

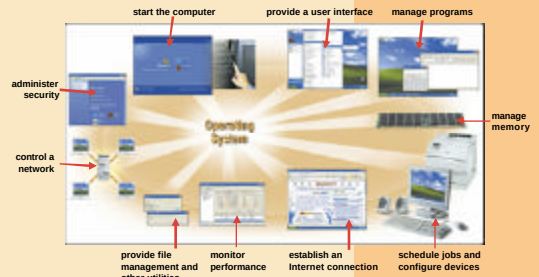
Discovering Computers 2005 A Gateway to Information



Chapter 8 Operating Systems and Utility Programs

Operating Systems

What are the functions of an **operating system**?



p. 392 Fig. 8-1

Next >

Chapter 8 Objectives

Identify the types of system software

Summarize the startup process on a personal computer

Describe the functions of an operating system

Discuss ways that some operating systems help administrators control a network and administer security

Explain the purpose of the utilities included with most operating systems

Summarize the features of several stand-alone operating systems

Identify various network operating systems

Identify devices that use several embedded operating systems

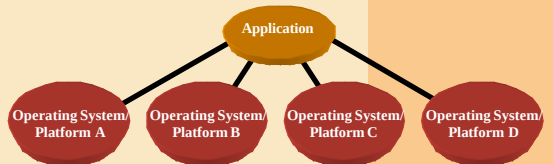
Explain the purpose of several stand-alone utility programs

Next >

Operating Systems

What is a cross-platform application?

- Runs identically on multiple operating systems
 - Operating system that computer uses is sometimes called the **platform**



p. 393

Next >

System Software

What is **system software**?

Programs that control operation of computer

Two types are operating systems and utility programs

Operating system (OS) (sometimes called the **platform**) coordinates all activities among computer hardware resources



Click to view animation

p. 392

Next >

Operating System Functions

What is **booting**?

- Process of starting or restarting a computer
 - Cold boot**
Turning on computer that has been powered off
 - Warm boot**
Restarting computer that is powered on



Warm boot from Windows desktop



Warm boot from system unit

p. 394 Fig. 8-2

Next >

Operating System Functions

What messages display on the screen when you boot the computer?



p. 394 Fig. 8-3

Next >

Operating System Functions

What is a **user interface**?

- Controls how you enter data and instructions and how information displays on screen



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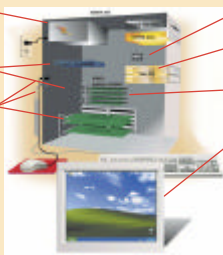
p. 398 Fig. 8-6

Next >

Operating System Functions

How does a personal computer boot up?

- Step 1.** Power supply sends signal to components in system unit
- Step 2.** Processor accesses BIOS to start computer
- Step 3.** BIOS runs tests, called the **POST**, to check components such as mouse, keyboard, and adapter cards



- Step 4.** Results of POST are compared with data in CMOS chip
- Step 5.** BIOS looks for system files in floppy disk drive or CD/DVD drive, and then hard disk
- Step 6.** **Kernel** (core) of operating system loads into RAM
- Step 7.** Operating system loads configuration information and displays desktop on screen

Click to view Web Link, click Chapter 8, Click Web Link from left navigation, then click BIOS below Chapter 8
p. 395 Fig. 8-4

Next >

Operating System Functions

What is a graphical user interface (GUI)?

- User interacts with menus and visual images such as icons and buttons



p. 398 Fig. 8-6

Next >

Operating System Functions

What is a **recovery disk**?

- Contains system files that will start computer when computer cannot boot
- Also called **boot disk**



Step 1. Click Start button on taskbar, point to All Programs on Start menu, point to Accessories on All Programs submenu, point to Systems Tools on Accessories submenu, and then point to Backup.



Step 2. Click Backup on Systems Tools submenu to open the Backup Utility window. (If Backup or Restore Wizard displays, click Advanced Mode link.) Point to Automated System Recovery Wizard button.



Step 3. Click Automated System Recovery Wizard button to create recovery disk. Follow the on-screen instructions and insert a diskette when prompted.

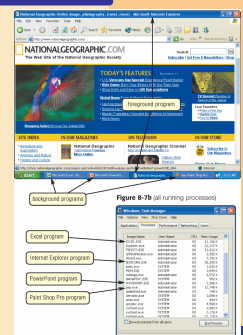
p. 397 Fig. 8-5

Next >

Operating System Functions

What is single user/multitasking?

- Working on two or more programs that reside in memory at same time
- Foreground** contains program you are using
- Background** contains programs that are running but are not in use

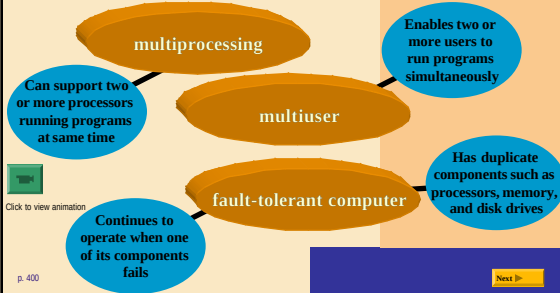


p. 399 Fig. 8-7

Next >

Operating System Functions

What are other program management features of operating systems?



Operating System Functions

What is **spooling**?

- Sending print jobs to buffer instead of directly to printer
- Print jobs line up in **queue**

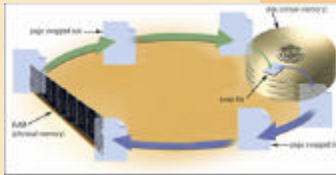


Operating System Functions

What is **memory management**?

- Optimizing use of random access memory (RAM)
- With **virtual memory (VM)**, portion of hard disk is allocated to function as RAM

Step 1. The operating system transfers the least recently used data and program instructions to disk because memory is needed for other functions.



Step 2. The operating system transfers data and program instructions from disk to memory when they are needed.

p. 400 Fig. 8-8

Operating System Functions

What is a device driver?

Program that tells operating system how to communicate with device
Also called **driver**

With **Plug and Play**, operating system automatically configures new devices as you install them

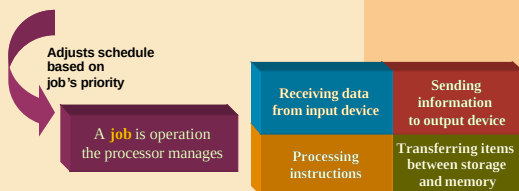


Click to view Web Link.
Click Chapter 8. Click Web Link
from left navigation,
then click Plug and Play
below Chapter 8

p. 402

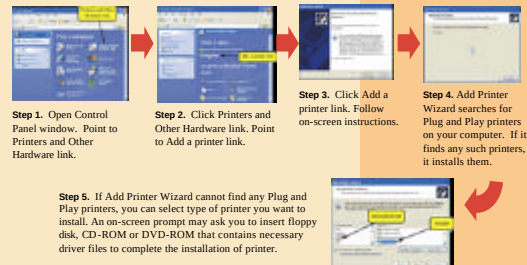
Operating System Functions

How does an operating system schedule jobs?



Operating System Functions

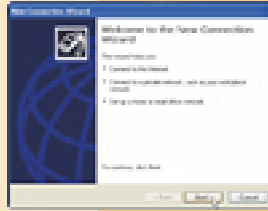
How do you install a device driver?



Operating System Functions

How do you establish an Internet connection?

- Windows XP includes New Connection Wizard
 - Guides user through setting up connection between computer and Internet



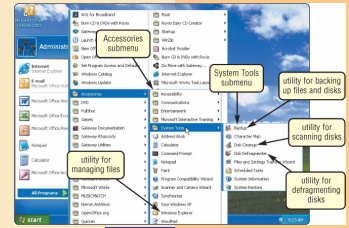
p. 403 Fig. 8-11

Next >

Operating System Utility Programs

What is a **utility** program?

- System software that performs maintenance-type tasks
 - Also called **utility**



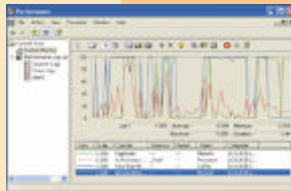
p. 405 Fig. 8-14

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Operating System Functions

How does an operating system monitor performance?

- Provides program, called **performance monitor**, that assesses and reports information about system resources and devices



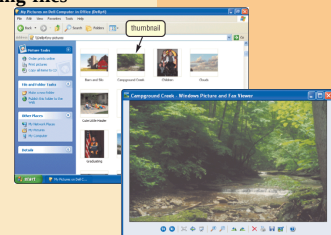
p. 404 Fig. 8-12

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Operating System Utility Programs

What is a **file manager**?

- Performs functions such as copying, renaming, deleting, and moving files
- **Image viewer** displays contents of graphics file when you double click on it



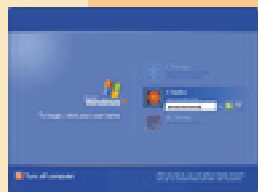
p. 406 Figs. 8-15-8-16

Next >

Operating System Functions

What is a **network operating system**?

- Allows users to share printer, Internet access, files, and programs on a network
- Administers security by establishing user name and password for each user

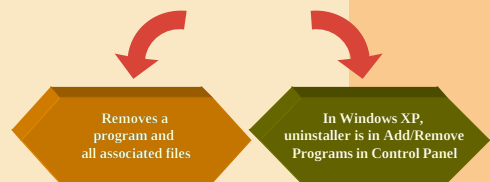


p. 404 Fig. 8-13

Next >

Operating System Utility Programs

What is an **uninstaller**?



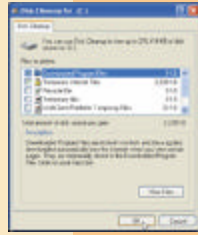
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Operating System Utility Programs

What is a **disk scanner**?

- Detects and corrects problems on hard disk or floppy disk
- Searches for and removes unnecessary files



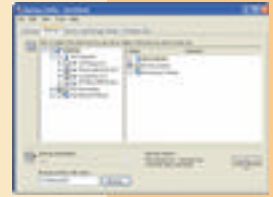
p. 407 Fig. 8-17

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Operating System Utility Programs

What is a **backup utility**?

- Copies selected files or entire hard disk onto another disk or tape
- Most compress files during backup to require less storage space



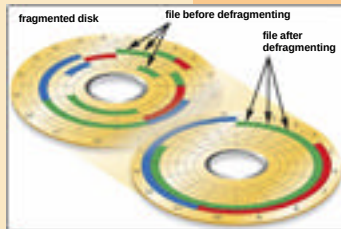
p. 408 Fig. 8-20

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Operating System Utility Programs

What is a **disk defragmenter**?

- Reorganizes files and unused space on hard disk so programs run faster



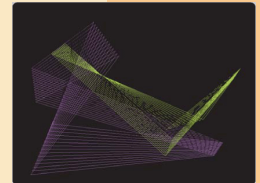
p. 407 Fig. 8-18

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Operating System Utility Programs

What is a **screen saver**?

- Causes monitor's screen to display moving image or blank screen if there is no activity for a specified time
- To secure computer, user configures screen saver to require password to deactivate



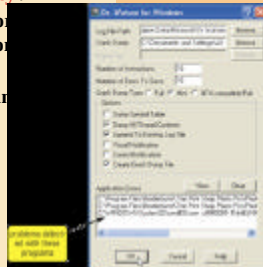
Click to view Web Link.
Click Chapter 8. Click Web Link
from left navigation,
then click Screen Savers
below Chapter 8
p. 408 Fig. 8-21

Next >

Operating System Utility Programs

What is a **diagnostic utility**?

- Compiles technical information about hardware and software
- Prepares report outlining problems

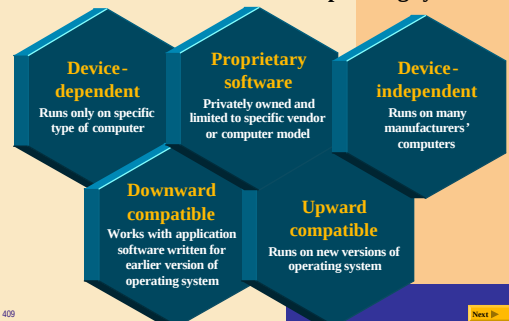


p. 408 Fig. 8-19

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Types of Operating Systems

What are some characteristics of operating systems?

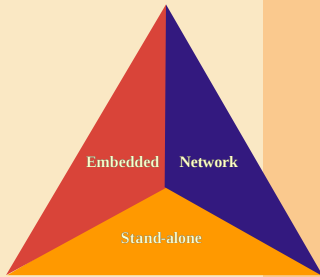


p. 409

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Types of Operating Systems

What are three categories of operating systems?



p. 409

Next >

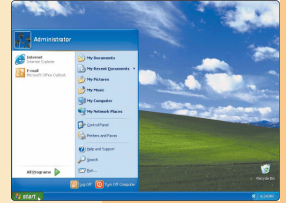
Stand-Alone Operating Systems

What is **Windows XP**?

- Microsoft's fastest, most reliable Windows operating system
- Available in five editions:
Home Edition,
Professional Edition,
Tablet PC Edition,
Media Center Edition,
and 64-bit Edition



Click to view Web Link,
click Chapter 8, Click Web Link
from left navigation,
then click Windows XP
below Chapter 8
p. 410 Fig. 8-24



Next >

Stand-Alone Operating Systems

What is **DOS (Disk Operating System)**?

Developed in
early 1980s
for personal
computers

D
O
S

Used command-line
interface when first
developed, later
included menus

Hardly used today
because it does
not offer GUI

p. 410

Next >

Stand-Alone Operating Systems

What are some features of Windows XP?

Windows XP Features

Appearance and Performance
Administration
Help and Support
Communications and the Web
Digital Media

p. 411

Next >

Stand-Alone Operating Systems

How do Windows versions compare?

Windows Version	Year Released
Windows 3.x	1990
Windows NT 3.1	1993
Windows 95	1995
Windows NT Workstation 4.0	1996
Windows 98	1998
Windows Millennium Edition	2000
Windows 2000 Professional	2000
Windows XP	2001

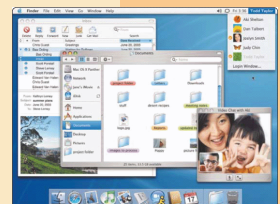
p. 410

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Stand-Alone Operating Systems

What is **Mac OS X**?

- Available only for computers manufactured by Apple
- Macintosh operating system has been model for most GUIs

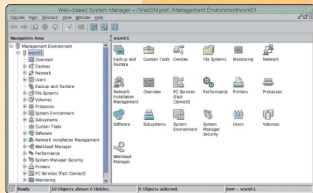


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Stand-Alone Operating Systems

What is **UNIX**?

- Used by power users because of its flexibility and power
- Most versions offer GUI
- Both a stand-alone and a network operating system



Click to view Web Link, click Chapter 8, Click Web Link from left navigation, then click UNIX below Chapter 8 p. 413 Fig. 8-28

Next >

Embedded Operating Systems

What is an **embedded operating system**?

- Found on most mobile computers, PDAs, and other small devices
- **Windows CE .NET** is scaled-down version of Windows



p. 416 Fig. 8-30

Next >

Stand-Alone Operating Systems

What is **Linux**?

- Popular, free, multitasking UNIX-type operating system
- Open-source software — code is available to public
- Both a stand-alone and a network operating system



Red Hat provides a version of Linux called Red Hat Linux. The GNOME graphical user interface is shown in this example.

p. 414 Fig. 8-29

Next >

Embedded Operating Systems

What are two operating systems for PDAs?

- **Windows Mobile 2003** for Pocket PC
- **Palm OS** for Palm, Visor, and CLIE



Click to view video

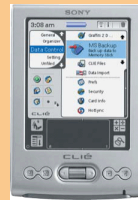


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Click to view Web Link, click Chapter 8, Click Web Link from left navigation, then click Palm OS below Chapter 8

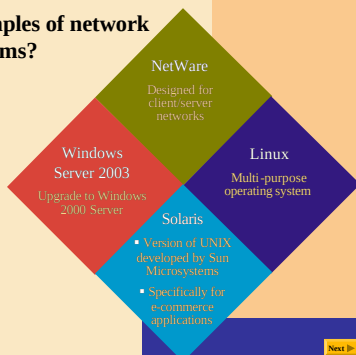
p. 417 Figs. 8-31-8-32



Next >

Network Operating Systems

What are examples of network operating systems?



Click to view Web Link, click Chapter 8, Click Web Link from left navigation, then click NetWare below Chapter 8 p. 415

Next >

Embedded Operating Systems

What is Symbian OS?

- Open-source, multitasking operating system designed for smart phones
- Make telephone calls, save appointments, browse Web, send and receive e-mail and faxes, and more



p. 417 Fig. 8-33

Next >

Stand-Alone Utility Programs

What is a **virus**?

- Potentially damaging computer program
- Affects computer without user's knowledge

SIGNS OF VIRUS INFECTION

- An unusual message or image is displayed on the computer screen
- An unusual sound or music plays randomly
- The available memory is less than what should be available
- A program or file suddenly is missing
- An unknown program or file mysteriously appears
- The size of a file changes without explanation
- A file becomes corrupted
- A program or file does not work properly
- System properties change



Click to view animation

p. 418 Fig. 8-34

Next >

Stand-Alone Utility Programs

What is a **file compression utility**?

- Shrinks size of files to free up room and improve performance
- Compressed files are some **zipped files**
- Two popular utilities: PKZIP and WinZip



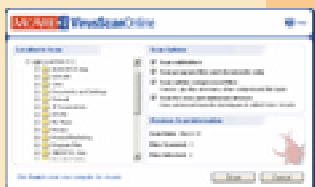
p. 419 Fig. 8-37

Next >

Stand-Alone Utility Programs

What is an **antivirus program**?

- Identifies and removes viruses in memory, storage media, and incoming files
- Must be updated frequently



Click to view animation

Click to view Web Link, click Chapter 8, Click Web Link from left navigation, then click Antivirus Programs below Chapter 8

p. 418 Fig. 8-35

Next >

Stand-Alone Utility Programs

What is a **personal computer maintenance utility**?

- Identifies and fixes operating system problems and disk problems
- Some continuously monitor computer to identify problems before they occur



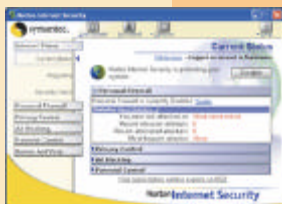
p. 420 Fig. 8-38

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Stand-Alone Utility Programs

What is a **personal firewall**?

- Protects personal computer from unauthorized intrusions
- Monitors all transmissions to and from computer



Click to view Web Link, click Chapter 8, Click Web Link from left navigation, then click Personal Firewalls below Chapter 8

p. 419 Fig. 8-36

Next >

Summary of Operating Systems and Utility Programs

Define an operating system

Discuss a variety of stand-alone operating systems, network operating systems, and embedded operating systems

Discuss the functions common to most operating systems

Describe several stand-alone utility programs

Introduce several utility programs commonly found in operating systems

Chapter 8 Complete