Chapter 3

Introducing Windows Operating Systems
Objectives

- Learn how to use Windows to interface with users, files and folders, applications, and hardware
- Learn about some Windows tools that you can use to examine and support the system
Using Windows

• Operating system (OS) software
  – Controls a computer
  – An operating system (OS) is a collection of software that manages computer hardware resources and provides common services for computer programs. The operating system is an essential component of the system software in a computer system. Application programs usually require an operating system to function.
• Four main functions of all OSs
  – Provide a user interface
  – Manage files
  – Manage hardware
  – Manage applications
• Windows 7 is an upgrade to Windows Vista
• Every PC support technician needs to be a power user of Windows 7 and be familiar with Vista and XP
Figure 3-1 Users and applications depend on the OS to relate to all applications and hardware components
The Windows Desktop

• Desktop is the initial screen that is displayed
  – Windows Desktop provides a graphical user interface (GUI)
• Windows 7 and Vista desktop provides a 3-D user interface called the Aero user interface
  – Aero interface is not available for the Windows 7 Starter and Home Basic editions
  – Windows 7 requires 1 GB of RAM and a video card that supports DirectX 9 graphics standard and has at least 128 MB of graphics memory
Figure 3-2 The Windows 7 desktop using the Aero interface has a glassy transparent look
The Windows Desktop

• Start menu
  – Username shown at the top right
  – Applications used often are listed in the white left column (can change from time to time)
  – User libraries, files and OS utilities are listed in the dark right column
Figure 3-3 The Windows 7 Start menu
The Windows Desktop

• How to launch an application
  – Use the Start menu
    • Click the Start button and select All Programs
  – Use the Search box
    • Click the Start button and enter the name of the program in the Search box provided
  – Use Windows Explorer or the Computer window
    • To use the Computer window in Windows 7 or Vista, click Start, Computer
  – Use a shortcut icon
    • Right-click the program file in the Computer or Explorer windows and select Create shortcut
**Figure 3-4** Use the Windows 7 Search box to launch a program
The Windows Desktop

• Windows 7 Aero Snap and Aero Shake can help:
  – Aero Snap automatically maximizes a window when you drag it to the top of the desktop
    • To restore to its original size, drag the window downward
    • Drag a window to right or left so that it snaps to fill half the screen
  – Aero Shake minimizes all other windows except the one you shake
    • To shake, grab the title bar and shake it
The Windows Desktop

• The Taskbar and Notification Area (System Tray)
  – Bottom of Windows desktop
    • Information about open programs, quick access to others
    • Quick launch icons
  – Notification area (system tray or systray)
    • Right side of taskbar and displays open services
  – Service: program that runs in the background
    – Supports or serves Windows or an application
  – Right-click the taskbar, use the shortcut menu
    • Click Properties
Figure 3-6 Mouse over the Internet Explorer icon in the taskbar to see each open tab in IE
Figure 3-8 Use the Taskbar and Start Menu Properties box to control what appears in the Start menu and taskbar.
The Windows Desktop

• Personalize the Windows desktop
  – Right-click anywhere on the desktop
    • Choose **Personalize** from the shortcut menu
  – Most common problem with display is a problem with screen resolution
    • Screen resolution is number of dots or pixels on the monitor screen expressed as two numbers
    • Example: 1680x1050
    • Right-click anywhere on desktop and choose **Screen Resolution**
    • Can also be accessed from the Personalization window
Figure 3-9 Use the Personalization window to change the appearance of Windows
Windows Explorer And The Computer Window

• Two most useful tools to explore files and folders are Windows Explorer and the Computer window
• To Open the Computer Window
  – In Windows 7 or Vista, click **Start**, and select **Computer**
• To Open Windows Explorer
  – Click the yellow Windows Explorer icon in the taskbar
  – Right-click **Start** and select **Open Windows Explorer** from the menu
Files and Directories

• Every OS manages a hard drive, optical drive, USB drive, or other type of drive by using directories (also called folders), subdirectories, and files

• Drive is organized with a single root directory
  – At top of the top-down hierarchical structure of subdirectories
  – Exception: hard drive
    • Divided into partitions
    • Each volume has its own root directory and hierarchical structure of subdirectories
Figure 3-10 Storage devices such as a USB drive, CD, or hard drive, are organized into directories and subdirectories that contain files.
Files and Directories

- Root directory can hold files or other directories
  - These directories are called subdirectories, child directories, or folders
  - Any directory can have files and other subdirectories in it

**Figure 3-11** A hard drive can be divided into one or more partitions that can each Contain a volume such as drive C: or drive D:
Files and Directories

• Path: location of a file referenced by a drive and directories

Figure 3-12 The complete path to a file includes the volume letter, directories, filename, and file extension; the colon, backslashes, and period are required to separate items in the path
Navigate the Folder Structure

• Tips to navigate when working with Windows Explorer or Computer window
  – Double-click items in the left pane (called navigation pane) to drill down to subfolders inside folders
  – To control how files appear in the right pane, click the View icon and select your view

Figure 3-13 Click the View icon to change how files and folders display
Navigate the Folder Structure

• Tips to navigate when working with Windows Explorer or Computer window (cont.)
  – To control column headings that appear in the Details view, right-click a column heading and select the headings that you want to appear.

![Figure 3-14](image)

**Figure 3-14** Right-click a column heading to select columns to display in the Details view
Navigate the Folder Structure

• Tips to navigate when working with Windows Explorer or Computer window (cont.)
  – Use the Search box in the upper-right corner of the window
  – Use the forward and back arrows in upper-left corner to move forward and backward to previous views
  – Click a right arrow in the path displayed in the address bar at the top of the Explorer widows to see a drop-down list of subfolder
Figure 3-15 Click a right arrow in the address bar to move up the folder tree and down to a new folder
Windows 7 Libraries

- Windows 7 library: a collection of one or more folders
  - These folders can be stored on different local drives or on the network
- Four default libraries are created when Windows is installed: Documents, Music, Pictures, and Videos
  - First three libraries can be access from the Start Menu by default
  - You can use the Computer window or Windows Explorer to access all libraries
Figure 3-16 Windows 7 includes four default libraries
Change Windows Explorer Settings and Folder Options

- You can view and change options assigned to folders
  - Controls how users view files in a folder, what users can do with the files
  - File extension
    - Used to identify file types
    - Windows does not show file extensions if it knows which application is associated with a file extension
    - Windows hides system files until you force it to show them
Create a File

• Methods to create a file
  – Use a particular application
  – Use Windows Explorer or the Computer window
    • Right-click in the unused white area in the right pane of the window and point to New
    • Click the application you want to use in order to create a file
    • You can rename the filename (keep file extension the same)
Figure 3-18  Create a new file or folder using Windows Explorer
Create a Folder

• Create a folder:
  – Select parent folder
    • Right-click in the white area of the right pane
    • Select New from the shortcut menu
    • Select one of three choices for folder types
    • Make a selection
    • Folder is created and highlighted so that it may be renamed

• Can create folders within folders within folders
  – The maximum length of a path and filename cannot exceed 260 characters
Figure 3-19 Edit the new folder’s name
Copy, Move, Rename, or Delete Files or Folders

• Copy
  – Right-click file, select Copy from the shortcut menu
  – Click in folder white area where the copied item goes
  – Select Paste from the shortcut menu

• Alternative way to copy or move
  – Drag and drop item to its new location (move)
  – To copy, hold down the Ctrl key while you drag and drop

• Rename a file or folder
  – Right-click it and select Rename
Copy, Move, Rename, or Delete Files or Folders

• Delete a file or folder
  – Select the item and press the Delete key
  – Can also, right-click on the item and select Delete from the shortcut menu

• To select multiple items to delete, copy, or move at the same time, hold down the Shift or Ctrl key as you click
  – Shift key selects adjacent items in a list
  – Ctrl key selects nonadjacent items in a list
Change File or Folder Attributes

• Use Explorer or the Computer window to view and change properties assigned to a file or folder
  – Properties are called file attributes or folder attributes

• Attributes allow you to:
  – Hide a file
  – Make it a read-only file
  – Flag a file to be backed up
Change File or Folder Attributes

• Change file attributes
  – Right-click a file or folder and select Properties

Figure 3-20 Use a file’s Properties box to view file properties and edit file attributes
Quick and Easy Windows Support Tools

- Windows Tools:
  - System window
  - System Information window
  - Control Panel
  - Action Center
  - User Account Control dialog box
  - Windows Help and Support
System Window

• **System window**: can give you a quick look at what hardware and software is installed

• To open the System window:
  – Click **Start**
  – Right-click **Computer**
  – Select **Properties**

• Useful information found there:
  – Edition of Windows
  – Service pack installed
  – Windows Experience index
System Window

• Useful information found there (continued):
  – Memory installed
  – Type of OS installed

Figure 3-21 A 32-bit version of Windows 7 Home Premium is installed
System Information Window

• Used to view detailed information about the system
• Important features
  – Processor or BIOS version installed
  – RAM is installed
  – OS installation directory
  – Hard drive size
  – Names of currently running drivers
    • Device drivers: small programs stored on hard drive that tell the computer how to communicate with a specific hardware device
System Information Window

- To run System Information
  - Click Start, and enter Msinfo32.exe in the Search box and press Enter

![System Information Window](image)

**Figure 3-22** Use the System Information utility to examine details about a system.
The Control Panel

- Contains applets used to manage the system
- Accessing Control Panel in Windows
  - Click **Start** and the click **Control Panel**
- Utilities can also be accessed by one of these methods:
  - Click **Start** and type the program name in the **Search box**
  - Find another path to the utility
    - Open the System window in the System and Security group of Control Panel, click **Start**, right-click **Computer** and select **Properties**
Figure 3-23  The Control Panel is organized by category, although you can easily switch to a list of selections
Action Center

• Action Center: tool to use when you want to make a quick jab at solving a computer problem
  – Lists errors and issues that need attention
  – Action center flag appears in the notification area of the taskbar

![Action Center flag indicating a problem](image.png)

**Figure 3-24** A red X on the Action Center flag in the taskbar indicates a critical issue needs resolving
Figure 3-25 Click the Action Center flag to see a list of current issues and to open the Action Center
Figure 3-26 The Action Center shows a critical problem that needs a resolution
Figure 3-27  A problem reported in the Action Center with a possible solution
User Account Control Box

• User Account Control (UAC) dialog box appears each time a user attempts to perform an action that can be done only with administrative privileges

• Used to:
  – Prevent malicious background tasks from gaining administrative privileges when the administrator is logged on
  – Administrator can log in using a less powerful user account for normal desktop activities, but still be able to perform administrative tasks while logged in as a regular user
Figure 3-28 (a) and (b)  (a) the User Account Control box of an administrator does not require an administrative password; (b) The UAC box of a standard User requires an administrative password.
Network and Sharing Center

• Use the Network and Sharing Center to help resolve a failed network connection
  – Use Control Panel or the taskbar to access the center

Figure 3-30 Wired and wireless networking icons in the taskbar
Figure 3-31  The network icon in the taskbar indicates a problem or a possible new connection to a wireless network.
Figure 3-32  The Network and Sharing Center reports a problem connecting to the network
Windows Help and Support and the Web

• Start the Utility:
  – Click **Start** and click **Help and Support**

• Tips for using the web and Help and Support:
  – Microsoft’s web site has tons of useful information
    • support.microsoft.com or windows.microsoft.com
  – Use a search engine such as Google, enter the error message, software application, symptom, or Windows utility in the search box
  – To limit a Google search to the Microsoft website, use the **site:microsoft.com** text in the search string
Figure 3-34 Use the Help and Support tool to teach yourself about Windows
Summary

• OS manages system resources for users and applications
• Windows 7 and Vista desktop offers the Aero user interface
• Four ways to launch an application: use the Start menu, search box, Windows Explorer, or a shortcut
• The right side of the taskbar is called the notification area (also known as system tray)
• Windows Explorer and Computer are used to manage files, folders, and libraries
Summary

• The file extension indicates how the file contents are organized and formatted and what program uses the file
• The System window gives a quick overview of the system
• The System Information window gives detailed information about the computer
• Control Panel give access to a group of utility programs used to manage the system
• Windows 7 Action Center is used to solve problems with security and computer maintenance issues
Summary

• The User Account Control (UAC) box is used to protect the system against malware or accidental changes to a system done by inexperienced users.
• Use the Network and Sharing Center to manage, secure, and troubleshoot the network connections.
• Use the web and the Windows Help and Support utility to teach yourself about Windows and how to support it.