
HP Notebook PC

———— Startup Guide

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Important Safety Information

CAUTION

To reduce the risk of fire, use only No. 26 AWG or larger telecommunications line cord to connect a modem to the telephone wall jack.

When using your computer with a telephone connection, always follow basic safety precautions to reduce the risk of fire, electric shock, and injury to persons:


- Do not use this product with a telephone connection near water (for example, near a bathtub, sink, swimming pool, or in a wet basement).
- Avoid using a telephone connection (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lighting.
- Do not use a telephone connection of any type to report a gas leak while in the vicinity of the leak.
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Getting Started with Your HP Notebook

Taking Inventory

Congratulations! Your HP notebook computer sets a new standard in personal computing. Although compact and easy to carry, your notebook is made with the quality and attention to detail that are the hallmark of Hewlett-Packard.

Your notebook has several features that make it convenient to use:

- The power button provides convenient options for starting and stopping the notebook.
- The notebook includes a variety of connectors— Universal serial bus (USB), parallel, TV out, and IEEE 1394—that enable you to use it with a wide range of printers, drives, audio equipment, and other external devices.

In addition, most connectors are on or near the back of the notebook, keeping cables away from your working area.

- Selected models feature convenient dedicated volume controls and a mute button (with indicator) that lets you cut off all sound quickly when needed.

This manual shows how to set up and operate your notebook, as well as what to do if you run into trouble.

What's in the box?

Your notebook is shipped with these items:

- Battery (installed).
- Plug-in drive module: DVD or DVD/CD-RW combo.
- Weight-saving module for the notebook's drive module bay, to reduce travel weight.
- AC adapter and power cord.
- *Quick Start* sheet.
- *Startup Guide*.
- *Recovery CDs or DVDs*, for restoring Windows and all software included with your notebook.
- Microsoft Windows manual.
- Phone cord.
- USB-serial adapter (selected models).

In addition, your notebook includes a variety of preinstalled software. (The exact software installed depends on your particular notebook model.)

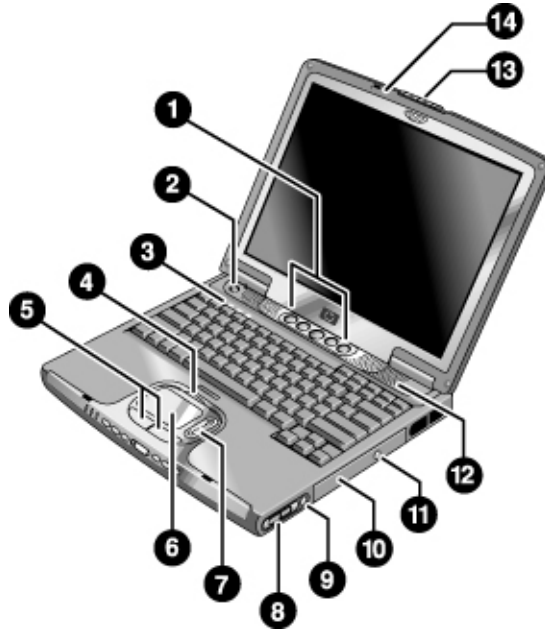
To find more information

The following table lists other sources of information about your notebook and related products.

Source	Description and Location
<i>Startup Guide</i>	This printed manual introduces your HP notebook computer, and contains setup instructions, basic operation guidelines, troubleshooting information, and warranty information.
<i>Online Reference Guide</i>	The <i>Reference Guide</i> is shipped on the notebook's hard drive, and provides a complete source for operating and maintaining the notebook. Click Start, All Programs, HP Library, HP Notebook Reference Guide, or look on the <i>Recovery CD or DVD</i> in \hp\Library.
Online HP Notes	For late-breaking information available after the manuals were completed, see the HP Notes—click Start, All Programs, HP Library, HP Notes, or look on the <i>Recovery CD or DVD</i> in \hp\Library.
Microsoft Windows manual	This is shipped with your notebook and contains information about using the version of Microsoft Windows shipped with your notebook.
HP Notebook Web Site	www.hp.com/notebooks . www.europe.hp.com/notebooks (European mirror).
HP Business Support Web Site	www.hp.com/go/bizsupport .

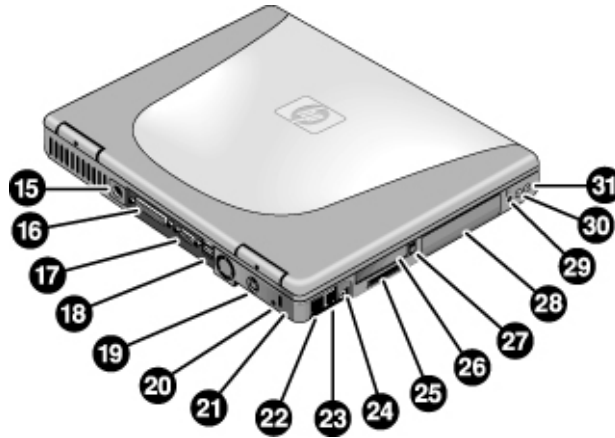
Identifying Parts of the Notebook

Front view



- | | |
|--|---|
| 1. One-Touch buttons (programmable). | 7. Scroll pad. |
| 2. Power button. | 8. Volume controls (selected models). |
| 3. Keyboard status lights: Caps Lock, Num Lock, CD or DVD drive activity. | 9. Mute button and indicator light (selected models). |
| 4. Touch pad/scroll pad on-off button (with on-off indicators on either side). | 10. Removable DVD or DVD/CD-RW drive. |
| 5. Left and right click buttons. | 11. CD/DVD eject button. |
| 6. Touch pad. | 12. Speaker (one on each side). |
| | 13. Latch. |
| | 14. Built-in microphone. |

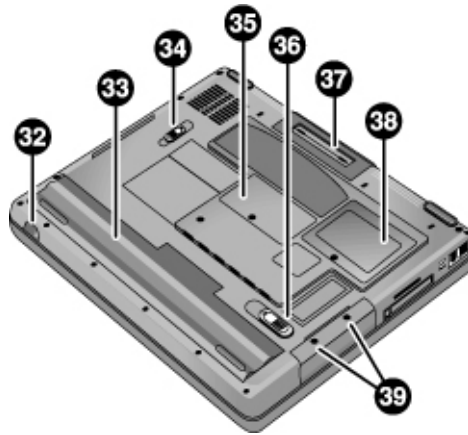
Back view



- | | |
|---|---|
| 15. AC adapter jack. | 23. Modem. |
| 16. Parallel port (LPT1) (colored burgundy). Use this port for a parallel printer or other parallel device. | 24. IEEE 1394 connector (selected models). |
| 17. External monitor (VGA) port (colored blue). | 25. SD-MMC Card slot. |
| 18. Universal serial bus (USB) ports (2). | 26. PC Card slot. |
| 19. S-video (TV out) port (colored yellow) (selected models). | 27. PC Card eject button. |
| 20. Reset switch. | 28. Hard disk drive. |
| 21. Kensington lock slot (security connector). | 29. Wireless on-off button and indicator light (selected models). |
| 22. LAN port and indicators. | 30. External microphone jack (colored pink). |
| | 31. Headphones jack (colored green). |

Getting Started with Your HP Notebook
Identifying Parts of the Notebook

Bottom view



32. Infrared port (selected models).

33. Battery.

34. CD/DVD drive latch.

35. RAM cover.

36. Battery latch.

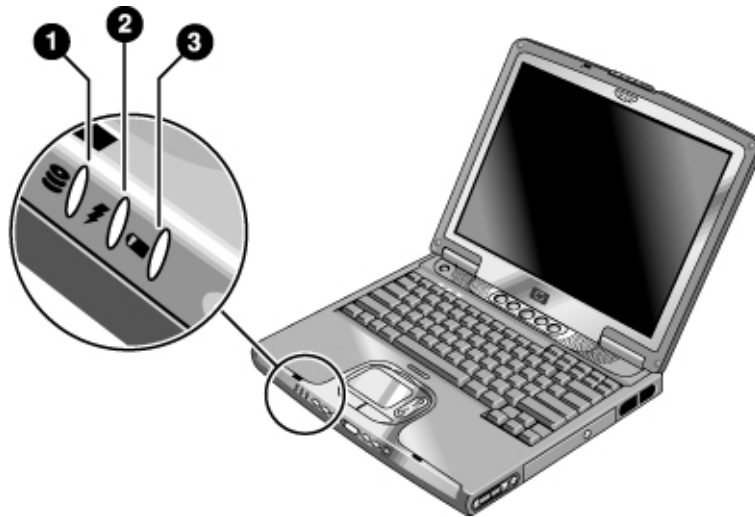
37. Docking port.

38. Mini-PCI cover (no user-replaceable parts inside).

39. Hard disk drive retaining screws.

Status lights

The main status lights report power and battery status and drive activity.



1. Hard disk drive activity.

- On: the notebook is accessing the hard disk drive.

2. Power mode.

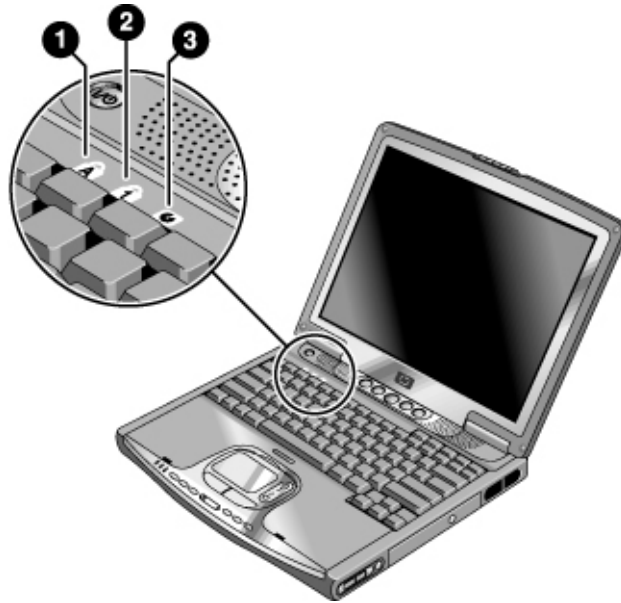
- Green: the notebook is on (even if the display is off).
- Amber: the notebook is on standby.
- Off: the notebook is off or in hibernation.

3. Battery charge status.

- Green: the AC adapter is connected and the battery is fully charged.
- Amber: the AC adapter is connected and the battery is charging.
- Red: the AC adapter is connected and the battery has a fault.
- Off: the AC adapter is not connected or the battery is missing.

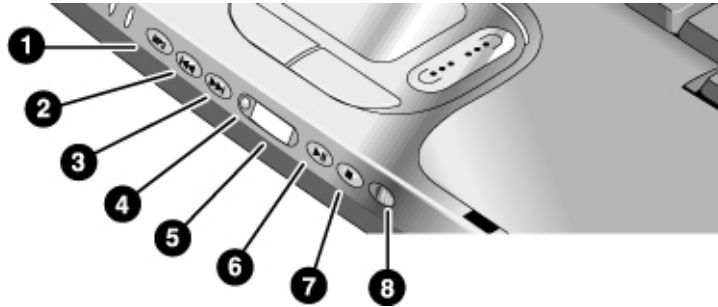
Getting Started with Your HP Notebook Identifying Parts of the Notebook

The keyboard status lights, located above the keyboard, indicate the states of keyboard locks and the CD/DVD player.



1. **Caps Lock.** Caps Lock is active.
2. **Num Lock.** Num Lock is active. (The Keypad Lock must also be on to use the embedded keypad.)
3. **CD/DVD drive activity.** The CD/DVD drive is active.

Multimedia buttons and status panel (selected models)



1. MP3 player launch button.
2. Previous track.
3. Next track.
4. Status panel button.
5. Status panel.
6. Play/Pause.
7. Stop.
8. Multimedia power switch and indicator light—turns the CD/DVD player on and off. Works only when the notebook is off, on standby, or in hibernation.

Setting Up Your Notebook

WARNING

Improper use of keyboards and other input devices has been associated with ergonomic injury. For information about reducing your risk, see “Working in Comfort” in the online HP Library, or visit our ergonomics Web site, www.hp.com/ergo. For a summary about working with a notebook computer, see “Working in Comfort with a Notebook PC” on page 31.

If you are using your notebook as your primary computer, or using it for extended periods, you should use it with a full-size keyboard, monitor, and mouse. This can reduce the risk of ergonomic injury. See “Working in Comfort” in the online HP Library.

When you set up your notebook for the first time, you’ll need to install and charge the battery, connect the AC adapter and a phone line, turn on the notebook, run the Windows setup program, and register the notebook.

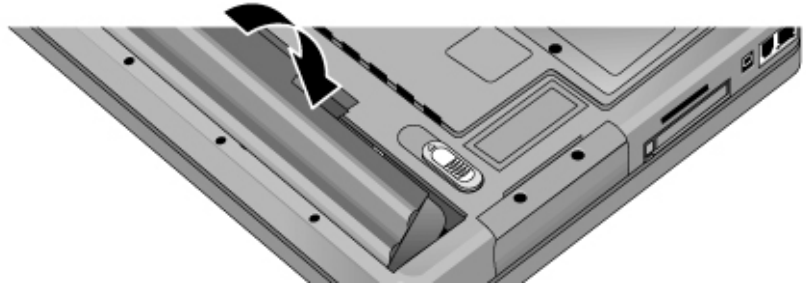
Step 1: Install the battery

WARNING

Do not mutilate or puncture batteries. Do not dispose of batteries in fire, or they can burst or explode, releasing hazardous chemicals. Rechargeable batteries must be recycled or disposed of properly.

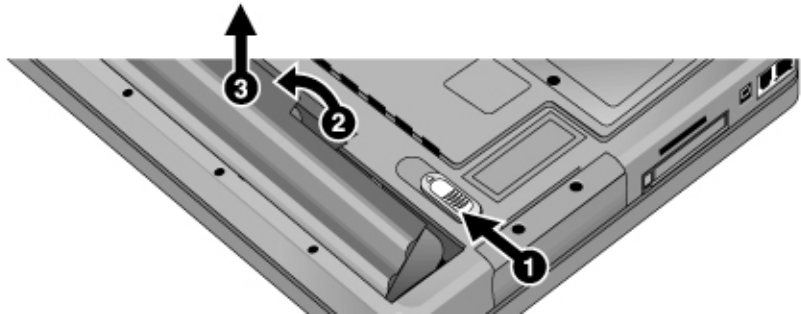
Your notebook is shipped with the battery installed. If the battery has been removed, install it as follows.

- Insert the front end of the battery into the battery compartment on the bottom of the notebook, then press the back end in until the battery clicks into place.



To remove the battery

- Slide the battery's release latch, then lift the battery out of its compartment.



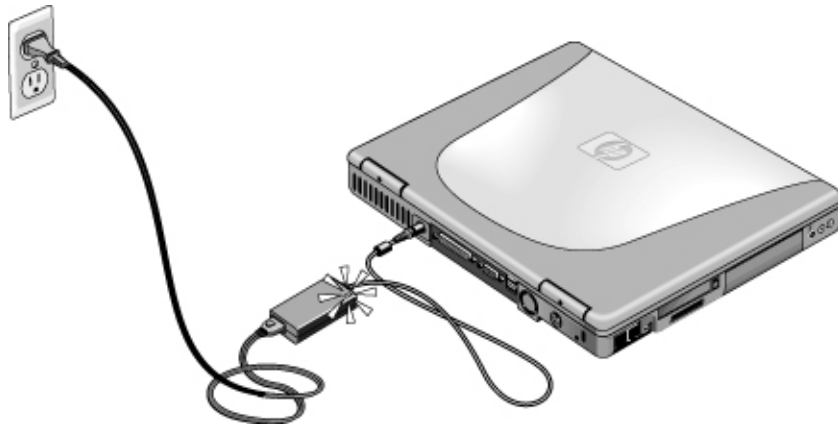
Getting Started with Your HP Notebook
Setting Up Your Notebook

Step 2: Connect AC power

CAUTION

Use only the HP AC adapter included with your notebook (or other approved 75-watt adapter). Do not use a 60-watt adapter, such as HP F1454A or F1781A. Using any other AC adapter could damage the notebook and may void your warranty—see “Hewlett-Packard Limited Warranty Statement” on page 63.

- Plug in the AC adapter (its LED lights), then connect it to the AC adapter jack on the back of the notebook. The notebook’s battery then starts charging.

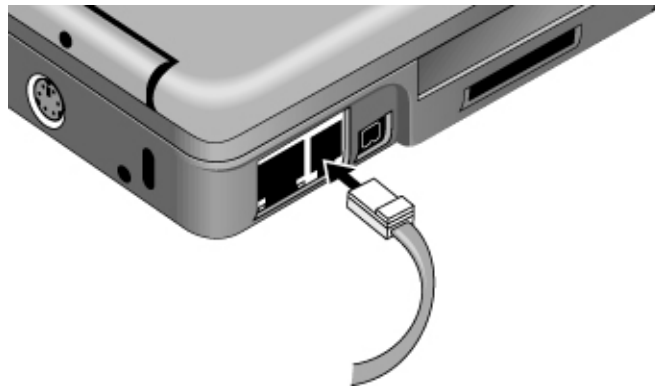


While the battery is charging, you can continue with step 3.

Step 3: Connect a phone line

If your notebook does not include a built-in modem, you can skip this step. Also, if you prefer, you can instead connect to a PC Card modem or an external modem.

1. Make sure the telephone line is an analog line. You must not use a digital line. (Many office and some home lines are digital.)
2. Plug the telephone cord into the notebook's modem jack, or the PC Card or external modem. Make sure the cord clicks into place.



3. Plug the other end of the cord into a telephone jack. If the plug on the phone cord doesn't fit the jack, you may need to use an adapter.

For details about using the modem, including AT commands, see the online *Reference Guide*.

Getting Started with Your HP Notebook Setting Up Your Notebook

Step 4: Turn on the notebook

- Press the power button above the keyboard. The notebook then boots up, and Windows starts automatically.



Note

Your notebook comes with a factory-installed DVD, DVD/CD-RW, or similar drive. Before you turn on your notebook for the first time, make sure this drive is in place. This ensures that the system properly identifies the hardware already installed and loads the appropriate software.

Hint

If your notebook does not turn on when operating on battery power, the battery may be out of power. Plug in the AC adapter and press the power button again. Leave the AC adapter plugged in for at least an hour.

Step 5: Set up Windows

Your notebook has Microsoft Windows XP preinstalled on its hard disk drive. The first time you turn on your notebook, the Windows Setup program runs automatically so you can customize your setup.

1. Follow the Setup program's instructions as they appear on the screen.
2. If your notebook has a modem, check the modem's country or region settings: click Start, Control Panel, Printers and Other Hardware, Phone and Modem Options. On the Dialing Rules tab, verify the settings for your location, or create a new location.

Note

If you need the Windows XP Product ID code, you will find it on the bottom of the notebook.

Step 6: Register your notebook

Be sure to register your notebook. Registering is free and fast, and ensures you will receive quicker, more personalized support. The information you provide during registration allows us to provide you with better products and services.

Registering your notebook does the following:

- Records your ownership of the notebook with Hewlett-Packard and provides access to service, support, and information.
- Records your ownership of the Windows XP operating system with Microsoft.

You can register while setting up Windows, or later in any of three ways: by modem, by phone, or by fax.

By modem

If you decide not to register while setting up Windows, or if your notebook does not have a built-in modem, you can register after you set up a PC card modem or an external modem—or you can register by phone or fax.

By phone

You can register by calling your HP Customer Care Center. See “To contact HP for support or service” on page 59 for the phone number.

By fax

If you have a printer connected to your notebook, you can print a registration form and fax it to HP. Double-click the HP Notebook Registration icon on the desktop, and print the registration form. You will find the fax number on the form.

To connect to the Internet

You can use the built-in modem, LAN port, or wireless LAN (if available on your notebook), to connect to the Internet. For details, see “Modem and Network Connections” in the online *Reference Guide*—click Start, All Programs, HP Library, HP Notebook Reference Guide.

Basic Operation

Operating Your Notebook

You can start and stop your notebook using its power button. However, at certain times you may want to use other methods to start or stop the notebook—depending on power considerations, types of active connections, and start-up time.

For details about using the One-Touch buttons and other special features, plus information on caring for and protecting your notebook, see “Operating Your Notebook” in the online *Reference Guide*.

Note

This manual describes your notebook in its original factory configuration, with all settings at their default values.

To turn the notebook on and off

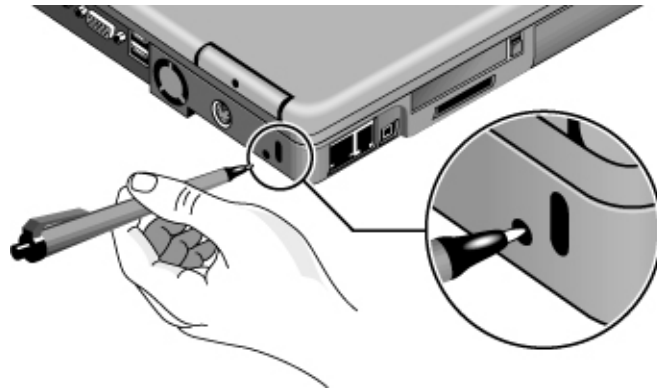
Power mode	To enter this mode	To turn on again
On Power mode status light is green.	Press the power button.	
Standby Maintains current session in RAM. Turns off the display and other components. Saves significant power. Restarts quickly. Restores network connections. Power mode status light is amber.	Click Start, Turn Off Computer, Stand By –or– press the power button –or– allow timeout.	Press the power button to quickly resume your session.
Hibernation Saves current session to disk, then turns off. Saves maximum power. Restores network connections. Power mode status light is off.	Click Start, Turn Off Computer, then press and hold Shift and click Hibernate –or– allow timeout.	Press the power button to resume your session.
Turn off Turns off without saving current session. Saves maximum power. At startup, resets everything, and starts a new session. Power mode status light is off.	Click Start, Turn Off Computer, Turn Off –or– press and hold the power button for four seconds (only if the Start menu procedure doesn't work).	Press the power button to start with a new session.

You can customize the way these power modes work, and the ways you can put the notebook into them. See the chapter titled “Batteries and Power Management” in the online *Reference Guide*.

To reset the notebook

Occasionally, you may find that Windows or the notebook has stopped responding, and will not let you turn the notebook off. If this happens, try the following in the order listed.

- If possible, shut down Windows: press Ctrl+Alt+Del, then click Shut Down, Turn Off.
–or, if this fails–
- Press and hold the power button for about four seconds, until the display turns off. Press the power button again to restart.
–or, if this fails–
- Use a pen or straightened paper clip to press the reset switch on the back of the notebook, then press the power button to restart.



To change the boot device

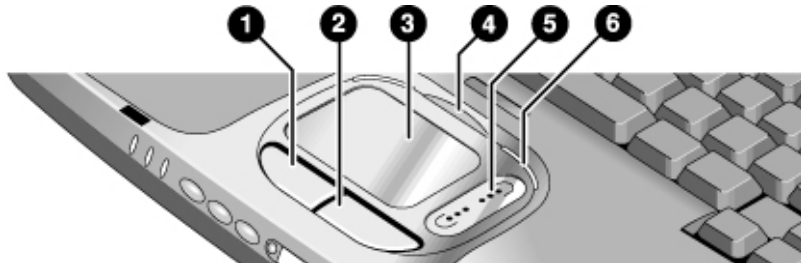
The notebook normally boots from its internal hard disk. You can also boot the notebook from an external USB floppy disk drive (optional accessory), the CD/DVD drive, or a local area network (LAN).

1. Click Start, Turn Off Computer, Restart.
2. When the HP logo appears, press Esc to display the Boot menu.
3. Use the arrow keys to select the boot device, and press Enter.

If you want to boot from a specific device whenever it is present, change the boot order using the BIOS configuration utility—see “To run the BIOS configuration utility” on page 53.

To use the touch pad

Your notebook includes a built-in touch pad, scroll pad, and click buttons.



1. Left click button—works like the left button on a standard mouse.
2. Right click button—works like the right button on a standard mouse.
3. Touch pad—pressure-sensitive pointing and clicking device.
4. Pad Lock button—turns the touch pad and scroll pad on and off.
5. Scroll pad—scrolls the contents of a window.
6. Pad Lock indicators (one on each side)—these light while the touch pad and scroll pad are enabled.

You can customize the operation of many of these devices: you can change the click button and scroll pad actions, double-click speed, pointer speed, and more: click Start, Control Panel, Printers and Other Hardware, Mouse.

Note

The touch pad and scroll pad are automatically disabled when the notebook is docked in a port replicator that has a PS/2 mouse connected.

Moving and selecting using the touch pad and click buttons

1. To move the pointer, move your thumb or finger across the touch pad.
2. Use the left and right click buttons, which function like the left and right buttons on a mouse, to make your selection. You can also tap the touch pad instead of clicking a button.
 - To open an application, move the pointer over the icon and double-click the left button or tap the touch pad twice.
 - To make menu selections, move the pointer to the menu item and click the left button or tap the touch pad.
 - To open the shortcut menu for an item, move the pointer over the item and click the right button.
 - To drag an item, move the pointer over the item. Press *and hold* the left button while you move the pointer to the new location, then release the button.

Scrolling with the scroll pad and touch pad

- To scroll vertically, move a finger up or down on the scroll pad.
- To scroll horizontally, move a finger left or right along the bottom edge of the touch pad.

You can customize the notebook's scrolling features to best suit how you use your notebook: left-click the TouchPad icon in the taskbar, then click TouchPad Properties, Scrolling.

Disabling the touch pad and scroll pad

You may occasionally want to disable the touch pad and scroll pad, such as when you are entering text and do not want to move the cursor accidentally.

- To disable the touch pad and scroll pad, press the Pad Lock button (the Pad Lock indicators then turn off). To reenable the touch pad, press the Pad Lock button again.

Note




Avoid using the touch pad when you press the Pad Lock button, or the Pad Lock button will not work properly.

To use the Fn hot keys



The combination of the Fn key plus another key creates a *hot key*—a shortcut key sequence—for various system controls.

- To use a hot key, press *and hold* Fn, press the appropriate second key, then release both keys.

This hot key	Does this
Fn+F1	Decreases the display brightness.
Fn+F2	Increases the display brightness.
Fn+F5	Toggles among the built-in display, an external display, and simultaneous display on both.
Fn+F8	Toggles the built-in keypad on and off. Does not affect an external keyboard. If Num Lock is on, the numeric functions are active; otherwise, cursor control is active (as marked on an external keyboard).
Fn+Num Lock 	Toggles Scroll Lock on and off.
Fn+Page Up 	Increases the volume (and turns audio on if muted).
Fn+Page Down 	Decreases the volume.
Fn+Backspace	Toggles the mute function on and off.
Fn+any One-Touch button	Toggles the One-Touch button LEDs on and off (selected models).

External keyboards do not support Fn hot keys.

Working in Comfort with a Notebook PC

WARNING

Improper use of keyboards and other input devices has been associated with ergonomic injury. For more information about reducing your risk, visit our ergonomics Web site at www.hp.com/ergo—or see “Working in Comfort” in the online HP Library.

You can use your HP notebook computer virtually anywhere, anytime. The following recommendations should help you work more comfortably.

Note

Note that if you are using your portable computer as your primary computer, or using it for extended periods, you should use it with a full-size keyboard, monitor, and mouse. This will give your portable computer the adjustability and comfort features of a desktop unit. Your computer offers quick, easy connections to these devices. More information on how to prepare your workspace environment and set up your HP equipment is available in *Working in Comfort*, which is preloaded on the hard disk in the HP Library and available on the *Recovery CD or DVD* in \hp\Library—as well as at www.hp.com/ergo.

Your Mobile Work Environment

- Use a chair that provides good support for your lower back. If an adjustable chair is not available, you can use a pillow or rolled-up towel to provide lower back support.
- Try to keep your thighs parallel to the floor and your feet flat on the floor. In a mobile environment, you can do this by using a phone book or briefcase to support your feet.
- Adjust the height of either your work surface or chair to keep your arms in a neutral position. Your arms should be relaxed and loose, elbows at your sides, with the forearms and hands parallel with the floor.
- Position your notebook computer display to minimize glare and reflection. For example, on an airplane, lower the window shade, or in a hotel room, draw the curtains. You also should maintain a comfortable viewing distance—approximately 40 to 60 cm (16 to 24 inches). Adjust the angle of your display to help keep your head angled slightly downward in a comfortable position.

Basic Operation

Working in Comfort with a Notebook PC

Using Your Mobile Computer

- Position the computer so your wrists and hands are in a neutral position. Your wrists should be as straight as possible and should not have to bend sideways or more than 10 degrees up or down. If your notebook computer does not have a built-in palm rest, you can use a rolled-up towel.
- Try to type as lightly as possible. The notebook keyboard requires little force to activate.
- Take frequent, short rest breaks—this is especially important in a mobile computing environment.
- Portable computers weigh between approximately 1.4 and 3.7 kilos (3 and 8 pounds). When traveling, be sure to carry your computer properly to minimize strain on your body. Shift the bag containing your notebook equipment frequently between your left and right hands and shoulders.

Batteries and Power Management

Using Battery Power

For information about how your notebook regulates its power consumption, and how you can manually reduce power consumption and extend the life of the notebook's battery, see the chapter titled "Batteries and Power Management" in the online *Reference Guide*.

To check battery status

From the battery charge light

The battery charge light on the front of the notebook shows whether the notebook's battery is charging or fully charged—see "Status lights" on page 15.

From the Windows taskbar

The Windows taskbar includes a power icon that provides detailed battery status information. The icon looks like a battery when AC is not connected.

If the icon does not appear, click Start, Control Panel, Performance and Maintenance, Power Options. On the Advanced tab, select to show the icon on the taskbar.

- Place the pointer over the power icon to display the remaining battery charge. This value is shown as either a percentage of charge remaining, or as time remaining.
- Double-click the power icon to open the Power Meter window.
- Click the power icon to display a menu of the available power schemes.
- Right-click the power icon to view the options for displaying power information.

From the Windows Control Panel

- Click Start, Control Panel, Performance and Maintenance, Power Options, then click the Power Meter tab to see the battery status. The Alarms and Advanced tabs provide additional Windows' power-information options.

From the status panel

- Press the status panel button several times to display the percent charge remaining for the battery.

To respond to a low-battery warning

The notebook automatically alerts you when the battery power drops to a critically low level. If you do not restore power within a short time, the notebook then goes into hibernation.

Once the notebook goes into hibernation in this way, you won't be able to turn it on again until you restore power by doing one of the following:

- Replace the battery with a charged one. See “Step 1: Install the battery” on page 18.
- Plug in the AC adapter.

Note

If you plug in the AC adapter, you can continue to work while your battery recharges.

To recharge the battery

CAUTION

The AC adapter is normally warm whenever plugged into an AC outlet. The notebook is normally warm while recharging. Do not recharge the notebook in a briefcase or other confined space, or its battery could overheat.

- To recharge the battery, plug the AC adapter into the notebook.

To get the longest operating time, wait until the battery's charge is below 50% before recharging, then charge it fully (100%). Charging can take up to approximately 3 hours. You can continue working while the battery charges.

A fully charged battery can operate the notebook for up to approximately 3.5 hours, depending on your notebook's model, power management settings, and level of use.

Add-On Devices

Using Plug-In Modules

You can use the plug-in module in your notebook:

- DVD drive (selected models).
- DVD/CD-RW combo drive (selected models).
- Weight-saving module (to reduce travel weight and protect your module bay).

For information about connecting your modem or LAN, about connecting PC Cards or external devices, or about modem AT commands, see the online *Reference Guide*.

To replace a plug-in module

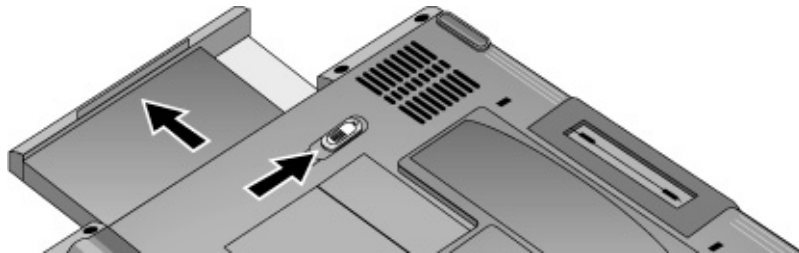
CAUTION

Before disconnecting a plug-in module, you must turn off the notebook—otherwise, you could lose data and damage the equipment.

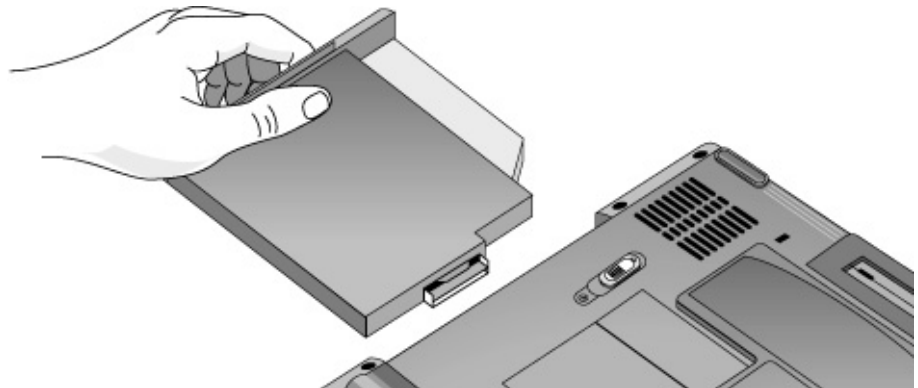
Handle and store a module carefully when it's out of the notebook. Do not drop it or apply excessive pressure to its surfaces—this could damage its internal mechanisms. Do not touch the metallic pins on the notebook's connectors or the module connectors. Static electricity can damage internal components.

1. Turn off the notebook: click Start, Turn Off Computer, Turn Off.

2. Slide the module release latch (on the bottom of the notebook) toward the back of the notebook.

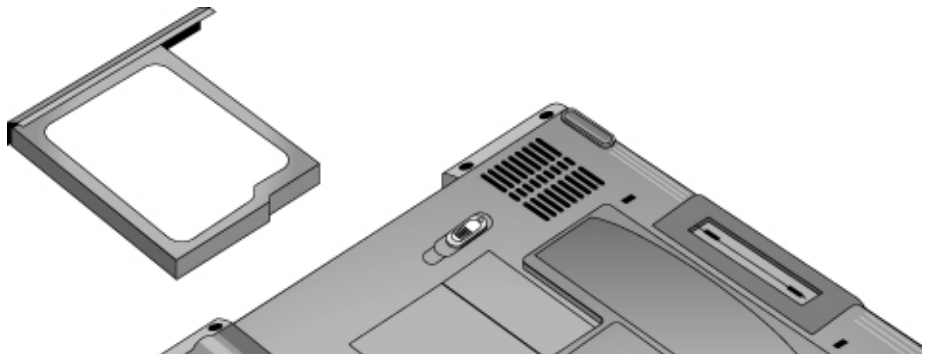


3. Grasp the module and pull it out.



4. Slide the new module into the notebook until it clicks into place.

To save weight and protect the module bay when traveling, insert the weight-saving module provided with your notebook.



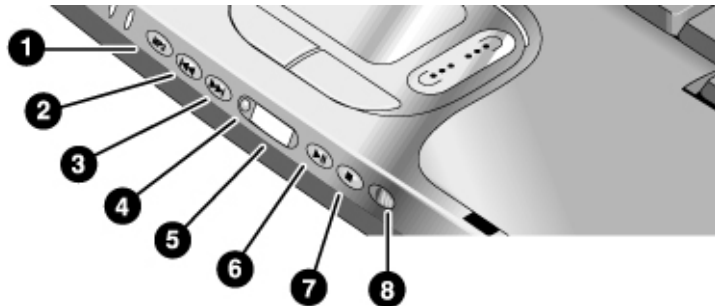
To play audio CDs

If your notebook includes the multimedia buttons and status panel, you can use them to control the notebook's DVD/CD-RW drive.

- If the notebook is turned on, you can use the multimedia buttons to control the Windows Media Player or MusicMatch Jukebox (depending on your notebook model) for playing CDs.

The MP3 button launches either MusicMatch Jukebox or Windows Media Player (depending on your notebook model), which you can use to play MP3 music files.

- If the notebook is on standby, in hibernation, or even turned off, you can still play audio CDs. Slide the multimedia power switch to the left to activate the player without turning on the notebook, then use the multimedia buttons to control play.





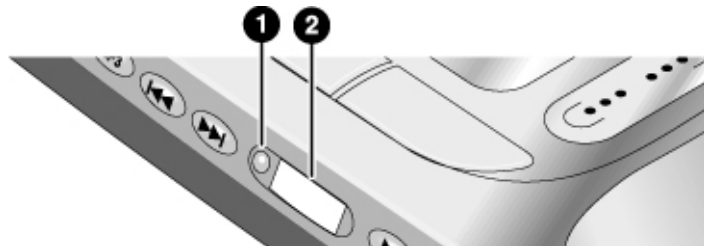
1. MP3 player launch button.
2. Previous track.
3. Next track.
4. Status panel button.
5. Status panel.
6. Play/Pause.
7. Stop.
8. Multimedia power switch and indicator light—turns the CD player on and off. Works only when the notebook is off, on standby, or in hibernation.

If your notebook does not include multimedia buttons, it must be running to play audio CDs—use software such as the Windows Media Player to play the CDs: click Start, All Programs, Windows Media Player.

To use the status panel (selected models)

The notebook's status panel can show the time and date, battery status, power status, and the status of the notebook's CD/DVD player.

- Press the status panel button several times to display the information you want. The first press turns on the backlight. Subsequent presses cycle through the available information in the following order:
 - Power status: ON, OFF, , or .
 - Date.
 - Time.
 - Battery charge remaining (0 to 100%).
 - CD/DVD player status (if the player is running): shows the track number, play status (playing, paused, or stopped), and time counter.



1. Status panel button.
2. Status panel.

You can set the date and time displayed in the status panel by using the BIOS configuration utility—see “To run the BIOS configuration utility” on page 53.

Installing Additional RAM

Your notebook has no memory (RAM) built in, but has two slots for removable RAM modules: the system RAM slot beneath the keyboard (which contains a module installed at the factory), and an expansion slot on the bottom of the unit. You can use both of these slots to expand your unit's RAM. Use DDR 266 SDRAM only.

You'll need a small Phillips screwdriver for these procedures.

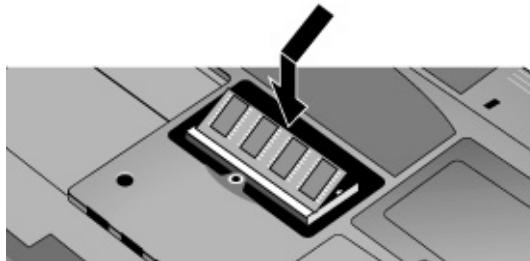
To install a RAM expansion module

To increase your notebook's RAM, you can install a RAM module in the expansion slot on the bottom of the notebook.

CAUTION

Your notebook's chips are extremely sensitive to static electricity, and can be permanently damaged by it. Handle the RAM module only by its edges. Before installing the memory module, discharge your body's static electricity by touching the metal shielding around the connectors on the rear of the notebook.

1. Turn off the notebook: click Start, Turn Off Computer, Turn Off.
2. **Important:** unplug the AC adapter, if present, and remove the battery.
3. From the bottom of the notebook, loosen the screw holding the RAM cover (the cover retains the screw), and remove the cover.
4. Carefully insert the edge of the RAM module into the connector at about a 30° angle until it is fully seated. Then press down on both sides until the latches snap closed.



5. Replace the cover.
6. Insert the battery.

To remove the RAM module, release the two latches at the sides of the module.

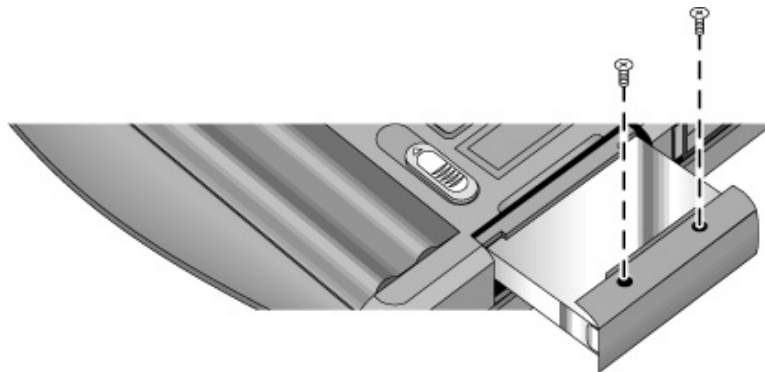
You can also replace the system RAM module beneath the keyboard—see “Installing Additional RAM” in the online *Reference Guide*.

Replacing the Hard Disk Drive

To replace the hard disk drive

You'll need a small Phillips screwdriver for this procedure.

1. Unplug the AC adapter, if present, and remove the battery.
2. Remove both hard drive retaining screws from the bottom of the notebook.



3. Carefully pull the hard drive out of the notebook.
4. Gently slide the new drive into the hard drive compartment. Press firmly to make sure the connector seats properly.
5. Reinstall the hard drive retaining screws.

Important

If you are installing a new hard disk drive, you should create a Utility partition on the drive before loading any software. See “To recover the factory installation of your hard disk” on page 54.

If the notebook prompts you to activate Windows XP, follow the instructions that appear onscreen. The Windows XP Product ID code is located on the bottom of the notebook.

To install the holder on a new hard disk drive or prepare a new hard disk for use, see “Replacing the Hard Disk Drive” in the online *Reference Guide*.

Troubleshooting and Maintenance

Troubleshooting Techniques

This section contains solutions to a few basic problems you might experience while using your notebook. Try the solutions one at a time, in the order in which they are presented.

Here are some other sources of information for troubleshooting:

- See the troubleshooting chapter in the online *Reference Guide* for a more complete list of troubleshooting suggestions.
- Open the HP Web-based troubleshooting tool: click Start, Help and Support, HP Instant Support. Search or browse the troubleshooting database for the information related to your problem.
- Click Start, Help and Support, Fixing a problem, and use the Windows troubleshooters.
- See the Microsoft Windows manual shipped with your notebook.
- For updated information, see the HP Notes in the online HP Library or on the *Recovery CD or DVD* in \hp\Library.
- Find technical tips and software updates for your notebook at the HP Business Support Web site www.hp.com/go/bizsupport).
- Test your notebook by running the e-Diagtools test program—see “Testing the Hardware” on page 51.
- Contact your dealer or Hewlett-Packard—see “To contact HP for support or service” on page 59. Please have your notebook with you when you call.

Note

If the notebook prompts you to activate Windows XP, follow the instructions that appear onscreen. The Windows XP Product ID code is located on the bottom of the notebook.

Getting Assistance for Your Notebook

To get help from HP Instant Support

To get online technical support for your notebook, click Start, Help and Support (or All Programs), HP Instant Support.

Display problems

If the notebook does not recognize the display

When the notebook starts up, it automatically re-activates the display that was in use when Windows was last shut down. If you dock to a simple port replicator or attach a monitor while the notebook is off, the notebook may not properly recognize the monitor. If this happens, choose the display that you want to use in either of these ways:

- Press Fn+F5. (Do this three times to return to the state you started from.)
- Click Start, Control Panel, Appearance and Themes, Display, Settings, and then click the Advanced button. On the Displays tab, select the Display Device you want, and then click OK.

If the notebook is on, but the screen is blank

- Move the mouse or tap the touch pad or scroll pad. This will wake the display if it is off.
- Try pressing Fn+F2 to increase the display brightness.
- Press Fn+F5 in case the internal display was disabled. (Do this three times to return to the state you started from.)
- If the notebook is cold, allow it to warm up.

If the screen is difficult to read

- Try setting the display resolution to its default setting of 1024×768: click Start, Control Panel, Appearance and Themes, Display, Settings.

Floppy disk drive problems

If a floppy drive connected to the USB port doesn't work

- Make sure the drive is securely connected to the notebook.
 - Restart the notebook: click Start, Turn Off Computer, Restart.
-

Hard disk drive problems

If the notebook's hard drive doesn't spin

- Make sure the notebook has power. If necessary, connect the AC adapter, and make sure it is fully plugged into a power source and into the back of the notebook.
- Remove and reinsert the hard drive—see “To replace the hard disk drive” on page 43.

If the hard disk makes a buzzing or whining noise

- Back up the drive immediately.
 - See whether the noise is coming from elsewhere, such as the fan or a PC Card drive.
-

Keyboard and pointing device problems

If the pointer is difficult to control

- Adjust the pointer controls: click Start, Control Panel, Printers and Other Hardware, Mouse.

If the touch pad or scroll pad doesn't work

- Don't use the touch pad or scroll pad while the notebook is rebooting or resuming. If this happens, try the following:
 - Press any key on the keyboard.
 - Put the notebook on standby, then resume operation.
 - The touch pad and scroll pad are automatically disabled when the notebook is docked in a port replicator that has a PS/2 mouse connected.
 - Restart the notebook: click Start, Turn Off Computer, Restart.
-

- Check settings: click Start, Control Pad, Printers and Other Hardware, Mouse, Scrolling.
- Test the keyboard and pointing devices with the e-DiagTools diagnostics—see “Testing the Hardware” on page 51.

Performance problems

For best performance with Windows XP, your notebook should have at least 128 MB of memory (RAM).

If the notebook stops responding

- Press Ctrl+Alt+Del to end the application that is not responding.
- Press and hold the power button for at least four seconds to turn off and reset the notebook. Then press the power button again to turn the notebook back on.
- If nothing happens, use a pen or straightened paper clip to press the reset switch on the back of the notebook. Then press the power button to turn the notebook on.

Power and battery problems

If the notebook turns off immediately after it turns on

- Battery power is probably extremely low. Plug in the AC adapter or insert a charged battery.

If the notebook keeps beeping

- The notebook beeps repeatedly when battery power is low (you can set this option in Power Options in Control Panel). Save your work, turn off the notebook immediately, and insert a charged battery or plug in the AC adapter.

If the battery doesn't charge

- Make sure the AC adapter is fully plugged into the power source and the notebook, and that the light on the adapter is on.
- If you're using a power strip, remove the AC adapter from the power strip and plug it directly into a wall outlet.
- Make sure the battery is fully installed and locked in place.

Troubleshooting and Maintenance

Getting Assistance for Your Notebook

- Move the notebook away from any nearby heat source. Unplug the AC adapter and allow the battery to cool down. If the battery gets too hot, it will not charge properly.
- If available, try another battery and AC adapter.

Startup Problems

If the notebook doesn't respond when you turn it on

- Connect the AC adapter.
- Reset the notebook by using a pen or straightened paper clip to press the reset switch on the back of the notebook. Then press the power button to turn the notebook on.
- Don't use the touch pad while booting or resuming.
- If the notebook still doesn't respond, remove the battery and AC adapter, and remove any PC Card. Then reset the notebook using the reset switch on the back of the notebook, replace the battery and plug in the AC adapter, and turn on the notebook by pressing the power button.
- If you still get no response, call HP for assistance.

If the notebook won't boot from battery power

- Make sure the battery is properly inserted and fully charged. Check the battery's charge by clicking the power icon in the taskbar, or using Power Options in Control Panel.
- If available, try another battery.

Testing the Hardware

The e-Diagtools hardware diagnostic program included with your notebook provides two levels of testing:

- Automated testing using its basic hardware test.
- Advanced testing using individual hardware tests.

The tests are designed to run after the system reboots. This ensures that the notebook will be in a predictable state, so the diagnostic program can properly test the hardware components. The tests are non-destructive and are intended to preserve the state of the notebook. The notebook reboots when you exit the program so drivers can be loaded.

To run the e-Diagtools diagnostic test

Running basic tests and documenting the results

1. In Windows, click Start, All Programs, Hewlett-Packard, Notebook, HP e-Diagtools, e-Diagtools for Windows.
2. Click Support Ticket, and then click Update. e-Diagtools creates a new support ticket.
3. When e-Diagtools displays a dialog box about restarting the notebook, close all files and applications before clicking Yes.

Viewing the support ticket

1. In Windows, click Start, All Programs, Hewlett-Packard, Notebook, HP e-Diagtools, e-Diagtools for Windows.
2. Click View to display the Support Ticket.
3. To add information about your problem, click Comments and type the information, then click OK.

To save or print the Support Ticket, click Save As or Print.

To e-mail the Support Ticket to your support agent, click e-Mail. The first time you make an e-mail connection from this program, click Change Settings in the Connect window and enter the settings recommended by your support agent.

Troubleshooting and Maintenance

Testing the Hardware

Running advanced tests on specific hardware

1. Restart the notebook: click Start, Turn Off Computer, Restart.
2. When the HP logo appears, press F10 to start the diagnostic test.
3. When the menu appears, press F2 to run e-Diagtools.

The first time you run the program, you are prompted to select the language for the program.

4. When the Configuration Description appears, verify the list of detected hardware.
5. Run the basic test. Press F2 to start the basic hardware test. The results appear when the test is complete.
6. Press F2 to open the advanced test screen.
7. Use the arrow keys and ENTER to select the tests that you want to run. Tests are listed only for detected hardware:
8. Press F2 to run the selected tests and add the results to the Support Ticket.
9. Press F12 to run the selected tests in a loop until you press ESC. When running advanced tests in a loop, ESC does not stop all tests immediately.
10. After each run, press F2 to go back to the advanced tests screen, press F4 to view the support ticket, or press F3 to exit.

e-Diagtools for Windows can update the version of e-Diagtools on your notebook's hard disk. In e-Diagtools for Windows, use the e-Diagtools menu.

If you have trouble running e-Diagtools from the hard disk, you can also run it from the *Recovery CD or DVD*. Boot from disk 1 and select the diagnostics option.

Configuring the Notebook

To run the BIOS configuration utility

The BIOS (Basic Input and Output System) configuration utility enables you to make changes to the notebook's system configuration, and to tailor the operation of your notebook to your individual work needs.

The settings made in the BIOS configuration utility generally control the notebook's hardware, and so greatly affect how the notebook operates.

1. Restart the notebook: click Start, Turn Off Computer, Restart.
2. When the HP logo appears, press F2 to enter the BIOS configuration utility.
3. The pointing devices are not active in the BIOS configuration utility, so you will need to use the keyboard to navigate:
 - Press the left and right arrow keys to move among menus.
 - Press the up and down arrow keys to move among parameters in a menu.
 - Press Enter to open the dialog for the current parameter, or to select the parameter.
 - Press Tab or the left and right arrow keys to move among selections in a dialog.
 - Press the up and down arrow keys to move through values for the setting.
 - Press Enter to close the dialog and accept the settings.
4. After you select the options you want, use the Exit menu to exit the BIOS configuration utility.

For a complete list of the BIOS configuration menus, settings, and options, see the online *Reference Guide*.

Reinstalling and Updating Software

You can use the *Recovery CDs or DVDs* to recover the original factory software for your notebook.

The *Recovery CDs or DVDs* also provide Windows drivers specific to your notebook to configure a custom system. You can find drivers in these locations:

- On your notebook's hard drive under C:\hp\Drivers.
- On the *Recovery CD or DVD* under \hp\Drivers.
- On the HP Business Support Web site (www.hp.com/go/bizsupport). This Web site contains the latest updates of software drivers for different operating systems.

To recover the factory installation of your hard disk

You can use the *Recovery CDs or DVDs* to reinstall the original factory software on your notebook's hard disk. You can also use the same process to create a larger Utility partition on your hard disk, or to create a Utility partition on a new hard disk. The hidden Utility partition contains the e-Diagtools diagnostic tests and stores hibernation data for operating systems that don't provide hibernation.

CAUTION

This procedure formats the notebook's hard disk drive and erases all data on the disk. After the hard disk is formatted, you'll need to reinstall your applications.

Do not interrupt the following process or unplug the AC adapter until the process is complete.

1. **Important:** back up all data from your hard disk. The following steps delete all data from the disk.
2. Connect the AC adapter to the notebook.

3. Insert the *Recovery CD* (disk 1) or *DVD* into the notebook's DVD/CD-RW drive. If the notebook is turned off, use a pin or straightened paper clip to press the release switch on the drive door to open it.
4. Turn on or restart the notebook. If the notebook is running, click Start, Turn Off Computer, Restart.
5. When the HP logo appears, press Esc to display the Boot menu.
6. Use the arrow keys to select the DVD/CD-RW drive as the boot device, and press Enter.
7. When the *Recovery CD or DVD* dialog box appears, follow the displayed instructions. If prompted, accept the recommended partition size. If you install the factory software, the recovery process can take up to 15 minutes.

If you want to create the Utility partition without installing the factory software, click Advanced and select not to install the operating system.

If your hard disk is partitioned into several drives, you can install the factory software on drive C without affecting other drives. Click Advanced and select to restore only the C partition.

8. **Important:** when prompted to reboot the notebook, press Ctrl+Alt+Del and follow any instructions that appear.

You can find more details about recovering the factory installation of Windows on the *Recovery CDs or DVDs*: the file readme.txt is in the root directory of each disk.

Note

Windows XP supports the NTFS file system.

HP Support and Service

Getting Assistance for Your Notebook

To get help from the Web

HP has several Web sites on the Internet dedicated to providing information about HP notebook computers:

- **HP Instant Support.** To get online technical support for your notebook, click Start, Help and Support (or All Programs), HP Instant Support.
- **HP Business Support Web site.** Get e-mail and telephone support information, technical information, and software updates.

www.hp.com/go/bizsupport

- **HP Notebook computer Web site.** Get the latest information about technical support, plus information about warranty and support programs.

www.hp.com/notebooks

To contact HP for support or service

HP Customer Care Centers will assist you free of charge during the term of the warranty (you are responsible for the telephone charges).

During the free assistance period, HP will assist with questions on these topics:

- Applications and operating systems included with your notebook.
- HP-described operation environments and conditions.
- HP accessories, HP upgrades, and basic operation and troubleshooting.

HP will not be able to help with questions about:

- Non-HP hardware, software, operating systems, or usage not intended for nor included (by HP) with the product.
- How to repair the product yourself.
- Product development or custom installations.
- Consulting.

To contact the HP Customer Care Center, visit the HP Business Support Web site (www.hp.com/go/bizsupport) under “Contact HP.” You can find information for contacting the Customer Care Center by e-mail, as well as a current list of phone numbers. If your HP notebook product is not normally sold by HP in the country/region of use, you must call a Customer Care Center that supports your notebook model. Currently, service and support assistance is provided only in the following countries/regions:

Pavilion Series Notebooks (limited to the following)

United States: +1 (970) 635-1000

France: +33 (0) 1 43 62 34 34

United Kingdom: +44 (0) 207 512 52 02

HP Support and Service
Getting Assistance for Your Notebook

Omnibook Series Notebooks

North America

United States +1 (970) 635-1000

Canada +1 (905) 206-4663

Latin America

Mexico City +52-58-9922

Mexico (outside Mexico City) +01-800-472-6684

Puerto Rico +1-877-2320-589

South America

Argentina +0810-555-5520

Brazil (São Paulo) +(11) 3747-7799

Brazil (outside São Paulo) +0800-15-7751

Chile +800-360-999

Colombia +9-800-11-4726

Peru +0-800-10111

Venezuela +800-477-7777

Asia/Pacific

Australia +61-3-8877-8000

Hong Kong +852 800 96 7729

India +1-600-112267

Indonesia +62-21-350-3408

Japan (Navi. Dial) +0570-000-510

Japan (if Navi. Dial unavailable) +03-5344-7181

Korea (Seoul) +82-2-3270-0700

Korea (outside Seoul) +080-999-0700

Africa/Middle East

Algeria, Morocco, +212-22404747

and Tunisia (French)

Israel +972 (0) 9-952-4848

Egypt +202-7956222

South Africa (inside RSA) +086-000-1030

South Africa (outside RSA) +27-11-258-9301

United Arab Emirates (Arabic/English) +971-4-883-8454

(Arabic/English)

Europe

Austria (German) +43-810006080

Belgium (Dutch) +32 (0) 2-626-8806

Belgium (French) +32 (0) 2-626-8807

Czech Republic +42 (0) 2-6130-7310

Denmark +45-39-29-4099

(Danish/Swedish)

English (from outside UK) +44 (0) 207-512-52-02

Finland (Swedish/English) +358 (0) 203-47-288

France +33 (0) 1-43-62-34-34

Germany +49 (0) 180-52-58-134

Greece +30 (1) 60-73-603

Hungary +36 (0) 1-382-1111

Ireland +353 (0) 1-662-5525

Italy +39-02-264-10350

Netherlands +31 (0) 20-606-8751

Malaysia (Penang)	+60-3-2695-2566	Norway (Norwegian/Swedish)	+47-22-11-6299
Malaysia (outside Penang)	+03-2695-2566	Poland	+48-22-865-98-00
New Zealand	+64-9-356-6640	Portugal	+351-21-317-6333
People's Republic of China	+800-810-5959	Romania	+40 (1) 315-44-42
Philippines	+63-2-867-3551	Russia (Moscow)	+7-095-797-3520
Singapore	+65-272-5300	Russia (St. Petersburg)	+7-812-346-7997
Taiwan	+0800-010055	Spain	+34-902-321-123
Thailand	+66-2-661-4000	Sweden	+46 (0) 8-619-2170
Vietnam	+84 (0) 8-823-4530	Switzerland	+41 (0) 848-80-11-11
		Turkey	+90-216-579-71-71
		Ukraine	+7 (380-44) 490-3520
		United Kingdom	+44 (0) 207-512-52-02

For best service, have as much of the following information as possible when you call.

- Your notebook's model and serial number.
- Your notebook's operating system.
- Any messages displayed when the problem occurred.
- Were there any changes to the notebook, software, related hardware, or accessories before this occurred? Can you re-create the problem?

To receive repair service

If the HP notebook product is not normally sold by HP in the country/region of use, it must be returned for service to a country/region in which it is sold and supported.

If your notebook is under warranty. To receive warranty repair service for Omnibook or Pavilion Series notebook, contact the HP Customer Care Center—see “To contact HP for support or service” on page 59. The support technician will help qualify your unit for warranty repair based on the warranty applicable to your unit and original purchase date, and will provide you with repair processes. Warranty service may include the cost of shipping, handling, duties, taxes, freight, or fees to or from the service location.

HP Support and Service Getting Assistance for Your Notebook

Note

Your HP notebook has regional support and service in selected countries, and it currently is supported only in the country/region in which it is purchased and marketed. If you are outside the country/region of purchase, you must cover the cost of shipping your notebook to the appropriate HP authorized repair site.

If you are uncertain about the support available for your notebook, please contact our Customer Care Center—see “To contact HP for support or service” on page 59.

If your notebook is no longer under warranty. Contact an HP-Authorized reseller or the HP Customer Care Center—see “To contact HP for support or service” on page 59. The support provider will let you know about repair charges and processes.

To prepare your notebook for shipment

See “To receive repair service,” above, to determine if your notebook must be sent in for service. If so, prepare your notebook for shipment as follows.

1. **Important:** Back up your hard disk drive. The hard disk may need to be replaced or reformatted while your notebook is being repaired.
2. Hewlett-Packard cannot guarantee the return of removable components. Please remove the following before you send your notebook for service:
 - PC Cards.
 - AC adapter and power cord.
 - Any removable media, such as CDs, DVDs, or floppy disks.
 - Any hardware not involved in the problem and not requested for repair.
3. When sending your notebook to Hewlett-Packard, please use the original product packaging or other substantial packaging in order to avoid damage to the unit in transit.

Note

If the hard disk drive is defective, you will receive a replacement drive that is either unformatted or loaded with software for verification. You should restore the notebook’s original software using your *Recovery CDs or DVDs* (see “To recover the factory installation of your hard disk” on page 54) or other recovery method.

Hewlett-Packard Limited Warranty Statement

1. HP warrants to you, the end-user customer, that HP hardware, accessories, and supplies will be free from defects in materials and workmanship after the date of purchase, for the period specified in the Warranty Duration table below. HP Pavilion and Omnibook XE Series Notebooks typically come with a standard one-year warranty. Please see the Warranty Duration table for more details. If HP receives notice of such defects during the warranty period, HP will, at its option, either repair or replace products which prove to be defective. Replacement products may be either new or equivalent in performance to new.
2. HP warrants to you that HP software will not fail to execute its programming instructions after the date of purchase, for the period specified in the Warranty Duration table below, due to defects in material and workmanship when properly installed and used. If HP receives notice of such defects during the warranty period, HP will replace software which does not execute its programming instructions due to such defects.
3. HP does not warrant that the operation of HP products will be uninterrupted or error free. If HP is unable, within a reasonable time, to repair or replace any product to a condition as warranted, you will be entitled to a refund of the purchase price upon prompt return of the product.
4. HP's limited warranty is valid in any country or locality where HP has a support presence for this product and where HP has marketed this product. The level of warranty service you receive may vary according to local standards. HP will not alter form, fit or function of the product to make it operate in a country/region for which it was never intended to function for legal or regulatory reasons.
5. Warranty does not apply to defects resulting from (a) improper or inadequate maintenance or calibration, (b) software, interfacing, parts, or supplies not supplied by HP, (c) unauthorized modification or misuse, (d) operation outside of the published environmental specifications for the product, or (e) improper site preparation or maintenance.

HP Support and Service
Hewlett-Packard Limited Warranty Statement

6. TO THE EXTENT ALLOWED BY LOCAL LAW, THE ABOVE WARRANTIES ARE EXCLUSIVE AND NO OTHER WARRANTY OR CONDITION, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED AND HP SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, AND FITNESS FOR A PARTICULAR PURPOSE. Some countries, states, or provinces do not allow limitations on the duration of an implied warranty, so the above limitation or exclusion might not apply to you. This warranty gives you specific legal rights and you might also have other rights that vary from country/region to country/region, state to state, or province to province.
7. TO THE EXTENT ALLOWED BY LOCAL LAW, THE REMEDIES IN THIS WARRANTY STATEMENT ARE YOUR SOLE AND EXCLUSIVE REMEDIES. EXCEPT AS INDICATED ABOVE, IN NO EVENT WILL HP OR ITS SUPPLIERS BE LIABLE FOR LOSS OF DATA OR FOR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE. Some countries, states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

THE WARRANTY TERMS CONTAINED IN THIS STATEMENT, EXCEPT TO THE EXTENT LAWFULLY PERMITTED, DO NOT EXCLUDE, RESTRICT OR MODIFY AND ARE IN ADDITION TO THE MANDATORY STATUTORY RIGHTS APPLICABLE TO THE SALE OF THIS PRODUCT TO YOU.

Product	Duration of Limited Warranty
HP Notebook with "1YR" or similar mark on serial-number label	1 year, or number of years marked.
HP Notebook with "90D" or similar mark on serial-number label	90 days or number of days marked.
HP Notebook accessories and batteries	1 year.
Non-HP accessories, Non-HP "Distributed by HP" accessories	Not warranted by HP. Refer to manufacturer's warranty.
HP Software, Microsoft Software	90 days.

Reference Information

Reference Information
Hardware Specifications

Hardware Specifications

Because we are constantly improving our products, the specifications shown below are subject to change. For the latest specifications, see the HP Notebook Web site www.hp.com/notebooks).

Physical Attributes	Dimensions: 14.1-in models: 330 x 278.3 mm (12.99 x 10.94 in). 15-in models: 330 x 278.3 mm (12.99 x 10.94 in). Thickness varies across unit. Weight varies with configuration, vendor components, and manufacturing options and processes. Minimum weight (14.1-in model): 2.7 kg (5.9 lb).
Processor and Bus Architecture	Intel Mobile Pentium 4 processor (1.7, 1.8, or higher MHz) with SpeedStep technology (selected models). Intel Pentium 4c processor (1.6 GHz) without SpeedStep technology (selected models). Intel Celeron processor (1.5GHz or higher) (selected models).
Graphics	14.1/15-in XGA (1024x768) or 15-in SXGA+ (1400x1050) TFT LCD display. ATI Mobility Radeon graphics accelerator configurable for either 16- or 32-MB DDR graphics memory, 4x AGP graphics capability. Supports 16 million colors and OpenGL graphics. Supports hardware acceleration for MPEG. Display driver supports MPEG2 overlay. Supports LCD+CRT or LCD + TV operation (dual view). Separate video memory. Supports NTSC and PAL TV. Dual display for LCD and external monitor or TV. External color support: starting at 640 x 480, up to 1600 x 1200 x 32 bit display resolution.
Power	Rechargeable 8-cell Lilon battery: 14.8 V, 3900 mAh or 4200 mAh. Battery life: up to 2.5 hours (varies with model and usage). Battery recharge (100%): up to approx. 3 hours with system off (varies with model). Low-battery warning. Standby/hibernate and resume capability. Universal AC adapter: 100–240 Vac (50/60 Hz) input, 19 Vdc output, 75 W, 3.95-amp, 387.5g, 127.3 mm x 51.5 mm x 29.3 mm.
Mass Storage	20- to 60-GB removable IDE hard disk drive.
CD/DVD drive	8X DVD or 24X8X8X8X DVD/CD-RW (or higher) removable drive.
RAM	Two slots for DDR SDRAM expansion (PC-2100) up to 2x512 MB. 266-MHz RAM bus for MP chipset and 512 MB (2*256 MB) for MZ chipset.

Audio System	<p>DirectSound. MIDI (playback) support. 16-bit, full duplex stereo sound through two built-in speakers with integrated acoustic chambers. 1.5 W per channel, 64 voices. Built-in microphone. Polk Audio certified on 15-in models (pavilion). Dedicated mute and volume controls (selected models). CD player (can play while notebook is on standby, in hibernation, or off). 3D-enhanced audio.</p>
Communications	<p>56 Kpbs Ambit modem. 10/100 LAN integrated.</p>
Keyboard and Pointing Devices	<p>87/88/91-key touch-type QWERTY keyboard with 101/102 key emulation. Embedded numeric keypad. 12 function (Fn) keys. 5 user-programmable One-Touch buttons. Touch pad with lock button and on-off indicator. Left and right click buttons, vertical scroll pad.</p>
Wireless LAN (selected models)	<p>Radio: IEEE 802.11b, WECA Wi-Fi compliant, direct-sequence spread-spectrum. Operating frequency: 2.5-GHz ISM band, exact frequencies and channels depend on country. Raw data rate: 1, 2, 5.5, or 11 Mbps. Transmitter output: 15 dBm typical (approx. 30 mW), 16 dBm max (approx. 40 mW). Receiver sensitivity: -84 dBm typical. Range: up to 100 m (300 ft) or more, depending on environment and conditions. On-off button and indicator. Mini-PCI interface.</p>
Input/Output	<p>2 universal serial bus (USB) ports. 15-pin VGA video-out (blue) with DDC support. (Resolution up to 1600 x 1200 x 64K or 16M colors. Refresh rate of 60 to 85 Hz, depending on resolution and color depth.) RJ-11 jack for Mini-PCI type modem (selected models). RJ-45 LAN jack. 25-pin bi-directional high-speed ECP/EPP parallel (burgundy). S-video TV out (yellow) (selected models). IEEE 1394 port (selected models). 4-Mbps IrDA-compliant infrared port (selected models). One DC-in jack. One microphone-in jack One headphone-out jack.</p>
Expandability	<p>One Type II 16-/32-bit PC Card slot (3.3- and 5-V support). CardBus enabled. One integrated Secure Digital Multi-Media Card slot. Optional simple port replicator (selected models).</p>

Reference Information
Hardware Specifications

Security Features	User and administrator passwords. DMI-accessible electronic serial number. Kensington MicroSaver lock slot.
Environmental Limits	Operating temperature: 0 to 40 °C (32 to 104 °F). Operating humidity: 10 to 90 percent RH (0 to 40 °C). Operating altitude: up to 10,000 ft (3000 m) at 25 °C (77 °F). Storage (non-operating) temperature: -20 to 65 °C (-4 to 149 °F).
Major ICs	CPU: Intel Mobile Pentium 4 processor. North Bridge: Intel 845MP or MZ. South Bridge: Intel ICH3. Display controller: ATI M7 with 32M DDR. Audio controller: Intel ICH3/Realtek ALC202 AC97 Codec. CD player controller: O2 OZ-163. LAN: Realtek RTL8100L. CardBus controller: ENE 1410 Keyboard/embedded controller: National NS87591. Super I/O: SMSC LPC47N227. SD/MMC controller: W83L518D IEEE 1394 controller: VIA VT6306

Safety Information

Power cords

The power cord supplied with the notebook's AC adapter should match the plug and voltage requirements for your local area. Regulatory approval for the AC adapter has been obtained using the power cord for the local area. However, if you travel to a different area or need to connect to a different outlet or voltage, you should use one of the power cords listed below. To purchase a power cord (including one for a country/region not listed below) or a replacement AC adapter, contact your local Hewlett-Packard dealer or Sales office. For any power cord with a fused plug, if you have to replace the fuse, be sure to install an approved fuse.

Country/Region	Rated Voltage and Current	HP Part Number
Canada Mexico Philippines Taiwan United States	125 Vac (3 A)	8120-6313
Europe Egypt Israel Saudi Arabia	250 Vac (2.5 A)	8120-6314
Hong Kong Singapore United Kingdom	250 Vac (2.5 A)	8120-8699
Australia New Zealand	250 Vac (2.5 A)	8120-6312
Japan	125 Vac (3 A)	8120-6316
India	250 Vac (2.5 A)	8120-0702
South Africa	250 Vac (2.5 A)	8120-6317
Argentina	250 Vac (2.5 A)	8120-8367
Chile	250 Vac (2.5 A)	8120-8452
People's Republic of China	250 Vac (2.5 A)	8120-8373

Ergonomics

WARNING

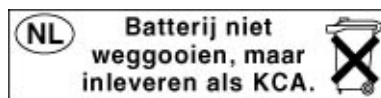
Improper use of keyboards and other input devices has been associated with ergonomic injury. For information about reducing your risk, see “Working in Comfort” in the online HP Library, or visit our ergonomics Web site, www.hp.com/ergo.

Battery safety

Note

Use only the battery that came with your notebook, or an HP-approved replacement—see “To buy accessories” in the online *Reference Guide*.

- To avoid risk of fire, burns, or damage to your battery pack, do not allow any metal object to touch the battery contacts.
- Do not disassemble the battery. There are no serviceable parts inside. Do not dispose of the battery pack in fire or water.
- Handle a damaged or leaking battery with extreme care. If you come in contact with the electrolyte, wash the exposed area with soap and water. If it contacts the eye, flush the eye with water for 15 minutes and seek medical attention.
- Do not expose the battery pack to storage temperatures above 60 °C (140 °F).
- When the battery is not in use, store it in the battery pouch provided.
- When discarding a battery pack, contact your local waste disposal provider regarding local restrictions on the disposal or recycling of batteries.
- To obtain a replacement battery, contact your local dealer or HP sales office.
- Do not charge the battery pack if the ambient temperature exceeds 45 °C (113 °F).
- Replace only with the same or equivalent type battery pack recommended by the manufacturer.



Laser safety

The CD-ROM and DVD drives used with the computer are certified as a Class 1 laser devices according to the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard and International Standards IEC 825 / IEC 825-1 (EN60825 / EN60825-1). These devices are not considered harmful, but the following precautions are recommended:

- Ensure proper use by reading and following the instructions carefully.
- If the unit requires service, contact an authorized HP service center—see “To contact HP for support or service” on page 59.
- Do not attempt to make any adjustment of the unit.
- Avoid direct exposure to the laser beam—do not open the unit.

CLASS 1 LASER PRODUCT LASER KLASSE 1

LED safety

The infrared port located on the front of the computer is classified as a Class 1 LED (light-emitting diode) device according to International Standard IEC 825-1 (EN60825-1). This device is not considered harmful, but the following precautions are recommended:

- If the unit requires service, contact an authorized HP service center—see “To contact HP for support or service” on page 59.
- Do not attempt to make any adjustment of the unit.
- Avoid direct eye exposure to the infrared LED beam. Be aware that the beam is invisible light and cannot be seen.
- Do not attempt to view the infrared LED beam with any type of optical device.

CLASS 1 LED PRODUCT LEDSCHÜTZKLASSE 1 PRODUKT
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Exposure to radio frequency radiation

The radiated output power of the IEEE 802.11 internal wireless radio is far below the FCC radio frequency exposure limits. Nevertheless, the wireless radio shall be used in such a manner that the potential for human contact during normal operation is minimized.

The internal wireless radio operates within guidelines found in radio frequency safety standards and recommendations, which reflect the consensus of the scientific community. HP therefore believes the internal wireless radio is safe for use by consumers. The level of emitted energy emitted is far less than the electromagnetic energy emitted by wireless devices such as mobile phones. However, the use of wireless radios may be restricted in some situations or environments, such as aboard airplanes. If you are unsure of restrictions, you are encouraged to ask for authorization before turning on the wireless radio.

Regulatory Information

This section presents information that shows how your notebook computer complies with regulations in certain regions. Any modifications to your computer not expressly approved by Hewlett-Packard could void the authority to operate the computer in these regions.

U.S.A.

This computer has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This computer generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this computer does cause harmful interference to radio or television reception (which can be determined by removing the unit's battery and AC adapter), try the following:

- Reorienting or relocating the receiving antenna.
- Relocating the computer with respect to the receiver.
- Connecting the computer's AC adapter to another power outlet.

Connections to Peripheral Devices

To maintain compliance with FCC Rules and Regulations, use properly shielded cables with this device.

For more information, consult your dealer, an experienced radio/television technician, or the following booklet, prepared by the Federal Communications Commission: *How to Identify and Resolve Radio-TV Interference Problems*. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock Number 004-000-00345-4. At the first printing of this manual, the telephone number was (202) 512-1800.

Reference Information
Regulatory Information

Declaration of Conformity (U.S.A.)

Responsible Party: Hewlett-Packard Company
Mobil Computing Division
19310 Pruneridge Ave.
Cupertino, CA 95014, U.S.A.
+1 (650) 857-1501

declares that the product

Trade name: Hewlett-Packard Company
Product name: Laptop Computer
Model Number(s): HP Omnibook xt1000, xz, or HP Pavilion zt1000 series
(1000 series means 1xxx numbers where x = 9-0)

complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Canada

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications. The internal wireless radio complies with RSS 210 of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada. Le composant RF interne est conforme à la norme CNR-210 d'Industrie Canada.

European Union

The equipment has been approved in accordance with Council Decision 98/482/EC for pan-European single terminal connection to the public switched telephone network (PSTN) and to a radio-frequency wireless network. However, due to differences between the individual PSTN's provided in different countries, the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point.

In event of problems, you should contact your equipment supplier in the first instance.

This equipment has been designed to work in all of the countries of the European Economic Area (Public Switched Telephone Networks). Network compatibility is dependent on internal software settings. Contact your equipment supplier if it is necessary to use the equipment on a different telephone network. For further product support, contact Hewlett-Packard—see “To contact HP for support or service” on page 59.

International

Products sold internationally by Hewlett-Packard and its authorized dealers meet the specifications listed on the following pages.

Reference Information
Regulatory Information

Declaration of Conformity (according to ISO/IEC Guide 22 and EN 45014)

Manufacturer's Name: Hewlett-Packard Company
Manufacturer's Address: Hewlett-Packard Company
Mobile Computing Division
19310 Pruneridge Ave.
Cupertino, CA 95014, U.S.A.

declares that the product(s)

Product Name: Laptop Computer
Model Number(s): HP Omnibook xt1000, xz or HP Pavilion zt1000 (1000 series means 1xxx numbers where x = 9-0)
Product Options: All

conforms to the following Product Specifications:

Safety: IEC 60950: 1991 +A1, A2, A3, A4. EN60950: 1992 +A1, A2, A3, A4, A11
IEC 60825-1:1993 +A1 / EN 60825-1:1994 +A11 Class 1 (Laser/LED)
GB4943: 1995

EMC: CISPR 22: 1997, EN 55022: 1998 Class B
CISPR 24:1997 / EN 55024: 1998
IEC 61000-3-2:1995 / EN 61000-3-2: 1995 +A1: 1998 + A2: 1998
IEC 61000-3-3:1994 / EN 61000-3-3: 1995
GB9254: 1998
AS/NZS 3548: 1995 Rules and Regulations of Class B
FCC Title 47 CFR, Part 15 Class B/ANSI C63.4: 1992

Telecom: TBR 21: 1998, EG 201 121: 1998

Radio: Notified Body Number: 0682
Notified Body Address: CETECOM ICT Services GmbH, Untertuerkheimer Str.6-10,
D-66117 Saarbruecken

Equipment Class 2
ETSI 300-826 General EMC requirements for Radio equipment
ETSI 300-328 Technical requirements for Radio equipment.

Supplementary Information: The product herewith complies with the requirements of the R&TTE Directive 1999/5/EC and carries the "CE Marking" accordingly.
This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
The HP F1454A and F1781A AC/DC adapter used with this product is designed to operate on all power systems, other than IT power systems.

Corvallis, OR, USA
December 1, 2001


Gary Howard, Quality Execution Section Manager

European Contact for regulatory topics only: Hewlett Packard GmbH, HQ-TRE, Herrenberger Straße 130, 71034 Böblingen, Germany. Fax: +49 7031-143143).



Declaration of Conformity (according to ISO/IEC Guide 22 and EN 45014)

USA Contact: Hewlett Packard Co., Corporate Product Regulations Manager, 3000 Hanover Street,
Palo Alto, CA 94304. Phone: +1 (650) 857-1501.

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