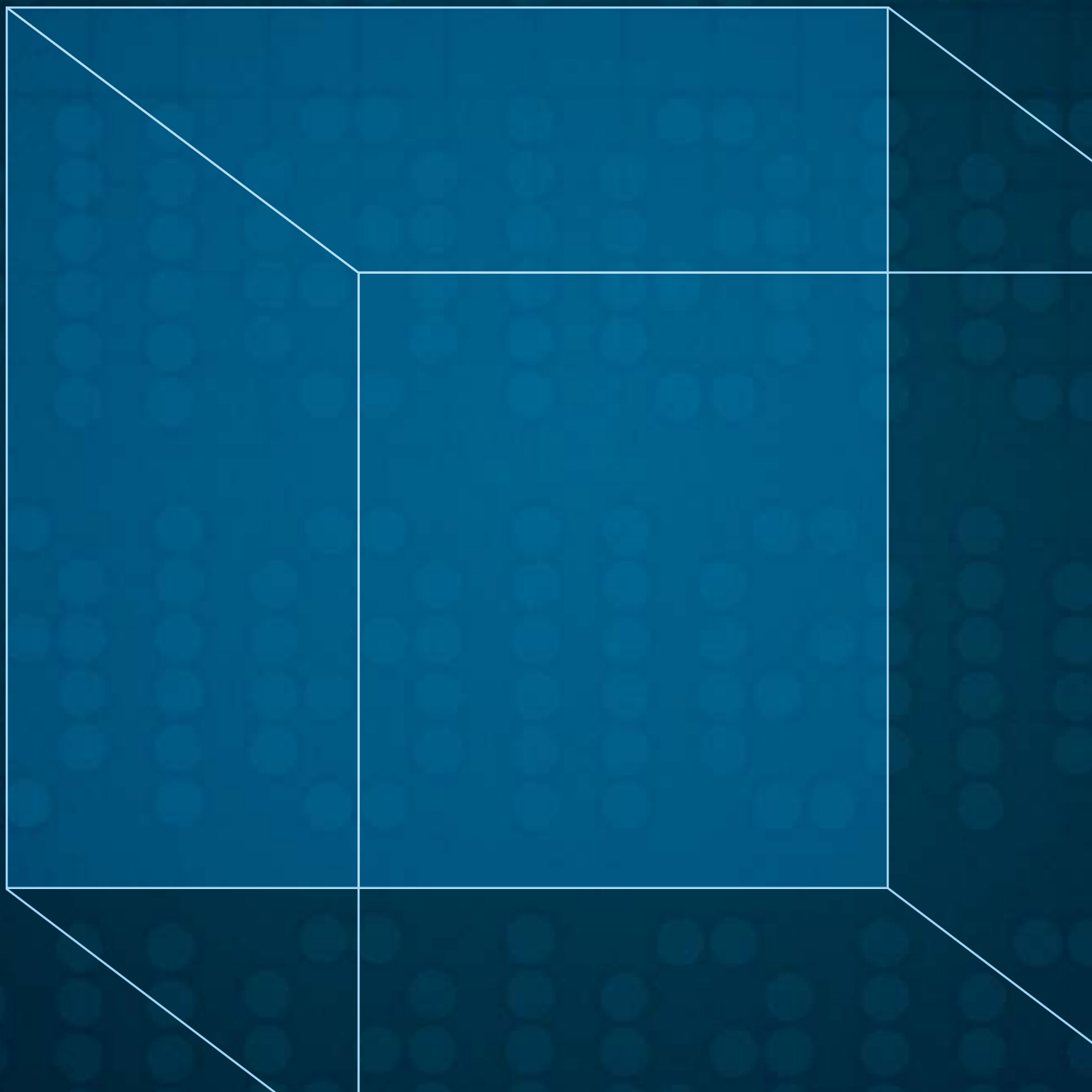
PEARSON NEW INTERNATIONAL EDITION

Computers Are Your Future
Complete

Catherine LaBerta

Twelfth Edition



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How To:

Adjust the Settings for Sleep, Hibernate, and Hybrid Power Modes

Be careful when you increase the amount of time your computer waits before activating any of these power-saving modes on a battery-powered PC. A loss of data may occur if you make the delay time too long and the battery goes dead. The purpose of changing these settings is to optimize your power usage, keeping in mind your work habits and battery strength.

1. Open the Start menu and select the *Control Panel*. From the Control Panel options, select *System and Security* and then select *Power Options* (Figure 43).

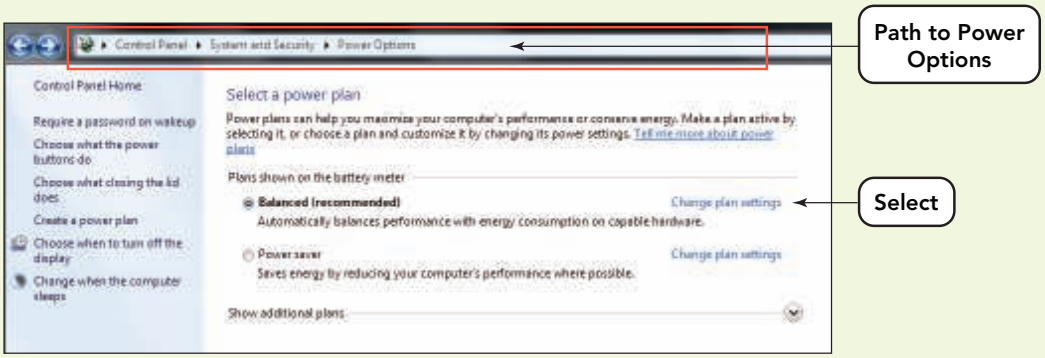


FIGURE 43 Changes to power settings are done through the System and Security option of the Control Panel.

2. Under Select a power plan, to the left of the Balanced (Recommended) option, select *Change plan settings*. If you do not see the word *Balanced*, your manufacturer may have edited this option and replaced it with a more identifying phrase, such as *HP Recommended*.
3. In the Change settings for the plan screen, select *Change advanced power settings* (Figure 44).

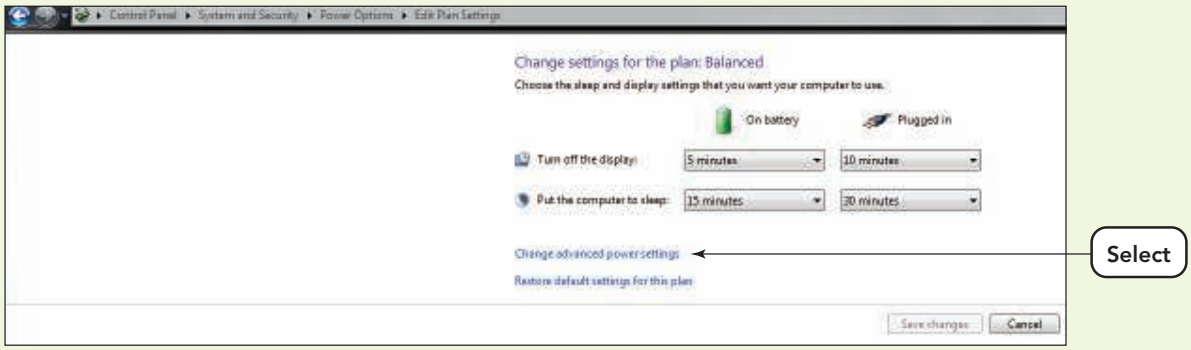


FIGURE 44 The advanced power settings make it possible to change settings for specific behaviors such as Sleep and Hibernate.

4. In the Power Options dialog box, there are three settings:
   - **Expand the Sleep and Sleep after options.** Set the time for On battery and Plugged in settings based on whether you are using a notebook or desktop system and the time length of inactivity that would trigger the system to enter Sleep mode (Figure 45). The interval of inactivity for a notebook (On battery) should be less than 15 minutes to conserve battery power. On a plugged in

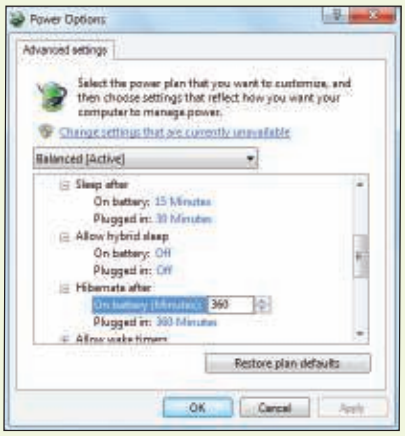


FIGURE 45 Each option in the dialog box can be expanded, and additional features set by the user.

system, like a desktop, usually 30 minutes is tops, but that is up to the individual. Entering Sleep or Hibernate mode too frequently can be very annoying and frustrating. Monitor your habits and set the interval accordingly.

- **Expand the Hibernate after option.** Set the time for On battery and Plugged in settings again based on whether you are using a notebook or desktop system and the length of inactivity that would trigger the system to enter Hibernate mode. Remember that Hibernate mode saves your open programs and data on the hard disk and totally powers down your system. If you are very energy conscientious, then you might choose this setting over Sleep. However, due to the total power down, returning from Hibernate mode takes longer than returning from Sleep mode.
- **Expand the Allow hybrid sleep option.** The settings for Sleep and Hibernate should be set before this step because Hybrid will activate sleep first, and then, if no activity occurs, it moves your system into Hibernate. Here your only choices are On or Off for both On battery and Plugged in settings.

5. Click *OK* to save changes. Close the Control Panel.
6. Test your system and make sure that the delays work.

Chapter Summary

System Software

- System software has two major components: (1) the operating system (OS) and (2) system utilities. The OS coordinates the various functions of the computer's hardware and provides support for running application software. System utilities provide such features as backup, defragmenting, and file compression.
- An operating system acts as an interface between the user and the computer's hardware. Its five basic functions are starting the computer, managing applications, managing memory, coordinating tasks, and providing a means of communicating with the user.
- A computer needs an operating system to coordinate the interaction of hardware components with each other as well as with application software.
- When you start or restart a computer, it reloads the operating system into the computer's memory. A computer goes through six steps at start-up: loading the BIOS, performing the power-on self-test, loading the OS, configuring the system, loading system utilities, and authenticating users.
- The three major types of user interfaces are graphical user interfaces (GUIs), menu-driven user interfaces, and command-line user interfaces. Most users prefer to use graphical user interfaces, which makes use of small images called icons to identfy linked programs. The next most popular type of interface is the menu-driven interface, in which you open programs and selecte options by clicking on a selection in an on-screen menu. Command-line interfaces are hardly ever used anymore because they require the memorization of keywords and punctuation that must be typed on a text line. Such commands are executed when you press the Enter key.
- Operating systems can be placed in three categories: stand-alone, server, and embedded. A stand-alone system does not need to be connected to any other system or computer in order to run. A server system, on the other hand, is designed to work in a network with other units and peripherals. Embedded operating systems are not designed for general purposes but for the specific conditions and actions of the device that they are embedded within.
- The major strength of Windows is that it has dominated the market for more than 15 years and is installed and maintained on more than 90 percent of the personal computers in the world. The major strength of OS X is that it has been modified and upgraded for more than 20 years and is the most stable graphical OS. The biggest weakness of Windows is that Microsoft continues to bring new versions to market before all of the bugs and security holes have been resolved. The main disadvantage of OS X is that it is used on only approximately 8 percent of the computers in the world and thus does not support as many applications as Windows does.
- Essential system utilities include backup software, antivirus software, a file manager, search tools, file compression utilities, disk scanning programs, disk defragmentation programs, and access utilities for those with special needs. Additionally, features like Windows Update keep your OS up to date with fixes (service patches) or protections against external environment changes. These features are also available for a Mac in the Mac OS X Toolbox (or Utilities folder).
- An incremental backup creates a duplicate copy of files that have changed or have been created since the last backup. A full backup duplicates all of the files and data on a hard disk. Each individual or business needs to set a schedule for the time and tye of backup to be performed. This can be automated through such utilities as Windows Update.
- Be aware of problems with your system and attempt to troubleshoot them at the onset. Make use of such features as Help and Support, Safe Mode, and the Action Center to help correct the problem.

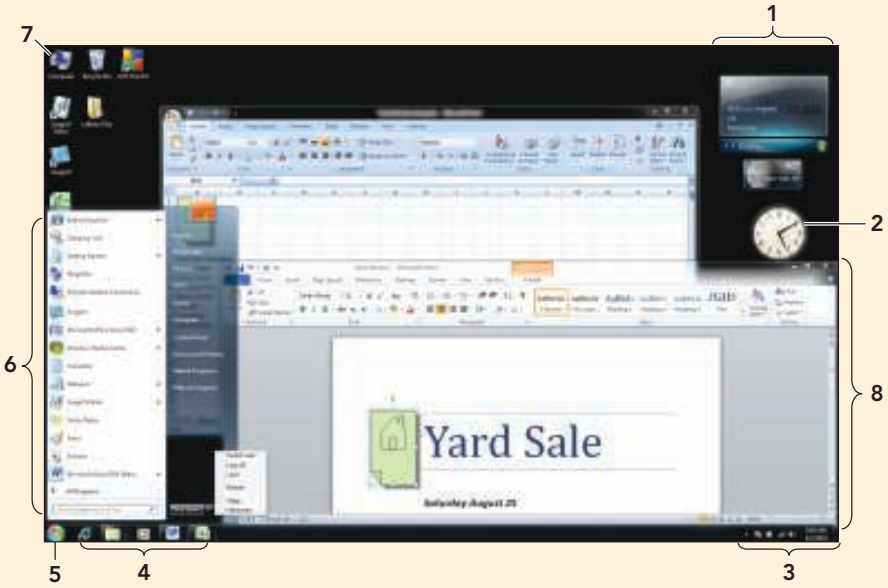
Key Terms and Concepts

account
Android
antivirus software
archive
authentication (login)
background application
backup software
bad sector
BIOS (basic input/output system)
boot disk (emergency disk)
booting
buffer
cold boot
command-line user interface
desktop
disk cleanup utility
disk defragmentation program
disk scanning program
drive imaging software

driver
embedded operating system
file compression utility
file manager
foreground application
fragmented
full backup
gadget
graphical user interface (GUI)
Hibernate mode
Hybrid sleep
icon
incremental backup
interrupt
interrupt handler (interrupt service routine)
interrupt request (IRQ)
interrupt vector table
iPhone OS
kernel
Linux
load
Mac OS
Mac OS X Snow Leopard
menu-driven user interface
Microsoft Windows
Microsoft Windows 7
Microsoft Windows Mobile
Microsoft Windows Server 2008
Microsoft Windows Vista
multitasking operating system
nonvolatile memory
open source software
operating system (OS)
page
paging
Palm OS
platform
plug-and-play (PnP)
power-on self-test (POST)
preemptive multitasking
profile
registry
ROM (read-only memory)
Safe Mode
search utility
server operating system
setup program
sidebar
single-tasking operating system
Sleep mode
stand-alone operating system
swap file
Symbian OS
system software
system utilities (utility programs)
thrashing
UNIX
user interface
virtual memory
volatile memory
warm boot (restart)
Windows CE
Windows Update

Identification

Label each interface item with its name.



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Matching

Match each key term in the left column with the most accurate definition in the right column.

_____ 1. cold boot
_____ 2. load
_____ 3. warm boot
_____ 4. menu driven
_____ 5. graphical user interface (GUI)
_____ 6. interrupt
_____ 7. thrashing
_____ 8. sidebar
_____ 9. page
_____ 10. icon
_____ 11. kernel
_____ 12. platform
_____ 13. gadget
_____ 14. command-line
_____ 15. profile

a. A term used to describe excessive paging
b. A method of interacting with a program or OS by selecting choices from on-screen, text-based options
c. A record of a specific user's preferences for the desktop theme, icons, and menu styles
d. A method of interacting with a program or OS by typing instructions one line at a time, using correct syntax
e. The central part of the operating system that resides in RAM
f. The process of transferring a file from storage to memory
g. A small image that represents a computer resource
h. Starting a computer that is not already on
i. The combination of the processor and operating system
j. A fixed size unit of data used to swap content between RAM and virtual memory
k. Starting a computer that is already on
l. The far right side of the screen in Windows 7, in which gadgets can be positioned
m. The use of small images to activate choices, making a program or OS easier to use
n. A signal from a device to the operating system to inform it that an event has occurred
o. An application that appears as an active icon on the far right side of the desktop

Multiple Choice

Circle the correct choice for each of the following:

1. Which OS is *not* designed for smartphones and PDAs?
   a. Android b. Symbian
   c. Mac OS X d. Windows Mobile
2. What utility program reduces a file size by as much as 80 percent by substituting short codes for lengthy data patterns?
   a. Defragmentation b. Compression
   c. Interrupt d. Cleanup
3. Which of the following is an OS function?
   a. Creating letters
   b. Managing memory
   c. Defragmenting a disk
   d. Writing e-mail
4. Windows ReadyBoost allows a _____ to be used for virtual memory.
   a. hard disk b. CD
   c. flash drive d. DVD
5. Virtual memory is used when:
   a. booting fails.
   b. an IRQ conflict occurs.
   c. RAM is full.
   d. a power-on self-test fails.
6. Which test makes sure the computer and its peripherals are working correctly during the start-up process?
   a. BIOS b. POST
   c. Upgrade d. ReadyBoost

7. Which device is *not* managed by BIOS?
   a. Hard drive
   b. CPU
   c. Jump drive
   d. RAM
8. Which system utility creates duplicates of the files and programs on a system?
   a. Compression
   b. Defragmentation
   c. Backup
   d. Driver
9. Utilities that make computer use easier, especially for individuals with special needs are categorized as
   a. encryption utilities.
   b. supplemental utilities.
   c. accessibility utilities.
   d. system software.
10. Which power-saving mode places a copy of your system's state on the hard drive and shuts off the system?
    a. Sleep
    b. Hibernate
    c. Power down
    d. Screen saver

Fill-In

In the blanks provided, write the correct answer for each of the following:

1. _____ automatically installs fixes and upgrades service patches to maintain a computer's security and reliability.
2. When troubleshooting a system, one strategy is to boot your system in _____, an operating mode in which only a minimum number of drivers that are known to function correctly are loaded.
3. The _____ is a utility program that repositions file sectors in adjacent locations on a hard disk.
4. Linux makes its source code available for everyone to see and use. This is an example of _____ software.
5. A device _____ is a program that enables communication between the operating system and a peripheral device.
6. A disk with data scattered and empty locations where files have been deleted is said to be _____.
7. A copy of all the files and data on an entire hard disk is called a(n) _____.
8. The _____, or login, process verifies that the user is authorized to use the computer.
9. BIOS information is stored in nonvolatile memory called _____.
10. An area of RAM used to temporarily hold information when printing multiple files is a print _____.
11. _____ is the name of the most current Windows operating system for a PC.
12. Windows Explorer and Mac Finder are both examples of a(n) _____ utility.
13. _____ is the name of the most current Mac operating system.
14. _____ is a feature that allows compatible devices to be automatically detected.
15. _____ is the feature in Windows 7 and Vista that allows the user to use a flash device as virtual memory.

Short Answer

1. Briefly describe the three types of user interfaces. Indicate which are in use today, and provide an example.
2. Explain the Sleep, Hibernate, and Hybrid power options and the type of computer user they best suit.
3. What is virtual memory and how does it improve system performance?
4. Explain which devices in a system are controlled by the BIOS and which are controlled by the operating system.
5. Identify three of the accessibility utilities included with Windows 7. State the purpose of each and how it improves computing for those with special needs.