

Computer Technology



PC Hardware and Windows XP Study Guide

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Introduction

St. Edward School
500 S. Merrill St.
Corona, CA 92882
www.stedwardeagles.com

This document is the study guide for the St. Edward School Computer Technology class and has been compiled and written by William Hahn. It is provided free of charge to the students of St. Edward School, Corona, CA. and is distributed in electronic format only. Students are responsible for any printed versions of this document.

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Introduction to PC Hardware

What is a Personal Computer?

A Personal Computer or PC is a **general-purpose** information processing device.

- It can take information from an **Input Device** (through the keyboard and mouse),
- or from a **Storage Device** (like a floppy disk, hard disk or CD).

Once processed, the information is:

- then sent to **Output Devices** (such as a monitor, or printer),
- and/or sent to a **Storage Device** (such as a floppy disk, hard disk or CD).
- Information can also be sent across a network for storage or sharing with other people.

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What are I/O Devices?

People interact with the computer using **input/output devices**, or I/O devices. The most common types of I/O devices are monitors, keyboards and a mouse.



Mouse – The mouse is is an Input Device and the primary device for navigating and interacting with the computer



Keyboard - The keyboard is an Input Device and is the primary device for entering information into the computer.



Monitor – Is an Output Device and is the primary device for displaying information from the computer



Printer – Is an Output Device and is the primary device for printing documents.

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What are Storage Devices?

To store information and programs, computers use **removable** and **non-removable** storage devices.

Removable storage - Removable storage devices allow you to add new information to your computer very easily, as well as save information that you want to carry to a different location.

Floppy disk

The most common form of removable storage, floppy disks are extremely inexpensive and easy to save information to.



CD-ROM (compact disc, read-only memory) is another common form removable storage

USB Memory Key

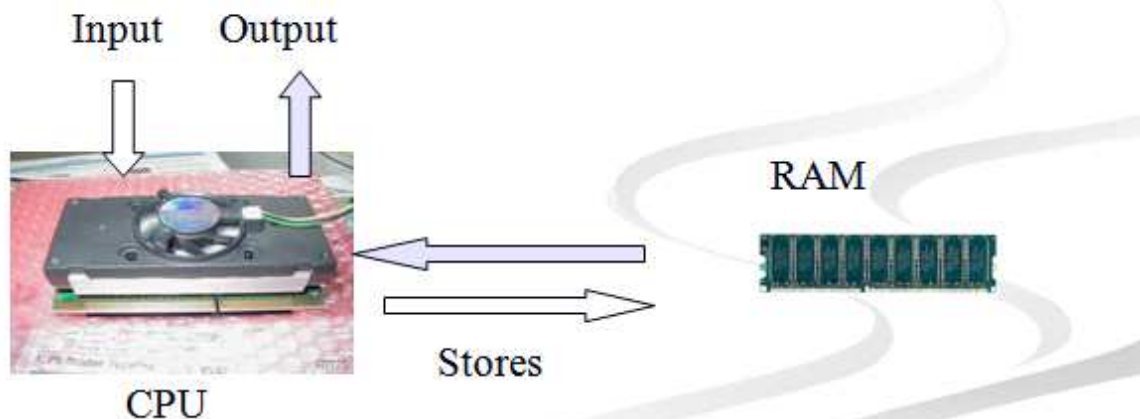


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What is Processing?

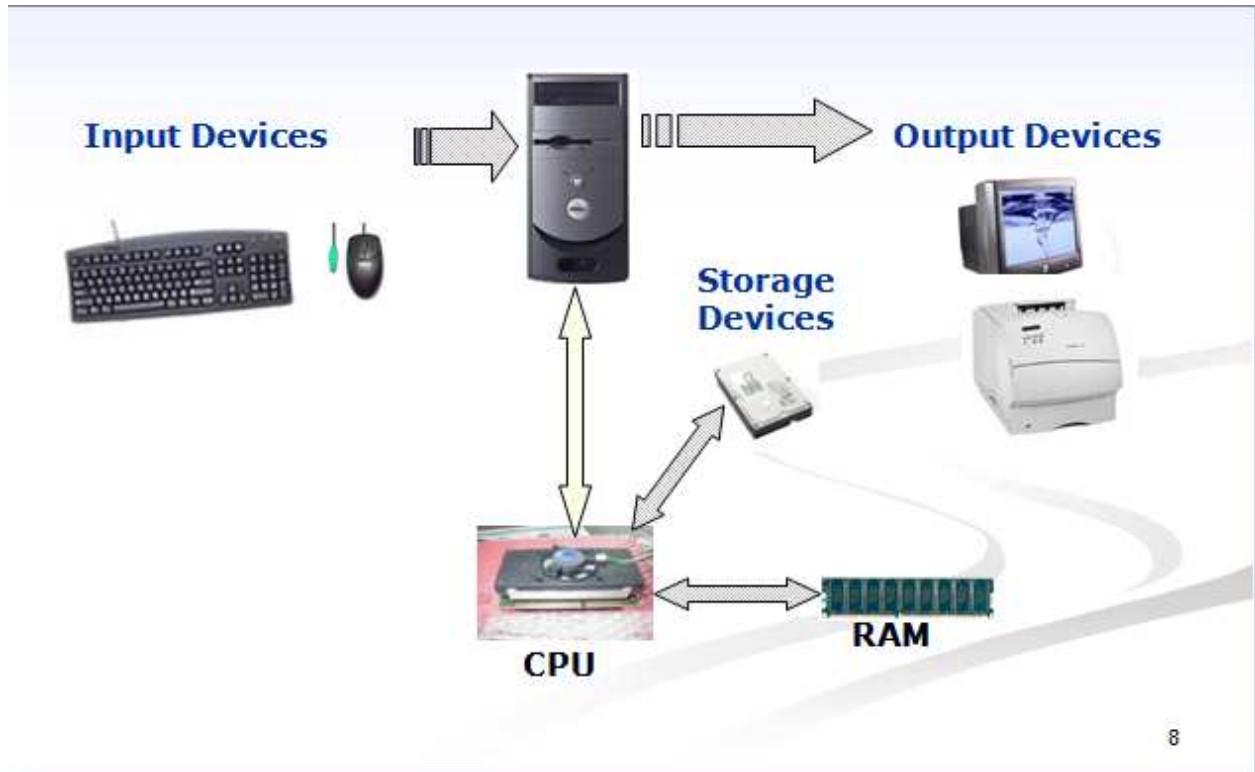
On the inside of your computer, a **CPU (Central Processing Unit)** controls all processing functions. Information from Storage Devices and I/O Devices is processed and temporarily stored in **Random access memory (RAM)**.

RAM is volatile memory and is erased when the computer is turned off.

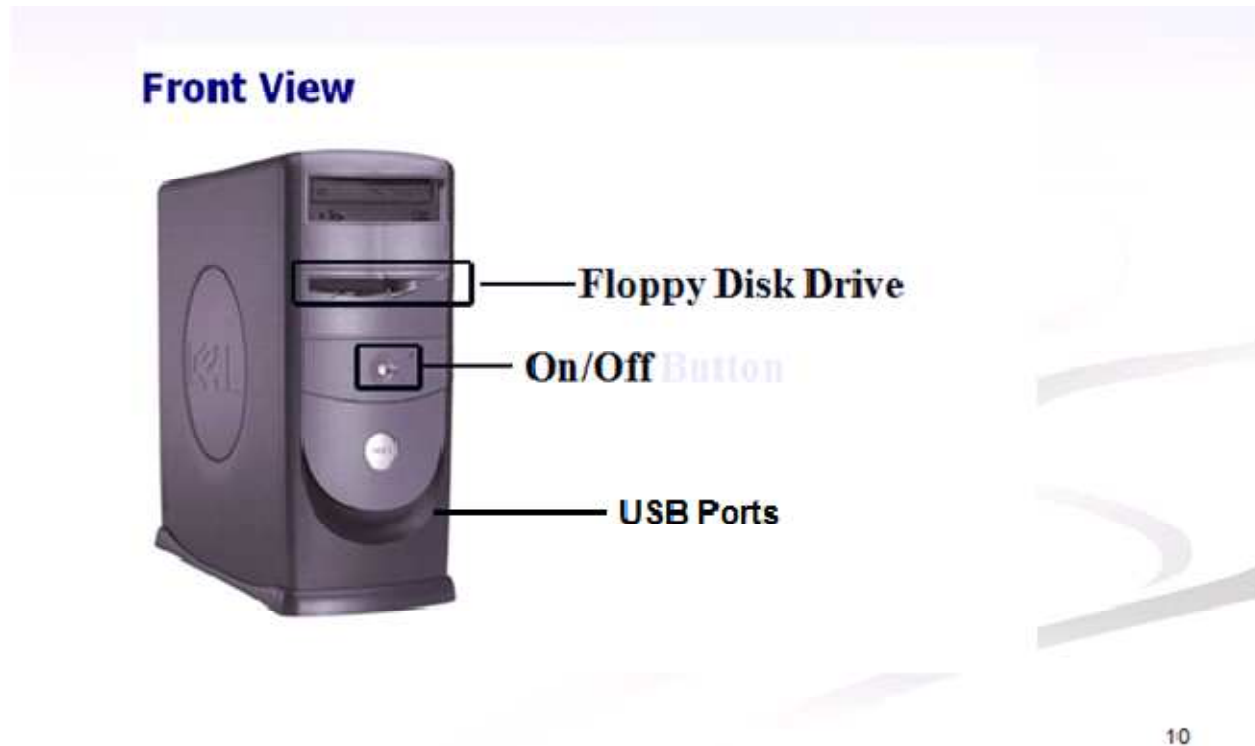


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Processing Summary



What's on the Outside of the Computer?



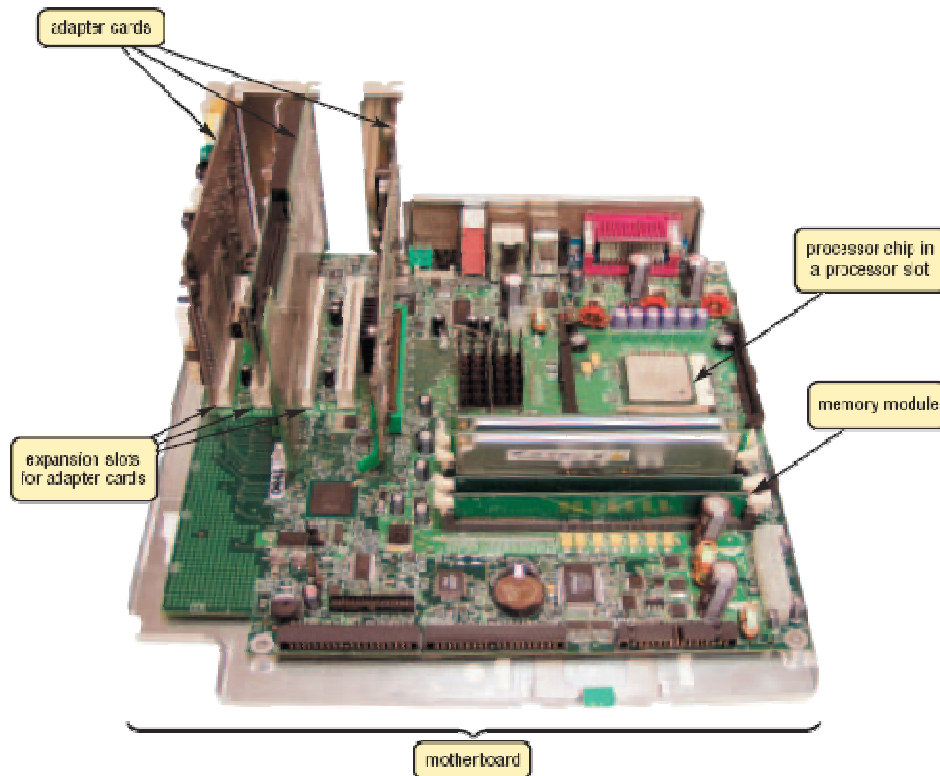
Back View



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What's on the Inside of the Computer?

Main System Board and Expansion Slots



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IDE Hard Disk Drives

Intelligent Drive Electronics or Integrated Drive Electronics,

An IDE interface is an interface for mass storage devices, in which the controller is integrated into the disk or CD-ROM drive.



PCI Cards

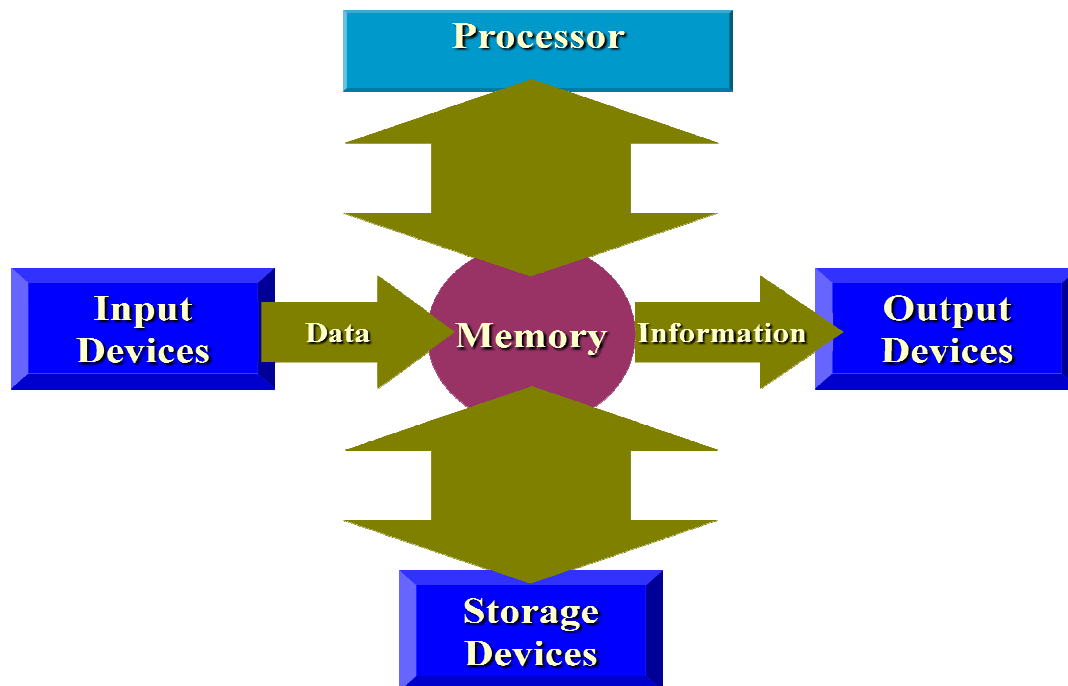
Peripheral Component Interconnect



A wireless network adapter is a common type of PCI card.

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Processing Overview



Introduction to Microsoft Windows XP

What Is Windows XP?

Microsoft Windows XP is a computer program. Specifically, it's a type of program known as an *operating system*, often abbreviated OS.

One thing that makes the OS different from all other programs available for PCs is that an OS is *required* to make your system work. A computer without an OS is like a car without an engine. Turning on a computer that has no operating system installed leads to nothing but a message on the screen telling you there is no operating system installed.

One reason that an operating system is required on all computers is that it plays the important role of making all the things that make up a computer system — the screen, mouse, keyboard, the programs you use, the hard disk, and all that other stuff — work in harmony. And thankfully, it does all that in the background, without your even being aware of it. And without your having to know how it does it.

The operating system also provides the user interface for the computer. That is, it determines what you see on your screen and how you interact with those things. To that extent, learning to use your computer is really a matter of learning to use its operating system.

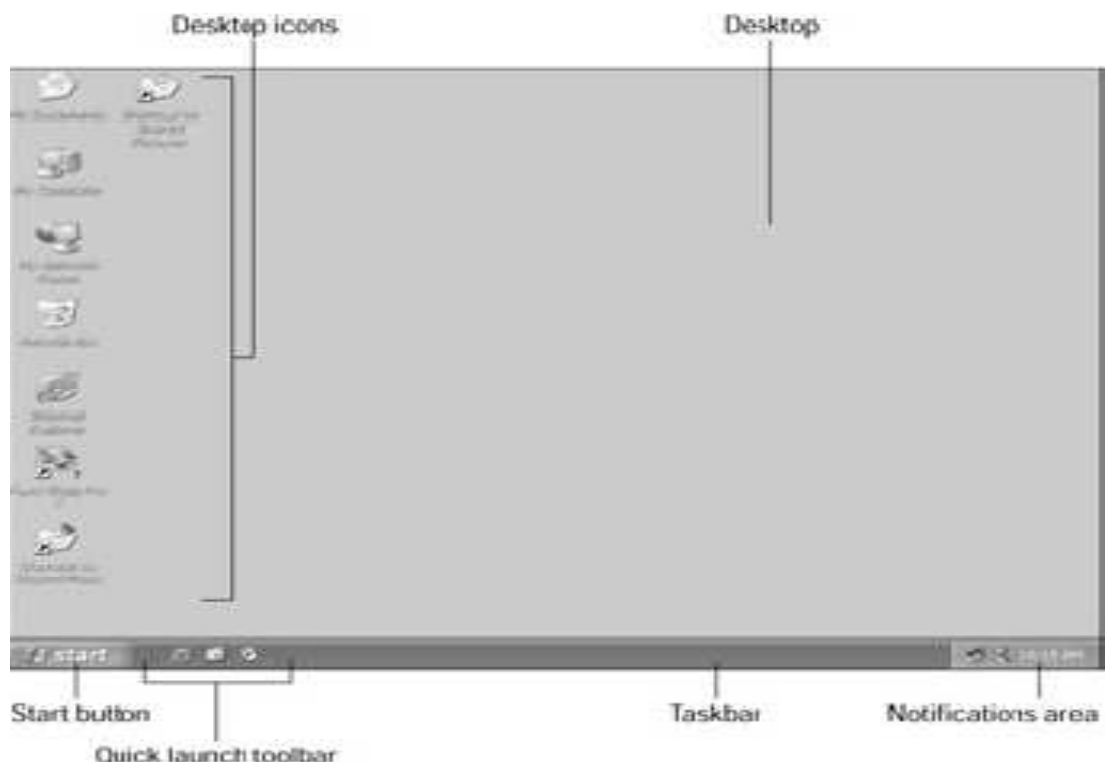
In fact, learning Windows XP is probably the most important first step in learning to use your computer. That's partly because you need to learn to use Windows just to start any other programs you plan to use. In addition, many of the skills you acquire while learning to use Windows will apply to just about anything you do with your computer, be that word processing, making custom CDs, working with digital photographs, creating Web pages . . . whatever. So every moment spent learning Windows is actually an investment in learning to use your entire computer and all the amazing things that it is capable of doing.

In the next section we will identify the basic screens in Windows XP.

What Is the Logon Screen?



What Is the Desktop?



What are Desktop Icons?

Shortcuts to your programs.

Start by Double-Clicking the Left Mouse Button.



What is the Start Button?

The *Start button*, as the name implies, is where you can start any program on your computer. When you click the Start button, the Start menu opens.

The Start menu is divided into two sections. The left half of the menu provides access to frequently used programs. The right side provides access to frequently used *folders* (places where things that are “in your computer” are stored), as well as access to Help and Support and other features of Windows. Your Start menu won’t look exactly like the one in the figure. Again, that’s because it provides options, programs, and features that might be unique to your computer.



What is the Quick Launch toolbar?

The Quick Launch toolbar (also called the *application launcher*) provides one-click access to commonly used programs. It provides an alternative to going through the Start menu to start these programs (and can be handy when your desktop icons are covered by some large program window). When you point to an icon in the Quick Launch toolbar, you'll see the name of the program or service that the icon represents.



What is the Taskbar?

The *taskbar* is the colored strip along the bottom of the desktop. In a sense, the taskbar is like the center desk drawer of a real desk. It provides quick access to frequently used programs and features of Windows. Even when some large program window is covering the Windows desktop and its icons, the taskbar can remain visible on the screen so that you can get to the things it offers.



What is the System Tray?

The System Tray (sometimes called Notification Area) contains the clock, and icons that keep you posted as to the status of various programs or services running on your computer.

Pointing to the current time reveals the current date.

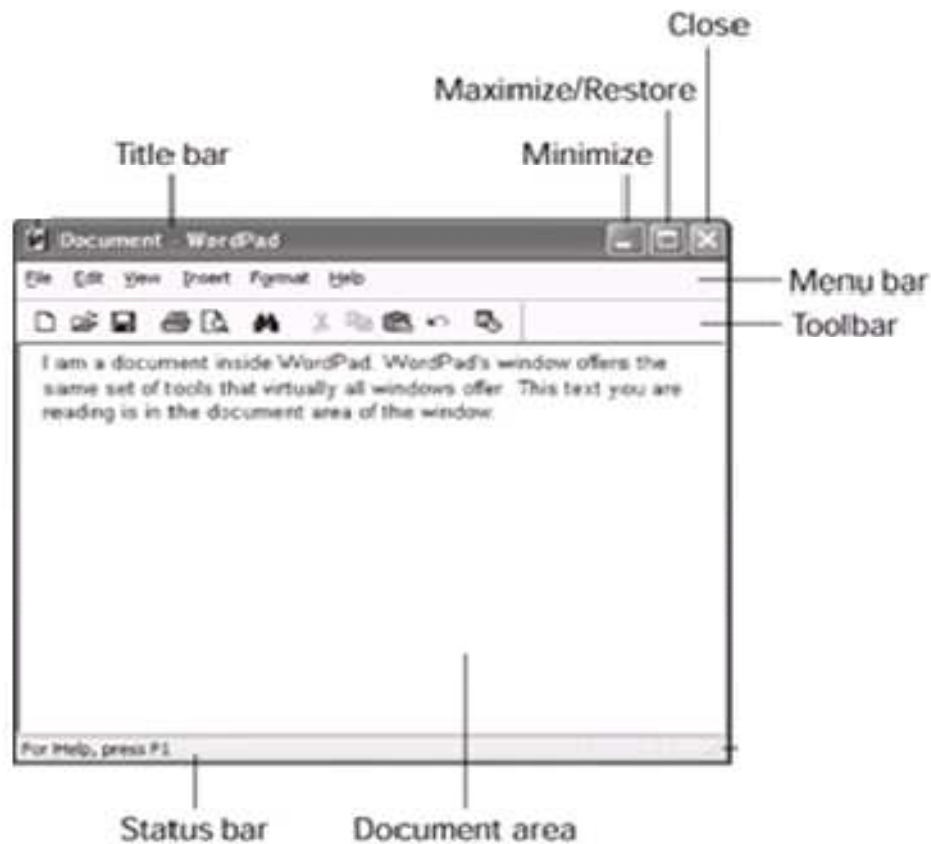
Double-clicking the current time brings up a *dialog box* that lets you set the current date, in case it's wrong. (As you'll learn, a dialog box is a window that pops up on the screen and provides options from which you can choose.)



What are the Windows?

Every window that you open on your desktop will have certain elements in common. What's *inside* the window will vary a lot, because all programs display within windows. If you look closely, however, you may notice the frames surrounding those windows are similar. The reason for this similarity is simple: All the tools you use to manage the window are in this frame. Because of this arrangement, you need to learn only one set of skills to manage windows. Those skills then apply to any and all open windows.

What are the Window Parts?



Title bar

The title bar shows name of the program being run in the window, and the buttons for resizing and closing the window.

The title bar alone offers some handy features:

- To expand a window to full-screen size or to shrink it back to its original size, double-click its title bar.
- To move a window to some new location on the screen, drag the window by its title bar.

Minimize button

When you click the Minimize button, the window disappears and shrinks to a button in the taskbar. Doing so gets the window out of the way for the moment so that you can see the desktop behind that window. To reopen a minimized window, click its button in the taskbar. Every open window has a button in the taskbar associated with it. As an alternative to using the Minimize button to hide/show a window, you can just click that button in the taskbar.

Maximize/Restore button

Clicking the Maximize button expands the window to full-screen size (a quick way to hide other windows that may be distracting you). When the window is full-screen size, the Maximize button turns into the Restore button. To return the window to its previous size, click the Restore button.

Closing versus Minimizing a Window

Think of minimizing a window as taking some document on a real desktop and sliding it into a desk drawer. The document is not cluttering your desk anymore, but it is within easy reach. Just click the document's taskbar button, and you're back in action. Closing a window, on the other hand, is more like putting a real folder back in the file cabinet.

You still can get back to the document when you want it, but you'll need to restart the program from scratch, at which point it opens up with no document.

Close button

Clicking the Close button closes the window, taking it off the screen and out of the taskbar as well. To restart the program in the future, you'll need to go through whatever procedure you usually perform to start that program.

Menu bar

Many windows that you open will have a menu bar across the top. The menu bar offers access to all the features that the program within the window has to offer.

Dialog Boxes

A dialog box is sort of like a window. Instead of representing an entire program, however, a dialog box generally contains some simple settings from which you can choose.

The term *dialog box* comes from the fact that you carry on a kind of "dialogue" with the box by making selections from the options it presents. Controls within a dialog box are similar to the controls on any other kind of machine, be it a car, dishwasher, or stereo. Controls enable you to control how a program behaves and looks.



Exploring Your Computer

Now that you have the basic skills to work in the Windows desktop, as well as any dialog boxes that pop up, it's time to turn our attention to the one Windows program you're likely to use more than any other. Its name is Windows Explorer (or just Explorer, for short).

As its name implies, its purpose is to enable you to explore the contents of your computer. There are lots of ways to start Explorer, as you'll learn. For starters, either of these methods will do:

- Click the Start button and choose My Documents.
- Or, click the Start button and choose All Programs → Accessories → Windows Explorer.

Like all windows, Explorer has a title bar with Minimize, Maximize/Restore, and Close buttons, a menu bar, toolbar, and so forth. Unlike most programs, however, Explorer doesn't display its own name in its title bar. Instead, it displays whatever it is that you're exploring at the moment.



Searching for Lost Files

It's not unusual, especially among beginners, to lose files on a hard disk. You might download a file from the Internet or create and save some document without paying much attention to where you put it or what you named it. Or, you may be digging around for some document you created ages ago, and have long since lost track of its name and/or location.

The Explorer Search Companion will help you find it.

To open the Search Companion:

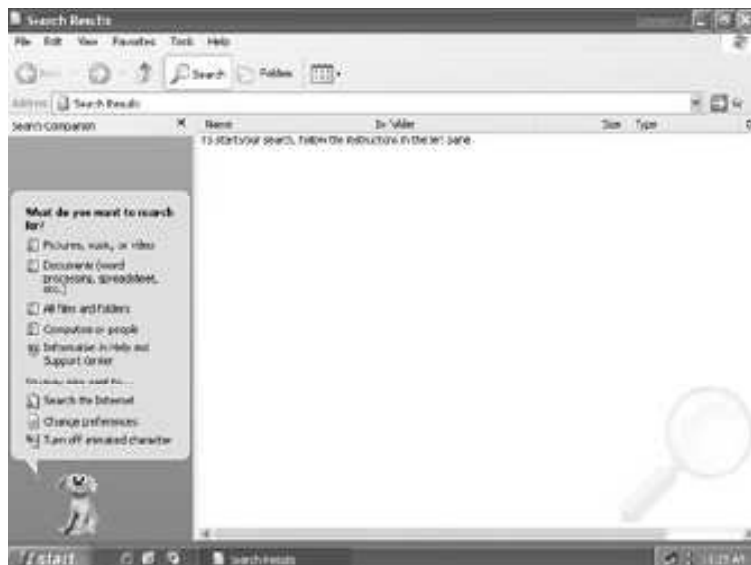
If you're already in Windows Explorer, just click the Search button in the Standard Buttons toolbar.

- Or, choose View → Explorer Bar → Search.
- Or, press Ctrl+E.
- Or, if you're not in Windows Explorer, click the Start button and choose Search.

The first time the Search Companion opens, you'll see a prompt asking whether you want to search with, or without, an animated screen character. This is a one-time question, so you might not see it at all. Frankly, it makes little difference which you choose, unless you happen to be fond of animated dogs.

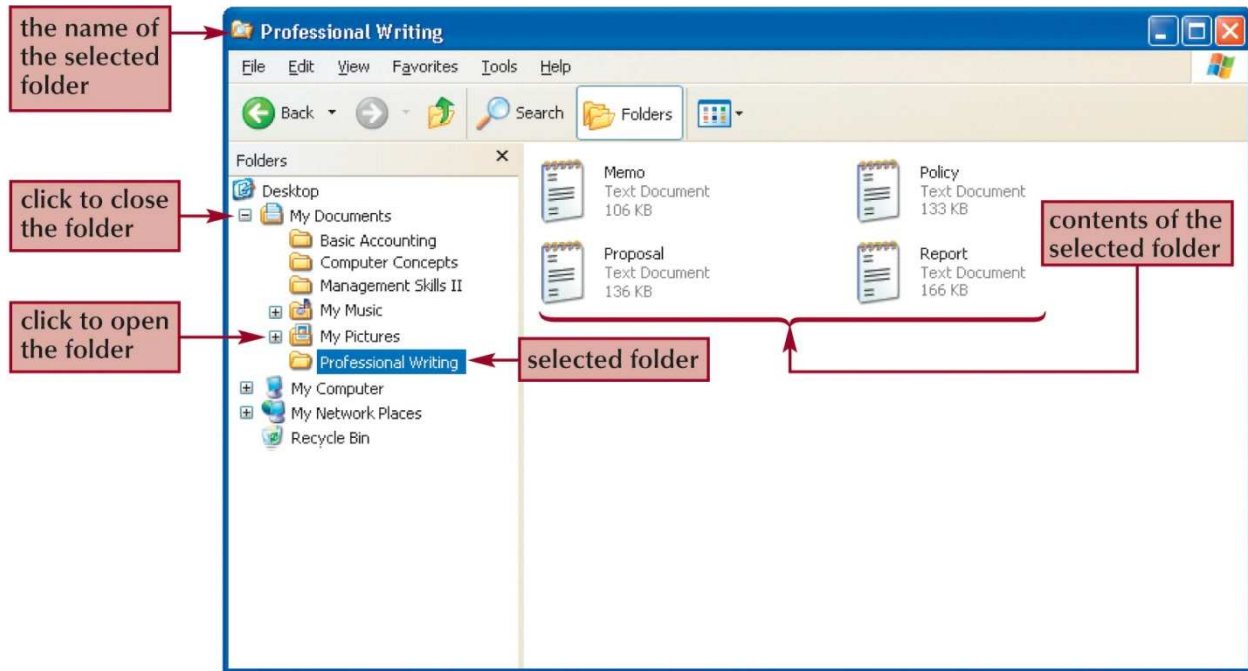
You can change your mind at any time by choosing Change Preferences within the Search bar. The first set of options to appear in the Search Companion bar, shown in the image below:

- **Pictures, music, or video:** This option limits the results of the search to those types of files.
- **Documents:** This option limits the search to document files that go with specific programs, such as Word documents, Excel documents, and so forth.
- **All files and folders:** This option returns search results with all types of files.
- **Computers or people:** This option enables you to search for computers in a local network, people in your address book, or the Internet.
- **Information in Help and Support Center:** This option plays the same role as the Search option in Windows Help.



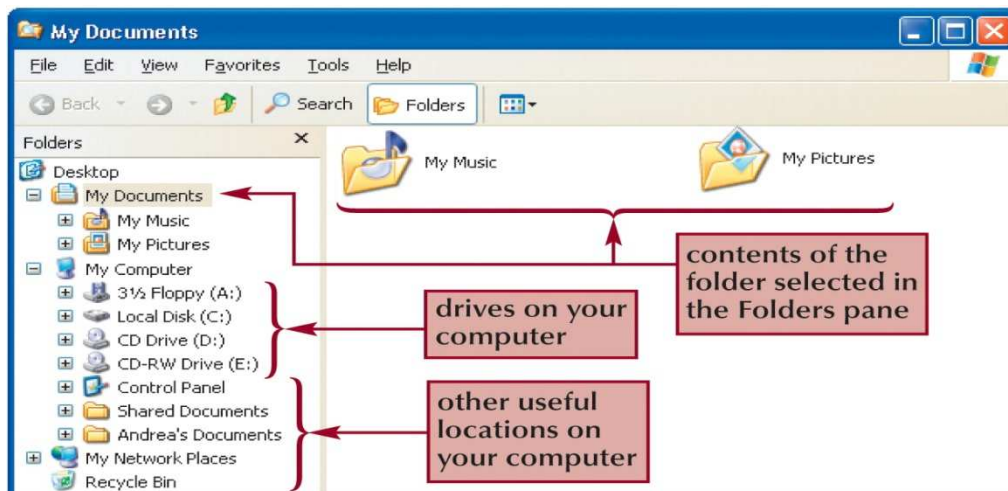
Exploring Files and Folders

Windows Explorer shows the files, folders, and drives on your computer



Using Windows Explorer

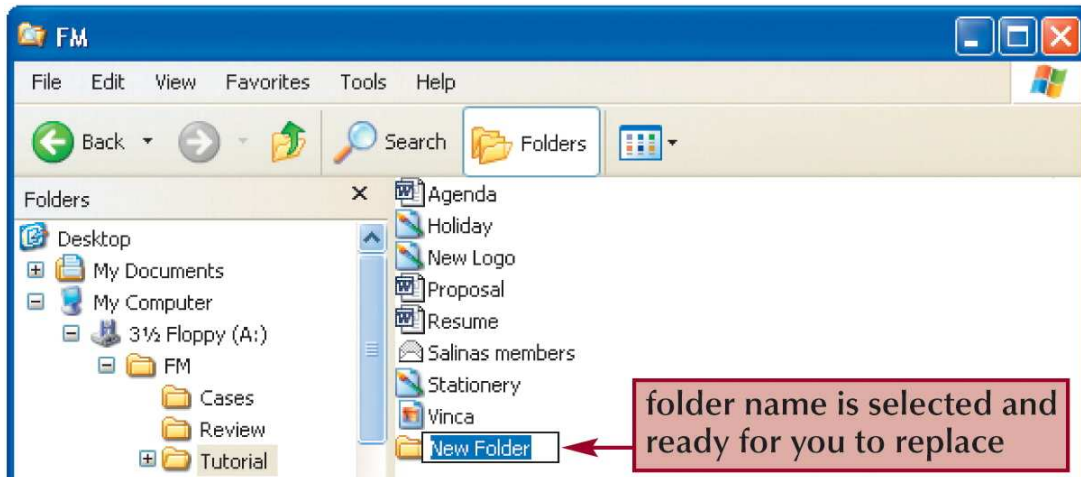
My Documents folder



Working with Folders and Files

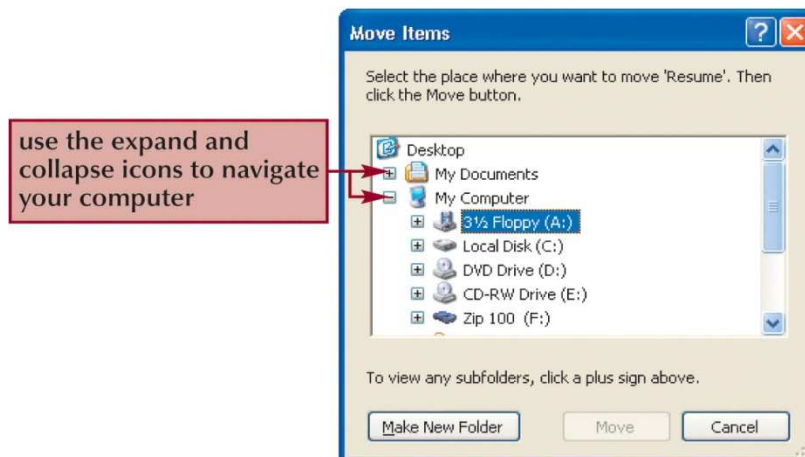
Creating Folders using Windows Explorer

- Click File on the menu bar, point to New to display the submenu, and then click Folder



Moving and Copying Files and Folders

- Moving a file removes it from its current location and places it in a new location you specify
- Copying places the file in both locations



Internet Explorer

What is a Web Browser?

The Web is a collection of files that reside on computers, called Web servers.

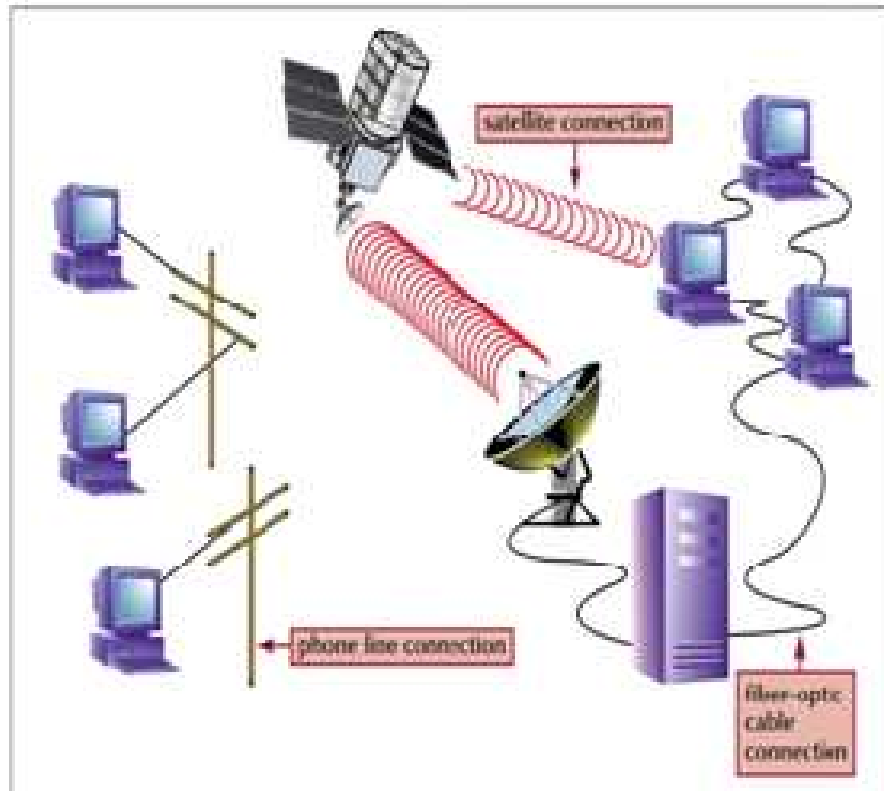
- Web servers are connected to each other through the Internet

The software you use to connect your computer to the Web server is your Web browser.

- Common Web browsers are Netscape Navigator and Internet Explorer
- These browsers use a standard Graphical User Interface design



Computers and the Internet



What are Web Addresses and URLs?

Each computer on the Internet has a unique identification number, called an IP (Internet Protocol) address.

The IP addressing system currently in use on the Internet uses a four-part number.

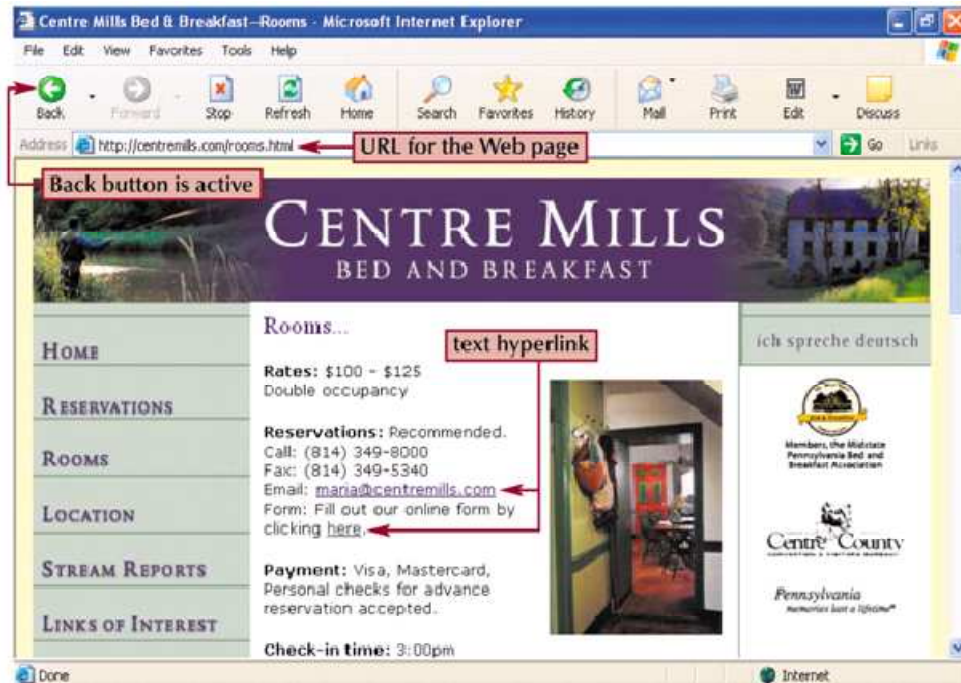
Each part of the address is a number ranging from 0 to 255, and each part is separated from the previous part by a period, for example: 106.29.242.17.

Although each computer connected to the Internet has a unique IP address, most Web browsers use domain name addressing to locate Web sites and pages.

Commonly used domain names

Web Server Types	Description
.com	Businesses and other commercial enterprises
.edu	Educational institutions
.gov	U.S. government agencies, bureaus, or departments
.int	International organizations
.mil	U.S. military units or agencies
.net	Network service providers or resources
.org	Other organizations, usually charitable or not-for-profit

Identify a hyperlink on a Web page



Hyperlinks and Web pages

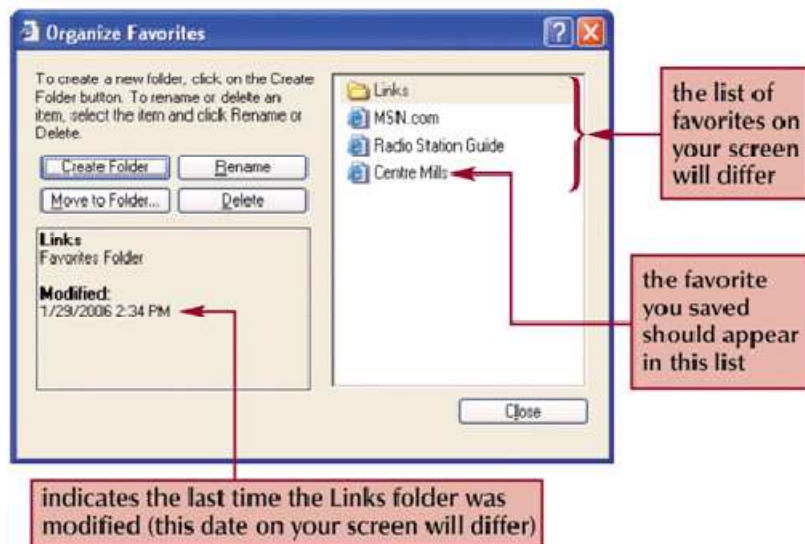


Save and organize Web addresses

Use Internet Explorer's Favorites list to store and organize a list of Web pages that you have visited so you can return to them easily.

- The Favorites button on the Standard Buttons toolbar opens the Add Favorite dialog box.
- Use the Favorites list to open URLs you have stored as favorites.
- Create folders to organize your favorites in the way that best suits your needs and working style.
- Organize your folders in a hierarchical structure using the Organize button on the Favorites Explorer Bar.

Favorite Web sites can be saved and organized

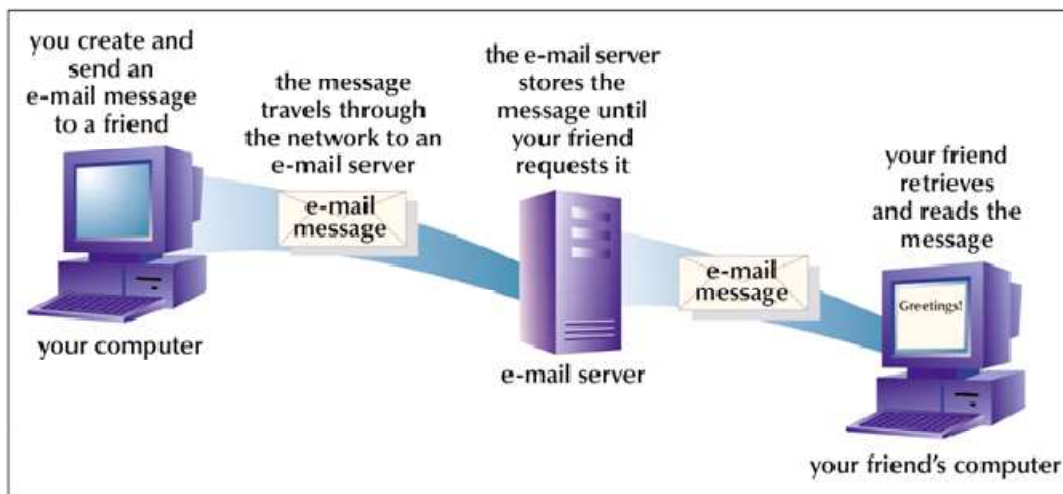


Printing a Web Page

Make sure the page you want to print is displayed in the browser window.

- Select Print from the File menu to open the Print dialog box.
- Ready the printer and click the Print button.

How does E-mail work?



E-mail address components

You may have an e-mail account through a business network or you may create an e-mail account with a service that provides Internet access.

An e-mail address consists of:

- A user name or login ID
- The “at” symbol (@)
- The name of the e-mail server

Send and receive e-mail using Microsoft Outlook Express

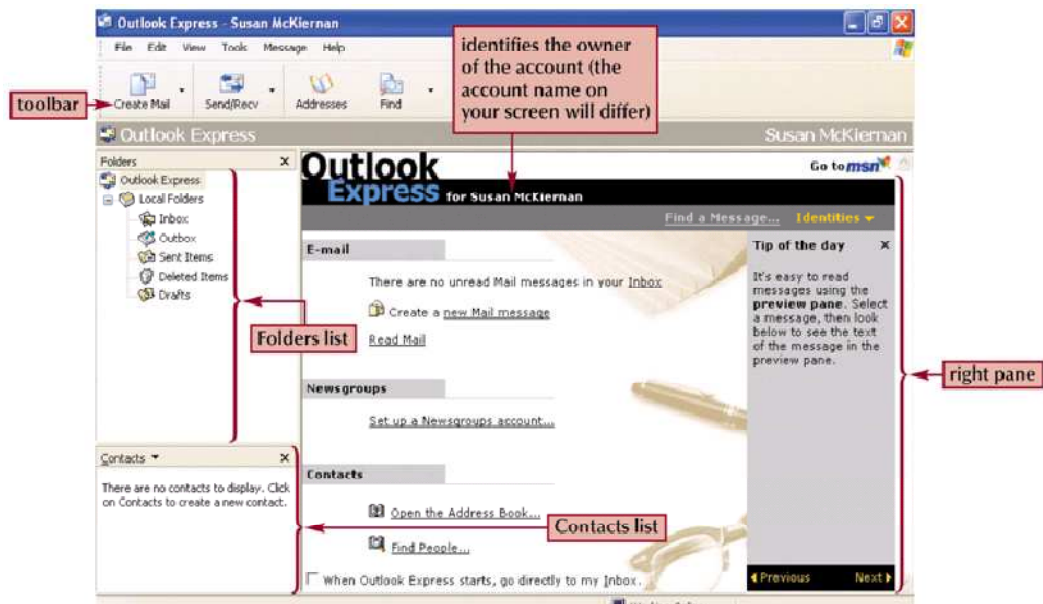
To access your e-mail account you also need an e-mail program, which is also called e-mail client software.

You use the e-mail program to open, print, delete, reply to, forward, and save mail from your e-mail server.

One such program is Microsoft's Outlook Express, which installs as part of Internet Explorer.

Outlook Express can be accessed through the Start menu on the All Programs submenu.

Microsoft Outlook Express



Send and receive e-mail

To send an e-mail message:

- Press the New Mail button on the Outlook Express toolbar
- Type in the e-mail addresses of the recipient
- Type your subject matter
- Type your message and then click the Send button

To retrieve mail that has been sent to you:

- Click the Send/Recv button on the toolbar
- Outlook Express will contact your e-mail server and download your e-mail messages

To reply to a message:

- Click the Reply button
- The recipient address and the subject matter are automatically filled in
- When you have completed typing your reply, click the Send button

Outlook Express New Message dialog box

