

## FUNDAMENTALS SESSION FOUR

Presented by Carole Gumbert 2008

### Unit 10. Adding new Hardware (I)

It is possible to add new physical components to our computer such as a modem or a new monitor. For the new component to work, our operating system needs to detect it. Usually, Windows will detect the new hardware automatically, but in the event that it does not, Windows provides us with the tool **Printers and Other Hardware** that lets us install the new hardware correctly.

Currently many of the components that we install incorporate **Plug & Play** technology. This consists of transferring all the responsibility to the operating system, thus the operating system is in charge of detecting the new hardware and installing the necessary programs for it to work properly. It also detects if we uninstall a component to free up space.

This is all possible because Plug & Play components incorporate common protocols that allow the operating system to communicate with them.

Many Plug & Play components can be connected and disconnected without having to turn the computer off, specially the ones that use the USB system.

The Plug & Play allows Windows XP to control their power use so that you can turn them off or minimize their power consumption when not in use.

When new hardware is installed, the computer needs the files that describe the hardware and allows the computer to communicate with it. These files are known as **drivers**.

When we buy a modem, for example, a CD is included that contains the drivers for the modem. When installing the modem, the operation system asks you to insert the disk in order to copy the drivers.

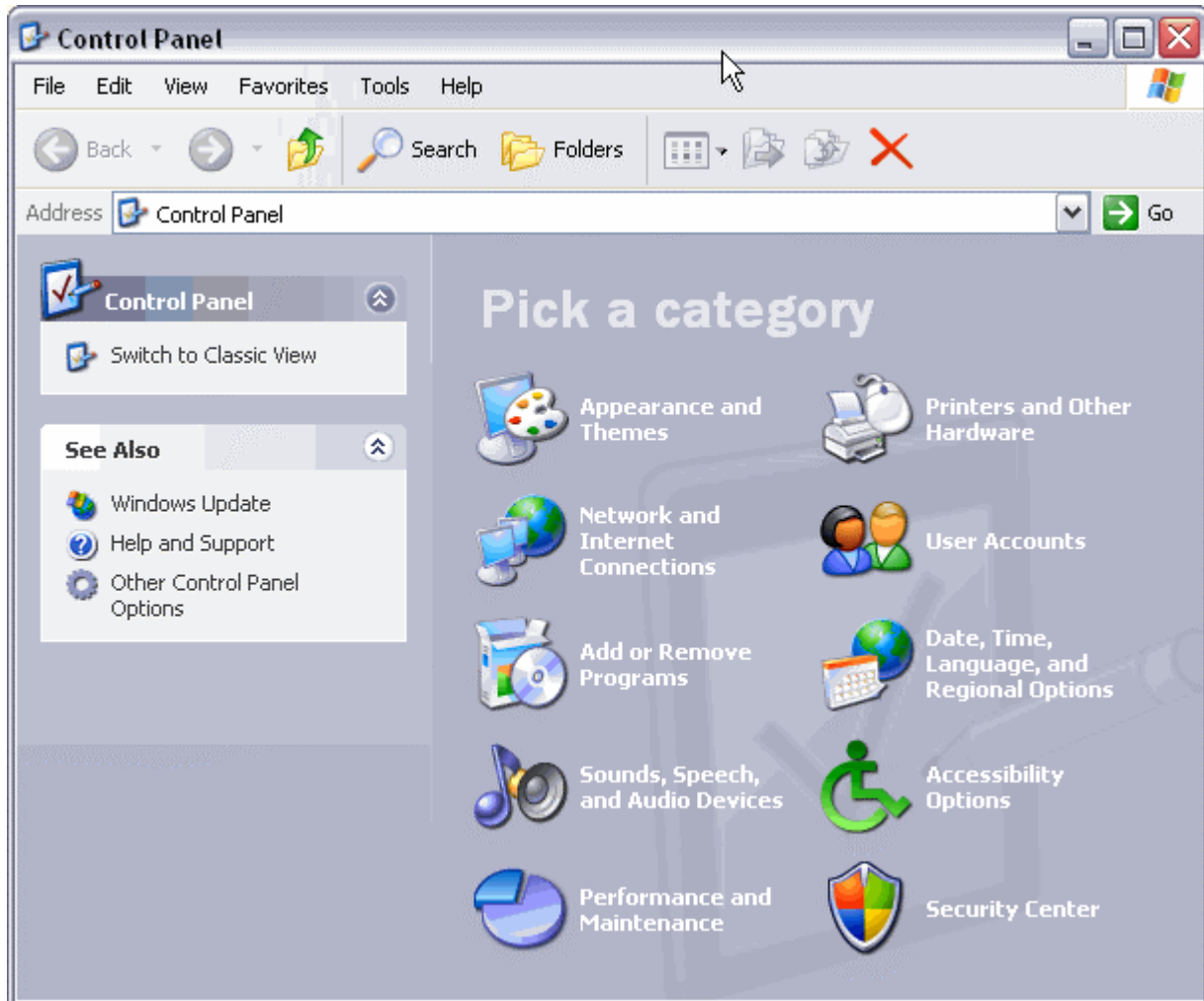
Windows XP already has the drivers for the most commonly used equipment. There are thousands of hardware manufacturers, so it is impossible for Windows to have all the drivers in the install CD. Sometimes it will not be necessary to insert the disk provided by the manufacturer.

In addition, WindowsXP is capable of going online to search for driver updates through Windows Update.

Two things can happen when we add new hardware to our computer. The component is "Plug & Play" or it is not. In the first case simply connect the hardware and Windows will recognize and install it automatically. The "Plug & Play" elements are conveniently labeled, but in case of a doubt, we can find out by plugging it into the computer. If the window recognizes it, this means it is "Plug & Play". If it does not recognize it, it is not "Plug & Play".

We need to install it manually if the element is not "Plug & Play". For this reason we are provided with an assistant, which we will discuss shortly.

Generally speaking, once having installed a hardware element we may need to access it. This is done through the control panel. It is a good idea to be familiar with these options, because we may need to delete a driver and modify some of its characteristics



From the **Start** menu access the **Control panel**, and as you can see above, there are various options for configuring hardware. Windows XP has divided the hardware into various groups, and there are different ways to configure each group.

These groups are: Network, Sounds, Printer and other hardware, etc.

In this unit we will discuss how to add elements that are not Plug&Play and how to add a digital camera. Then we will discuss printers and networks.

To install a new element the first thing you need to do is to connect it to the computer, unless it has a USB cable, and turn it off. For many hardware elements it is not necessary to open up the computer. For example, in order to connect a mouse, screen, printer, or scanner we simply need to plug in the cables to the corresponding ports on the PC. In the majority of the cases there is no confusion because of the fact that a given cable will only fit into one designated port, and they are also color coded.

In other cases, such as installing a sound card or a hard drive, for example, it will be necessary to open the computer and look for the corresponding slots. In these cases refer to the instructions provided by the manufacturer

Once everything has been placed where it needs to go, turn on the computer, keeping in mind that a few different things can occur.

**a) The operating system recognizes the new hardware element.**

Windows will begin to install the hardware and we will not have to do anything more. In some cases it may ask for the CD with the drivers.

**b) The operating system does not recognize the new hardware element.**

This will be obvious because nothing will happen.

In this scenario, there are two possibilities:

**b.1) We have the CD with the drivers.**

Insert the CD and the installation process will begin. Follow the instructions that become displayed. If this does not happen look for a file like install.exe, instalar.exe, setup.exe, setup.bat and double-click on it so that the installation will begin.

**b.2) We do not have the CD with the drivers.**

In this case we should follow the process that is explained in the following point. Through this process Windows can find the driver needed.

If this does not produce any results, the only thing left is to personally look for the drivers on the manufacturer's web page and download them to our hard drive. From there on follow the steps starting with b.1)

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## **Adding hardware**

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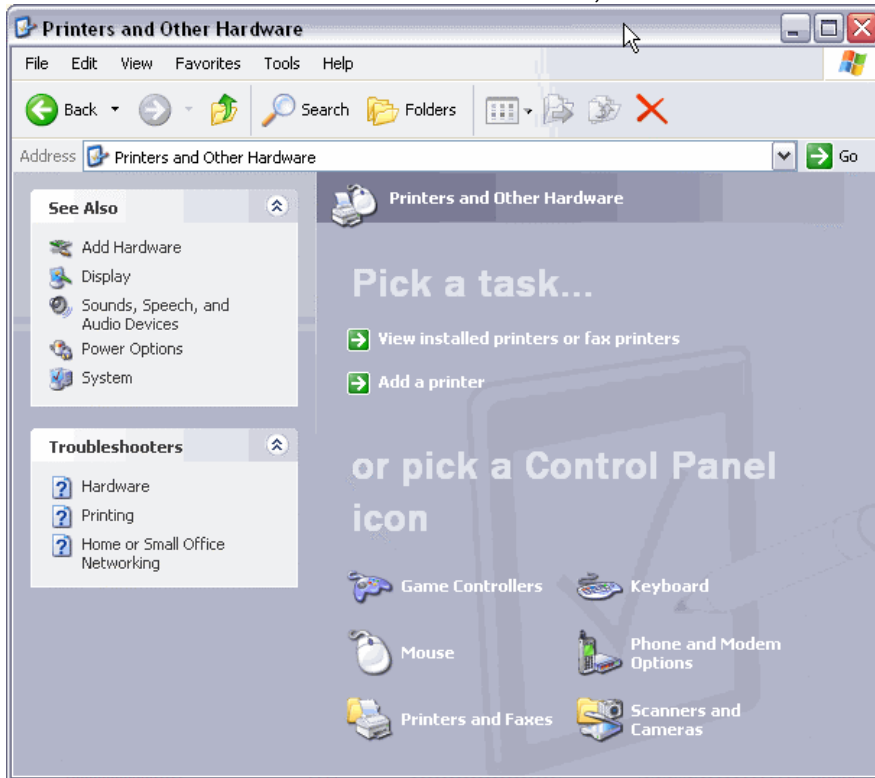
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**Adding hardware that is not Plug&Play**

To add a hardware element that has not been automatically recognized by the operating system or an element that we do not have the drivers needed to install it, Window offers the following option.

From **start** choose **Control Panel**, double-click on **Printers and Other Hardware**, and a screen like the one below will appear.



Now click on **Add hardware**, ( on the left of the window ) and the first window of the assistant will appear, as you can see on the next page.

In order to detect the installed hardware, Windows uses an assistant to facilitate the installation of any physical components.


On this first window the wizard will ask if we have the CD with the appropriate drivers. If we do, it recommends that we close the assistant. To continue, follow option b.1 from our last point.



If we want to continue with the assistant click **Next**.

Once the assistant has started, it will try to detect the hardware automatically. If the hardware is not Plug&Play, it will not be able to find it and we will need to ask it to show a list to indicate the type of hardware we are referring to. (mouse, modem, graphic card, etc). Next a screen will appear like the one shown here displaying the models of the selected hardware.


Once the model is selected and you have clicked on **Next**, the driver will be installed.

This process consists of several steps that we have summarized. If you would like to see the details click here 

### Installing a camera


WindowsXP allows you connect a myriad of hardware easily. As an example we are going to see how to connect a digital camera.

There are constant improvements on digital cameras. Being able to directly connect the camera to the computer is one of these improvements. To do this, select **Control Panel** from the **Start** menu and click **Printers and Other Hardware**. Next click on **Scanners and cameras**, and then on **Add camera** (you will find it on the left side of the screen). The assistant will start; simply follow the steps to complete the installation.

If you want to see this unit in detail click this icon. 

### Updating the drivers with Windows Update

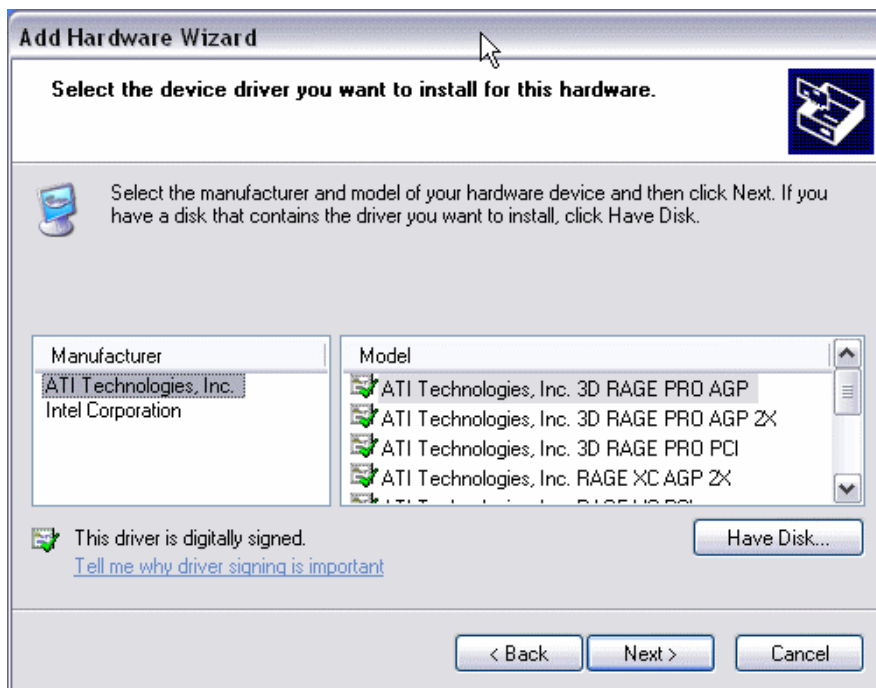
When we want to check if there are updates for the drivers, we can look on Microsoft's web page which is in charge of this matter. To do this select the **Control Panel** from the **Start** menu and click on **Windows Update** (you will see it on the left of the Control Panel). From here on out follow the instructions that you will see on the web page. Windows will show you the updates available, so you can choose the ones you wish to install. When a manufacturer detects a flaw in one of their drivers, the manufacturer will usually correct it and place the new version on the Internet so that the users can download it. Many manufacturers inform Microsoft so that it can include these updates on its web page. To be able to use this option you need an Internet connection

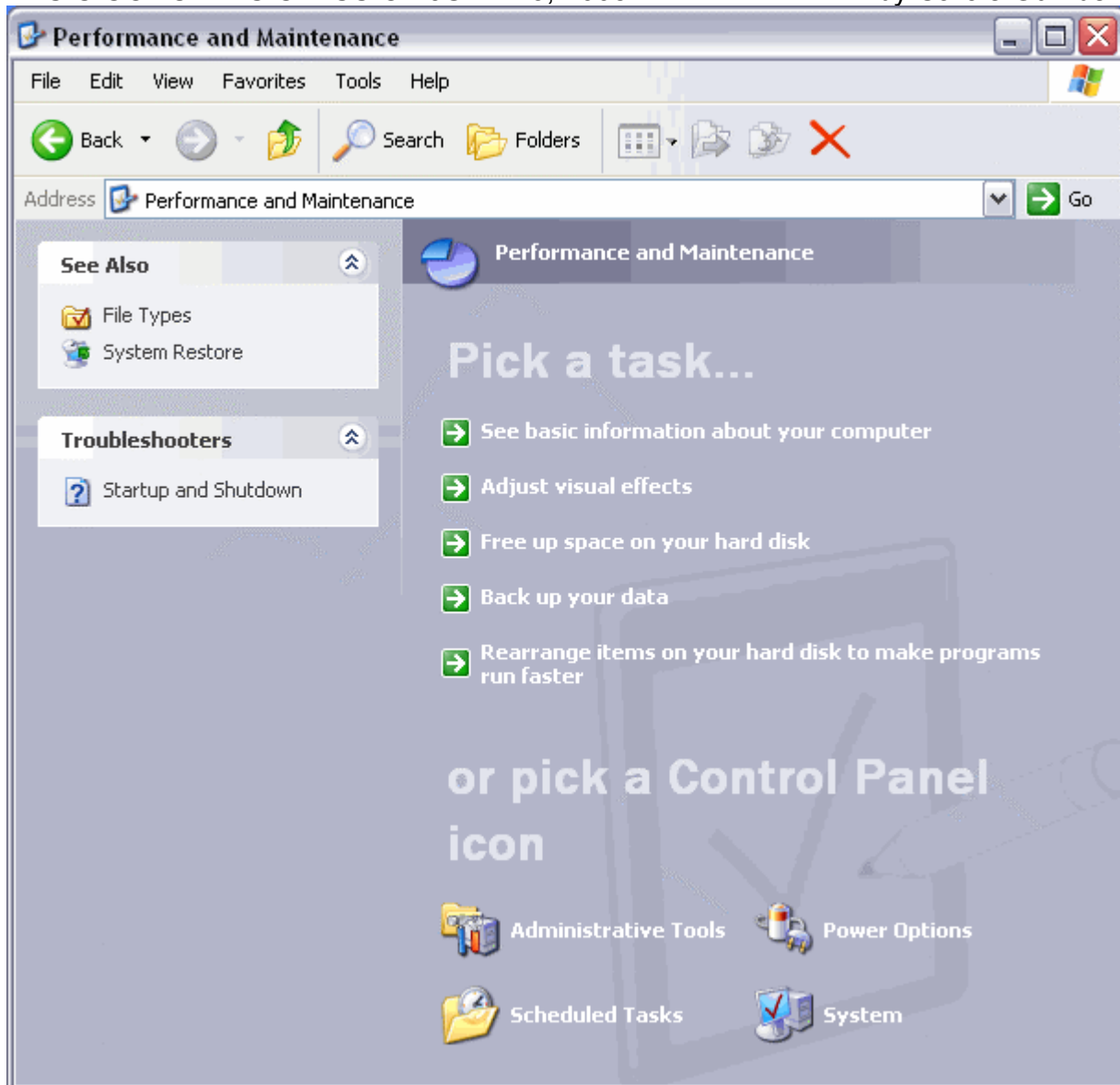
If you want to see an example with Windows Update in detail, click on this icon. 

### The state of the Hardware

When a piece of hardware stops running correctly we can check its state through the information that Windows provides us. Sometimes the piece of hardware can work properly from a mechanical point of view but its driver is not well installed, thus not allowing the hardware to function properly.

To see the state of the hardware of our system, select the **Start** button and click on **Control Panel** and then click on **Performance and maintenance**. You will see this screen.



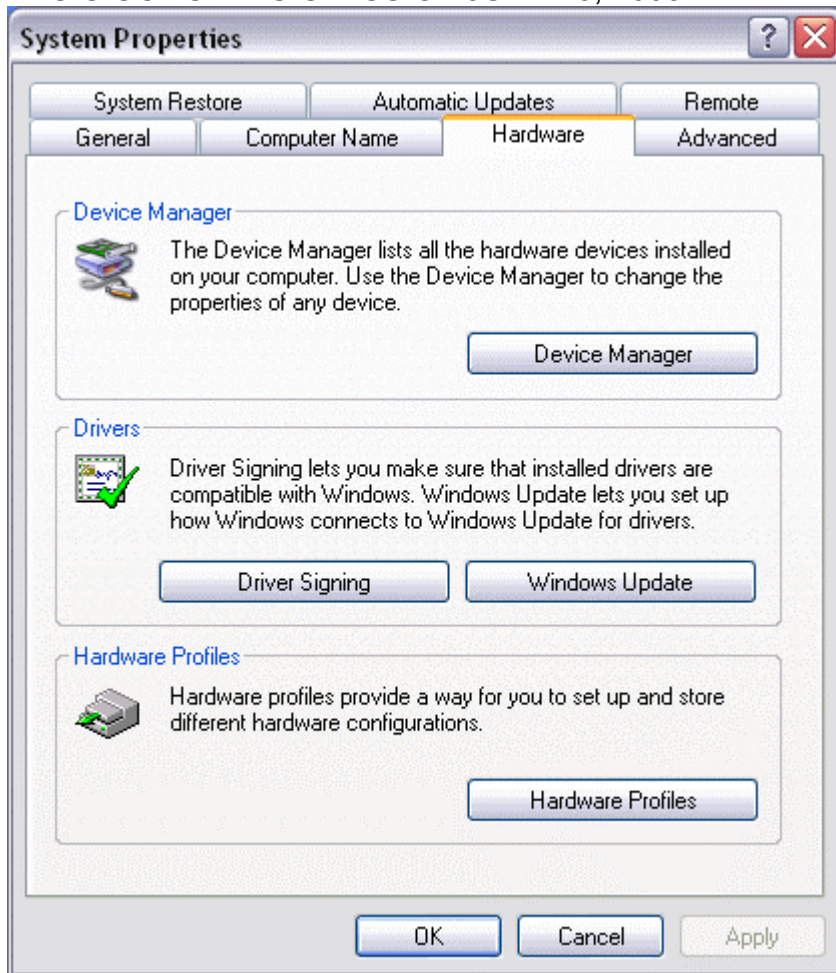


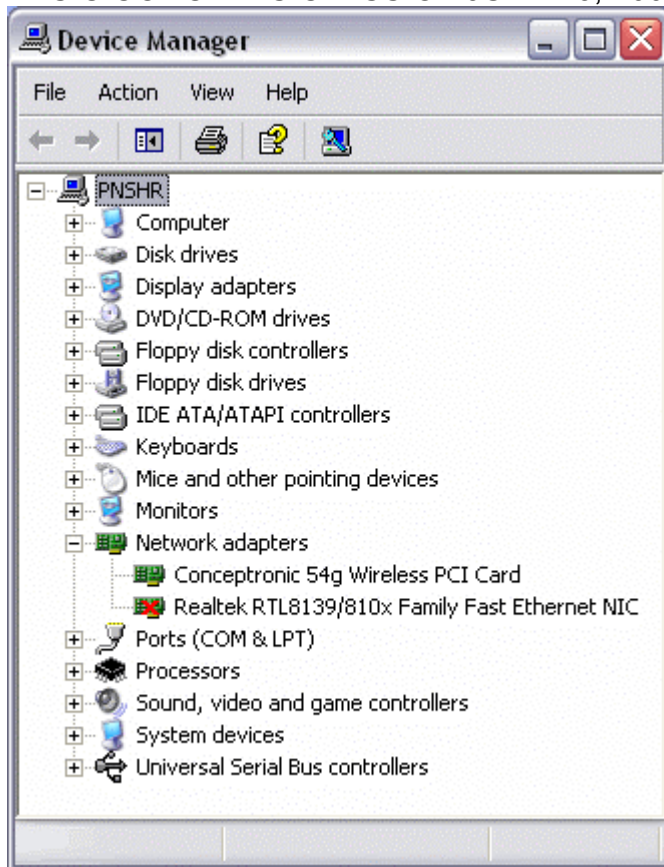
Click on **See basic information about your computer.**

The **System properties** window will appear with the **General** tab selected. On this tab we can see generic information about our system, such as what processor is installed, etc.

Click on **Hardware** to view this screen.







On this screen the **Device manager** shows us a list with all of the hardware installed on our computer.

This list contains the hardware by type. For example, in Screen adaptors we have information on the graphics card, in Network adaptors we will find information on the network cards installed.

To see the content of each type click on the + on the left.

For example, we have opened the content of Network adapters hardware and it shows us two network cards, one of them does no work correctly.

The most interesting thing about this list is that it **shows us the state of each piece of hardware**.

If there were an error with any hardware, a yellow question mark would appear to the right of it or a red cross as you can see.

When a piece of hardware is not working properly we can try to fix it from this list. To do this double-click on the piece of hardware that is not working and the window shown on the next page will appear.

## Unit 10. Adding new Hardware (V)

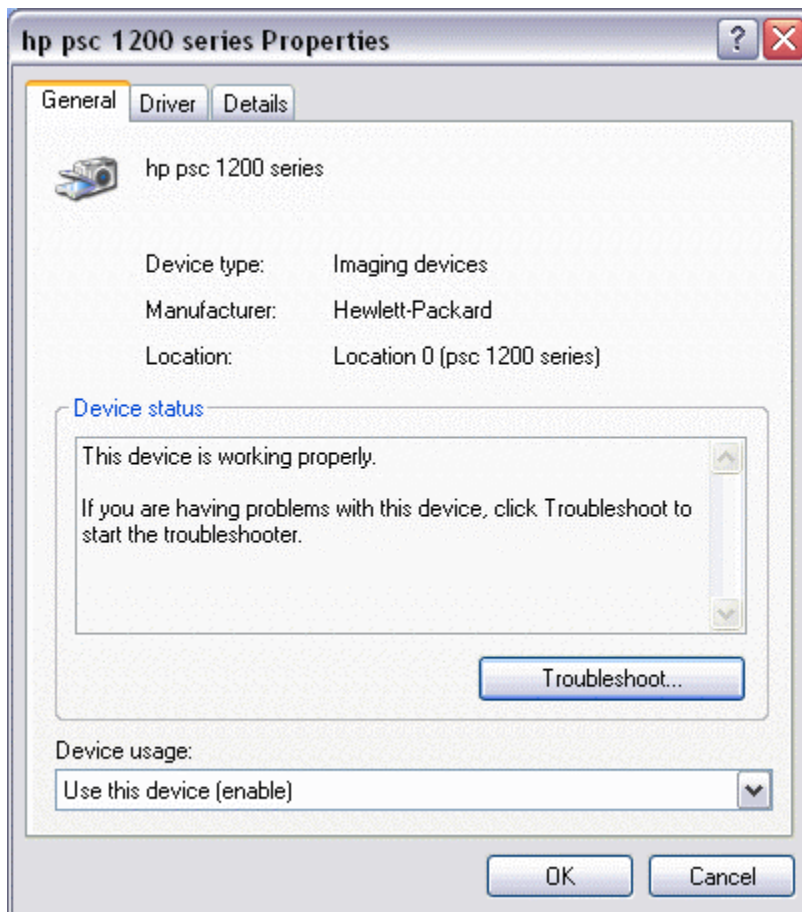
We are in the **General** section, which gives us general information about the camera.

In this case we can see that the hardware is working properly, but in the event it were not, we could click on **Troubleshoot...** and this would take us to the *Help center and technical support* window where we can launch a scan to find the problem.

Nonetheless, when a piece of hardware is not working properly it is very probable that it is due to some drivers installed improperly or not updated.

We should therefore click on **Driver** tab to try to fix the problem ourselves

This is the *Properties* screen for the *HP psc 1200 series scanner*.



On this screen we have the basic information on the driver and the button **Driver Details...** which will show us more information.

As we mentioned before, it is possible that the problem will be solved if we install a more recent driver. To do this click on **Update Driver...** this will launch an assistant similar to the ones we have talked about.

If the problem is still not solved by this point we can uninstall the driver and reinstall it. To do this click on **Uninstall**. Even though many times we cannot explain why uninstalling and reinstalling solves some problems.

## Unit 11. Configuring the Printer (I)

The printer is one of the most used peripherals. In this unit we will learn how to install

and configure a printer.

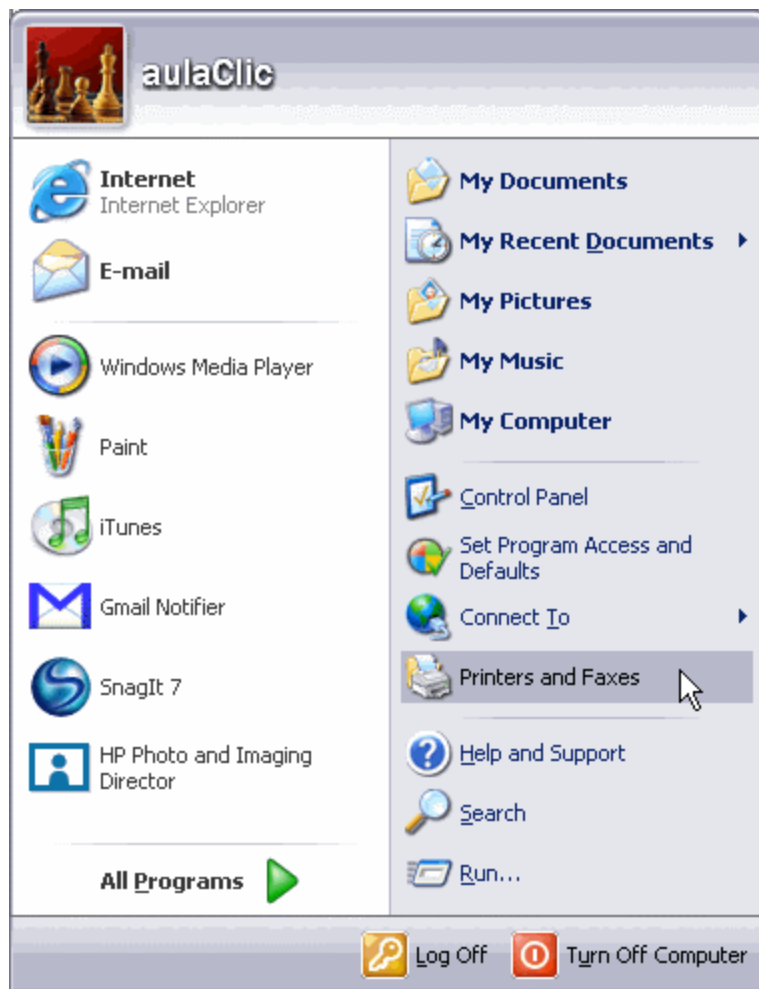
### Installing a Printer

As we have already seen in the unit before, it is very easy to install new hardware, such as printers, since the majority use Plug&Play technology. This allows the operating system to recognize the new printer by simply plugging it in.

Nevertheless, in some cases we may need to do the process manually. When we plug a printer into our computer it is necessary to install the appropriate drivers so that our computer will recognize it.

Next we will learn to install a printer manually and to customize it to our needs.

A screen like this one will appear.

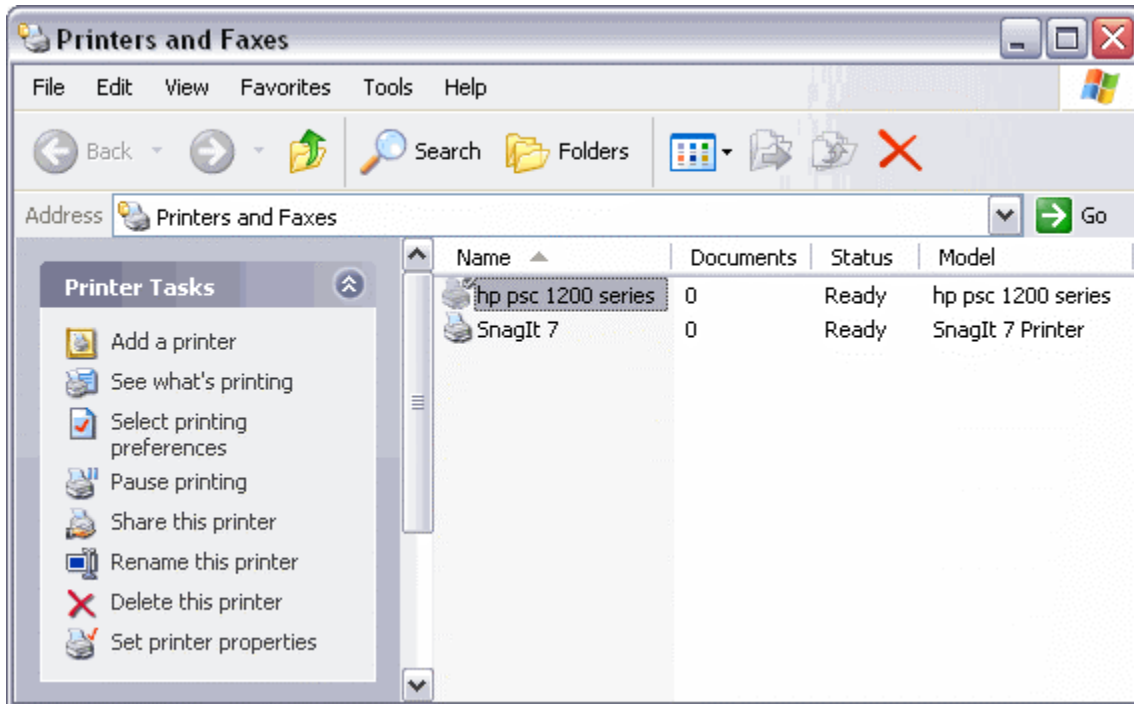


Open the **Start** menu

Select the option **Printers and Faxes**.

If you do not have the option **Printers and faxes** on your **Start** menu, you can also reach it through the **Control Panel**, option **Printers and other hardware**.

A screen like this one will appear.

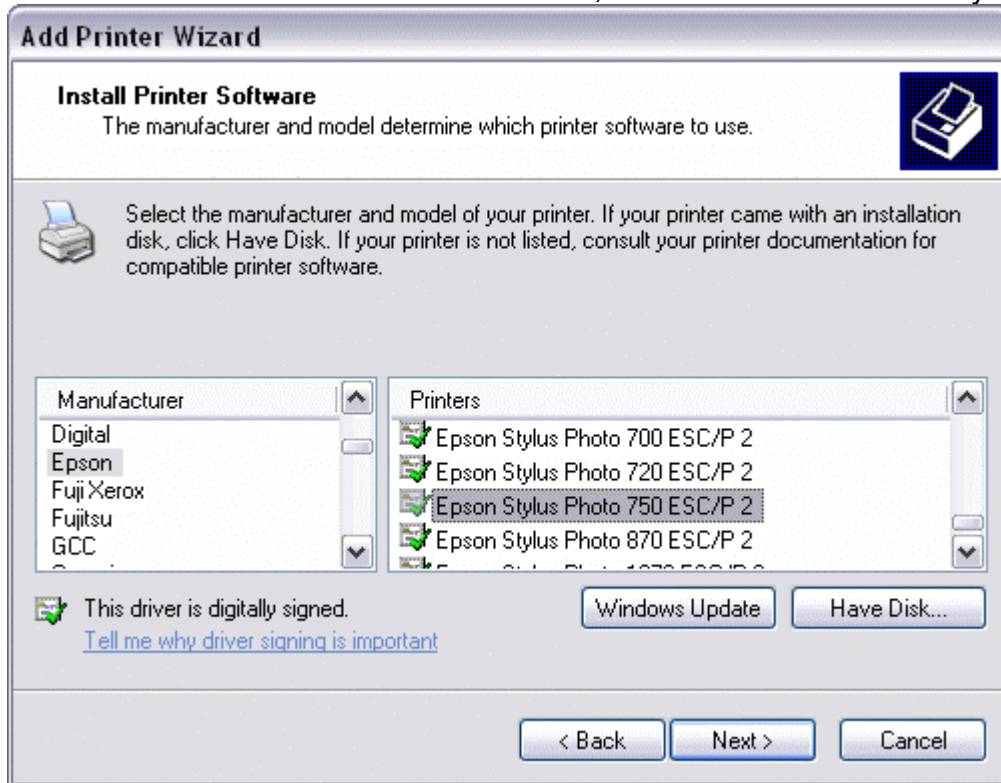


If you select a printer on the contextual panel to the right it will show you the options that you see here: **Add a printer**, **See what is printing**, **Select printing preferences**, etc.

These tasks are the ones that are usually needed to handle a printer.

Now, click on the icon **Add a printer** to launch the assistant that will help you install a printer.

The assistant will be asking you questions such as if your printer is connected directly to your computer or if it is on the web, to which port it is connected to, and then a screen like the one shown below will be displayed so that you can choose the manufacturer and the type of printer so that Windows can install the appropriate software.



You can also use the disks provided by the manufacturer, if you have them, or search for the drivers through Windows Update.

## Unit 11. Configuring the Printer (II)

### The Print Manager

The print manager shows the documents that have been sent to the printer. Through the print manager we can cancel or pause a document to be printed.

To manage the print manager you need to open the appropriate window in the following manner:

Go to **Printers and faxes** from the **Start** menu.

Click on the printer that you would like to manage.

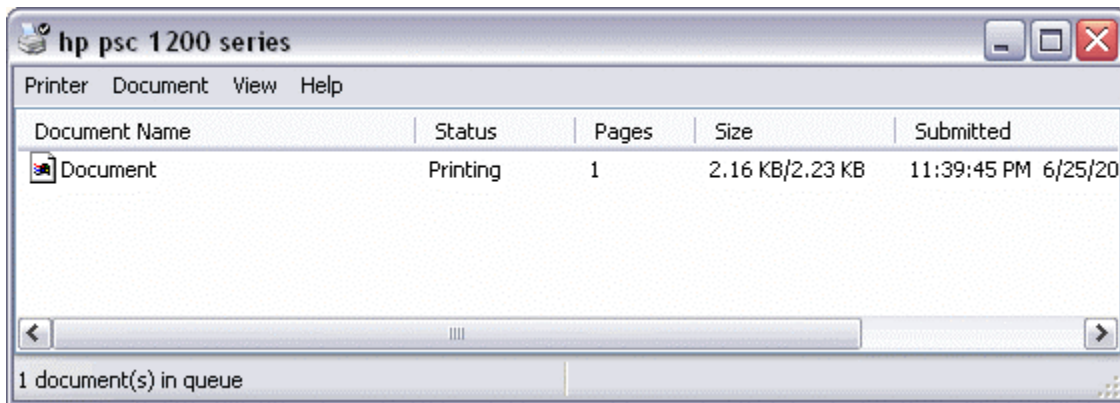
On the left hand panel select **See what is printing**. This will open a window where a list of the documents being printed or waiting to be printed will appear.

The print manager is very useful because we can cancel a document if we do not want it to be printed.

It is possible to restart a print job that has been stopped by turning the computer off or by pausing the documents to give way to other more important ones.

When we send a document to print, the printer icon will appear in the notification area on the bottom right of the screen. Usually an icon will also appear. depending on the

From this icon you can also open the print manager .



If you choose the assistant it will ask you the necessary questions to configure the network, if you choose not to configure the network it will ask you the name that you want to give the shared printer.

Through the printer properties we can control the orientation of the paper, the number of copies to be printed, etc. Next we will explain in detail all of the options.

This window can vary according to the type of printer that we have installed, but all of them have more or less the same appearance and options.

In the **General** tab we have the following:

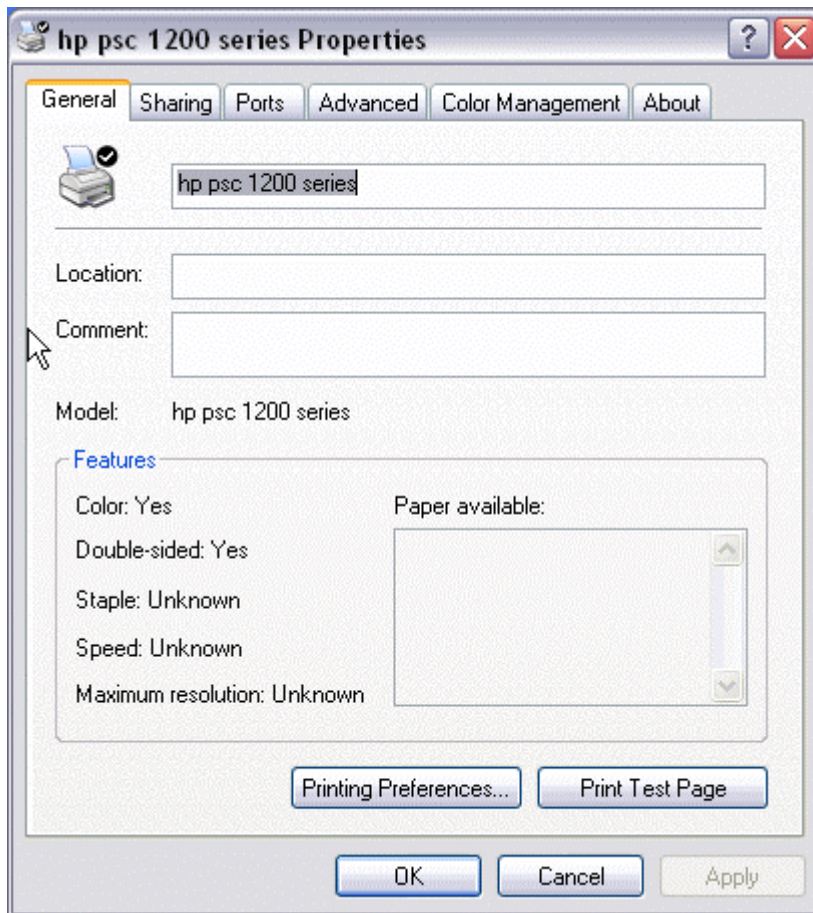
In the sections **Location** and **Comment** we can write a brief description of the printer.

Next we can see the characteristics of the printer and on the bottom part we have two buttons.

The **Printing preferences...** button shows some windows that will be shown next.

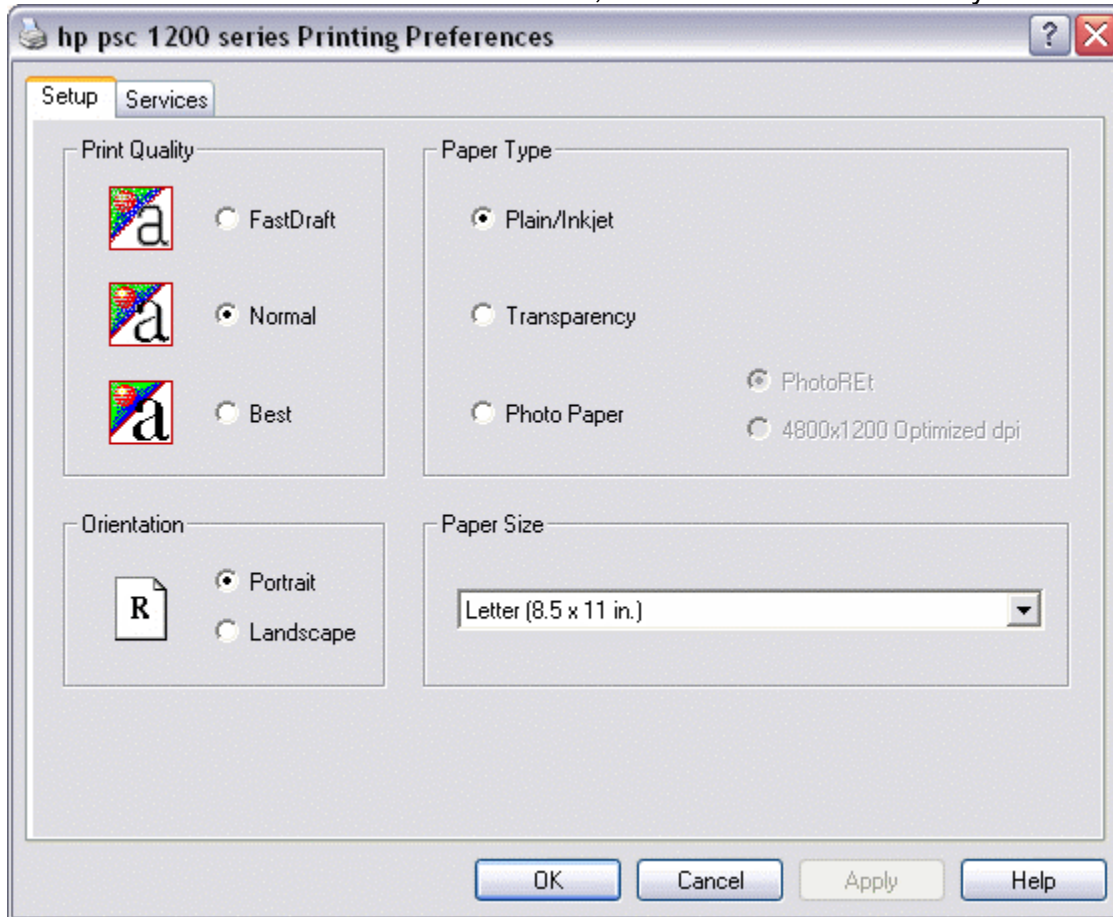
The second option allows you to verify that the printer prints correctly; to do this, simply click **Print test page**.

After this, another dialog box will appear asking if the test page has printed correctly; in the event the answer is **no**, help will appear to try and help you solve the problems.



On the screen **Printing preferences** click on the **Setup** tab, from where we can control the following options





**Orientation.** The orientation of the page can be **portrait** or **landscape**.

**Print quality.** This refers to the quality of the print, whether it is **Best**, **normal**, or **FastDraft**

**Paper Type.** Choose among different paper qualities.

**Paper Size.** This refers to the size of the paper you are using on your printer.

These options, like all the rest, can vary with the model of the printer that we have installed.

These images correspond to the properties of an **HP psc 1200 series** printer. The properties of your printer can vary, but the basic options will be the same.

## Unit 12. System Tools (I)

Windows incorporates certain tools such as the Disk Defragmenter, the Disk Cleanup the tool to free disk space, the Scheduled Tasks, etc. Almost all of these tools are designed to optimize the behavior of the computer.

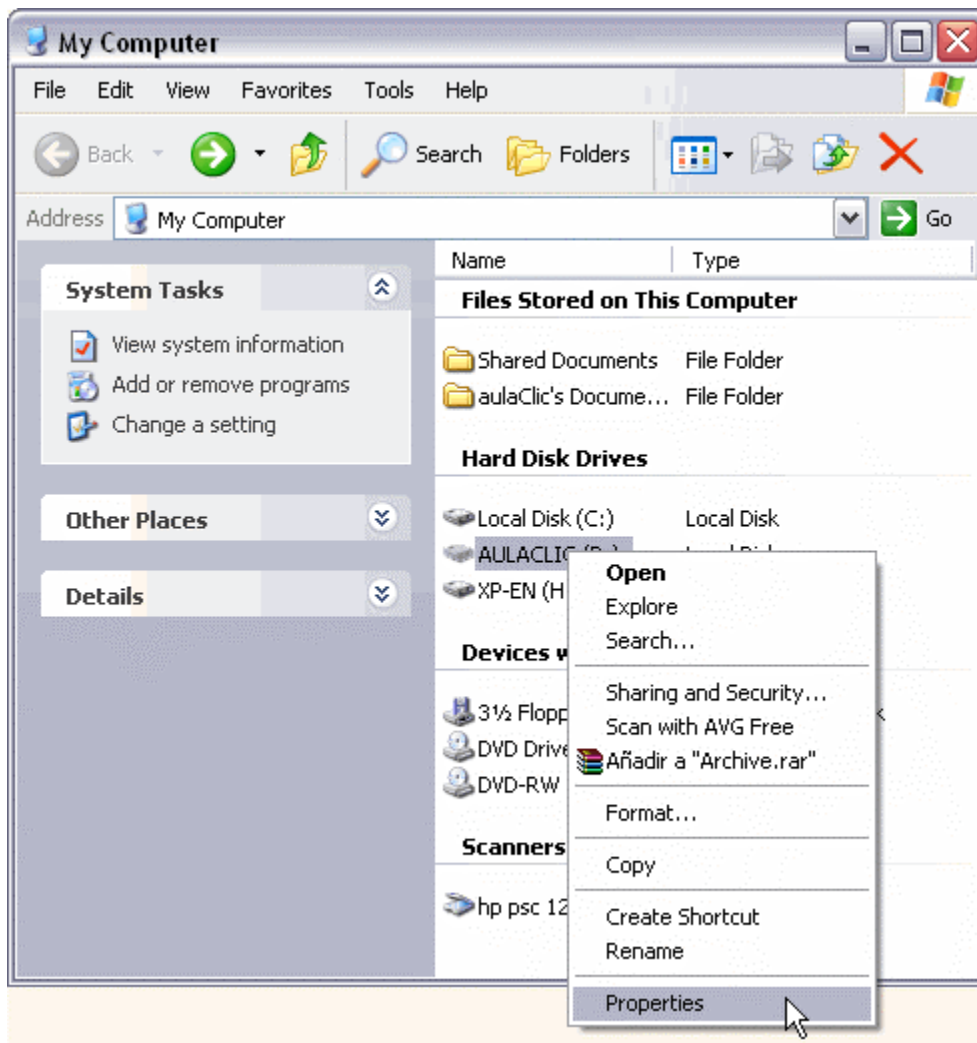
Next we will learn in more detail about some of the most useful tools.

### The Scandisk

This tool is used to **search errors in the system's units and to repair those errors.**

When the computer is turned off in an abrupt manner it is possible that some files may be damage. Normally when the computer is turned on after being turned off abruptly (without using the option **shut down** from the **Start** menu) the **Scandisk** is launched to check the system and repair any error that it may find.

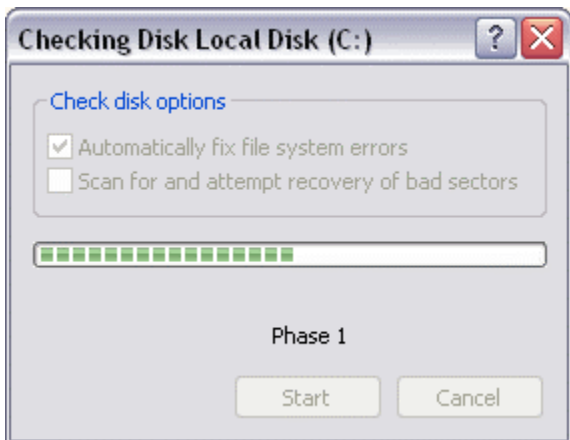
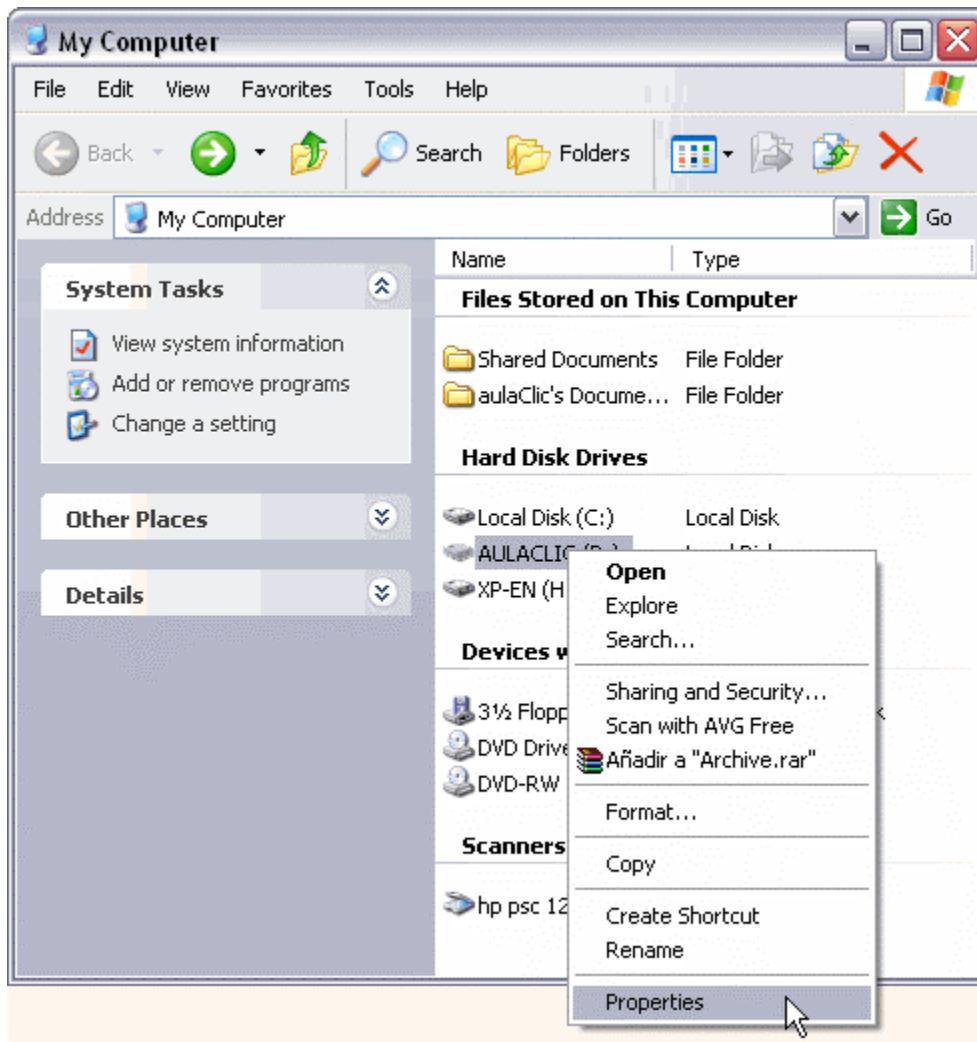
This tool is usually used when we have a damaged disk. By using it we can fix the possible errors and therefore retrieve the information that it contains. Keep in mind that this tool is not a miracle worker and therefore it is not always possible to retrieve the information



To open **Scandisk** click on the icon *My Computer* on the desktop, and the screen shown here will open up.

Now **select the unit** that you want to perform the scandisk on, for example unit (D), and right click it.

A shortcut menu will open, like the one shown select **Properties** from this menu.



Here you need to choose one of two options available: **Automatically fix file system errors** or **Search for and attempt recovery of bad sectors**.

Click on **Start** so that the scan can begin. This process can take a few minutes, depending on the size of the disk.

Once the scan has finalized a confirmation window will appear.

