



System Software

Chapter 4

Computing
Essentials 2014

Competencies (Page 1 of 2)

- Describe the differences between system software and application software.
- Discuss the four types of system software.
- Discuss the basic functions, features, and categories of operating systems.
- Discuss mobile operating systems including Blackberry OS, iOS, Android, Windows Phone , and WebOS.

Competencies (Page 2 of 2)

- Describe Windows, Mac OS, UNIX, Linux, and virtualization.
- Describe the purpose of utilities and utility suites.
- Identify the four most essential utilities.
- Discuss Windows utility programs.
- Describe device drivers, including Windows' Add a Device Wizard and Update.

Introduction

- Computers are ubiquitous in our lives and we expect them to “be there when we need them”.
- We give little thought to the processes and programs running behind the scenes to keep them functioning effectively.
- Such programs (i.e. operating systems, utility programs, and device drivers) are the system software you learn about here.



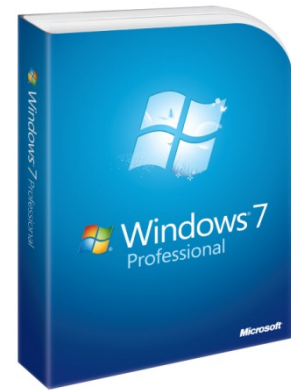
System Software

- Handles the technical details
 - Includes the operating system, utilities, device drivers, and language translators



Operating Systems

- A collection of programs that handle technical tasks
 - Manage resources
 - Provide user interface
 - Run applications
- **Examples:**
 - Windows 7
 - Mac OS X
- **Also called the software environment or platform**



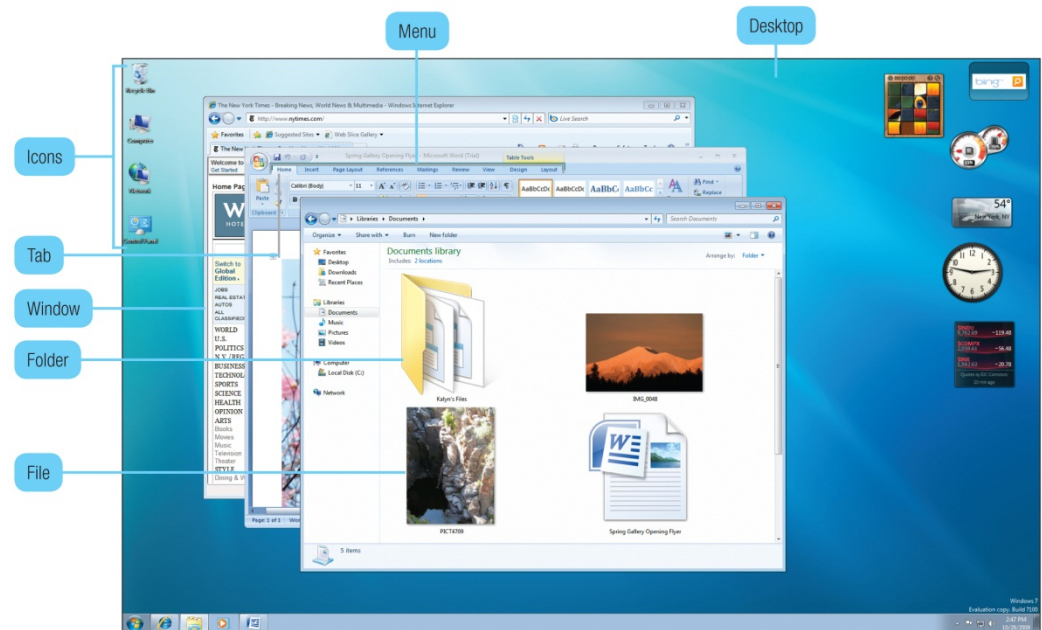


Functions of an Operating System

- **Manages computer resources**
 - Coordinate memory, processing, storage, printers and monitors
 - Monitor system performance
 - Schedule tasks
 - Provide security
 - Start-up the computer
- **Provides user interface**
 - Graphical user interface (GUI)
- **Runs applications**
 - Multitasking
 - Foreground and background applications

Features of an Operating System

- Booting
- Features in common with application software
 - Icons
 - Pointer
 - Windows
 - Menus
 - Tabs
 - Dialog boxes
 - Help
 - Gesture Control
 - Files and Folders



Categories of Operating Systems

- Three basic categories
 - Embedded operating systems (handheld)
 - Smartphones
 - Cable TV tuner boxes
 - Video game systems
 - Network operating systems (linked computers)
 - Windows Server, Linux, Unix
 - OS stored on network server which coordinates all communication between the other computers
 - Stand-alone operating systems (desktop)
 - Also called client operating system



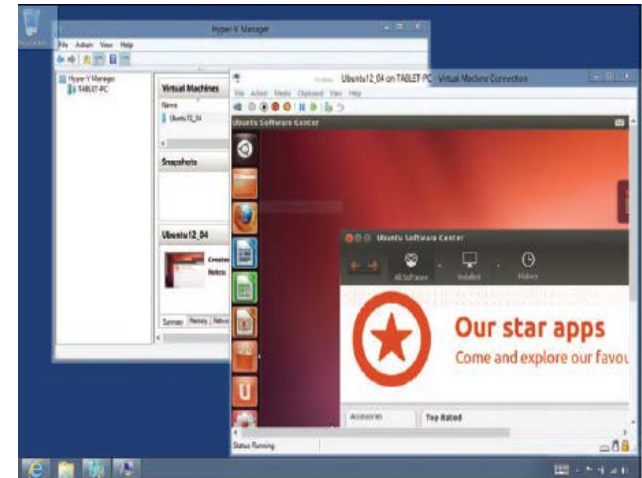
Mobile Operating Systems

- Mobile OS
 - Embedded operating system in every smartphone
- Some of the best known
 - Android
 - BlackBerry OS
 - iOS
 - WebOS
 - Windows Phone



Virtualization

- Ability to support multiple operating systems on a single physical machine
- Virtualization software
 - Each virtual machine appears as a separate independent computer
 - Host operating system
 - Guest operating system
- Hyper-V





Utilities

- **Specialized programs to make computing easier**
- **Most essential utilities**
 - Troubleshooting or diagnostic programs
 - Antivirus programs
 - Backup programs
 - File compression programs

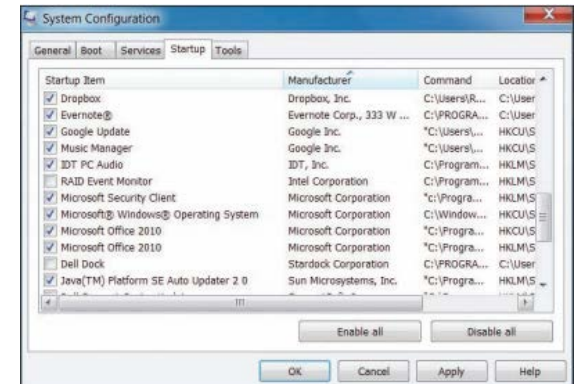
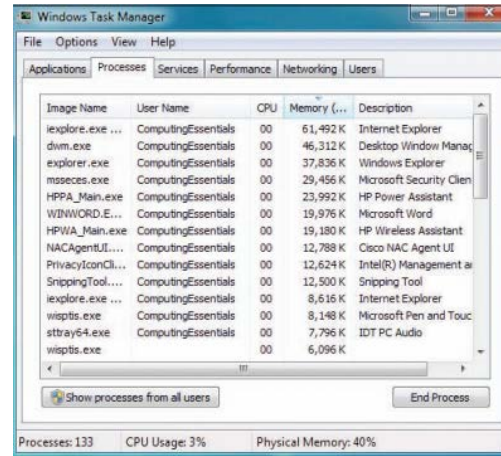
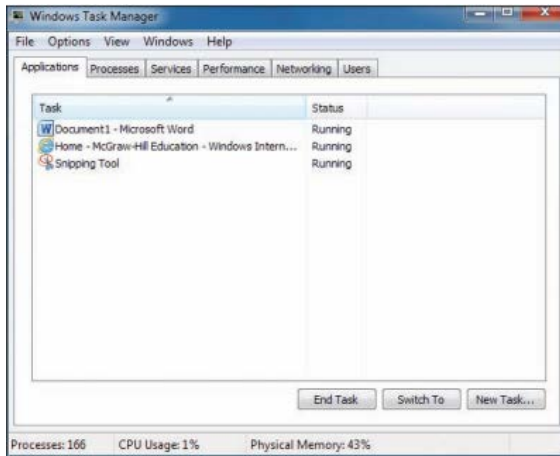
Utility Suites

- Combine several programs into one package
- Less expensive
- Popular suites
 - Bit Defender
 - Norton Utilities
 - ZoneAlarm



Making IT Work for You – Windows Task Manager

- Has your computer ever just stopped responding? What do you do?
- Windows Task Manager is designed to help.



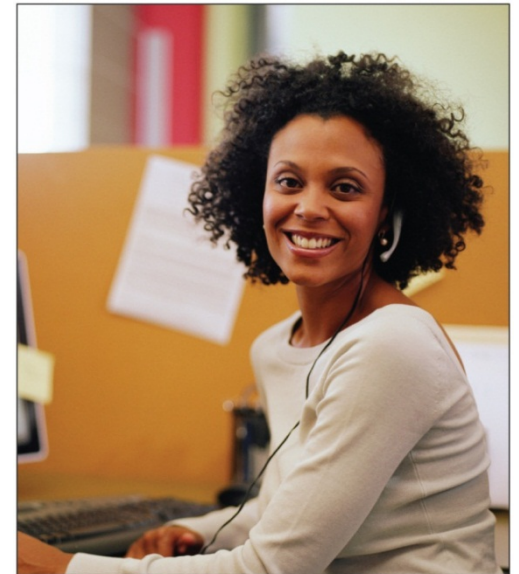


Device Drivers

- Allow communication between a device and the computer
- Loaded into memory each time a computer is started
- When a new device is added, new device drivers must be installed
 - Add a Device Wizard – step-by-step
- Windows already has many drivers within the system software

Careers In IT

- Computer support specialist provide technical support to customers and other users
- Resolve common networking problems and use troubleshooting programs to diagnose problems
- Employers look for a bachelors degree, good analytical and communication skills
- Computer support specialist can expect to earn \$31K - \$58K annually



A Look to the Future - IBM's Aware Supercomputer

- **IBM's Automatic Computing Initiative (ACI)**
 - Handles time-consuming maintenance
 - Self-regulating and virtually invisible
- **Self-maintaining servers**
 - Self-repairing
 - Self-updating
 - Self-protecting



Open-Ended Questions (Page 1 of 2)

- Describe system software. Discuss each of the system programs.
- Define operating systems. Describe the basic features and the three categories of operating systems.
- What are mobile operating systems? Describe six leading mobile operating systems.

Open-Ended Questions (Page 2 of 2)

- **What are desktop operating systems? Compare Windows, Mac OS, Linux and Chrome OS. Discuss virtualization.**
- **Discuss utilities. What are the most essential utilities? What is a utility suite?**
- **Explain the role of device drivers. Discuss the Add a Device Wizard and Windows Update.**