



Startup and Reference Guide

HP Notebook Series

Document Part Number: 335555-001

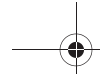
August 2003

Part 1: Startup

The Startup part of this guide explains how to set up your notebook for the first time.

Part 2: Reference

The Reference part of this guide explains how to identify and use the hardware and software features on your notebook.



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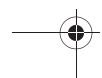
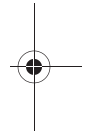
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Part 1

Startup

This *Startup and Reference Guide* provides information about setting up and using your notebook.

- To set up your notebook hardware and software for the first time, follow the procedures in “Part 1: Startup”.
- To learn more about using your notebook, refer to “Part 2: Reference.” To find information about a specific topic:
 - Refer to the contents list on the first page of each chapter,
or
 - Refer to the Index.

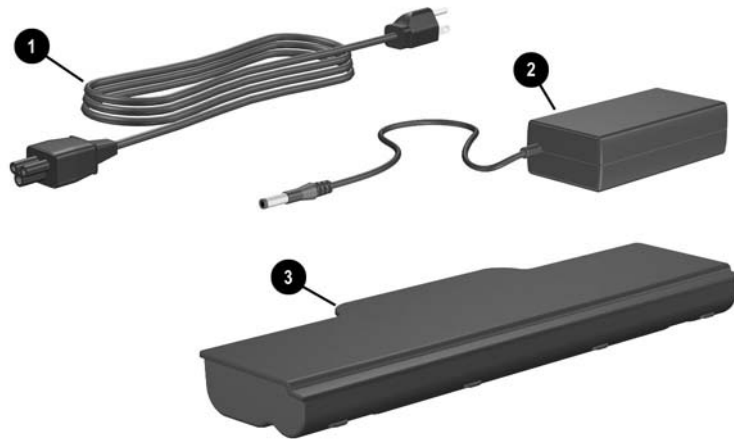
Startup

Setting Up the Hardware

To set up the notebook for the first time, you need the notebook, the power cord ❶, the AC adapter ❷, and the battery pack ❸.

Insert the battery pack into the notebook, so that the battery can begin to charge as soon as the notebook is connected to external power. (Refer to the next section for details.)

Open the notebook, connect it to external power, and press the power button to turn on the notebook.

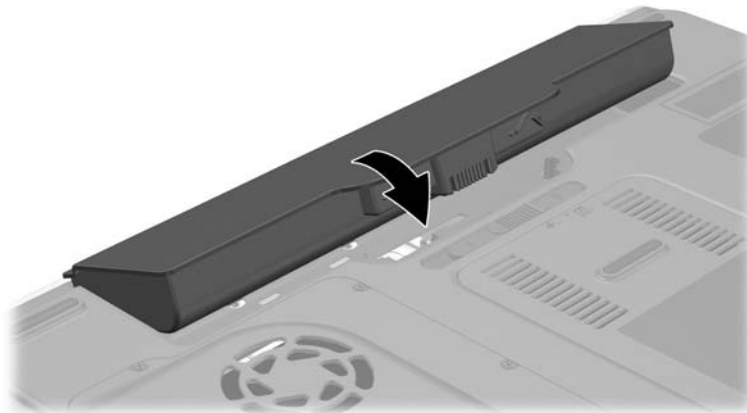


*Identifying the AC adapter, the power cord, and the battery pack
(Power cords vary by region and country.)*

Inserting a Battery Pack

To insert the battery pack into the battery bay:

1. Turn the notebook upside down on a flat surface.
2. Insert the alignment tab on the battery pack into the alignment slot on the notebook.
3. Tilt the battery pack downward until it snaps into place.



Inserting a battery pack

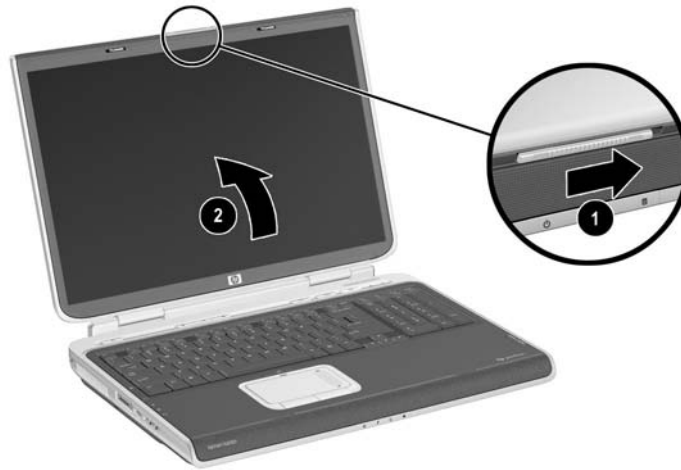
CAUTION: To ensure that the correct drivers load and to prevent file corruption or damage to components, do not remove the battery pack until the notebook has been connected to external power.

Startup

Opening the Notebook

To open the notebook:

1. Place the notebook display-side up on a flat surface near an electrical outlet.
2. Slide the display release latch **1**, then lift the display **2**.



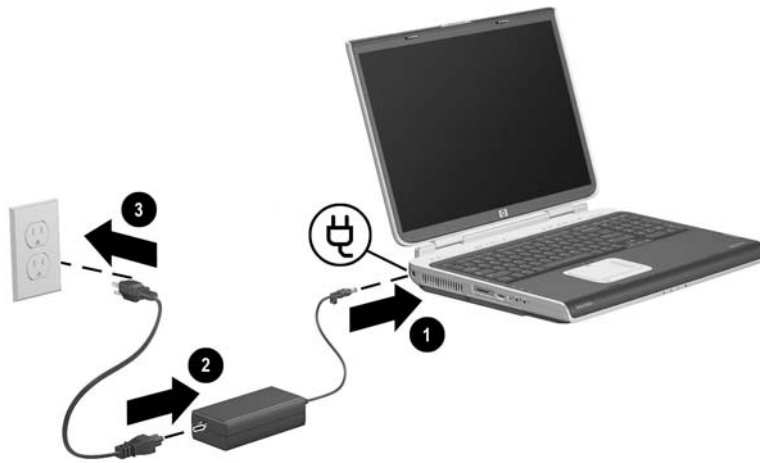
Opening the notebook

Connecting the Notebook to External Power

To connect the notebook to external power:

1. Plug the AC adapter cable into the power connector ❶.
2. Plug the power cord into the AC adapter ❷, then into an electrical outlet ❸.

As soon as the notebook is connected to external power, the battery light turns on, and the battery pack begins to charge.



Connecting the notebook to external power

Startup

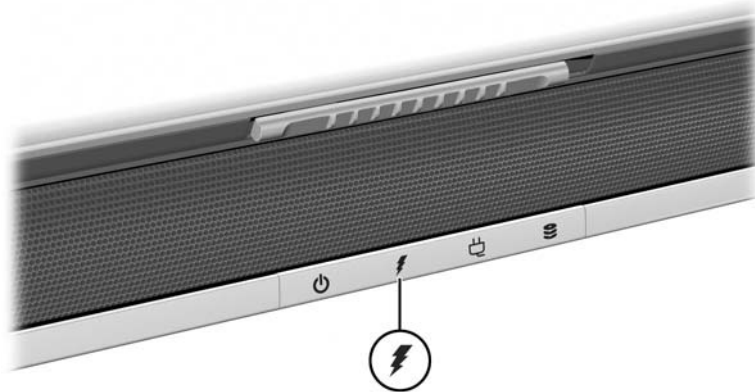
Charging a New Battery Pack

The battery pack begins to charge as soon as the notebook is connected to external power. Charge status is indicated by the battery charge light.

The battery charge light is on while the battery pack is charging.

HP recommends that you leave the notebook connected to external power until the battery pack is fully charged and the battery charge light turns off.

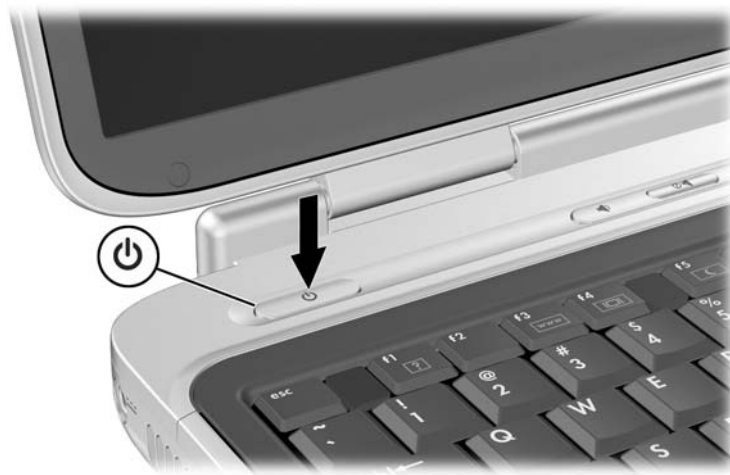
A partially charged new battery pack can run the notebook, but battery charge displays will not be accurate until the new battery pack has been fully charged.



Identifying the battery light

Turning On the Notebook

To turn on the notebook, press the power button. When the notebook turns on, the power/standby button lights up, the power/standby light turns on, and you are prompted to begin software setup.




Turning on the notebook

If the Notebook Does Not Turn On

- Make sure that the AC adapter is securely plugged into an electrical outlet.
- Make sure that the outlet is providing power. (To confirm that the outlet is providing power, plug another device into the outlet.)
- If you have installed a battery pack, make sure that the battery pack is firmly seated.
- Refer to the *Worldwide Telephone Numbers* booklet included with the notebook to contact an HP Customer Care Center.

Startup

Setting Up the Software

 **CAUTION:** To prevent file corruption and ensure that the correct drivers are installed, install software only when the notebook is connected to external power through the AC adapter. During the installation:


- Do not unplug the notebook from external power.
 - Do not shut down the notebook or initiate Standby or Hibernation.
 - Do not insert, remove, connect, or disconnect any device, cable, or cord.
-

Installing Basic Software

When the notebook is connected to external power and turned on for the first time, a prompt to set up the operating system and other basic software is displayed on the screen.

Before responding to the prompt and proceeding through the on-screen instructions, read the following carefully and follow the installation instructions in this chapter.

- After beginning the software setup, you must complete the entire process without interruption. Setup time varies.
- If you are prompted to select a language, choose carefully. On some models, the languages that you do not choose are deleted from the system and cannot be restored during the installation.
- Regional settings and most other preferences can be selected or changed later, after the operating system is installed.
- When you are prompted to accept the End User License Agreement, you must choose Accept to continue the software setup.

 During setup, it is normal for some notebook models to pause occasionally for up to 2 minutes and to restart several times. These pauses and restarts occur only during initial software setup. They will not occur during routine Windows startups.

Installing Optional Software

Instructions for installing and using many of the applications and utilities included with the notebook are provided later in this guide. If you prefer to install optional software now, the following information may be helpful.

To install an application or a utility from a CD, refer to the instructions included with the CD. If printed instructions are not included in the CD package, they may be displayed on the screen when the CD is inserted.

To view or install preloaded utilities or applications, select **Start > All Programs > Software Setup**. Then:

- To display the descriptions and space requirements of a preloaded item without installing it, select the **Next** button, then select an item. After viewing the information, select the **Cancel** button.
- To install a preloaded item, select the check box for the item, select the **Next** button, then follow the instructions on the screen.

Startup

Setting Regional and Display Preferences

Keyboard language and other regional preferences, such as time, date, and currency format, are set in the Regional Options window of the operating system. To access the Regional Options window, select Start > Control Panel > Date, Time, Language and Regional Options icon.

Screen appearance settings are accessed from the operating system Appearance and Themes window. To access the Appearance and Themes window, select Start > Control Panel > Appearance and Themes icon. To access the settings that control the size of the items displayed on the screen, select the Change Resolution task.

Turning Off the Notebook

Turn off the notebook by using the Windows shutdown procedure. Select Start > Turn Off Computer > Turn Off.

If the notebook does not respond, try the following emergency shutdown procedures in the order below:

- Press **ctrl+alt+delete**, click the Shut Down button, then select Shut Down from the drop down list.
- Press and hold down the power button for at least 4 seconds.
- Unplug the notebook from external power and remove the battery pack. For instructions refer to [“Replacing a Battery Pack”](#) in Chapter 4.

Using the Notebook Safely

Protecting the Notebook Against Computer Viruses

When you use the notebook for email, network, or Internet access, you expose the notebook to computer viruses. Computer viruses can disable the operating system, your applications, or your utilities or cause them to function abnormally.

Antivirus software can detect most viruses, destroy them, and in most cases repair damage they have caused. To provide protection against newly discovered viruses, antivirus software must be updated.

For antivirus instructions and more information about virus updates, refer to the Help file within the application or select Start > Help and Support.

Startup

Protecting the Notebook from Power Surges

To protect the notebook from the power surges that may be caused by an unreliable power supply or an electrical storm:


- Plug the notebook power cord into an optional, high-quality surge protector available from most computer or electronic retailers.
- Provide surge protection for the cable that connects the modem to the telephone jack.
- During an electrical storm, run the notebook on battery power or shut down the notebook and disconnect the power cord.


This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. For more information, refer on the *Documentation Library* CD to the *Regulatory and Safety Notices*.



WARNING: To reduce the risk of electric shock or damage to your equipment:

- Plug the power cord into an electrical outlet that is easily accessible at all times.
- Disconnect power from the product by unplugging the power cord from the electrical outlet.
- If provided with a three-pin attachment plug on your power cable, plug the cable into a grounded (earthed) three-pin outlet. Do not disable the power cord grounding pin. The grounding pin is an important safety feature.

 **WARNING:** To reduce the risk of serious injury, read the *Safety & Comfort Guide*. It describes proper workstation setup, posture, and health and work habits for computer users, and provides important electrical and mechanical safety information. This guide is located on the Web at <http://www.hp.com/ergo> and on the hard drive or on the *Documentation Library* CD that is included with the product.

 **WARNING:** This notebook is designed to run demanding applications at full power. As a result of increased power consumption, it is normal for the notebook to feel warm or hot when used continuously. To avoid potential discomfort or burns, do not block the air vents or use the notebook on your lap for extended periods. The notebook complies with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950).

Getting Help

If you cannot solve a notebook problem by using this guide or the supplementary information, including the *Troubleshooting* guide, on the *Documentation Library* CD, you may need to contact HP.

Using the Help and Support Center

Installed on your notebook desktop is the Help and Support Center that provides a comprehensive online resource tool that can be used for the following:

- Troubleshooting assistance
- Downloading the latest driver updates and product information
- Learning more about using and maintaining your notebook

Startup

With the Help and Support Center, you can get immediate assistance before contacting an HP support specialist. For example, in Help and Support, you can:

- Troubleshoot and fix common notebook problems.
- Learn how to use the software tools for working with your favorite music, video, games, and photos (select models).
- Get basic and detailed information about Windows XP for customizing your notebook.
- Set up your notebook for networking and for communicating on the Web.
- Use administration tools to manage areas such as passwords, file backups, system restore, and user accounts.
- Learn how to print, fax, run performance and maintenance tools, and install and configure new hardware.
- Protect your notebook files by using security and privacy features such as Norton AntiVirus software.
- Undo changes to your notebook with System Restore.
- Improve performance of your hard drive and battery pack.
- Download the latest drivers, utilities, software updates, and product documentation for your notebook.
- Use Tools to view notebook information and diagnose problems.
- Keep your notebook up-to-date using Windows Update.
- Find compatible hardware and software.

To access the online Help and Support Center:

1. Press the **fn+f1** hotkey or select Start > Help and Support.
2. Follow the on-screen directions to select the online Help and Support Center feature that you need.

Contacting Technical Support

If you cannot solve a problem using the Help and Support Center installed on your notebook or the documentation provided with your notebook, you can call technical support.

To obtain a list of worldwide customer support telephone numbers, use either of the following methods:

- Select Start > Control Panel > Performance and Maintenance icon > System icon. Then, near the lower edge of the System Properties window, select the Support Information button.
- Refer to the *Worldwide Telephone Numbers* booklet included with the notebook to contact an HP Customer Care Center.

To provide the fastest possible resolution of your problem, have the notebook and the following information available when you call:

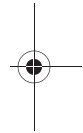
- Notebook serial number and model description, which are provided on labels affixed to the bottom of the notebook.
- Purchase date, as marked on your sales receipt/invoice.
- Conditions under which the problem occurred.
- Error messages that have displayed.
- Manufacturer and model of any optional printer connected.
- Operating system version number and registration number.

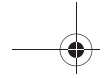
To view these numbers, select Start > Control Panel > System > General tab.

- Determine the version of the system ROM installed on the notebook.



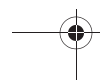
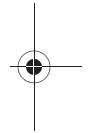
Startup

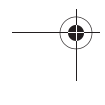
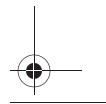
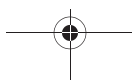
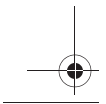
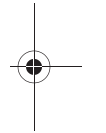
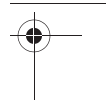
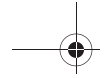
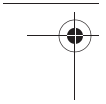




Part 2

Reference





2

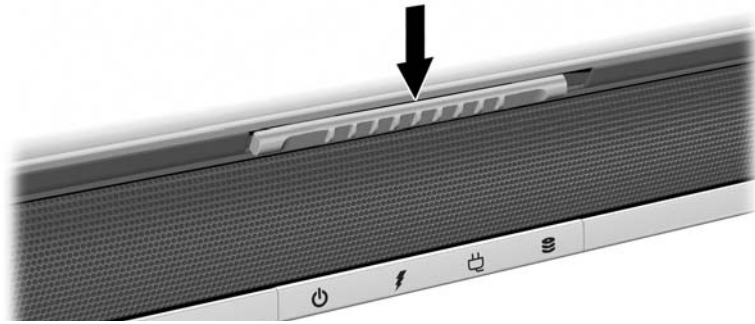
System Components

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System Components

Display



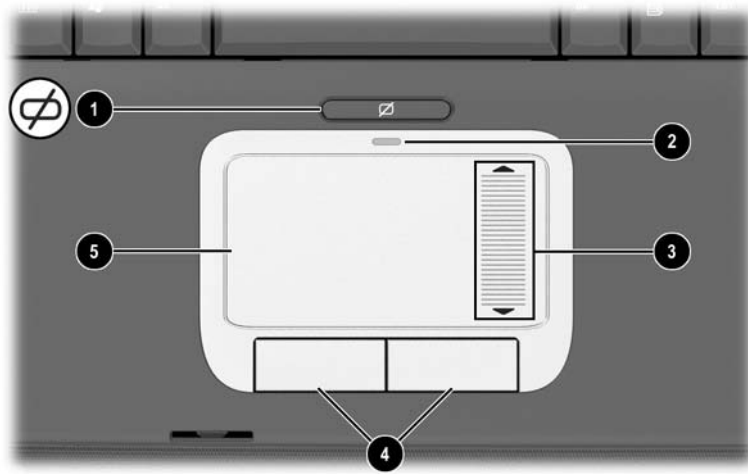
Display

Display release latch

Opens the notebook.

Top

TouchPad



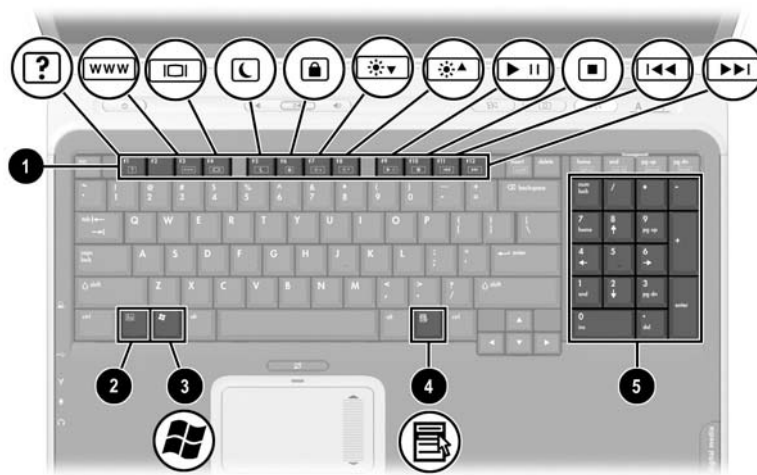
Top: TouchPad

❶	TouchPad on/off button	Enables/disables the TouchPad.
❷	TouchPad light	On: TouchPad is enabled.
❸	TouchPad scroll zone*	Scroll up or down.
❹	Left and right TouchPad buttons*	Function like the left and right buttons on an external mouse.
❺	TouchPad*	Moves the pointer and selects or activates items on the screen.

*This table describes default settings. For information about changing the functions of TouchPad features, refer to “[Setting TouchPad Preferences](#)” in chapter 3.

System Components

Keys




Top: Keys

❶	Function keys	Perform system and application tasks. When combined with the fn key, the function keys f1 and f3 through f12 perform additional tasks as hotkeys. Refer to the “Hotkey Quick Reference” section in chapter 3 for details.
❷	fn key	Combines with other keys to perform system tasks. For example, pressing fn+f8 increases screen brightness.
❸	Microsoft logo key	Displays the Windows Start menu.
❹	Applications key	Displays a shortcut menu for items beneath the pointer.
❺	Keypad keys (17)	Standard numeric keypad.

Power Controls



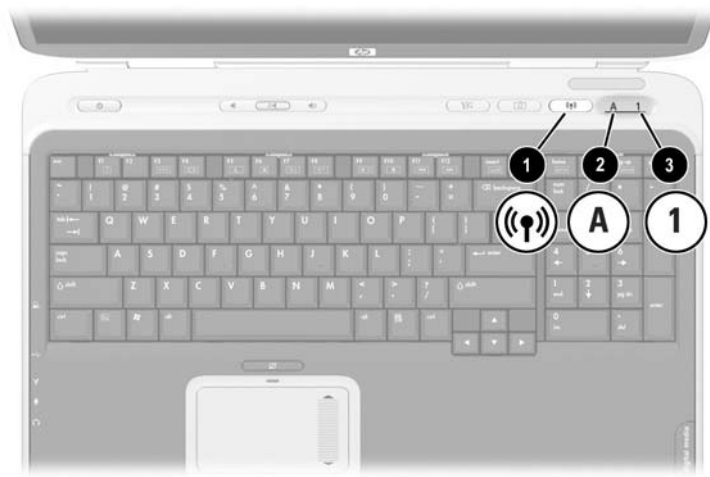
Top: Power Controls

Power button*	When the notebook is: <ul style="list-style-type: none">■ Off, press to turn on the notebook.■ On, briefly press to initiate Hibernation.■ In Standby, briefly press to resume from Standby.■ In Hibernation, briefly press to restore from Hibernation. <p> If the system has stopped responding and Windows shutdown procedures cannot be used, press and hold for at least 4 seconds to turn off the notebook.</p>
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*This table describes default settings. For information about changing the function of the power button or display switch, refer to [“Managing Power Options”](#) in chapter 4.

System Components

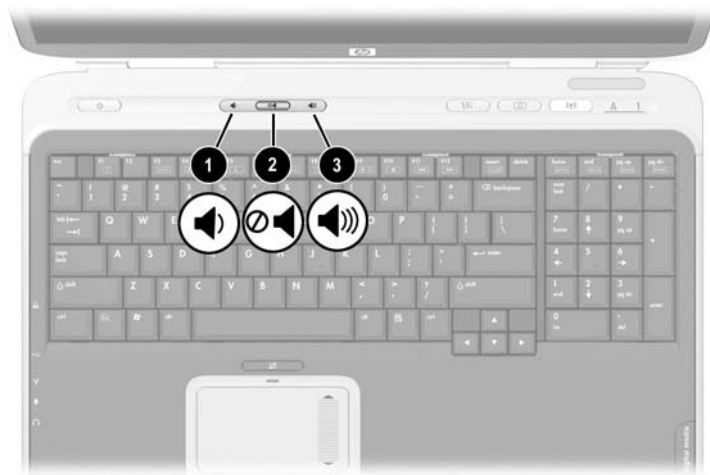
Lights



Top: Lights

- | | | |
|---|-----------------------|---|
| ❶ | Wireless On/Off light | On: An integrated wireless device has been enabled. |
| ❷ | Caps lock light | On: Caps lock is on. |
| ❸ | Num lock light | On: Num lock or the keypad is on. |

Audio Buttons

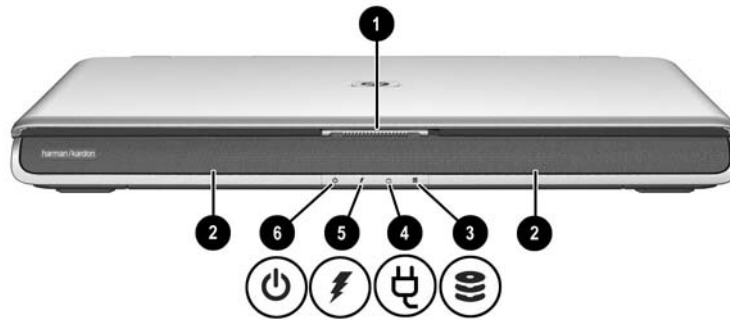


Top: Audio Buttons

- | | | |
|---|------------------------|---|
| ❶ | Decrease volume button | Pressing the left side, decreases system volume. |
| ❷ | Mute button | Mutes or restores volume. |
| ❸ | Increase volume button | Pressing the right side, increases system volume. |

System Components

Front Panel

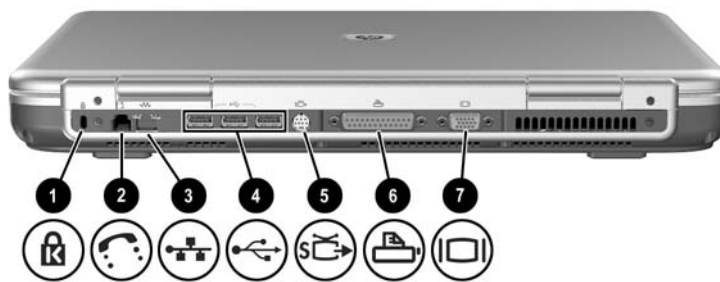


Front Panel

❶	Display release latch	Opens the notebook.
❷	Stereo speakers (2)	Produce stereo sound.
❸	Hard drive activity light	On: The internal hard drive is being accessed.
❹	AC power light	On: The notebook is receiving AC power.
❺	Battery light	On: The notebook is receiving battery power. Flashing: A battery pack is malfunctioning and may need to be replaced.
❻	Power/standby light	On: Notebook is turned on. Flashing: Notebook is in Standby.

Rear Panel

Connectors and Jacks

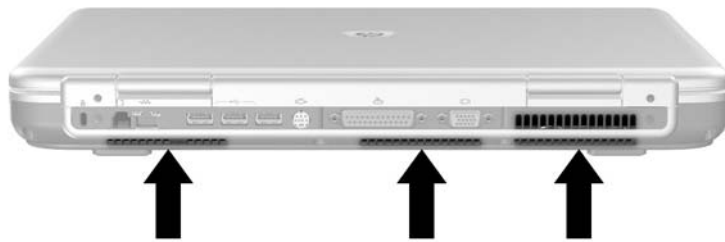


Rear Panel: Connectors and Jacks

❶	Security cable slot	Attaches an optional security cable to the notebook.
❷	RJ-11 telephone jack	Connects a modem cable. (A modem cable is included with select models.)
❸	RJ-45 network jack	Connects an Ethernet network cable. (An Ethernet network cable is included with select models.)
❹	USB connectors (3)	Connect optional 1.1 or 2.0-compliant USB devices.
❺	S-Video jack	Connects an optional S-Video device, such as a television, VCR, camcorder, projector, or video capture card.
❻	Parallel connector (available on select models)	Connects an optional parallel device such as a printer.
❼	External monitor connector	Connects an optional VGA external monitor or projector.

System Components

Vents



Rear Panel: Vents

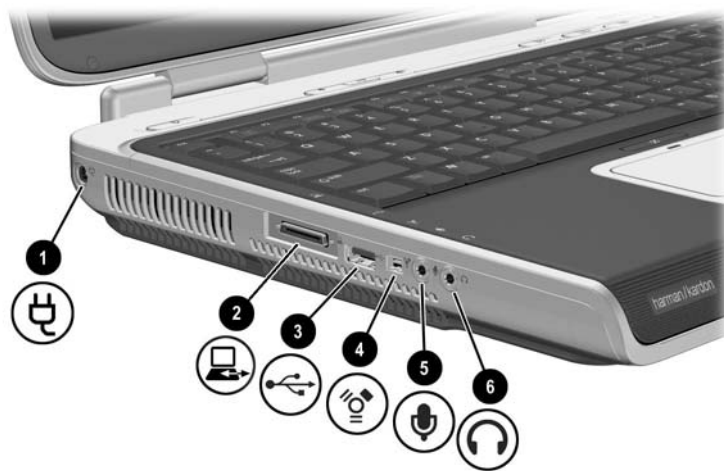
Exhaust vents

Provides airflow to cool internal components.

△ To prevent overheating, do not obstruct vents. Do not allow a hard surface, such as a printer, or a soft surface, such as a pillow, blanket, rug, or thick clothing, to block airflow.

Left Side

Connectors and Jacks

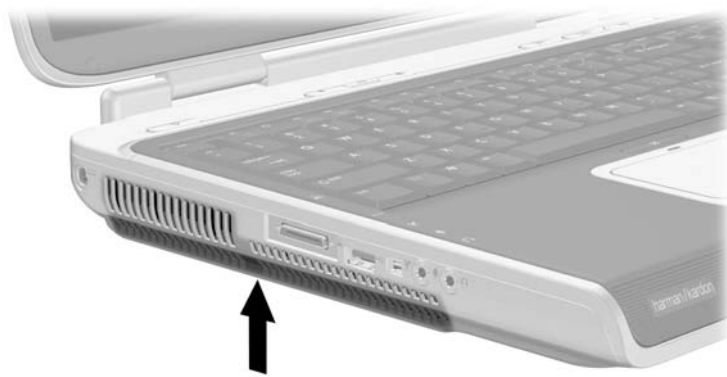


Left Side: Connectors and Jacks

❶	Power connector	Connects an AC adapter cable.
❷	Expansion port	Connects to an optional HP Notebook Expansion Base.
❸	USB connector	Connects an optional 1.1 or 2.0-compliant USB device.
❹	1394 connector	Connects an optional 1394 device, such as a camcorder.
❺	Microphone jack	Connects an optional monaural or stereo microphone.
❻	Audio line-out jack	Connects optional headphones or powered stereo speakers. Also connects the audio function of an audio/video device such as a television or VCR.

System Components

Vents



Left Side: Vents

Exhaust vents

Provide airflow to cool internal components.

- △ To prevent overheating, do not obstruct vents. Do not allow a hard surface, such as a printer, or a soft surface, such as a pillow, blanket, rug, or thick clothing, to block airflow.
-

Right Side



Right Side

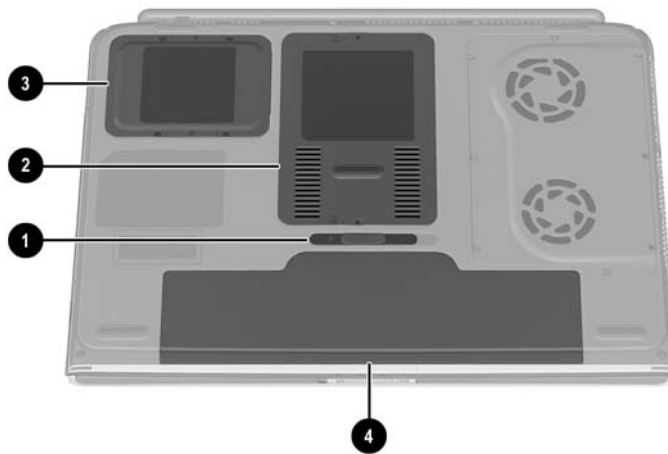
❶	Infrared port	Provides wireless communication between the notebook and an optional IrDA-compliant device.
❷	Digital Media slot	Supports SD, MMC, Memory Stick, and SmartMedia.
❸	Optical drive release button	Opens the optical drive.
❹	Optical drive*	Supports an optical disc.
❺	PC Card eject button	Ejects an optional PC Card from the PC Card slot.
❻	PC Card slot	Supports an optional Type I, Type II, or Type III 32-bit (CardBus) or 16-bit PC Card.

*The type of optical drive, such as a CD, DVD, or combination CD/DVD drive, varies by model.

System Components

Bottom

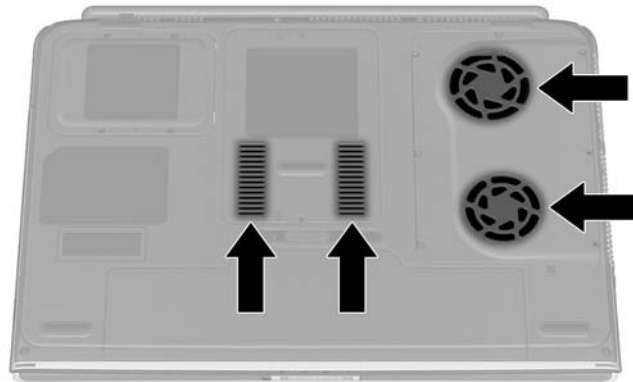
Bays and Memory Compartment



Bottom: Bays and Memory Compartment

①	Battery pack release latch	Releases a battery pack from the battery bay.
②	Memory compartment	Contains 2 memory slots. Depending on the model, when the notebook is shipped either one or both memory slots may be filled with a replaceable memory module.
③	Hard drive bay	Holds the internal hard drive.
④	Battery bay	Holds a battery pack.

Vents



Bottom: Vents

Intake vents

Provide airflow to cool internal components.

△ To prevent overheating, do not obstruct vents. Do not allow a hard surface, such as a printer, or a soft surface, such as a pillow, blanket, rug, or thick clothing, to block airflow.

System Components

Labels

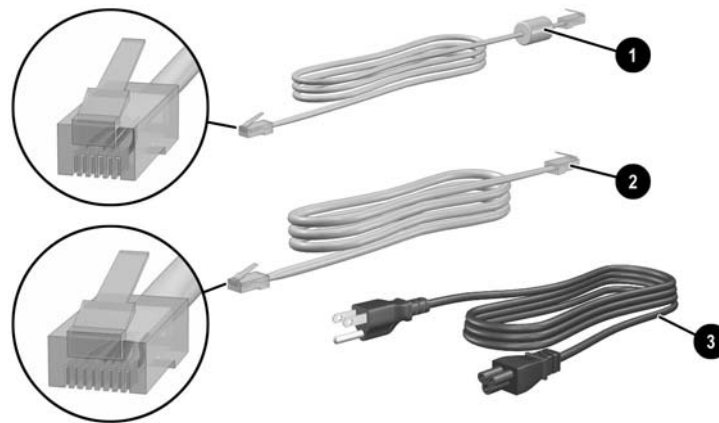
The labels affixed to the notebook and some notebook components provide information you may need when troubleshooting system problems or traveling internationally with the notebook.

- The Microsoft Certificate of Authenticity label contains the Product Key number. You may need this number to update or troubleshoot problems with the operating system.
- The system label provides regulatory information about the notebook.
- The product identification label contains the serial number of the notebook and a code describing the original configuration of the notebook. You will need the notebook serial number if you call customer support.
- The modem approvals label, which is affixed to an optional internal modem, provides regulatory information.
- Wireless certification labels, which are specific to various types of optional wireless devices provide regulatory information and lists the countries in which this optional wireless device has been approved for use.

Additional Standard Components

The components included with the notebook vary by region, country, notebook model, and the optional hardware ordered. The following sections identify the standard external accessories and components included with most notebook models.

Cables and Cord



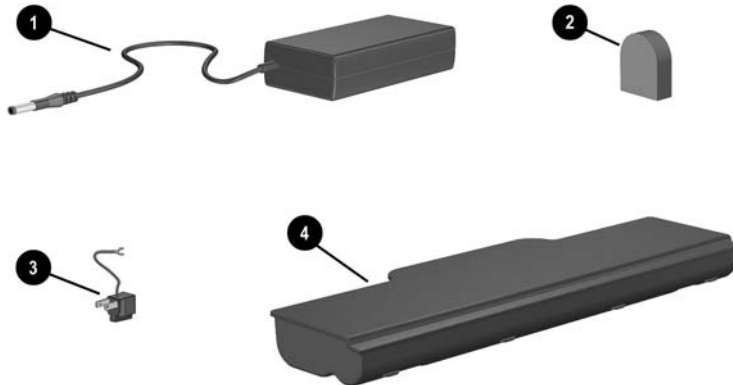
Additional Standard Components: Cables and Cord

- | | |
|---|--|
| <p>❶ Modem cable
(included with select models)</p> | <p>Connects a modem to an RJ-11 telephone jack or to a country-specific modem adapter.</p> |
| <p>✎ A modem cable has a 6-pin, RJ-11 telephone connector at each end.</p> | |
| <p>❷ Network cable
(included with select models)</p> | <p>Connects the notebook to an Ethernet network jack.</p> |
| <p>✎ A network cable has an 8-pin, RJ-45 network connector at each end.</p> | |
| <p>❸ Power cord*</p> | <p>Connects an AC adapter to an AC electrical outlet.</p> |

*Power cords vary in appearance by region and country.

System Components

Adapters and Battery Pack



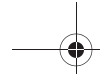
Additional Standard Components: Adapters and Battery Pack

❶	AC adapter	Converts AC power to DC power.
❷	Country-specific modem adapter (included by region as required)	Adapts the modem cable to a non-RJ-11 telephone jack.
❸	Japan-specific outlet adapter (Japan only)	Connects the AC adapter to a 2-prong electrical outlet.
❹	Battery pack	Runs the notebook when the notebook is not connected to external power.

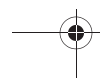
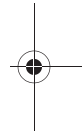
Restoration and Documentation CDs

CDs for repairing or reinstalling software and for obtaining supplementary information about the notebook are included with the notebook.

- For information about restoring, repairing, or reinstalling software, refer to “[Software Updates, Restorations and Utilities](#).”
- For supplementary information about the notebook, refer to the *Documentation Library* CD. The *Documentation Library* CD provided with all models includes the following guides:
 - ❑ *Maintenance, Shipping and Travel Guide*
 - ❑ *Troubleshooting Guide*
 - ❑ *Modem and Networking Guide*
 - ❑ *Regulatory and Safety Notices*
 - ❑ *Safety & Comfort Guide*



System Components



3

Keyboard

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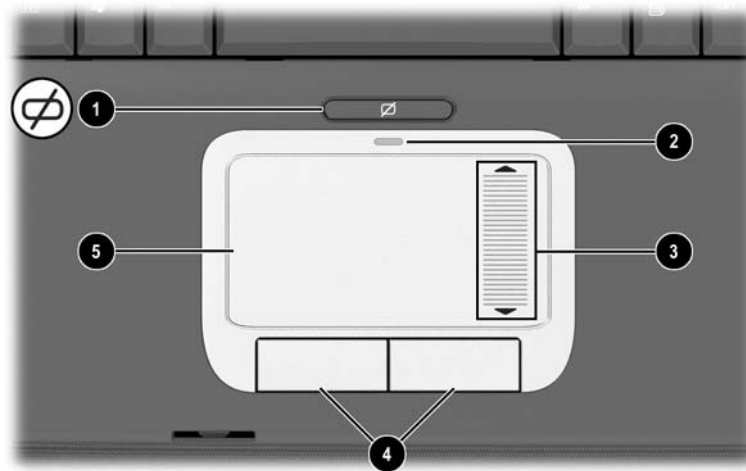
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Keyboard

TouchPad

Identifying TouchPad Components

The TouchPad includes the following components:



Identifying TouchPad components

Button name	Default assignment
❶ TouchPad on/off button	Enables/disables the TouchPad.
❷ TouchPad light	On: TouchPad is enabled.
❸ TouchPad scroll zone	Scroll up or down.
❹ Left and right TouchPad buttons	Function like the left and right buttons on an external mouse.
❺ TouchPad	Moves the pointer and selects or activates items on the screen.

Using the TouchPad

The TouchPad provides the navigation, selection, and scroll functions of an optional external mouse.

- To move the pointer, slide your finger across the TouchPad surface in the direction you want to move the pointer.
- If the pointer continues to move after you lift your finger from the TouchPad surface, wait a few seconds and the pointer will stop moving.
- To execute the click functions of the left or right button on an external mouse, press the left or right TouchPad button.
- To scroll up or down, slide your finger up or down in the scroll zone.
- To enable or disable the TouchPad, press the TouchPad button. When the TouchPad is enabled, the TouchPad light is on.

The notebook turns on with the TouchPad enabled. Users who work with keystrokes rather than mouse actions may prefer to disable the TouchPad to prevent accidental TouchPad activity.

Setting TouchPad Preferences

Pointer speed and shape, click speed, mouse trails, and other pointing device preferences are set in the operating system Mouse Properties window. To access Mouse Properties, select Start > Control Panel > Printers and Other Hardware > Mouse icon.

Keyboard

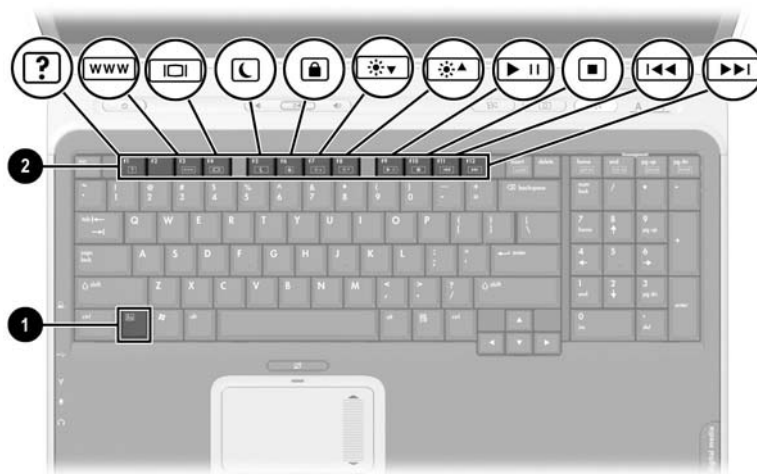
Using Hotkey and Shortcut Keys

Hotkey and shortcut keys are preset combinations of the **fn** key with other keys on the keyboard.

- A hotkey is a combination of the **fn** key and one of the function keys.
- A shortcut key is a combination of the **fn** key and a key other than a function key.

Identifying fn and Function Keys

The icons on the function keys **f1**, and **f3** through **f12** represent the hotkey functions available on the notebook.



Identifying hotkeys

Item	Component
①	fn key
②	Function keys

Hotkey and Shortcut Key Quick Reference

The following table identifies the default hotkey and shortcut key functions.



For information about changing the function of the **fn+f5** hotkey, refer to the “[Managing Power Options](#)” section in chapter 4.

Default Function	Key combination
Display System information.	fn+esc
Open Help and Support window.	fn+f1
Open Microsoft Internet Explorer.	fn+f3
Switch display and image.	fn+f4
Initiate Standby.	fn+f5
Initiate QuickLock.	fn+f6
Decrease display brightness.	fn+f7
Increase display brightness.	fn+f8
Play, pause, or resume an audio CD or DVD.	fn+f9
Stop an audio CD or DVD.	fn+f10
Play the previous track or chapter on an audio CD or DVD.	fn+f11
Play the next track on an audio CD or DVD.	fn+f12

Keyboard

Hotkey and Shortcut Key Procedures

To use a hotkey or shortcut key command on the notebook keyboard, use either of the following procedures:

- Briefly press the **fn** key, then briefly press the second key of the hotkeys command.
- Press and hold down the **fn** key, briefly press the second key of the hotkeys command, then release both keys at the same time.

Hotkey and Shortcut Key Commands

Display System Information (fn+esc)

Press **fn+esc** to display information about system hardware components and software version numbers. Press **fn+esc** a second time to remove the system information from the screen.



When viewing system information, the system BIOS date is the version number of the system ROM. The BIOS date may display in a decimal format, such as 10/19/2002 F.07.

Open Help and Support Window (fn+f1)

The **fn+f1** hotkey opens the Help and Support Center. From the Help and Support Center, you can access general information about your notebook, links to software updates and online technical support specialists, and other support features.

For more information about the Help and Support window, refer to the [“Getting Help”](#) section in [“Startup.”](#)

Open Internet Explorer (fn+f3)

The **fn+f3** hotkey opens Internet Explorer. After you have set up your Internet or network services and your Internet Explorer home page, you can use the **fn+f3** hotkey for quick access to your home page and the Internet.

Switch Display (fn+f4)

The **fn+f4** hotkey switches the image between display devices connected to the external monitor connector or the S-Video jack on the notebook. For example, if an external monitor is connected to the notebook, pressing the **fn+f4** hotkey multiple times will toggle the image between the notebook display, the external monitor display, and a simultaneous display on both the notebook and the monitor.

Most external monitors receive video information from the notebook using the external VGA video standard. The **fn+f4** hotkey can also toggle images between other devices receiving video information from the notebook.

The following five video transmission types, with examples of devices that use them, are supported by the **fn+f4** hotkey:

- LCD (notebook display)
- External VGA (most external monitors)
- S-Video (televisions, camcorders, VCRs, and video capture boards with S-Video-in jacks)
- Composite video (televisions, camcorders, VCRs, and video capture boards with composite-video-in jacks)



Composite video devices can only be connected to the notebook when it is docked in an optional HP Notebook Expansion Base.

Keyboard

Initiate Standby (fn+f5)

The **fn+f5** hotkey is set by default to initiate Standby. Standby can be initiated only while the notebook is on. If the notebook is in Hibernation, you must restore from Hibernation before you can initiate Standby.

To restore from Hibernation or resume from Standby, briefly press the power button. For more information about using Standby and Hibernation, refer to “Power.”

For information about changing the function of the **fn+f5** hotkey, refer in chapter 4 to the “Managing Power Options” section.

Initiate QuickLock (fn+f6)

The **fn+f6** hotkey initiates the operating system QuickLock security feature. The QuickLock feature disables the keyboard and displays the log on screen. QuickLock does not disable the TouchPad.

Before you can use the QuickLock feature, you must set a Windows system password. For instructions, refer to your operating system documentation.

After you have set a Windows system password:

- To initiate QuickLock, press **fn+f6**.
- To exit QuickLock, enter your Windows system password.

Decrease Screen Brightness (fn+f7)

The **fn+f7** hotkey decreases notebook screen brightness. Hold down the hotkey to decrease the brightness level incrementally.

Increase Screen Brightness (fn+f8)

The **fn+f8** hotkey increases notebook screen brightness. Hold down the hotkey to increase the brightness level incrementally.

Play, Pause, or Resume an Audio CD or DVD (fn+f9)

The **fn+f9** hotkey functions only when an audio CD or DVD is inserted. If the audio CD or DVD is:

- Not playing, press the **fn+f9** hotkey to begin or resume the play.
- Playing, press the **fn+f9** hotkey to pause the play.

Stop an Audio CD or DVD (fn+f10)

The **fn+f10** hotkey stops the play of an audio CD or DVD that is playing.

Play Previous Track of an Audio CD or DVD (fn+f11)

The **fn+f11** hotkey plays the previously played track of an audio CD or DVD that is playing.

Play Next Track of an Audio CD or DVD (fn+f12)

The **fn+f12** hotkey plays the next track of an audio CD or DVD that is playing.

Keyboard

Keypad

The keypad consists of 17 keys that can be used like the keys on an external keypad.



Identifying the keypad keys

Quick Launch Buttons

The three Quick Launch buttons enable you to use one keystroke to access a software application or to activate a wireless network device.



Identifying the Quick Launch buttons

Button name	Default assignment
❶ Media button	Launches multimedia application.
❷ Picture button	Launches digital imaging application.
❸ Wireless on/off button	Turns the wireless network device on and off.



The settings for the Quick Launch buttons can be changed. Refer to the next section for information on reassigning these buttons to other applications.

Keyboard

Using Custom Assignments and Schemes

A Quick Launch button can be re-assigned to an Internet or network destination or to any software application or data file. For example, an Quick Launch button can be assigned to open your Internet browser to a favorite Web page or to open an application, such as Microsoft Word, or a document, such as an Excel worksheet, on a notebook or network drive.

Button assignments can be grouped into schemes. When you select a scheme, only the button assignments within that scheme are active. Button assignments and schemes are set up, changed, or deleted in the Quick Launch buttons window.

To program a Quick Launch button:

1. Select Start > All Programs > Utilities > Quick Launch.
2. On the Quick Launch tab, select the button you want to reprogram.
3. Type a label for the button, then select the application, document, folder, or Web site you want the button to open.

If you want a label to appear onscreen when you press a button, select that option on the Onscreen Display tab.

4

Power

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Selecting a Power Source

The notebook can run on *internal* power from a battery pack or on *external* power from an AC adapter and other devices. The following table describes the best power source for general tasks.

Task	Recommended Power Source
Work in most software applications.	<ul style="list-style-type: none"> ■ Charged battery pack in the notebook ■ External power supplied through the following devices: <ul style="list-style-type: none"> <input type="checkbox"/> AC adapter <input type="checkbox"/> Optional HP Notebook Expansion Base
Charge or calibrate a battery pack in the notebook.	External power supplied through: <ul style="list-style-type: none"> ■ AC adapter ■ Optional HP Notebook Expansion Base
Install or modify system software or write to a CD.	External power supplied through: <ul style="list-style-type: none"> ■ AC adapter ■ Optional HP Notebook Expansion Base



WARNING: This notebook is designed to run demanding applications at full power. As a result of increased power consumption, it is normal for the notebook to feel warm or hot when used continuously. To avoid potential discomfort or burns, do not block the air vents or use the notebook on your lap for extended periods. The notebook complies with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950).

Understanding Standby, Hibernation and Shutdown

This section describes Standby, Hibernation, and shutdown and explains when to implement them. Standby and Hibernation are energy-saving features that can be initiated by you or by the system.


Standby

Standby reduces power to system components that are not in use. When Standby is initiated, your work is saved in random access memory (RAM) and the screen is cleared.

- Saving your work before initiating Standby is not usually necessary, but is a recommended precaution.
- When the notebook is in Standby, the power/standby light flashes.

When you resume from Standby, your work returns to the screen where you left off.

 **CAUTION:** To avoid a complete battery discharge, do not leave your notebook in Standby for extended periods. Connect to an external power source if your notebook will not be used for extended periods.


 The system will not initiate from Standby through touchpad movement.

Power

Hibernation

Hibernation takes a snapshot of the current system memory, saves it to the hard drive, then shuts down the notebook. When you resume from Hibernation, your work returns to the screen exactly as you left it.


When possible, save your work before initiating Hibernation to prevent loss of data. Do not change the notebook configuration during Hibernation.

 **CAUTION:** If the configuration of the notebook system is changed during Hibernation, it may not be possible to resume from Hibernation. When the notebook is in Hibernation:


- Do not add or remove memory modules.
- Do not insert or remove the hard drive.
- Do not connect or disconnect external devices.
- Do not insert or remove a CD or DVD.
- Do not insert a PC Card, SD Card, Memory Stick, Smart Media Card, or MMC.

If you cannot resume from Hibernation when power is restored to the system, you will be prompted to delete the restoration data and proceed with system boot. Unsaved data will be lost. If a power-on password has been set, the password must be entered to resume from Hibernation.

Hibernation is enabled by default, but can be disabled. To reduce the risk of power loss during a low battery condition, users should disable Hibernation only during a battery pack calibration.

 **CAUTION:** If Hibernation is disabled, the system does not automatically save your system memory if the notebook reaches a critical low-battery condition.

To verify that Hibernation is enabled, select Start > Control Panel > Performance and Maintenance > Power Options > Hibernate tab. Be sure that the Enable Hibernation check box is selected.

 Hibernation will not be displayed as a power option in the Power Options window if it has been disabled.

Shutdown

Shutdown procedures turn off the notebook. Whether to leave a battery pack in the notebook or in storage depends on how you work:

- Leaving the battery pack in the notebook enables the battery pack to charge whenever the notebook is connected to external power and also protects your work during a power outage.
- A battery pack in the notebook discharges more quickly, even when the notebook is turned off, than a battery pack that has been removed from the notebook and stored in a cool, dry location.

Initiating Standby, Hibernation or Shutdown

The following sections describe when to initiate Standby or Hibernation and when to shut down your notebook.

When Leaving Your Work

Initiate Standby for shorter times and Hibernation for longer times or for more power conservation.

The amount of time a battery pack can support Standby or Hibernation or hold a charge varies by notebook configuration and the condition of the battery pack.

- Initiating Standby clears the screen, uses less power than leaving the notebook on, and your work returns quickly to the screen when you resume from Standby. A fully charged new battery pack can typically support Standby for up to 48 hours.
- Initiating Hibernation clears the screen and uses much less power than Standby. Returning to work saved in Hibernation takes longer than returning to work saved in Standby, but is faster than returning to your place manually after restarting the notebook. A fully charged new battery pack can typically support Hibernation for several weeks.

To extend the life of the battery pack when the notebook will be disconnected from external power for an extended period, shut down the notebook, remove the battery pack, and store it in a cool, dry location.

When External Power Supply is Uncertain

If an external power supply is uncertain, for example, because of an electrical storm, save your work, then initiate Hibernation or shut down the notebook.

When Using Infrared or Drive Media

Standby and Hibernation interfere with the use of infrared communication and drive media.

- If the notebook is in Standby or Hibernation, you cannot initiate an infrared transmission.
- If Standby or Hibernation is accidentally initiated while drive media (such as a diskette, disk, CD, or DVD) is in use:
 - ❑ Your playback may be interrupted.
 - ❑ You may see a warning message: “Putting the computer into Hibernation or Standby may stop the playback. Do you want to continue?” Select No.
 - ❑ Resume from Hibernation or Standby by briefly pressing the power button.
 - ❑ Audio and video may resume, or you may need to restart the media.

 **CAUTION:** Do not initiate Standby or Hibernation while using drive media. Doing so may result in video and audio degradation and loss of audio and video playback functionality.

Using Default Power Settings

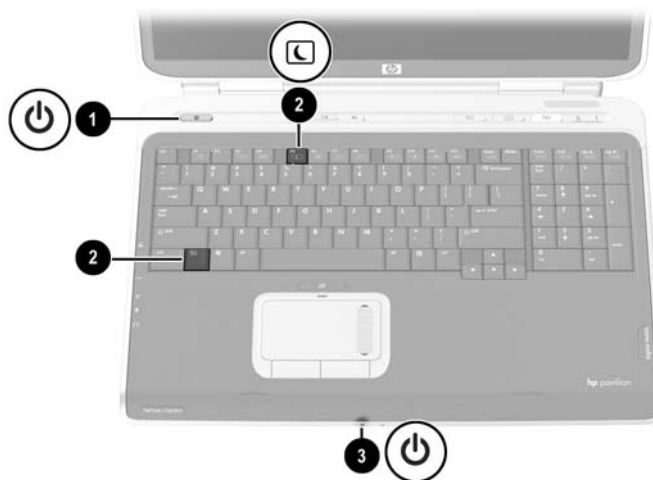
This section explains the default Standby, Hibernation, and shutdown procedures and includes information about turning the display on or off.

You can change many of these settings according to your preferences. If you want to change the default settings, refer to “Setting Power Options” later in this chapter.

Identifying Power Controls and Indicators


Standby, Hibernation, shutdown, and display procedures use the following controls and indicators:

- 1 Power button
- 2 Initiate Standby hotkey (**fn+f5**)
- 3 Power/standby light



Identifying Standby, Hibernation, shutdown, and display controls and indicators

Turning the Notebook or Display On or Off

Task	Procedure	Results
Turn on the notebook.	<p>Press the power button.</p> <p> Pressing the power button turns on the notebook from Standby, Hibernation, or shutdown.</p>	<ul style="list-style-type: none"> ■ The power/standby light turns on. ■ The operating system loads.
Shut down the notebook.*	<p>Save your work and close all open applications.</p> <p>Then:</p> <ul style="list-style-type: none"> ■ Press the power button and follow the onscreen instructions (if displayed) for shutting down the notebook. ■ Shutdown the notebook through the operating system. Select Start > Turn Off Computer > Turn Off. 	<ul style="list-style-type: none"> ■ The power/standby light turns off. ■ The operating system shuts down. ■ The notebook turns off.

*If the system is unresponsive, and you are unable to shut down the notebook with this procedure, refer to the next section, [“Using Emergency Shutdown Procedures.”](#)

Using Emergency Shutdown Procedures

If the notebook does not respond and you are unable to use normal Windows shutdown procedure, try the following emergency shutdown procedures in the sequence provided:

- Press **ctrl+alt+delete**. Select the Shut Down button, then select Shut down from the drop-down list.
- Press and hold down the power button for at least 4 seconds.
- Unplug the notebook from external power and remove the battery pack. For battery pack removal instructions, refer to the “[Replacing a Battery Pack](#)” section, later in this chapter.





CAUTION: Emergency shutdown procedures may result in the loss of unsaved data.

Initiating or Resuming from Standby

Task	Procedure	Result
Initiate Standby	<p>With the notebook on, use either of the following procedures:</p> <ul style="list-style-type: none"> ■ Press the fn+f5 hotkey. ■ Select Start > Turn off Computer > Stand by. 	<ul style="list-style-type: none"> ■ The power/standby light flashes. ■ The screen clears.
Allow the system to initiate standby	<ul style="list-style-type: none"> ■ If the notebook is running on battery power, the system initiates standby after 10 minutes of notebook inactivity (default setting). ■ If the notebook is running on external power, the system does not initiate standby. ■ Power settings and timeouts can be changed in the Power Options window. 	<ul style="list-style-type: none"> ■ The power/standby light flashes. ■ The screen clears.
Resume from user-initiated or system-initiated Standby.	<ul style="list-style-type: none"> ■ Press the power button. 	<ul style="list-style-type: none"> ■ The power/standby light turns on. ■ Your work returns to the screen.

Initiating or Resuming from Hibernation

Task	Procedure	Result
Initiate Hibernation	<p>With the notebook on, use either of the following procedures:</p> <ul style="list-style-type: none"> ■ Briefly press the power button. ■ Select Start > Shut Down > Hibernate. (If the Hibernate option is not displayed, press and hold shift.) <p> If the notebook is in Standby, you must resume from Standby before you can initiate Hibernation.</p>	<ul style="list-style-type: none"> ■ The power/standby light turns off. ■ The screen clears.
Allow the system to initiate Hibernation (with Hibernation enabled)	<ul style="list-style-type: none"> ■ If the notebook is running on battery power, the system initiates Hibernation after 30 minutes of notebook inactivity or when the battery pack reaches a critical low-battery condition. ■ If the notebook is running on external power, the system will not initiate Hibernation. ■ Power settings and timeouts can be changed in the Power Options window. 	<ul style="list-style-type: none"> ■ The power/standby light turns off. ■ The screen clears.
Resume from user-initiated or system-initiated Hibernation.	<p>Press the power button.</p> <p> If the system initiated Hibernation because of a critical low-battery condition, connect external power or insert a charged battery pack before you press the power button.</p>	<ul style="list-style-type: none"> ■ The power/standby light turns on. ■ Your work returns to the screen.

Managing Power Options

Many of the default power settings, such as timeouts and alarms, can be changed in Power Options. For example, you can set an audio alert to warn you when the battery reaches a low-power condition.

By default, when the notebook is on:

- Briefly pressing the power button initiates Hibernation.
- Pressing the **fn+f5** hotkey, called the “sleep button” in the operating system, initiates Standby.
- The display switch turns off the display. The display switch is activated by closing the display.

Accessing the Power Options Window

To change the function of the power button, the **fn+f5** hotkey, or the display switch:

1. Select Start > Control Panel > Performance and Maintenance icon > Power Options icon > Advanced tab.
 - To change the power button function, select a function from the drop-down list for When I Press The Power Button On My Computer.
 - To change the function of the **fn+f5** hotkey, select a function from the drop-down list for When I Press The Sleep Button On My Computer.
 - To change the display switch function, select a function from the drop-down list for When I Close The Lid Of My Portable Computer.
2. Select the OK button.

 The Hibernate function is available in the power button, sleep button, and display switch drop-down lists only if Hibernation is enabled.

Power

Displaying the Power Meter Icon

The Power Meter icon changes shape to indicate whether the notebook is running on a battery pack or external power. Double-click the icon to display the Power Options window.

To hide or show the Power Meter icon on the taskbar:

1. Access the Power Options window.
2. Select the Advanced tab.
3. Select or clear the Always show icon on the taskbar check box.
4. Select the OK button.



If you cannot see an icon you have placed on the taskbar, the icon may be hidden. Select the arrow or vertical bar on the taskbar and expand it to view icons.

Setting or Changing a Power Scheme

The Power Schemes tab in the Power Options window assigns power levels to system components. You can assign different schemes depending on whether the notebook is running on a battery pack or external power.

You can also set a power scheme that initiates Standby or turns off the display or hard drive after a time interval that you specify.

To set a power scheme:

1. Access the Power Options window > Power Schemes tab.
2. Select the power scheme you wish to modify, and adjust options in the lists on the screen.
3. Select Apply.

Using a Security Password

You can add a security feature that prompts you for a password when the notebook turns on or resumes from Standby or Hibernation.

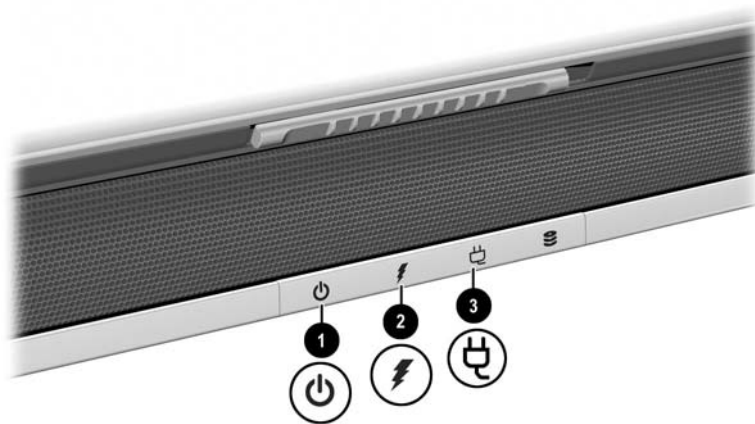
To set a password prompt, access the Power Options window > Advanced tab. Select the check box for Prompt For Password When the Computer resumes from Standby, and select OK.

Power

Using Battery Power

Identifying the Power Lights

Battery pack procedures refer to the front panel lights:



Identifying the battery and power/standby lights

Top: TouchPad

❶	Power/standby light	On when the notebook has power.
❷	Battery light	<ul style="list-style-type: none"> ■ On in the absence of AC power, when the notebook is running on battery power. ■ Flashing indicates that the battery pack is malfunctioning and may need to be replaced.
❸	AC power light	<ul style="list-style-type: none"> ■ On when notebook is connected to AC power. ■ When AC power is available, the battery will charge.

Switching Between Battery and External Power

The notebook switches between AC power and battery power according to the availability of an external AC power source, always preferring AC power. If the notebook contains a charged battery pack and is running on external AC power, the notebook will switch to battery power only if the AC adapter is disconnected from the notebook.

Keeping a battery pack in the notebook enables the battery pack to charge whenever the notebook is connected to external power and also protects your work in case of a power outage. On the other hand, a battery pack in the notebook slowly discharges even when the notebook is powered off.

To prolong battery life, remove and store the battery pack if you will not be using the notebook for 2 weeks or more. Refer to “Storing a Battery Pack” later in this chapter for details.

Charging a Battery Pack

The battery pack charges whenever the notebook is connected to external power through an AC adapter.

The battery pack charges whether the notebook is turned off or turned on, but charges most quickly when the notebook is turned off. When the notebook is turned on, charging times are longer and vary with system activity.

Monitoring the Charge in a Battery Pack

Obtaining Accurate Charge Information

To increase the accuracy of all battery charge displays:

- Allow the battery pack to fully discharge before charging it.
- Charge the battery pack fully. Even a new battery pack can display charge information inaccurately if it has not been fully charged.
- Fully charging and discharging the battery pack will reduce the need for battery calibration.

Displaying Charge Information

To display battery charge information on the screen, select Start > Control Panel > Performance and Maintenance icon > Power Options icon > Power Meter tab.

Power Meter displays battery status in both percent and time:

- The percent indicates the amount of charge remaining in the battery pack.
- The time indicates the approximate running time remaining on the battery pack *if the battery pack continues to provide power at the current level*. For example, the time remaining will decrease if you start playing a DVD and will increase if you stop playing a DVD.

Managing Low-Battery Conditions

Some low-battery condition alerts and system responses can be changed in the Power Options window of the operating system. The information in this section describes the alerts and system responses set at the factory. Preferences set in the Power Options window do not affect lights.

Identifying Low-Battery Conditions

This section explains how to identify low and critical battery conditions.

Low-Battery Condition

When a battery pack that is the sole power source for the notebook reaches a low-battery condition (5 percent of a full charge), the battery light blinks.

Critical Low-Battery Condition

If a low-battery condition is not resolved, the notebook enters a critical low-battery condition (3 percent of a full charge).

In a critical low-battery condition:

- If Hibernation is enabled and the notebook is on or in Standby, the notebook initiates Hibernation.
- If Hibernation is disabled and the notebook is on or in Standby, the notebook remains briefly in Standby, then shuts down and loses your unsaved work.

To verify that Hibernation is enabled, be sure that the Enable Hibernate Support check box on the Hibernate tab is selected. To access the tab select Start > Control Panel > Performance and Maintenance > Power Options icon.

Power

Resolving Low-Battery Conditions



CAUTION: If the notebook has reached a critical low-battery condition and has begun to initiate Hibernation, do not restore power until the Power/Standby light turns off.

When External Power Is Available

To resolve a low-battery condition when external power is available, connect the AC adapter.

When a Charged Battery Pack Is Available

To resolve a low-battery condition when a charged battery pack is available, turn off the notebook or initiate Hibernation, insert a charged battery pack, then turn on the notebook.

When No Power Source Is Available

To resolve a low-battery condition when no power source is available, initiate Hibernation, or save your work and shut down the notebook.

When the Notebook Cannot Exit Hibernation

To resolve a low-battery condition when the notebook lacks the power to exit Hibernation:

1. Insert a charged battery pack or connect external power.
2. Exit Hibernation by briefly pressing the power button.

Calibrating a Battery Pack

When to Calibrate

Even if a battery pack is heavily used, it should not be necessary to calibrate it more than once a month. It is not necessary to calibrate a new battery pack before first use. Calibrate the battery pack under the following conditions:

- When battery charge displays seem inaccurate.
- When you observe a significant change in battery run time.
- When the battery pack has not been used for one month or more.

How to Calibrate

To calibrate a battery pack, you must fully charge, fully discharge, then fully recharge the battery pack.

Charging the Battery Pack


Charge the battery pack while the notebook is in use. To charge the battery pack:

1. Insert the battery pack into the notebook. For instructions, refer to [“Replacing a Battery Pack”](#) later in this chapter.
2. Connect the notebook to external power. (The battery light is on as the battery pack charges.)
3. Leave the notebook connected to external power until the battery pack is fully charged. (The battery light turns off.)

Discharging the Battery Pack

Hibernation is enabled by default, but can be disabled. Before you begin the full discharge, disable Hibernation. To disable Hibernation, select Start > Control Panel > Performance and Maintenance > Power Options > Hibernate tab. Then clear the Enable Hibernation check box.

Power

 **CAUTION:** If you plan to leave the notebook unattended during discharge, save your work before starting the discharge procedure.

To fully discharge the battery pack:

1. Select the power icon on the taskbar or select Start > Control Panel > Performance and Maintenance icon > Power Options icon > Power Schemes tab.
2. Record all settings in the Plugged In column and all settings in the Running On Batteries column, so you can reset them after calibration.
3. Use the drop-down lists to set each item in both columns to Never.
4. Select the OK button.
5. Disconnect the notebook from the external power source, but do not turn off the notebook.
6. Run the notebook on battery power until the battery pack is fully discharged. When the battery pack is fully discharged, the battery light turns off and the notebook shuts down.

If you use the notebook occasionally during the discharge procedure and have set energy-saving timeouts, expect the following performance from your system during the discharge process:

- The monitor will not turn off automatically.
- Hard drive speed will not decrease automatically while the notebook is idle.
- System-initiated Standby will not occur.

Recharging the Battery Pack

1. Connect the notebook to external power and keep the notebook connected until the battery pack is fully recharged and the battery light turns off.

You can use the notebook while the battery pack is recharging, but the battery pack will charge faster if the notebook is turned off.

2. Select the Power icon on the taskbar or select Start > Control Panel > Performance and Maintenance icon > Power Options icon > Power Schemes tab.
3. Reenter the settings you recorded for the items in the Plugged In column and the Running on Batteries column.
4. Select the OK button.



CAUTION: After calibrating the battery pack, reenable Hibernation: select Start > Control Panel > Performance and Maintenance > Power Options > Hibernate tab, then select the Enable Hibernation check box.

Power

Storing a Battery Pack

If the notebook will be unused and unplugged for more than 2 weeks, remove and store the battery pack.

CAUTION: To prevent damage to a battery pack, do not expose it to high temperatures for extended periods of time.

High temperatures accelerate the self-discharge rate of a stored battery pack. To prolong the charge of a stored battery pack, keep it in a cool, dry place.

Use the following table to estimate how long you can safely store a battery pack. The storage times provided are based on a battery pack that contains 50 percent of a full charge. A fully charged battery pack can be safely stored longer.

Temperature Range °F	Temperature Range °C	Safe Storage Time
115°–140°	46°–60°	Less than 1 month
79°–113°	26°–45°	No more than 3 months
32°–77°	0°–25°	1 year

Battery Conservation Settings

Using the following battery conservation settings and procedures extends the run time of a battery pack.

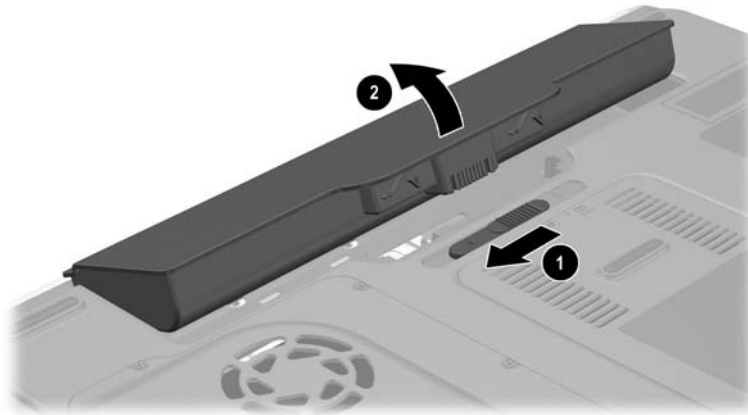
- Turn off wireless and local area network (LAN) connections and exit modem applications when you are not using them.
- Disconnect from the notebook any external devices that use power from the notebook. Battery run time is not affected by external devices that are plugged into an external power source.
- Stop or remove a PC Card you are not using. For more information, refer to the “Using a PC Card” section in Chapter 8.
- Disable or remove a Digital Media card (SD, MMC, Memory Stick, or SmartMedia) you are not using.
- Lower screen brightness.
- Lower system volume.
- Turn off a device connected to the S-Video jack.
- If you leave your work, initiate Standby or Hibernation or shut down the notebook.
- Select a short wait time, 5 minutes or less, for the monitor timeout. To change monitor timeout settings, select Start > Control Panel > Performance and Maintenance icon > Power Options icon > Power Meter tab. Select a short wait time from the Turn Off Monitor drop-down list, then select OK.

Replacing a Battery Pack

CAUTION: To prevent loss of work when removing a battery pack that is the only power source, initiate Hibernation or turn off the notebook before removing the battery pack.

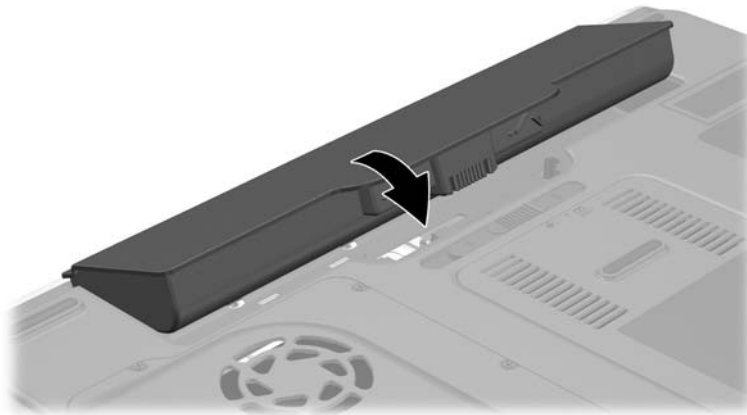
To replace the battery pack:

1. Turn the notebook upside down.
 - ❑ To remove a battery pack, slide the battery release latch **1**. (The battery pack tilts upward.) Then pull the battery pack out of the battery bay **2**.



Removing a battery pack

- ❑ To insert a battery pack, insert the alignment tab on the battery pack into the alignment slot on the notebook, then tilt the battery pack downward until it snaps into place.



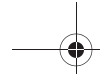
Inserting a battery pack

2. To restore from Hibernation or to turn on the notebook, press the power button.

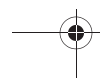
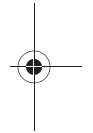
Disposing of a Used Battery Pack



For information about recycling or disposing of a used battery pack, refer on the *Documentation Library CD* to the *Regulatory and Safety Notices* guide.



Power



5

Drives

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Understanding Drives

The hard drive and optical (CD/DVD) drive are standard features of the notebook, but the optical drive features vary by model. Some notebooks include a diskette drive and/or a USB Digital drive.

Adding a Drive to the System

Drives enable you to store and access data. An optional external drive can be added to the system by connecting it to one of the USB (Universal Serial Bus) or 1394 connectors on the notebook.

Additional data storage can be added with Digital Media including Secure Digital Card, Multimedia Card, Smart Media, and Memory Stick.

Types of Drives

Hard drives are for the storage of data files and of software such as system files, applications, and drivers. A hard drive is sometimes called a *hard disk drive*.

Optical drives include CD and DVD drives. Optical drives support DVDs and/or CDs, often called *discs*, which are used to store or transport data and to play music and movies. DVDs have a higher capacity than CDs. The notebook can read or write to optical drives as described in the following table.

Optical Drive	Read	Write
DVD-ROM drive	Yes	No
DVD/CD-RW drive	Yes	Yes
DVD+RW	Yes	Yes

Diskette drives support *diskettes*, which are used to store or transport data. The notebook can read or write to any diskette. A diskette drive is sometimes called a *floppy disk drive*.

Caring for Drives

Drives are fragile notebook components that must be handled with care. The following cautions apply to all drives. Additional cautions are included with the procedures to which they apply.



CAUTION: To prevent loss or damage to the notebook or a drive:

- Handle a drive carefully. Do not drop it.
- When inserting a drive, use only enough pressure to seat the drive. Excessive force can damage drive connectors.
- Do not spray a drive with a cleaner or other liquid or expose it to temperature extremes.
- Do not remove the primary hard drive (the hard drive in the hard drive bay) except for repair or replacement.
- Electrostatic discharge can damage electronic components. To prevent electrostatic damage to the notebook or a drive:
 - Discharge yourself from static electricity before handling a drive by touching a grounded metal object, and
 - Avoid touching the connectors on a drive. For more information about preventing electrostatic damage, refer to the *Regulatory and Safety Notices* on the *Documentation Library CD*.
- Avoid exposing a hard drive or a diskette to devices with magnetic fields. Security devices with magnetic fields include airport walk-through devices and security wands. The airport security devices that check carry-on luggage, usually while it is placed on a conveyor belt, use x-rays instead of magnetism and will not damage a hard drive or a diskette.
- If you mail a drive, ship it in packaging that protects it from shock, vibration, temperature, and high humidity. Label the package "FRAGILE."



CAUTION: To prevent damage to drive media:

- Do not open the metal shutter of a diskette or touch the disk within the diskette case.
- Do not expose a diskette to a strong magnetic field, such as the security field used by a walk-through security device or a handheld security wand.
- Clean a CD or DVD only with a disc cleaning kit, available from most electronics retailers.

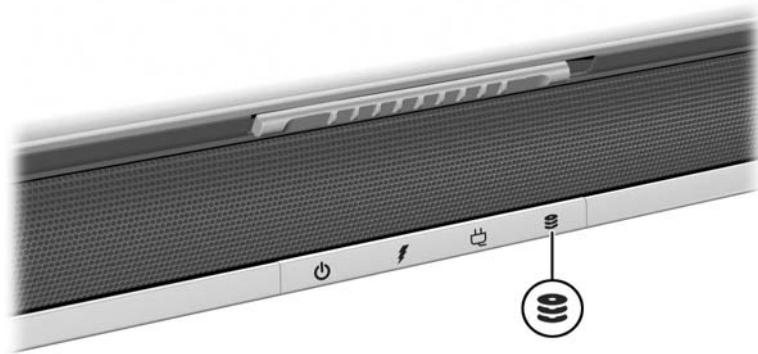
Drives

Hard Drive

This section discusses the primary hard drive of the notebook.

Identifying the Hard Drive Activity Light

The hard drive activity light turns on when the internal hard drive is being accessed.



Identifying the hard drive activity light

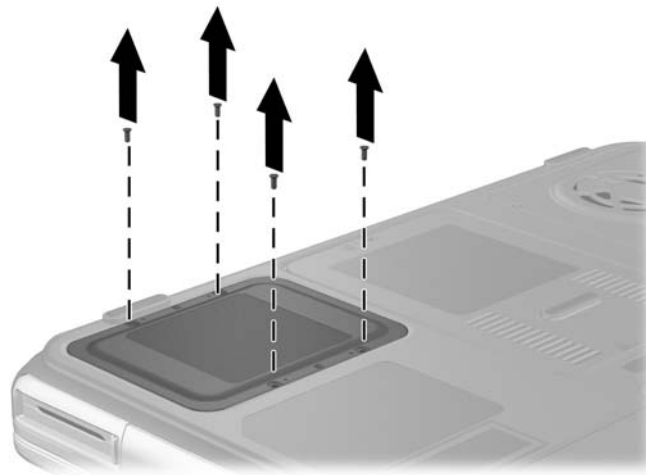
Replacing the Internal Hard Drive

The hard drive in the hard drive bay is the internal hard drive. Remove the internal hard drive only for repair or replacement.

CAUTION: To prevent an unresponsive system and loss of work, do not begin this procedure until you have:

- Saved your work, closed all open applications, and shut down the notebook.
- Disconnected the notebook from external power and removed the battery pack.

1. Save your work and close all open applications.
2. Shut down the notebook and close the display.
3. Disconnect the notebook from external power.
4. Remove the battery pack.
5. Turn the notebook upside down.
6. Remove the 4 hard drive retaining screws from the hard drive bay.



Removing the hard drive retaining screws