

# 5-Step Computer Maintenance Tutorial Windows XP

Computer users often rely on advertisements from the Internet, well meaning friends, or computer repair companies for solutions to help their computer perform better. Often, the complaints range from “My computer is running so slow” or “My computer won’t start up normally” or “My programs won’t open” or “I think I have a virus.”

The above descriptions often lead to the purchase of programs that are designed, on the surface, to remedy a wide variety of problems and usually require the services of a computer professional to install and run them. These descriptions also suggest that the following problems are probably on the computer:

1. **That the computer is loaded with spyware, adware or viruses.**
2. **That the computer user “did something wrong” and “deleted something”.**
3. **That a download from the Internet caused the problem!**
4. **That a program was either incorrectly installed or not completely installed.**

While some of these problems may exist on the computer, users can take hope that most of these problems are reversible by using tools that [are available within the computer itself.](#)

The purpose of this tutorial is to present to the beginner and intermediate level user (or for anyone who needs the help) a 5 step approach to solving computer problems by using tools (**diagnostic & repair programs**) that exist on your computer.

**The 5-step maintenance tutorial is designed to address the following issues:**

1. **Test the integrity of the operating system files.**
2. **Test the integrity of internal hardware components.**
3. **Test the integrity of installed software programs.**
4. **Remove unwanted or unneeded files safely from the computer and free up space.**
5. **Remove malicious software (virus or spyware) from the computer.**
6. **Ensure that the computer’s security is working to protect the computer.**
7. **Ensure that all available memory (for running programs) is working efficiently.**

Each step of the tutorial will be fully explained in the pages to follow. Helpful graphics will show the computer system & will accompany the instruction.

**A Table of Contents follows this page**

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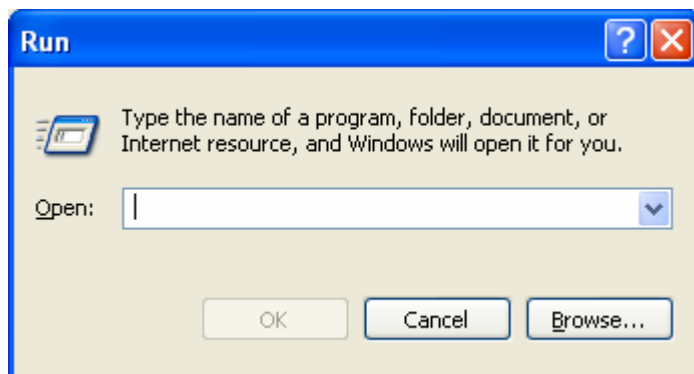
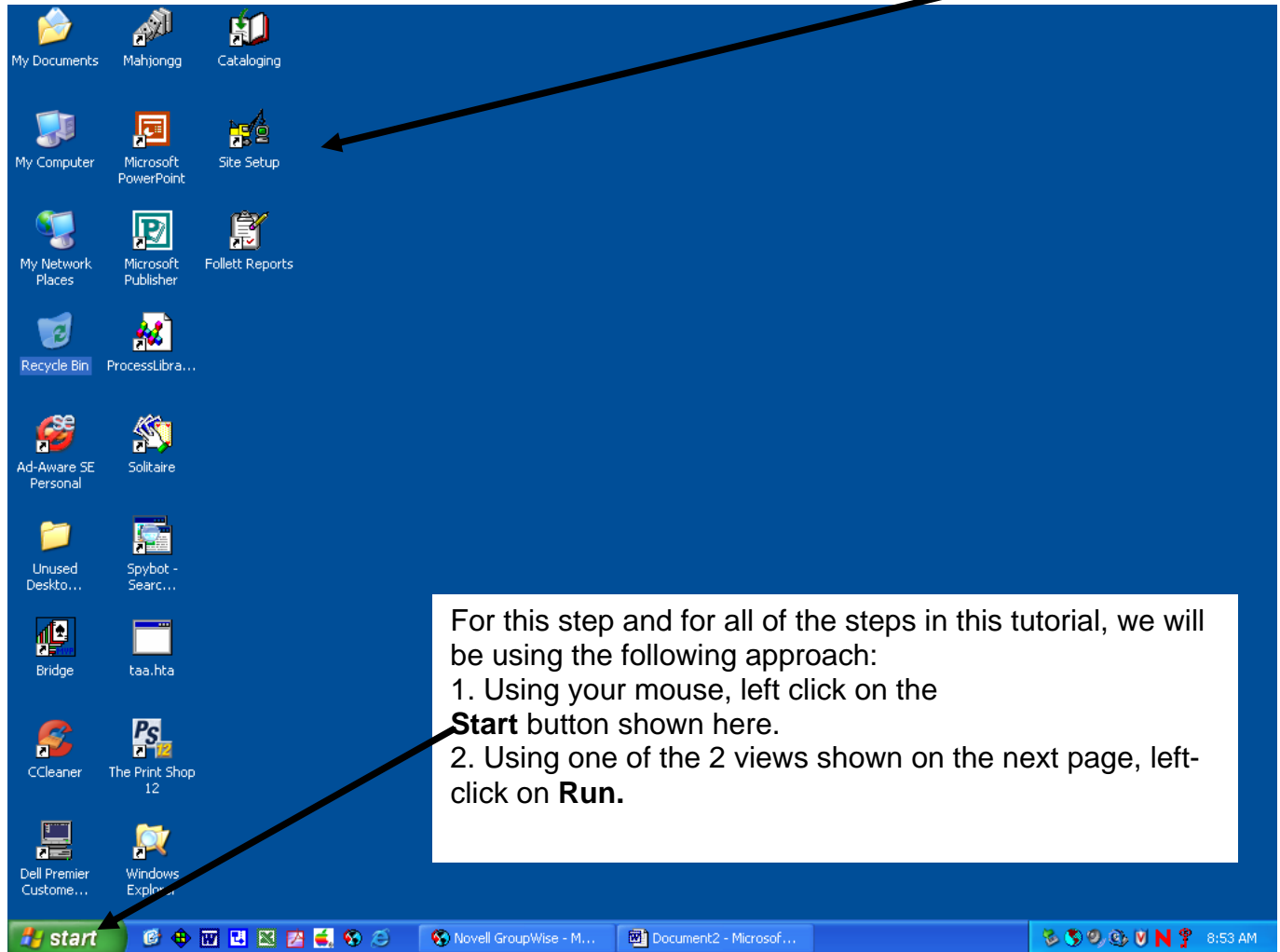
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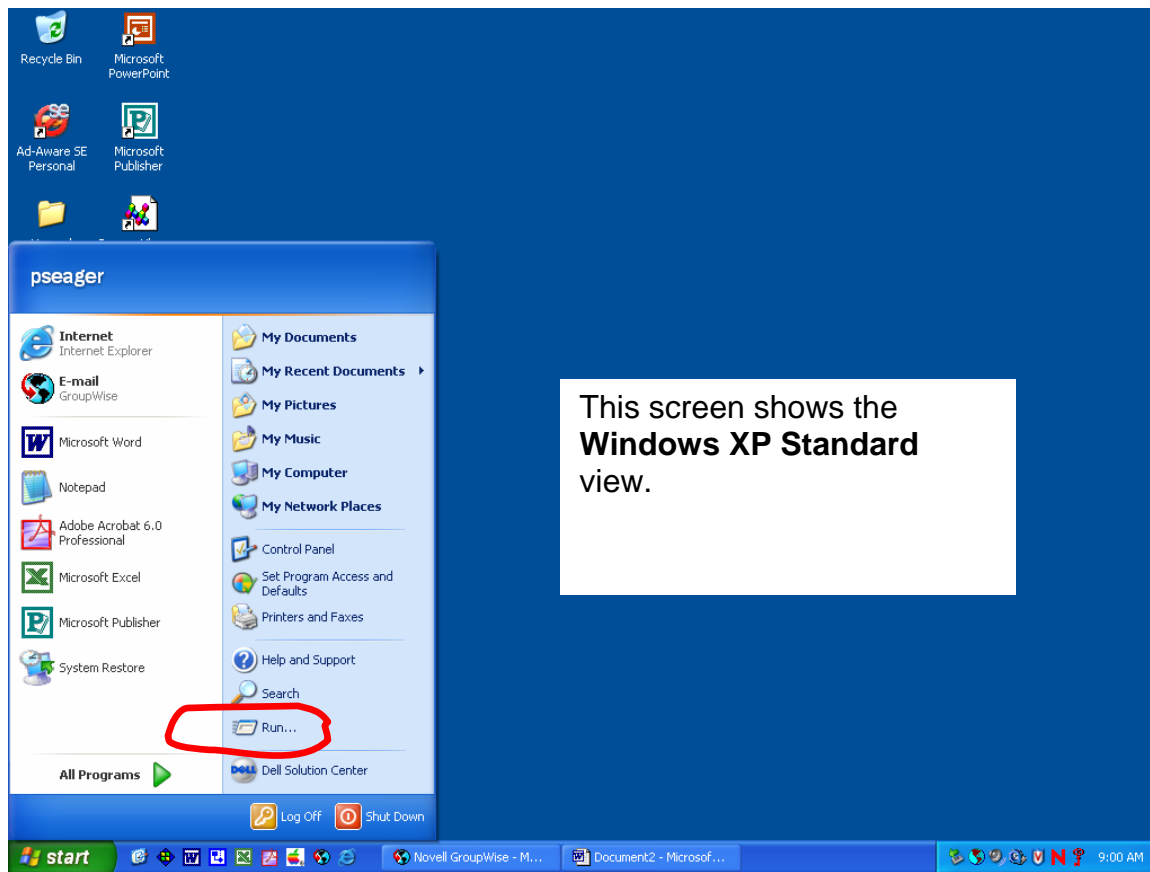
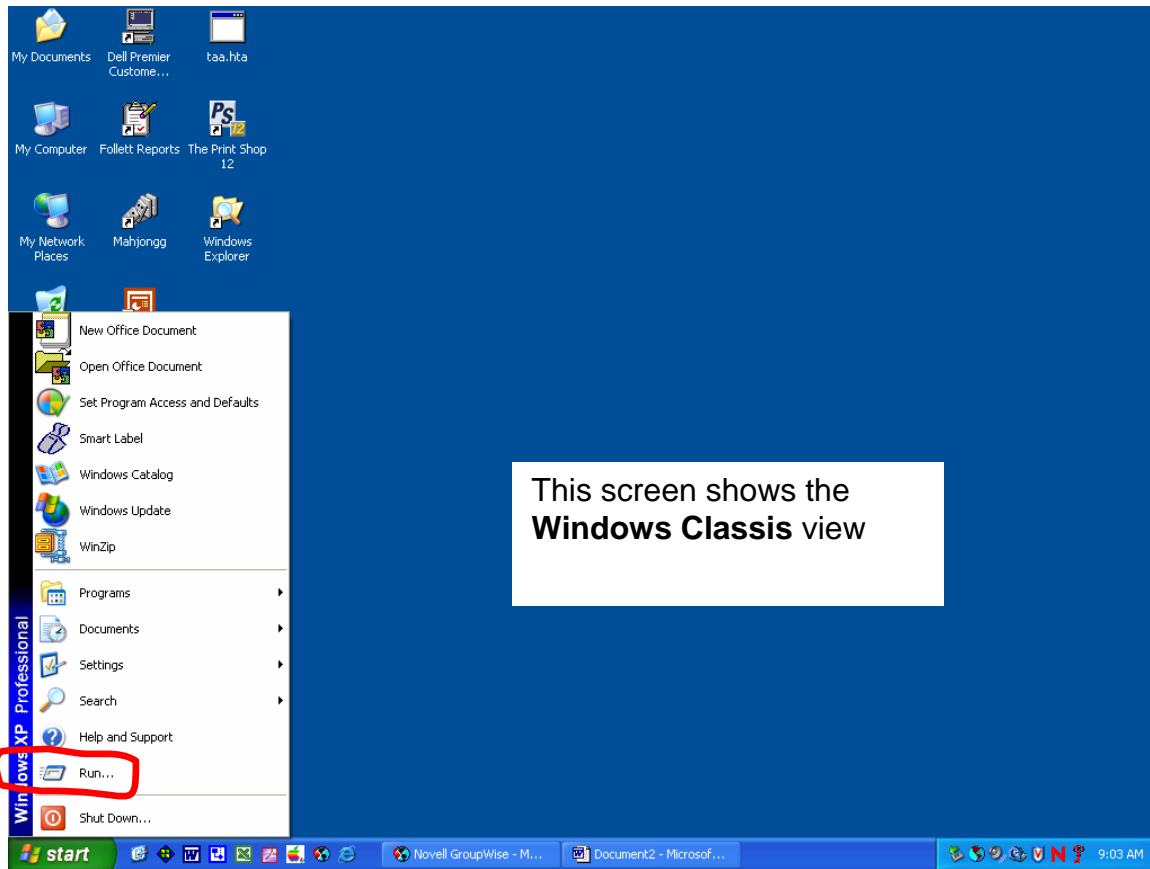
# Step 1 – Diagnosing Computer Problems

There are perhaps many ways to try to determine what is wrong with your computer, but the best approach to determine what is RIGHT with your computer. Once you know what is right, the list of wrong will be much smaller. In every instance of this tutorial, there will be a common approach to either diagnosing or repairing problems.

Let's start with the computer desktop. This is the area that is on your monitor (screen). It usually has a colorful background and a number of small pictures or graphics called **icons**.

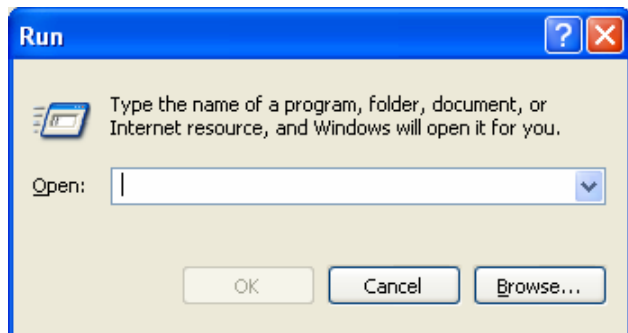


No matter which of the screens you use below, the screen on the left will be the end result.



**VERY IMPORTANT! MAKE SURE ALL PROGRAMS ARE CLOSED WHILE USING THIS TUTORIAL!!!!!!! Otherwise the “fixes” may work very slowly OR not at all!!**

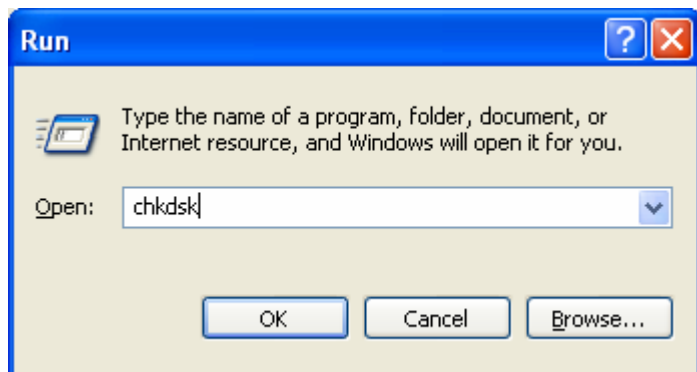
This is the **Run** screen. **All steps in this tutorial will use this screen.**



Although there are at least 150 Run commands available, we will be able to solve most problems using 10-12 of them. Each will be explained as needed in the 5 steps.

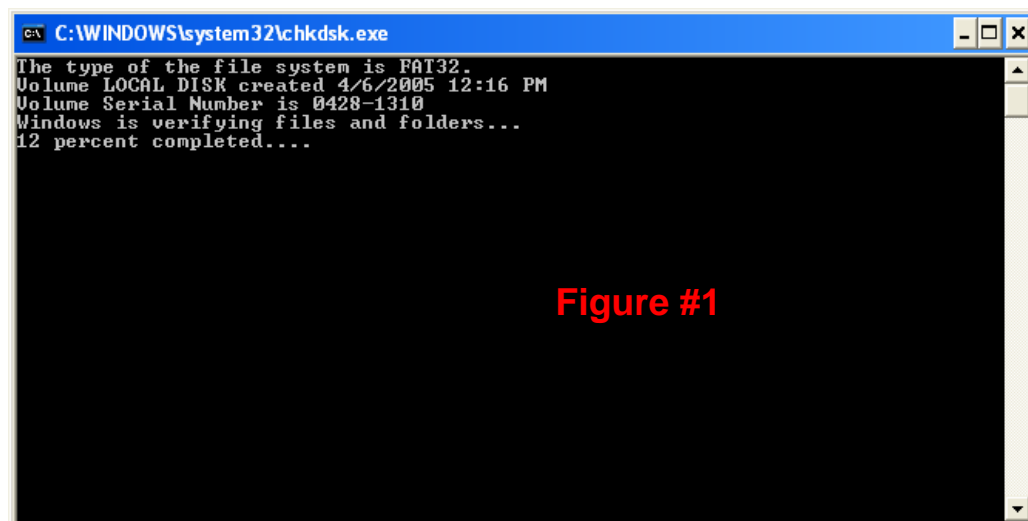
## Step 1 – Part A – Disk Integrity

For Step 1, part A, in the “open” box shown above, type in the command as shown in the box below and click on OK.

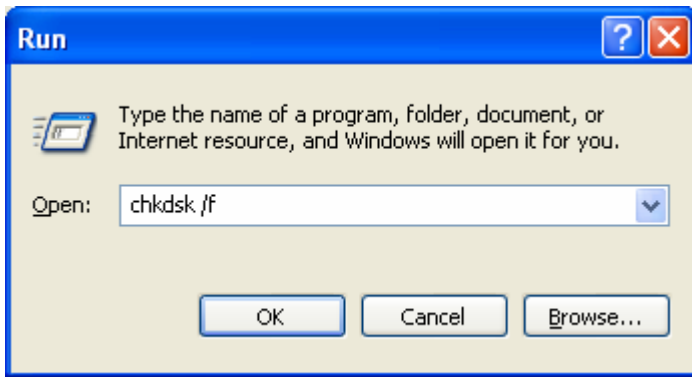


This is called the **Check Disk Utility**

This will verify files & folders on your hard drive. While it is checking it will describe any actions it takes. When it is finished, the window will close.

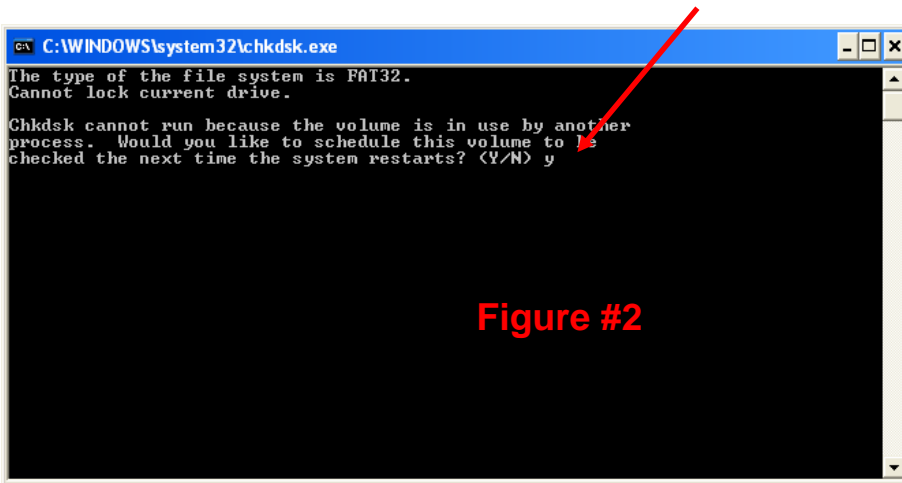


To do a **thorough check and repair of the disk**, do this from the Run screen, and type in the command exactly as shown below.



Notice that there is a space between chkdsk and the /

When the next screen appears, type in the letter y and press the ENTER key on your keyboard.

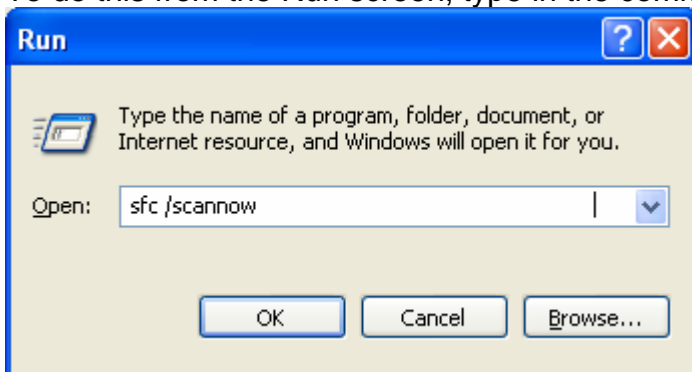


The screen will then disappear. If you wish to “check” the computer immediately, go to Start, then choose Shutdown. When the Shutdown screen appears, click on Restart.

The computer will restart and as it starts up it will run the CHECK DISK UTILITY before it returns to your normal desktop. This process will allow the program to discover any flaws in the system and fix them. The entire process can take from 1 to 5 minutes depending on your computer.

## Step 1 – Part B – System Files Integrity

The second part of this step is to ensure that your operating system files are working correctly. To do this from the Run screen, type in the command exactly as shown below.



NOTE: There is a space between sfc and /

This is called the **System File Checker**.

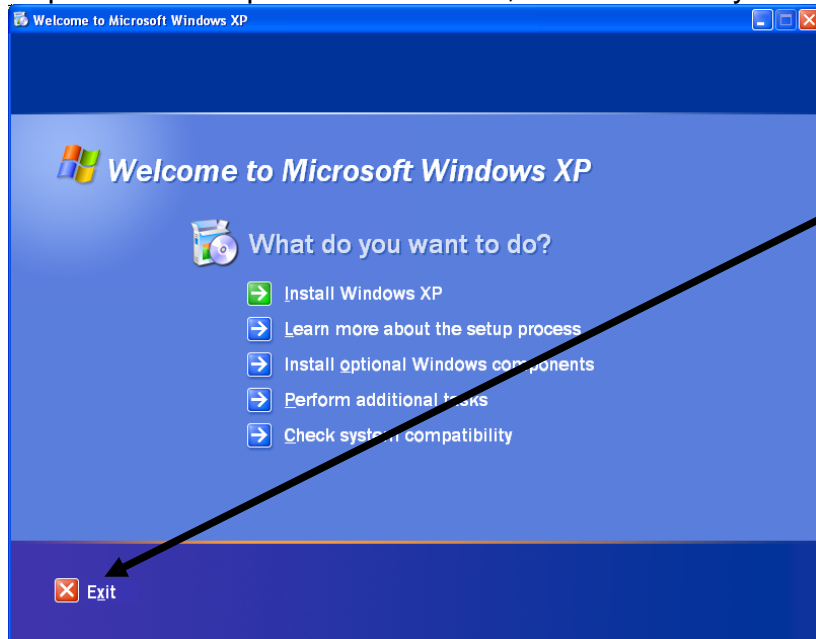
According to experts, the main reasons for running the **System File Checker** are as follows:

1. A System Service will not start (Internet Explorer, Windows Security Center, etc)
2. Basic Windows Functions not working properly.
3. A System File is missing.
4. A program won't start.
5. A DLL (Dynamic Link Library) file is missing or corrupt.
6. You are experiencing problems while in Windows
7. Use as a Maintenance Tool to keep Windows running smoothly.

The Windows File Protection screen will then display and a small box with a blue line progressing from left to right. You may need to have your **Windows Re-installation CD** available in case it is required. Some computers may not come with the CD because the files are pre-installed on the hard drive.

**NOTE: If you have upgraded your computer from one operating system to another, you may need to have both installation CD's, however the most current one is CRITICAL!!**

If it is required, there will be a prompt telling you to insert in it into your cdrom drive. When the requested CD is placed in the drive, this screen may come up:



Should this appear, click on Exit with your mouse, so that the program can work its magic! This process can take from 3 to 10 minutes depending on your computer. During this process, Windows will verify that all protected Windows files are intact and in their original versions. If they aren't, the program will restore them automatically!!

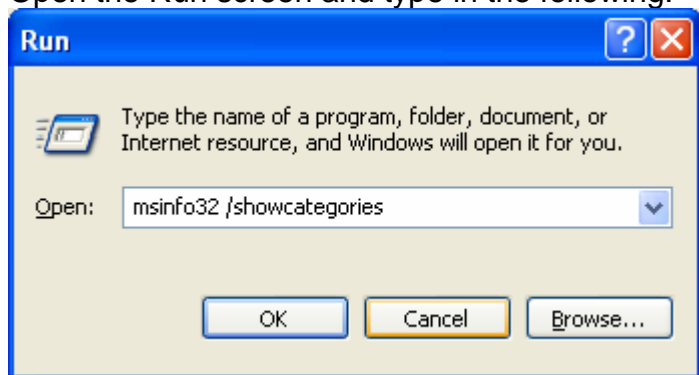
## Step 2 – Eliminate Equipment Problems

Sometimes your printer, scanner, camera or some other attachment (called a peripheral) may quit working or work sporadically. This can be due to the device not having the correct drivers (programs that keep the equipment running) or the software (usually supplied on a CD) was not installed or installed incorrectly.

### Step 2 – Part A – Getting System Information

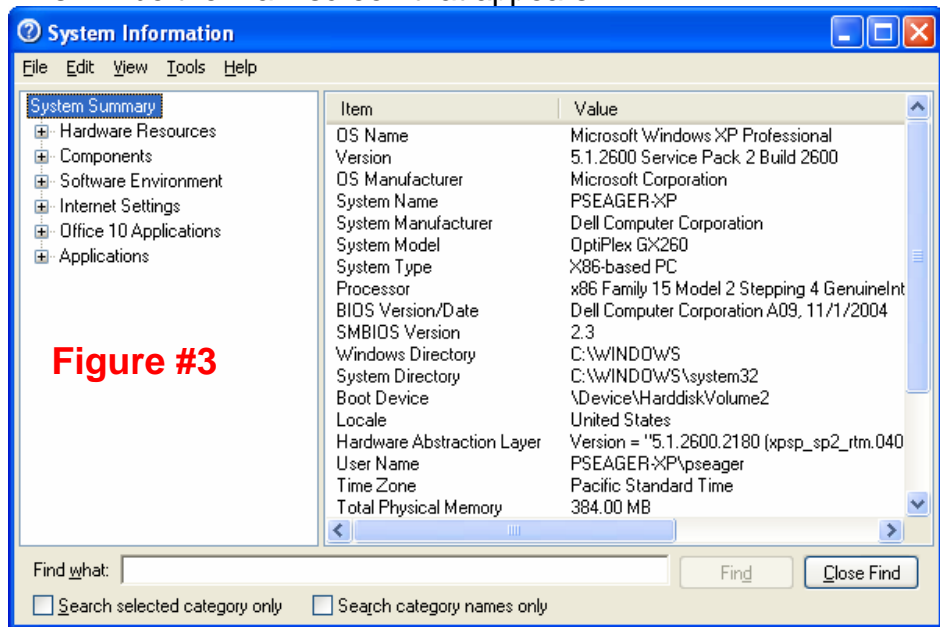
There are 2 ways to check for hardware problems. The first is to run the **System Information Utility**, which keeps a detailed account of all components on your computer. Using the Run screen, type in the following command:

Open the Run screen and type in the following:



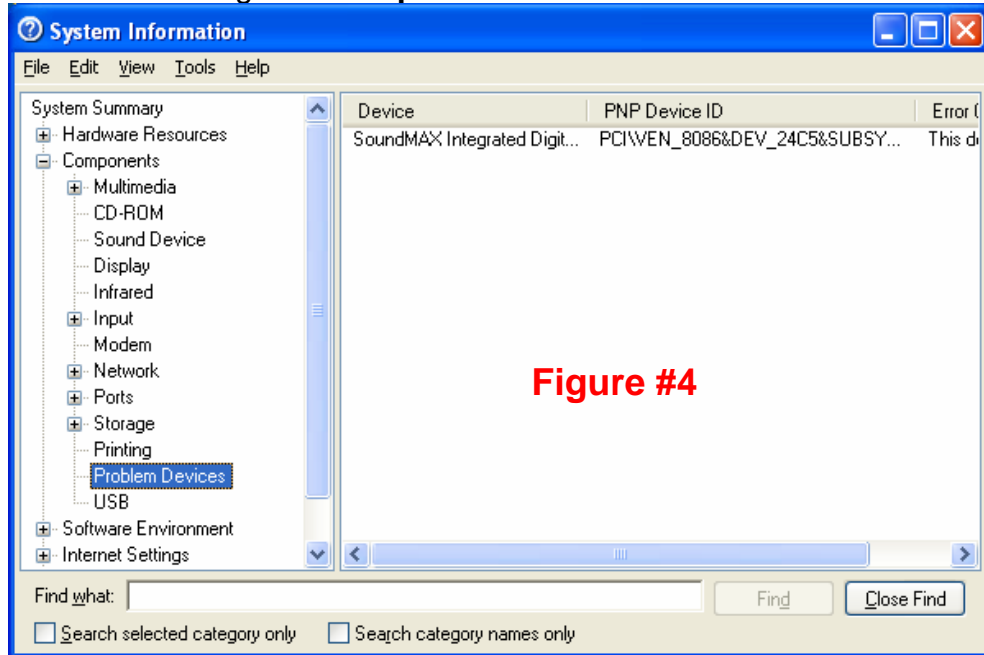
**Important!!**  
If your Windows Operating System was recently upgraded, you must use the entire command shown. If the operating system is the original, you can use just the Msinfo32.

This will be the main screen that appears.



Since we are working on diagnosing hardware we want to do the following:

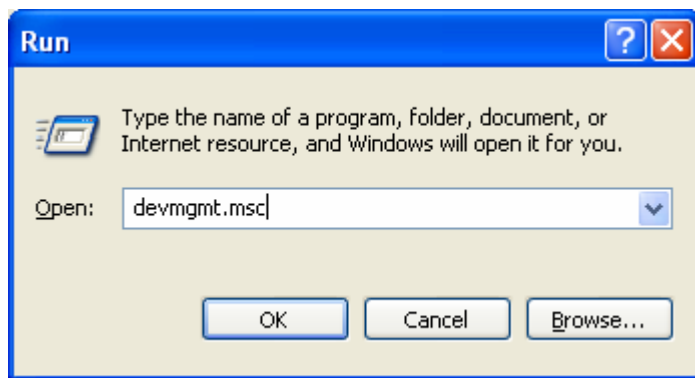
Click on the + sign for **Components**. Then click on **Problem Devices**.



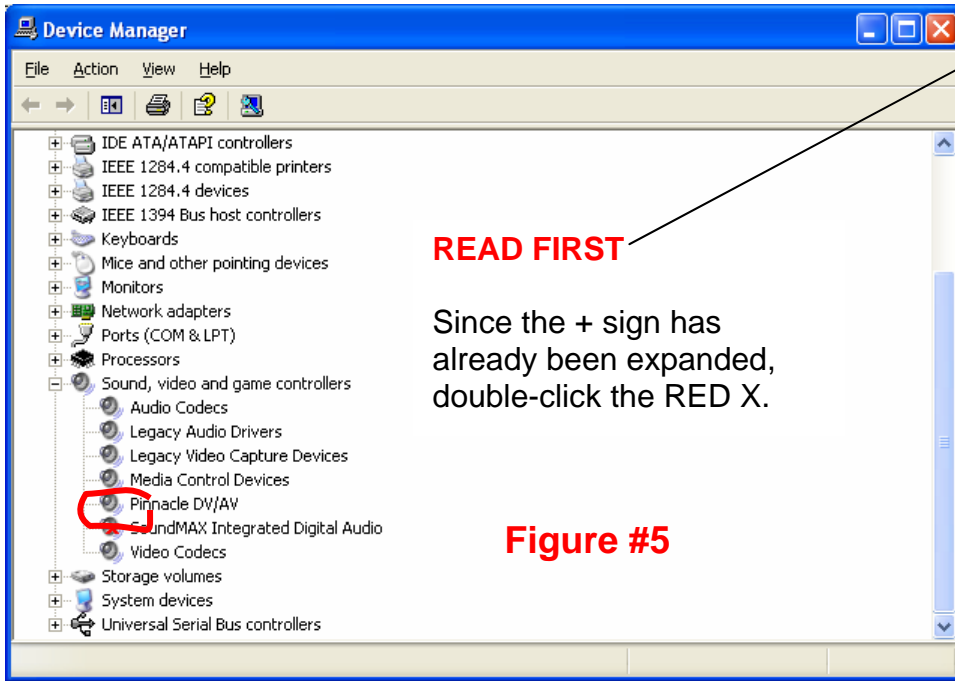
A full description of the problem devices will show in the screen to the right. Make a log or a note of the information that appears here.

## Step 2 – Part B – Eliminating Device Problems

Next we will run the **Device Manager Utility**. This utility will group equipment by its “family” and will confirm what the **System Information Utility** presented.

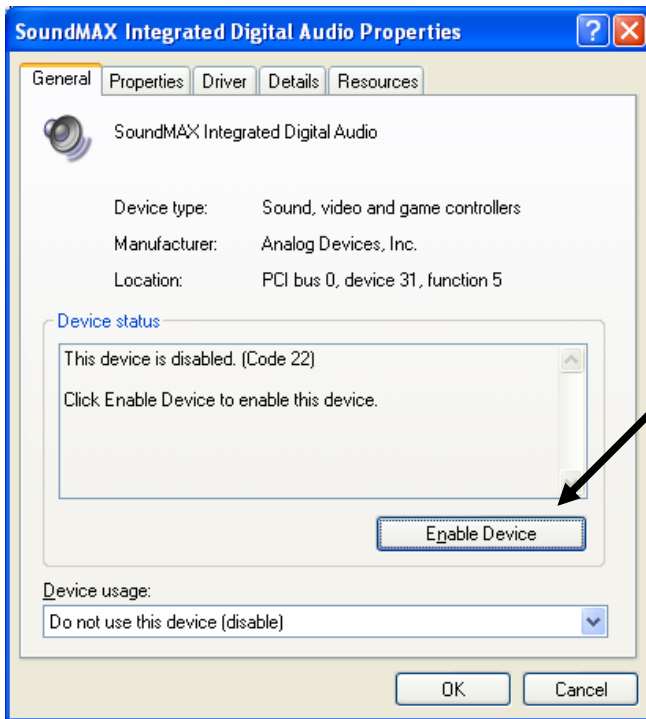


Check here to see if any **YELLOW** exclamation Point or **RED X** appears next to any of the listings shown here. If they do, then write down what they are so that you can refer to them later. Yellow means that the “driver” is wrong (rarely), and Red means that the equipment has become “disabled.” See screen below:



**Important!!**  
If there are 2 devices in the same category and one has the RED X and the other does not AND the computer is working OK, DO NOT enable the one with the RED X as it will cause a Hardware Problem. Otherwise, continue the process.

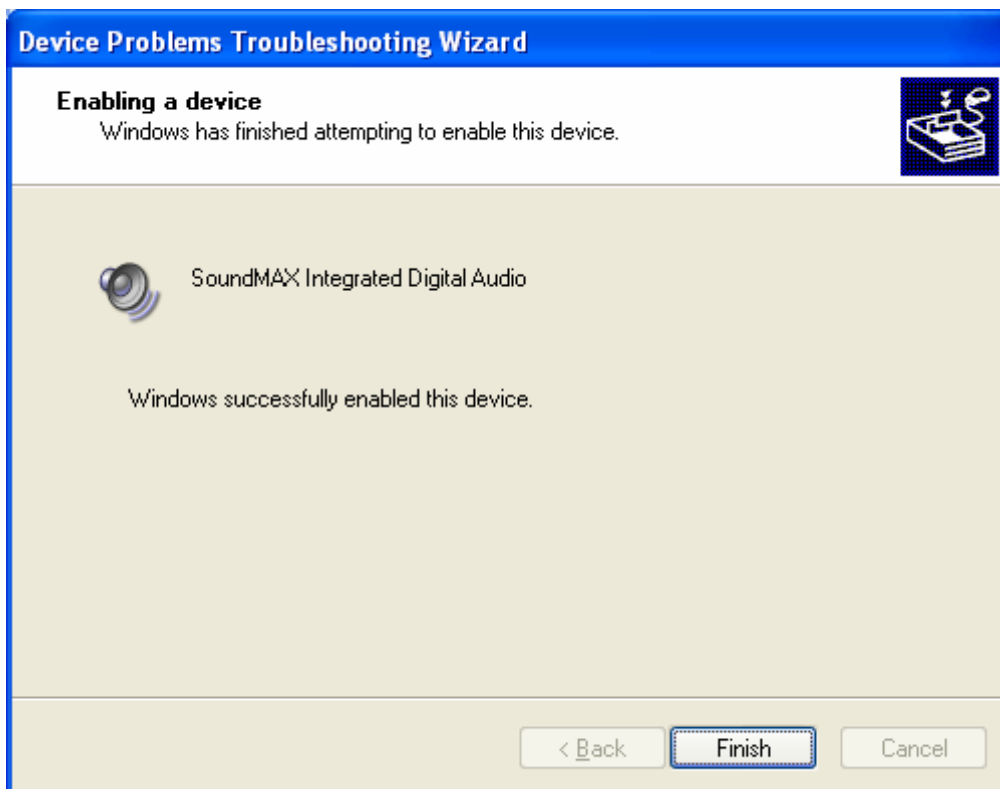
This page appears:



To correct the problem, click on Enable Device.

The Device Problems Troubleshooting Wizard will appear as shown on the page below.

Click on Next, then on Finish as shown and the equipment will be enabled and will work properly!



Now close out of all Windows, if there are no other items mark with a red X; otherwise follow the same procedure for each one.

## Step 3 – Freeing up Computer Memory

When computers are running slow, much of the problem can be traced to a memory overload. To clarify, memory is a physical piece of equipment that is installed on the main board of the computer. To run Windows XP, a **MINIMUM** of 256 Megabytes of RAM (Random Access Memory) needs to be installed. Memory controls the speed and the accessibility of user actions and programs running (simultaneously) on the computer. The picture below is an example of what memory looks like.



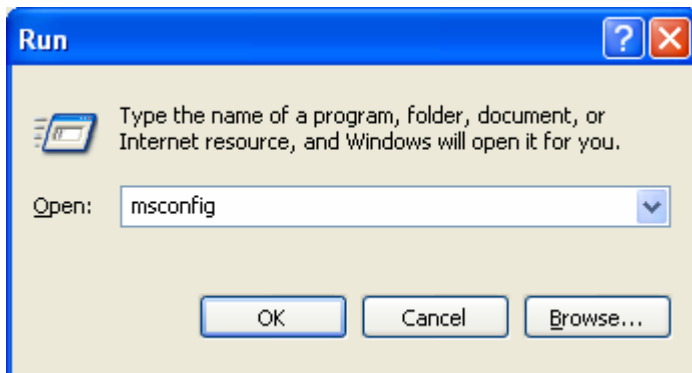
Computers today, especially the newer ones, come with 512 or 1024 MB of memory pre-installed.

Whenever a program or a piece of equipment is installed, the software that is installed with it places a T.S.R. (terminate and stay resident) program that can be *memory resident*. This means that it stays stored in memory. Therefore, the more programs and equipment you have, the more memory is being used.

The purpose of step 3 is to show you a process where you can “free up” memory and thus increase the capability that your computer will now be able to access programs in a timely manner.

**NOTE: If spyware and/or viruses are resident on your computer, their connections will also show up in memory.**

To start this process, use the Run command and type in the command shown and click on OK to start the **System Configuration Utility**.



There are several tabs in this next window, but the one you will want to concentrate on is the STARTUP tab. Here, shown with checkmarks, are the programs [TSR's] that are running in memory. Using the blue scroll bar on the right side, you can drag it up or down to see all of the programs.

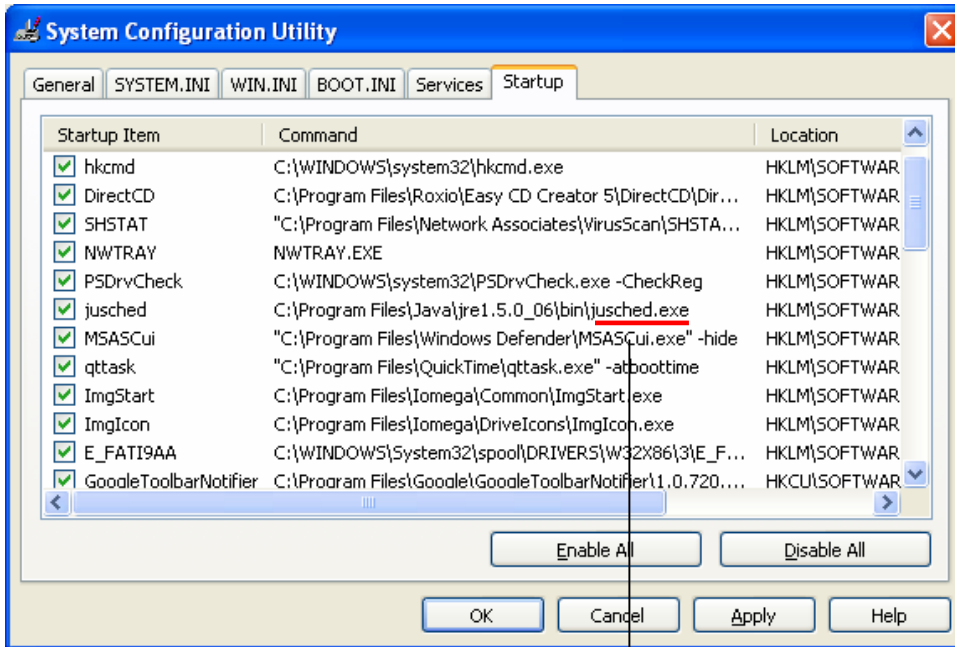
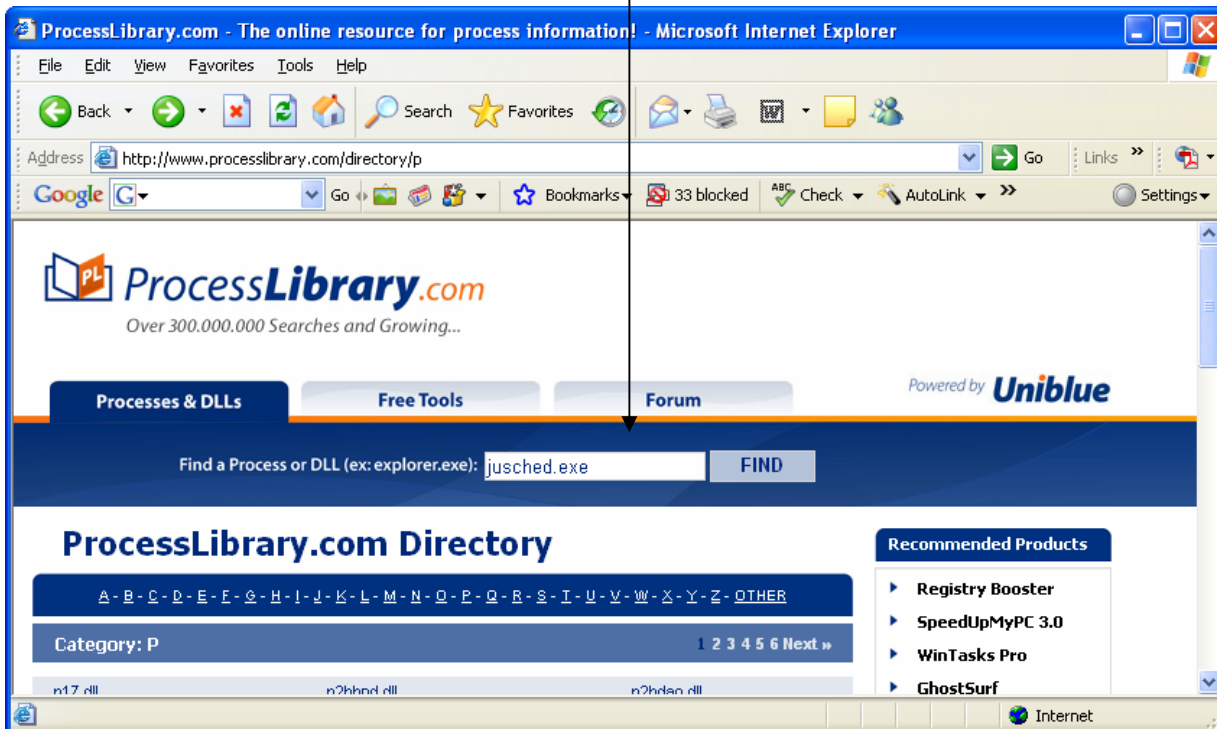


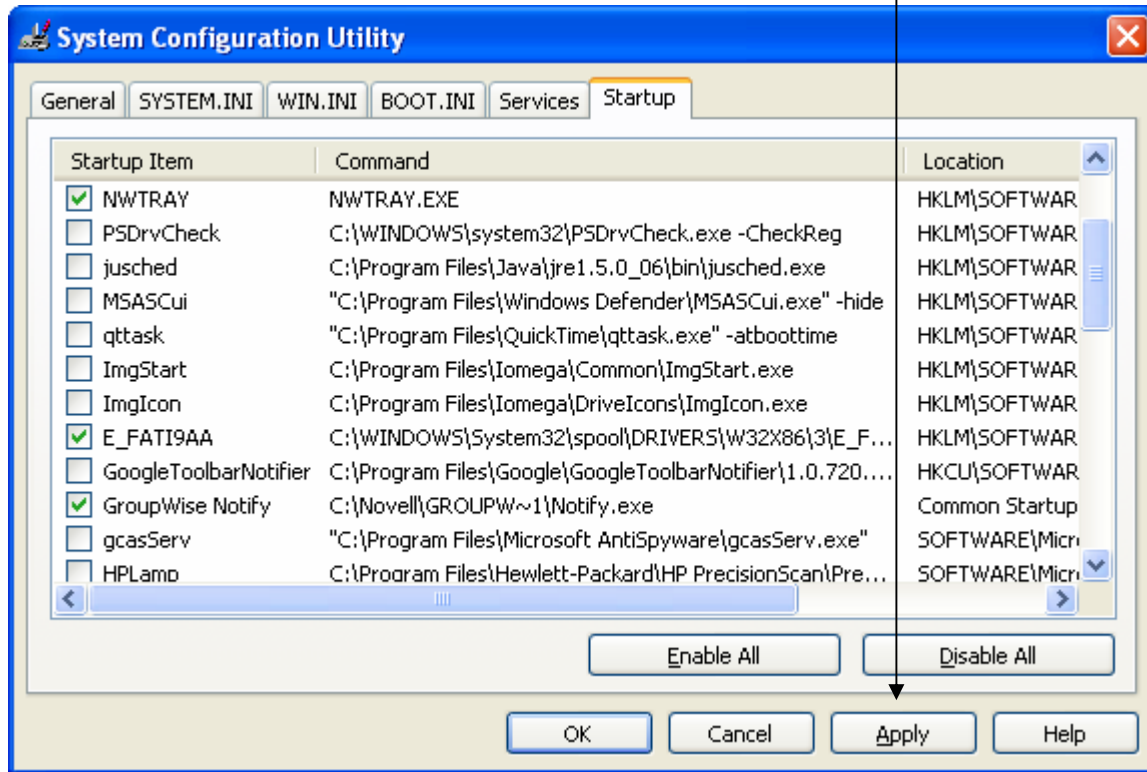
Figure #6

The easiest way to free up memory is to uncheck boxes for programs that are not critical to the running of the computer. The easiest rule of thumb is that if the Command line starts with "C:\Windows" you should leave it checked. The other rule is that any command line that refers to **Anti-virus programs** or **CD burning software** should also remain checked. The rest, normally, can be unchecked. If you are not sure about a program, an excellent resource, if you have access to the Internet, is to go to <http://www.processlibrary.com/directory/a> [Website is shown here] and type in the entry at the end of the command line that usually ends in .exe or .dll and then click on FIND [See example here]

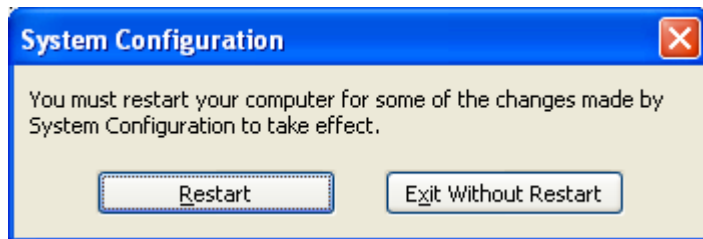


The next window that appears will give description of the process and whether it should be disabled (unchecked) or not.

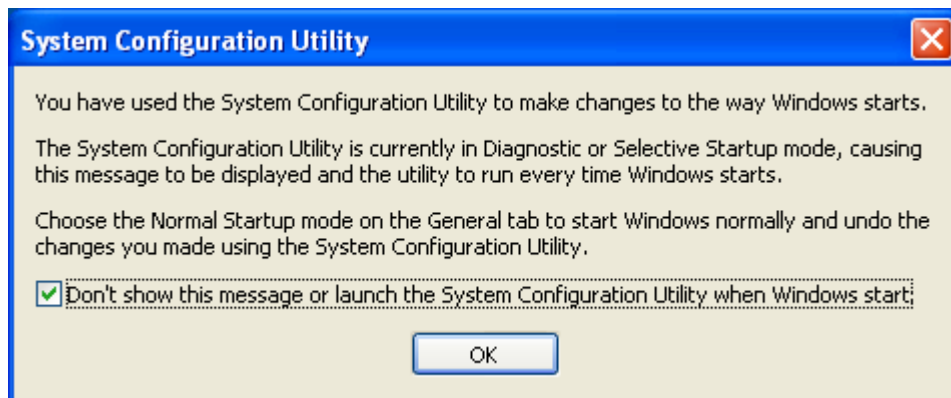
In any case, if you make changes you will need to click the Apply button here and on the Close button on the screen that will follow this one.



The final step is to click on Restart, which will restart your computer, and unload the items from memory.



When the computer has restarted, this screen will appear:



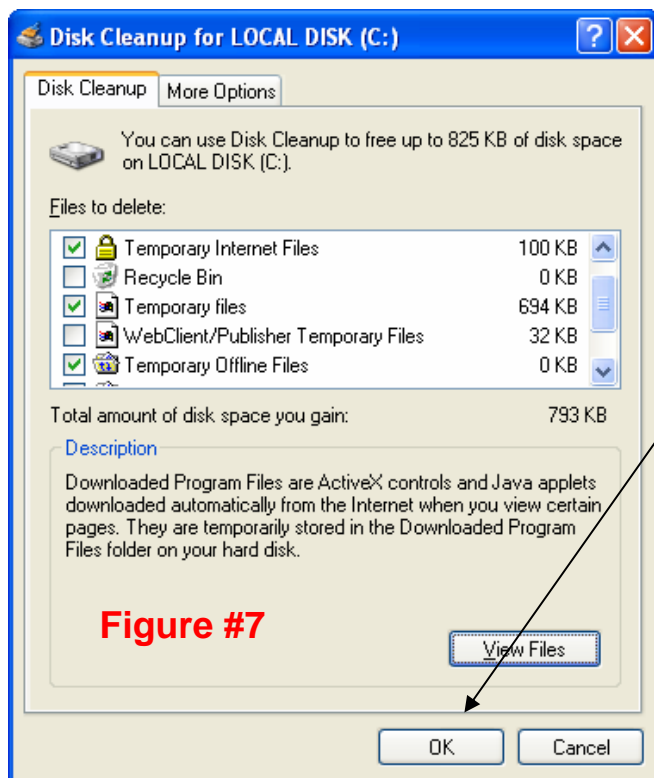
Put a checkmark in the box and press OK. This will complete the process for freeing up memory and you should notice that your machine should run smoothly and programs operate faster.

## Step 4 – Clean the System

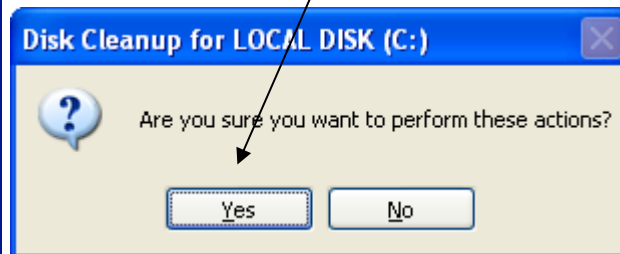
This part of the process is the most extensive as it requires you to run 4 commands. What you will be doing is to “clean out” the system, which will remove old files that are taking up space, programs that are no longer used, remove old Internet files that are loaded every time you access the web, remove any malicious software that has found its way to the computer and lastly it will rearrange your files to where they belong.

### Step 4 – Part A – Disk Cleanup

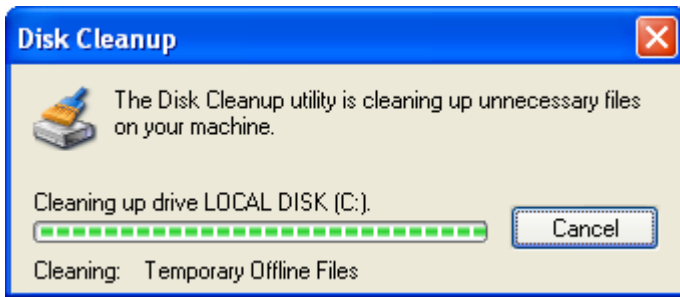
Using the Run Command, type in the command as shown and click OK to start the **Disk Cleanup Utility**. The Disk Cleanup calculator will then start.



The Disk Cleanup Utility will assess which files can be safely removed and will offer you choices as to which ones you want to remove. If you choose not to remove these files, simply uncheck the box (es) and press OK. Select Yes. Temporary Internet Files, Compressed Old Files, Temporary Files & Recycle Bin are suggested removals.



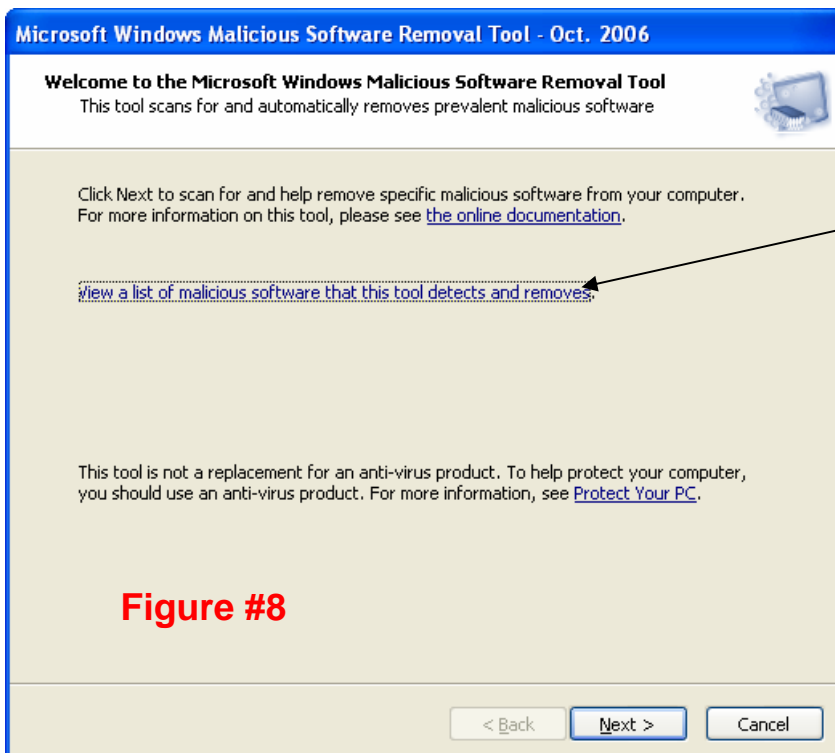
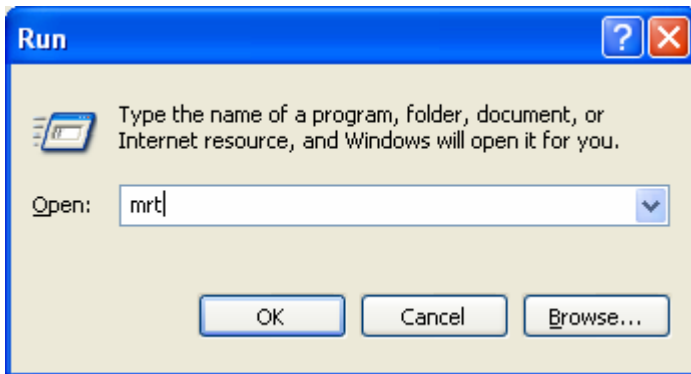
The cleanup process will begin (see below)



When the process completes, you will return to the main desktop screen.

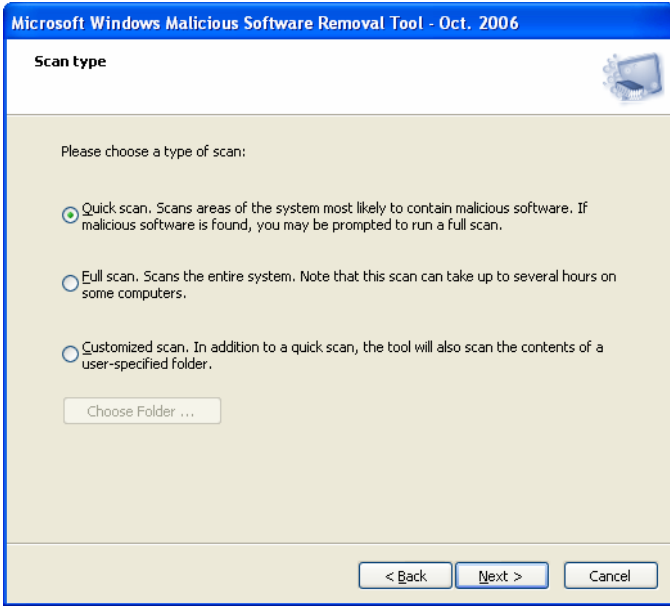
## Step 4 – Part B – Remove Malicious Software

In the Run Command box, type in the command as shown and press OK to start the **Malicious Software Removal Tool**.

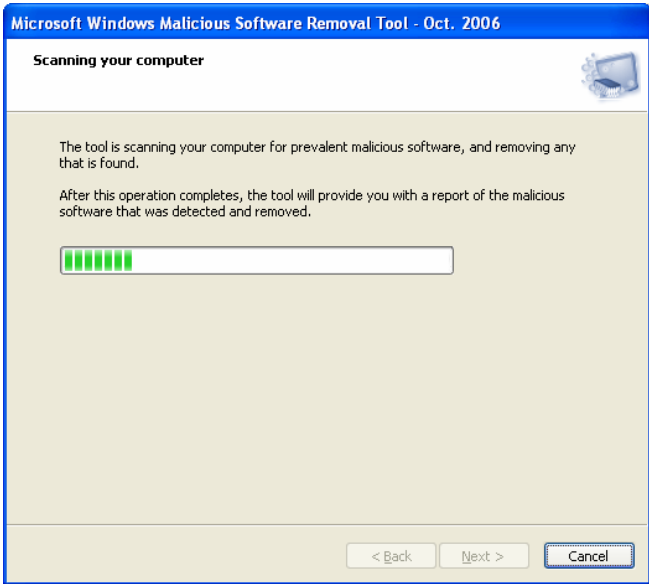


This box explains the process. If you want to see what it removes, click here for a list. Most items here are commonly referred to as “viruses” or “Trojans” or “worms” which of course are not good for your computer.

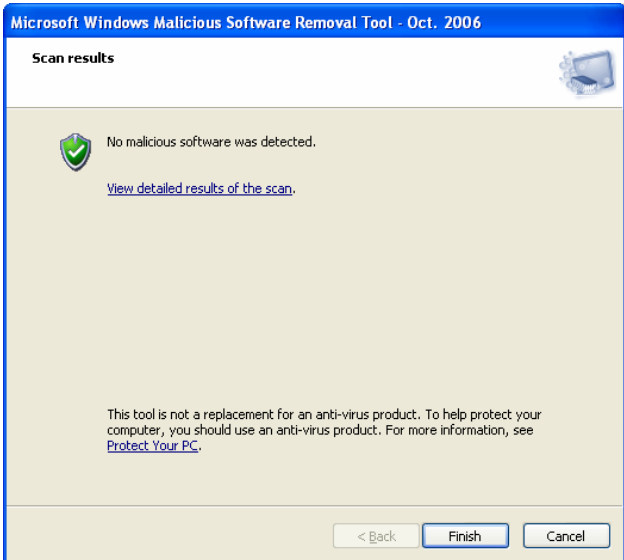
Click on Next



You will notice that there are 3 choices for scans. Usually the **Quick Scan** will do the job, but occasionally the Full Scan is necessary especially if the Quick Scan found more than 5 problems. Note also the time involved for the first 2. After making your selection, click on Next.



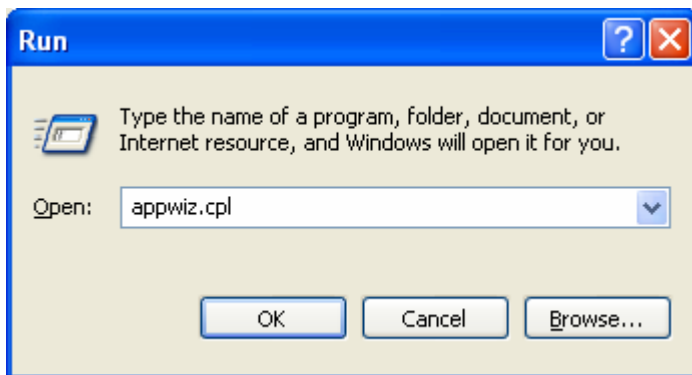
The tools now scans your computer for malicious software and removes any it finds.



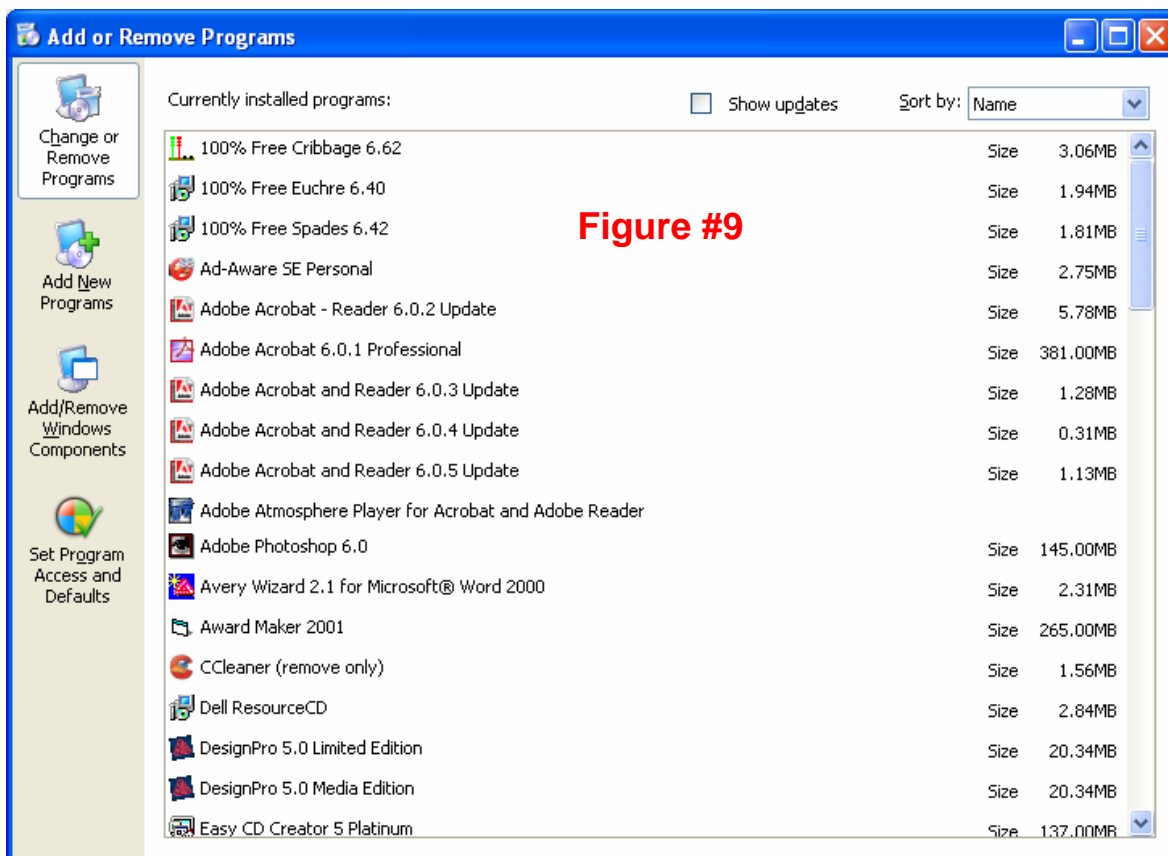
If no problems are found, click on Finish to complete this process.

## Step 4 – Part C – Remove Unwanted Programs

In the Run Command box, type in the command as shown and press OK to start the **Add/Remove Program Wizard**.

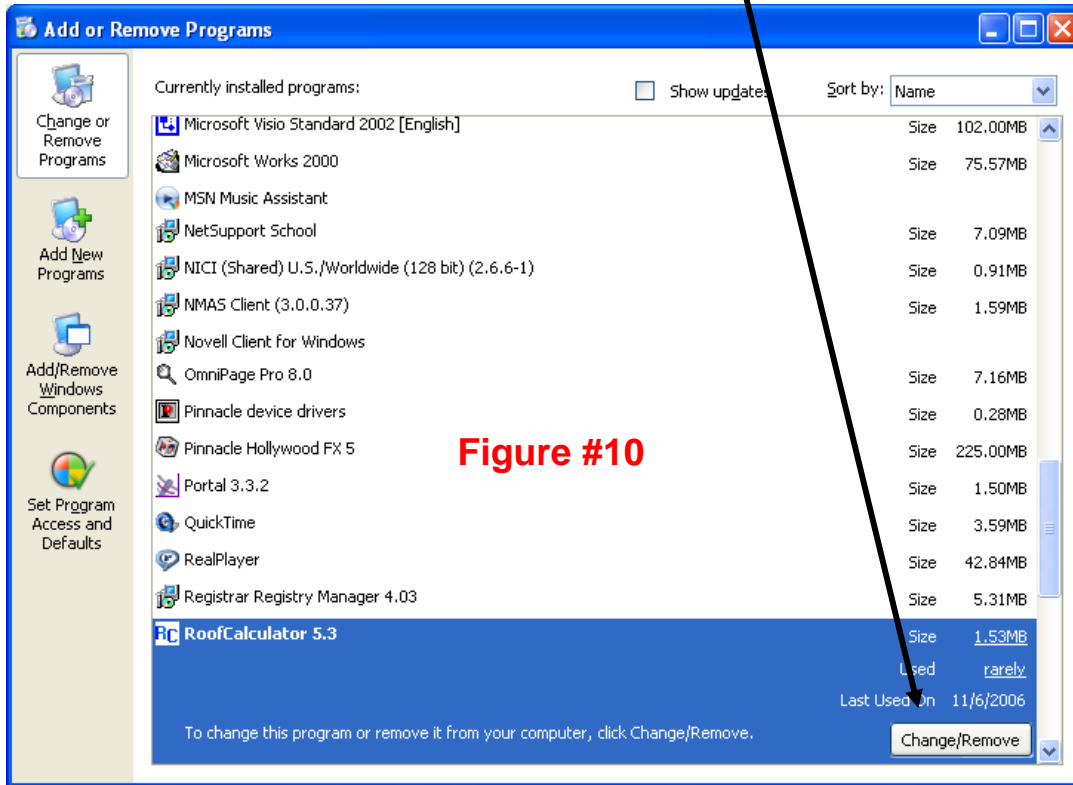


This tool takes you to the Control Panel to the Add/Remove Programs tool, which gives you an opportunity to remove programs that you no longer use or are just taking up space on the computer.



Listed here are most of the programs that were installed on your computer through the use of a commercially used installation program. The sources for the programs usually come from the Internet or from a CD-ROM. These programs can be games, Graphics programs, Productivity Software, Viewers, Windows Updates, Diagnostic programs, Spyware & anti-virus removal programs.

If you click on a program, you will see the size of the program [how much space it takes up on your hard drive] how often it is used, and when it was last used. The button to the right will either say: Change/Remove or Remove. Click on the button to start the process of removing the program.



**Figure #10**

The program uninstallation process will begin. Make selections as to what you want removed in the screens that follow. When the process is complete, it will either return you to the screen shown above OR it will ask you to reboot the computer to finish the uninstall process. If you return to the screen above, click on the RED X in the upper right-hand corner to get back to the desktop.

**NOTE: many programs [like Microsoft] will have Change buttons that allow you to make changes to the programs, such as adding or removing components in the program.**

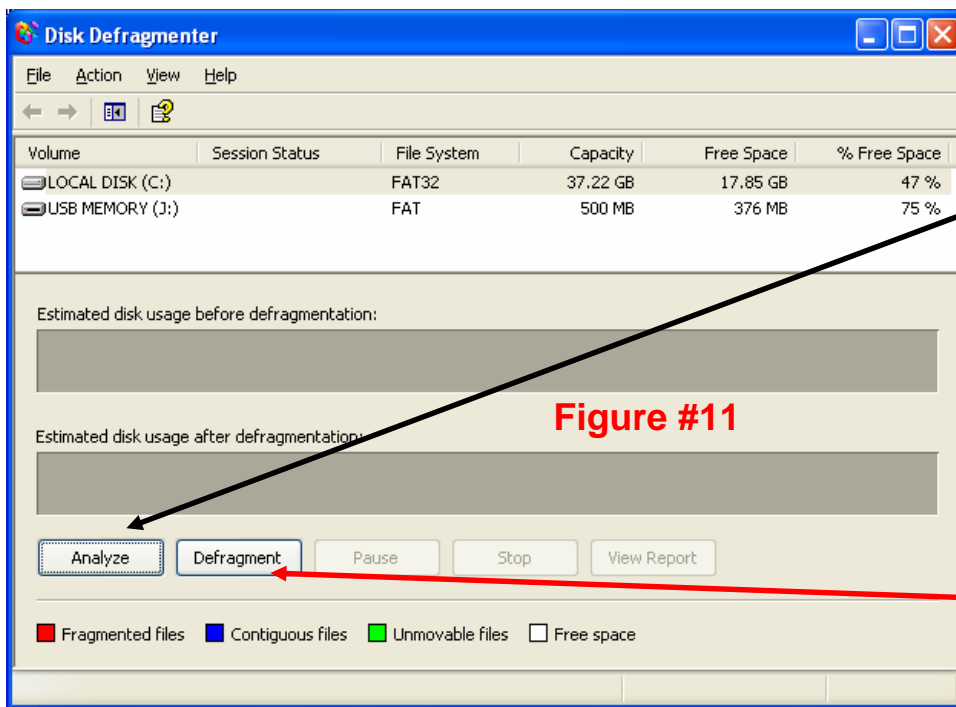
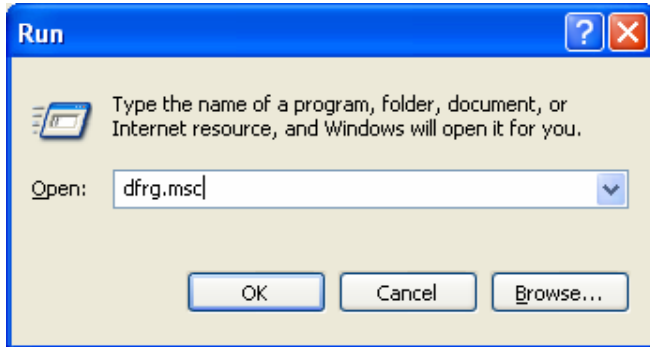
### **VERY IMPORTANT!!**

Any programs that start out with “Windows” should be left alone and also any programs that refer to equipment you have installed or your Anti-virus program should be left alone. If you are not sure as to which are the equipment programs, refer back to Section #2.

## Step 4 – Part D – Defragmentation Process

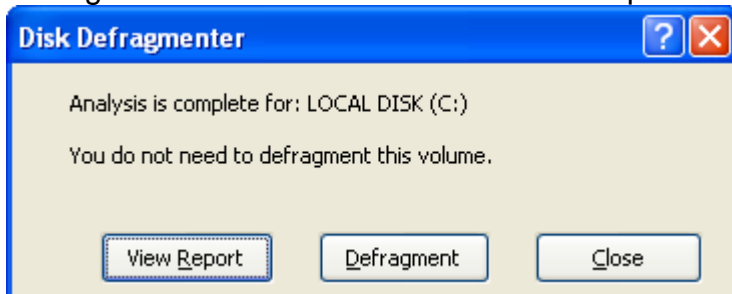
The last step in this process is to rearrange the files and place them where they need to be on files during the running of a program.

In the Run Command box, type in the command as shown and press OK.



When this screen appears, it is advisable to click on the Analyze button first. This way the computer is able to analyze whether or not the Defragmentation process really needs to be run. If it states that this drive needs to be defragmented, then click on the Defragment button.

If this screen appears, click on the Close button. Then click on the Red X in the Disk Defragmenter screen to return to the desktop.

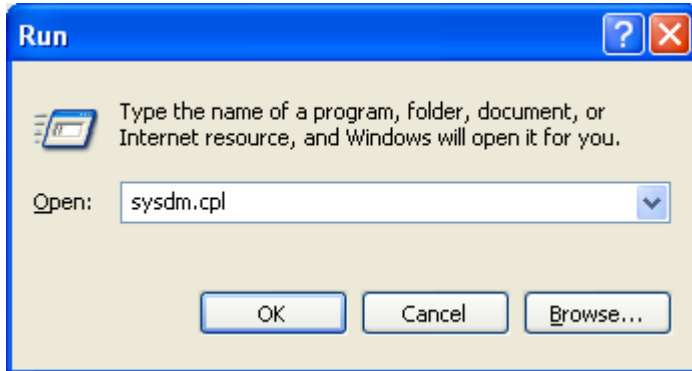


## Step 5 – Protect the System

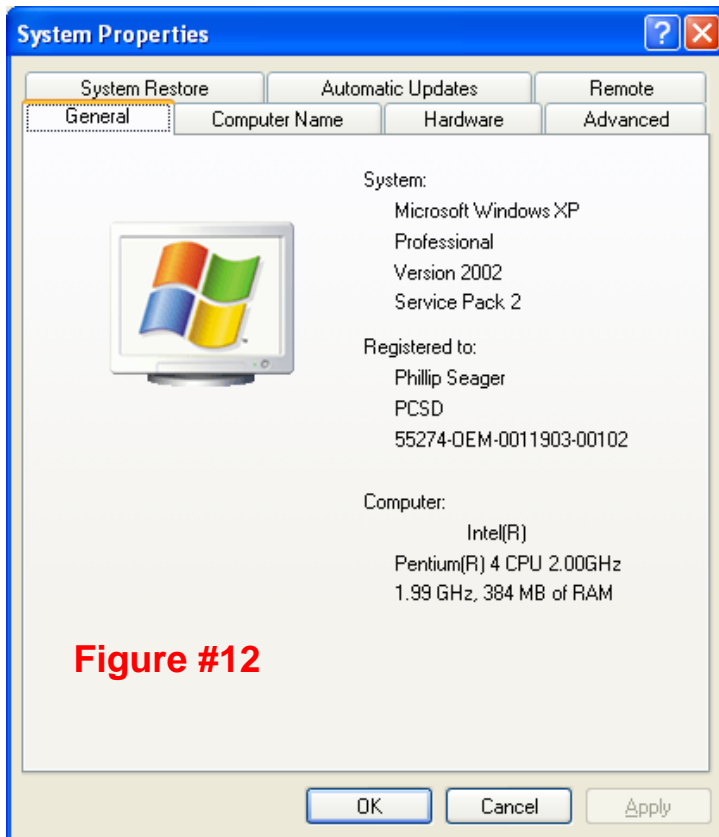
Now that all of the analyzing, cleaning, and eliminating has been completed, it is time to protect the system from future problems. Running 2 processes called the System Security Control Panel and the System Properties Control Panel does this.

### Step 5 – Part A – Updates & Restoration

In the Run Command box, type in the command as shown and press OK.



This will start the System Properties Control Panel and will bring you to this screen

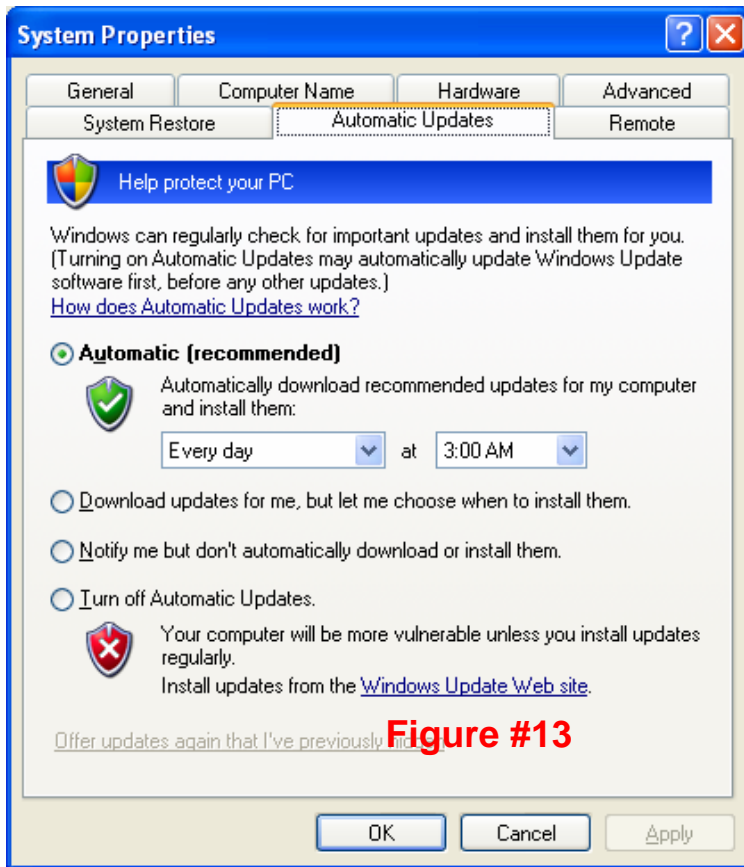


**Figure #12**

Although there are many tabs (choices/menus) shown here the 2 we are most concerned about are the **System Restore** and the **Automatic Updates**.

We will start with the Automatic Updates first.

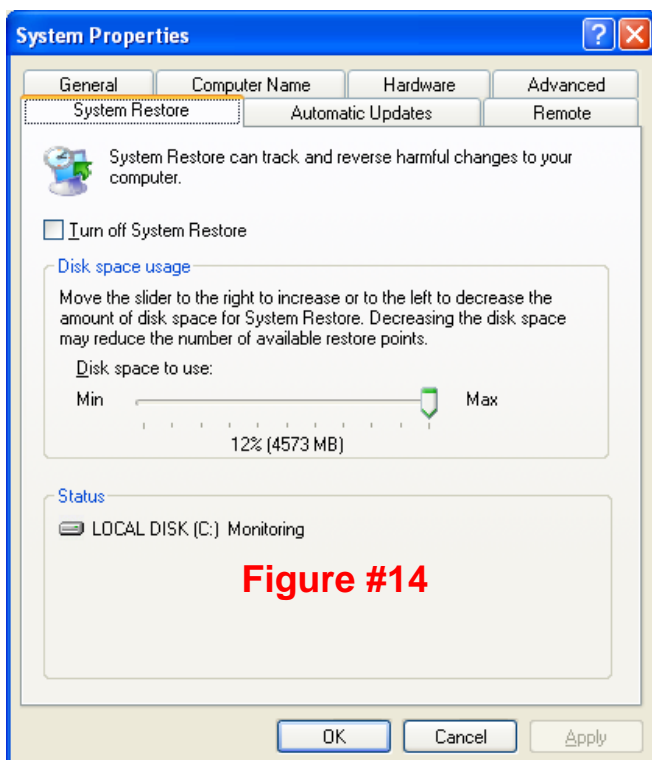
Click on the Automatic Updates tab.



The most important thing here is to make sure that one of the 1<sup>st</sup> three buttons is selected. The top one is usually the easiest for your machine. Then choose a day and a time for updates.

**Windows updates are EXTREMELY important for keeping you system protected.** It provides updates for system files, program files, security fixes, Internet fixes, tools for removing malicious software, etc.

Now click on the System Restore tab

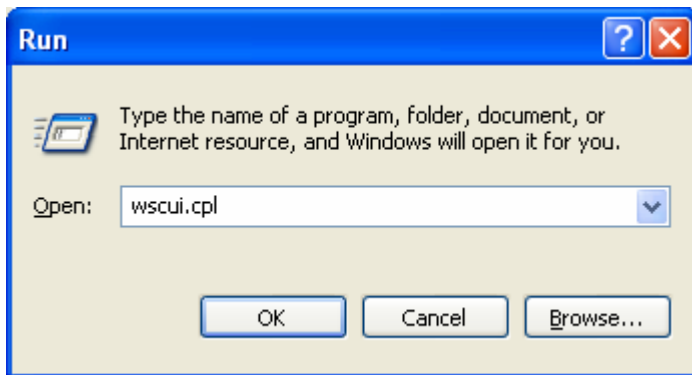


Make sure that the Turn off System Restore box is unchecked. If it is checked, uncheck it then click on Apply, then OK.

Should you have problems in the future, this will help restore your settings to a time when everything worked great as it should be!!!

## Step 5 – Part B – Enabling Security

In the Run Command box, type in the command as shown and press OK.



This will start the Windows Security Control Panel.



**Figure #15**

The **Windows Security Control Panel** will show you how secure your computer is by monitoring the **Windows Firewall**, **Virus Protection**, and **Windows Automatic Updates**. It will tell you if your Firewall is working, if Automatic Updates are turned on, and if your Virus Protection program is up-to-date.

If one or more elements are at risk, you can click on the Recommendations button to choose other options, such as “I have a firewall solution that I will monitor myself” or “I have a virus Protection program that I will monitor myself.” Some of the newer versions of the Anti-Virus programs have built-in Firewall Monitoring solutions, but this author recommends using the Windows version available through the above step. The choice is always up to you, but at least you have a program that can monitor the situation for you and alert you to any problems.

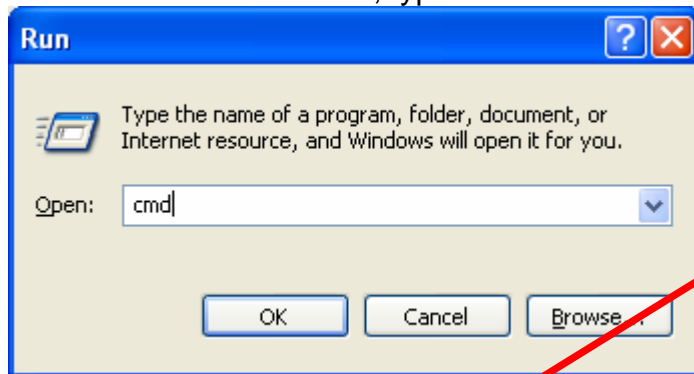
## Step 5 – Part C – Repairing the Firewall

If you are a frequent Internet user, it is imperative that you have the Windows Firewall enabled to stop outside “hackers” from accessing your machine.

If you experience problems with the Windows Firewall not working and you are an XP user with Service Pack 2 installed [see Figure #12 above] you can easily rectify the problem using the solution that follows.

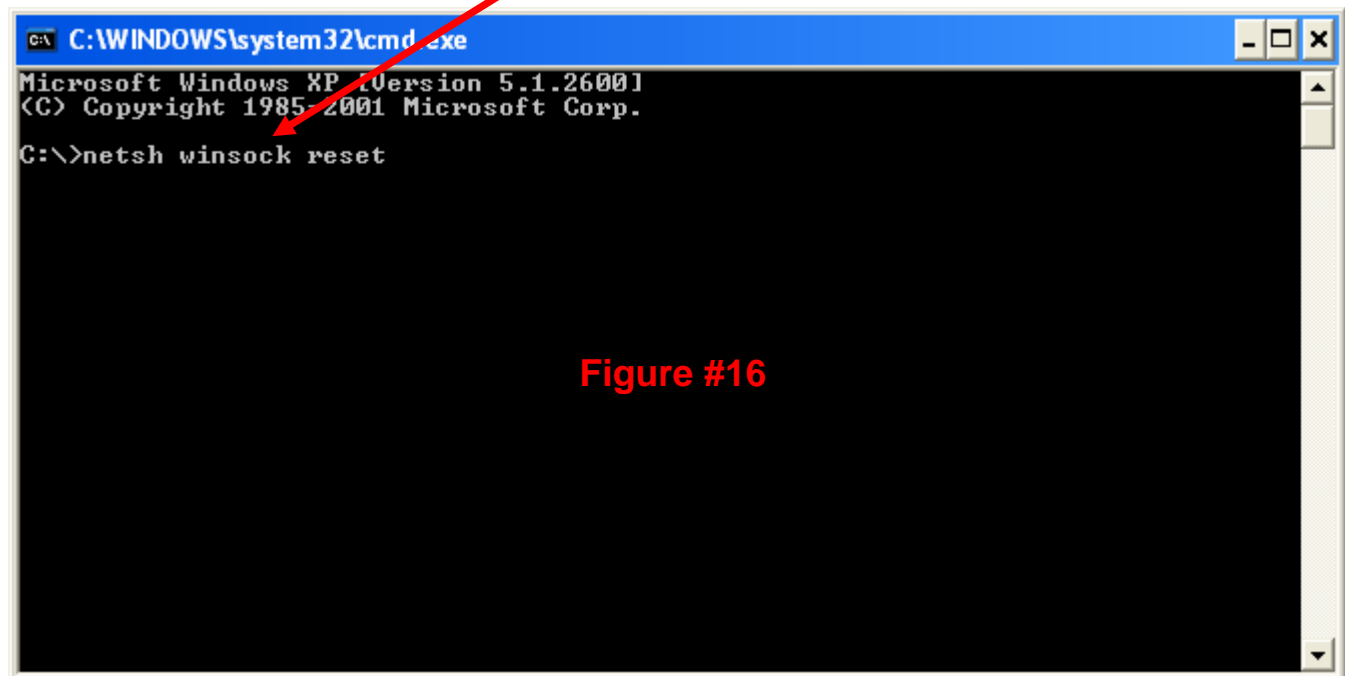
NOTE: Usually when you encounter problems related to the Internet [downloads that produce viruses, spyware, and system problems] the Firewall is affected. Under normal circumstances, the Firewall and the Internet connection work together to provide security for your computer. When the problems start occurring, the link between the Internet Connection and the Firewall is broken and then is in need of repair. Follow this procedure:

In the Run Command box, type in the command as shown and press OK.



This will start the Command module.

At the C:\ prompt shown, type in the words exactly as shown and press the ENTER key on your keyboard. Then restart your computer.



**Figure #16**

This repairs the connection between the Firewall and the Internet devices. To see if this worked, see Figure #15 above.

**END OF TUTORIAL**