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HP Notebook PC

**————** Reference Guide

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This manual is printed on recycled paper.



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## Introducing Your Computer

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## Taking Inventory

Your HP notebook PC is shipped with these items:

- battery
- AC adapter and power cord
- *Quick Start* sheet
- HP notebook PC *Startup Guide*
- *Recovery CD* (or CDs), used to restore Windows and all software included with your computer
- Microsoft Windows manual
- telephone cord (if your computer has a built-in modem)

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

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## To buy accessories

You can buy accessories for your computer online. For the latest accessories and options, visit the HP notebook web site ([www.hp.com/notebooks](http://www.hp.com/notebooks)). As new accessories become available, you'll find them listed there.

Here are some of the HP notebook accessories and replacement items offered:

- port replicator (for selected models)
- auto/airline adapter
- AC adapter
- ultraslim AC adapter
- primary lithium ion battery
- PS/2 Y adapter for mouse and keyboard
- additional RAM

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## To find more information

Here are some sources of information about your HP notebook PC.

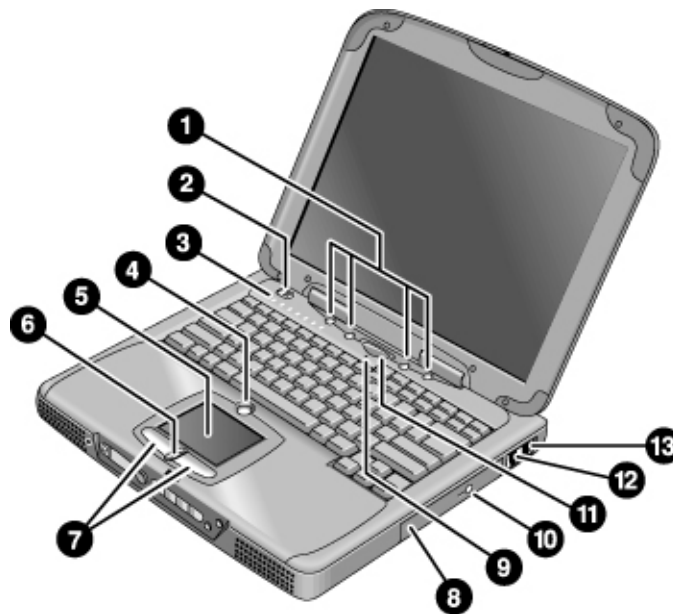
<b>Source</b>	<b>Description</b>
<i>Quick Start sheet</i>	This pictorial introduction shows you how to get the computer up and running quickly.
<i>Startup Guide</i>	The <i>Startup Guide</i> is the printed HP manual that came with your computer. It shows how to set up and operate your computer and where to go for help if you run into trouble.
HP Notes	This document contains late-breaking information available after the <i>Reference Guide</i> was completed:  Double-click the HP Notes icon on the desktop (if available).  <b>Windows 98 or 2000:</b> click Start, Programs, HP Library, HP Notes.  <b>Windows XP:</b> click Start, Help and Support, HP Library, HP Notes.
Introductory Microsoft manual for Windows	This manual contains information about using the standard features of Microsoft Windows.
Windows Help	Click Start, Help (or Help and Support).
HP notebook web site	<a href="http://www.hp.com/notebooks">www.hp.com/notebooks</a>
HP Customer Care web site	<a href="http://www.hp.com/go/support">www.hp.com/go/support</a>
Corporate Evaluator's Guide	This provides information about installing alternate operating systems, as well as how to configure your notebook computer in a corporate, networked environment. Located at the HP notebook web site.

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## Identifying Parts of the Notebook

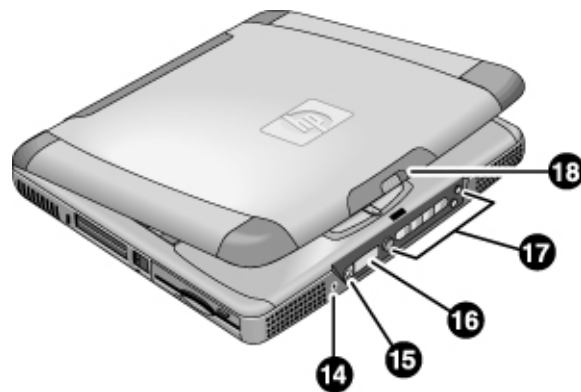
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Top and right side view



- |   |  |    |  |
|---|--|----|--|
| 1 | One-Touch buttons                              | 8  | CD-ROM, CD-RW, DVD, or CD-RW/DVD drive   |
| 2 | Power switch                                   | 9  | Microphone                               |
| 3 | Status lights (see “Status lights” on page 18) | 10 | CD-ROM/DVD eject button                  |
| 4 | Pad Lock touch pad on/off button               | 11 | Blue standby button                      |
| 5 | Touch pad (pointing device)                    | 12 | Modem port ( <b>on selected models</b> ) |
| 6 | Scroll up/down toggle                          | 13 | LAN port ( <b>on selected models</b> )   |
| 7 | Click buttons                                  |    |  |

Front view

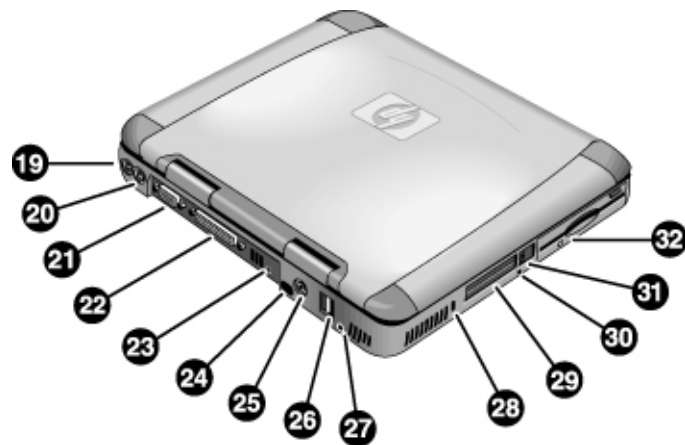


- 14 Headphone audio jack
- 15 Status panel mode select button **(on selected models)**
- 16 Status panel **(on selected models)**
- 17 Multimedia buttons **(on selected models)**
- 18 Latch (to open computer)

Introducing Your Computer  
**Identifying Parts of the Notebook**

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Rear and left side view

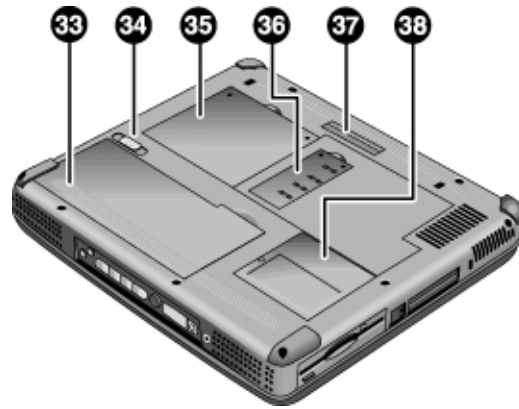


- |    |   |    |  |
|----|---|----|--|
| 19 | AC adapter (power) jack                     | 26 | USB ports                                  |
| 20 | PS/2 port (external mouse or keyboard)      | 27 | Microphone jack                            |
| 21 | VGA port                                    | 28 | Kensington lock slot (security connector)  |
| 22 | Parallel port                               | 29 | PC card slots                              |
| 23 | IEEE1394 port ( <b>on selected models</b> ) | 30 | System-off switch (for resetting computer) |
| 24 | Infrared port ( <b>on selected models</b> ) | 31 | PC card eject buttons                      |
| 25 | TV output port                              | 32 | Floppy disk drive                          |



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Bottom view

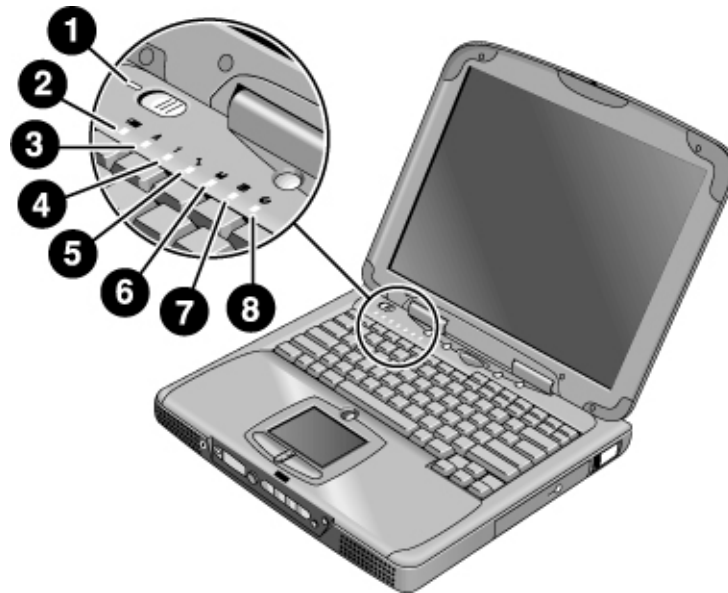


- 33 Battery
- 34 Battery latch
- 35 Expansion RAM cover
- 36 System RAM cover
- 37 Port replicator (docking) connector **(on selected models)**
- 38 Mini-PCI cover (no user parts inside)

Introducing Your Computer  
**Identifying Parts of the Notebook**

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Status lights



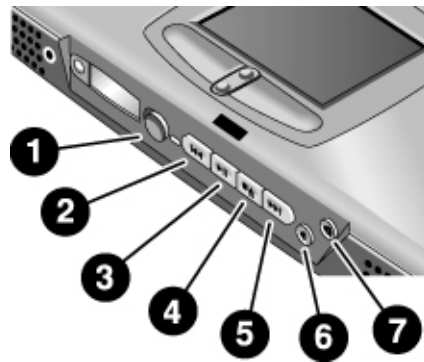
- 1 Power
- 2 Battery
- 3 Caps lock (capital letters)
- 4 Num lock (numeric keypad)
- 5 Scroll lock
- 6 Floppy disk drive access
- 7 Hard disk drive access
- 8 CD-ROM, CD-RW, DVD, or CD-RW/DVD drive access

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## Multimedia buttons

**(Provided for selected models.)** The multimedia buttons are on the front of the computer, to the right of the status display. They control the computer's CD and DVD players, and work much the same way as the controls of a standalone multimedia player.

If the system is turned off (or in standby or hibernate mode), you can still play audio CDs. Slide the multimedia power switch to the left to activate the player without turning on the computer. (See "Managing Power Consumption" on page 50 for information about standby and hibernate modes.)



- 1 Multimedia power (use when system is off or in standby or hibernate mode)
- 2 Previous track
- 3 Play/pause
- 4 Stop (when computer is on)\*, Stop/eject (when computer is off)
- 5 Next track
- 6 Volume control down
- 7 Volume control up

\* To eject a CD or DVD, press the eject button on the CD/DVD drive.



When the system is on, it can display onscreen the labels of the multimedia buttons as you press them. To change this:

- Click Start, Settings, Control Panel, Keyboard (Windows 98 or 2000) or Start, Control Panel, Printers and Other Hardware, Keyboard (Windows XP), then select the Onscreen Display tab.

## Status panel

**(Provided for selected models.)** The status panel on the front of the computer provides information about CD playback status, system power management, system date and time, and battery status. Messages are displayed on the 8-character LCD display, and you can switch from one message to another by pressing the mode button to the left of the display.

When the computer is on, these modes are displayed sequentially as you press the mode button:

- power status: ON, OFF,  (standby), or  (hibernate)
- date
- time
- battery charge remaining (0% to 100%)
- CD player status (if CD player is running): shows the track number, play status (playing, paused, or stopped), and time counter

When the computer is off and the CD player is off, you can use the status panel by sliding the multimedia power switch to the left to turn it on. (Remember to turn it off when you are through.)

If you change the Windows time or date (from Control Panel or the taskbar), the change will not appear on the status panel until the next time you start the computer.

If you want to change the format used to display the date or time in the status panel, change it in the BIOS—see “Using the BIOS Setup Utility” on page 84.

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## Setting Up the Computer

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### To install the battery

Your computer is shipped with the battery installed. If the battery has been removed, you can install it by inserting it into the battery bay on the bottom of your computer. Insert the back edge first, as shown, then press down the front edge until the battery latch clicks shut.



Once you have installed the battery, connect the AC adapter to the computer and recharge the battery while you work. You can also replace a low battery with a charged one.

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#### **WARNING**

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**Do not mutilate, puncture, or dispose of batteries in fire. A battery can burst or explode, releasing hazardous chemicals. A rechargeable battery must be recycled or disposed of properly.**

Introducing Your Computer  
**Setting Up the Computer**

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### To connect AC power

Plug in the AC adapter, then connect the AC adapter to the rear of the computer. The battery starts charging.



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**CAUTION**

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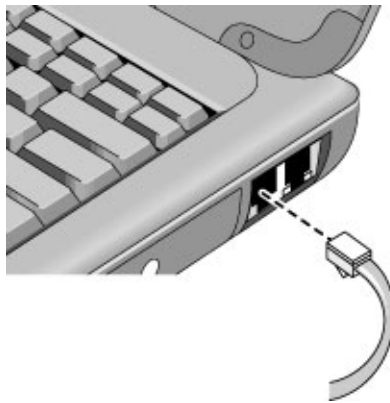
Use only an HP AC adapter intended for this product, either the adapter that came with the computer or another authorized HP adapter. Using an unauthorized AC adapter can damage the computer and may void your warranty. Refer to the warranty statement for your product.

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## To connect a phone line

Selected models of the HP notebook PC include a built-in modem. If you prefer, you can instead use a PC card modem or an external modem to connect a phone line.

1. Plug one end of the phone line into the modem phone jack on the computer. Be sure it clicks into place.



2. Plug the other end of the phone line into a telephone jack. (If the phone line does not fit your telephone jack, you may need to use an adapter.)

---

### **CAUTION**

**Your built-in modem may not work with multiple phone lines or a private branch exchange (PBX). It cannot be connected to a coin-operated telephone, and it does not work with party lines. Some of these connections may result in excess electrical voltage and could cause a malfunction in the internal modem. Check your telephone line type prior to connecting your phone line.**

---

## To turn on the computer

Press the blue standby button located above the center of the keyboard. Windows starts automatically. If you are turning on the computer for the first time, go to “To set up Windows,” below.

The power status light next to the power switch (see “Status lights” on page 18) reports the following:

- steady green light: computer is on
- steady amber light: computer is in standby mode
- no light: computer is off or in hibernate mode

See “Managing Power Consumption” on page 50 for additional information.

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**Hint**

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If your computer does not turn on when operating on battery power, the battery may be out of power. Plug in the AC adapter and press the standby button again.

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## To set up Windows

Your HP notebook has Microsoft Windows—either Windows 98, Windows 2000, or Windows XP—preinstalled on the hard disk drive. The first time you turn on your computer, a Windows Setup program will automatically run so that you can customize your setup.

Before you begin, connect the AC adapter to your notebook, since your battery may not be sufficiently charged to complete the Windows setup. Also, be sure to connect the notebook to a phone line—see “To connect a phone line” on page 23.

1. Press the blue standby button. The Windows Setup program starts automatically.
2. Follow the instructions as they appear on the screen.

During setup, you are prompted to enter a user name and accept the License Agreement.

You can also register your computer at this time. Follow the instructions on the screen during setup.



3. If your computer has a modem, check the modem's country or region settings:
  - **Windows 98:** click Start, Settings, Control Panel, double-click Modems, then click Dialing Properties.
  - **Windows 2000:** click Start, Settings, Control Panel, double-click Phone and Modem Options, then click Edit on the Dialing Rules tab.
  - **Windows XP:** click Start, Control Panel, Printers and Other Hardware, Phone and Modem Options, then click Edit on the Dialing Rules tab.

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**Note**

You may be required to enter your Windows Product key. To locate it, look on the Certificate of Authenticity packaged with the Microsoft Windows manual, or look for a sticker in the battery compartment.

If you have any connection problems with your modem, try redialing. If that doesn't work, you can skip registration for now.

---

## To register your computer

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

You can register while setting up Windows, or later in any of three ways: by modem, by phone, or by fax. For some countries and models, an HP notebook registration icon is available on the desktop.

### **By modem**

If you have Windows 98 or XP, you are automatically prompted to register. To register by modem, see that the phone is connected, then follow the onscreen instructions.

If you have Windows 2000, you are not prompted to register, but you can register by modem if you double-click the HP Notebook Registration icon on the desktop or click the Register link in the Windows 2000 welcome screen. See that the phone line is connected and follow the onscreen instructions.

If you choose not to register right away, you can register by modem later by double-clicking the Registration icon on the desktop (if available).

## Introducing Your Computer

### Setting Up the Computer

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**Note**

In Windows 2000, if the registration application is launched from a reminder (e.g., from the Microsoft Task Scheduler), it may fail to find a phone number for your country. In this case, double-click the HP Notebook Registration icon on the desktop and the application will succeed in finding a phone number to register successfully.

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**Note**

If you encounter a busy signal while attempting to register by modem, the registration client may suspend with an hourglass icon. Click the Back button and dial-out again.

If your computer 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 call your HP Customer Care Center and register by phone. See “To call HP for service and support” on page 95 for the phone number.

**By fax**

If a printer is connected to your computer, you can print a registration form and fax it to HP. Double-click the HP Notebook Registration icon on the desktop (if available), and print the registration form. You will find the fax number on the form.

By completing registration, you will:

- Record your ownership of the computer with Hewlett-Packard and gain access to service, support, and information.
- Record your ownership of the Windows 98 or XP operating system with Microsoft. If you have Windows 2000, please contact Microsoft separately to register the operating system.

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## To connect to an Internet Service Provider

Before you can connect to the Internet, you need to set up an account with an Internet Service Provider (ISP). In some countries, Hewlett-Packard provides easy Internet signup so that you can connect quickly to an ISP.

1. Connect your built-in modem. (If your computer does not have a built-in modem, you can instead use a PC card modem or an external modem.)
2. Click Start, Programs, Online Services (Windows 98 or 2000) or Start, All Programs, Easy Internet Signup (Windows XP), and select one of the listed ISPs. This begins the registration process for the ISP you have chosen.

*OR*

If available, double-click the Connect to the Internet or Easy Internet Signup desktop icon. This launches the Internet Connection or New Connection wizard, which helps you locate an ISP in your area, transfer an existing Internet account to this computer, or set up an Internet connection manually.

If AOL is your ISP, click Start, Settings, Control Panel, and double-click Internet Options (Windows 98 or 2000), or click Start, Control Panel, Network and Internet Connections, Internet Options (Windows XP). Select the Connections tab, then select either “Dial whenever a network connection is not present” or “Always dial my default connection.”

You can also make arrangements with an ISP of your choice for Internet connection.

## To reset your computer

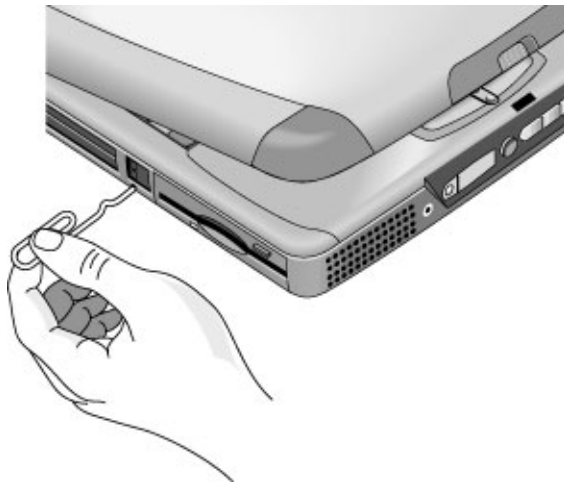
If Windows or your computer stops responding, you can reset the computer and restart Windows.

1. If possible, shut down Windows: click Start, Shut Down, Shut down (Windows 98 or 2000) or Start, Turn Off Computer, Turn Off (Windows XP).

–or, if this fails–

Press CTRL+ALT+DEL, then click Shut Down.

2. If the computer does not shut down, slide and hold the power switch for five seconds, then release it.
3. If the computer still does not shut down, insert a pin or straightened paper clip into the system-off switch on the left side of the computer, underneath the PC card eject buttons.



4. After the computer shuts down, press the blue standby button to turn the computer on again.

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## Using Your Computer

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## Operating the Computer

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### 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. Press *and hold* Fn while pressing the appropriate key.

<b>Hot key</b>	<b>Does this</b>
Fn+F1	Decreases the display's brightness
Fn+F2	Increases the display's brightness
Fn+F5	Switches among the built-in display, an external display, and simultaneous displays
Fn+F7	Toggles the sound on and off (mutes sound)
Fn+F8	Toggles the embedded numeric keypad on and off (see "To use the embedded keypad" on page 32)
Fn+Lock key*	Toggles Scroll Lock on and off
Fn+Up arrow	Increases sound volume
Fn+Down arrow	Decreases sound volume

\*The Lock key is in the top row of the keyboard:



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## To use the Windows and Applications keys



The Windows key brings up the Windows Start menu. This is the same as clicking the Start button on the taskbar.




The Applications key brings up the shortcut menu for the current application. This is the same menu that appears when you click the right mouse button while pointing at the application.

### **Windows key combinations**

<b>Key combination</b>	<b>Does this</b>
Windows key+BREAK	Displays System Properties dialog box (Windows 2000 and XP)
Windows key+E	Runs Windows Explorer (Windows 98) or My Computer (Windows 2000 and XP)
Windows key+F1	Runs Windows Help
Windows key+F	Runs Windows Find: Files or Folders (Windows 98 or 2000) or Search (Windows XP)
Windows key+M	Minimizes all displayed windows
Shift+Windows key+M	Returns all minimized windows to original size
Windows key+R	Starts the Windows Run dialog box
Windows key+U	Opens Utility Manager (Windows 2000 and XP)

## To use the embedded keypad

After pressing Fn+F8 to activate the numeric keypad, you must press the Lock key  (in the top row of the keyboard) to turn number lock on or off.

When number lock is on:

- Keys change to the numeric or arithmetic designations printed on the right side of the keys in the numeric keypad area.
- The Num Lock status indicator is lit.
- To turn off the embedded keypad, press Fn+F8 again.

---

## To use the ALT GR key

Non-U.S. keyboards have an ALT GR key to the right of the spacebar. This is a shift key providing access to certain keyboard characters.

- For a character in the lower-right corner of a key, press and hold ALT GR to type the character.



1. Shifted.
2. Unshifted.
3. ALT GR.



---

## To adjust the display

### Changing the brightness

- To decrease the brightness, press Fn+F1.
- To increase the brightness, press Fn+F2.
- Click Start, Programs, HP Display Settings, HP Display Settings (Windows 98 or 2000), or Start, All Programs, Hewlett-Packard, Notebook, HP Display Settings, HP Display Settings (Windows XP). You have the option of adding a display settings icon in the taskbar for quick access.

When you are using battery power, the display dims automatically to conserve power. You can use the brightness controls to override this adjustment.

---

**Hint**

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To maximize your battery operating time, set the brightness to the lowest level you can view comfortably.

### Changing display settings

You can customize a number of display settings for your computer, such as color depth and screen area.

1. Click Start, Settings, Control Panel, then double-click Display (Windows 98 or 2000), or click Start, Control Panel, Appearance and Themes, Display (Windows XP).
2. Click the Settings tab, then make the settings you want.

The computer has an LCD display, which behaves differently from a normal computer monitor. If you change the display resolution, the desktop changes size, but the objects on it do not. You normally won't change the resolution except to use an external monitor.

### Changing icon and label sizes

To enlarge icons and labels on your screen when using a high-resolution display, use HP Desktop Zoom.

- Click Start, Programs (or All Programs), Hewlett-Packard, Notebook, HP Desktop Zoom, HP Desktop Zoom. If this program is not installed on your computer, you can download it from the HP Customer Care Web site ([www.hp.com/go/support](http://www.hp.com/go/support)).

## To adjust the volume

### **From the keyboard**

- To increase the volume, press Fn+Up arrow.
- To decrease the volume, press Fn+Down arrow.
- To temporarily silence the speaker without changing the volume setting, press Fn+F7. Press Fn+F7 again to restore the speaker output.

### **In Windows**

1. Click the speaker symbol in the taskbar (if not present, see Windows Help).
2. Drag the volume control bar up or down to adjust the volume.
3. To temporarily silence the speaker without changing the volume setting, click Mute.

### **With the multimedia buttons**

If your computer has multimedia buttons (located on the front of the computer), you can use the volume control buttons to adjust volume for most audio applications, including the CD player, when the computer is on. When the computer is off, you can use these buttons to adjust the volume for music CDs.

- To increase the volume, press the volume control up button.
- To decrease the volume, press the volume control down button.

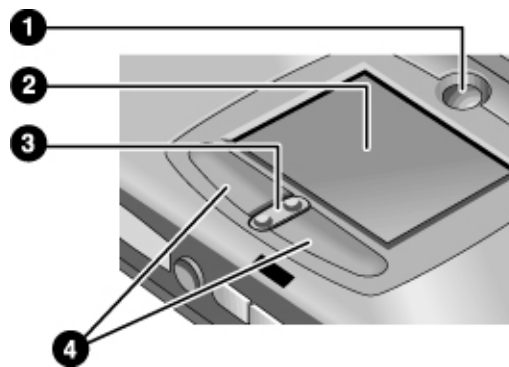
### **From within an application**

Many audio applications contain volume controls within the software—consult the application's help. Some applications respond only to those controls.

---

## To use the touch pad

The touch pad, a touch-sensitive pointing device that controls the motion and speed of the pointer on the screen, is built into your computer.



- 1 Pad Lock (touch pad on/off button)
- 2 Touch pad (pointing device)
- 3 Scroll up/down toggle
- 4 Click buttons

- Move a thumb or finger across the touch pad in the direction you want the pointer to move.
- Use the click buttons, which function like the left and right buttons on a mouse, to make your selection. You can also tap on the touch pad instead of clicking a button.
- To open an application, move the pointer over the icon, then press the left click button twice rapidly (double-click). You can instead tap twice on the touch pad.
- To make a menu selection, move the pointer to the item and click the left click button once.
- To open the shortcut menu for an item, move the pointer over the item and click the right click button.
- To drag an item, move the pointer over the item. Press and hold the left click button while you move the pointer to the new location. Release the button.
- To scroll up and down, press the top or bottom of the center toggle below the touch pad.

## Using Your Computer

### Operating the Computer

- To disable the touch pad, press the Pad Lock button (the amber touch pad indicator turns off). To reenable it, press the Pad Lock button again (the touch pad indicator lights). You may wish to disable the touch pad, for example, when you are entering text and do not want to move the cursor accidentally. Avoid contact with the touch pad itself when you are pressing the Pad Lock button (to disable or to reenable), or the Pad Lock button will not work properly.

To customize the operation of the touch pad (and an external PS/2 mouse, if installed), double-click the Synaptics Touch Pad icon (or open Mouse in Control Panel) to access Mouse Properties; you will find the icon in the taskbar, toward the lower right corner of your screen. Select the tab corresponding to the characteristics you want to configure, including:

- button configuration for right-handed or left-handed operation (Button tab for mouse, Button Actions tab for touch pad)
- double-click speed, pointer speed, and pointer trail
- click sensitivity

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**Note**

The touch pad is by default inactive when an external mouse is installed. You can enable both touch pad and an external pointing device by changing the BIOS setting. See “Using the BIOS Setup Utility” on page 84.

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## To change the boot device

Your HP notebook is configured to boot from the hard drive first. You can also boot from a floppy disk or a CD.

### To change the computer’s boot order

You can set the computer to boot from a floppy disk or CD whenever one is present, by changing the boot order in the BIOS Setup utility:

1. Click Start, Shut Down (or Turn Off Computer), Restart.
2. When you see the HP logo, press F2 to start the BIOS Setup utility.
3. Use the arrow keys to move to the Boot menu.
4. Use the arrow keys to select the boot device, and press F5 or F6 to move that device to the top of the list.
5. Press F10 to save your changes and exit the BIOS Setup utility.

### **To boot from a floppy disk or CD-ROM one time only**

You can also select the boot drive *for that boot only* as follows:

1. Restart the computer: click Start, Shut Down (or Turn Off Computer), Restart.
2. When you see the HP logo, press ESC to display the Boot menu.
3. Use the arrow keys to select the boot device, then press Enter.

---

### **To use the One-Touch buttons**

The One-Touch buttons on your HP notebook allow you to start your e-mail or a Web browser—or any other application—by pressing a single button. The buttons are configured initially for specific applications, but you can change the configuration to start any applications you want.

#### **To configure a One-Touch button**

1. Click Start, Settings, Control Panel, then double-click Keyboard (Windows 98 or 2000), or click Start, Control Panel, Printers and Other Hardware, Keyboard (Windows XP).
2. Select the One-Touch buttons tab.
3. Click the button of the key you want to reconfigure.
4. In the Button Label field, type the name of the application you want to start with this button. This name will appear onscreen when you press the button.
5. From the list of preinstalled applications, select the application to be associated with the button.

*OR*

If the desired application is not on the list, select “Select a file on your computer” and click the Browse button to choose any file on your notebook.

*OR*

If you want to attach a Web page to the button, select “Type in a Web site address” and then select a Favorites page or type the URL of the page you want.

6. Click OK.
7. If you want to display the name of the associated application whenever you press a One-Touch button, click the Onscreen Display tab and select the option to show One-Touch button onscreen messages.

## To insert or remove a CD or DVD

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**CAUTION**

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**Do not insert or remove a CD while the computer is reading it. Otherwise, the computer could stop responding and you could lose data.**

1. Press the button on the face of the CD-ROM or DVD drive. If you are using this drive for the first time, be sure to remove any packing material that may be present.
2. Place the CD into the drive (label facing up) *and gently press down to seat it on the spindle, making sure that the CD snaps onto the spindle.*

*OR*

Remove the CD.

3. Slide the tray back into the module to close it.

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**Note**

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If your computer loses power, you can manually open the drive by inserting a straightened paper clip into the recessed hole on the front of the drive.

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## To play DVDs

If your computer came with a DVD drive, the software needed to play DVD movies has been preinstalled on your computer. Click Start, Programs (Windows 98 or 2000) or Start, All Programs, Multimedia, DVD Player (Windows XP). (The name of the DVD player program can vary.)

If you need to install the DVD player software, click Start, Run, type C:\HP\PROGRAMS\DVD\SETUP.EXE, and press Enter.

For Windows XP, if the DVD software is installed, you can also use Windows Media Player to play DVD movies.

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**Important**

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DVDs can have regional codes embedded in the disc data. These codes prevent DVD movies from being played outside the region of the world in which they are sold.

Most DVD drives let you change the region code only a limited number of times (usually no more than four). Please note that when you reach this limit, your last change to the region code will be hard-coded on the DVD drive, and will be permanent. **Your HP warranty does *not* cover the expense of correcting this situation.**

Refer to the help for your DVD player software for details about setting region codes.

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**Note**

The DVD player in your notebook PC performs to high and advanced specifications. It would *not* benefit from the installation of a software program called “PC Friendly” that is included with many DVD titles. We recommend against installing PC Friendly on your notebook PC. PC Friendly can cause your DVD player to perform erratically and produce errors. If this happens, uninstall PC Friendly, restart your computer, and try playing your DVD again.

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## To create or copy CDs

If your computer came with a CD-RW drive, it also includes software that lets you copy or create CDs. Click Start, Programs (Windows 98 or 2000) or Start, All Programs, Multimedia, CD Writer (Windows XP). (The name of the CD-RW software can vary.)

If you need to install the CD-RW software, run Setup on the software CD.

Refer to the software’s help for details about creating or copying CDs.

For Windows XP, you can use Windows Media Player to create audio CDs and Windows Explorer to create data CDs using a CD-RW drive.

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**Note**

For best results use HP certified media. While other media may work, HP cannot guarantee compatibility.

The computer’s drive does not support 12X media (it automatically switches to a lower recordable speed). Rewritable media C7981A 12X HP CD-RW is not compatible with this drive.

For further questions, please call the HP Customer Care Center for your region—see “To call HP for service and support” on page 95.

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## Securing the Computer

It is important to maintain security of the computer and of your data. You can improve security by—among other methods—using a password, locking the computer with a cable, and setting up virus protection.

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### To set up password protection

You can protect your computer from access by another user when you set up password protection, which is available either through Windows (software) or through the BIOS Setup utility (hardware). Both methods provide protection when the computer is restarted: a user must then enter the password. However, the BIOS password protection does not ask for a password when your computer resumes after standby (suspend) or hibernate, while Windows does provide that security.

To set up hardware password protection, see “Using the BIOS Setup Utility” on page 84.

#### **To set up password protection in Windows 98**

1. Click Start, Settings, Control Panel.
2. Double-click Passwords.
3. Select Change Passwords tab.
4. Click Change Windows Password.
5. Enter your old Windows password, if you had one; if not, leave Old Password blank.
6. Enter your new password twice.
7. Click OK, OK.

#### **To activate password protection when resuming in Windows 98**

1. Check that you have set up a Windows password, as described above.
2. Click Start, Settings, Control Panel
3. Double-click Power Management.
4. Select Advanced tab.
5. Check the option to prompt for a password when the computer goes off standby.
6. Click OK.



**To set up password protection in Windows 2000**

1. Press CTRL+ALT+DEL.
2. Click Change Password.
3. Enter your old Windows password, if you had one; if not, leave Old Password blank.
4. Enter your new password twice.
5. Click OK.
6. Click Cancel.

If you want to set up password protection for a non-Administrator account, see Windows Help and Support (click Start, Help).

**To activate password protection when resuming in Windows 2000**

1. Check that you have set up a Windows password, as described above.
2. Click Start, Settings, Control Panel.
3. Double-click Power Options.
4. Select Advanced tab.
5. Check the option to prompt for a password when the computer goes off standby.
6. Click OK.

**To set up password protection in Windows XP**

1. Click Start, Control Panel, User Accounts, then select your account.
2. Click Create a Password.
3. Enter your new password twice.
4. Enter a word or phrase to use as a reminder in case you forget your password.
5. Click Create Password.

If your account type is Computer Administrator, you will also be asked whether to make your files and folders private. See Windows Help for details.

## Using Your Computer Securing the Computer

### To activate password protection in Windows XP

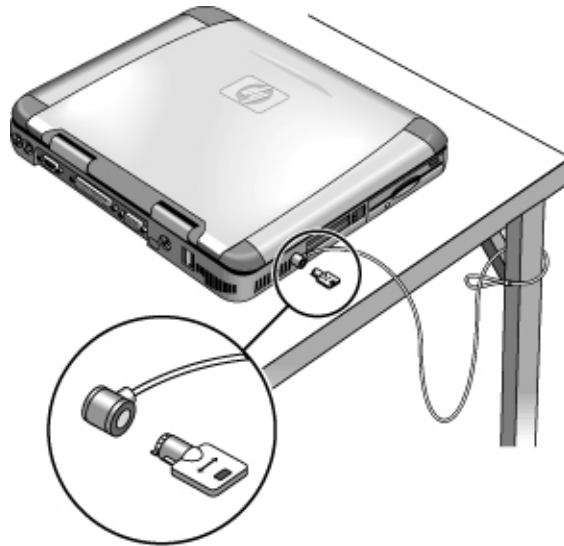
1. Check that you have set up a Windows password, as described above.
2. Click Start, Control Panel, Performance and Maintenance, Power Options.
3. Select the Advanced tab.
4. Check the option to prompt for a password when the computer goes off standby.
5. Click OK.

---

### To attach a security cable

Your computer has a built-in connector that allows you to secure the computer with a cable. The Kensington MicroSaver lock system works with this connector and is available at many computer stores.

1. Wrap the cable around a stationary object, such as a table leg.



2. Loop the cable to create a slipknot around the stationary object—make sure it can't slip off.
3. Insert the lock into the computer's security connector and release the key. Store the key in a safe place away from the computer.

## To use virus-protection software

Virus-protection software can help protect the integrity of your data. This is especially important when you are connected to the Internet.

Your computer includes Norton AntiVirus software. To use the software, do the following:

- Click Start, Programs (or All Programs), Norton AntiVirus, Norton AntiVirus.

Once installed, you can get detailed instructions from the software's online Help.

---

## Working in Comfort with a Notebook PC

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

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. HP docking accessories offer 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—under Start, Programs, HP Library (Windows 98 or 2000) or Start, Help and Support, HP Library (Windows XP)—and available on the *Recovery CD* in \hp\library, as well as at [www.hp.com/ergo](http://www.hp.com/ergo).

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### **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 or see *Working in Comfort* in the online HP Library.**

#### **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.

### **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. Your HP notebook computer has a built-in palm rest, which is ideal for this purpose.
- 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 1.5 and 4 kilograms (approximately 3 to 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.

---

## Caring for Your Computer

Here are some recommendations for maintaining your computer during everyday use, as well as preventing potential physical damage or data loss.

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### To protect your hard disk drive

Hard disk drives, like other internal components, are not indestructible and can be damaged by inappropriate handling and operation.

- Avoid bumps or jolts.
- Do not operate the computer while traveling over bumpy terrain.
- Put the computer into standby or hibernate mode, or shut it down before transporting it. This turns off the hard drive. A drop of a few inches onto a rigid surface while the hard drive is operating could cause loss of data or damage to the drive.
- Carry the computer in a padded case to protect against bumps and jolts.
- Set the computer down gently.
- When the computer has been in a very cold or very hot environment, do not start it again until it has returned to a more moderate temperature.

---

### To take care of your computer

- Provide adequate ventilation around the computer. Ensure that the notebook is sitting on a flat surface, so that air is able to flow underneath the unit. See that there is adequate clearance to the rear and sides of the computer, so that fan vents are not blocked.
- Be sure to shut down the computer, or put it into hibernate or standby mode before putting it in a carrying case or other enclosed space.
- Do not pick up or carry the computer by the display.
- Do not use the computer outside in the rain or snow (or other inclement weather) or in any extremes of temperature or humidity.

## To safeguard your data

- Do not touch the touch pad or activate any other device that interrupts operation while the system is starting or stopping.
- Back up your work regularly. Copy files to floppy disk, tape, or network drives.
- Use a virus-scanning program—such as Norton AntiVirus—to check the integrity of your files and operating system. Since new viruses appear frequently, you will also want to update the program's virus definitions from time to time. Updates for Norton AntiVirus are on the Web at [www.symantec.com](http://www.symantec.com). If you are using another application, see its help for updating information.
- For Windows 98, check your disk periodically using the ScanDisk utility: click Start, Programs, Accessories, System Tools, ScanDisk.
- For Windows 2000 or XP, check your disk for errors periodically: click Start, My Computer, and select the disk you want to scan. Click File, Properties, then select the Tools tab and click Check Now.

---

## To extend the life of the display

Observe the following guidelines to extend the life of the backlight in the computer display.

- When working at your desk, connect an external monitor and turn off the internal display (Fn+F5).
- If you are not using an external monitor, set the Turn off monitor timeouts (for both AC and battery operation) to the shortest comfortable interval: in Control Panel, open Power Options (Windows 2000 or XP) or Power Management (Windows 98), and use the Power Schemes tab.
- Set the brightness control to the minimum level for your comfort (Fn+F1 or Fn+F2).

## To get the most from your batteries

- Do not leave batteries unused for long periods of time. If you have more than one, rotate them.
- If you normally use AC power, make a practice of using the battery as your power source at least once a week.
- Unplug the AC adapter when the computer is not in use.
- To lengthen the life of a battery, be sure to charge the battery regularly.
- For long-term storage, the battery must be charged at 20–50% to minimize capacity loss by self-discharge and to avoid deterioration of battery performance.
- Set the automatic timeout settings to emphasize saving power. If your computer has a multispeed processor and uses Windows 98 or 2000, use the lower speed on battery power (see “To control the processor speed with SpeedStep” on page 58). The default settings conserve battery power.
- To maintain maximum battery capacity and accuracy of the battery gauge, perform this procedure about once a month:
  1. Charge the battery to 100%.
  2. Disconnect the AC adapter, and use the computer until the battery is fully discharged and the computer goes into hibernation.
  3. Connect the AC adapter and charge the battery to 100% with no power interruptions.

---

## To clean your computer

You can clean the computer with a soft cloth dampened either with clean water or with water containing a mild detergent.

- Do not use an excessively wet cloth or allow water inside the case.
- Do not use any abrasive cleaners, especially on the display. Do not apply any cleaner directly to the display. Instead, apply the cleaner to a soft cloth and then gently wipe the display.
- You can clean the keyboard with a vacuum cleaner to remove accumulated dust.



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## Traveling with Your Computer

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## Managing Power Consumption

When you are not using your computer, you will want to maximize battery operating time without compromising performance. It is not necessary to turn the computer off in order to reduce power consumption and extend battery life.

Windows uses Advanced Configuration and Power Interface (ACPI) to provide manual and automated tools for reducing power consumption.

- You can set power management options to occur automatically, based on timeout values entered.
- You can also invoke power management options manually at any time by pressing the appropriate key. See “To use manual power management” on page 53.

---

### To use automated power management

System hibernation, standby, monitor, and hard disk timeouts automatically occur based on the values set in Control Panel, in Power Management (Windows 98) or Power Options (Windows 2000 and XP). The following tables describe the power management timeouts you can set in Windows.

#### System hibernation

<b>Action</b>	Saves current session to disk, then shuts down. Provides maximum power savings while still allowing you to recover the current session.
<b>When</b>	After being in standby for the specified interval (Windows 2000 and XP). -OR- Critical low battery.
<b>Resume</b>	Press the blue standby button to recover your current session. This may take several minutes.

When battery power reaches a critically low level, see “To respond to a low-battery warning” on page 57.

---

**Note**

When the system hibernates as a result of a critically low battery, you will find when resuming that all your data has been saved but that some functions may be disabled. To resume normal operation, restore power (by connecting AC power or installing a charged battery), perform a full shutdown, and then restart the computer.

---

**Turn off monitor**

<b>Action</b>	Turns off the display. This conserves battery power and extends the life of the display.
<b>When</b>	No activity of the keyboard or mouse for the specified interval.
<b>Resume</b>	Press any key or move the pointer to return to your current session.

**Turn off hard disks**

<b>Action</b>	Turns off only the hard disk drive. This is usually set to occur shortly after the monitor is turned off.
<b>When</b>	No hard disk access for the specified interval.
<b>Resume</b>	Press any key or move the pointer to return to your current session.

**Standby mode**

<b>Action</b>	Turns off the display and hard disk drive to conserve battery power.
<b>When</b>	No activity of the keyboard or mouse, no disk drive access, and no port activity for the specified interval.
<b>Resume</b>	Press the blue standby button to return to your current session.

---

**CAUTION**

**Make a habit of saving your work before allowing your computer to go into standby mode. If power is interrupted while the computer is in standby mode, information that has not been saved will be lost.**

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## Traveling with Your Computer

### Managing Power Consumption

You can also create power schemes that will automatically shut down the computer components (not the computer itself) after a specified period of nonuse. Define these schemes so that they best support the ways you use your computer.

#### To set power management properties

1. Open Power Options or Power Management in Control Panel:
  - **Windows 98 or 2000:** click Start, Settings, Control Panel, then double-click Power Options (Windows 2000) or Power Management (Windows 98).
  - **Windows XP:** click Start, Control Panel, Performance and Maintenance, Power Options.
2. On the Power Schemes tab, set the timeout periods you prefer. (You can choose Never, but that setting is not recommended for hibernate mode.)
3. On the Advanced tab, select actions for the lid, power switch, and standby button.
4. Click OK.

---

**CAUTION**

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**For Windows 2000 or XP, make sure hibernation support is enabled in the Power settings, or you will lose any unsaved data if the computer's battery runs down completely.**

---

## To use manual power management

You can manage your computer's power manually whenever you need to, with any of the following three levels of power management.

### Standby mode

<b>Action</b>	Turns off the display and hard disk drive.
<b>When</b>	Press the blue standby button. -OR- Click Start, Shut Down, Standby (Windows 98 or 2000). -OR- Click Start, Turn Off Computer, Stand By (Windows XP). -OR- Configure lid, power switch, or standby button to perform the standby action (see "To set power management properties," above). Then close lid or press button.
<b>Resume</b>	Press the blue standby button to return to your current session.

The computer can also go into standby automatically when the timeout setting in Power Management or Power Options in Control Panel is reached.

---

### CAUTION

**Make a habit of saving your work before allowing your computer to go into standby mode. If power is interrupted while the computer is in standby mode, information that has not been saved will be lost.**

---

## Traveling with Your Computer

### Managing Power Consumption

#### Hibernate mode

<b>Action</b>	Saves the current session to disk, then shuts down. Provides maximum power savings while still allowing you to recover the current session. Restores network connections.
<b>When</b>	Click Start, Shut Down, Hibernate (Windows 2000). -OR- Click Start, Turn Off Computer, then press and hold Shift and click Hibernate (Windows XP). -OR- Configure lid, power switch, or standby button to perform the hibernation action. Then close lid or press button (see “To set power management properties,” above).
<b>Resume</b>	Press the blue standby button to recover your current session. This may take several minutes.

The computer also enters hibernate mode automatically when battery power reaches a critically low level—see “To respond to a low-battery warning” on page 57. In Windows 98, hibernate mode occurs automatically with critical low battery power only; and manual initiation of hibernate is not available by default (except, if you wish, you can modify the default setting for the power switch or the standby button to manually initiate hibernate mode instead).

## Off

<b>Action</b>	Turning off your computer provides maximum power savings. The current session is not saved and unsaved data will be lost.
<b>When</b>	Click Start, Shut Down, Shut down (Windows 98 or 2000). -OR- Click Start, Turn Off Computer, Turn Off (Windows XP). -OR- Slide the power switch and hold for five seconds (only if the Start menu procedure doesn't work). -OR- Configure a power switch (see "To set power management properties," above).
<b>Resume</b>	Press the blue standby button to start a new session. This may take several minutes.

If the system stops responding and you are not able to turn off the computer as described above, you can still recover. See "To reset your computer" on page 28.

---

## Using Battery Power

You can operate the HP notebook PC on battery power for extended periods, but you should be prepared to save your work and shut down if the battery is low. Follow the tips in this section to maximize the length of time you can operate on battery power.

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### To check the battery status

#### From the battery status light



The battery status light reports the following information:

Green	AC attached—battery full
Amber	AC attached—battery charging
Red	AC attached—battery will not charge (abnormal)



### From the Windows taskbar

The System Tray on the Windows taskbar can display a power icon that provides detailed battery status information (see Windows help for details). The icon looks like a battery when AC is not connected.

- Place pointer over the power icon to display the percentage of charge remaining.
- Right-click the power icon to view the options for displaying power information.
- Left-click the power icon to display a menu of the available power schemes.

### From the Windows Control Panel

- **Windows 98 or 2000:** click Start, Settings, Control Panel, then double-click Power. This shows the status of each battery, and provides access to all of Windows' power-information options.
- **Windows XP:** click Start, Control Panel, Performance and Maintenance, Power Options, then click the Power Meter tab to see battery status. The Alarms and Advanced tabs provide additional Windows' power-information options.

### From the status panel

If your computer has a status panel, press the status panel mode button repeatedly until you see the battery icon and the percentage of charge remaining.

---

## To respond to a low-battery warning

The computer automatically alerts you when the battery power drops to a critically low level. If you do not restore power within a short time, the system hibernates.

Once the computer hibernates in this way, you won't be able to turn it on again until you restore power by one of the following actions:

- Plug in the AC adapter (see "To connect AC power" on page 22).
- OR*
- Replace the battery with one that is charged (see "To install the battery" on page 21). The system must first be shut down or put into hibernate mode before changing the battery.

---

**Note**

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

## To optimize battery operating time

- Plug in the AC adapter, especially while using the CD-ROM drive or DVD, the floppy disk drive, or any external connections such as a PC card or a modem.
- Put the computer in standby mode whenever you are not using it for a short while.
- Put the computer in hibernate mode whenever you want to save your current session, but will not be using the computer for several hours.
- If you have an I/O PC card—that is, a PC card having an external connection, such as a network card—remove it when you’re not using it. Some I/O cards use significant power, even while they’re inactive.
- If you work with an application that uses an I/O PC card, exit the application when you have finished using it.
- Turn off the CD player when you are not using it.
- See “Managing Power Consumption” on page 50 for other ideas about reducing power consumption while the computer is not in use.

---

## To control the processor speed with SpeedStep

If your computer contains a multispeed processor with Intel SpeedStep Technology, the taskbar in Windows 98 or 2000 contains an Intel SpeedStep Technology icon. This feature enables the processor to automatically switch to lower, power-saving speeds or to higher-performance speeds according to its workload and power source.

You can customize SpeedStep to best suit your working environment.

- **Windows 98 or 2000:** double-click the Intel SpeedStep Technology icon in the taskbar, then select the battery and AC options you want. The Max Battery option uses the lowest processor speeds for maximum battery time. The Auto option uses medium and high processor speeds.
- **Windows XP:** click Start, Control Panel, Performance and Maintenance, Power Options. On the Power Schemes tab, select a power scheme. This scheme automatically controls the processor speeds:
  - The Max Battery scheme uses the lowest processor speeds while running on battery power, but uses medium and high processor speeds on AC power.
  - The Portable/Laptop option uses medium and high processor speeds on battery and AC power.

See Windows Help for additional information about power schemes.

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## Making Connections

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## Using the Modem

By connecting your modem to a telephone line, your PC can communicate with other networked computers. You can explore the Internet, send and receive e-mail messages, and send and receive faxes. Your HP notebook PC contains several software programs that work with your modem:

- Internet Explorer, for browsing the World Wide Web
- Outlook Express, for sending and receiving e-mail messages
- Windows XP Fax Console, Windows 2000 fax software, or QuickLink with Windows 98, for sending and receiving faxes.

Selected models of the HP notebook PC include a built-in high-speed V.90 modem. This modem allows you to connect to any Internet Service Provider (ISP) that has V.90 interoperable modems. Check with your ISP for a list of telephone numbers that support V.90.

Note that the maximum speed for faxing is 14.4Kbps. Even though the built-in modem is capable of downloading at 56Kbps, your ISP may not operate at this speed; please check with your service provider for information. Transmission rates also depend on the condition of the telephone line.

If your computer does not have a built-in modem (or if you prefer to use a different modem), you can install a PC card modem.

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### Important safety information

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**CAUTION**

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**To reduce the risk of fire, use only No. 26 AWG or larger telecommunications line cord to connect the 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:

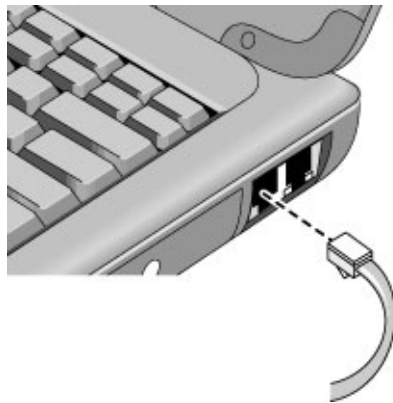
- Do not use this product with a telephone connection near water, for example, near a bathtub, sink, swimming pool, or in a wet basement.
- Avoid using a telephone connection (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
- Do not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

- Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.

---

## To connect the modem

1. Make sure the telephone line is an analog line, sometimes called a data line. It should have 2, 3, or 4 wires. (You must not use a PBX or digital line.)
2. Connect a telephone cord with an RJ-11 plug to the built-in modem (or connect to a PC card or external modem). *Use only No. 26 AWG or larger telecommunications line cord to connect the modem to the telephone wall jack.*



3. Plug the other end of the phone cord into a telephone jack. If the plug on the phone cord doesn't fit the jack, you may need to use an adapter.
4. Check your modem's country or region settings:
  - **Windows 98:** click Start, Settings, Control Panel, double-click Modems, then click Dialing Properties.
  - **Windows 2000:** click Start, Settings, Control Panel, double-click Phone and Modem Options, then click Edit on the Dialing Rules tab.
  - **Windows XP:** click Start, Control Panel, Printers and Other Hardware, Phone and Modem Options.

## Making Connections Using the Modem

---

**CAUTION**

---

**Your built-in modem may not work with multiple phone lines or a private branch exchange (PBX), cannot be connected to a coin-operated telephone, and does not work with party lines. Some of these connections may result in excess electrical voltage and could cause a malfunction in the internal modem. Check your telephone line type prior to connecting your phone line.**

### Special notes about using a modem in certain countries

- The pulse dialing feature may be disabled in certain countries, possibly because Loop Disconnect is not certified there. If pulse dialing is disabled, you should use tone dialing connections only.
- Many countries impose a blackout period after a modem repeatedly fails to connect to a service provider. The number of failed attempts and the period of time you must wait before trying again differ from country to country. Check with your telephone company. For example, if you are dialing from Italy and you fail to connect to your server or cancel the connection, you must wait one minute before dialing that same number again. If you dial before then, you will get an error message that says “delay.” After the fourth failed connection, you will need to wait one hour before trying the number again. If you dial before the hour is up, you will get a message that says “black list.”
- When using a modem in the Republic of South Africa, an external surge protector may be necessary in order to prevent computer damage by lightning or other electrical surges. Connect any approved surge protector to the modem cable whenever you are using the modem.

---

## To connect to the Internet

If you have not yet signed up with an Internet Service Provider (ISP), see “To connect to an Internet Service Provider” on page 27 for instructions.

When you have signed up with an ISP, you can connect to the Internet. Choose one of the following:

- If you signed up with AOL, AT&T WorldNet, Compuserve 2000, Earthlink, or MSN, double-click the appropriate icon in the Online Services folder on the desktop (if available).

*OR*

Click Start, Programs, Online Services (Windows 98 or 2000), or Start, All Programs, Easy Internet Signup (Windows XP).

- If you signed up with another ISP, double-click the Internet Explorer icon on the desktop (if available), or click Start, Programs, Internet Explorer (Windows 98 or 2000) or Start, Internet Explorer (Windows XP). Then click the Connect button in the Dial-up Connection or Network Connection window.

For Windows 98 or 2000, when you are successfully connected to the Internet, you'll see a connect icon (two connected computers) next to the clock on the taskbar. For Windows XP, to display an icon for your connection, open Network Connections in Control Panel, right-click the connection, select Properties, and select the icon option.

You are now ready to explore the Internet. To go to a specific web site, enter the address (for example, [www.hp.com](http://www.hp.com)) in the browser's Address field. To search for information on the Web, use the browser's Search tool and enter the word or phrase you are looking for.

#### **To use AOL as your ISP**

When you use AOL as your ISP, you can access the Internet only with AOL's own software; you can't use a standard browser like Internet Explorer. As a result:

- You cannot view web sites by clicking on links (such as those in the electronic *Reference Guide* that link to the HP notebook web site).
- You cannot go to a web site by entering the address in Windows Explorer.

If you try to access the Internet without using the AOL software, the Internet Connection wizard automatically launches, asking you to sign up for an ISP. In that case, cancel the wizard and launch AOL.

For additional ISP information, please refer to the Microsoft Operating Manual included in your box or Windows Help.

---

## To disconnect from the Internet

You remain connected to the Internet until you shut down the computer, disconnect the phone line from the computer, or give a command to hang up the connection.

- To disconnect from AOL, use the Sign Off menu.
- To disconnect from other ISPs, double-click the connect icon (two connected computers next to the clock) on the taskbar, and click Disconnect.

*OR*

For Windows XP: click Start, Control Panel, Network and Internet Connections, Network Connections, then right-click the connection and select Disconnect.

## To dial in to a network

You can use the modem to dial in to a LAN (local area network) that supports dial-in connections. This gives you access to network resources from a remote location.

- See Windows Help for information about setting up and using dial-in network connections—click Start, Help (or Help and Support).
- 

## To change your modem settings

The modem is already set up to be compatible with telephone systems and modems in most areas. However, in some situations, you may have to change modem settings to match local conditions. If you have questions about local requirements, contact your telephone company.

- **Control Panel.** Open Modems (Windows 98) or Phone and Modem Options (Windows 2000 or XP) in Control Panel to change many modem settings.

For Windows 98, on the General tab click Properties to set connection speeds or special dialing options.

For Windows 2000 or XP, on the Modems tab click Properties to set connection speeds, or on the Dialing Rules tab click Edit to set dialing options.

- **Communications software.** Many communications applications provide options for controlling modem settings. See the help for your software.
- **AT commands.** You can control many aspects of modem operation using modem AT commands. AT commands are special strings of characters sent to the modem to set up specific conditions. Those command strings normally start with “AT” and contain additional characters. For a list of AT commands for the built-in modem, see “Modem Reference Information” on page 135.

For Windows 98, open Modems in Control Panel. On the General tab, click Properties, then on the Connection tab click Advanced. You can type AT commands in the space for extra settings.

For Windows 2000 or XP, open Phone and Modem Options in Control Panel. On the Modems tab, click Properties. You can type AT commands on the Advanced tab in the space for Extra settings.

For example, to force the built-in modem to connect with V.34 modulation, you can use the +MS command, as shown in the table of AT commands—type AT+MS=11 in the space for extra settings.



---

## To send and receive e-mail

The steps for sending and receiving e-mail depend on your Internet provider. If you are using AOL, e-mail is part of your AOL service. For other ISPs, you can use Outlook Express (included with your computer) or an e-mail system of your choice. This section includes instructions for using Outlook Express.

### To start Outlook Express

1. Double-click the Outlook Express icon on the desktop (if available).  
*OR*  
Click Start, Programs (or All Programs), Outlook Express.
2. If you are not currently connected to the Internet, the Dial-up Connection window appears. Choose Connect to connect to the Internet.

### To send an e-mail message

1. Start Outlook Express.
2. Click the New Mail or Create Mail tool on the toolbar.
3. Fill in the information in the New Message window.
4. When you're finished, click the Send button.

### To receive e-mail messages

1. Start Outlook Express.
2. Click the Send/Recv tool on the toolbar to have Outlook deliver new messages.
3. Click the Inbox folder to view the list of messages. Unread messages appear bold on the screen.
4. To view a message, click it once. (Or double-click to view the message in its own window.)

## To send and receive faxes (Windows 98)

Sending and receiving faxes requires just a telephone connection—you don't need an Internet connection. You can use the modem and fax software to send and receive faxes on your computer. QuickLink III fax software is included with Windows 98 on the hard disk.

### **To start QuickLink**

- Click Start, Programs, QuickLink III, QuickLink III.

The first time you start QuickLink, the Setup wizard steps you through the process of setting options and customizing the program for your personal use. Follow the onscreen instructions. If you're unsure which setting to choose, accept the default choice.

### **To send a fax**

1. In QuickLink, click the QuickFax tool on the main toolbar.
2. Enter the fax number and the recipient's name and company.
3. Type the message body in the QuickFax Note area.
4. Click Send Fax.

If instead you want to send a document as a fax, open the document in its application window, then open the Print dialog box. Change the selected printer to QuickLink III, then print the document.

### **To receive faxes**

With Windows 98, faxes are automatically received when QuickLink is running in an open or minimized window. New faxes are indicated in the status box in the QuickLink window. To receive a fax manually, follow these steps:

1. When a fax call is coming in, click Start on the menu bar.
2. Click Manual Fax Receive.

### **To view and print a fax**

1. In QuickLink, click the Fax Viewer tool on the toolbar.
2. Click Yes to view the fax now.
3. Click the printer icon to print the fax.

---

## To send and receive faxes (Windows 2000)

Sending and receiving faxes requires just a telephone connection—you don't need an Internet connection. You can use the modem and fax software to send and receive faxes on your computer. Fax software is built into Windows 2000.

### To set up for faxing

1. Click Start, Settings, Control Panel, Fax. Enter your fax information.
2. On the Advanced Options tab, add a fax printer.  
If you do not want to receive faxes, stop here.
3. On the Advanced Options tab, open the Fax Service Management window.
4. In the list under Fax, click Devices, then right-click the modem and click Properties.
5. On the General tab, enable the modem to receive faxes.
6. On the Received Faxes tab, select the option to save faxes in a folder.

### To send a fax

- Click Start, Programs, Accessories, Communications, Fax, Send Cover Page Fax. Follow the instructions to create and send the fax.

If instead you want to send a document as a fax, open the document in its application window, then open the Print dialog box. Change the selected printer to the fax printer, then print the document.

### To receive, view, and print faxes

If you enabled the modem to receive faxes, they are received automatically.

1. Click Start, Programs, Accessories, Communications, Fax, My Faxes.
2. In the Received Faxes folder, double-click the fax.
3. To print, click File, Print.

## To send and receive faxes (Windows XP)

Sending and receiving faxes requires just a telephone connection—you don't need an Internet connection. You can use the modem and fax software to send and receive faxes on your computer. Fax Console fax software is included with Windows XP.

### **To set up Fax Console**

Before you can use Fax Console, you need to install it.

1. Click Start, Control Panel, Add or Remove Programs.
2. Click Add/Remove Windows Components, select Fax Services, and follow the instructions on the screen. You may need the Windows CD to complete installation.

### **To start Fax Console**

- Click Start, All Programs, Accessories, Communications, Fax, Fax Console.

The first time you start Fax Console, the Fax Configuration wizard steps you through the process of setting options and customizing the program for your use. Follow the onscreen instructions. If you're not sure which setting to choose, accept the default.

### **To send a fax**

- Click Start, All Programs, Accessories, Communications, Fax, Send a Fax, then follow the instructions that appear on the screen.

If you want to send a document as a fax, open the document in its application window, then open the Print dialog. Change the selected printer to Fax, then print.

### **To receive faxes**

Faxes are automatically received when Fax Console is running in an open or minimized window. New faxes are indicated in the status box in the Fax Console window. To receive a fax manually, do the following.

- When a fax call is coming in, click the Receive Now icon in the Fax Console menu bar.

### **To view and print a fax**

1. In Fax Console tree, click Inbox, then double-click the fax you want to view.
2. Click the printer icon to print the fax.

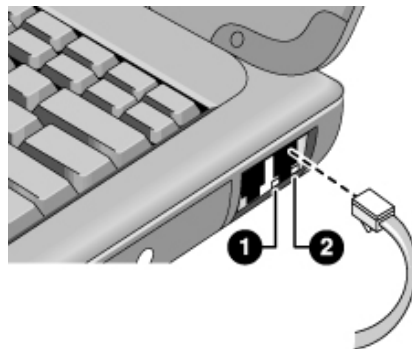
---

## Connecting to a LAN

If your computer has a LAN port, you can use it to connect to a local area network (LAN). This gives you access to network resources—such as printers and file servers on your corporate network—and in some cases also to the Internet.

### To connect to a LAN

1. Check that the existing LAN supports Ethernet 10Base-T (10 Mbps) or 100Base-TX (100 Mbps) connections.
2. Plug the LAN cable (not supplied) into the built-in LAN port. The cable must have an RJ-45 connector.



3. Windows 2000 and XP automatically detect and set up a LAN connection. To edit the settings, open Network Connections or Network and Dial-Up Connections in Control Panel.

For Windows 98, open Network in Control Panel to set up support for a LAN connection on your network. For example, you can add the Microsoft TCP/IP protocol.

See Windows Help or your Microsoft manual for information about setting up and using LAN connections—click Start, Help (or Help and Support).

Contact your network administrator or ISP provider for network information.

Two lights under the LAN port indicate the status of the connection (see the figure above):

1. The yellow light indicates network activity.
2. The green light indicates that a link is established to the network.

---

## Connecting PC Cards

The computer's PC card slots are available for expanding the computer's data storage and communication capabilities. Your computer supports two standard Type II or one Type III PC cards (PCMCIA and CardBus).

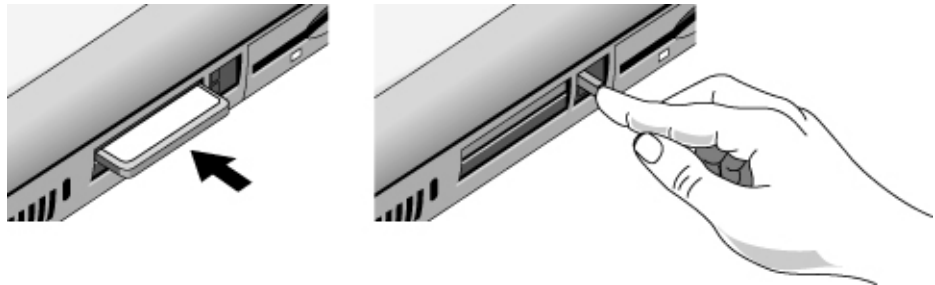
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### CAUTION

**Do not remove a PC card while the computer is reading or writing data. If you do, you could lose data, or the computer could stop responding.**

#### To insert a PC card

1. Hold the card with its face up and its connector holes toward the card slot.
2. Slide the PC card all the way into the upper or lower slot. Most cards are properly seated when the outer edge is flush with the casing of the computer, but some cards are designed to protrude from the case.



#### To remove a PC card

---

### CAUTION

**Before removing a PC card, you must use the PC Card, Eject Hardware, or Safely Remove Hardware icon in the taskbar, or else shut down the computer. Otherwise, you could lose data.**

1. Stop the PC card: double-click the PC card, Eject Hardware, or Safely Remove Hardware icon in the taskbar, select the PC card you want to stop, then click Stop.
2. Flip the eject button out, so that it sticks out from the side of the computer.
3. Press the eject button and pull out the PC card.

**To reestablish network connection after resume**

When you are using a network PC card, it is possible that you will lose network connection after a resume operation. If this happens, you can restart the card by removing and then reinserting it.

**Finding tested PC cards**

For the current listing of PC cards that have been tested and approved for use with your computer, visit the Accessories section of the HP notebook web site ([www.hp.com/notebooks](http://www.hp.com/notebooks)).

---

## Connecting External Components

You can connect external components—such as a printer, mouse, monitor, or keyboard—directly to your computer or to the optional port replicator (on models equipped with a docking connector).

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### To identify the ports

The diagrams below shows the connectors for external devices on the computer and optional port replicator.

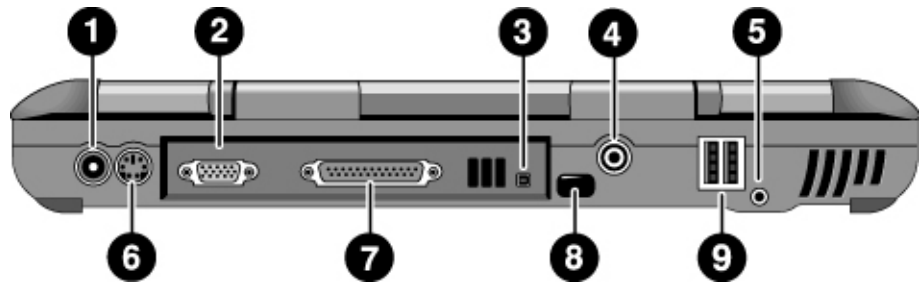
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**Note**

Before you connect any device, check its documentation to see if you need to make any settings or adjustments to the equipment before using it. This might include setting switches so the equipment will operate properly with your computer and the software you plan to use.

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#### Notebook ports



- 1 AC adapter jack
- 2 VGA port (**on selected models**)
- 3 IEEE1394 port (**on selected models**)
- 4 TV out
- 5 Microphone port
- 6 PS/2 port
- 7 Parallel port
- 8 Infrared port (**on selected models**)
- 9 USB ports



**Port replicator ports (on selected models)**



- 1 AC adapter jack
- 2 PS/2 mouse port
- 3 PS/2 keyboard port
- 4 LAN port (networking)
- 5 Serial port
- 6 Parallel port
- 7 VGA port (external monitor)
- 8 TV out
- 9 USB ports (2)
- 10 Audio in
- 11 Microphone port
- 12 Audio out (external speaker)

## Making Connections

### Connecting External Components

---

#### To connect a printer or another parallel device

The parallel port has a standard 25-pin connector, most commonly used for connecting dot-matrix, ink-jet, and laser printers. You can also use it to connect a parallel Zip drive.

- Connect the parallel printer cable or other parallel cable to the parallel port of the computer or the port replicator.

---

**Note**

If you connect a Zip drive to the parallel port, you can enhance its performance by installing the accelerator software supplied with your Zip drive.

---

#### To connect an external keyboard or PS/2 mouse

The 6-pin PS/2 port allows you to attach an external keyboard or a PS/2-compatible mouse to the computer. While an external PS/2 mouse is connected, the touch pad is normally disabled. The computer provides one PS/2 port; the optional port replicator provides two PS/2 ports.

- Plug the mouse or keyboard PS/2 cable into the PS/2 port on the computer, or plug either or both PS/2 cables into the PS/2 ports on the port replicator.
- To connect both a mouse and keyboard to the computer, use the PS/2 Y adapter, which is available separately.
- To connect a device that has a PC-type jack, first connect its cable to an adapter cable with a PS/2 jack.

---

#### To connect a USB device

Universal serial bus (USB) provides a bidirectional serial interface for adding peripheral devices—such as game controllers, serial and parallel ports, and scanners—on a single bus. The computer provides two USB ports; the optional port replicator also provides two USB ports.

- Attach the USB cable to the USB port on the computer or to either USB port on the port replicator. Windows automatically recognizes the USB device.

Some USB devices can be connected to the computer in series—this is called a daisy-chain connection.

---

**Note**

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If you have problems making this connection, contact the vendor of the peripheral device, as well as the HP web site, for the latest versions of the USB drivers.

---

## To connect audio devices

There is a built-in microphone located just below the blue standby button. You can use it to record voice, sound, and music. You can also plug in an audio input source (such as a CD player or an external microphone) or an audio output device (such as external speakers or headphones).

- Attach the audio cable to the appropriate port on the computer or the optional port replicator—see “To identify the ports” on page 72.

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**Note**

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When you plug a device into the microphone port, the built-in microphone automatically turns off. When you plug a device into the audio out port, the built-in speakers automatically turn off.

---

## To use infrared devices

**(Provided for selected models.)** You can communicate between your notebook and infrared devices without using cables.

### To enable the infrared port

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**Note**

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In the BIOS Setup utility, infrared communication is by default disabled. Before you use your infrared port, you must enable the infrared port in the BIOS.

1. Restart your computer.
2. When you see the HP logo, press F2.
3. Select the System Devices menu.
4. Set Infrared Port to Enabled.
5. Make sure Mode is set to FIR (Fast Infrared). This is the default.
6. Save and Exit to continue restarting. The infrared hardware will be detected on the next restart, and the appropriate drivers will be installed.

## Making Connections

### Connecting External Components

#### **To set up the infrared connection**

Your notebook provides one infrared port located on the rear panel. This port provides serial communication between your computer and other infrared devices such as printers and other computers.

- Line up the notebook's infrared port with that of the other device, in as straight a line as possible. The two ports should be no more than one meter apart, with no obstructions in between. Heat from nearby equipment can cause transmission errors.
- To check the status of communications, open Infrared Monitor (Windows 98) or Wireless Link (Windows 2000 or XP) in Control Panel. If infrared communication is not enabled, you can enable it here; consult help in the application.

#### **To print to an infrared printer**

With Windows 2000 or XP, when you align the infrared ports of the computer and the printer, the appropriate drivers are loaded automatically. Follow the onscreen directions, and you can proceed to print.

With Windows 98, you must install the printer driver and assign it to the notebook's Infrared Printing (LPT) port, which is usually assigned to LPT3. Click Start, Settings, Printers, Add Printer, and follow the onscreen directions.

If you have already assigned a printer to the parallel port, you can assign the same printer to the infrared port by adding another printer. Windows will keep the same printer driver, and you can then also assign it to the infrared port.

You can print from your applications to an infrared printer in the same way as you would to a printer connected to the parallel port. Set the infrared printer as your default printer—or select it when you print from within the application. Be sure the computer and printer infrared ports are properly aligned.

#### **To transfer files with an infrared connection**

To transfer files through the infrared port, right-click the name or icon of the file you want to transfer, and click Send To, Infrared Recipient. In Windows 2000 or XP, Infrared Recipient appears only when the computer is aligned with another infrared device and detects it.

For higher-performance file transfer, you can also use the Direct Cable Connection software built into Windows 98, or the Wireless Link software built into Windows 2000 and XP.

In Windows 98, you need to install the Direct Cable Connection software first:

1. From Control Panel, click Add/Remove Programs.
2. Click Windows Setup, Communications, and select Direct Cable Connection.

See the Windows online help for instructions about how to use Direct Cable Connection or Wireless Link.

---

## To use an external monitor

You can connect your computer to an external monitor and then use either display—or both displays at once.

### To connect an external monitor

1. Click Start, Shut Down, Shut down (Windows 98 or 2000) or Start, Turn Off Computer, Turn Off (Windows XP).
2. Connect the monitor cable from the monitor to the VGA port on the rear of the computer or on the optional port replicator.
3. Connect the monitor to a power source and turn it on.
4. Press the blue standby button to turn on the computer.

### To switch the display to the external monitor

- Close the computer lid.  
*OR*
- Press Fn+F5 to cycle through the display options: notebook display, external monitor, both.  
*OR*
- Click Start, Programs, HP Display Settings, HP Display Settings (Windows 98 or 2000), or Start, All Programs, Hewlett-Packard, Notebook, HP Display Settings, HP Display Settings (Windows XP).

### To adjust monitor resolution

1. Click Start, Settings, Control Panel, then double-click Display (Windows 98 or 2000), or click Start, Control Panel, Appearance and Themes, Display (Windows XP).
2. On the Settings tab, adjust the Screen area.

## Making Connections

### Connecting External Components

#### To use dual display mode (Windows 98 or XP)

You can extend the desktop by connecting an external monitor to your notebook.

Dual display mode requires that your computer display be set as shown in the table below. Click Start, Settings, Control Panel, then double-click Display (Windows 98), or click Start, Control Panel, Appearance and Themes, Display (Windows XP). Use the Settings tab to make adjustments.

<b>Notebook screen or Display</b>	<b>Screen area</b>	<b>Colors</b>
13.3-inch, 14.1-inch, or 15-inch XGA TFT	800x600 pixels or 1024x768 pixels	256 colors or High Color (16 bit) or True Color (24 bit)
15-inch SXGA+ TFT	1400x1050 pixels	High Color (16-bit) or True Color (32-bit)

1. Set your notebook display settings according to the table above. (The display settings vary by model.)
2. Click Start, Shut Down, Shut down (Windows 98) or Start, Turn Off Computer, Turn Off (Windows XP).
3. Connect the monitor cable from the monitor to the VGA port on the rear of the computer or the port replicator.
4. Connect the monitor to a power source and turn it on.
5. Press the blue standby button to turn on the computer. Windows will detect the second monitor and attempt to load the proper display driver. Follow the onscreen instructions.
6. Click Start, Settings, Control Panel, Display, Settings (Windows 98) or Start, Control Panel, Appearance and Themes, Display, Settings (Windows XP). Position the second monitor to the right or left of your notebook display to match your monitor location.
7. Make sure that the Settings box “Extend my Windows desktop onto this monitor” is checked.

You can change the Screen area and Colors settings for the second monitor by selecting Display #2. These settings can be different from your notebook display settings.

## To use a TV set as monitor

You can connect your computer to a television set and then use it as a display. On some notebook PC models, the computer's LCD display continues to be active when you use a TV set.

### To connect a TV set

1. Connect a video cable (75 Ohm, with compatible RCA plugs) from the TV set to the TV output port on the rear of the computer or the port replicator. (You don't need to turn the computer off.)
2. Connect an audio cable from the computer's headphone audio jack (using a 3.5mm or 1/8" stereo plug) to the left and right audio jacks (using two RCA plugs) on the TV set.
3. Connect the TV set to a power source and turn it on.

### To activate and adjust the TV display

- If you are running the DVD player, turn it off while you activate the TV display.
- Click the television icon in the system tray of the taskbar, and select TV from the options list. The computer's display will change to 640x480.

*OR*

Restart the computer: click Start, Shut Down (or Turn Off Computer), Restart.

*OR*

1. Click Start, Settings, Control Panel, then double-click Display (Windows 98 or 2000), or click Start, Control Panel, Appearance and Themes, Display (Windows XP).
  2. On the Settings tab, click Advanced.
  3. On the Displays tab, activate the TV output.
- The TV options list includes selections to center the TV image and to adjust the position of the TV image.
  - If available, use the Intel Technology Graphics icon in the task bar to make other adjustments.
  - On some models, you may need to change the Television Type in the Main menu of the BIOS Setup utility—see "Using the BIOS Setup Utility" on page 84.

## Making Connections

### Connecting External Components

#### To disable TV

*Different models of the notebook PC disable TV mode in different ways.*

To return the system to normal LCD display mode, click the television icon in the system tray and do one of the following, depending on your PC model:

- Click LCD.

*OR*

- Click the TV option to deselect it.

*OR*

- Click Start, Settings, Control Panel, Display (Windows 98 or 2000) or Start, Control Panel, Appearance and Themes, Display (Windows XP). On the Settings tab, click the Advanced button and disable the TV display.

---

#### CAUTION

**Selecting Exit from the monitor or display icon pop-up menu removes the icon from the system tray. If you do this, you can access the TV settings from the Control Panel as described in the above steps.**

**Restart the computer to restore the television icon.**

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## To use the port replicator

**(On models provided with a docking connector.)** With the optional port replicator, you can connect external components—and then avoid disconnecting and reconnecting them each time you take the computer on the road. You can find additional information about the port replicator in the manual that comes with it.

---

### Note

The port replicator does *not* come with its own AC adapter. You use the AC adapter from the notebook PC to power the PC and the port replicator together.

### To connect to the port replicator

1. Plug in the AC adapter to house power, then connect it to the rear of the port replicator. Make sure that the AC status light is on.
2. Align the computer with the locator pins on the port replicator.



3. Press the computer down until it clicks into place. Make sure that the dock status light is on.
4. Open the computer and press the blue standby button to turn it on.  
After the computer is turned on, you can close the lid while it is running.

## Making Connections

### Connecting External Components

#### To disconnect from the port replicator

1. Press down on the release tab on the right side of the port replicator.



2. Lift the computer from the port replicator.

---

#### To connect an IEEE1394 device

**(Provided for selected models.)** The IEEE1394 port provides a high-speed serial connection for a wide variety of external devices. If your computer includes an IEEE1394 port, you can use it to connect devices such as audio and video equipment, disk drives, printers, and other computers.

- Attach the device's IEEE1394 cable to the IEEE1394 port on the back of the computer. Windows automatically recognizes the device.

---

#### Note

If you have problems making this connection, contact the device manufacturer and the HP Customer Care web site ([www.hp.com/go/support](http://www.hp.com/go/support)) for the latest version of the driver for the device.

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## Configuring and Expanding Your Computer

## Using the BIOS Setup Utility

The BIOS (Basic Input and Output System) Setup utility is a menu-driven utility that enables you to make changes to the system configuration and tailor the operation of your computer to your individual work needs.

The settings made in the BIOS Setup utility control the hardware and therefore have a fundamental effect on how the computer operates.

### **To run the BIOS Setup utility**

1. Restart the computer: click Start, Shut Down (or Turn Off Computer), Restart.
2. When you see the HP logo, press F2 to enter the BIOS Setup utility.
3. Select the options you want. You can find a complete list of available options in BIOS Setup utility options on page 130.
4. After you have finished making changes, press F10 (or select Exit, Saving Changes and Exit).
5. Press Enter to confirm and restart the computer.

If the settings cause a conflict between devices while restarting, the system prompts you to run BIOS Setup, and the conflicting settings are marked.

The pointing devices are not active in the BIOS Setup utility. Press the Right and Left arrow keys to move from one menu to another. Press the Down and Up arrow keys to move among parameters in a menu. Press F5 or F6 to move through values for the current parameter or press Enter to change a setting.

---

## Installing RAM Modules

The notebook provides an optional memory expansion slot for installing up to two RAM expansion modules. Use HP PC-133 or higher SDRAM modules only.

---

### Note

If you are using Windows 98, you must expand the hibernate partition before installing more RAM. The hibernate partition (default size, 256MB) must be at least as large as the total RAM installed. (The hibernate partition is used to store the current Windows session before the system enters hibernation.)

See “Expanding the Hibernate Partition (Windows 98)” on page 88. Expanding the hibernate partition will delete all the data on your hard drive, so be sure to back up your data first. Following the partition expansion, you must reinstall Windows from the *Recovery CD*.

---

### CAUTION

**Static electricity can permanently damage computer chips. Handle the RAM module only by its three non-connector edges. Otherwise, you may damage the module due to electrostatic discharge. Always discharge the static electricity from your body by touching the metal shielding around the connectors on the rear of the computer before touching or installing the memory module.**

---

## To install a RAM expansion module

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

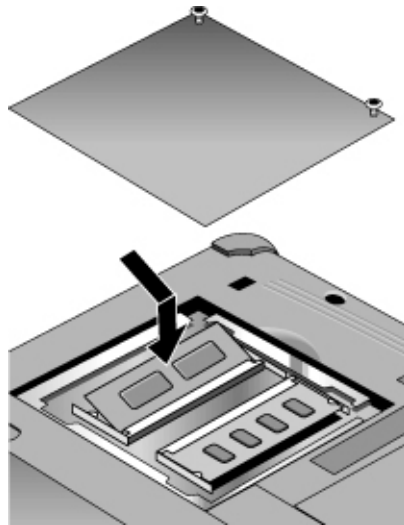
You’ll need a small Phillips screwdriver to complete this procedure.

1. Click Start, Shut Down, Shut down (Windows 98 or 2000) or Start, Turn Off Computer, Turn Off (Windows XP).
2. **Important:** unplug the AC adapter, if present, and remove the battery.

## Configuring and Expanding Your Computer

### Installing RAM Modules

3. Turn the computer over, loosen the screws in the RAM expansion cover (the cover retains the screws), and remove the cover.



4. Insert the RAM expansion module into the connector at about a 30° angle until it's fully inserted. Then press down at both sides of the module until it latches.
5. Replace the RAM expansion module door.
6. Insert the battery.

---

**Note**

**Windows 98 only:** if you increase your computer's memory to more than 512 MB, the computer will not be able to hibernate unless you also increase the size of the hibernate partition on the hard disk—see “To recover the factory installation of your hard disk” on page 125.

You can also replace the computer's system RAM module—see “To replace the system RAM module,” below.

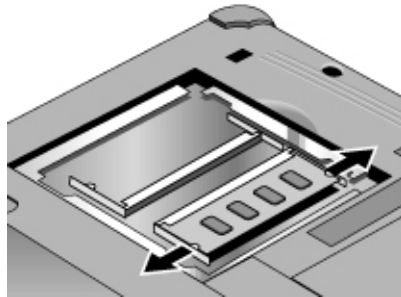
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### To remove a RAM expansion module

You'll need a small Phillips screwdriver to complete this procedure.

1. Click Start, Shut Down, Shut down (Windows 98 or 2000) or Start, Turn Off Computer, Turn Off (Windows XP).
2. **Important:** unplug the AC adapter, if present, and remove the battery.

3. Turn the computer over, loosen the screws in the RAM expansion cover (the cover retains the screws), and remove the cover.
4. Release the two latches at the sides of the RAM expansion module by pushing them gently outward (away from the sides of the module). When you release the latches, the free edge of the module pops up.



5. Pull the module out of the connector.
6. Replace the RAM expansion module cover.

---

## To replace the system RAM module

If needed, you can replace your computer's system RAM module to increase the computer's RAM.

1. If your computer is docked, undock it.
2. Click Start, Shut Down, Shut down (Windows 98 or 2000) or Start, Turn Off Computer, Turn Off (Windows XP).
3. **Important:** unplug the AC adapter, if present, and remove the battery.
4. Turn the computer over, loosen the screws in the system RAM cover (the cover retains the screws), and remove the cover.
5. Release the two latches at the sides of the RAM module by pressing them outward, so that the free edge of the module pops up.
6. Pull the module out of the connector.
7. Carefully insert the edge of the new 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.
8. Replace the cover.
9. Reinstall the battery.

---

## Expanding the Hibernate Partition (Windows 98)

You can create the hibernate partition by booting from the *Recovery CD*. The partitioning and recovery process takes approximately 10 to 15 minutes. Do not interrupt the process or unplug the AC adapter until the process is completed.

---

### CAUTION

**This procedure will format the hard disk drive and erase all data on the disk. Be sure to back up all data from your hard disk before you begin this procedure. After the hard disk drive is formatted, you'll need to reinstall any applications.**

---

1. Back up all data from your hard disk.
2. If you want to install additional RAM, do so now.
3. Connect the AC adapter to the computer.
4. Insert the *Recovery CD* (disc 1) in the CD-ROM drive. If the computer is turned off, insert a straightened paper clip into the hole on the drive door to open it.
5. Turn on or restart the computer.
6. When you see the HP logo, press ESC to display the Boot menu.
7. Use the arrow keys to select the CD-ROM drive as the boot device, and press Enter.
8. Click Continue, then Advanced.
9. If you want to choose a nondefault partition size, select a size from the Hibernate Partition Size drop-down list. **Note:** In Windows 98, the size of the hibernate partition must *equal or exceed* the total memory (RAM) in your system.
10. If you want to create a hibernate partition without recovering the operating system, select the "Do not load operating system" checkbox and select one of the partition options.
11. Choose Continue.
12. Click OK to begin. Insert the next disc if prompted.
13. **Important:** when you are prompted to restart your computer, first *undock it if it is docked*, then remove the *Recovery CD* and press CTRL+ALT+DEL.
14. Follow the onscreen instructions for setting up Windows.
15. When Windows setup is complete, reinstall any applications and restore backed-up data.



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## Updating Windows Drivers

From time to time, HP releases updated versions of the drivers for your computer. These updates are intended to fix any problems that could be encountered in the drivers, and to keep your computer running smoothly.

In addition, HP normally provides drivers for other versions of Microsoft Windows, in case you decide to install a different version of Windows.

- Download the latest drivers for your computer from [www.hp.com/go/support](http://www.hp.com/go/support).

Follow the instructions included with the drivers.



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## Service and Support

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## 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 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.

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 to country, 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.

<b>Product</b>	<b>Duration of Limited Warranty</b>
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.

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## Getting Support for Your HP Notebook PC

HP offers a number of ways that you can get technical support for your computer. If you have questions or problems, here are the resources available to you:

- Look up information in this *Reference Guide*.
- Visit the HP notebook web site.
- Use HP Instant Support on your notebook: double-click the HP Instant Support icon on the Windows desktop (Windows 98 or 2000), or click Start, Help and Support, HP Instant Support (Windows XP).
- Call HP support.
- Look up information in Microsoft Windows Help and the printed Windows manual.

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### To use the *Reference Guide*

To locate information in the guide, use the Contents, Index, and Search tabs:

- The Contents tab lists the headings of all the topics in the guide.
- The Index tab provides an alphabetical list of the keywords in the guide; you can locate a keyword either by typing it in the box or by scrolling through the list.
- The Search tab allows you to find specific words and phrases.

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### To get help from the HP notebook web site

HP has a web site dedicated to HP notebook owners: [www.hp.com/notebooks](http://www.hp.com/notebooks). This web site contains information about the various HP notebook models, warranties, support, and special promotions.

To get help with your computer at this web site, click Technical Support. In the technical support area, you will have access to:

- answers to frequently asked questions
- software, driver, and BIOS updates

- electronic manuals
- troubleshooting solutions
- self-help tools
- the basic services included with your warranty, as well as descriptions of enhanced and custom services
- latest support telephone numbers for HP products

### **To use HP Instant Support**

Available at no charge, HP Instant Support is a value-added service, featuring web-based automated diagnosis and resolution capabilities. It can be personalized to meet your business needs, delivering the support experience that works for you and accelerating the resolution of computing problems.

Choose either automated Self-Service, for online delivery of answers, or Smart Solutions, which utilizes Instant Support's "smart search" function. This intelligent tool allows you to describe problems in everyday language, then wizards you through a variety of user-friendly support options. Find more information about Instant Support on our external web site at [www.hp.com/hps/instant/index.htm](http://www.hp.com/hps/instant/index.htm).

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## To call HP for service and support

If you are unable to solve a problem with your computer, you can call the HP Customer Care Center. The Customer Care Center will assist you at no charge during the term of the warranty, for warranty-related questions; you are responsible only for cost of the telephone call. During the free assistance period, HP will assist with questions about:

- applications and operating systems included with your computer
- 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—or not included by HP with—the product
- how to repair the product yourself
- product development or custom installations
- consulting

Service and Support  
**Getting Support for Your HP Notebook PC**

To locate the Customer Care Center in your area, check the following table. HP Customer Care Centers will assist you for free during the term of the warranty; you are responsible only for the cost of the telephone call. Check the HP notebook web site ([www.hp.com/notebooks](http://www.hp.com/notebooks)) for the most complete and current list of phone numbers. If the HP notebook product is not normally sold and supported by HP in the country of use, the customer must call one of the supported HP Customer Care Centers located nearest the region. Currently, Omnibook XE3 and Pavilion notebook service and support assistance is only provided in the following countries:

**Pavilion Series Notebooks (limited to the following)**

United States:	+1 (970) 635-1000
France:	+33 (0) 1 43 62 34
United Kingdom:	+44 (0) 207 512 52
Mexico City:	+52 58 9922
Mexico (outside Mexico City):	+52 01 800 472



**Omnibook XE3 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) +52 01 800 472

**South America**

Argentina +0810 555 5520  
Brazil (São Paulo) (11) 3747 7799  
Brazil (outside São Paulo) 0800 157751  
Venezuela 0800 157751

**Asia Pacific**

Australia +61 (0) 3 8877 8000  
Hong Kong +852 800 96 7729  
India +91 11 682 6035  
Indonesia +62 21 350 3408  
Japan +81 (0) 3 3335 8333  
Korea +82 2 3270 0700  
Malaysia +60 (0) 3 295 2566  
New Zealand +64 (0) 9 356 6640  
People's Republic of China +86 800 810 5959  
Philippines +63 2 867 3551  
Singapore +65 272 5300  
Taiwan +886 (2) 2717 0055  
Thailand +66 2 661 4000  
Vietnam +84 8 823 4530

**Africa/Middle East**

Dubai +971 (0) 4 8839 292  
Israel +972 (0) 9 952 4848  
Republic of South Africa +27 (0) 86-000-1030

**Europe**

Austria +43 (0) 7114 20 1080  
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  
English (from outside UK) +44 (0) 171 512 52 02  
Finland +358 (0) 203 47 288  
France +33 (0) 1 43 62 34 34  
Germany +49 (0) 180 52 58 143  
Greece +30 (0) 1 619 64 11  
Hungary +36 (0) 1 382 1111  
Ireland +353 (0) 1 662 5525  
Italy +39 02 264 10350  
Netherlands +31 (0) 20 606 8751  
Norway +47 22 11 6299  
Poland +48 22 519 06 00  
Portugal +351 21 317 6333  
Russia (Moscow) +7 095 797 3520  
Russia (St. Petersburg) +7 812 346 7997  
Spain +34 902 321 123  
Sweden +46 (0) 8 619 2170  
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

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## Obtaining Repair Service

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### To receive warranty repair service

To receive warranty repair service for Omnibook XE3 and Pavilion Notebook Series, contact the appropriate HP Customer Care Center. Check “To call HP for service and support” on page 95 for the phone number.

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**Note**

HP Pavilion notebooks have regional support and service in selected countries. Currently, HP Pavilion notebook PCs are supported only in the country in which they are purchased and marketed. If you are outside the country of purchase, you must cover the cost of shipping your notebook to the appropriate HP authorized repair site.

For example, if you purchased a Pavilion notebook in the United Kingdom, and then traveled to Russia, you would be responsible for shipping the unit to the United Kingdom for repair and service under warranty. If you are uncertain about the support, please contact our Customer Care Center—see “To call HP for service and support” on page 95.

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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. If the HP notebook product is not normally sold and supported by HP in the country of use, it must be returned to a supported country for services. Warranty service may include the cost of shipping, handling, duties, taxes, freight, or fees to or from the service location.

### **To repair your computer outside the warranty period**

If your PC is no longer in the warranty period, contact the appropriate Customer Care Center. The HP support person will let you know about repair charges and processes.

## To prepare your computer for shipment

1. **Important.** Back up the contents of your hard disk drive to floppy disks, tape, or a network drive.

While your computer is being repaired, the hard disk may be replaced or reformatted.

2. Hewlett-Packard cannot guarantee the return of removable components. Please remove the following before you send your computer for service:
  - PC cards
  - AC adapter and power cord
  - CDs in the CD player
  - floppy disks in the floppy disk drive
3. When shipping your computer to Hewlett-Packard, please use the original product packaging or other substantial packaging in order to avoid damage in transit. Make sure to wrap at least three inches of protection around the unit and the courier will put it into one of their boxes.



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## Solving Problems with Your Computer

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## Troubleshooting Techniques

This section contains solutions to a few common problems and troubleshooting techniques for your HP notebook PC.

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### Audio problems

#### **If sound is not audible**

- Press Fn+Up arrow several times.
- Press the volume control up button several times.
- Click the speaker icon on the taskbar (if present) to ensure that Mute is not checked and the Volume Control slider is not set to the bottom.
- When you are operating your computer in MS-DOS mode (for example, when running MS-DOS games), you may find that the sound does not operate properly. Use Windows applications for full use of sound capabilities.

#### **If sound does not record**

- Check software controls for recording sound: Click Start, Programs (or All Programs), Accessories, Multimedia (or Entertainment), Sound Recorder.
- In Volume Control, click Options, Properties, and make sure the microphone is enabled in the recording controls.
- Test the audio with e-Diagtools—see “Testing Hardware Operation” on page 123.

#### **If the PC card detection beep(s) at startup are very loud and volume cannot be adjusted**

- Download the latest audio driver from the technical support area of the HP notebook web site [www.hp.com/notebooks](http://www.hp.com/notebooks).

You may also want to test the speakers and sound with e-Diagtools—see “Testing Hardware Operation” on page 123.

## CD and DVD problems

### **If you can't boot from a CD in the CD-ROM drive**

- Make sure the CD is bootable, such as the *Recovery CD*.
- Restart the computer: click Start, Shut Down (or Turn Off Computer), Restart.
- Make sure the CD-ROM drive is selected as the boot device—see “To change the boot device” on page 36.
- Test the CD-ROM drive with e-Diagtools—see “Testing Hardware Operation” on page 123.

### **If the computer cannot read a CD or DVD**

- For a single-sided CD or DVD, make sure the disc is placed in the drive with the label facing up.
- Wait 5 to 10 seconds after closing the tray to give the computer time to recognize the disc.
- Clean the disc.
- Restart the system: remove the disc from the drive, then click Start, Shut Down (or Turn Off Computer), Restart.
- If you created the CD on a CD-RW drive module, try using HP certified media. Read and write quality may vary for other media.

### **If a CD or DVD plays erratically**

- Dirt or smudges can cause a disc to skip. Clean the disc with a soft cloth. If the disc is badly scratched, it will have to be replaced.
- Some DVDs include software called “PC Friendly”. You do not need to install this software, as it can make the player unstable, and cause errors or erratic play. If needed, uninstall the PC Friendly software and restart your computer.

### **If a DVD movie stops playing in the middle**

- The DVD may be double-sided. Open the DVD tray and read the text near the center hole of the disc. If it says Side A, flip the disc over, close the tray, and then press the Play button to continue playing the movie.
- You may have accidentally paused the DVD movie. Press the Play button to resume playing the movie.

## Solving Problems with Your Computer

### Troubleshooting Techniques

#### If you get a Region Code error when playing a DVD movie

- DVDs have regional codes embedded in the disc data. These codes prevent DVD movies from being played outside the region of the world in which they are sold. If you get a Region Code error, you are trying to play a DVD intended for a different region.

**Important:** most DVD drives let you change the region code only a limited number of times (usually no more than four). Please note that when you reach this limit, your last change to the region code will be hard-coded on the DVD drive, and will be permanent. **Your HP warranty does *not* cover the expense of correcting this situation.** Refer to the help for your DVD player software for details about setting region codes.

#### If the DVD movie doesn't fill the screen

- Each side of a double-sided DVD has a different format (standard or widescreen). In widescreen format, black bands appear at the top and bottom of the screen. To view the standard format, flip the disc over and play the other side.

#### If a DVD doesn't play with two displays

- For Windows 2000 or XP, press Fn+F5 to switch to one display.
- For Windows 98, if you're using the Extended Desktop (dual displays), move the player window to display 1. If you're not using Extended Desktop and both displays are active, press Fn+F5 to switch to one display.
- If you're using both displays, the DVD image will not appear on any display set up as "secondary". Open Display in Control Panel, click Advanced on the Settings tab, and change settings.

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## Display problems

#### If the computer is on, but the screen is blank

- Move the mouse or tap the touch pad. This will wake the display if it is off.
- Try pressing Fn+F2 to increase the brightness.
- Press Fn+F5 in case the internal display was disabled.
- If the computer is cold, allow it to warm up.
- Test the display with e-Diagtools—see "Testing Hardware Operation" on page 123.



**If the screen is difficult to read**

- Check whether the display resolution is set to its default setting—1024×768 for 13", 14", and 15" TFT displays: click Start, Settings, Control Panel, double-click Display, then click Settings (Windows 98 or 2000), or click Start, Control Panel, Appearance and Themes, Display, Settings (Windows XP).
- Try adjusting the size of the desktop icons and labels—see “To adjust the display” on page 33.

**If part of the Windows desktop is not visible and you have to scroll down to see the taskbar, or does not fill the entire display and has a black border**

- Your display resolution may be set incorrectly. Adjust the resolution as needed—see “To adjust the display” on page 33.

**If an external display does not work**

- Check the connections.
- Press Fn+F5 in case the external monitor was disabled. (Do this three times to return to the state you started from.)

**If an external display cannot use high resolutions**

- For Windows 98, use the default display type for the internal display: Default Monitor. If you change the display type, non-Plug-and-Play (non-DDC) external monitors will not be able to use resolutions higher than the resolution of the internal display. You can check display settings using Display in Control Panel, or by right-clicking the desktop and then clicking Properties.

**If one or more pixels look bad on a TFT display**

TFT display manufacturing is a highly precise but imperfect technology, and manufacturers cannot produce displays that are cosmetically perfect. Most, if not all, TFT displays exhibit some level of cosmetic imperfection. These cosmetic imperfections may be visible under varying display conditions, and can appear as bright, dim, or dark spots. *This issue is common across all vendors supplying TFT displays in their products and is not specific to the HP notebook display.*

## Solving Problems with Your Computer Troubleshooting Techniques

HP notebook TFT displays meet or exceed all HP standards for cosmetic quality of TFT displays. HP does not warrant that the displays will be free of cosmetic imperfections. *TFT displays can have a small number of cosmetic imperfections and still conform to HP's cosmetic quality specifications, including the following:*

- No more than 6 pixels remain on (always one color, such as white, red, green, or blue dots).
- No more than 6 pixels remain off (always dark).
- No more than a total of 8 pixels stuck on or off.
- No other stuck pixel within 15 mm of a stuck pixel.

Contact HP Customer Care if you have a display quality problem and require a more comprehensive explanation of HP display quality—see “To call HP for service and support” on page 95. We expect that over time the industry will continue to produce displays with fewer inherent cosmetic imperfections, and we will adjust our HP guidelines as these improvements are implemented.

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## Hard disk drive problems

### **The hard drive's reported capacity is less than its actual size**

- The hard disk drive is preconfigured to allocate some space to diagnostic software, which is used in support and service of your computer. This part of the hard drive is unavailable for other uses, and so is not included in the capacity of the hard drive as reported by Windows (My Computer, Properties).

### **If the computer's hard drive doesn't spin**

- Make sure the computer has power. If necessary, connect the AC adapter, making sure it is plugged into a power source and into the rear of the computer.

### **If the hard disk makes a buzzing or whining noise**

- Back up the drive immediately.
- Check for alternate noise sources, such as the fan or a PC card drive.

### **If files are corrupted**

- Run the virus-scanning program.
- In Windows 98, run the ScanDisk surface scan to check the platter: click Start, Programs, Accessories, System Tools, ScanDisk.

- In Windows 2000 or XP, check your disk using error-checking: click Start, My Computer, and select the disk you want to scan. Click File, Properties, then select the Tools tab and click Check Now.
- Test the hard disk drive with e-Diagtools—see “Testing Hardware Operation” on page 123.
- If necessary, format the hard disk and reinstall the original factory software—see “To recover the factory installation of your hard disk” on page 125.

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## Heat problems

Your computer normally gets warm during routine operation.

### **If the computer gets abnormally hot**

- Always set the computer on a flat, firm surface, so that air can flow freely around and underneath it.
- Make sure the air vents are clear.
- Make sure the fan is working properly.
- Keep in mind that charging the battery and running games and other programs that drive CPU usage toward 100% can increase the computer’s temperature.

You may also want to test the fan with e-Diagtools—see “Testing Hardware Operation” on page 123.

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## Infrared Problems

By default, the infrared port is not enabled, so you must enable it before you can use it.

### **If you have problems with infrared communication**

- Make sure the line between the two infrared ports is not blocked, and that the ports face each other as squarely as possible. The ports should be no more than 1 meter apart, with no obstructions between them. Sunlight, heat from nearby equipment, or other sources of infrared radiation can cause transmission errors.

## Solving Problems with Your Computer Troubleshooting Techniques

- Check settings in the BIOS Setup utility:
    1. Restart the computer: click Start, Shut Down (or Turn Off Computer), Restart.
    2. When the HP logo appears, press F2 to enter BIOS Setup.
    3. From the System Devices menu, make sure Infrared port is enabled and FIR mode is selected.
    4. Press F10 to save and exit BIOS Setup.
  - Make sure only one application is using the infrared port.
  - For Windows 98, see c:\hp\Drivers\Fir\Readme.txt for additional information.
- 

### Keyboard, touch pad, and mouse problems

#### **If the touch pad is difficult to control**

- Customize the touch pad by modifying Mouse properties: click Start, Settings, Control Panel, then double-click Mouse (Windows 98 or 2000), or click Start, Control Panel, Printers and Other Hardware, Mouse (Windows XP).

#### **If the pointing devices don't work**

- Don't touch the touch pad while booting or resuming. If this happens, try the following:
  - Press a key on the keyboard to restore normal operation.
  - Suspend and resume operation using the standby button.
- Restart the computer: click Start, Shut Down (or Turn Off Computer), Restart.

#### **If an external mouse doesn't work**

- Standby or shut down the computer before you attach the mouse, to ensure that it will be detected properly.

If you want to go back to using the touch pad, you must standby or shut down the computer before you detach the mouse.

#### **If the embedded numeric keypad doesn't work**

- Make sure Num Lock is on—that you have pressed Fn+F8 to activate the numeric keypad and that you have pressed the Lock key to turn on number lock.
- Don't touch the touch pad while booting or resuming—see above.

**If a special feature on a PS/2 mouse doesn't work**

- Make sure you installed any drivers included with the mouse.
- Restart the computer, so that the system will detect the PS/2 mouse: click Start, Shut Down (or Turn Off Computer), Restart.

You may also want to test the keyboard and pointing devices with e-Diagtools—see “Testing Hardware Operation” on page 123.

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**Note**

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If you experience difficulty using internal and external pointing devices (touch pad and PS/2 mouse) together, check the pointing device BIOS setting, in the System Devices menu. See “Using the BIOS Setup Utility” on page 84.

**If you can't type the euro symbol**

- Hold ALT GR when you press the marked key.
- The euro symbol is not on the U.S. English keyboard. Make sure the embedded keypad is active (Fn+F8) and Num Lock is on, then hold ALT while typing 0128 on the numeric keypad.
- Support for the euro symbol requires software available from Microsoft. This software is installed in the factory software, but may not be included with retail Windows.

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## LAN problems

**If the built-in network adapter doesn't connect to the LAN**

- Check all cables and connections. Try connecting at a different network station, if available.
- If the green light next to the LAN port does not light, the LAN cable may not be connected to the network or the network may be down. Try connecting a different computer to the cable.
- For Windows 98, open Network in Control Panel. Make sure you have the correct clients and protocols installed.
- Make sure the LAN cable is Category 3, 4, or 5 for 10Base-T operation, or Category 5 for 100Base-TX operation. Maximum cable length is 100 meters (330 feet).
- Click Start, Help (or Help and Support), and use the Networking troubleshooter.

## Solving Problems with Your Computer Troubleshooting Techniques

- Open the hardware Device Manager: click Start, Settings, Control Panel, System (Windows 98 or 2000) or Start, Control Panel, Performance and Maintenance, System (Windows XP). If the network interface is disabled, try to enable it. If it has a conflict, try disabling another device.

### **If you can't browse the Network Neighborhood or My Network Places**

- Check with your network administrator to make sure NetBEUI protocol is supported on the network.
- Click Start, Find, Find Computer (Windows 98 or 2000) or Start, Search, Computers or People (Windows XP) to look for a computer.

### **If you can't log in to Netware servers**

- If a Netware server is using IPX/SPX protocol, you may need to force your frame type to match the server's frame type. Check with your network administrator.

### **If the computer stops responding after booting**

- Check whether you have a TCP/IP network with no DHCP server. This can cause a long delay at startup because DHCP is enabled. Contact your network administrator to determine the proper TCP/IP configuration.

### **If you have slow or dropped connections on a 10/100 network switch or hub**

- The switch may be forced to 10 Mbps. For Windows 98, use Network in Control Panel to disable Auto Polarity for the network adapter.

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## Memory problems

### **If a message says you are out of memory**

- Make sure drive C is not running low on free space.
- If you're using Windows 98, use the Memory Troubleshooter in Windows Help: click Start, Help.
- If you are having memory problems running MS-DOS programs, use the MS-DOS or Application and Software troubleshooter in Windows Help: click Start, Help (or Help and Support).
- Not all third-party memory cards have been tested for use with the computer. Please check the HP notebook web site ([www.hp.com/notebooks](http://www.hp.com/notebooks)) for a list of approved and tested memory cards.

**If memory doesn't increase after adding RAM**

- Make sure your computer is using only PC-133 or higher RAM modules.

You may also want to test memory with the e-Diagtools—see “Testing Hardware Operation” on page 123.

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## Modem problems

**If the modem seems slow**

- Check for excess static or noise on the line, which reduces the overall transmission speed. If necessary, contact your telephone company about fixing this type of problem.
- If you're dialing internationally, line noise is often difficult or impossible to eliminate.
- If you have call-waiting, disable it—your telephone company can provide instructions. Call waiting can cause symptoms similar to static.
- Eliminate extra connections in the line. If possible, connect directly to the wall jack.
- Try another telephone line, preferably one normally used for a fax machine or modem.

**If the modem doesn't dial or no dial tone is detected**

- Check all cables and connections.
- Connect a standard telephone to the phone line and make sure the line is working.
- Make sure someone else isn't using the same phone line.
- Try another telephone line, preferably one normally used for a fax machine or modem.
- If you're in a foreign country, the dial tone may not be recognized by the modem. In Control Panel, open Modems (Windows 98) or Phone and Modem Options (Windows 2000 or XP), and try disabling the option that waits for a dial tone.
- Phone message recording services provided by phone companies use a “broken dial tone” to indicate that a message is waiting. This can prevent the computer from detecting a dial tone.

## Solving Problems with Your Computer

### Troubleshooting Techniques

#### **If the modem dials incorrectly**

- Check the telephone number you entered, including any digits required for outside access or long distance.
- In Control Panel, open Modems (Windows 98) or Phone and Modem Options (Windows 2000 or XP). Check the dialing options—look for duplicate digits for outside access or long distance.
- Make sure the number you're calling isn't busy.
- If you're in a foreign country, the dial tone may not be recognized by the modem. In Control Panel, open Modems (Windows 98) or Phone and Modem Options (Windows 2000 or XP), and try disabling the option that waits for a dial tone.
- If you have call-waiting, disable it—your telephone company can provide instructions.

#### **If the modem will not connect at 56K speed**

- The host modem may not support a 56K (V.90) connection speed.
- The speed at which you connect depends on several factors, such as the current condition of the telephone line. Try connecting another time.

#### **If the modem will not connect at any speed**

- Make sure you're using an analog telephone line. You must not use a digital line. In a hotel, ask for a data line.
- Make sure the telephone line goes from the RJ-11 modem phone jack on the right side of the computer to the telephone jack on the wall.
- If you have a single telephone line for voice and modem use, make sure no one else is using the line and that the phone is not off the hook.
- Try another telephone line, preferably one normally used for a fax machine or modem.
- Contact your Internet Service Provider (ISP). It's possible that service may be unavailable temporarily or that your settings are incorrect.
- Try restarting your computer and attempt another connection.
- Try an alternative dial-in number.
- Try disabling error correction and data compression.



- Download the latest modem driver from the technical support area of the HP notebook web site [www.hp.com/notebooks](http://www.hp.com/notebooks).
- In Windows 98, run the modem diagnostics:
  1. Click Start, Settings, Control Panel.
  2. Double-click Modems.
  3. Click the Diagnostics tab.
  4. Click the port to which your modem is attached.
  5. Click More Info.
- In Windows 2000 or XP, run the modem diagnostics:
  1. Click Start, Settings, Control Panel, then double-click Phone and Modem Options (Windows 2000), or click Start, Control Panel, Printer and Other Hardware, Phone and Modem Options (Windows XP).
  2. Click the Modems tab.
  3. Select the modem you want to test.
  4. Click Properties, Diagnostics, Query Modem.
- In Windows Help and Support, use the Modem troubleshooter.

**If the modem isn't detected**

- Check the modem setup. In Control Panel, open Modems (Windows 98) or Phone and Modem Options (Windows 2000 or XP). Check the COM port.
- Open the hardware Device Manager: click Start, Settings, Control Panel, System (Windows 98 or 2000) or Start, Control Panel, Performance and Maintenance, System (Windows XP). If the modem is disabled, try to enable it. If it has a conflict, try disabling another device.
- If you're running fax software using fax Class 2, try using Class 1.

**If the modem dials but you can't hear it**

- Check the speaker volume setting and mute setting.
- In Control Panel, open Modems (Windows 98) or Phone and Modem Options (Windows 2000 or XP). Select the modem and click Properties, then check the volume setting on the General tab.

## Solving Problems with Your Computer Troubleshooting Techniques

### **If the modem connects, but transferred data is bad**

- In Control Panel, open Modems (Windows 98) or Phone and Modem Options (Windows 2000 or XP). Make sure the parity, speed, word length, and stop bits match on sending and receiving modems.
- Try disabling error correction and data compression.

### **If the modem causes an ERROR message**

- A string of AT commands may contain an incorrect command. If you entered commands as extra settings for the modem in Control Panel or in your communications software, check the commands.

### **If the modem doesn't fax**

- If you're using fax Class 2 in the fax software, try using Class 1.
- Close any other communications programs.
- If you're faxing by printing from an application, make sure you've selected the fax printer.
- Try turning off power management features temporarily.

### **If the modem clicks repeatedly but doesn't connect**

- Make sure you're using an analog telephone line. You must not use a digital line. In a hotel, ask for a data line.
- Check all cables and connections.

### **If the modem connection is dropped when transferring large files**

- There may be static or interference on the phone line. Try connecting later.
- In Windows 98, if a PC card modem is not working, disable the internal modem.
  1. Click Start, Settings, Control Panel.
  2. Double-click System.
  3. Click the Device Manager tab.
  4. Double-click Modem to list the current modem devices.
  5. Double-click the internal modem.
  6. Select the checkbox "Disable in this hardware profile."

- In Windows 2000 or XP, if a PC card modem is not working, disable the internal modem.
  1. Click Start, Settings, Control Panel, then double-click Phone and Modem Options (Windows 2000), or click Start, Control Panel, Printer and Other Hardware, Phone and Modem Options (Windows XP).
  2. Select the Modems tab.
  3. Select the internal modem.
  4. Click Remove.

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## One-Touch button problems

### **If One-Touch buttons are not working properly**

- Make sure the applications associated with the buttons are the ones you want.
  1. Click Start, Settings, Control Panel, then double-click Keyboard (Windows 98 or 2000), or click Start, Control Panel, Printers and Other Hardware, Keyboard (Windows XP).
  2. Select the One-Touch buttons tab.
  3. Click the button of the key you want to reconfigure.
  4. Select the application or web site you want associated with the button. (See “To configure a One-Touch button” on page 37 for more details.)

### **If the onscreen display does not appear when pressing a One-Touch button**

- Make sure the Onscreen Display is enabled.
  1. Click Start, Settings, Control Panel, then double-click Keyboard (Windows 98 or 2000), or click Start, Control Panel, Printers and Other Hardware, Keyboard (Windows XP).
  2. Select the One-Touch buttons tab.
  3. Click Change Onscreen Display.
  4. Check Enable if it is not checked.

## Parallel and USB problems

### **If the parallel port is not working**

- Make sure the port connection is secure.
- Check the port settings in Control Panel: open the hardware Device Manager, then double-click Ports (COM & LPT).
- Test the ports with e-Diagtools—see “Testing Hardware Operation” on page 123.

### **If the USB port is not working**

- Contact the vendor of the peripheral device or check the HP notebook web site ([www.hp.com/notebooks](http://www.hp.com/notebooks)) for the latest versions of the USB drivers and the driver for the device.
- Check the port settings in Control Panel: open the hardware Device Manager, then double-click Universal Serial Bus Controller.

You may also want to test the USB port with e-Diagtools—see “Testing Hardware Operation” on page 123.

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## PC card (PCMCIA) problems

### **If the notebook doesn't recognize a PC card**

- Remove and reinsert the PC card.
- Restart the computer: click Start, Shut Down (or Turn Off Computer), Restart.
- If the card requires an IRQ, make sure one is available:
  - In Windows 98, look in Control Panel, System, Device Manager, Properties, Interrupt Request (IRQ).
  - In Windows 2000, look in Control Panel, Administrative Tools, Computer Management, System Information, Hardware Resources, IRQs.
  - In Windows XP, look in Control Panel, Performance and Maintenance, System, Hardware, Device Manager, View, Resources by Type.
- Check the HP Customer Care web site ([www.hp.com/go/support](http://www.hp.com/go/support)) for information about installing certain PC cards.

- Make sure your computer supports the problem PC card: check the HP notebook web site ([www.hp.com/notebooks](http://www.hp.com/notebooks)) for a list of approved and tested PC cards.
- Try the card in another computer.
- Certain Xircom CE2 (Ips) LAN cards conflict with the game port device in Windows 2000. Contact Xircom to see if your card is one of these.

**If an I/O card stops communicating properly**

- The card may have been reset if the computer is on standby or turned off. Exit any applications, then remove and reinsert the card.

**If a PC card modem is not working**

- Disable the internal modem.
  1. Open the hardware Device Manager: click Start, Settings, Control Panel, System (Windows 98 or 2000) or Start, Control Panel, Performance and Maintenance, System (Windows XP).
  2. Double-click Modem to list the current modem devices.
  3. Double-click the internal modem, then select the option to disable the modem.

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## Performance problems

For best performance with Windows 2000 or XP, your computer should have at least 96 to 128 MB of memory (RAM).

**If the computer pauses or runs sluggishly**

- This may be normal Windows behavior. Background processing can affect response time.
- Press CTRL+ALT+DEL to see if an application is not responding.
- Restart the computer click Start, Shut Down (or Turn Off Computer), Restart.
- Certain background operations (such as virus-scanning software) can affect performance.
- Some file browsers may be unresponsive while they're processing a graphic image or waiting for broken network connections to time out.

## Solving Problems with Your Computer

### Troubleshooting Techniques

- If the computer's hard disk drive frequently runs (as indicated by the hard drive light on the front of the computer) while the computer appears to be paused or running slowly, Windows is likely spending excess time writing to its swap file on the computer's hard disk. If this occurs frequently, consider installing additional memory.
- Check the amount of available free disk space. Delete temporary and unneeded files.

#### **If the computer stops responding**

- Press CTRL+ALT+DEL and end any application that is not responding.
- Slide and hold the power switch for five seconds to turn off and reset the computer. Then press the standby button to turn the computer back on.
- If nothing happens, insert a straightened paper clip into the system-off switch on the left side of the computer. Then press the standby button to turn the computer back on.

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## Port replicator problems

#### **If a port on a port replicator isn't working**

- Make sure AC power is connected.
- While undocked, try using the corresponding notebook port.
- See the manual for the port replicator.

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## Power and battery problems

#### **If the computer turns off immediately after it turns on**

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

#### **If the computer keeps beeping**

- The computer beeps repeatedly or displays a warning when the battery is low. Save your work, shut down the computer immediately, and insert a charged battery or plug in the AC adapter.

**If the computer has a short operating time**

- Try conserving power by setting power timeouts to shorter periods. In Windows, you can adjust these settings in the Power Management (or Power Options) Properties window in Control Panel.
- If you are running any applications with an automatic save feature, such as MS Word for Windows, you can extend the save time or disable this feature to reduce hard disk access.
- If the operating time has become shorter and the battery is more than a year or two old, you may need to replace the battery.
- Set the display brightness to the lowest comfortable level.
- Heavy modem use can affect battery operating time.
- PC card use can affect battery operating time.
- The battery gauge may need to be calibrated. Restart the computer, press F6 when the HP logo appears, and follow the instructions that appear onscreen. This process calibrates the battery, and requires four to five hours. You cannot use the computer during this process.

**If the battery doesn't charge**

- Make sure the AC adapter is plugged into the power source 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.
- Turn off the computer, then make sure the battery contacts are clean and that the AC adapter cables are fully plugged in.
- Move the computer away from any nearby heat source. Unplug the AC adapter and allow the battery to cool down. An elevated battery temperature prevents charging.
- If another battery is available, try it.
- If another AC adapter is available, try it.

**If the Time Remaining percentage for the battery is not correct**

- The Time Remaining value on the power (battery) icon is an estimate based on your current usage, not a precise value.

## Solving Problems with Your Computer

### Troubleshooting Techniques

#### **If the computer doesn't standby as expected**

- If you have a connection to another computer, the computer doesn't standby if the connection is actively in use.
- If the computer is performing an operation, it normally waits for the operation to finish.

#### **If the computer doesn't automatically hibernate as expected**

- For Windows 2000 or XP, make sure hibernate support is enabled: from Control Panel, open Power or Power Options, then click the Hibernate tab.  
Also, check the Power Schemes tab. Make sure the Hibernate timeouts for both AC power and battery power are not set to Never.
- For Windows 98, if your computer has more than 512 MB of RAM, you must expand the hibernate partition on the hard disk—see “To replace the system RAM module” on page 87.

#### **If the Standby option is missing from the Shut Down window (Windows 98)**

- Do not allow Windows 98 to disable APM. It may prompt you to do this in certain situations—always answer No.
- If the Windows 98 Standby option is missing, restore it as follows:
  1. In Control Panel, double-click System.
  2. On the System Manager tab, expand the System Devices, select Advanced Power Management, and click Remove.
  3. Restart the computer.
  4. In Control Panel, double-click Add New Hardware, and follow the prompts to install support for APM.
  5. Restart the computer.



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## Printing problems

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### Hint

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You will usually be able to solve most printing problems by using the Print troubleshooter in Windows Help: click Start, Help (or Help and Support).

#### **If a parallel printer doesn't print**

- Make sure the printer is on and has paper in it.
- Make sure you are using a proper cable or cable adapter, and that it is securely attached at both ends.
- Check for printer errors.

#### **If the left edge of printed output is missing**

- If the printer you are using is a 600-dpi (dots per inch) printer, try selecting a compatible printer driver for a 300-dpi printer. For example, for a 600-dpi HP LaserJet printer, try using the HP LaserJet IIIsi driver (300-dpi). Certain applications may not work properly with 600-dpi printers.

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## Startup problems

#### **If the computer doesn't respond when you turn it on**

- Connect the AC adapter.
- Slide the power switch to try turning on the unit.
- Reset the computer by inserting a straightened paper clip into the system-off switch on the left side of the computer. Then turn it on by pressing the standby button.
- Don't use the touch pad while booting or resuming.
- If you get no response, remove the battery and AC adapter, remove any PC cards, and undock the computer. Then plug in the AC adapter, reset the computer using the system-off switch, and turn it on by pressing the standby button.
- If you still get no response, call HP for assistance.

## Solving Problems with Your Computer Troubleshooting Techniques

### **If the computer doesn't boot from battery power**

- Make sure the battery is properly inserted and fully charged.
- Check battery contacts.
- If another battery is available, try it.

### **If the computer doesn't boot from the floppy disk drive**

- Make sure the floppy disk drive is selected as the boot device in the BIOS Setup utility—see “To change the boot device” on page 36.
- Make sure the floppy disk drive controller is enabled in BIOS Setup—see “Using the BIOS Setup Utility” on page 84.

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## Standby and resume problems

### **If the computer takes a long time to resume after being on standby**

- In Windows, the computer can take a minute or longer to resume when a network card is installed. While the operating system is loading drivers and checking hardware and network connections, you will see a blinking cursor on your display. As soon as the hardware has been reinitialized, the Windows desktop will appear.

### **If the operating system hangs after you have gone on standby or resumed**

- Your system may hang if you dock or undock your notebook while you are in the process of going on standby or resuming the computer. Make sure your computer has completely finished going on standby or completely resumed before you dock or undock it.

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## Testing Hardware Operation

The e-Diagtools program included with your computer provides two levels of testing:

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

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

### **To run the diagnostic test**

1. Restart the computer: click Start, Shut Down (or Turn Off Computer), Restart.
2. Press F10 when you see the HP logo.
3. When the menu appears, press ENTER to run e-Diagtools.

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

4. Follow the prompts to run e-Diagtools.
5. When the Configuration Description appears, check the list of detected hardware.

If a device is not detected, it may be configured incorrectly in the BIOS. You can confirm the problem by running BIOS Setup utility and checking the settings.

6. **Run the basic test.** Press F2 to start the basic hardware test. The results appear when the test is complete.
7. If you intend to exit without running the advanced tests, press F4 to view the Support Ticket. Press F3 to exit e-Diagtools.
8. **Optional: run the advanced tests.** Press F2 to open the advanced test screen.

## Solving Problems with Your Computer

### Testing Hardware Operation

9. Select and run the appropriate tests. Tests are listed only for detected hardware. Press the following keys to run tests:

Enter	Runs the highlighted test.
F5 or Space	Marks or unmarks the highlighted test.
F6	Marks or unmarks all tests in the current menu.
F7	Marks or unmarks all tests in all menus.
F10	Run all marked tests.

10. **Save the Support Ticket.** Press T to update and display a Support Ticket containing system and test information.
11. When you have finished running advanced tests, press ESC to exit.
12. Optional: to save the Support Ticket to a floppy disk, press F7 then ALT+C.
13. **Exit.** Press F3 and then any key to exit and reboot.
14. **Optional: open the Support Ticket.** In Windows, click Start, Programs (or All Programs), HP e-Diagtools, e-Diagtools for Windows.
15. Click View to display the Support Ticket.
16. 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.

e-Diagtools for Windows can also update the version of e-Diagtools on your computer'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*. Boot from the CD and select the diagnostics option.

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## Recovering and Reinstalling Software

You can use the *Recovery CD* to recover an original build. If you need to recover a specific application, you can reinstall the software directly from your hard drive; for instructions, see “To recover an application” on page 127.

The *Recovery CD* provides the HP notebook–specific Windows drivers to configure your custom system. You can find drivers:

- On the hard drive under `c:\hp\drivers`.
- On the *Recovery CD*, under `\hp\drivers`.
- On the HP notebook web site at [www.hp.com/notebooks](http://www.hp.com/notebooks). This web site contains the latest updates of software drivers for your computer.

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### To recover the factory installation of your hard disk

The following procedure describes how to recover the original Windows software and operating system that came with your computer.

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#### CAUTION

**This procedure formats the hard disk drive. After the hard disk drive is formatted, you’ll need to reinstall any applications. Reformatting the hard disk drive will erase all data on the disk.**

**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 computer.
3. Insert the *Recovery CD* (disc 1) in the CD-ROM drive. *If the computer is turned off*, insert a straightened paper clip into the hole in the drive door to open it.
4. Turn on or restart the computer. If the computer is running, click Start, Shut Down (or Turn Off Computer), Restart.
5. When you see the HP logo, press ESC to display the Boot menu.
6. Use the arrow keys to select the CD-ROM drive as the boot device, and press Enter.

## Solving Problems with Your Computer

### Recovering and Reinstalling Software

7. When the *Recovery CD* 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 hibernate 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 computer, first undock it if it is docked, then 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 CD*: the file readme.txt is in the CD's root directory.

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#### Note

Windows 98 supports the FAT16 and FAT32 file systems. Windows 2000 supports the FAT16, FAT32, and NTFS file systems. Windows XP supports the NTFS file system.

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### To replace a damaged *Recovery CD*

If you lose or damage the *Recovery CD*, call the HP Customer Care Center for information about replacing it. See “To call HP for service and support” on page 95 for the phone number.

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### To update the HP notebook BIOS

Hewlett-Packard may provide updates to the BIOS to enhance the capabilities of the computer. You can use e-Diagtools for Windows to download and install these updates as they become available.

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#### CAUTION

**A BIOS update replaces the previous version, so it is important that you follow these instructions exactly. Otherwise, the computer may be damaged. The BIOS update process resets the configuration settings in the BIOS Setup utility, except for BIOS passwords.**

1. In Windows, exit any programs that are running.
2. Remove any PC cards.
3. If the notebook is docked, undock it.

4. Connect the AC adapter to the notebook.
5. Connect any cables or equipment needed to connect to the Internet.
6. Click Start, Programs (or All Programs), HP e-Diagtools, e-Diagtools for Windows.
7. Click Update, select Download New and click OK. Follow the instructions that appear. **Once the update process begins, do not interrupt it.**

The first time you make an Internet connection from this program, click Change Settings in the Connect window to define your connection settings.

8. When the process is completed, reset the system: insert a pin or straightened paper clip into the recess on the left side of the computer, underneath the PC card eject buttons.

BIOS updates are also available from the HP Customer Care web site ([www.hp.com/go/support](http://www.hp.com/go/support)).

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## To recover an application

If you remove an application from your hard disk and later decide you want it back, or if you accidentally delete application files, you can reinstall the original software. The setup programs for most of the applications that were factory-installed on your system are included on your hard drive in `c:\hp\programs`. Each application has its own folder that includes a file of instructions (`readme.txt`).

A few factory-installed applications do not have installation programs on the hard drive. If your computer came with one of these applications (for example, Microsoft Works, Microsoft Encarta, or Microsoft Money), you can reinstall it by using the appropriate CD-ROM.

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### Note

The *Recovery CD* restores all the software that was originally on your HP notebook PC, but the recovery program erases the hard drive in the process. Therefore, to reinstall only specific applications and *not* the original system, do not use the *Recovery CD*.

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## Specifications and Regulatory Information

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## Hardware and Software Specifications

Because we are constantly improving our products, the specifications shown below are subject to change. For the latest specifications, go to the HP notebook web site ([www.hp.com/notebooks](http://www.hp.com/notebooks)).

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### BIOS Setup utility options

The pointing devices are not active in the BIOS Setup utility. Press the Right and Left arrow keys to move from one menu to another. Press the Down and Up arrow keys to move among parameters in a menu. Press F5 or F6 to move through values for the current parameter or press Enter to change a setting. See the tables below for more information.

Main Menu		Default
BIOS Revision	Shows the current BIOS version.	Detected automatically.
UUID number	Displays the value of the 16-byte UUID (Universally Unique ID) as 32 hex characters.	Detected automatically.
System Time	Sets the time using 24-hour format. Values set take effect immediately.	
System Date	Sets the date using mm/dd/yyyy format.	
Diskette A	Sets the floppy drive type.	Detected and set automatically.
Internal Hard Disk	Sets the hard disk drive size. Note that the drive size is larger than the drive "capacity" reported by Windows, because the drive reserves space for diagnostic software.	Detected and set automatically.
Extended Memory	Shows the extended memory size.	Detected automatically.
Television Type	NTSC or PAL standard.	NTSC

<b>System Devices Menu</b>		<b>Default</b>
PS/2 Pointing Device	When an external PS/2 mouse is connected, enables internal pointing device also (Both) or disables it (External Only or Auto).	Auto
Infrared port (selected models)	Enables the infrared port (the port is configured by the user).	Disabled
Base I/O address	Sets the I/O address.	2F8h
Interrupt	Sets the I/O interrupt.	IRQ3
Mode	Sets the port to FIR (fast infrared) or SIR (standard infrared) communications.	FIR
DMA channel	Sets the DMA channel for the infrared port in FIR mode.	DMA1
LCD Status Panel Display	Enables or disables display of the status panel.	Enabled
LCD Status Panel Date Format	Set date format on the status panel.	mm/dd/yy (month/date/year)
LCD Status Panel Time Format	Set time format on the status panel.	hh:mm

<b>Security Menu</b>		<b>Default</b>
User Password Is	Shows if a user password is set.	Clear
Administrator Password Is	Shows if a supervisor password is set.	Clear
Set User Password	Sets, changes, or clears user password, after supervisor password is set. Password length can be no longer than 8 characters, 0-9, A-Z.	
Set Administrator Password	Sets, changes, or clears supervisor password. This password protects BIOS Setup settings.	
Password Required to Boot	Sets whether a user password is required when the computer boots.	Disabled

Specifications and Regulatory Information  
**Hardware and Software Specifications**

<b>Boot Menu</b>	<b>Default</b>
	Indicates boot order of drives (change order with F5 and F6 keys).
	Hard Drive CD-ROM Drive Removable Devices

<b>Exit Menu</b>		
Exit Saving Changes	Saves Setup changes to CMOS, exits, and restarts.	
Exit Discarding Changes	Discards Setup changes since last save, exits, and restarts. Does not affect security, date, or time changes.	
Load Setup Defaults	Restores default settings, stays in Setup. Does not affect security, date, or time changes.	

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## Hardware specifications

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**Note**

Technology codes identify different models of a notebook PC. These two-letter codes are found near the serial number on the bottom of the computer.

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<b>Physical Attributes</b>	<b>Size:</b> 13.03" x 10.76" x 1.59" (331 x 273.4 x 40.5mm) for 13.3"-14.1" TFT LCD 13.03" x 10.87" x 1.63" (342 x 276.6 x 41.5mm) for 15" TFT LCD <b>Weight:</b> 7.2lbs (3.3kg) minimum
<b>CPU</b>	933- to 1200-MHz Intel Mobile Pentium III processor with Speed Step technology –or– 866- to 933-MHz Intel Celeron processor
<b>Core Logic</b>	Intel 830-MG/ICH3-M and Intel VCH PC133 compliant Integrated VGA SpeedStep II support
<b>RAM</b>	Two slots for RAM expansion (PC133) up to 384MB
<b>Mass Storage</b>	10- to 30-GB removable hard disk drive 1.44-MB floppy disk drive
<b>CD/DVD drive</b>	24X CD-ROM, 8X DVD, or other drive (or higher)
<b>Graphics</b>	13.3/14.1/15" XGA (1024x768) or 15" SXGA+ (1400x1050) TFT LCD display Supports simultaneous LCD/CRT, LCD/CRT/TV operation Integrated VGA 8- to 32-MB video memory (depending on model, shared with system memory) Supports NTSC and PAL TV Dual display for LCD and external monitor or TV
<b>Keyboard and Pointing Devices</b>	87/88/90-key spill-proof QWERTY keyboard with 101/102 key emulation Embedded numeric keypad 12 function (Fn) keys Touch pad with on/off button Left and right click buttons, center scroll button
<b>Audio</b>	Built-in microphone Two stereo speakers CD player with built-in control buttons and status display (selected models) Headphone-out and microphone-in

Specifications and Regulatory Information  
**Hardware and Software Specifications**

<b>Power</b>	Rechargeable lithium-ion battery (11.1V) or NiMH battery (10.8V) Battery life: up to 4 hrs depending on settings, usage, battery, and other factors Charging time: 2.2 hr (system off), 4 hr (system on) Low-battery warning Suspend/resume capability Universal AC adapter: 100–240 Vac (50/60 Hz) input, 19 Vdc output, 60–65 W
<b>I/O Ports</b>	High-speed bidirectional parallel port: 25 pins, EPP/ECP capability VGA port: 15 pins with hot plug/unplug detection PS/2: 6 pins, for keyboard, keypad, or PS/2 mouse (Y adapter compatible) IEEE1394 port (selected models) Docking port (selected models): supports optional simple port replicator Infrared port (selected models) Two USB ports Composite TV-out (supports NTSC and PAL) RJ-11 modem, RJ-45 LAN
<b>Expandability</b>	Two Type II or one Type III 16-/32-bit PCMCIA slots.
<b>Options</b>	64/128/256MB PC-1 SODIMM: 3.3V, 144-pin, SDRAM Mini-PCI modem, supporting Wake up on Ring# from D3 (cold) Mini-PCI modem/LAN combo, supporting Wake up on Ring# & PME# from D3 (cold)
<b>Environment</b>	Operating temperature: 0 to 40°C (32 to 104°F) Operating humidity: 10% to 90% RH (5 to 35°C) Operating altitude: up to 3,000m (10,000ft) Storage temperature: –20 to 65°C (–4 to 149°F) Storage altitude: up to 12,000m (40,000ft)

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## Modem Reference Information

If your computer has a built-in modem, you can customize the operation of the modem using AT commands and S-registers. You can do this from Modem (Windows 98) or Phone and Modem Options (Windows 2000 or XP) in Control Panel, from most communications software, or by using terminal mode in your software. See “To change your modem settings” on page 64.

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### Note

You should have a good understanding of modems and how they operate before you change default settings.

This section contains summary information about AT commands, S-registers, and selected result codes for the built-in modem (with an Ambit chip), which is included with selected models of the HP notebook PC.

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### AT commands (Ambit)

In the following AT command table, default settings are shown in bold. All listed AT commands except A/ must be preceded by “AT.”

Command	Function (Ambit)
A/	Re-execute command (not preceded by AT)
A	Go off-hook and attempt to answer a call
B0	Select V.22 connect @1200 bps
B1	Select Bell 212A connect @1200 bps
C1	Return OK message
Dn	Dial modifier
E0	Turn off command echo
E1	Turn on command echo
H0	Initiate a hang-up sequence
H1	If on-hook, go off-hook and enter command mode
I0	Report product code
I1	Report pre-computed checksum
I2	Report “OK” if the calculated checksum equals the prestored checksum or if the prestored checksum value is FFh
I3	Report firmware revision, model, and interface type
I4	Report response programmed by OEM
I5	Report the country code parameter
I6	Report modem data pump model and code revision
I7	Report the DAA code
L0	Set low speaker volume
L1	Set low speaker volume
L2	Set medium speaker volume

Specifications and Regulatory Information  
**Modem Reference Information**

<b>Command</b>	<b>Function (Ambit)</b>
L3	Set high speaker volume
M0	Turn speaker off
<b>M1</b>	Turn speaker on during handshaking and turn speaker off while receiving carrier
M2	Turn speaker on during handshaking and while receiving carrier
M3	Turn speaker off during dialing and receiving carrier and turn speaker on during answering
N0	Turn off automode detection
<b>N1</b>	Turn on automode detection
O0	Go on-line
O1	Go on-line and initiate a retrain sequence
P	Force pulse dialing
<b>Q0</b>	Allow result codes to DTE
Q1	Inhibit result codes to DTE
Sn	Select S-Register n as default
Sn?	Return the value of S-Register n
Sn=v	Set default S-Register n to value v
T	Force DTMF dialing
V0	Report short form result codes
<b>V1</b>	Report long form result codes
<b>W0</b>	Report DTE speed only
W1	Report line speed, EC protocol and DTE speed
W2	Report DCE speed only
X0	Report basic call progress result codes, i.e., Ok, Connect, Ring, No Carrier (also, for busy, if enabled, and dial tone not detected), No Answer and Error
X1	Report basic call progress result codes and connections speeds (Ok, Connect, Ring, No Carrier (also, for busy, if enabled, and dial tone not detected), No Answer, Connect XXXX, and Error
X2	Report basic call progress result codes and connections speeds, i.e., Ok, Connect, Ring, No Carrier (also, for busy, if enabled, and dial tone not detected), No Answer, Connect XXXX, and Error
X3	Report basic call progress result codes and connections rate, i.e., Ok, Connect, Ring, No Carrier, No Answer, Connect XXXX, Busy, and Error
<b>X4</b>	Report all call progress result codes and connections rate, i.e., Ok, Connect, Ring, No Carrier, No Answer, Connect XXXX, Busy, No Dial Tone and Error
<b>Y0</b>	Disable long space disconnect before on-hook
Y1	Enable long space disconnect before on-hook
Z0	Restore stored profile 0 after warm reset
Z1	Soft reset and restore stored profile 1 after warm reset
&C0	Soft reset and force RLSD active regardless of the carrier state
<b>&amp;C1</b>	Allow RLSD to follow the carrier state
&D0	Interpret DTR On-to-OFF transition per &Qn &Q0, &Q5, &Q6: The modem ignores DTR &Q1, &Q4: The modem hangs up &Q2, &Q3: The modem hangs up
&D1	Interpret DTR On-to-OFF transition per &Qn &Q0, &Q1, &Q4, &Q5, &Q6: Asynchronous escape &Q2, &Q3: The modem hangs up
<b>&amp;D2</b>	Interpret DTR On-to-OFF transition per &Qn &Q0 through &Q6: The modem hangs up
&D3	Interpret DTR On-to-OFF transition per &Qn &Q0, &Q1, &Q4, &Q5, &Q6: Soft reset &Q2, &Q3: The modem hangs up



Specifications and Regulatory Information  
**Modem Reference Information**

<b>Command</b>	<b>Function (Ambit)</b>
&F0	Restore factory configuration 0
&F1	Restore factory configuration 1
&G0	Disable guard tone
&G1	Disable guard tone
&G2	Enable 1800 Hz guard tone
<b>&amp;J0</b>	Set S-Register response only for compatibility
&J1	Set S-Register response only for compatibility
&K0	Disable DTE/DCE flow control
&K3	Enable RTS/CTS DTE/DCE flow control
&K4	Enable XON/XOFF DTE/DCE flow control
&K5	Enable transparent XON/ XOFF low control
<b>&amp;K6</b>	Enable both RTS/CTS and XON/XOFF flow control
&L0	Select dial up line operation
&M0	Select direct asynchronous mode
&M1	Select sync connect with async off-line command mode
&M2	Select sync connect with async off-line command mode and enable DTR dialing of directory zero
&M3	Select sync connect with async off-line command mode and enable DTR to act as Talk/Data switch
<b>&amp;P0</b>	Set 10 pps pulse dial with 39%/61% make/break
&P1	Set 10 pps pulse dial with 33%/67% make/break
&P2	Set 20 pps pulse dial with 39%/61% make/break
&P3	Set 20 pps pulse dial with 33%/67% make/break
&Q0	Select direct asynchronous mode
&Q1	Select sync connect with async off-line command mode
&Q2	Select sync connect with async off-line command mode and enable DTR dialing of directory zero
&Q3	Select sync connect with async off-line command mode and enable DTR to act as Talk/Data switch
&Q4	Select Hayes AutoSync mode
<b>&amp;Q5</b>	Modem negotiates an error corrected link
&Q6	Select asynchronous operation in normal mode
&R0	CTS tracks RTS (sync) or CTS is normally ON and will turn OFF only if required by flow control (async)
&R1	CTS is always active (sync) or CTS is normally ON and will turn OFF only if required by flow control (async)
<b>&amp;S0</b>	DSR is always active
&S1	DSR will become active after answer tone has been detected and inactive after the carrier has been lost
&T0	Terminate any test in progress
&T1	Initiate local analog loopback
&T2	Returns ERROR result code
&T3	Initiate local digital loopback
&T4	Allow remote digital loopback (RDL)
<b>&amp;T5</b>	Disallow remote digital loopback request
&T6	Request an RDL without self-test
&T7	Request an RDL with self-test
&T6	Request an RDL without self-test
&T7	Request an RDL with self-test
&T8	Initiate local analog loop with self-test
&V	Display current configuration and stored profiles
&V1	Display last connection statistics
&W0	Store the current configuration as profile 0
&W1	Store the current configuration as profile 1
&X0	Select internal timing for the transmit clock
&X1	Select external timing for the transmit clock

Specifications and Regulatory Information  
**Modem Reference Information**

Command	Function (Ambit)
&X2	Select slave receive timing for the transmit clock
&Y0	Recall stored profile 0 upon power up
&Y1	Recall stored profile 1 upon power up
&Zn=x	Store dial string x (up to 34 digits) to location n (0 to 3)
%E0	Disable line quality monitor and auto retrain
%E1	Enable line quality monitor and auto retrain
%E2	Enable line quality monitor and fallback/fall forward
%L	Return received line signal level
%Q	Report the line signal quality
%TTn	PTT testing of signal level: 00-09=DTMF dial 0-9, 0A=DTMF *, 0B=DTMF #, 0C=DTMF A, 0D=DTMF B, 0E=DTMF C, 0F=DTMF D, 10=V.21 Channel 1mark symbol, 11=V.21 Channel 2mark symbol, 15=V.22 originate signaling at 1200bps, 16=V.22bis originate signaling at 2400bps, 17=V.22 answering signaling, 18=V.22bis answer signaling, 19=V.21 Channel 1space symbol, 1A=V.21 Channel 2 space symbol, 20=V.32 9600bps, 21=V.32bis 14400bps, 30=Silence, 31=V.25 answer tone, 32=1800Hz guard tone, 33=V.25 calling tone (1300Hz), 34=Fax calling tone (1100Hz), 40=V.21 channel 2, 41=V.27ter 2400bps, 42=V.27ter 4800bps, 43=V.29 7200bps, 44=V.29 9600bps, 45=V.17 7200bps long, 46=V.17 7200bps short, 47=V.17 9600bps long, 48=V.17 9600bps short, 49=V.17 12000bps long, 4A=V.17 12000bps short, 4B=V.17 14400bps long, 4C=V.17 14400bps short, 60=2400bps (V.34 only), 61=4800bps (V.34 only), 62=7200bps (V.34 only), 63=9600bps (V.34 only), 64=12000bps (V.34 only), 65=14400bps, 66=16800bps, 67=19200bps, 68=21600bps, 69=24000bps, 6A=26400bps, 6B=28800bps, 6C=31200bps, 6D=33600bps
<b>When modem receives a break from the DTE:</b>	
\K0,2,4	Enter on-line command mode, no break sent to the remote modem
\K1	Clear buffers and send break to remote modem
\K3	Send break to remote modem immediately
\K5	Send break to remote modem in sequence with transmitted data
<b>When modem receives \B in on-line command state:</b>	
\K0,1	Clear buffers and send break to remote modem
\K2,3	Send break to remote modem immediately
\K4,5	Send break to remote modem in sequence with transmitted data
<b>When modem receives break from the remote modem:</b>	
\K0,1	Clear data buffers and send break to DTE
\K2,3	Send a break immediately to DTE
\K4,5	Send a break with received data to the DTE
\N0	Select normal speed buffered mode
\N1	Select direct mode
\N2	Select reliable link mode
\N3	Select auto reliable mode
\N4	Force LAPM mode
\N5	Force MNP mode
\V0	Connect messages are controlled by the command settings X, W, and S95
\V1	Connect messages are displayed in the single line format
+MS=a,b,c,d	Select modulation (b, c, and d are optional) a is the mode (bps): 0=V.21 (300), 1=V.22 (1200), 2=V.22bis (2400, 1200), 3=V.23 (1200, 300), 9=V.32 (9600, 4800), 10=V.32bis (14400, 12000, 9600, 7200, 4800), 11=V.34 (33600, 31200, 28800, 26400, 24000, 21600, 19200, 16800, 14400, 12000, 9600, 7200, 4800, 2400), 17=X2, V.90 (57333-33333), 64=Bell 103 (300) b is autmode: 0=disabled, 1=enabled c is minimum rate (bps): 300-33600 d is maximum rate (bps): 300-33600
+H0	Disable Rockwell Protocol Interface (RPI)/Video ready mode

Specifications and Regulatory Information  
**Modem Reference Information**

Command	Function (Ambit)
+H1	Enable RPI and set DTE speed to 19200 bps
+H2	Enable RPI and set DTE speed to 38400 bps
+H3	Enable RPI and set DTE speed to 57600 bps
+H11	Enable RPI+ mode
+H16	Enable Video Ready mode
**0	Download to flash memory at last sensed speed
**1	Download to flash memory at 38.4 kbps
**2	Download to flash memory at 57.6 kbps
-SDR=0	Disable distinctive ring
-SDR=1	Enable distinctive ring type 1
-SDR=2	Enable distinctive ring type 2
-SDR=3	Enable distinctive ring type 1 and 2
-SDR=4	Enable distinctive ring type 3
-SDR=5	Enable distinctive ring type 1 and 3
-SDR=6	Enable distinctive ring type 2 and 3
-SDR=7	Enable distinctive ring type 1, 2 and 3

**ECC Commands**

%C0	Disable data compression
%C1	Enable MNP 5 data compression
%C2	Enable V.42 bis data compression
%C3	Enable both V.42 bis and MNP 5 compression
\A0	Set maximum block size in MNP to 64
\A1	Set maximum block size in MNP to 128
\A2	Set maximum block size in MNP to 192
\A3	Set maximum block size in MNP to 256
\Bn	Send break of n × 100 ms

**MNP 10 Commands**

-K0	Disable MNP 10 extended services
-K1	Enable MNP 10 extended services
-K2	Disable MNP 10 extended services detection only
-SEC=0	Disable MNP 10-EC
-SEC=1, [<tx level>]	Enable MNP 10-EC and set transmit level <tx level> 0 to 30 (0 dBm to -30 dBm)

**FAX Class 1**

+Fclass=1	Service class
+FAE=0	Disable data/fax auto answer
+FAE=1	Enable data/fax auto answer
+FRH=n	Receive data with HDLC framing
+FRM=n	Receive data
+FRS=n	Receive silence, n×10 ms
+FTH=n	Transmit data with HDLC framing
+FTM=n	Transmit data
+FTS=n	Stop transmission and wait, n×10 ms

**AT\* Commands**

*B	Display black-listed number
*Cn	Data calling tone selection

Specifications and Regulatory Information  
**Modem Reference Information**

Command	Function (Ambit)
*NCn	Select country parameters: 0=US, 1=Japan, 2=Germany, 3=UK, 4=France, 5=Netherlands, 6=Italy, 7=Australia, 8=Sweden, 9=Denmark, 10=New Zealand, 11=Korea, 12=China, 13=Singapore, 14=Malaysia, 15=South Africa, 16=Poland, 17=Czech Republic, 18=Hungary, 19=Hong Kong, 20=Turkey, 21=Spain.

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**S-registers (Ambit)**

Register	Function (Ambit)	Range/units	Default
S0	Rings to auto-answer	0-255/rings	0
S1	Ring counter	0-255/rings	0
S2	Escape character	0-255/ASCII	43
S3	Carriage return character	0-127/ASCII	13
S4	Line feed character	0-127/ASCII	10
S5	Backspace character	0-255/ASCII	8
S6	Wait time for dial tone	2-255/s	2
S7	Wait time for carrier	1-255/s	50
S8	Pause time for dial delay modifier	0-255/s	2
S9	Carrier detect response time	1-255/.1 s	6
S10	Carrier loss disconnect time	1-255/.1 s	14
S11	DTMF tone duration	50-255/.001 s	95
S12	Escape prompt delay	0-255/.02 s	50
S14	General bit mapped options status		138 (8Ah)
S16	Test mode bit mapped options status (&T)		0
S18	Test timer	0-255/s	0
S19	AutoSync options		0
S20	AutoSync HDLC address or BSC Sync character	0-255	0
S21	V.24/general bit mapped options status		52 (34h)
S22	Speaker/results bit mapped options status		117 (75h)
S23	General bit mapped options status		62 (3Dh)
S24	Sleep inactivity timer	0-255/s	0
S25	Delay to DTR off	0-255/s or .01s	5
S26	RTS-to-CTS delay	0-255/.01 s	1
S27	General bit mapped options status		73 (49h)
S28	General bit mapped options status		0
S29	Flash dial modifier time	0-255/10 ms	70
S30	Disconnect inactivity timer	0-255/10 s	0
S31	General bit mapped options status		194 (C2h)
S32	XON character	0-255/ASCII	17 (11h)
S33	XOFF character	0-255/ASCII	19 (13h)
S36	LAPM failure control		7
S37	Line connection speed		0
S38	Delay before forced hangup	0-255/s	20
S39	Flow control bit mapped options status		3
S40	General bit mapped options status		104 (68h)
S41	General bit mapped options status		195(C3h)
S46	Data compression control		138
S48	V.42 negotiation control		7

Specifications and Regulatory Information  
**Modem Reference Information**

Register	Function (Ambit)	Range/units	Default
S82	LAPM break control		128 (40h)
S86	Call failure reason code		0-255
S91	PSTN transmit attenuation level	0-15/dBm	10 (country dependent)
S92	Fax transmit attenuation level	0-15/dBm	10 (country dependent)
S95	Result code messages control		0

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Selected result codes (Ambit)

Code	Meaning
0	OK
1	CONNECT
2	RING
3	NO CARRIER
4	ERROR
5	CONNECT 1200
6	NO DIAL TONE
7	BUSY
8	NO ANSWER

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## Safety Information

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### Power cords

The power cord supplied with the notebook 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 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.

<b>Country</b>	<b>Rated Voltage and Current</b>	<b>HP Part Number</b>
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)	8121-0702
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

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## Battery safety

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### Note

The following batteries are compatible only with selected HP notebook computers:

- HP F2109/NiMH
- HP F2024A/LiIon 9-cell
- HP F2193/LiIon 6-cell

While your computer may be shipped with any of these batteries, only the HP F2024A/LiIon 9-cell battery is available as a replacement after purchasing your notebook.

- To avoid risk of fire, burns, or damage to your battery pack, do not allow a metal object to touch the battery contacts.
- The battery pack is suitable for use only with compatible HP notebook models. Check the “Support and Service” section of this *Reference Guide* for your local HP contact.
- Do not disassemble. 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 high storage temperatures, above 60° C (140° F).
- 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).
- When discarding a battery pack, contact your local waste disposal provider regarding local restrictions on the disposal or recycling of batteries.



## Laser safety

The CD-ROM and DVD drives used with the HP notebook PC are certified as 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 representative—see the “Support and Service” section of this *Reference Guide*.
- Do not attempt to make any adjustment of the unit.
- Avoid direct exposure to the laser beam—do not disassemble the drive.

CLASS 1 LASER PRODUCT LASER KLASSE 1
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## LED safety

The infrared port located on the back panel of the notebook 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 the “Support and Service” section of this *Reference Guide*.
- 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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## Regulatory Information

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

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### 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 batteries 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.

Specifications and Regulatory Information  
**Regulatory Information**

**Declaration of Conformity (U.S.A.)**

**Responsible Party:** Hewlett-Packard Company  
Manager of Corporate Product Regulations  
3000 Hanover Street  
Palo Alto, CA 94304, U.S.A.  
+1 (650) 857-1501

declares that the product

**Trade name:** Hewlett-Packard Company  
**Product name:** Notebook PC  
**Model Number(s):** Omnibook XE3 (OB XE3), Pavilion N5D series  
Notebook PC (*D* is any number 0–9)

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.

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.

L'utilisation de ce dispositif est autorisée seulement aux conditions suivantes : (1) il ne doit pas produire de brouillage et (2) l'utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

## 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). However, due to differences between the individual PSTNs 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 at the phone numbers provided in your *Reference Guide*.

**Belgium:** For outdoor usage only channels 10 (2457 MHz) and 11 (2462 MHz) is allowed. For private usage outside buildings across public grounds over less than 300m, no special registration with IBPT/BIPT is required. Registration to IBPT/BIPT is required for private usage outside buildings across public grounds over more than 300m. An IBPT/BIPT license is required for public usage outside building. For registration and license please contact IBPT/BIPT.

**France:** Restricted frequency band: only channels 10 and 11 (2457 MHz and 2462 MHz respectively) may be used in France. License required for every installation, indoor and outdoor installations. Please contact ART for the procedure to follow. Use with outdoor installations not allowed.

**Germany:** License required for outdoor installations. Check with reseller for procedure to follow

**Netherlands:** License required for outdoor installations. Check with reseller for procedure to follow.

**Italy:** License required for indoor use. Use with outdoor installations not allowed.

## Specifications and Regulatory Information

### Regulatory Information

Die Geräte wurden gemäß Ratsentscheidung 98/482/EC für den Anschluss an eine einzelne Telefonbuchse im europäischen Raum (Public Switched Telephone Network) und drahtlose Funknetzwerke zertifiziert. In Anbetracht der Unterschiede zwischen den einzelnen Telefonnetzen bietet die Zertifizierung für sich genommen keine absolute Sicherheit, dass die Geräte bei Anschluss an jeder beliebigen Telefonbuchse funktionieren.

Sollten Probleme auftreten, wenden Sie sich zunächst an den Gerätehersteller.

Diese Geräte wurden zum Betrieb in allen Ländern der europäischen Wirtschaftsgemeinschaft entwickelt (Public Switched Telephone Networks). Die Kompatibilität zum Netz ist von internen Software-Einstellungen abhängig. Wenden Sie sich an den Gerätehersteller, wenn Sie die Geräte in einem anderen Telefonnetz einsetzen müssen. Weitere Informationen zur Unterstützung für das Produkt erhalten Sie bei Hewlett-Packard.

Cet équipement a été reconnu conforme aux décisions du Conseil 98/482/EC relatives à la connexion pan-européenne de terminal simple au réseau téléphonique public commuté (RTPC) et à un réseau sans fil RF. Cependant, des différences existant entre les RTPC nationaux présents dans les différents pays, cette homologation en elle-même ne garantit pas la réussite de toutes les opérations sur tous les points de terminaison du réseau téléphonique public commuté.

En cas de problème, prenez contact avec le fournisseur auprès duquel vous vous êtes procuré votre équipement.

Cet équipement a été conçu pour fonctionner dans tous les pays membres de la zone d'échange européenne (Réseaux Téléphoniques Public Commutés).

La compatibilité entre réseaux dépend des paramètres internes du logiciel.

Prenez contact avec le fournisseur auprès duquel vous vous êtes procuré votre équipement pour savoir s'il est préférable d'utiliser ce dernier sur un autre réseau téléphonique. Si vous souhaitez obtenir de l'aide, prenez contact avec Hewlett-Packard.

Questa apparecchiatura è stata approvata in conformità alla Decisione del Consiglio 98/482/EC che regolamenta, in seno all'Unione Europea, la connessione di singoli terminali alla rete telefonica pubblica commutata (PSTN) e alla rete wireless in radio frequenza. Tuttavia, a causa delle differenze esistenti tra i singoli servizi PSTN forniti nei diversi paesi, l'approvazione in sé stessa non rappresenta una garanzia assoluta di funzionamento su ogni singolo punto di terminazione della rete PSTN.

In caso di problemi, per prima cosa rivolgersi al fornitore dell'apparecchiatura.

Questa apparecchiatura è stata progettata per funzionare in tutti i paesi dell'Area Economica Europea (reti telefoniche pubbliche commutate). La compatibilità della rete dipende dalle impostazioni interne del software. Rivolgersi al fornitore dell'apparecchiatura qualora sia necessario utilizzare quest'ultima su una rete telefonica diversa. Per ulteriore assistenza sul prodotto, contattare Hewlett-Packard.

## Japan

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると受信障害を引き起こすことがあります。

取り扱い説明書に従って正しい取り扱いをして下さい。

### **Japan Telecommunications Approval**

JATE approval number: A00-0143JP, A00-0434JP

Name of Equipment: T18M038.00, T18N040.00

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## Russia

Продукт сертифицирован в системе ГОСТ Р

Модем сертифицирован в системе ЭЛЕКТРОСВЯЗЬ



## International

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

---

## Specifications and Regulatory 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 following product

**Product Name:** Notebook PC  
**Model Numbers:** Omnibook XE3 (OB XE3), Pavilion N5D series Notebook PC (*D* is any number 0–9)  
**Product Options:** All

conforms to the following product specifications

**Safety:** IEC 950: 1991 +A1,A2,A3,A4 / EN 60950: 1992 +A1,A2,A3,A4,A11  
IEC 60825-1: 1993 +A1/EN60825-1: 1994 +A11 Class 1 (LED)  
GB4943-1995

**EMC:** CISPR 22: 1997 / EN 55022: 1998 Class B [1]  
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  
GB9254-1988  
FCC Title 47 CFR, Part 15 Class B/ANSI C63.4: 1992  
AS/NZS 3548: 1995 Rules and Regulations of Class

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

**Supplementary Information:** The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC, amended by 92/31/EEC & 93/68/EEC, and the R&TTE Directive 1999/5/EC (Annex II) and carries the CE marking accordingly.

[1] The product was tested in a typical configuration with Hewlett-Packard Personal Computer peripherals.

This device 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.

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, July 1, 2001



  
Jerry Erickson, R&D Product Execution Manager

European Contact for regulatory topics only: Hewlett Packard GmbH, HQ-TRE, Herrenberger Straße 130, 71034 Boeblingen, Germany. Fax: +49 7031 143143).  
USA Contact: Hewlett Packard Co., Corporate Product Regulations Manager, 3000 Hanover Street, Palo Alto, CA 94304, U.S.A. Phone: +1 (415) 857-1501.

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