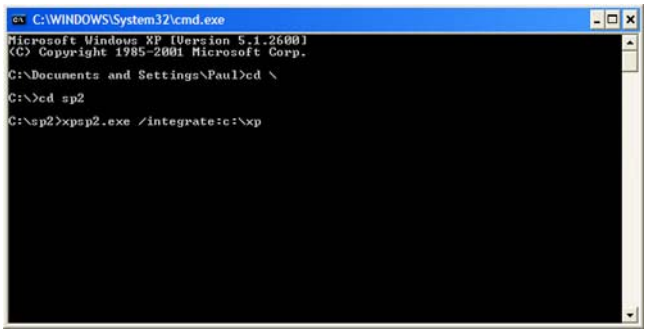
Step 2: Get XP SP2

While this is copying, obtain the Full Network Install version of Windows XP Service Pack 2 (272 MB), which you can download from the Microsoft Web site or copy from the Windows XP SP2 CD-ROM. The download version of this file is named WindowsXP-KB835935-SP2-ENU.exe, while the CD version is called xpsp2.exe. However, both are identical, save for the name. For this reason, I will refer to the simpler xpsp2.exe below, but you can substitute WindowsXP-KB835935-SP2-ENU.exe for that (You can also rename WindowsXP-KB835935-SP2-ENU.exe to xpsp2.exe if you'd like). Now, create a new folder called sp2 on the C drive (C:\sp2) and then copy this file to that location.

Step 3: Combine XP with SP2

Now, you need to bring up a command line window by navigating to Start, and then Run, and typing "cmd" (no quotes); then hit ENTER. In the command line window, type the following (where [ENTER] means hit the ENTER key):

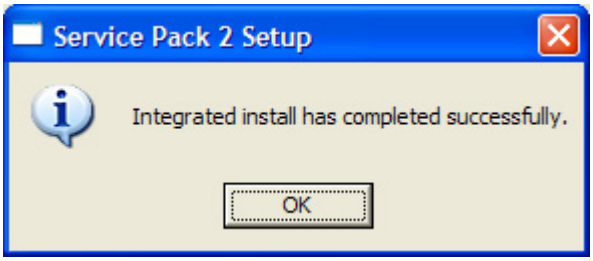
**cd ** [ENTER]
cd sp2 [ENTER]
xpsp2.exe /integrate:c:\xp [ENTER]



First, an Extract dialog box will come up and extract the files contained within xpsp2.exe. Then, XP SP2 Setup will combine, or slipstream, the SP2 files into the XP install, as shown in this figure:

3

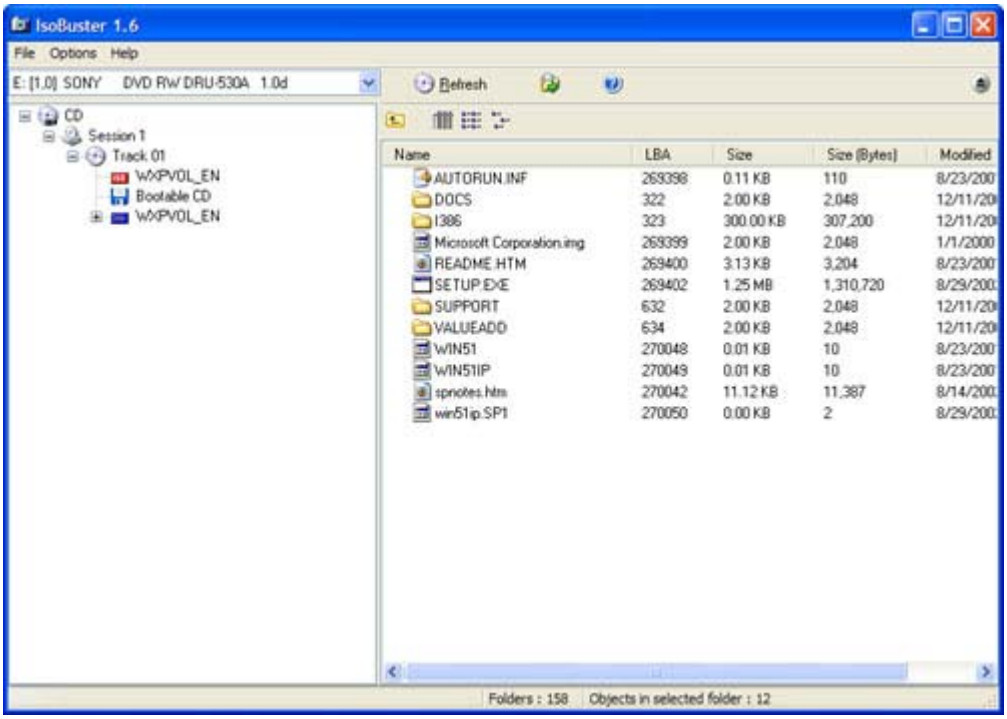
When it's completed, you'll see this dialog box. Click OK, and then close the command line window. If you don't see this dialog, you've done something wrong. Ensure that the command line entries you've used are correct.



Step 4: Extract a file needed to make your new CD bootable

Before we simply burn the resulting file set to a CD, we need to make sure we have a hidden file found on your XP CD-ROM that will make your new CD bootable. We can't grab this file with My Computer, but will instead use a shareware tool called ISOBuster, which you can find on the Smart Projects Web site. The latest version at the time of this writing is 1.6.

After you download and install ISOBuster, choose to use only the product's free functionality, unless you decide to purchase it, which wouldn't be a bad idea. The ISOBuster UI will resemble the following (assuming you've left your XP CD in the CD-ROM drive):



On the left-side tree view, **make sure you have selected the node named Bootable CD**. You should see a file called Microsoft Corporation.img (or similar; it will be named *something*.img) in the right side of ISOBuster. This is the file you need to extract. To do so, right-click and choose Extract Microsoft Corporation.img. When ISOBuster prompts you, choose to download it to the root of your C: drive. Now you can close ISOBuster.

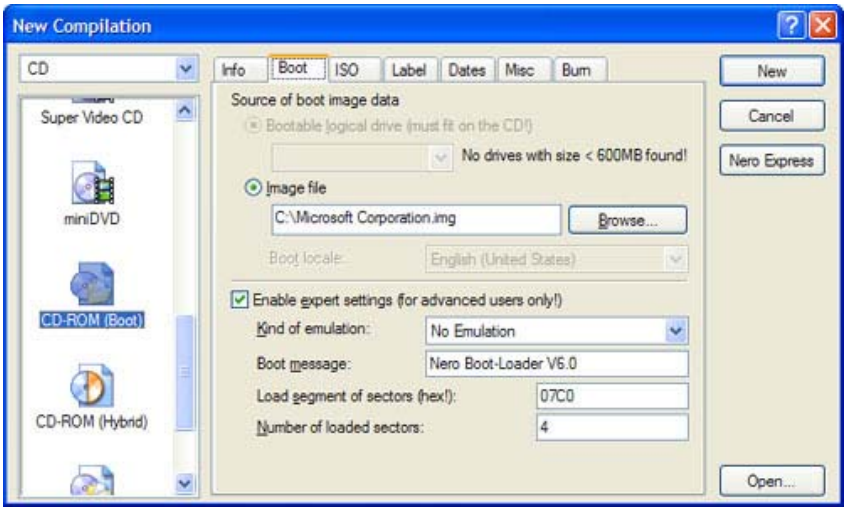
Step 5: Make a bootable XP SP2 CD

Start My Computer and make a note of the name of your Windows XP CD (my CD happens to be named WXPVOL_EN because it's a volume licensed version of XP Pro, but yours will likely be different). Then, eject the XP CD and place a burnable CD (CD-R or CD-RW) in your CD burner, and dismiss any autorun dialog boxes XP might display.

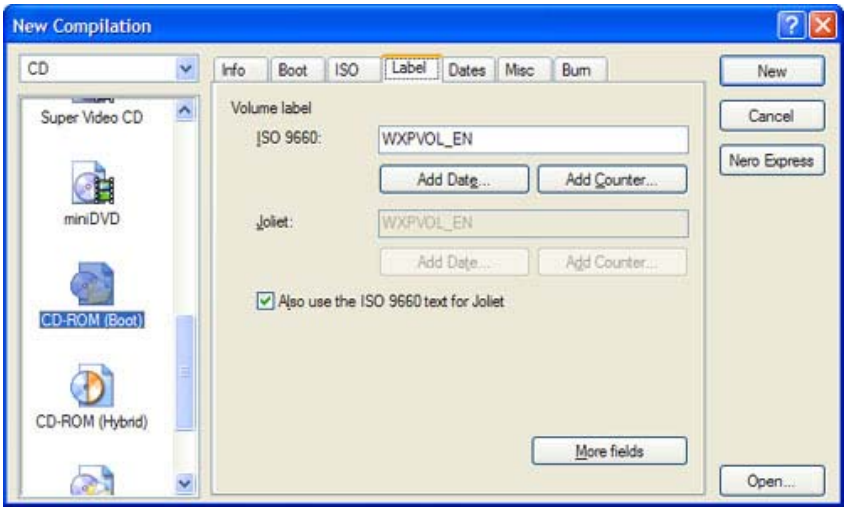
Now, you're ready to burn your new, bootable Windows XP SP2 CD. How you do this will depend on the CD writing software you use. In this section, I'll examine Nero Burning ROM 6 and versions 5 and 6 of Roxio Easy CD/Media Creator. Please note, however, that the latest version of Easy Media Creator, version 7, will not work. I'm looking into workarounds.

Step 5a: Make a bootable XP SP2 CD with Nero Burning ROM 6

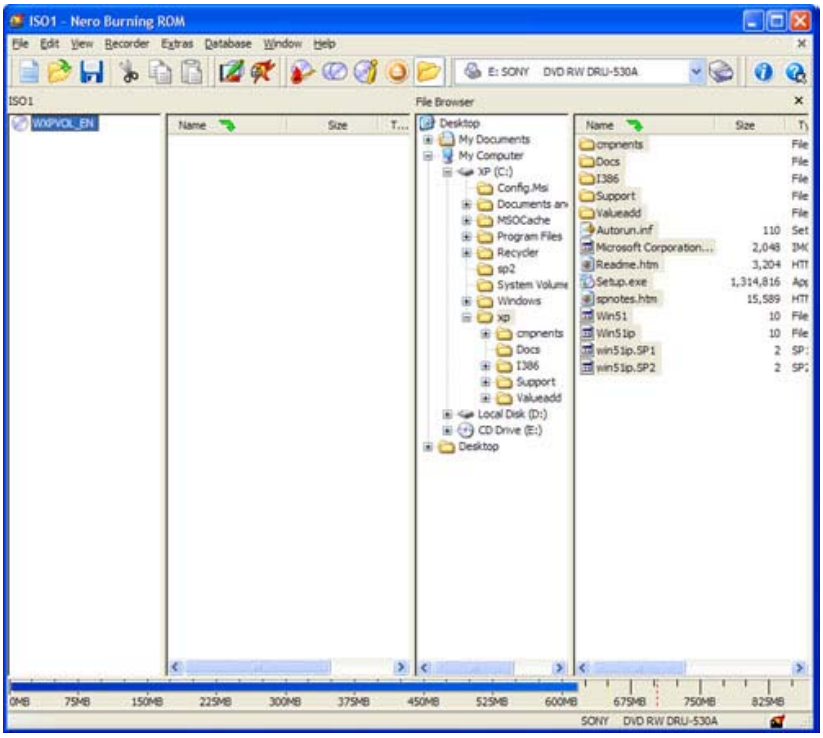
First, start Nero Burning ROM and choose CD-ROM (Boot) from the New Compilation's Boot page. Then, under "Source of boot image data," choose "Image file" and select C:\Microsoft Corporation.img by clicking the Browse button. Then, select the option titled "Enable expert settings (for advanced users only)" and change "Kind of emulation" to No Emulation, and change "Number of loaded sectors" to 4. The "Load segment of sectors" option should remain at its default value of 07C0. When this step is completed, the Nero Burning ROM application should resemble the following:



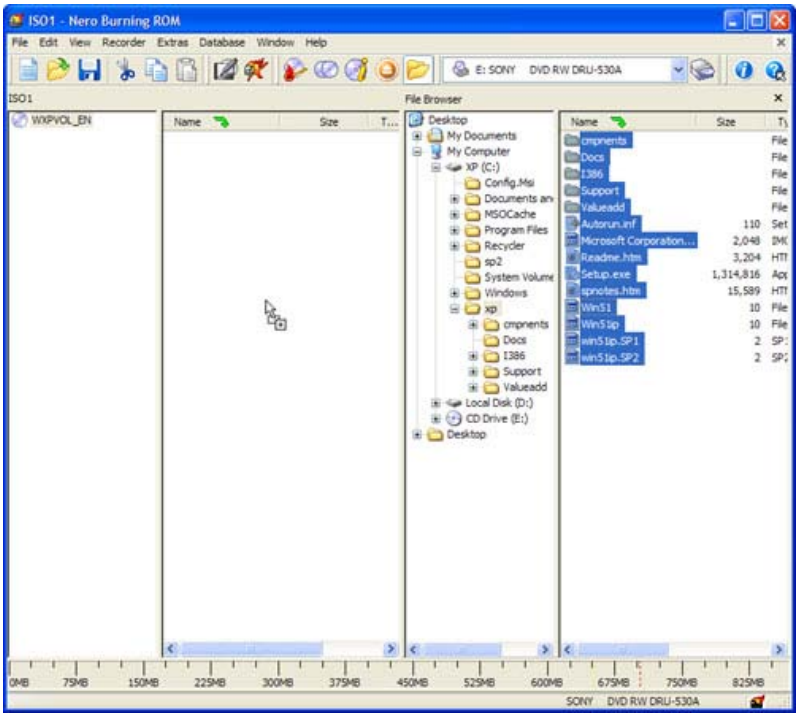
Now, select the Label page in Nero Burning ROM. Under "Volume label, ISO 9660" enter the name of your CD (WXPVOL_EN in my case). When completed, this page of the dialog should resemble the following:

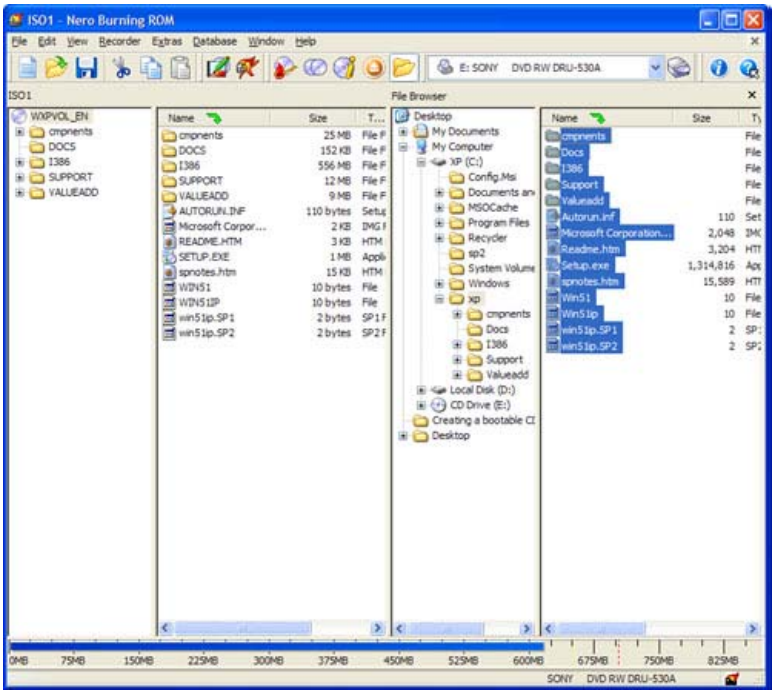


Now, click the New button. The New Compilation dialog disappears and the main window of Nero Burning ROM is available, as shown here.

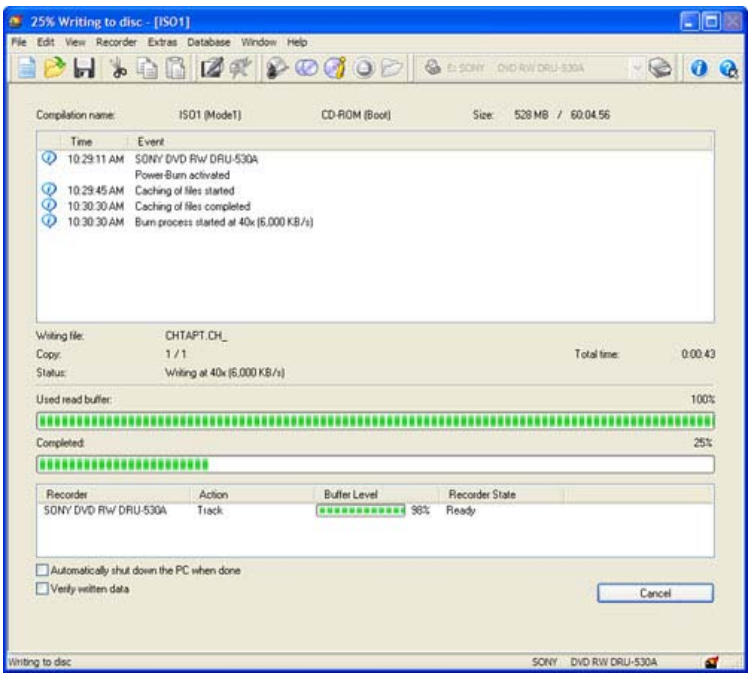


On the right side of the application, in the File Browser area, navigate to C:\xp. Then, select all of the files inside of that directory and copy them over to the new CD, as shown here:





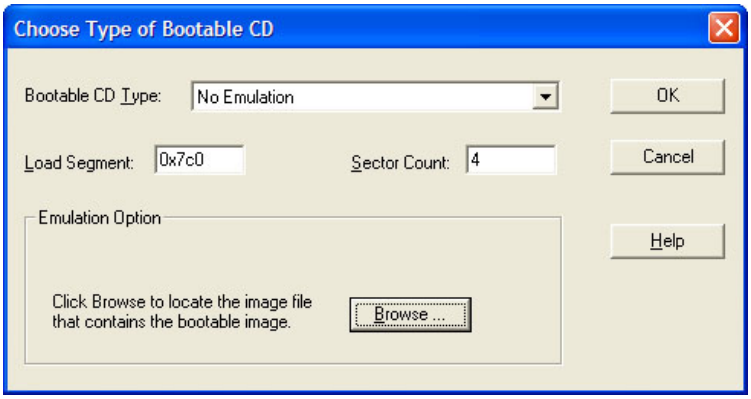
Now you're ready to burn the CD. Click the Burn icon in the toolbar, or choose Recorder and then Burn Compilation, and then click the Burn button. Nero will cache the files and then write them to disc, as shown here:



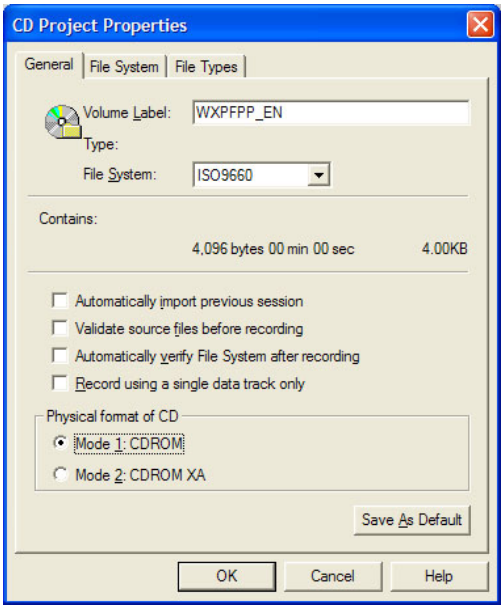
Now, jump down to Step 6...

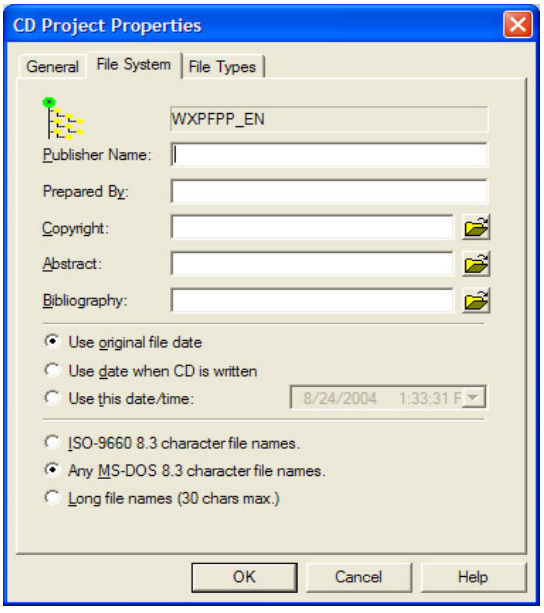
Step 5b: Make a bootable XP SP2 CD with Roxio Easy Media Creator 5.x

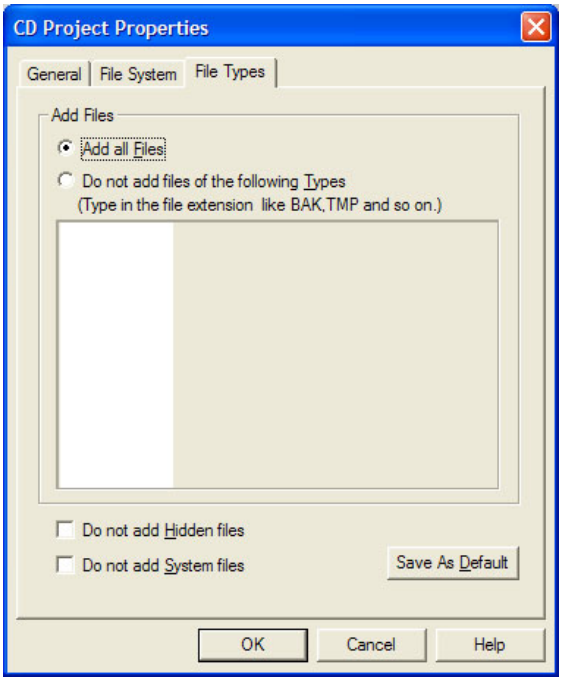
Start Easy CD Creator and choose File, then New Project, and then Bootable CD. This will launch the Choose Type of Bootable CD dialog, shown below. In this dialog, select "No Emulation" for Bootable CD Type, 0x7c0 as the Load Segment (this is the default choice), and 4 for the Sector Count. Then, click the Browse button to locate the Microsoft Corporation.img file and use this as the bootable image. Click OK to close the dialog.



When the dialog closes, you're returned to the main Easy CD Creator window, which now shows two files, BOOTCAT.BIN and BOOTIMG.BIN, in the root of the CD project you're making. Select File and then CD Project Properties to launch the CD Project Properties dialog. There are three tabs in this dialog, and they should be configured to resemble the following three shots.

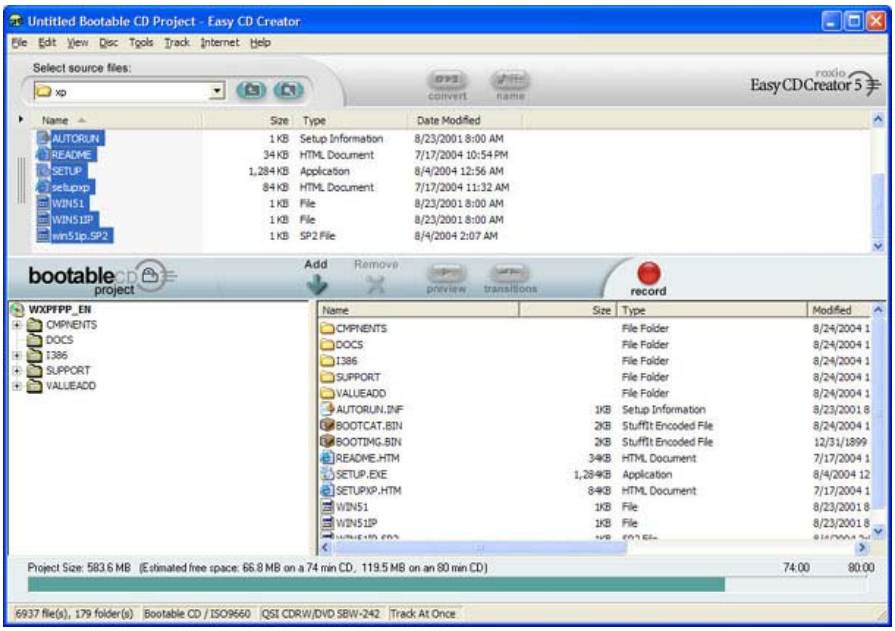




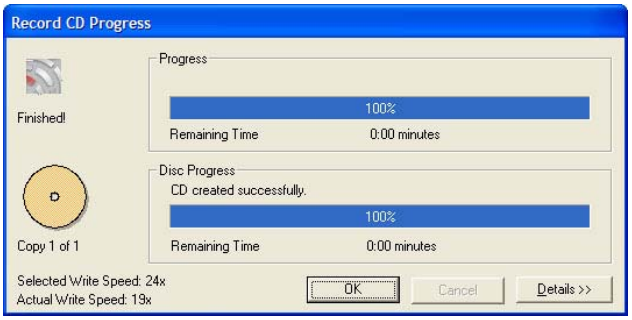


A couple of notes here: The Volume Label should match the name of your original XP CD-ROM. In the figure above, it's named WXPFPP_EN, which is the name of the retail Windows XP Professional (US) CD-ROM, but yours could be different. Make sure the options in each tab on your system match the options as shown in figures above, then click OK to close the dialog.

Now, drag and drop all of the files from C:\xp to the CD project. You can do this from within the Easy CD Creator interface, or you can open a My Computer window and drag them over from there if you'd like. When you're done, the Easy CD Creator window should resemble the following.



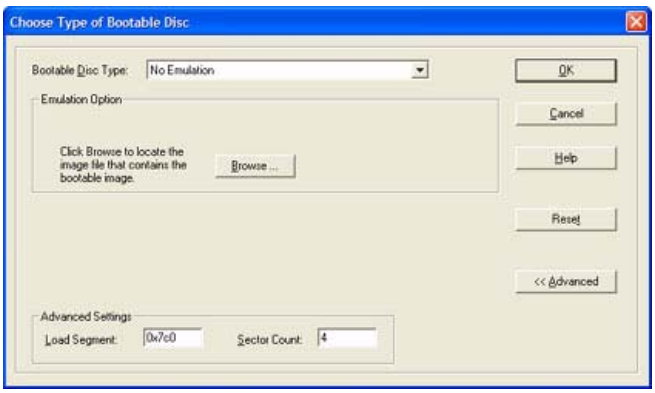
Now, click the red Record button to start burning the CD. The Record CD Setup dialog appears. Click Start Recording to begin. While your CD is created, the Record CD Progress dialog will appear, as shown below. When its done, click OK to close the dialog.



Now, jump down to Step 6...

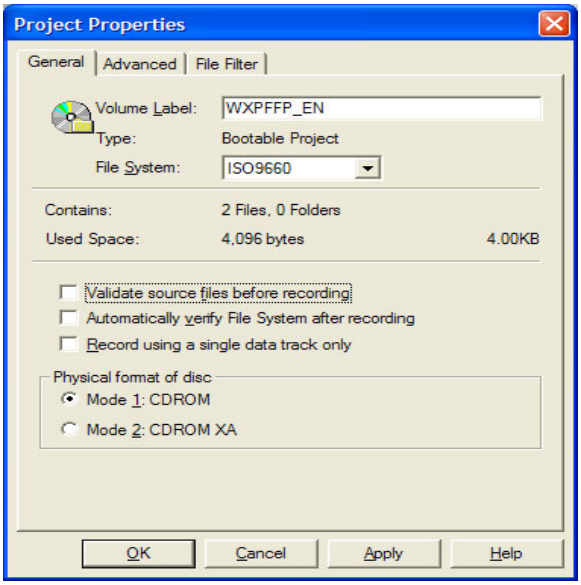
Step 5c: Make a bootable XP SP2 CD with Roxio Easy CD & DVD Creator 6.x

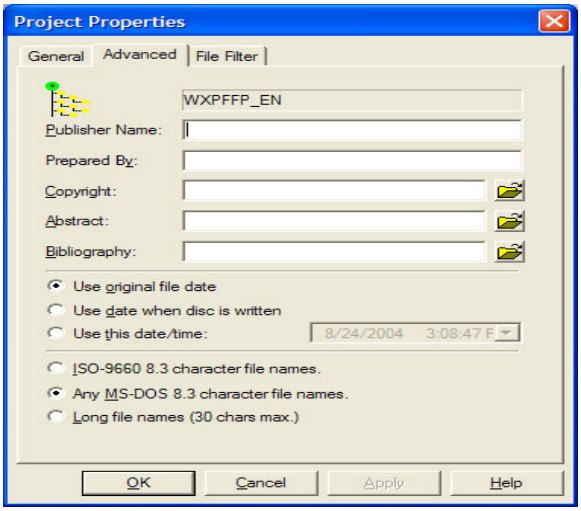
Start Creator Classic and choose File, then New Project, and then Bootable CD. This will launch the Choose Type of Bootable CD dialog. Click the Advanced button and the dialog will resemble the figure shown below. In this dialog, select "No Emulation" for Bootable Disc Type, 0x7c0 as the Load Segment (this is the default choice), and 4 for the Sector Count. Then, click the Browse button to locate the Microsoft Corporation.img file and use this as the bootable image. Click OK to close the dialog.

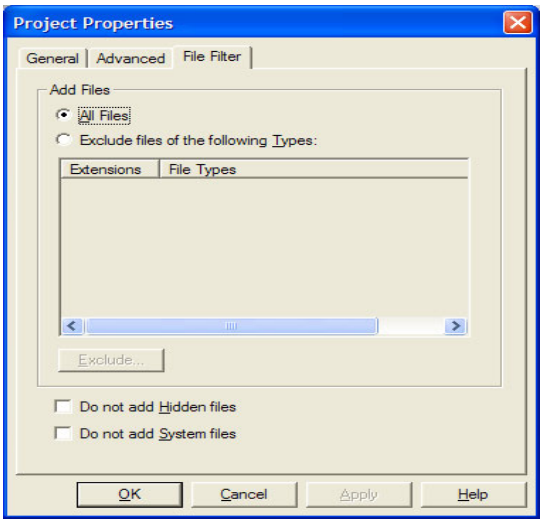


When the dialog closes, you're returned to the main Creator Classic window, which now shows two files, BOOTCAT.BIN and Microsoft Corporation.img, in the root of the CD project you're making. **Rename Microsoft Corporation.img to BOOTIMG.BIN**.

Now, select File and then CD Project Properties to launch the CD Project Properties dialog. There are three tabs in this dialog, and they should be configured to resemble the following three shots.

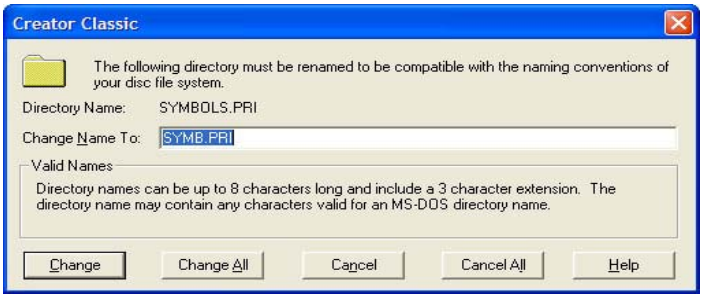




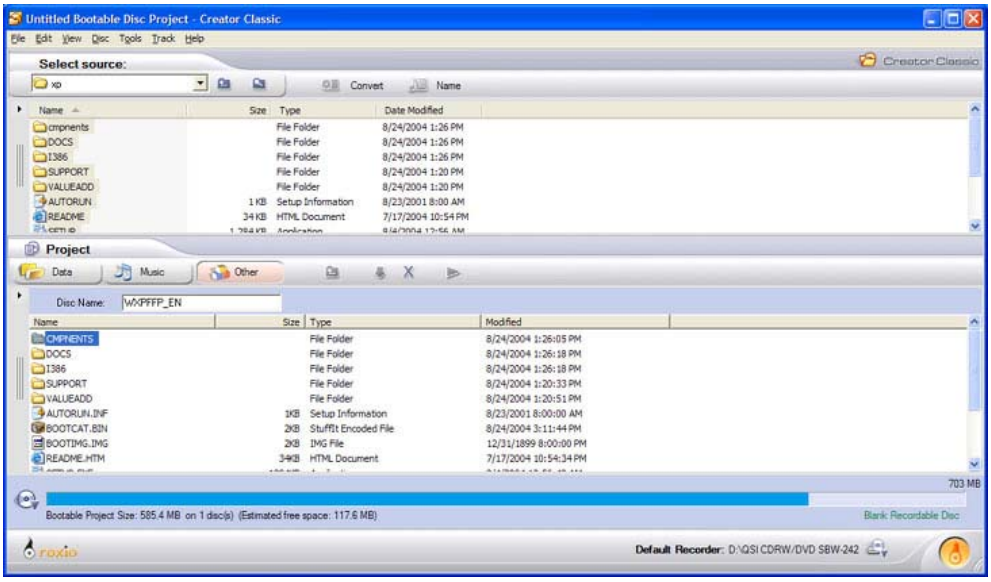


A couple of notes here: The Volume Label in the first tab should match the name of your original XP CD-ROM. In the figure above, it's named WXPFPP_EN, which is the name of the retail Windows XP Professional (US) CD-ROM, but yours could be different. Make sure the options in each tab on your system match the options as shown in figures above, then click OK to close the dialog.

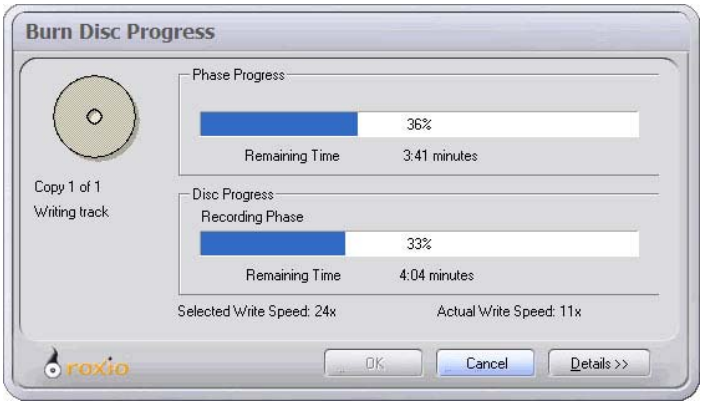
Now, drag and drop all of the files from C:\xp to the CD project. You can do this from within the Creator Classic interface, or you can open a My Computer window and drag them over from there if you'd like. During the copy process, you will receive approximately three error dialogs noting that certain directory names (such as SYMBOLS.PRI) will need to be renamed to be compatible with the naming conventions of your disc file system. The first time you see this dialog, simply click "Change All" to dismiss it.



Once you're done copying the files, the Creator Classic window will resemble the following.



Now, click the orange Record button to start burning the CD. The Record Setup dialog appears. Click OK to start recording the CD. While your CD is created, the Burn Disc Progress dialog will appear, as shown below. When its done, click OK to close the dialog.



Appendix 2
Scheduling Defrag to run automatically

- Open **Control Panel/Performance and Maintenace**
- Click **Scheduled Tasks**
- Click **Add Scheduled Task**
- On the Scheduled Task Wizard dialog, click **Next**
- Click **Browse**
- In the Select Program to Schedule dialog, navigate to the windows folder and then to the system32 folder
  Select **defrag.exe**
- Click **Open**
- In the Scheduled Task Wizard dialog, type a name for the scheduled task (Disk Defragmenter, for instance)
- Under Perform this task, select how often you wish Disk Defragmenter to run
  Click **Next**
- Set the time at which you wish the Disk Defragmenter scheduled task to run. This should be a time when your computer is on, but not in heavy use.
- Select the frequency at which you want the Disk Defragmenter scheduled task to run (Every Day, Weekdays, or Every <N> days, where <N> is the number of days between scheduled runs)
- Click **Next**
- Enter a user name under which the Disk Defragmenter scheduled task will run. **Note:** This user must be an administrator on the local machine.
  Enter the password for the user you entered in the previous step
  Confirm the password for the user
  Click **Next**
- Check **Open advanced properties for this task when I click Finish**
- Click **Finish**
- In the **Run** text box, you should see the full path and command for defrag.exe. By default, this path is **C:\WINDOWS\SYSTEM32\defrag.exe**
  Append the drive letter for the drive you wish to defragment (usually C) to the command in the Run text box. In a default installation, your Run command will look like this:
  C:\WINDOWS\SYSTEM32\defrag.exe C:
- Click **OK**
- In the Set Account Information dialog, enter and confirm the password for the user listed in **Run as**
  Click **OK**

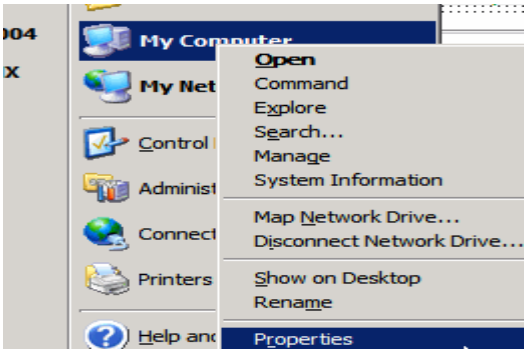
  Disk Defragmenter will now run as the specified user on the schedule you specified when you created the scheduled task.

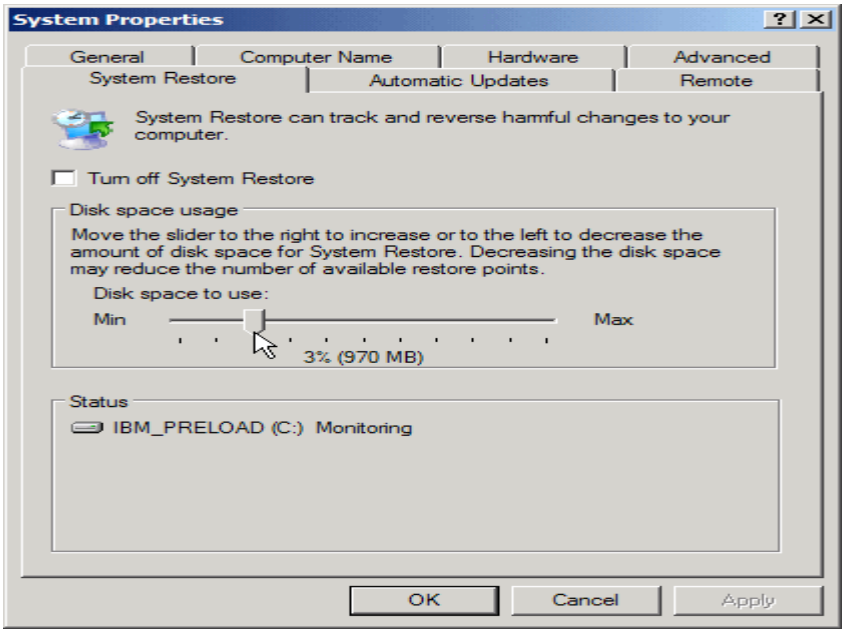
Appendix 3

System Restore

A very important feature of Windows XP is the ability to return system files to the same state they were in at some previous point in time. Before making any tweaks create a new "Restore Point." Go to Control Panel-Performance and Maintenance-System Restore or Start-All Programs-Accessories-System Tools-System Restore and select "Create a restore point." (Note: this does NOT take the place of a complete backup.)

System Restore itself should be tweaked. If it is left alone, it will consume a good portion of your disk space with unnecessary restore points. By default it will use up to 12% of each of your drives. Although you may have a big hard drive and no need of the space, a lot of extra resore points can slow down processes such as virus checking, disk defragmenting, and other procedures. Go to My Computer, right-click, select "Properties" and then click the "System Restore" tab. These steps are illustrated in the two figures below below.





The figure above shows a system with only one volume or drive. Use the slide bar to set aside a reasonable amount of space. What is “reasonable”? It depends on your system but on mine, 200 MB (the minimum allowed) will hold 5 or 6 restore points and is all I use. Somewhere between the minimum 200 MB and 1 GB should suffice for most people. If you have a dual-boot system, highlight the drive where the other operating system is installed, click “Settings”, and put a check by “Turn off System Restore for this drive”. Also, if you have partitions for data, turn off System Restore there as well. There is no benefit from monitoring non-system files.

Appendix 4
Windows XP Service Pack 2

The latest Service Pack for Windows XP—Service Pack 2 (SP2)—is all about security, and it's one of the most important service packs ever released. It provides better protection against viruses, hackers, and worms, and includes Windows Firewall, Pop-up Blocker for Internet Explorer, and the new Windows Security Center.

Windows XP Service Pack 2 with Advanced Security Technologies will help you protect your PC against viruses, hackers, and worms.

Safer Browsing and Communication

Internet Explorer Pop-up Blocker

Makes browsing the Internet more enjoyable by enabling you to reduce unwanted ads and content.

Internet Explorer download monitoring

Warns you about potentially harmful downloads and gives you the option to block files that could be malicious.

Internet Explorer Information Bar

Provides better information about events that are happening as you browse the Web, so it's easier to know what's going on and address potential security issues

Internet Explorer Add-on Manager

Enhances security and reduces the potential for crashes by allowing you to easily manage Internet Explorer add-ons (programs which have been added to the Web browser).

Outlook Express privacy update

Helps reduce unwanted e-mail by limiting the possibility of your e-mail address being validated by potential spammers

Attachment Manager

Monitors and disables potentially unsafe attachments, which could contain viruses that might spread through Internet Explorer, Outlook Express, and Windows Messenger

Powerful Security Tools

Windows Security Center

Allows you to easily view your security status and manage key security settings in one convenient place

Windows Firewall update

Automatically turned on by default, this improved firewall helps protect Windows XP from viruses, worms, and other security threats that can spread over the Internet.

Windows Firewall simple compatibility setup

Lets you set up Windows Firewall to co-exist with your favorite Internet applications and home network

Windows Firewall startup and shutdown support

Extends Windows Firewall protection to Windows startup and shutdown time, ensuring enhanced protection from the moment you turn your PC on to the moment you turn it off.

Automatic Updates enhancements

Helps you automatically stay up-to-date with the latest updates for Windows XP. Also includes new technology to help dial-up customers download updates more efficiently

Improved Experiences

Improved wireless support

Dramatically improves and simplifies the process of discovering and connecting to wireless networks

Bluetooth technologies

Enables you to easily connect to the latest Bluetooth-enabled hardware devices such as keyboards, cell phones, and PDAs

Windows Media Player 9 Series

Makes it easy to enjoy music, video, and broadband content with enhanced security

DirectX update

Helps you enjoy advanced graphics and gaming with the latest DirectX technology from Microsoft.

After installing Service Pack 2, be sure to go to the Microsoft update site and download the most recent security patches and fixes. You can also download the latest version of Media Player, Movie maker, etc.