HP Omnibook 6100

Corporate Evaluator's Guide

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Hewlett-Packard Company
HP Notebook Customer Care
1000 NE Circle Blvd., MS 425E
Corvallis, OR 97330

Important Safety Information

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

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

- Do not use this product with a telephone connection near water (for example, near a bathtub, sink, swimming pool, or in a wet basement).

- Avoid using a telephone connection (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.

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Support Policy for Support Pack of Operating Systems. HP provides end user support for HP PCs that use Microsoft Operating Systems, including its latest service packs. This support will be available within 30 days of the software being released.

Edition History

♲ This manual is printed on recycled paper.

Contents

Getting Started with Your HP Notebook

2em

Taking Inventory

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

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

- Two buttons provide convenient options for starting and stopping the computer.

- Volume controls are located within easy reach on the computer's right side, and the audio-off button and light let you cut off all sound quickly when needed.

- All cable connectors are near the back of the computer, keeping cables away from your working area.

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

What's in the box?

- HP notebook PC.

- Main battery (installed).

- CD-ROM, DVD, or similar drive module (installed).

- Floppy disk drive module (with certain models).

- AC adapter and power cord.

- Quick Start sheet.

- *Startup Guide*.

- *Recovery CD*, for restoring Windows and all software included with your computer.

- Microsoft Windows manual.

- CD with special software (for models with certain drive modules).

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

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).

HP currently offers docking solutions, plug-in modules, cables, and other accessories, such as the following:

- AC adapter.

- Floppy disk drive module.

- External floppy disk drive cable.

- Plug-in modules, such as CD-ROM drive, DVD drive, CD read/write drive, Zip drive, second hard disk drive.

- Replacement hard disk drive module.

- Main battery.

- Secondary battery.

- External battery charger.

- Docking products.

To find more information

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

Source	Description and Location
Startup Guide	This printed manual introduces your computer. It also contains setup instructions, basic operation guidelines, troubleshooting information, and warranty information.
Online *Reference Guide*	The full *Reference Guide* is shipped on the computer's hard drive, and provides a complete source for operating and maintaining the computer. Look in the online HP Library, or on the *Recovery CD* in \hp\Library. For Windows XP, the HP Library is in the Help and Support Center.
Online HP Notes	For late-breaking information available after the manuals were completed, see the HP Notes in the online HP Library, or on the *Recovery CD* in \hp\Library.
Microsoft Windows manual	This is shipped with your computer and contains information about using the version of Microsoft Windows shipped with your computer.
HP Notebook Web Site	www.hp.com/notebooks. www.europe.hp.com/notebooks (European mirror).
HP Customer Care Web Site	www.hp.com/go/support.
Corporate Evaluator's Guide (this 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 Customer Care Web site.

Identifying Parts of the Computer

Front View

1. One-Touch buttons.

2. Sleep button. Suspends and resumes operation.

3. Keyboard status lights (left to right: Caps Lock, Num Lock, Keypad Lock, Scroll Lock).

4. Power slide button. Turns the computer on and off.

5. Built-in microphone.

6. Pointing stick (pointing device).

7. Touch pad, click and scroll buttons.

8. Main status lights (left to right): power mode, hard disk activity, charging status for main battery, and charging status for secondary battery.

9. Module eject latch.

10. Volume control.

11. Audio-off button and audio-off light.

12. Audio jacks (left to right): audio out (headphones), external microphone, audio in.

13. Infrared port.

14. S-video port (TV-out).

15. System-off switch.

16. Kensington lock slot (security connector).

17. Computer open/close latch.

Back View

18. PS/2 keyboard or PS/2 mouse port (supports Y adapter).
19. Two universal serial bus ports (USB).
20. Serial port (COM1). Use this port for a serial mouse, modem, printer, or other serial device.
21. Parallel port (LPT1). Use this port for a parallel printer or other parallel device, or to connect the floppy disk drive externally.

22. External monitor port.
23. Docking port.
24. AC adapter jack.
25. Modem port (on certain models).
26. LAN port.
27. PC Card and CardBus slots (upper and lower).
28. Wireless on-off button and indicator light (on certain models).

Bottom View
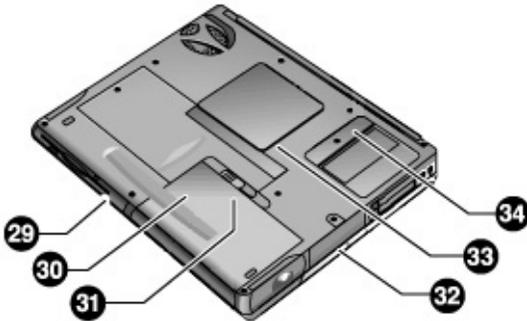
29. Plug-in module bay. Can contain a CD-ROM or DVD drive, floppy disk drive, secondary battery, or other plug-in module.

30. Main battery.

31. Main battery latch.

32. Hard disk drive.

33. RAM cover.

34. Mini-PCI cover (no user parts inside).

Status Lights

The computer includes a number of status lights that report power and battery status, drive activity, and keyboard functions such as Caps Lock and Num Lock.

The following diagram shows the status lights on the front of the computer.
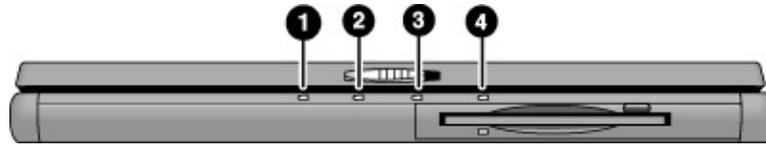
1. **Power mode**.

    - On: the computer is on (even if the display is off).

    - Blinking: the computer is in Standby mode.

    - Off: the computer is off or in Hibernate mode.

2. **Hard disk drive activity**.

    - On: computer is accessing the hard disk drive.

3. **Main battery status**.

    - Green: the AC adapter is connected and the battery is fully charged.

    - Amber: the AC adapter is connected and the battery is charging.

    - Blinking: the AC adapter is connected and the battery is missing or has a fault.

    - Off: the AC adapter is not connected.

4. **Secondary battery status**.

    - Green: the AC adapter is connected and the battery is fully charged.

    - Amber: the AC adapter is connected and the battery is charging.

    - Blinking: the battery has a fault.

    - Off: the AC adapter is not connected, a secondary battery is not installed, or the battery is not charging.

The keyboard status lights, located above the keyboard, indicate the states of the keyboard locks.
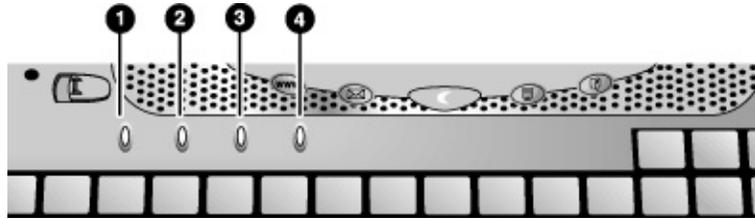
1. **Caps Lock**. Caps Lock is active.

2. **Num Lock**. Num Lock is active. (The Keypad Lock must also be on to use the embedded keypad.)

3. **Keypad Lock**. The embedded keypad is active (Fn+F8). Num Lock must also be on for the numeric keys—otherwise, cursor control is active (as marked on an external keyboard).

4. **Scroll Lock**. Scroll Lock is active.

Setting Up Your Computer

Improper use of keyboards and other input devices has been associated with ergonomic injury. For information about reducing your risk, see Working in Comfort in the online HP Library, or visit our ergonomics Web site, www.hp.com/ergo. For a summary about working with a notebook computer, see "Working in Comfort with a Notebook PC" on page 44.

If you are using your notebook computer as your primary computer, or using it for extended periods, you should use it with a full-size keyboard, monitor, and mouse. HP docking accessories offer quick, easy connections to these devices. This can reduce the risk of ergonomic injury. See Working in Comfort in the online HP Library.

When you set up your computer for the first time, you'll install and charge the battery, connect the AC adapter, turn on the computer, and run the Windows setup program.

Step 1: Install the battery

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

Your computer is shipped with the battery installed. If the battery has been removed, you should install it:

1. Turn the computer upside down.

2. Insert the front (rounded) end of the battery into the battery compartment on the bottom of the computer, and lower the back end in until it clicks into place.
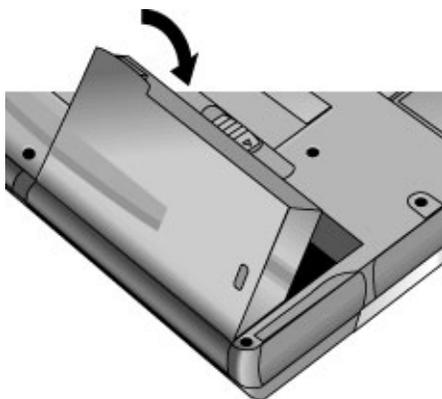
To remove the battery

1. Before removing the battery, do one of the following:

    • Shut down the computer or put it into Hibernate mode.

    • Plug in the AC adapter.

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

Step 2: Connect AC power

CAUTION

Use only the HP AC adapter included with your computer (or other approved adapter). Using any other AC adapter could damage the computer and may void your warranty (see the warranty statement in this manual).

- Plug in the AC adapter, and connect it to the AC adapter jack on the back of the computer. The computer's battery then starts charging.
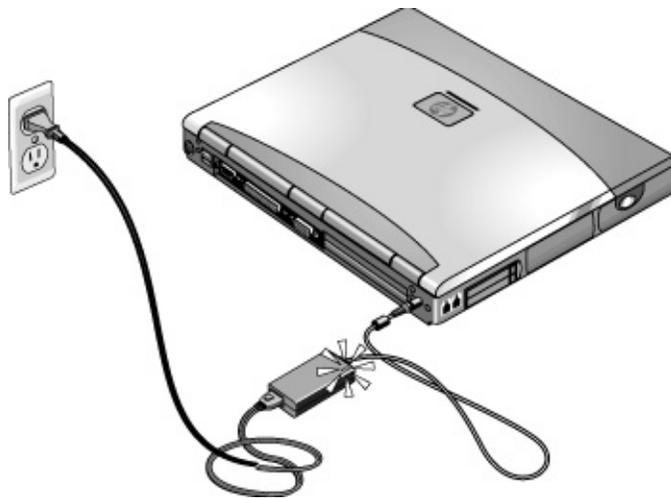
While the battery is charging, you can continue with step 3.

Step 3: Connect a phone line

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

1. Make sure the telephone line is an analog line, sometimes called a data line. (You must not use a digital line.)

2. Connect the telephone cord into a telephone jack. If the plug on the phone cord doesn't fit the jack, you may need to use an adapter.

3. Plug the other end of the phone cord into the built-in modem.

For details about using the modem, see "Using the Modem" on page 58.

Step 4: Turn on the computer

- Press the blue sleep button above the keyboard. The computer then boots up, and Windows starts automatically.
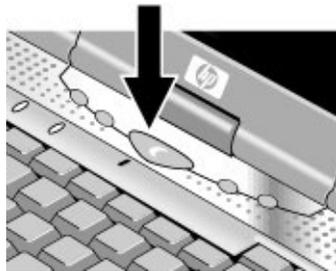
Hint	If your computer does not turn on when operating on battery power, the battery may be out of power. Plug in the AC adapter and press the blue sleep button again. Leave the AC adapter plugged in for at least an hour—or 2–3 hours to charge it fully.

Step 5: Set up Windows

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

1. Follow the Setup program's instructions as they appear on the screen. If the program prompts you to enter the Product ID code, you will find this code on the bottom of the computer.

2. 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.

Step 6: Register your notebook

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

Registering your computer does the following:

- Records your ownership of the computer with Hewlett-Packard and provides access to service, support, and information.

- Records 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.

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 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.

- If you are not prompted to register, you can click the Register button in the welcome screen. Make sure the phone line is connected to the modem port and follow the onscreen instructions.

If you choose not to register right away, you can do so by modem later by double-clicking the Registration icon on the desktop (if available). Make sure the phone line is connected and follow the onscreen instructions. The icon disappears after you register.

By phone

You can register by calling your HP Customer Care Center. See "To contact HP for support or service" on page 188 for the phone number.

By fax

If you have a printer 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.

What to do next

Here are a few things you may want to try at this point:

- If you're not familiar with the version of Windows installed on your computer, click Start, Help (Windows 98 or 2000) or Start, Tour Windows XP, or check the Windows manual to discover what's new.

- If your computer includes a DVD drive or CD-RW drive, you also received special software for the drive—find the software CD in the box. Click Start, Programs (Windows 98 or 2000) or Start, All Programs, Multimedia (Windows XP)—if the software isn't listed, install it by inserting the CD in the drive. Follow the instructions displayed—run Setup on the CD if it doesn't run automatically.

See the online *Reference Guide* to learn more about using and maintaining your computer.

To connect to the Internet

If you are connected to a wired or wireless LAN with Internet access or your computer has a modem (built-in, PC Card, or external), you can connect to the Internet. For details, see "Using the Modem" on page 58, "Connecting to a LAN" on page 66, or "Making Wireless Connections" on page 67.

Basic Operation

Operating Your Computer

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

To turn the computer on and off

Power mode	To enter this mode
On mode Power mode status light is green.	Press the blue sleep button.
Standby mode Saves significant power. Turns off the display and other components. Maintains current session in RAM. Restarts quickly. Restores network connections. Power mode status light is amber.	Press blue sleep button –or– click Start, Shut Down, Standby (Windows 98 or 2000) –or– click Start, Turn Off Computer, Stand By (Windows XP) –or– allow timeout.
Hibernate mode Saves maximum power. Saves current session to disk, then shuts down. Restores network connections. Power mode status light is off.	Press Fn+F12 –or– click Start, Hibernate (Windows 98) –or– click Start, Shut Down, Hibernate (Windows 2000) –or– allow timeout.
Shut down (off) Saves maximum power. Turns off without saving current session. At startup, resets everything, starts a new session, and restores network connections. Power mode status light is off.	Click Start, Shut Down, Shut down (Windows 98 or 2000) –or– click Start, Turn Off Computer, Turn Off (Windows XP) –or– slide the power button (only if the Start menu procedure doesn't work).
To turn on: Press the blue sleep button to restart, or to resume your session from Standby or Hibernate mode.	

You can also customize the way these power modes work. See "How the computer manages power automatically" on page 50.

To reset the computer

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

- If possible, shut down Windows:

  Windows 98 or 2000: press CTRL+ALT+DEL, click Shut Down, and press the blue sleep button to restart.

  Windows XP: press CTRL+ALT+DEL, then click Shut Down, Restart.

  –or, if this fails–

- Slide and hold the power button for 4 seconds, until the display shuts down, then press the blue sleep button to restart.

  –or, if this fails–

- Insert a straightened paper clip into the system-off switch on the right side of the computer, then press the blue sleep button to restart.
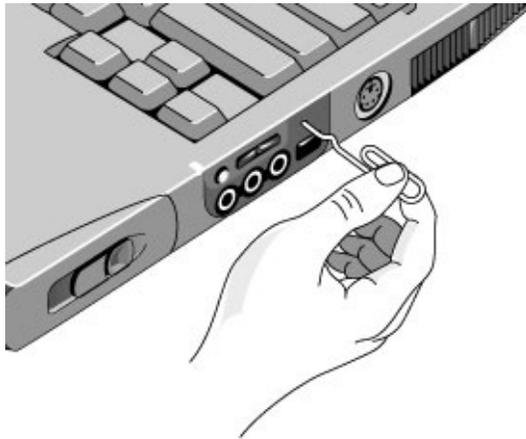
To change the boot device

The computer normally boots from its internal hard disk. You can also boot the computer from a floppy disk drive in the module bay, a CD-ROM or similar drive in the module bay, or an internal network interface card (Intel Boot Agent).

1. Click Start, Shut Down (or Turn Off Computer), Restart.

2. When the HP logo appears, press ESC to display the Boot menu.

3. Use the arrow keys to select the boot device, and press ENTER.

If you want to boot from a specific device whenever it is present, change the boot order using the BIOS Setup utility—see "To run the BIOS Setup utility" on page 177.

To use the pointing devices

Your computer includes two built-in pointing devices: the pointing stick and touch pad.

1. Pointing stick (pressure-sensitive pointing device).

2. Click buttons and scroll button. The click buttons work like the left and right buttons on a standard mouse. The scroll button scrolls the contents of a window.

3. Touch pad (touch-sensitive pointing device).

4. Click buttons. These also work like the left and right buttons on a standard mouse.

You can use Mouse in Control Panel or the touch pad icon in the taskbar to customize the operation of your computer's pointing devices (pointing stick, touch pad, and external mouse): you can change the left, right, and scroll button actions, double-click speed, pointer speed, and more.

Moving and selecting

1. Place your hands in a normal typing position.

2. **Pointing stick.** With your index finger, press the pointing stick in the direction you want the pointer to move.

   Touch pad. Move a thumb or finger across the touch pad in the direction you want the pointer to move.

3. Use the left and right click buttons, which function like the left and right buttons on a mouse, to make your selection:

   - To open an application, move the pointer over the icon and double-click the left button.

   - To make menu selections, move the pointer to the menu item and click the left button.

   - To open the shortcut menu for an item, move the pointer over the item and click the right button.

   - To drag an item, move the pointer over the item. Then press *and hold* the left button while you move the pointer to the new location, and release the button.

In addition, you can tap the touch pad to select items and use other advanced touch pad features. For more information, double-click the touch pad icon in the taskbar, then click Help in the tab for a particular feature.

Scrolling with the scroll button

- Press the lower end of the scroll button to scroll down through the contents of a window. Press the upper end to scroll up.

Disabling one pointing device

If you prefer to use only one of your computer's built-in pointing devices, you can disable the other. We recommend this practice to optimize performance. For example, if you notice that your hand inadvertently contacts the touch pad and moves the cursor while you're typing, consider disabling the touch pad.

1. 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).

   –or–

   Double-click the touch pad icon in the taskbar.

2. Click the TouchPad tab, and select the device you want to disable from the pull-down menu.

3. Select Disable This Device near the bottom of the window.

4. Click OK.

To use the Fn hot keys

The combination of the Fn key plus another key creates a *hot key*—a shortcut key sequence—for various system controls. To use a hot key, press *and hold* Fn, press the appropriate second key, then release both keys.

This hot key	Does this
Fn+F1	Decreases the display brightness.
Fn+F2	Increases the display brightness.
Fn+F5	Toggles among the built-in display, an external display, and simultaneous display on both.
Fn+F7	Audio mute.
Fn+F8	Toggles the built-in keypad on and off. Does not affect an external keyboard. If Num Lock is on, then the numeric functions are active; otherwise, cursor control is active (as marked on an external keyboard).
Fn+F12	Enters Hibernate mode.
Fn+NumLock	Toggles Scroll Lock on and off.

External PS/2 keyboards support only Fn+F5, Fn+F7, and Fn+F12. To use these, press and hold left CTRL+left ALT, press the appropriate second key, then release both keys. A USB keyboard does not support Fn hot keys.

To use the One-Touch buttons

Your computer includes four One-Touch buttons that can start any application or open a document or web site with a single press.

- Press the One-Touch button to open the corresponding application, document, or web site.
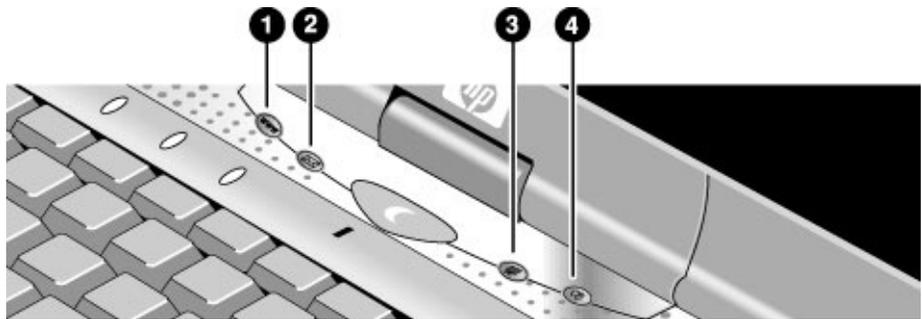
Your computer is preconfigured to access the following services:

1. Internet web site (if you have an Internet provider)

2. Outlook Express e-mail software

3. HP Presentation Ready

4. Button 4 (varies by region)

To reprogram 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. On the One-Touch tab, click the button you want to reprogram.

3. Type a label for the button, then select the application, document, folder, or web site you want the button to open.

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

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 right-click while pointing at the application.

This key combination	Does this
Windows key+E	Runs Windows Explorer.
Windows key+F1	Runs Windows Help.
Windows key+F	Runs Windows Find: File 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	Runs the Windows Run dialog box.

To use the embedded keypad

Your computer's built-in keyboard includes an embedded keypad you can use to type numbers and arithmetic operators. The keys in this keypad are marked using light gold characters.

- Press Fn+F8 to turn on the embedded keypad.

- Hold Fn while typing a key to turn the embedded keypad on temporarily.

When the embedded keypad is active, you can use Num Lock to change how the keypad functions:

- Num Lock on: the keys enter the numbers and arithmetic operators printed in light gold on the keyboard.

- Num Lock off: the keys act as cursor control keys, as marked on an external keyboard.

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 that provides access to certain special 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

- Press Fn+F1 or Fn+F2 to decrease or increase (respectively) the display's brightness.

  –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). You have the option of adding a display settings icon in the taskbar for quick access.

Hint   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, Desktop Zoom, 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).

Using an external monitor

If you want, you can attach an external monitor to your notebook computer. See "To use an external monitor" on page 83.

To adjust the volume

From the computer

- To increase the volume, press the rear half of the volume control on the right side of the computer.

- To decrease the volume, press the front half of the volume control.

- To toggle the standard mute function, press Fn+F7.

With the audio-off button

Your computer includes an audio-off button you can use to temporarily disconnect the speakers without changing the volume or mute settings. This feature is handy when you want to block all speaker output regardless of what your computer is doing.

- To toggle the speaker connection on and off, press the audio-off button on the right side of the computer. The audio-off light turns on when the speakers are disconnected.

In Windows

1. Click the Volume icon 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 speakers without changing the volume setting, click Mute.

To change computer settings for a presentation

When you show a presentation to an audience, you'll often want to adjust some of your video and power settings for the show. You can easily do this with HP Presentation Ready, an application that automatically adjusts your computer for slide shows and similar presentations, and also opens the presentation itself. Once the presentation is through, HP Presentation Ready automatically returns your computer to its normal settings.

To prepare for the presentation

1. Click Start, Programs (or All Programs), Hewlett-Packard, Notebook, HP Presentation Ready, Configure.

   –or–

   Click the HP Presentation Ready icon in the taskbar (if present), then click Configure.

2. Select the presentation you want to show. If you don't select one, you can choose one when you start the show.

3. If you want to change the video or power settings for the show, click Settings.

To show the presentation

- Press the HP Presentation Ready One-Touch button.

  –or–

  Click Start, Programs, Hewlett-Packard, Notebook, HP Presentation Ready, Start Presentation (Windows 98 or 2000) or Start, All Programs, Hewlett-Packard, Notebook, HP Presentation Ready, Start Presentation (Windows XP).

  –or–

  Click the HP Presentation Ready icon in the taskbar (if present), then click Start Presentation.

To adjust settings during the presentation, press the One-Touch button or click the taskbar icon and choose Configure.

To end the presentation and restore the computer's normal settings, close the presentation application or click the taskbar icon and choose Stop Presentation.

To work with CDs and DVDs

If you have a DVD drive module, you can play DVD movies—see "To play DVD movies" on page 78. If you have a CD-RW drive module, you can write and copy CDs—see "To create or copy CDs" on page 78.

Securing Your Computer

To set up password protection

You can protect your computer from access by another user when you set up password protection, which is available through Windows and through the BIOS Setup utility. For complete protection, set passwords in Windows as well as through BIOS Setup.

To cancel password protection, set an empty password.

BIOS Setup Utility

1. Click Start, Shut Down (or Turn Off Computer), Restart.

2. When the HP logo appears, press F2 to enter BIOS Setup.

3. From the Security menu, enter or modify the Administrator Password or User Password as needed. See "Security Menu" on page 180.

4. Press F10 to save and exit BIOS Setup.

Windows 98

1. Click Start, Settings, Control Panel, then double-click Passwords.

2. Click the Change Passwords tab, then click Change Windows Password and set a password.

3. Click Start, Settings, Control Panel, then double-click Power Management.

4. On the Advanced tab, select the option to prompt for a password when the computer leaves Standby mode.

Windows 2000

1. Press CTRL+ALT+DEL, then select option to change password.

2. Create or modify your Windows password.

3. Click Start, Settings, Control Panel, then double-click Power Options.

4. On the Advanced tab, select the option to prompt for a password when the computer leaves Standby mode.

For Windows 2000, to protect against unauthorized undocking while the computer is running, press CTRL+ALT+DEL and click Lock Computer before leaving it unattended, or set up a screen saver with a password in Control Panel Display.

Windows XP

1. Click Start, Control Panel, User Accounts, then select your account.

2. Click Create a Password, then set the password.

3. Click Start, Control Panel, Performance and Maintenance, Power Options.

4. On the Advanced tab, select the option to prompt for a password when the computer leaves Standby mode.

For Windows XP, to protect against unauthorized undocking while the computer is running, set up a screen saver with a password in Control Panel Display.

To attach a security cable

Your computer includes a built-in connector you can use to secure the computer with a cable and a lock (such as the Kensington MicroSaver lock system, available at many computer stores).

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

2. Loop the cable to create a slip knot around the stationary object, and make sure it can't slip off.

3. Insert the lock into the security connector on the right side of the computer and release the key. Store the key in a safe place away from the computer.

To protect against viruses

Virus-protection software can help protect the integrity of your data. This is especially important if you use the Web.

Your computer comes equipped with VirusScan or Norton AntiVirus software. If you have VirusScan, you must install it before you can use it.

1. Click Start, Programs, VirusScan, Setup.

2. Follow the instructions as they appear on the screen.

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

To set PC identification

Pavilion models   HP TopTools and PC identification are not supported on Pavilion models.

You must have BIOS administrator password authority to set a PC identification number.

1. If you have not already installed HP TopTools, do so now. See "To set up TopTools" on page 183.

2. Click Start, Programs (or All Programs), HP TopTools, HP TopTools, then click Security.

3. In the "Identification String" box, type a unique set of characters that will identify your PC. You can type up to 80 characters including spaces and special characters. Do not press ENTER when typing.

4. Click Apply.

5. Type your BIOS administrator password and press ENTER.

To lock the hard disk drive

The computer enables you to lock its internal hard disk drive to help keep your information secure. *Hard disk drive lock does not protect a second hard disk drive installed in the module bay*.

CAUTION

When you enable hard disk drive lock, the current BIOS user password (or administrator password if that is the only password set) is encoded on the hard disk drive.

If you move the hard disk drive to another computer, you can't access the drive until you set the user (or administrator) password to match the drive's password. **After you match the drive's password, you can change the computer (and drive) password. If you forget the password, you cannot recover your data.**

1. Click Start, Shut Down (or Turn Off Computer), Restart.

2. When the HP logo appears, press F2 to enter the BIOS Setup utility.

3. From the Security menu, enable Password Required to Boot.

4. From the Security menu, enable Internal hard disk drive lock.

5. Press F10 to save and exit BIOS Setup.

Working in Comfort with a Notebook PC

WARNING

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

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

Note

Note that if you are using your portable computer as your primary computer, or using it for extended periods, you should use it with a full-size keyboard, monitor, and mouse. This will give your portable computer the adjustability and comfort features of a desktop unit. 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 and available on the *Recovery CD* in \hp\Library—as well as at www.hp.com/ergo.

Your Mobile Work Environment

- Use a chair that provides good support for your lower back. If an adjustable chair is not available, you can use a pillow or rolled-up towel to provide lower back support.

- Try to keep your thighs parallel to the floor and your feet flat on the floor. In a mobile environment, you can do this by using a phone book or briefcase to support your feet.

- Adjust the height of either your work surface or chair to keep your arms in a neutral position. Your arms should be relaxed and loose, elbows at your sides, with the forearms and hands parallel with the floor.

- Position your notebook computer display to minimize glare and reflection. For example, on an airplane, lower the window shade, or in a hotel room, draw the curtains. You also should maintain a comfortable viewing distance–approximately 40 to 60 cm (16 to 24 inches). Adjust the angle of your display to help keep your head angled slightly downward in a comfortable position.

Using Your Mobile Computer

- Position the computer so your wrists and hands are in a neutral position. Your wrists should be as straight as possible and should not have to bend sideways or more than 10 degrees up or down. If your notebook computer does not have a built-in palm rest, you can use a rolled-up towel.

- Try to type as lightly as possible. The notebook keyboard requires little force to activate.

- Take frequent, short rest breaks–this is especially important in a mobile computing environment.

- Portable computers weigh between approximately 1.4 and 3.7 kilos (3 and 8 pounds). When traveling, be sure to carry your computer properly to minimize strain on your body. Shift the bag containing your notebook equipment frequently between your left and right hands and shoulders.

Taking Care of Your Computer

Use the following recommendations to maintain your computer during everyday use and prevent potential physical damage or data loss.

To protect your hard disk drive

Hard disk drives, as well as 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.

- Suspend or shut down the computer 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 destroy data or damage the drive.

- Carry the computer in a padded case to protect against bumps and jolts.

- Set down the computer gently.

To maintain your computer

- Provide adequate ventilation around the computer. Always set the computer on a flat surface, so that air can flow freely around and underneath it.

- Always shut down the computer or put it in Hibernate mode before putting it in a carrying case or other enclosed space.

- Do not pick up or carry the computer by its display.

- Observe the temperature limits and other specifications listed in "Hardware Specifications" on page 196. Do not use the computer outside in the rain or snow (inclement weather). If the computer is cold, warm it gradually to avoid condensation.

To safeguard your data

- Do not use a pointing device or activate any other device that interrupts operation while the system is starting or stopping.

- Back up your work regularly. Copy files to floppy, tape, or network drives.

- Use a virus-scanning program (such as the VirusScan or Norton AntiVirus program included with your computer) 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 are on the Web at www.networkassociates.com for VirusScan, or www.symantec.com for Norton AntiVirus.

- Check your disk using the scandisk utility (Windows 98) or the Tools tab in the disk's Properties window (Windows 2000 or XP).

To extend the life of the display

- Set the display brightness to the lowest comfortable level (Fn+F1).

- 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.

- Avoid using a screen saver or other software that prevents the computer from changing to Display-off or Standby mode after a timeout period. If you use a screen saver, enable the option to shut off the display after a time delay.

- Do not disable Display-off or Standby timeouts.

- If you are using AC power and have no external monitor attached, put the computer in Display-off or Standby mode when not in use.

To clean your computer

- You can clean the computer with a soft cloth dampened with clean water or with water containing a mild detergent. Do not use an excessively wet cloth, and take care to keep water out of the case.

- Do not use 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.

Batteries and Power Management

Managing Power Consumption

When you're running your computer on battery power, you will want to maximize operating time without compromising performance. Your computer is designed to help you reduce power consumption and extend battery life without needing to turn it off.

- During idle periods, the computer automatically enters power-saving modes after specified timeout periods. You can adjust these timeouts to suit your working habits.

- You can manually send the computer into a power-saving mode at any time by pressing the appropriate key—see "To manage power manually" on page 52.

How the computer manages power automatically

Your computer automatically enters Hibernate mode and Standby mode, and turns off the hard disk and display based on values set in Power Options or Power Management in Control Panel or in the BIOS Setup utility.

Automatic action	Occurs after…	To resume…
Turns off hard disk. Turns off the hard disk drive. This is usually set to occur shortly after the display is turned off.	The hard disk is not accessed for the specified interval.	Begin using the computer: the hard disk turns on when needed.
Turns off display. Turns off the display to conserve battery power and extend the life of the display.	No keyboard, pointing device, or other input activity occurs for the specified interval.	Press any key or move a pointing device to turn on the display.
Enters Standby mode. Maintains your current session in RAM, and turns off the display and other components to conserve battery power.	No pointing devices are used, no disk drive is accessed, and no port (serial, parallel, or IR) is active for the specified interval.	Press the blue sleep button to return to your current session.
Enters Hibernate mode. Saves your current session to the hard disk, then turns off the computer.	The computer stays in Standby mode for the specified interval.	Press the blue sleep button to restore your previous session.
Lowers CPU speed (SpeedStep only). Switches to the lower CPU speed to use power more efficiently. See below.	The AC adapter is unplugged.	Plug in the AC adapter.

CAUTION **Make a habit of saving your work before allowing your computer to enter Standby mode. If power is interrupted while the computer is in Standby mode, any information that was not saved will be lost.**

The computer can also enter Hibernate mode if battery power reaches a critically low level. (See "To respond to a low-battery warning" on page 54.) If this happens, you will find on resuming that all your data has been saved, but some functions may be disabled. To resume normal operation, restore power by connecting an AC adapter or installing a charged battery, then shut the computer off and restart it.

Changing timeout settings and creating power schemes

You can adjust the periods of non-use after which your computer automatically shuts down components or enters a power-saving mode. You can also save these settings as a power scheme.

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. Click the Power Schemes tab, and enter the settings you want. If you don't want a particular timeout to occur, set the value to Never. See Windows Help for details.

   If you want to save the settings as a power scheme, click Save As and enter a name for the scheme.

For Windows 98, change the Hibernate timeout in BIOS Setup—see "To run the BIOS Setup utility" on page 177.

CAUTION

For Windows 2000 or XP, do not disable Hibernate support in the Power settings, or you will lose any unsaved data if the computer's battery runs down completely.

Managing CPU power

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 the workload.

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.

To manage power manually

In addition to allowing the computer to enter its power-saving modes automatically, you can also put it into any of the following three modes whenever you need to.

Power mode	Does this…	Use when…	To enter this mode…
Standby	Maintains your current session in RAM, and turns off the display and other components.	You will be away from your computer for a short time.	Press blue sleep button –or– click Start, Shut Down, Standby (Windows 98 or 2000) –or– click Start, Turn Off Computer, Stand By (Windows XP).
Hibernate	Saves the current session to disk, then shuts down. Provides maximum power savings while still allowing you to recover the current session.	You will be away from your computer for several hours, but want to continue your session.	Press Fn+F12 –or– click Start, Shut Down, Hibernate (Windows 2000) –or– click Start, Hibernate (Windows 98).
Off	Turns off your computer, providing maximum power savings. The current session will not be saved, and any unsaved data will be lost.	You're done with your work.	Click Start, Shut Down, Shut down (Windows 98 or 2000) –or– click Start, Turn Off Computer, Turn Off (Windows XP) –or– slide the power button (only if the Start menu procedure doesn't work).

Using Battery Power

To check battery status

From the battery status lights

Your computer has two battery status lights, one for the main battery and one for an optional secondary battery in the module bay, see "Bottom View" on page 19.

From the Windows taskbar

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 the pointer over the power icon to display the remaining battery charge. This value is shown as either a percentage of charge remaining, or as time remaining.

- Double-click the power icon to open the Battery Meter window.

From the Windows Control Panel

- **Windows 98 or 2000:** click Start, Settings, Control Panel, then double-click Power. This 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 the battery status. The Alarms and Advanced tabs provide additional Windows' power-information options.

On the battery

1. Remove the battery from the computer—see "Step 1: Install the battery" on page 22.

2. Press the contact pad on the back of the battery. The number of lights that turn on indicates the remaining charge (each light represents 20% of a full charge).

To respond to a low-battery warning

The computer automatically alerts you when the battery power drops to a critically low level. The computer first emits a high-pitched beep or displays a warning message. Then, if you do not restore power within a short time, the computer goes into Hibernate mode.

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

- Replace the battery with a charged one. See "Step 1: Install the battery" on page 22.

- Plug in the AC adapter. See "Step 2: Connect AC power" on page 24.

- Install a charged secondary battery in the plug-in module bay. See "To use additional batteries" on page 54.

Note

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

To recharge the battery

CAUTION

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

- To recharge the main battery, plug the AC adapter into the computer.

- To recharge a secondary battery, plug the AC adapter into the computer and insert the battery into the module bay.

The main battery will recharge first, then the secondary battery will recharge.

To get the longest operating time, wait until the battery's charge is below 50% before recharging, then charge it fully (100%). Charging can take up to approximately 2 hours. You can continue working while the battery charges.

A fully charged battery can operate the computer for up to approximately 4–5 hours, depending on your computer's model, power management settings, and level of use.

To use additional batteries

You can install a secondary battery in your computer's plug-in module bay. See "Using Plug-In Modules" on page 74 for information about installing plug-in modules. For instructions on replacing the main battery, see "Step 1: Install the battery" on page 22.

Using Battery Power

To get the most from your batteries

Follow these suggestions to make your battery's power last as long as possible.

- Plug in the AC adapter, especially when using a drive in the module bay, or any external connections such as a PC Card or a modem.

- Set the display brightness to the lowest comfortable level (Fn+F1).

- Put the computer in Standby mode whenever you are not using it for a short while: press the blue sleep button for approximately one second, or click Start, Shut Down (or Turn Off Computer), Standby.

- Put the computer in Hibernate mode whenever you want to save your current session, but will not be using the computer for several hours: press Fn+F12.

- 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 (the default settings conserve battery power)—see "How the computer manages power automatically" on page 50.

- If your computer has a wireless on-off button, turn off the wireless function when you're not using it. Press the wireless on-off button so the light turns off.

- Change settings in BIOS Setup to emphasize low power use—see "To run the BIOS Setup utility" on page 177. You can set the graphics mode and display backlight to use reduced power.

- 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 the serial port or an I/O PC Card, exit the application when you finish using it.

- Install another battery—see "To use additional batteries" on page 54.

- If your main battery is rated at 11.1 volts (check its label), purchase a replacement main battery, which is rated at 14.8 volts.

In addition, follow these suggestions to extend the life of your batteries.

- Do not leave batteries unused for long periods. 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 preserve the life of a battery, be sure to charge it regularly.

- For long-term storage, the battery must be charged 20–50% to minimize capacity loss by self-discharge and to avoid deterioration of performance. Storing a fully charged battery can cause higher self-discharge and reduce its discharge capacity—even after recharging—as compared to a battery stored when charged 20–50%.

- 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 maximize processor speed

If your computer contains a multispeed processor with Intel SpeedStep Technology, the processor can automatically switch to lower, power-saving speeds or to higher-performance speeds according to the workload. See "How the computer manages power automatically" on page 50.

Modem and Network Connections

Using the Modem

If your computer has a modem port, you can connect your modem to a telephone line and communicate with other computers throughout the world. You can explore the Internet, send and receive e-mail messages, and use your PC to send and receive faxes. Your computer 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

The modem is a high-speed 56-Kbps modem. For best performance, you can connect to any Internet Service Provider (ISP) or modem network 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 14.4 Kbps. Even though the modem is capable of downloading at 56 Kbps, your ISP or modem network may not operate at this speed or support this technology. Please check with your service provider for information on its capabilities. Furthermore, download transmission rates depend on the condition of the telephone line.

To connect the modem

CAUTION

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.

1. Check that the telephone line is an analog line, sometimes called a data line. (You must not use a digital line.)

2. Connect a telephone cord with an RJ-11 plug into a telephone jack. If the plug on the phone cord doesn't fit the jack, you may need to use an adapter.

3. Plug the other end of the phone cord the built-in modem.

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.

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 restrictions in certain countries

- 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 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 fail to connect to your server or cancel the connection, you must wait one minute before dialing that number again. If you dial before then, you will get an error message that says "delay." After the fourth failed connection, you must 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

Signing up with an Internet Service Provider

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

1. Connect your built-in modem—see the previous topic. (If your computer does not have a built-in modem, you can instead use a PC Card modem or an external modem.)

2. If available, double-click the Connect to the Internet or Easy Internet Signup icon on the desktop. 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.

    –or–

    If available, 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 choose.

Connecting to the Internet

1. Double-click the Internet Explorer icon on the desktop. For your first connection, you'll be prompted for information about your connection.

2. Click the Connect button in the Dial-up Connection or Network Connections window.

For Windows 98 or 2000, when you are successfully connected to the Internet, you'll see a connect icon (two connected computers) in 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.

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.

- Double-click the connect icon in the taskbar, and click Disconnect. (For Windows XP, you can enable this icon as described in "To connect to the Internet," above.)

  –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". For a list of AT commands for the built-in modem, see "Modem Reference Information" on page 199.

  For Windows 98, open Modems in Control Panel. On the General tab, click Properties, then on the Connections 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 a built-in Ambit modem to connect with the V.34 modulation, you can use the +MS command as shown in table of AT commands—type AT+MS=11 in the space for extra settings.

To send and receive e-mail

Sending and receiving e-mail requires an e-mail account with an Internet Service Provider or with your company's communications system. If you are using AOL, e-mail services are part of your AOL service. For another ISP, you can use Outlook Express (included with your computer) or an e-mail system of your choice. This topic includes instructions for using Outlook Express.

To start Outlook Express

1. Click Start, Programs (or All Programs), Outlook Express, or double-click Outlook Express on the desktop (if available).

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. In Outlook Express, click the New Mail or Create Mail tool on the toolbar.

2. Fill in the information in the New Message window.

3. When you're finished, click the Send button.

To receive e-mail messages

1. In Outlook Express, click the Send/Recv tool on the toolbar to have Outlook deliver new messages.

2. Click the Inbox folder to view the list of messages. Unread messages appear bold on the screen.

3. 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 fax software is included with Windows 98 on the hard disk.

To start QuickLink

• Click Start, Programs, QuickLink, QuickLink.

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, then print it.

To receive faxes

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 it.

To receive, view, and print faxes

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

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, or when prompted for the file path, enter c:\i386.

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 personal use. Follow the onscreen instructions. If you're not sure which setting to choose, accept the default choice.

To send a fax

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

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 Fax, then print it.

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:

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

To view and print a fax

1. In the 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

Connecting to a local area network (LAN) gives you access to network resources, such as printers and file servers on your corporate network, and possibly 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 98:** open Network (or Network Connections) in Control Panel to set up support for a LAN connection on your network. For example, you can add the Microsoft TCP/IP protocol.

    Windows 2000 or XP: automatically detects and sets up a LAN connection. To edit settings, open Network and Dial-up Connections in Control Panel.

See Windows Help for information about setting up and using LAN connections—click Start, Help (or Help and Support). Contact your network administrator for network information.
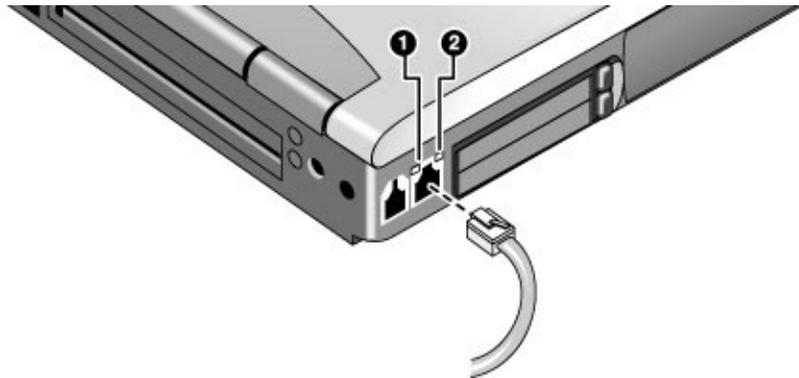
Two lights next to the LAN port indicate the status of the connection:

*   The yellow light indicates network activity.

*   The green light indicates that a link is established to the network.

Making Wireless Connections

If your computer includes a wireless on-off button—located on the left side of the computer near the front—you can connect by radio to a wireless local area network (LAN) and access computers and other resources on the network.

A wireless network provides all the functions of a typical "wired" network, but also provides for "roaming." Since your computer connects to the network by radio rather than through cables, you can move from place to place within the network—from your office to a conference room, for example—and remain on the network the entire time.

To prepare for connections (Windows 98 or 2000)

Before you can connect your computer to a particular 802.11 wireless network, you have to configure the computer for the specific type of connection: "AdHoc" or "Infrastructure."

Computer-to-Computer Connection (AdHoc)

An AdHoc network provides a wireless connection from your computer directly to one or more computers with wireless capabilities, even if they aren't connected to a LAN. You can then share resources such as shared files, printers, and Internet connections with the other computers.

1. Click the wireless link icon in the taskbar and select Advanced Configuration.

    –or–

    Click Start, Programs, HP Wireless LAN, Configuration Utility.

2. On the Configuration tab, set these parameters:

    Mode: AdHoc.

    SSID: any name; must be identical for all computers connecting to each other. Do not use a name that is used by a nearby access point.

    AdHoc Channel: must be identical for all computers connecting to each other. Do not use a channel that is the same as or adjacent to a channel already being used by a nearby access point.

3. If the computers use encrypted communication, use the Encryption tab to set the following parameters, which must be identical for all computers that will connect to each other:

    - Encryption: 64-bit or 128-bit.

    - Passphrase (if available) or Key: see the hint below.

The computers automatically connect whenever they're within range of each other and wireless communication is turned on—see "To turn wireless communication on and off," below.

LAN Connection (Infrastructure)

In an infrastructure network, your computer connects to a LAN (local area network) through a wireless access point. This gives you access to the resources on the network, such as printers, file servers, and possibly the Internet. Your network administrator can provide the settings you'll need to connect to the wireless access point, as well as the additional settings you'll need for the network itself.

1. Set up your computer for your local network:

    Windows 98: open Network in Control Panel to set up support for a LAN connection on your network.

    Windows 2000: automatically detects and sets up a LAN connection. To edit settings, open Network and Dial-up Connections in Control Panel.

2. Click the wireless link icon in the taskbar and select Advanced Configuration.

    –or–

    Click Start, Programs, HP Wireless LAN, Configuration Utility.

3. On the Configuration tab, set these parameters:

    Mode: Infrastructure.

    SSID: the ID used by the access point. "ANY" connects to the access point with the strongest signal, regardless of its SSID.

4. If your wireless network uses encrypted communication, use the Encryption tab to set these parameters—see the network administrator for the required settings:

    - Encryption: 64-bit or 128-bit.

    - Passphrase (if available) or Key: see the hint below.

The computer automatically connects to the infrastructure network whenever it's within range of an access point and wireless communication is turned on—see "To turn wireless communication on and off," below.

Hint

If you are connecting to an access point or computer that is using Lucent/Agere-based software, you must set up compatible encryption on your computer. You can enter the encryption key manually. If you know only the Lucent/Agere passphrase, you must convert it to the corresponding key. If this option is not available on the Encryption tab, click Start, Programs, HP Wireless LAN, and use the encryption key converter.

To prepare for connections (Windows XP)

Before you can connect your computer to a particular 802.11 wireless network, you have to configure the computer for the specific wireless connection.

Connecting to an Existing Wireless Network

You can connect to an access point that gives you access to a local area network, or you can connect directly to other computers in an "adhoc" network.

1. Click Start, Settings, Control Panel, Network and Internet Connections, Network Connections.

2. Double-click the wireless connection to show its status, then click Properties.

3. On the General tab, edit network settings as needed for your local network. See your network administrator. You can also display an icon in the taskbar when connected to a network.

4. On the Wireless Networks tab, view the wireless networks available within range. Each network SSID is listed. Click the network you want and click Configure.

5. If the wireless network uses standard encrypted communication, uncheck the automatic key option, then select the following parameters—see your network administrator for the required settings:

    *   Key: ASCII passphrase or hexadecimal key string.

    *   Key format: ASCII for passphrase, hexadecimal for key string.

    *   Key length: smaller number for 64-bit encryption, larger number for 128-bit.

6. Click OK to save the configuration. This network is added to your list of preferred networks.

The computer automatically connects to the first preferred network that's within range if wireless communication is turned on—see "To turn wireless communication on and off," below.

Hint

If you are connecting to non-Windows XP access points or computers that are using software from different manufacturers, you must set up compatible encryption on your computer. You can use the same hexadecimal encryption key on all units. If you know only an ASCII passphrase, you should convert it to the corresponding hexadecimal key. Click Start, All Programs, HP Wireless LAN, and use the encryption key converter.

Creating a New Computer-to-Computer Network (AdHoc)

You can set up a new network available to other local computers.

1. Click Start, Settings, Control Panel, Network and Internet Connections, Network Connections.

2. Double-click the wireless connection to show its status, then click Properties.

3. On the Wireless Networks tab, click Add to create a new network.

4. Type a name for the new network.

5. If you want to use encrypted communication, uncheck the automatic key option, then select the following parameters:

   - Key: ASCII passphrase or hexadecimal key string.

   - Key format: ASCII for passphrase, hexadecimal for key string.

   - Key length: smaller number for 64-bit encryption, larger number for 128-bit.

6. Mark the option to make this a computer-to-computer (adhoc) network.

7. Click OK to save the configuration. This network is added to your list of preferred networks and becomes available to other computers.

To turn wireless communication on and off

Important

Wireless networks and cellular modems are examples of devices that use wireless communication. Such devices may be restricted in some situations or environments, such as when traveling in an airplane. If in doubt, be sure to ask for authorization *before* turning on your computer's wireless networking.

In Italy, Singapore, and possibly other countries, you are required to ask the responsible authority for a license paid for by you before using the wireless function.

Turning on communication and making a connection

1. If the computer isn't on, turn it on.

2. The wireless indicator light is lit whenever the wireless function is on. If the indicator isn't lit, do one of the following:

   Press the wireless on-off button.

   –or–

   Click the wireless link icon in the taskbar and select Wireless Radio On.
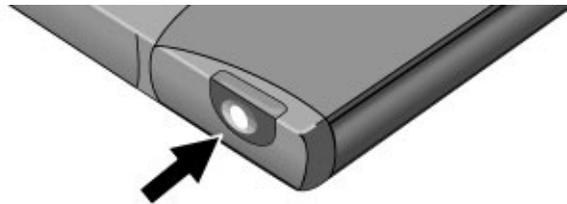
If you're within range of your wireless network, your computer automatically connects. To check the status of your wireless connection, click the wireless link icon in the taskbar and select Wireless Status.

Turning off communication and ending a connection

1. **Important:** close any files that reside on other network computers.

2. To turn off the wireless function without turning off the computer, do one of the following:

   Press the wireless on-off button.

   –or–

   Click the wireless link icon in the taskbar and select Wireless Radio Off.

Suspending or shutting down the computer also turns off the wireless function.

Add-On Devices

Using Plug-In Modules

You can use any compatible plug-in module with your computer's module bay, such as:

- CD-ROM, CD-RW, DVD, or similar drive.

- Zip drive.

- Second hard drive.

- Floppy disk drive.

- Secondary battery.

CAUTION

Never remove a plug-in module without first notifying Windows—see "To replace a plug-in module" on page 74. Otherwise, you could lose data.

To install hot-swap support (Windows 98)

If your computer uses Windows 98, it also includes "hot-swap" software that lets you swap most modules in the computer's plug-in bay without needing to shut down and reboot the computer.

If a BayManager icon is displayed in the taskbar, hot-swap support is already installed. If the icon is not present, you can install the software as follows:

- Click Start, Programs, Softex BayManager, Setup, then follow the onscreen instructions.

To replace a plug-in module

Windows 98 uses hot-swap software to let you swap most plug-in modules without shutting down the computer. Before replacing a hard drive module, however, you must first shut down the computer.

When a drive module is present, Windows 2000 displays the Unplug or Eject Hardware icon—and Windows XP displays the Safely Remove Hardware icon—at the right end of the taskbar.

CAUTION

Before disconnecting a CD-ROM drive, DVD drive, or any other type of drive, you must either use the icon in the taskbar or shut down the computer—otherwise, you could lose data.

Exception: for Windows 98, you must shut down the computer before connecting or disconnecting a hard disk drive.

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

1. Close all files that are open from the plug-in module.

2. **Windows 98:** if the BayManager icon is present in the taskbar, right-click the icon, then click Remove/Swap Bay Device. When prompted, remove the module if one is present. Don't click OK until you've inserted the desired module, if any.

    Windows 2000 or XP: left-click the Unplug or Eject Hardware or Safely Remove Hardware icon on the taskbar, and select the module you want to remove. When prompted to remove the module, click OK. (You don't have to do this if the bay is empty or contains a battery.)

    –or–

    For any system: shut off the computer. Click Start, Shut Down, Shut down (Windows 98 or 2000) or Start, Turn Off Computer, Turn Off (Windows XP).

    Important: for Windows 98, you must shut off the computer if you are removing or inserting a hard disk drive in the module bay.

3. Press the button on the module release latch, and slide the latch toward the front of the computer.
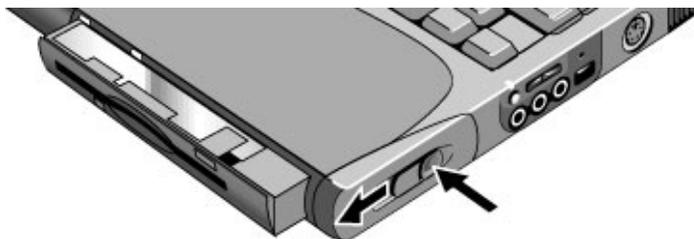
4. Grasp the module and pull it out.
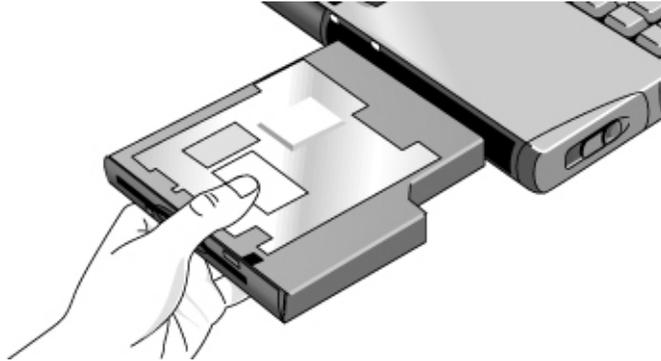
5. Slide the new plug-in module into the computer until it clicks into place.

6. For Windows 98, click OK to close the BayManager window.

If you have a CD-ROM drive or other module in the module bay, you can connect the floppy disk drive to the parallel port. See the next topic.

To connect the floppy disk drive to the parallel port

If you prefer, you can connect the floppy disk drive to your computer's parallel port using an external floppy drive cable, available from HP.

• Connect the F2008 cable directly to the floppy drive and to the computer parallel port.

Before disconnecting the floppy disk drive, use the icon in the taskbar to stop the drive, or else shut down the computer. See "To replace a plug-in module" on page 74.

To insert or remove a CD or DVD

CAUTION

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

Be sure to press the CD or DVD onto the spindle. You can damage the disk or drive if you just lay it on the tray.

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 the cardboard packing insert.

2. Place the CD into the drive (label facing up) and gently press down to seat it on the spindle.

   –or–

   Remove the CD.

3. Slide the tray back into the module to close it.
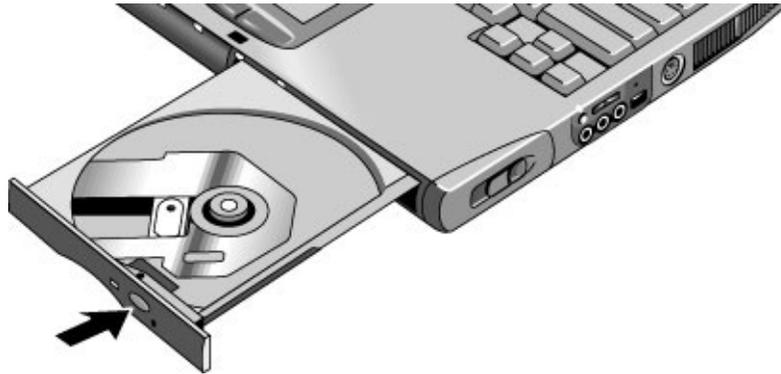
If your computer loses power, or if you have removed the CD-ROM or DVD module from the computer, you can manually open the drive to remove a CD. Insert a straightened paper clip into the recessed hole on the front of the drive to open it.

To play DVD movies

If your computer came with a DVD drive, it also includes DVD player software that lets you play DVD movies. Click Start, Programs (Windows 98 or 2000) or Start, All Programs, Multimedia, DVD Player (Windows XP)—if InterVideo WinDVD or DVD Express is not listed, do the following.

• Run Setup on the software CD to install the player software.

To play DVD movies on a TV, see "To use a TV set as a monitor" on page 85.

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)—if Adaptec Easy CD, Veritas CDRW, or RecordNow is not listed, do the following.

• Run Setup on the software CD to install the CD-RW software.

Refer to the software's help for details about creating or copying CDs. HP recommends using HP C4403A (CD-R) or C4404A (CD-RW) media—read and write quality may vary for other media.

Connecting PC Cards

The computer's PC Card slots are available for storing data and expanding the communication capabilities of the computer. The computer supports standard Type I, II, and III PC Cards (PCMCIA and CardBus), and can hold two Type I or II cards or one Type III card.

The lower slot supports Zoomed Video, which allows a zoomed video card to show high-quality multimedia presentations.

To insert or remove a PC Card

Inserting a PC Card

1. Hold the PC Card with its face up and its connector holes toward the card slot.

2. Slide the PC Card all the way into the 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.
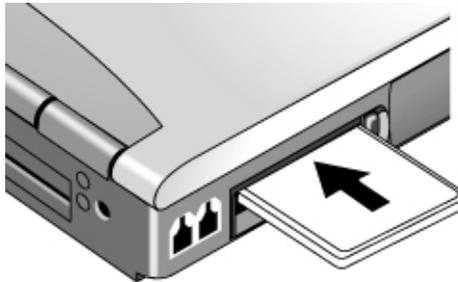
Removing a PC Card

<table>
<tr><td>CAUTION</td><td>**Before removing a PC Card, you must use the PC Card, Eject Hardware, or Safely Remove Hardware icon in the taskbar, or shut down the computer. Otherwise, you could lose data.**</td></tr>
</table>

1. Before removing the card, click the PC Card, Eject Hardware, or Safely Remove Hardware icon in the taskbar, then click Stop. This protects your data and helps avoid unexpected problems.

   If needed, you can restart the card by removing and then reinserting it.

2. Press the eject button to pop the button out, then press it in to eject the PC Card.
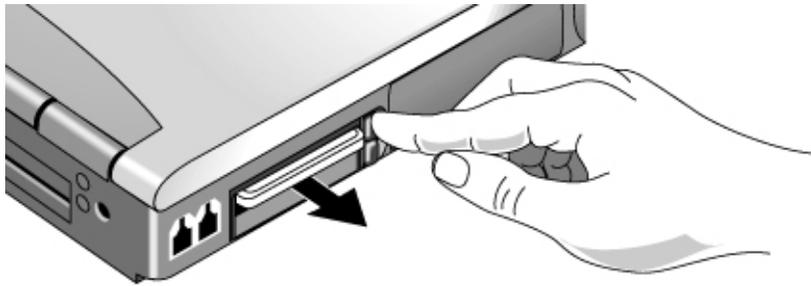
Finding tested PC Cards

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).

Connecting External Devices

To identify connectors for external devices

The diagram below shows your computer's connectors for external devices.
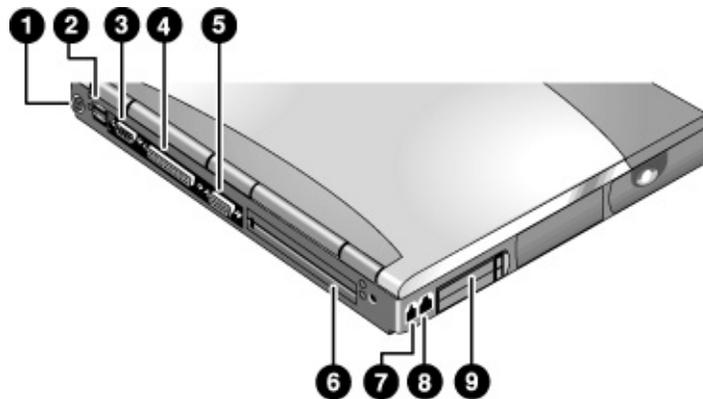
1. PS/2 keyboard or PS/2 mouse port (supports Y adapter).

2. Two universal serial bus (USB) ports.

3. Serial port (COM1).

4. Parallel port (LPT1). Use this port for a parallel printer or other parallel device, or to connect the floppy disk drive externally.

5. External monitor port.

6. Docking port.

7. Modem port (on certain models).

8. LAN port.

9. PC Card and CardBus slots (upper and lower). See "Connecting PC Cards" on page 79.

The computer also includes an infrared port, audio ports, and an S-video port on its right side.

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 to configure the equipment so that it will operate properly with your computer and the software you plan to use.

To connect a printer or other parallel device

The computer's parallel port uses 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 cable from the parallel printer or other parallel device to the computer's parallel port.

To connect an external keyboard or mouse

• Plug a USB mouse or keyboard into a USB port on the computer.

–or–

• Plug a PS/2 mouse or keyboard into a PS/2 port on the computer.

The pointing stick and touch pad are normally disabled while an external PS/2 mouse is connected.

To connect a PS/2 mouse and keyboard at the same time, use the HP F1469A Y adapter.

Note

To use hot keys from an external PS/2 keyboard, substitute left CTRL+left ALT for the computer Fn key. For example, to access Fn+F12, press left CTRL+left ALT+F12. Only Fn+F5, Fn+F7, and Fn+F12 are supported on an external PS/2 keyboard. A USB keyboard does not support Fn hot keys.

To connect a USB device

Your computer's universal serial bus (USB) provide a bi-directional serial interface for adding peripheral devices such as game controllers, serial and parallel ports, and scanners on a single bus.

• Attach the device's USB cable to one of the computer's USB ports. 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

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

To connect an audio device

Your computer includes a built-in microphone (just in front of the blue sleep button) that you can use to record voice, sound, and music. You can also plug in a stereo input source (such as a CD player), an external microphone, external speakers, or headphones.

CAUTION

The audio jacks are three-terminal stereo jacks. They are not compatible with two-terminal mono plugs. Connecting a mono plug into the speaker-out jack may damage the computer.

• Attach the audio cable to the corresponding audio port on the computer.
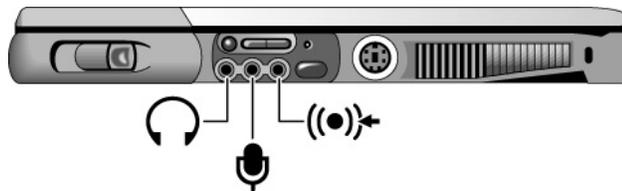
Note

When you plug a device into the external 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 an external monitor

Connecting 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 monitor port on the rear of the computer.
3. Connect the monitor to a power source and turn it on.
4. Press the blue sleep button to turn on the computer.

Switching the display to the external monitor

• Press Fn+F5 (or CTRL+ALT+F5 on an external keyboard) 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).

You can also add a display settings icon in the taskbar for quick access.

- If you need to use both displays at once, press Fn+F5 repeatedly until the image shows on both displays. With the default display settings, the external monitor uses the same settings as the internal display. The external monitor displays the same image as the internal display, regardless of the screen area, colors, and other settings, and the refresh rate is the same for as the internal display (60 Hz). If you use only the external monitor, you can select different settings that aren't limited by the internal display. If you need to increase the refresh rate on the external monitor, you can switch to only the external monitor. An alternative is to make one display a "secondary" display so you can select independent refresh rates:

    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 the Advanced button, then the Displays or Monitor tab. Set the refresh rate on the Monitor tab.

Adjusting monitor resolution and other settings

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. Other settings are also available.

For an external monitor, the computer supports screen area settings up to 1600 × 1200, color settings up to 16M (24- or 32-bit), and refresh rates up to at least 75 Hz. Lower screen area settings support higher refresh rates, except that 1400 × 1050 supports only 60 Hz. The capabilities of external monitors vary greatly, and the display quality of your monitor may not be optimal at higher settings.

Using dual display mode (Windows 98 or XP)

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

1. Click Start, Settings, Control Panel, then double-click Display (Windows 98), or click Start, Control Panel, Appearance and Themes, Display (Windows XP).

2. Click the Settings tab.

3. **Windows 98:** right-click display 2, and select Enabled.

    Windows XP: click the second display, then select the option to extend the desktop.

You can set different resolutions and numbers of colors for each display. However, using the Extended Desktop requires video memory to be shared. For this reason, higher resolutions and higher numbers of colors may cause unexpected behavior on the displays. We recommend starting with 1024 × 768 resolution on the external display and 64K colors (16-bit) on both displays. You can try higher settings to see whether they work for your applications. In addition, certain operations such as playing DVDs and running 3D graphics require extra video memory, so you may have to use lower display settings.

Changing display actions

With a display attached, you can use the BIOS Setup utility to change certain display behaviors, such as stretching the image to fill the screen at lower resolutions. See "To run the BIOS Setup utility" on page 177.

For a display connected to a video adapter in a docking system, the docking display is automatically selected when it is detected. To change this behavior, change the Primary Video Adapter setting in BIOS Setup.

To use a TV set as a monitor

You can connect a television set or other video device to your computer to use as a display. The computer's built-in display remains active when you connect a TV set.

To connect a TV set

You can connect a TV set using a standard S-video cable, or an HP F1459A composite-video adapter with a standard RCA-type video cable.

1. Connect a video cable from the TV set to the S-video port. (You don't need to turn the computer off to do this.)

2. Connect the TV set to a power source and turn it on.

To activate the TV display

- 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.

To play DVD movies on the TV

- Open Display in Control Panel, click the Settings tab, then click Advanced and make the TV a "primary" display.

- Optional: connect an audio cable from the computer's audio out jack to the TV audio input.

To connect a serial device

The computer includes a standard 9-pin serial port that you can use to connect devices such as external modems and fax modems. If needed, you can set the serial port's address in the BIOS Setup utility.

- Connect the device's serial cable to the computer's serial port.

To connect an infrared device

Your computer includes an infrared port—located below the volume control on the right side of the computer—which provides wireless, serial communication between the computer and other infrared devices such as printers or other computers.

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

1. Enable the infrared port in the BIOS Setup utility—see "To run the BIOS Setup utility" on page 177.

2. **Windows 98 only:** click Start, Run, and type c:\hp\drivers\fir\quikbeam\setup.exe to install the QuickBeam software. For more information, see the Readme file in the same directory.

Using the infrared port

- Make sure the infrared ports of your computer and the other device lie in as straight a line as possible. The two ports should be no more than 1 meter apart, with no obstructions in between. Noise from nearby equipment can cause transmission errors.

- To check the status of communications, open Infrared (Windows 98) or Wireless Link (Windows 2000 or XP) in Control Panel.

Disabling the infrared port

You should generally disable infrared communication when you aren't using it.

1. Close any applications that are using infrared, and any folders on an infrared link.

2. Click Start, Settings, Control Panel (Windows 98 or 2000) or Start, Control Panel, Printers and Other Hardware (Windows XP).

3. **Windows 98:** double-click Infrared and disable communications.

    Windows 2000: double-click Wireless Link and disable the hardware.

    Windows XP: click Wireless Link. On the Hardware tab click Properties, and disable the device in the pull-down menu.

Printing to an infrared printer

- Install your printer and assign it to the computer's infrared port. You can then print from your applications as you would to any other printer.

Transferring files through an infrared connection

You can use your computer's infrared port to transfer files.

- For Windows 98, use the built-in Direct Cable Connection software. You will first need to install the software as follows:

   1. Click Start, Settings, Control Panel, then double-click Add/Remove Programs.

   2. Click Windows Setup, double-click Communications, and select the Direct Cable Connection checkbox.

- For Windows 2000 or XP, use Wireless Link.

See the Windows online help for instructions on using Direct Cable Connection or Wireless Link.

To use a docking product

Pavilion models

For Pavilion models, docking is supported with only the F1451 port replicator.

A docking product provides your computer with external connections that you can leave in place whenever you remove the computer from your desk. Instead of disconnecting and reconnecting peripheral devices, you can simply undock and dock the computer.

For more information about using docking products, see the *User's Guide* that shipped with your dock.

Installing a docking tray

Your dock requires a tray that accommodates your specific computer model. Install this tray prior to connecting the computer to the dock. If you don't have a tray labeled for the Omnibook 6000 or Pavilion series, you'll need to purchase HP accessory F2012A.

1. Slide the rear of the tray into the dock as shown on the dock label.

2. Push down firmly on both sides of the tray until it snaps into place.
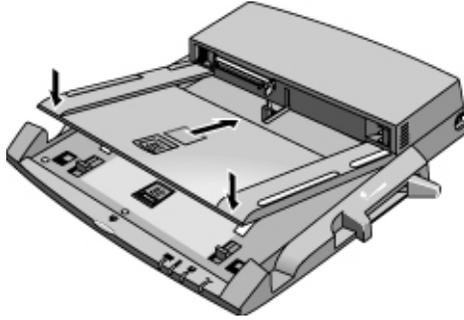
To remove a tray from the dock, pull the latch (at the center front of the dock) towards you until the tray pops free.

Docking the computer

The computer can be on, suspended, or off when docking.

1. Connect power to the dock—the type of connection depends on the dock. See the manual that came with the dock.

2. Place the computer on the dock platform, with the rear of the computer facing the dock's docking connector. *Make sure the computer's PC Card eject buttons are in*.
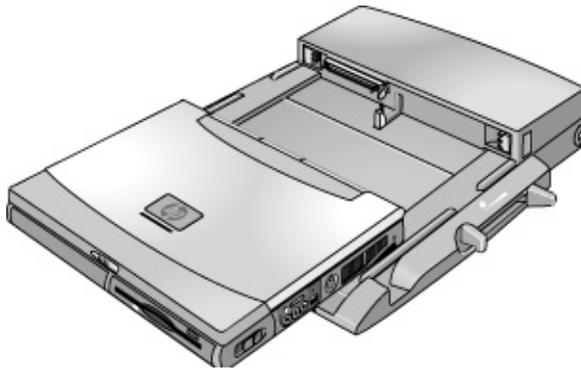
3. Position your fingers on the platform grips as shown below. Use your thumbs to push the computer into the dock until the computer slides into place.
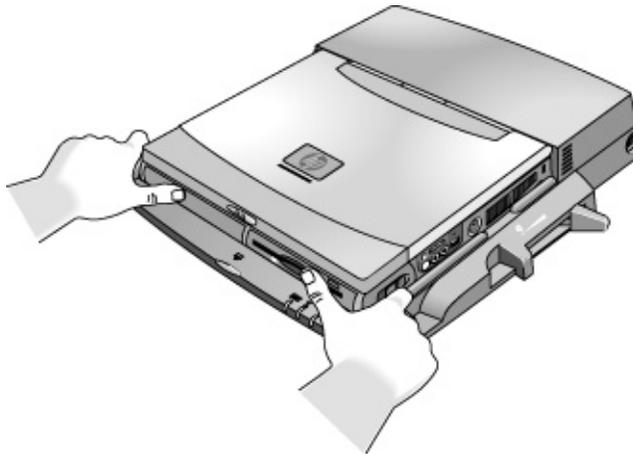
Undocking the computer

1. Press the undock button on the front of the dock and wait for the undock light to blink. Then position your thumb as shown and pull the release lever forward.
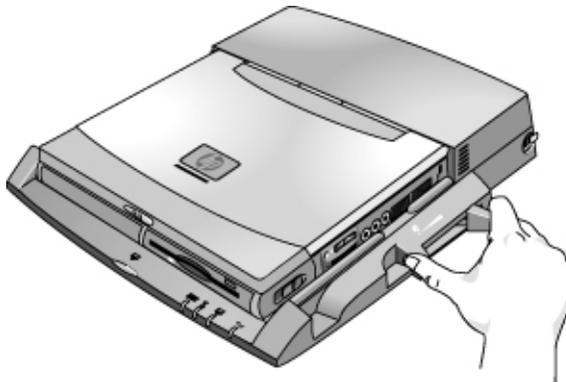
2. Remove the computer from the dock.

Installing Additional RAM

The computer has no memory (RAM) built in but has two slots that hold two RAM modules. At least one slot contains a RAM module installed at the factory. You can use both slots to expand your RAM. Use HP PC-133 or higher SDRAM only.

To install a RAM expansion module

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

CAUTION

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

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. Remove the secondary battery if one is installed.

3. Turn the unit bottom-side up, loosen the screws holding the RAM cover, and remove the cover. (The cover retains the screws.)

4. Insert the RAM board into the connector at about a 30° angle until it is fully inserted. Then press down at both sides until both latches snap closed.
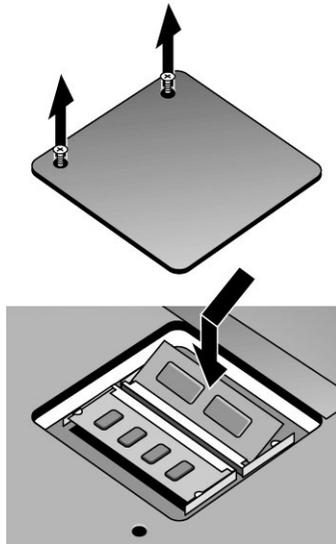
5. Replace the cover.

6. Insert the battery.

Note

For Windows 98: if you increase your computer's memory to more than 768 MB, the computer will not be able to hibernate unless you also increase the size of the Utility partition on the hard disk—see "To recover the factory installation of your hard disk" on page 184.

To remove a RAM expansion module

You may want to remove a RAM module so you can install a larger one. You'll need a small Phillips screwdriver for these steps.

CAUTION

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

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. Remove the secondary battery if one is installed.

3. Turn the unit bottom-side up, loosen the screws holding the RAM cover, and remove the cover. (The cover retains the screws.)

4. Release the two latches at the sides of the RAM board, so the free edge of the board pops up.
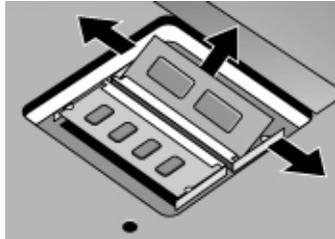
5. Pull the board out of the connector.

6. Replace the cover.

7. Insert the battery.

Replacing the Hard Disk Drive

To replace the hard disk drive

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

1. Unplug the AC adapter if you're using one, and remove the battery.

2. Turn the unit bottom side up and remove all three hard drive screws.

3. Raise the cover on the end of the drive so that its retainer tab is free of the computer casing, then gently pull the hard drive out of the computer.
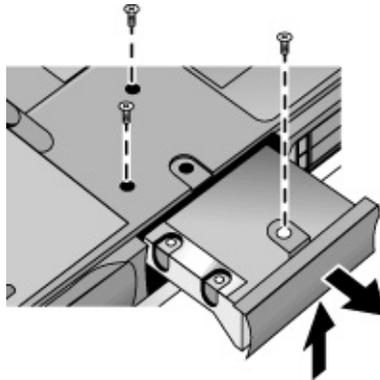
4. Gently slide the new drive into the hard drive compartment. Press firmly to make sure the connector seats properly.

5. Slide the cover down into place (so the retainer tab engages the casing), and reinstall the hard drive screws.

Important   If you are installing a new hard disk drive, you should create a Utility partition on the drive before loading any software. See "To recover the factory installation of your hard disk" on page 184.

To replace the hard disk drive holder

If you are installing a new hard drive that does not have a cover, you can remove the cover parts from the old hard drive. You'll need a small Phillips screwdriver for this procedure.

1. Remove all four screws from the holder and drive case, then lift the drive out of the holder.

2. Notice that the hard drive has a pin connector attachment at one end. Carefully remove this connector from the end of the drive. Work alternately at each end so that the connector slides off evenly without bending the connector pins.
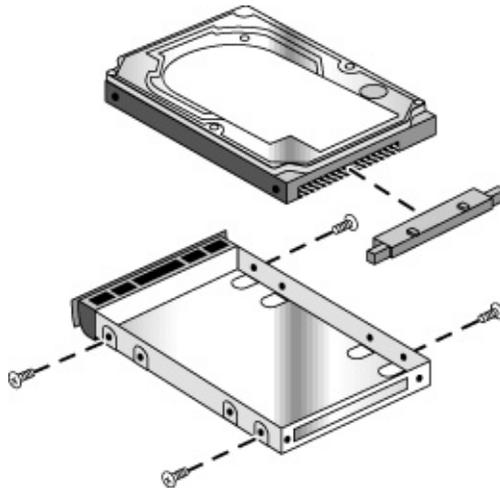
3. Carefully put the pin connector attachment back onto the pins on the end of the new hard drive. Work alternately at each end so that the connector slides on evenly without bending the connector pins.

4. Insert the connector through the end of the holder, and lower the drive into the holder.

5. Reinstall the screws into the holder and drive case.

To prepare a new hard disk drive

When you install a new hard disk drive, you also need to prepare it to be able to work with your computer.

- If you want to restore the Windows software and operating system that were originally installed on your computer, you can do so using the *Recovery CD* that also came with your computer. See "To recover the factory installation of your hard disk" on page 184.

- If you want to use the hard disk with other than the original software and operating system, prepare the hard disk as described in the "Using Windows" chapters in this manual.

- If you want to prepare a second hard disk module in the plug-in module bay, follow these steps.

  Windows 98

  1. Install the second hard drive and reboot the computer.

  2. Click Start, Run and type **fdisk**.

  3. When prompted, choose to enable large disk support.

  4. Choose option 5 to change a current disk drive, then select drive number 2.

  5. Choose option 1 to create a DOS partition, and let it use the entire drive.

  6. When the process finishes, press ESC to exit.

  7. Restart the computer.

  8. Double-click My Computer.

  9. Right-click the new hard disk drive (may be drive D), then click Format. Follow the displayed instructions.

  Windows 2000 or XP

  1. Install the second hard drive.

  2. Click Start, Settings, Control Panel, then double-click Administrative Tools (Windows 2000), or click Start, Control Panel, Performance and Maintenance, Administrative Tools (Windows XP).

  3. Double-click Computer Management, then click Disk Management in the tree.

  4. In the lower-right pane, right-click the unused area of the new disk (probably disk 1) and click Create Partition. Follow the displayed instructions to create an NTFS partition that uses the entire drive.

Using Windows XP

Installing Retail Windows XP

Windows XP may come factory installed on your HP notebook. The following procedure installs a retail version of Windows XP and configures the appropriate device drivers.

This section describes how to:

- Prepare for software installation

- Install a retail version of retail Windows XP

- Install video support for retail Windows XP

- Install audio support for retail Windows XP

- Install modem support for retail Windows XP

- Install pointing device support for retail Windows XP

- Install Wireless LAN support for Windows XP

- Install HP Configuration Interface (HPCI)

Requirements

- HP notebook with internal CD-ROM/DVD drive

- Windows XP CD

- HP notebook drivers for Windows XP. Location: On the Product Recovery CD in \HP\DRIVERS or on the web at http://www.hp.com/go/support.

The following directions refer to directories that contain the necessary drivers. The directories are listed below.

- Video directory = \HP\DRIVERS\VIDEO

- Audio directory = \HP\DRIVERS\AUDIO

- Modem directory = \HP\DRIVERS\MODEM

- Touchpad directory = \HP\DRIVERS\TOUCHPAD

- Wireless directory = \HP\DRIVERS\WIRELESS

- HPCI directory = \HP\DRIVERS\HPCI

All other drivers are included in the distribution of Windows XP for the Omnibook 6100.

Important

Before installing Windows XP please install the latest BIOS for your HP notebook.

1. Start the HP notebook.

2. Press F2 to enter Setup when prompted.

3. Check the BIOS version in the upper left corner.

You can download the latest HP notebook BIOS from http://www.hp.com/go/support.

To prepare for software installation

It is recommended you repartition your hard disk before installing Windows XP. Follow the instructions below to repartition your hard disk. This will add hard disk-based diagnostics to make support easier.

1. Connect the ac adapter to the notebook.

2. Insert the CD-ROM/DVD drive in the notebook.

3. Insert the bootable Recovery CD into the CD-ROM/DVD drive.

4. Reboot, press ESC when you see the HP notebook logo.

5. Select the "CD-ROM/DVD Drive" as the boot device.

6. Click Continue twice.

7. Click Advanced twice.

8. Select your desired Hibernate Partition Size. (0M HP Preferred Size for XP)

9. Check "Do not load operating system".

10. Select "Hibernate partition only".

11. Click Continue.

12. Click OK.

To install Windows XP (non-HP OEM)

These directions provide steps for installing a non-Hewlett-Packard-provided version of Windows XP on Omnibook notebook computers.

1. Start with the computer off. To turn off the computer slide and hold the power switch that is located above the upper left side of the keyboard. You must hold this slide switch for 5 seconds or until the system switches off.

2. Press the blue sleep button that has a moon icon OR slide the power button and release it. The computer should begin to show signs of booting like screen turning on and lights on the front of the system.

3. When the HP Invent logo appears on the screen press the ESC (escape) key once. The HP Invent logo should disappear showing the details of the system POST (Power On Self Test). This will activate the boot menu that will allow you to boot from CD.

4. Place the XP installation CD in the drive and wait a moment for your optical drive to determine what type of CD you have inserted. When the light on the optical drive has been on for a few seconds you may use the arrow keys to select "CD-ROM/DVD DRIVE" and press ENTER.

5. In certain situations, as the CD begins to boot you may see a message that says, "PRESS ANY KEY TO BOOT FROM CD" this message only lasts a few seconds. Press ENTER to boot from CD. If you miss the message the system will boot from hard drive, to boot from CD return to step 1 and turn off the notebook. It does not matter if you interrupt the system from booting as you will be formatting the hard drive to install XP. You will only see this message if the XP CD detects that you have a bootable partition on your hard drive.

6. If you are installing a BETA version of the XP operating system you will have to accept a message informing you that the software you are installing is BETA. Press ENTER if you receive this message.

7. Welcome to XP setup. Press ENTER

8. At the End User License Agreement (EULA) screen, press F8 to accept the EULA and continue installation.

9. In certain situations, if you have a prior version of XP or Windows 2000 installed on your system you may see a dialogue asking to Repair or Install? Press ESC to install a new version of the operating system.

10. Choose installation partition. The first partition is listed as FAT and is quite small, this is your diagnostic partition (if you created one in earlier steps). The second listing will either be listed as UNPARTITIONED SPACE or will be listed as one or more partitions depending on if you erased your hard drive or have chosen to install over another operating system. Using the arrow keys highlight the UNPARTITIONED SPACE and press ENTER to use all available space, otherwise you can press C to create a partition that is smaller than the available space if you wish to have a separate data partition.

11. Choose the format for your installation partition. Select FORMAT USING NTFS (QUICK) or FORMAT USING FAT (QUICK) depending on needs, and press ENTER. Hewlett-Packard suggests that you select NTFS at this point if you intend to convert to NTFS at a later time, this will make a higher performance file system and appropriate security settings. Setup will examine the hard disks and begin to copy files after the format is complete. At the end of file copy the system will restart automatically.

12. Upon restart, the graphical (GUI) portion of the install will begin. There is still about 10-15 minutes available to you before you will be asked for input; the total process takes about 40 minutes from this point.

13. Select your regional information and your language settings. For U.S. installations you will not need to make any changes. Press NEXT.

14. Enter you name and organization information and press NEXT.

15. Enter your product license key and press NEXT.

16. Provide a computer name and a password for the administrator account. You may accept the default computer name and/or leave the administrator password blank. Press NEXT.

17. You will be asked to provide TAPI (telephone settings) if your system has a modem that XP already has drivers for. Provide your area code and any special dialing needs like a 9 to access an outside line. Press NEXT.

18. Define your time zone to XP and set the appropriate date and time. Failure to define the proper time zone may cause odd problems later with programs like Outlook that rely upon this setting.

19. At the Network Settings screen, allow the default of TYPICAL SETTINGS unless you have some special needs. Press NEXT.

20. At the Domain and Workgroup Settings screen, input any needed settings for your LAN. Keep in mind that you will need to have rights to add this PC to a domain if you try to. Press NEXT.

21. After some time finalizing settings the system will restart again. After the system restarts XP will adjust the screen resolution because the default resolution of 640x480 is not compatible with the XP registration and help facilities. There is a series of onscreen prompting that sets the screen resolution. It will adjust the screen resolution to 1024x768x32-bit color. Depending on the system you have this may not be the proper resolution for the LCD screen. You will adjust this later when installing the video drivers.

22. At the XP welcome screen, press NEXT in lower right corner.

23. XP will check for internet connection for the registration process. You may press SKIP in the lower left corner to skip the registration or if you don't have internet connection. If you do choose to skip you must select to REGISTER LATER and press NEXT.

24. At the XP User Definition screen, you must enter at least one user that will be using this computer, then press NEXT. These are local accounts that have local administrator levels of access automatically.

25. Press FINISH to enter the XP desktop.

To install video support (ATI Radeon)

While the video will function with the default XP drivers, you will lack the ability for special features and advanced configuration. Hewlett-Packard suggests installing these drivers. The video drivers are located in the VIDEO driver directory.

1. Run SETUP.EXE from the video driver directory.

2. Follow the onscreen directions to complete the installation.

3. At the end you will be asked to reboot the PC. Choose NO and press FINISH to exit the video driver installation.

To install audio support (ESS Allegro)

While the audio will function with the default XP drivers, you will lack the ability for special features and advanced configuration. Hewlett-Packard suggests installing these drivers. The audio drivers are located in the AUDIO driver directory.

1. Run ESSETUP.EXE from the audio driver directory.

2. At the ESS Welcome screen, press NEXT to begin installation.

3. At the end you will be asked to reboot the PC. Choose NO and press FINISH to exit the audio driver installation.

To install modem support (USR)

While Windows XP contains the necessary drivers for the modem hardware in your Omnibook 6100, you will lack the ability for special features and advanced configuration. Hewlett-Packard suggests installing these drivers. The modem drivers are located in the MODEM driver directory.

1. Open the Start menu by clicking the START button in the bottom left corner of the screen. Right-click MY COMPUTER and select MANAGE. This will open the computer management console. Make sure the driver files are already copied to the hard drive or that you insert the Windows XP Recovery CD.

2. In the left pane of the Management Console, select DEVICE MANAGER.

3. In the right pane you should see a US Robotics device listed under MODEMS. Right-click this listing and select UPDATE DRIVER.

4. Choose INSTALL SOFTWARE AUTOMATICALLY and press NEXT. The system will search all local storage devices for the appropriate drivers. Windows may ask you to choose the driver to load, pick the highest version number.

To install touchpad support (Synaptics)

While the touchpad and touchstyx will function with the default XP drivers, you will lack the ability for special features and advanced configuration. Hewlett-Packard suggests installing these drivers.

1. Run SETUP.EXE from the touchpad driver directory.

2. Choose desired language and press OK.

3. Follow the remaining onscreen directions to complete installation.

4. At the end you will be asked to reboot the PC. Choose NO and press FINISH to exit the touchpad driver installation.

To install wireless LAN support (Actiontech)

Windows XP does not contain the necessary drivers for the wireless LAN hardware that may be in your Omnibook 6100. Some Omnibook 6100 computers are not equipped with wireless LAN. The wireless LAN drivers are located in the WIRELESS driver directory.

1. Double-click SETUP.EXE.

2. Click NEXT at the Welcome screen.

3. Click YES at the License Agreement screen.
   If you see the Installshield Wizard Complete screen, DO NOT click Finish at this time. Wait for the Found New Hardware Wizard screen.

4. At the Found New Hardware Wizard screen, choose INSTALL SOFTWARE AUTOMATICALLY and press NEXT. The system will search all local storage devices for the appropriate drivers.

5. The system will find the PRISM WIRELESS adapter and will continue with installation. Click FINISH when prompted. At the Install Wizard Complete screen, select "No, I will restart my computer later" and click FINISH.

6. Before the wireless LAN will function on most networks, it will need to be configured properly. These settings must be obtained from a network administrator.

To install Hewlett-Packard Configuration Interface (HPCI)

The HP Display Settings application allows you to switch active displays, modify brightness and contrast for Windows 2000 and 98SE systems, and hibernate on Windows 98SE systems using Advanced Power Management (APM).

On Windows 2000 and Windows XP, the HPCI driver provides access to important configuration interfaces of the system BIOS.

You can launch the display settings application by going to Start, All Programs, Accessories, Accessibility, HP Display Settings or
Start, All Programs, Hewlett-Packard, Notebook, HP Display Settings, HP Display Settings.

Features:

HP Display Settings provides the following features:

- User interface to control which of the available displays should be active (notebook display panel, external monitor, TV).

- Slider controls for adjusting the brightness and contrast (if applicable) of the notebook display panel. These controls do not affect the external monitor or TV.

- An icon in the taskbar for quick access to these controls.

- Adds sticky key and filtered key accessibility features to the Fn key.

The HP Configuration Interface device implements the following features:

- Undock security using the physical undock button located on the docking station.

- Auto-standby on undock based on the BIOS settings.

- Hibernate Fn hot key.

- On certain systems, volume and mute control implemented through the operating system that is actively reflected in the user interface.

To install HPCI (you must have administrator rights):

1. Run SETUP.EXE from the HPCI drivers directory.

2. Follow the onscreen directions to complete the installation.

Using Windows 2000

Installing Retail Windows 2000

Windows 2000 comes factory installed on your HP notebook. The following procedure installs a retail version of Windows 2000 and configures the appropriate device drivers.

This section describes how to:

- Prepare for software installation
- Install a retail version of retail Windows 2000
- Install the chipset driver (Intel 830 series)
- Install video support for retail Windows 2000
- Install audio and modem support for retail Windows 2000
- Install pointing device support for retail Windows 2000
- Install Intel Pro/100P VM LAN support for retail Windows 2000
- Install 3Com 56K V.90 Mini PCI Modem support for retail Windows 2000
- Install Infrared support
- Install Intel® SpeedStep™ technology Applet for retail Windows 2000
- Install HPCI for retail Windows 2000
- Install USB FDD support
- Install HP notebook wireless LAN support (ActionTech)
- Change power management for Windows 2000

Requirements

- HP notebook with internal CD-ROM/DVD drive
- Windows 2000 CD
- HP notebook drivers for Windows 2000

Location: On the Product Recovery CD in \HP\DRIVERS or on the web at http://www.hp.com/go/support.

Important

Before installing Windows 2000 please install the latest BIOS for your HP notebook.

To check your BIOS version do the following:

1. Start the HP notebook.

2. Press F2 to enter Setup when prompted.

3. Check the BIOS version in the upper left corner.

You can download the latest HP notebook BIOS from http://www.hp.com/go/support.

To prepare for software installation

It is recommended you repartition your hard disk before installing Windows 2000. Follow the instructions below to repartition your hard disk. This will add hard disk-based diagnostics to make support easier.

1. Connect the ac adapter to the notebook.

2. Insert the CD-ROM/DVD drive in the notebook.

3. Insert the bootable Recovery CD into the CD-ROM/DVD drive.

4. Reboot, press ESC when you see the HP notebook logo.

5. Select the "CD-ROM/DVD Drive" as the boot device.

6. Click Continue twice.

7. Click Advanced twice.

8. Select your desired Hibernate Partition Size. (0M HP Preferred Size)

9. Check "Do not load operating system".

10. Select "Hibernate partition only".

11. Click Continue.

12. Click OK.

To install retail Windows 2000 Professional

1. Insert the HP notebook CD-ROM drive in the HP notebook.

2. Insert the Windows 2000 CD in the CD-ROM drive.

3. Reboot, press ESC when you see the HP notebook logo.

4. Select the CD-ROM/DVD as the boot device and press Enter.

5. At the Welcome screen, press Enter to begin.

6. Read the Windows 2000 Licensing Agreement. Press Page Down until you reach the end of the document. Press F8 to agree.

7. In the list of existing partitions, select the unpartitioned space and press Enter.

8. Highlight your choice of file system (FAT or NTFS), then press Enter. After formatting and copying files the HP notebook will reboot and continue installation.

9. Click Next to accept the Regional settings or click Customize.

10. Enter your name and organization, then click Next.

11. Enter the Product Key, then click Next. (The Product Key is located on the Certificate of Authenticity that you received with your retail version of Windows 2000.)

12. Enter a computer name, and an Administration password twice, then click Next. This password is used to administer User IDs and Windows security. Click Next. This name is used by other computers on the network to access your computer.

13. Enter the correct Time Zone and Date and Time, then click Next.

14. Click Finish. The system will reboot.

15. At the "Welcome to the Network Identification Wizard" screen, click Next.

16. Give the appropriate choice on user logon, then click Next.

17. Click Finish to complete the Network Identification Wizard.

Windows 2000 retail or shelf version is not capable of running the newest hardware contained within the HP notebook. Upon completion of the Windows 2000 install you will have many unidentified hardware items as listed below.

- Other Devices
    - Ethernet controller
    - Multimedia device
    - Network adapter
    - PCI device
    - PCI communications device
    - Video adapter
- IDE ATA/ATAPI Controllers
    - Standard PCI dual channel IDE
- Mouse
    - Standard PS/2 mouse
- Universal Serial Bus Controllers
    - Standard USB controller

To install the chipset driver (Intel 830 series)

If you have installed retail Windows you need to install the Intel chipset driver. The driver is contained in the \HP\DRIVERS\830M subdirectory on the Recovery CD. This will install support for IDE controllers, USB controllers, and several system devices.

To install or upgrade the Intel chipset driver:

1. Run SETUP.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\830M).
2. Follow the onscreen directions to complete installation.
3. Upon successful completion you will be asked to reboot your computer, choose "Yes, I want to restart my computer now" (even if you have other drivers to install at this time), then click Finish.

To install video support (ATI Mobility Radeon)

If you have installed retail Windows you need to install the ATI video driver. The driver is contained in the \HP\DRIVERS\VIDEO subdirectory on the Recovery CD.

To install or upgrade the ATI video driver:

1. Run SETUP.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\VIDEO).

2. Follow the onscreen directions to complete installation.

3. There may be messages about the driver not having a digital signature, select Yes to all these message boxes.

4. Upon successful completion you will be asked to reboot your computer, choose "Yes, I want to restart my computer now" if you have no other drivers to install. Otherwise, choose "No, I will restart my computer later" and continue to next step.

To install audio support (ESS Allegro series)

If you have installed retail Windows you need to install the ESS audio driver. The driver is contained in the \HP\DRIVERS\AUDIO subdirectory on the Recovery CD.

To install or upgrade the ESS audio driver:

1. Run ESSETUP.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\AUDIO).

2. Follow the onscreen directions to complete installation.

Upon successful completion you will be asked to reboot your computer, choose "Yes, I want to restart my computer now" if you have no other drivers to install. Otherwise, choose "No, I will restart my computer later" and continue to next step.

To install touchpad/trackpoint mouse support (Synaptics)

If you have installed retail Windows you need to install the mouse driver. The driver is contained in the \HP\DRIVERS\TOUCHPAD subdirectory on the Recovery CD.

To install or upgrade the mouse driver:

1. Run SETUP.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\TOUCHPAD).

2. Follow the onscreen directions to complete installation.

Upon successful completion you will be asked to reboot your computer, choose "Yes, I want to restart my computer now" if you have no other drivers to install. Otherwise, choose "No, I will restart my computer later" and continue to next step.

To install LAN support (Intel)

If you have installed retail Windows you need to install the LAN driver. The driver is contained in the \HP\DRIVERS\LAN subdirectory on the Recovery CD.

To install or upgrade the LAN driver:

1. Using the right mouse button, click the My Computer icon on the desktop and select Manage. This will open the computer management tool.

2. In the left pane click Device Manager.

3. In the right pane the Other Devices section should already be expanded. If it is not then click the + sign next to Other devices.

4. Double-click on ?Ethernet Controller to open the Device Properties.

5. Click Reinstall driver.

6. At the Wizard welcome screen, click Next.

7. Select Search for Driver, and click Next.

8. Select Specify Location, and click Next.

9. Enter D:\HP\DRIVERS\LAN into the search path and click OK. This assumes D: as the CD ROM containing the Recovery CD.

10. The wizard will find the driver NET8255A.INF for the Intel PRO/100P VM, click Next and follow the remainder of onscreen directions to complete installation.

11. Close the properties window left on the screen. Press Close.

To install PCI modem support (3COM)

If you have installed retail Windows you need to install the PCI modem driver. The driver is contained in the \HP\DRIVERS\MODEM\PCIMODEM subdirectory on the Recovery CD.

To install or upgrade the modem driver:

1. Using the right mouse button, click the My Computer icon on the desktop and select Manage. This will open the computer management tool.

2. In the left pane click Device Manager.

3. In the right pane the Other devices section should already be expanded. It is not then click the + sign next to Other devices.

4. Double-click ?PCI Simple Communications Controller to open the Device Properties.

5. Click Reinstall driver.

6. At the Wizard welcome screen, click Next.

7. Select Search for Driver, and click Next.

8. Select Specify Location, and click Next.

9. Enter D:\HP\DRIVERS\MODEM\PCIMODEM into the search path and click OK. This assumes D: as the CD ROM containing the Recovery CD.

10. The wizard will find the driver WDXJBAA.INF for the 3COM MPCI Modem 556B, click Next and follow the remainder of the onscreen directions to complete installation.

11. Close the properties windows left on the screen. Press Close.

To install infrared support

If you have installed retail Windows you need to install the LAN driver. The driver is contained in the \HP\DRIVERS\FIR subdirectory on the Recovery CD.

To install or upgrade the infrared driver:

1. First the IR hardware must be enabled in BIOS setup. To enter Setup reboot the notebook, when the HP Invent logo appears it will prompt you to "Press F2 to Setup" under the HP logo. Press F2 when prompted.

2. Use the right arrow once in Setup to move onto the System Devices screen.

3. Use the down arrows to highlight the Infrared Port.

4. Press Enter and select Enabled. The other settings are fine at default values.

   Default Values:
   Mode: FIR
   Base I/O: 2F8
   Interrupt: IRQ 3
   DMA Channel: DMA 0

5. Press F10 to save and exit Setup, select Yes to confirm. This will reboot the system, when Windows 2000 finishes booting it will discover the new hardware and start the Add Hardware Wizard.

6. At the Wizard welcome screen, click Next.

7. Select Search for Driver, and click Next.

8. Select Specify Location, and click Next.

9. Enter D:\HP\DRIVERS\FIR into the search path. This assumes D: as the CD-ROM containing the Recovery CD.

10. The wizard will find a driver for the infrared device, follow the remainder of onscreen directions to complete installation.

To install Intel® SpeedStep™ Technology Applet

If you have installed retail Windows you need to install the Intel SpeedStep driver. The driver is contained in the \HP\DRIVERS\SPEEDSTP subdirectory on the Recovery CD.

To install or upgrade the Intel SpeedStep driver:

1. Run SETUP.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\SPEEDSTP).

2. Follow the onscreen directions to complete installation.

Upon successful completion you will be asked to reboot your computer, choose "Yes, I want to restart my computer now" if you have no other drivers to install. Otherwise, choose "No, I will restart my computer later" and continue to next step.

To install HP Configuration Interface support (HPCI)

If you have installed retail Windows you need to install the HP Configuration Interface driver. The driver is contained in the \HP\DRIVERS\HPCI subdirectory on the Recovery CD.

Note

On Windows 2000 or Windows XP, you must be an administrator or have administrator permissions to install and uninstall.

To install or upgrade the HP Configuration Interface driver:

1. Run SETUP.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\HPCI).

2. Follow the onscreen directions to complete installation.

HP display settings application and HPCI driver, Version 1.00

Description:

The HP Display Settings application allows you to switch active displays, modify brightness and contrast for Windows 2000 and 98SE systems, and hibernate on Windows 98SE systems using Advanced Power Management (APM).

On Windows 2000 and Windows XP, the HPCI driver provides access to important configuration interfaces of the system BIOS.

You can launch the display settings application by going to
Start, Programs, Accessories, Accessibility, HP Display Settings or
Start, Programs, HP Display Settings, HP Display Settings.

A README file is provided for information and installation instructions in
Start, Programs, HP Display Settings, Readme.

An Uninstall is provided to allow you to uninstall the application in
Start, Programs, HP Display Settings, Uninstall.

You can launch the HP Hibernate program from Start, HP Hibernate to place the unit in hibernate mode.

Note

This software requires BIOS features that are not supported on all HP notebooks.

HP Display Settings provides the following features:

• User interface to control which of the available displays should be active (notebook display panel, external monitor, TV).

- Slider controls for adjusting the brightness and contrast of the notebook display panel. These controls do not affect the external monitor or TV.

- An icon in the taskbar for quick access to these controls.

Hewlett-Packard Configuration Interface (HPCI)

The HP Configuration Interface device implements the following features:

- Undock security using the physical undock button located on the docking station.

- Auto-standby on undock based on the BIOS settings.

- Hibernate Fn hot key.

- On certain systems, volume and mute control implemented through the operating system that is actively reflected in the user interface.

- The Rewind, Play/Pause, Stop, and FForward button controls for a music CD-ROM or DVD movie on certain notebooks.

To install USB FDD support

If you have installed retail Windows and you intend to use the USB floppy cable accessory (not included with the notebook and must be purchased separately), you need to install the USB floppy driver. The driver is contained in the \HP\DRIVERS\FLOPPY subdirectory on the Recovery CD.

To install or upgrade the USB floppy driver:

1. Insert the USB floppy accessory with floppy drive attached. This will start the Add Hardware Wizard.

2. At the Wizard welcome screen, click Next.

3. Select Search for Driver, and click Next.

4. Select Specify Location, and click Next.

5. Enter D:\HP\DRIVERS\FLOPPY into the search path. This assumes D: as the CD-ROM containing the Recovery CD.

The wizard will find a driver for the USB floppy device, follow the remainder of onscreen directions to complete installation.

At this point you should also consider installing Windows 2000 Service Pack 2 from Microsoft. The Microsoft Service Pack contains a considerable number of fixes that will improve the system stability and functionality.

To install wireless LAN driver (ActionTech)

If you have installed retail Windows and you have 802.11b LAN, you need to install the wireless LAN driver. The driver is contained in the wirelessLAN directory.

To install or upgrade the wireless LAN driver:

1. Run SETUP.EXE from the wirelessLAN driver directory.

2. Follow the onscreen directions to complete installation.

Upon successful completion you will be asked to reboot your computer, choose Yes to reboot.

Note

The wireless LAN software allows for the configuration of profiles for different wireless network configuration support on the same notebook computer. This allows a user of the notebook to travel to areas where the wireless network configuration may be different. This may include different company offices or different buildings. Due to the built-in security in Windows 2000 only administrators are allowed to change network settings. To allow people who are defined as users or power users on the local system to switch wireless profiles they must be predefined by the administrator. So, during the configuration of a PC, the local administrator should define all the needed wireless profiles the users will require. These user and power-user accounts may change the wireless settings if needed for remote troubleshooting purposes but the settings will not be saved when the user logs off the system or reboots.

To configure power management

You may want to change the default power management settings in Windows 2000. The BIOS Power Management settings are ignored if ACPI is activated.

1. From the Control Panel, double-click Power Options. To open the Control Panel, select Start, Settings, Control Panel.

2. Click the Hibernate tab.

3. Check Enable hibernate support.

4. Click Apply.

5. Click the Power Schemes tab.

6. Make sure that the power scheme selected is Portable/Laptop.

7. Change the Plugged in options for Standby to Never and Hibernate to 6 hours.

8. Click the Save as button and click OK to accept the name of Portable/Laptop.

9. Click the Advanced tab.

10. Check "Always show icon on the taskbar".

11. Click Apply.

12. Change the Power buttons options to your desired settings.

13. Click the Alarms tab.

14. Set the Critical battery alarm action by clicking the Alarm Action button.

15. Check "When the alarm goes off, the computer will:"

16. Select "Hibernate" in the drop-down list and click OK.

17. Click OK to close the Power Control Panel.

Using Windows 98

Installing Retail Windows 98 Second Edition or Windows 98

Windows 98 Second Edition comes preinstalled from the factory on your HP notebook computer. The following procedure installs a retail version of Windows 98SE or Windows 98 and configures the appropriate device drivers.

This section describes how to:

- Prepare for software installation

- Install a retail version of Windows 98

- Install chipset support (Intel 830M)

- Install Microsoft hot fix support

- Install DirectX 7.0a support

- Install video support

- Install pointing device support

- Install audio and modem support

- Install Intel Pro100 VM PCI LAN support

- Install wireless LAN support

- Install 3Com 56K V.90 Mini PCI modem support

- Install Infrared support

- Install Bay Manager support

- Install Intel® SpeedStep™ Technology Applet

- Install IDE and SCSI docking support

Requirements

- HP notebook with internal CD-ROM/DVD drive

- External floppy cable with floppy module

- Windows 98SE or Windows 98 CD

- HP notebook drivers for Windows 98

Location: On the Product Recovery CD in \HP\DRIVERS or on the web at http://www.hp.com/go/support.

Important

Before installing Windows 98, please install the latest BIOS for your HP notebook.

To check your BIOS version do the following:

1. Start the HP notebook.

2. Press F2 to enter Setup when prompted.

3. Check the BIOS version in the upper left corner.

You can download the latest HP notebook BIOS from http://www.hp.com/go/support.

To prepare for software installation

Create a support utility disk for use during installation. You will need a computer with a working Windows operating system to make a support utility disk.

1. Insert the Recovery CD in the CD-ROM drive.

2. Open the MS-DOS Prompt.

3. Go to the \HP\BOOTDISK directory on the Recovery CD. If D: is the drive letter of your CD-ROM drive, type:

   D:CD\HP\BOOTDISK

4. Type MAKESUPP.

5. When asked to select a floppy drive, type A.

6. Type Y to acknowledge warning and continue.

7. Insert a blank floppy disk in the A: drive and press any key to continue.

8. When copy is complete, type N when asked: "Would you like to copy another disk (Y/N)".

9. Close the MS-DOS Prompt.

HP recommends that you repartition and format your hard disk before installing retail Windows 98 Second Edition. Follow the instructions below to partition your hard disk and create the hibernation partition.

1. Insert the bootable Recovery CD-ROM in the CD-ROM drive.

2. Boot the HP notebook, press ESC and select the CD-ROM/DVD as the boot device.

3. Click "Continue" on the Recovery screen to enter the menu.

4. Click "Advanced" on the Recovery CD menu.

5. Click the option "Do not load operating system".

6. Choose the size of your hibernation partition, default (recommended) is 768MB.

7. In the "File System Partition" section, select "Create FAT16 partition" or "Create FAT32 partition" depending on which partition type you need. (If you are installing Windows NT 4.0, you will need a mandatory FAT 16 partition).

8. Click "Continue" to start repartitioning.

9. Click "OK" to acknowledge the chosen hibernation partition size.

10. When the message "Hibernate partition successfully created…" appears onscreen, remove the Recovery CD. Press any key to shutdown.

A hibernation partition and a C: partition has been created and formatted for you.

Hewlett-Packard's HW diagnostics software has been placed on the hibernation partition. To use this HW diagnostics software in the future, press F10 during boot of the system.

11. Connect the floppy disk drive to the HP notebook using the FDD cable.

12. Insert the support utility disk you previously created. Boot the HP notebook, press ESC and select "Removable Device" as the boot device.

13. From the A: prompt type SYS C:

The system is now ready for copying of the operating system files.

14. Insert the Windows 98 Second Edition retail CD-ROM in the CD drive.

15. Copy the Windows 98 Second Edition installation files to your hard drive by typing the following commands:

    C:

    MD \WINDOWS

    MD \WINDOWS\OPTIONS

    MD \WINDOWS\OPTIONS\CABS

    COPY X:\WIN98*.* C:\WINDOWS\OPTIONS\CABS

16. Remove the Windows 98 Second Edition CD-ROM and the support utility disk.

To install retail Windows 98 Second Edition

1. At the C: prompt, type \WINDOWS\OPTIONS\CABS\SETUP /IS

2. Click Continue on the "Windows 98 setup" screen.

3. Select "I accept the Agreement" at the " Welcome to Windows 98 Setup" screen and click Next.

4. Enter the Product Key, then click Next. (The Product Key is located on the Certificate of Authenticity that you received with your retail version of Windows 98 Second Edition.)

5. When prompted, select "Other Directory" and click Next.

6. Enter C:\WINDOWS for the path, click Next.

7. Click Yes to continue with the specified directory. (This directory was created previously.)

8. Choose "Portable" on the Setup Options screen, then click Next.

9. Enter the appropriate User Information, then click Next.

10. Select "Install The Most Common Components (recommended)", then click Next.

11. Select your country or region and click Next.

12. Click Next to start "Copying Windows 98 Second Edition files to Your Computer".

13. When finished copying Windows 98 Second Edition, Click OK to restart.

14. When prompted with the PC Card Wizard click Next (no), Next (no), then Finish.

15. Enter your Computer name, Workgroup and Computer description and click Close.

16. Apply any changes when the system displays the Date/Time Properties screen, then click Close.

The Windows 98 Second Edition Setup Wizard will now configure the Control Panel, programs on the Start Menu, Windows Help, and MS-DOS program settings. Afterwards, Windows 98 Second Edition will automatically reboot.

17. Enter a Windows Password and confirm.

Retail Windows 98 Second Edition is now installed on the system.

Windows 98 retail or shelf version is not capable of running the newest hardware contained within the HP notebook. Upon completion of the Windows 98 install you will have many unidentified hardware items as listed below.

- Other Devices

  – PCI Ethernet

  – PCI audio

  – PCI network

  – PCI device system bus

  – PCI modem

  – Unknown

  – Unknown

- IDE ATA/ATAPI Controllers

  – Standard PCI Dual Channel IDE

- Mouse

  – Standard PS/2 mouse

- Universal Serial Bus Controllers

  – Standard USB controller

Hewlett-Packard suggests that you copy the Windows 98SE CAB files from the
Windows 98SE CD-ROM to C:\WINDOWS\OPTIONS\CABS for convenience later.

To install chipset support (Intel 830M)

Your computer has an advanced Intel motherboard chipset. Windows has already found
your chipset hardware but you need to install drivers for proper operation. There are
several drivers that need to be installed in this step.

To install or upgrade the Intel 830M chipset drivers:

1. Run SETUP.EXE from the driver directory on your Recovery CD
   (\HP\DRIVERS\830M).

2. Follow the onscreen directions to complete installation.

3. Upon successful completion you will be asked to reboot your computer, choose YES
   even if you have other drivers to install.

4. A New Hardware Wizard may appear after rebooting while the system updates all the drivers, if it does not continue to step 9.

5. Click Next at the Add New Hardware Wizard screen.

6. Press Next to search for drivers for your hardware.

7. When asked for the location of the drivers, clear ALL the check boxes and press Next.

8. The dialog box will show that the INTEL driver was found, press Next.

9. Click Finish.

10. If asked to reboot, click YES.

To install Microsoft hot fix support

If you have installed retail Windows you need to install the Microsoft hot fix. The driver is contained in the \HP\DRIVERS\QFE\SHUTDOWN subdirectory on the Recovery CD.

To install the Microsoft hot fix:

1. Run 4756US8.EXE from the driver directory on your Recovery CD (\\HP\DRIVERS\QFE\SHUTDOWN).

2. Follow the onscreen directions to complete installation.

3. Upon successful completion you will be asked to reboot your computer, choose YES if you have no other drivers to install. Otherwise, choose NO and continue to next step.

To install DirectX 7.0a support (Microsoft)

Microsoft DirectX 7.0a must be installed prior to installing the ATI video driver support on the HP notebook.

To install or upgrade the DirectX driver:

1. Run DX70AOPK.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\DIRECTX).

When all hard drive activities stop, continue to next step.

To install video support (ATI M-6 series)

If you have installed retail Windows you need to install the ATI video driver. The driver is contained in the \HP\DRIVERS\VIDEO subdirectory on the Recovery CD.

To install or upgrade the ATI video driver:

1. Run SETUP.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\VIDEO).

2. Follow the onscreen directions to complete installation.

Upon successful completion you will be asked to reboot your computer, choose "Yes, I want to restart my computer now" if you have no other drivers to install. Otherwise, choose "No, I will restart my computer later" and continue to next step.

To install touchpad/trackpoint mouse support (Synaptics)

If you have installed retail Windows you need to install the mouse driver. The driver is contained in the \HP\DRIVERS\TOUCHPAD subdirectory on the Recovery CD.

To install or upgrade the mouse driver:

1. Run SETUP.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\TOUCHPAD).

2. Follow the onscreen directions to complete installation.

Upon successful completion you will be asked to reboot your computer, choose "Yes, I want to restart my computer now" if you have no other drivers to install. Otherwise, choose "No, I will restart my computer later" and continue to next step.

To install audio support (ESS Allegro series)

If you have installed retail Windows you need to install the ESS audio driver. The driver is contained in the \HP\DRIVERS\AUDIO subdirectory on the Recovery CD.

To install or upgrade the ESS audio driver:

1. Run ESSETUP.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\AUDIO).

2. Follow the onscreen directions to complete installation.

Upon successful completion you will be asked to reboot your computer, choose "Yes, I want to restart my computer now" if you have no other drivers to install. Otherwise, choose "No, I will restart my computer later" and continue to next step. When you do reboot the system, you may be asked for the Windows 98SE distribution files. If you copied these files to your hard drive specify C:\WINDOWS\OPTIONS\CABS or the directory you made.

To install networking support (Intel)

Your computer may have integrated LAN and 802.11b wireless LAN, if you have both adapters you will have to install both drivers. Windows has already found all your networking hardware but you need to install drivers for proper operation.

1. Begin installation by clicking Start, Settings, Control Panel. Double-click Add New Hardware.

2. At the Welcome screen, click Next.

3. Click Next to search for drivers for your hardware.

4. Choose YES, the device is in the list. Select PCI Ethernet Controller and click Next.

5. Click Finish.

6. Click Reinstall Driver.

7. Click Next.

8. Click Next to search for drivers.

9. Select the check box next to Specify Location and clear all other check boxes.

10. Specify D:\HP\DRIVERS\LAN as the directory to search and click Next.

11. The dialog box will show that the Intel Pro/100 VM was found, click Next.

12. The system may ask for windows 98 files. You must swap to the 98 CD in the CD-ROM drive and click Enter. If you copied the CAB files to the hard drive specify that location to continue (C:\WINDOWS\OPTIONS\CABS).

13. Click Finish to complete installation.

14. Upon successful completion you will be asked to reboot your computer, choose Yes if you have no other drivers to install. Otherwise, choose No and continue to next step.

To install wireless LAN support (ActionTech)

If you have installed retail Windows and you have 802.11b LAN, you need to install the wireless LAN driver. The driver is contained in the WirelessLAN driver directory on the recovery CD.

To install or upgrade the wireless LAN driver:

1. Run SETUP.EXE from the WirelessLAN driver directory.

2. Follow the onscreen directions to complete installation.

Upon successful completion you will be asked to reboot your computer, choose NO and continue to next step. You will need to configure the network settings upon reboot, ask your administrator for assistance with values.

To install modem support (3COM)

Your computer may have a hardware Mini PCI modem . Windows has already found your modem hardware but you need to install drivers for proper operation.

To install or upgrade the modem driver:

1. Begin installation by clicking Start, Settings, Control Panel. Double-click Add New Hardware.

2. At the Welcome screen, click Next.

3. Click Next to search for drivers for your hardware.

4. Choose YES, the device is in the list. Select PCI COM Device and click Next.

5. Click Finish.

6. Click Reinstall Driver.

7. Click Next.

8. Click Next to search for drivers.

9. Select the check box next to Specify Location and clear all other check boxes.

10. Specify D:\HP\DRIVERS\MODEM\PCIMODEM as the directory to search and click Next.

11. The dialog box will show that the 3COM MPCI Modem 556B was found, click Next.

12. Click Finish to complete installation.

13. Close the properties window that was left open. Click Close.

To install infrared support

If you have installed retail Windows and have IR devices to use with your computer, you need to install the IR driver. The driver is contained in the \HP\DRIVERS\FIR subdirectory on the Recovery CD.

Note

If you have the infrared enabled in the BIOS prior to the installation of Windows 98, the operating system will discover the IR hardware automatically.

To install or upgrade the infrared driver:

1. Run SETUP.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\FIR\QUIKBEAM).

2. Follow the onscreen directions to complete installation.

3. You may see a message saying that you already have IR drivers installed by Windows. Select YES to replace the Windows driver with the QuickBeam IR driver.

4. Another message box will appear asking what serial port the IR is operating on. Select GENERIC IR SERIAL PORT and click Next.

Upon successful completion you will be asked to reboot your computer, choose "No, I will restart my computer later." and continue to next step.

To install Bay Manager support

If you have installed retail Windows you will need to install the bay manager software so you will be able to hot swap modules from the system. The driver is contained in the \HP\DRIVERS\BAYMGR subdirectory on the Recovery CD.

To install or upgrade the bay manager driver:

1. Run SETUP.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\BAYMGR).

2. Follow the onscreen directions to complete installation.

Upon successful completion you will be asked to reboot your computer, choose "No, I will restart my computer later." and continue to next step.

To install Intel® SpeedStep™ Technology Applet

If you have installed retail Windows and you have Pentium III dual speed CPU you need this software to regulate the power states. The driver is contained in the \HP\DRIVERS\SPEEDSTEP subdirectory on the Recovery CD.

To install or upgrade the SpeedStep driver:

1. Run SETUP.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\SPEEDSTEP).

2. Follow the onscreen directions to complete installation.

Upon successful completion you will be asked to reboot your computer, choose "No, I will restart my computer later." and continue to next step.

To install IDE docking support (CMD)

If you have installed retail Windows and you also own the F1477A or F1477B full docking station you must install the IDE docking support PRIOR to docking the notebook. The driver is contained in the \HP\DRIVERS\DOCKING\IDE subdirectory on the Recovery CD. This must be done PRIOR to docking the system for the first time.

To install or upgrade the IDE docking driver:

1. Run INSTALL (choose the file with the DOS icon) from the driver directory on your Recovery CD (\HP\DRIVERS\DOCKING\IDE).

2. Follow the onscreen directions to complete installation.

Upon successful completion you will be asked to reboot your computer. Please reboot.

To install SCSI docking support (SymBIOS)

If you have installed retail Windows and you also own the F1477A or F1477B full docking station you must install the SCSI docking support. The driver is contained in the \HP\DRIVERS\DOCKING\SCSI subdirectory on the Recovery CD.

To install or upgrade the SCSI docking driver:

1. Insert your (powered off) notebook computer into the docking station. Press the blue ON button on the notebook or the left side of the docking station if the system does not turn on automatically. After Windows 98 finishes booting it will build a docking profile and discover the new hardware and start the Add Hardware Wizard.

2. At the Wizard welcome screen, click Next.

3. Select Search for Driver, and click Next.

4. Select Specify Location, and click Next.

5. Enter D:\HP\DRIVERS\DOCKING\SCSI into the search path. This assumes D: as the CD-ROM containing the Recovery CD.

6. The wizard will find a driver for the SymBIOS SCSI device, follow the remainder of onscreen directions to complete installation.

Upon successful completion you will be asked to reboot your computer, choose YES.

Using Windows NT 4.0

Installing Retail Windows NT 4.0

The following procedure installs a retail version of Windows NT 4.0 and configures the appropriate device drivers.

This section describes how to:

- Prepare for software installation

- Install a retail version of Windows NT 4.0

- Install Service Pack 6a

- Create partition for remainder of hard disk space

- Install APM software

- Disable automatic CD-ROM detection

- Install PCMCIA support

- Install audio and modem support

- Install Intel® SpeedStep™ Technology Applet

- Install pointing device support

- Install USR 56K V.90 Mini PCI Modem support

- Install video support

- Install Intel Pro/100 LAN support

- Install Intel wireless networking

- Create Emergency Repair Disk (ERD)

- Install docking support

Requirements

- HP notebook with internal CD-ROM/DVD drive

- Windows NT 4.0 CD

- Windows NT service pack 5 or higher (available from Microsoft)

- HP notebook drivers for Windows NT 4.0

Location: On the Product Recovery CD in \HP\DRIVERS or on the web at http://www.hp.com/go/support.

Important

Before installing Windows NT 4.0 please install the latest BIOS for your HP notebook.

To check your BIOS version do the following:

1. Start the HP notebook.

2. Press F2 to enter Setup when prompted.

3. Check the BIOS version in the upper left corner.

You can download the latest HP notebook BIOS from http://www.hp.com/go/support.

To prepare for software installation

It is recommended you repartition your hard disk before installing Windows NT 4.0. Follow the instructions below to repartition your hard disk. This will add hard disk-based diagnostics to make support easier. Hewlett-Packard also recommends that you start with an empty hard drive before installing any operating system. This will help reduce complications in the future.

1. Connect the ac adapter to the notebook.

2. Insert the CD-ROM/DVD drive in the notebook.

3. Insert the bootable Recovery CD into the CD-ROM/DVD drive.

4. Reboot, press ESC when you see the HP notebook logo.

5. Select the "CD-ROM/DVD Drive" as the boot device.

6. Click Continue twice.

7. Click Advanced twice.

8. Select your desired Hibernate Partition Size. (HP default size: 768M)

9. Check "Do not load operating system".

10. Select "Hibernate partition only".

11. Click Continue.

12. Click OK.

To install retail Windows NT 4.0

1. Insert the HP notebook CD-ROM drive in the HP notebook.

2. Insert the Windows NT 4.0 CD in the CD-ROM drive.

3. Reboot, press ESC when you see the HP notebook logo.

4. Select the CD-ROM/DVD as the boot device.

5. Press Enter to install a fresh copy of NT 4.0.

6. Press Enter.

7. You may get a warning that says: "Warning, your HDD has more than 1024 cylinders". Press Enter to continue.

8. At the Windows NT EULA agreement, page down to the end and press F8.

9. Press Enter to select the standard PC configuration.

10. Define hard disk partitions. Do not remove the unknown partition, it is the diagnostic/hibernation partition you created earlier.

    Using the arrow keys, highlight the Unpartitioned Space and press C to create a new partition. Hewlett-Packard recommends that you use no larger than 2000MB (2GB) for your boot partition formatted FAT16 and 4000MB (4GB) formatted NTFS. Use the Backspace key to erase the provided size and enter the value you desire into the box provided. Keep in mind you cannot create a boot/system partition larger than 4GB.

    Do not create a partition for the remainder of the hard drive at this time. We will create that after NT is installed due to limitations of the Windows NT 4.0 install routine.

11. Use the arrow keys to highlight New (Unformatted) partition and press Enter to select that for installation.

12. Select NTFS or FAT for your installation partition. If you intend on using NTFS select it now, you may convert the FAT to NTFS later but the NT security settings will not be applied correctly when converting.

13. Accept the default windows directory, C:\WINNT, unless you have a reason to change it.

14. Press Enter to start the hard disk check. Installation routine will begin to copy files at this time.

15. Press Enter to reboot system and continue installation.

16. At the GUI (graphical user interface) setup welcome message, click Next.

17. Accept the default Typical Configuration and click Next.

18. Enter you Name and Organization information, click Next.

19. Enter your CD key, click Next.

20. Enter a unique computer name, click Next.

21. Enter your local administrator password and enter it again in to the confirmation box, click Next.

22. Choose NO to skip creating an emergency repair disk, click Next.

23. Select any components to install or click Next for most common components. At this time setup will copy the second set of files to the hard drive.

24. At Networking setup, select Do Not Connect at this Time and click Next.

25. Click Finish.

26. Select the appropriate time zone, click Close.

27. At the Video test, click OK. Click OK again to accept the default video.

28. Press Enter to restart computer.

29. Press CTRL-ALT-DEL to login to the system with administrator name and password that was defined during setup.

30. Click Close on the NT welcome box.

31. Copy D:\I386 TO C:\I386 so that you have the NT distribution files for later.

32. Install NT Service Pack 6a, detailed in the next section.

Windows NT 4.0 retail or shelf version is not capable of running the newest hardware contained within the HP notebook. Upon completion of the Windows NT 4.0 install you will have many hardware components that will require drivers before they will function properly.

- Ethernet Controller (Inter integrated LAN)

- Multimedia Device

- Network Adapter (wireless LAN)

- PCI Communications Device

- Video Adapter

- Intel Bus Master IDE

- Trackpoint/Touchpad Drivers

Windows NT 4.0 is not capable of utilizing the infrared port and the universal serial bus (USB) that are integrated into the HP notebook.

To install Service Pack 6a for retail Windows NT 4.0

If you've installed a retail version of Windows NT 4.0, you'll need to install Service Pack 6a. This service pack can be download from http://www.microsoft.com/ntserver/nts/downloads/recommended/sp6a/allsp6a.asp

1. Run the service pack SP6I386.EXE downloaded from the web.

2. Select "Accept the Software License Agreement".

3. Deselect "Backup files" and click Install.

4. When prompted, click Restart.

To create a partition for remainder of hard disk space using disk administrator

1. Click Start, Programs, Administrative Tools, Disk Administrator. Click OK and then Yes.

2. Select the Free Space and right-click within the Free Space.

3. Select Create from the popup menu and click Yes to confirm.

4. Make the size the default (max. size). Click OK and then click Yes to confirm.

5. You may also rearrange the order of drive letters at this time by selecting a drive and choosing Tools, Assign Drive Letter. Keep in mind that you should not change C: and that you cannot assign a driver letter that is already used. To reuse a drive letter assignment you must reassign the drive that is using the letter to a new letter before you can use its old letter on a different drive.

6. Exit Disk Administrator, it will ask you if you wish to save changes. Select YES and click OK at the second dialog box.

7. You may now format the new drive in Windows Explorer at any time.

To install APM (Advanced Power Management) support

Hewlett-Packard highly recommends that you install this software for proper operation of your notebook running Windows NT 4.0.

If you have installed retail Windows you need to install the APM driver. The driver is contained in the \HP\DRIVERS\APM subdirectory on the Recovery CD.

To install or upgrade the APM driver:

1. Run SETUP.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\APM).

2. Click the graphic to begin install.

3. Follow the onscreen directions to complete installation.

Upon successful completion you will be asked to reboot your computer, choose Do Not Restart. If you installed this software package you should also disable CD-ROM Auto Detect to ensure proper operation of the APM features.

To disable automatic CD-ROM detection

Windows NT 4.0 will automatically detect and respond when you insert a CD. However, this prevents the HP notebook from automatically turning off after a period of inactivity if the CD-ROM drive is present. To disable this feature:

1. From the Start menu, click Run.

2. Enter REGEDT32 then click OK.

3. Select the HKEY_LOCAL_MACHINE window and go to SYSTEM\CURRENTCONTROLSET\SERVICES\CDROM.

4. Double-click the Autorun key.

5. Enter 0 and click OK.

6. Close the Registry Editor and restart Windows NT 4.0.

To install PCMCIA support (PC card)

Hewlett-Packard highly recommends that you install this software for proper operation of your notebook running Windows NT 4.0.

If you have installed retail Windows you need to install the PC card driver. The driver is contained in the \HP\DRIVERS\PCCARD subdirectory on the Recovery CD.

To install or upgrade the PC card driver:

1. Run SETUP.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\PCCARD).

2. Click the graphic to begin install.

3. Follow the onscreen directions to complete installation.

4. Upon successful completion you will be asked to reboot your computer, choose Restart.

5. When you log back into the system a PC card diagnostic screen will appear. You must run the diagnostics at this time for proper operation of the PC card software.

6. Click Next.

7. Click Next.

8. Click Finish, the system will restart.

Note

After installing this software you cannot use the Windows NT Control Panel icon PC Card, it will give erroneous information. This software replaces it and has a control Panel Icon called Card Executive.

To install audio support (ESS series)

If you have installed retail Windows you need to install the ESS audio driver. The driver is contained in the \HP\DRIVERS\AUDIO subdirectory on the Recovery CD.

To install or upgrade the ESS audio driver:

1. Run ESSETUP.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\AUDIO).

2. Follow the onscreen directions to complete installation.

3. After the audio drivers finish installing the Add Modem Wizard will appear so that you may configure the ESS software modem. If your computer has the USR Hardware modem you may cancel this portion of the installation.

4. Choose to allow system to detect modem, press Next.

5. Windows will prompt which port you would like to scan if you have Card Services installed. Choose COM5, and press Next.

6. Windows will find ESS ESS56CVM-PI DATA FAX MODEM, press Next.

7. Windows will prompt for which port you wish to install the driver for, choose COM5 and press Next and then Finish.

8. If this is the first modem device installed on to the system you will be ask to update the TAPI information which includes your area code and special dialing needs.

Upon successful completion you will be asked to reboot your computer, choose YES if you have no other drivers to install. Otherwise, choose NO and continue to next step.

To install Intel® SpeedStep™ Technology Applet

If you've installed a retail version of Windows, you'll need to install the Intel SpeedStep Technology Applet if you have a dual-speed Pentium III processor. The driver is contained in the \HP\DRIVERS\SPEEDSTP subdirectory on the Recovery CD.

To install or upgrade the Intel SpeedStep driver:

1. Run SETUP.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\SPEEDSTP).

2. Follow the onscreen directions to complete installation.

Upon successful completion you will be asked to reboot your computer, choose YES if you have no other drivers to install. Otherwise, choose NO and continue to next step.

To install touchpad/trackpoint mouse support (Synaptics)

If you have installed retail Windows you need to install the mouse driver. The driver is contained in the \HP\DRIVERS\TOUCHPAD subdirectory on the Recovery CD.

Note

You must have NT Service Pack 2 or higher installed prior to this step.

To install or upgrade the mouse driver:

1. Run SETUP.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\TOUCHPAD).

2. Follow the onscreen directions to complete installation.

3. If you are asked for additional files, point to the driver directory on your Recovery CD (\HP\DRIVERS\TOUCHPAD).

Upon successful completion you will be asked to reboot your computer, choose YES if you have no other drivers to install. Otherwise, choose NO and continue to next step.

To install USR modem driver

If you have installed retail Windows you need to install the modem driver. The driver is contained in the \HP\DRIVERS\MODEM subdirectory on the recovery CD.

To install or upgrade the USR modem driver:

1. Run SETUP.EXE from the driver directory on your recovery CD ROM (\HP\DRIVERS\MODEM\PCIMODEM).

2. During installation you will be prompted for the communications port the modem is on, choose COM4.

3. Follow the onscreen directions to complete installation.

To install video support (ATI Mobility Radeon)

If you have installed retail Windows you need to install the video driver. The driver is contained in the \HP\DRIVERS\VIDEO subdirectory on the Recovery CD.

Note   You must have NT Service Pack 4 or higher installed prior to this step.

To install or upgrade the video driver:

1.   Run SETUP.EXE from the driver directory on your Recovery CD (\HP\DRIVERS\VIDEO).

2.   Follow the onscreen directions to complete installation.

Upon successful completion you will be asked to reboot your computer, choose YES if you have no other drivers to install. Otherwise, choose NO and continue to next step.

Note   Depending on the system you have purchased your native resolution will be 1024x768 with 65536 colors or 1400x1050 with 65536 colors. These are the resolutions your system should be run at for optimal full-screen performance.

The driver will be installed after the system reboots. Upon successful installation, an ATI icon appears on the bottom right corner of the taskbar.

To install networking support

If you have installed retail Windows you need to install the networking support. This section assumes that no networking has been installed on the system.

To install or upgrade the networking driver:

1.   Plug your network cable into the HP notebook.

2.   Copy the entire contents of the directory D:\HP\DRIVERS\LAN from the Recovery CD to the directory C:\LAN.

3.   Right-click Network Neighborhood and choose Properties. If you have no networking installed the system will ask you if you want to install networking now. Click YES.

4.   Choose Wired to Network, click Next.

5.   Click Select From List.

6.   Click Have Disk.

7.   In the dialog box enter C:\LAN

8.   Pick Intel Pro/100 Mobile Adapter from the list, click OK.

9. Click Next.

10. At the Protocol screen, click Next to accept the default setting of TCP/IP or choose other protocols.

11. At the Services screen, click Next to accept default settings or you may add additional NT services.

12. At the Summary screen, click Next.

13. Windows will prompt that it requires some files. If you copied them to the hard drive, enter C:\I386 in the message box or the location of these files.

14. Enter any settings on the Intel driver screen (if you installed the Intel driver).

15. Follow the onscreen directions to complete installation.

16. Upon successful completion you will be asked to reboot your computer, choose NO and continue to next step.

17. Reinstall the Windows NT service pack you installed earlier.

18. Choose YES to reboot your computer after installing the service pack.

To install Intel wireless networking support

If you have installed retail Windows and have 802.11b wireless LAN, you need to install the networking support. This section assumes that no networking has been installed on the system.

To install or upgrade the networking driver:

1. Right click on Network Neighborhood and choose Properties. If you have no networking installed the system will ask you if you want to install networking now. Press YES.

2. Choose Wired to Network, press Next.

3. Press Select from List.

4. Press Have Disk.

5. In the dialog box enter the wirelessLAN driver directory.

6. Pick Actiontech Prism Wireless LAN PCI Card from the list, Press OK.

7. Press Next.

8. At the Protocol screen, press Next to accept the default setting of TCP/IP or choose other protocols.

9. At the Services screen, press Next to accept default settings or you may add additional NT services.

10. At the Summary screen, press Next.

11. Windows will prompt that it requires some files. If you copied them to the hard drive, enter C:\I386 in the message box or the location of these files.

12. Enter any settings on the Actiontec driver screen (if you installed the Actiontec driver).

13. Follow the onscreen directions to complete installation.

14. Upon successful completion you will be asked to reboot your computer, choose NO and continue to next step.

15. Reinstall the Windows NT service pack you installed earlier.

16. Choose YES to reboot your computer after installing the service pack.

Note

The wireless LAN software allows for the configuration of profiles for different wireless network configuration support on the same notebook computer. This allows a user of the notebook to travel to areas where the wireless network configuration may be different. This may include different company offices or different buildings. Due to the built-in security in Windows NT only administrators are allowed to change network settings. To allow people who are defined as users or power-users on the local system to switch wireless profiles they must be predefined by the administrator. So, during the configuration of a PC, the local administrator should define all the needed wireless profiles the users will require. These user and power-user accounts may change the wireless settings if needed for remote troubleshooting purposes but the settings will not be saved when the user logs off the system or reboots.

To create the Emergency Repair Disk (ERD)

At this point in the installation we suggest that you create an ERD. To do this you will need a blank floppy disk.

1. Select Start, Run. A command box will appear.

2. Type RDISK into the box provided then click OK. This will start the ERD wizard.

3. Choose Create Repair Disk.

4. Follow onscreen directions.

Hewlett-Packard recommends that you repeat this procedure after all your applications are installed to have an accurate picture of your software environment in the case of failure.

To install docking system support

To use the HP notebook in the full dock (F1477A and F1477B), you will need to configure additional hardware profiles, install additional IDE and SCSI drivers, and then configure which drivers will be enabled in which profile. In addition, you may wish to configure two undocked profiles, one that uses networking and one that doesn't.

The HP notebook Docking System IDE driver is located on the Recovery CD under \HP\DRIVERS\NT4\DOCKING\IDE and \HP\DRIVERS\NT4\DOCKING\SCSI.

1. Open Windows Explorer.

2. Click the View menu, then Options.

3. Select "Show all files" and uncheck "Hide file extensions for known file types", then click OK.

4. Copy the Docking directory to C:\TEMP on the local hard drive.

5. From the Control Panel, double-click SCSI Adapters, then click Drivers.

6. Click Add.

7. Click Have Disk.

8. Enter C:\TEMP\DOCKING\IDE\WINNT and click OK.

9. Click OK to accept the "CMD PCI-0646U2 Ultra DMA IDE Controller".

10. Enter C:\TEMP\DOCKING\IDE\WINNT and click Continue.

11. Click No when asked if you want to restart the system.

12. Click Add.

13. Click Have Disk.

14. Enter the C:\TEMP\DOCKING\SCSI\MINIPORT directory and click OK.

15. Click OK to accept the "Symbios Logic PCI (53c8XX)".

16. Enter the C:\TEMP\DOCKING\SCSI\MINIPORT directory and click Continue.

17. Click Yes to restart the HP notebook.

You can now dock the HP notebook in the HP notebook Docking System. When you start Windows NT out of the HP notebook Docking System you may receive errors concerning these drivers. These errors will cease to occur when you create hardware profiles and disable the appropriate docked hardware in the undocked profile.

To create Windows NT Hardware profiles, do the following:

1. Double-click the System icon in the Control Panel.

2. Click the "Hardware Profiles" tab.

3. Click the original configuration profile, then click Copy, and enter a name for your docked configuration.

4. For each profile, click Properties on the Hardware Profiles tabs.

    – For the docked profile, click "This is a portable computer" on the "General" tab and click "The computer is docked". Click OK to close the Profile Properties window.

    – For the undocked profile, click "The computer is undocked". Click OK to close the Profile Properties window.

5. Move the profile you wish to be the default to the top by clicking the side arrows.

6. Click OK to close the "System Properties" window.

7. Double-click the Devices icon in the Control Panel. You will need to disable the appropriate devices in each hardware profile.

8. Locate device "CMD IDE Controller" and click HW Profiles. This is the dock IDE driver, and should be disabled in all undocked profiles. Highlight each undocked profile and click Disable. Click OK to exit.

9. Locate device Symc8xx and click HW Profiles. This is the dock SCSI driver, and should be disabled in all undocked profiles. Highlight each undocked profile and click Disable. Click OK to exit.

10. Click Close to close the Devices window.

You can now reboot your computer. At each reboot you will be prompted for the appropriate profile to be used.

Troubleshooting and Maintenance

Troubleshooting Your Computer

This section contains solutions to a many types of problems you might have with your computer. Try the solutions one at a time, in the order in which they are presented.

Here are some other sources of information for troubleshooting:

- Open the HP web-based troubleshooting tool: double-click the HP Instant Support icon on the Windows desktop (Windows 98 or 2000) or click Start. Help and Support, (Windows XP). Search or browse the troubleshooting database for the information related to your problem.

- Click Start, Help (Windows 98 or 2000) or Start, Help and Support, Fixing a Problem (Windows XP), and use the Windows troubleshooters.

- See the Microsoft Windows manual shipped with the computer.

- See the HP Notes in the online HP Library for updated information.

- Find technical tips and software updates for the computer at the HP Customer Care Web site (www.hp.com/go/support).

- Test your computer by running the e-Diagtools test program. See "Testing the Hardware" on page 175.

- Contact your dealer or Hewlett-Packard—see "To contact HP for support or service" on page 188. Please have your computer with you when you call.

Audio Problems

If no sound is audible

- Press the back end of the volume control several times.

- Click the speaker icon on the taskbar (if present), and make sure that Mute is not checked and the Volume Control slider is not set to the bottom.

- Press the audio-off button on the right side of the computer once or twice until the indicator light goes off.

- 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 the 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 the e-Diagtools diagnostics. See "Testing the Hardware" on page 175.

If you hear a loud high-pitched whine (feedback) from the speakers

- In the Volume Control, try reducing the Master volume: double-click the speaker icon in the taskbar.

- In Volume Control, click Options, Properties, and select the microphone option for the playback settings. Then in Volume Control, make sure the microphone is muted.

- Avoid using the built-in microphone and built-in speaker at the same time.

CD-ROM and DVD Problems

If you can't boot from a CD or DVD in the CD/DVD drive

- Make sure the CD or DVD is bootable, such as the *Recovery CD*.

- Make sure the CD-ROM/DVD drive is selected as the boot device—see "To change the boot device" on page 32.

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

- Test the DVD drive with the e-Diagtools diagnostics. See "Testing the Hardware" on page 175.

If a 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 probably have to be replaced.

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 press the Play button to continue playing the movie.

- You may have accidentally paused the DVD movie. Press the Play button to resume.

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

- 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. If you get a Region Code error, you are trying to play a DVD intended for a different region.

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.

- Clean the disc.

- Wait 5 to 10 seconds after closing the tray to give the computer time to recognize the disc.

- Restart the system: remove the disc from the drive, and click Start, Shut Down (or Turn Off Computer), Restart.

- If you created the CD on a CD-RW-type drive module, try using a different media brand, such as the recommended HP C4403A (CD-R) or C4404A (CD-RW) media. Read and write quality may vary for other media.

If a 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, if both displays are active, 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.

If the computer can't find Wordpad.exe after inserting a CD

- The system is trying to open a .doc file in WordPad, but cannot find the Wordpad.exe program file. Type C:\Program Files\Accessories in the error message box.

Display Problems

If the computer is on, but the screen is blank

- Move the mouse or pointing stick, or tap the touch pad. This will wake the display if it is in Display-off mode.

- Press Fn+F5 in case the internal display was disabled. (Do this three times to return to the state you started from.)

- If the computer is cold, allow it to warm up.

If the screen is difficult to read

- Try setting the display resolution to its default setting of 1024×768 or higher, depending on your model: click Start, Settings, Control Panel, Display, Settings (Windows 98 or 2000) or Start, Control Panel, Appearance and Themes, Display (Windows XP).

- Try adjusting the size of the desktop icons and labels—see "To adjust the display" on page 37.

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.)

- The external monitor may not be detected. In the BIOS Setup utility, try setting Video Display Device to Both in the Main menu.

- If you're using a TV connected to the S-video port, you must activate the TV—see "To use a TV set as a monitor" on page 85.

- Test the display with the e-Diagtools diagnostics. See "Testing the Hardware" on page 175.

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 display pixels look bad

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.*

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 contact HP for support or service" on page 188. 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.

Docking Problems

If a port on a dock isn't working

- Check that AC power is connected to the dock.

- Try using the corresponding port on the computer while undocked.

- Make sure the computer is fully inserted into the dock.

- See the manual for the dock.

If the operating system hangs when you dock or undock

- Your system may hang if you dock or undock your computer while you are suspending or resuming. Make sure your computer has completely suspended or resumed before you dock or undock it.

If the drive A icon is missing for the floppy drive when docked

- For Windows 98, if you insert the floppy drive after docking, the drive A icon may not be available. To be recognized, the drive must be present when the computer docks or boots. If the drive A icon is missing, either dock the computer again with the floppy drive installed, or reboot the computer.

If an IDE drive in a docking system doesn't work

- If you install an IDE drive in a docking system PC device bay, you should set the IDE jumpers on the drive to the Single or Cable Select setting. Whenever you want to partition or format a drive that's larger than 8 GB, you must first use Device Manager to turn on the Int 13 setting for the IDE drive.

Hard Disk Drive Problems

If the computer's hard drive doesn't spin

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

- Remove and reinsert the hard drive. See "Replacing the Hard Disk Drive" on page 93.

If the hard disk makes a buzzing or whining noise

- Back up the drive immediately.

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

If files are corrupted

- For Windows 98, run the Scandisk surface scan to check the hard disk. From the Start menu, click Programs, Accessories, System Tools, Scandisk.

- For Windows 2000 or XP, open My Computer, select the disk you want to scan, click File, Properties, and use the Tools tab.

- Run the virus-scanning program. See "To protect against viruses" on page 42.

- Test the hard disk drive with the e-Diagtools diagnostics. See "Testing the Hardware" on page 175.

- If necessary, you can format the hard disk and reinstall the original factory software. See "To recover the factory installation of your hard disk" on page 184.

Heat Problems

Your computer normally gets warm during routine operation.

If the computer gets abnormally hot

- Always set the computer on a flat surface, so that air can flow freely around and underneath it.

- Make sure the air vents on the bottom and right side of the computer are clear.

- Keep in mind that games and other programs that drive CPU usage toward 100% can increase the computer's temperature.

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 communications

- Make sure the line between the two infrared ports is not blocked, and that the ports face each other as squarely as possible. (The computer's infrared port is located on its right side, beneath the volume control.) The ports should be no more than 1 meter apart.

- 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.

- Remove any PC Cards from the computer. An infrared IRQ conflict is possible if two PC Cards are present at the same time.

- For Windows 98, see c:\hp\Drivers\Fir\Readme.txt for additional information.

Keyboard and Pointing Device Problems

Use these suggestions for built-in or external devices.

If the pointer is difficult to control

- Adjust the pointer controls: 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 touch pad or pointing stick doesn't work

- Don't move the pointer or touch the touch pad while the computer is rebooting or resuming from Standby mode. If this happens, try the following:

  - Press a key on the keyboard to restore normal operation.

  - Suspend and resume operation using the sleep button.

- If an external mouse is connected, the built-in pointing devices are normally disabled. You can change this setting with the BIOS Setup utility—see "To run the BIOS Setup utility" on page 177.

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

If the touch pad moves the pointer or cursor while you type

- Increase the PalmCheck setting for the touch pad:

  1. Double-click the touch pad icon in the taskbar.
     –or–
     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).

  2. Click the TouchPad tab, and select the touch pad device.

  3. Adjust the PalmCheck slider, and click Apply.

- Disable the touch pad: on the TouchPad tab, select the touch pad device, then select Disable and click Apply.

If a PS/2 scroll mouse doesn't work

- The built-in pointing devices must be disabled for the mouse's scroll feature to work. In the BIOS Setup utility, make sure the PS/2 Pointing Devices option in the System Devices menu is set to Auto. See "To run the BIOS Setup utility" on page 177.

- Suspend or shut down the computer before you attach the scroll mouse, so that it will be detected properly.

  If you want to use the touch pad again, you must suspend or shut down the computer before you detach the scroll mouse.

- Test the keyboard and pointing devices with the e-Diagtools diagnostics. See "Testing the Hardware" on page 175.

If the embedded numeric keypad doesn't work

- To type numbers, make sure Num Lock is on.

- Make sure the embedded Keypad Lock (Fn+F8) is on—or that you press and hold the Fn key to temporarily access the embedded keypad.

If left CTRL+left ALT doesn't work on an external keyboard

- A USB keyboard does not support left CTRL+left ALT as the Fn key.

- Left CTRL+left ALT on an external PS/2 keyboard should work like the Fn key. However, only Fn+F5, Fn+F7, and Fn+F12 are supported on an external PS/2 keyboard.

- In the BIOS Setup utility, make sure External Fn Key is enabled in the System Devices menu. See "To run the BIOS Setup utility" on page 177.

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.

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.

- 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.

Memory Problems

If a message says you are out of memory

- Make sure drive C is not running low on free space.

- For Windows 98, use the Memory Troubleshooter in Windows Help: click Start, Help.

- If you are having memory problems while 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) for a list of approved and tested memory cards.

- Test your computer's memory with the e-Diagtools diagnostics. See "Testing the Hardware" on page 175.

If memory doesn't increase after adding RAM

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

If the computer beeps but doesn't start after adding RAM

- You installed an incompatible type of RAM. Remove the module.

Modem Problems

If the modem seems slow

- Check for excess static or noise on a line 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 a problem that's difficult or impossible to eliminate.

- If you have call-waiting, disable it—your telephone company can provide instructions. It 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). Try disabling the option that waits for a dial tone.

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). 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 dials but doesn't connect

- Make sure you're using an analog telephone line (2, 3, or 4 wires). You must not use a digital line. In a hotel, ask for a data line.

- Try another telephone line, preferably one normally used for a fax machine or modem.

- The modem at the other end may have a problem. Try dialing to a different modem.

- Try disabling error correction and data compression.

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

- Make sure the audio-off light is turned off. If it's on, press the audio-off button.

- Check the speaker volume 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.

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 excessive line current is detected

- Make sure you're using an analog telephone line (2, 3, or 4 wires). You must not use a digital line. In a hotel, ask for a data line.

If the modem clicks repeatedly but doesn't connect

- Make sure you're using an analog telephone line (2, 3, or 4 wires). You must not use a digital line. In a hotel, ask for a data line.

- Check all cables and connections.

PC Card (PCMCIA) Problems

If the notebook doesn't recognize a PC Card

- Remove and reinsert the PC Card.

- Insert the PC Card in a different slot.

- Press the blue sleep button to suspend the computer, then press it again to resume.

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

- If the card requires an IRQ, make sure one is available. If necessary, set the IRQ to an unused value manually (Windows 98 only): click Start, Settings, Control Panel, then double-click System and use the Device Manager tab.

- Check the HP Customer Care Web site (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) for a list of approved and tested PC Cards.

- Try the card in another computer to see whether the card functions properly.

- Zoomed Video is supported in the lower card slot only.

- Certain Xircom CE2 (IIps) LAN cards conflict with the game port device in Windows 2000. Contact Xircom to see if your card is one of these.

- When using a PC card in a docking system, insert or remove the card while the system is turned on.

- Test the PC card with the e-Diagtools diagnostics. See "Testing the Hardware" on page 175.

If an I/O card stops communicating properly

- The card may have been reset if the computer suspended 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.

If an I/O card stops communicating properly

- Exit and restart the application. The card may have been reset if the computer suspended or turned off.

- Check settings in Control Panel.

Performance Problems

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

If the computer pauses or runs sluggishly

- This may be normal Windows behavior. Background processing can affect response time.

- Certain background operations (such as a virus-scanning program) can affect performance.

- Press CTRL+ALT+DEL to see if an application is not responding.

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

- Some file browsers respond slowly while processing graphics or waiting for broken network connections to time out.

- 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.

- Check settings in the BIOS Setup utility:

  1. Click Start, Shut Down (or Turn Off Computer), Restart.

  2. When the HP logo appears, press F2 to enter BIOS Setup.

  3. From the Power menu, set the Power Management Mode to Max. Performance.

  4. Press F10 to save and exit BIOS Setup.

If the computer stops responding

- Press CTRL+ALT+DEL to end the application that is not responding.

- Slide and hold the power button for at least four seconds to turn off and reset the computer. Then press the blue sleep button to turn the computer back on.

- If nothing happens, insert a straightened paper clip into the system-off switch on the right side of the computer. Then press the blue sleep button to turn the computer back on.

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 charged battery.

If the computer keeps beeping

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

If the battery doesn't charge

- Make sure the AC adapter is fully plugged into the power source and the computer, 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.

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

- If available, try another battery and AC adapter.

If a secondary battery doesn't charge

- The computer's secondary battery won't charge until the main battery is fully charged.

- Make sure the AC adapter is fully plugged into the power source and the computer, and that the light on the adapter is on.

- Make sure the secondary battery is correctly installed and locked in place.

If the computer has a short operating time

- Try conserving power using any of the suggestions listed in "To get the most from your batteries" on page 55.

- If you are running an application that has an automatic save feature (such as MS Word), disable this feature or increase the specified save time to reduce hard disk access.

- If the operating time has gradually become shorter and the battery is more than a year or two old, you may need to replace the battery.

- 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. The process calibrates the main battery and any secondary batteries in the module bay, and requires four to five hours per battery. You cannot use the computer during this process.

If the Time Remaining for the battery is not correct

- The Time Remaining is an estimate, not a precise value, and is based on the rate at which the computer is using power at the moment. This value therefore depends on your current task, and assumes that you will continue using power at the same rate until the battery runs out. So, if you check the Time Remaining while the computer is performing a task requiring a good deal of power (such as reading from a CD or DVD), the value will probably show less time remaining than you really have, since you will probably later switch to tasks that require less power.

If the computer doesn't suspend to Standby mode as expected

- If you have a connection to another computer, the computer won't suspend if the connection is active.

- If the computer is performing an operation, it normally waits for the operation to finish before suspending.

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, check the Hibernate timeout in BIOS Setup—see "To run the BIOS Setup utility" on page 177.

  If your computer has more than 768 MB of RAM, you must expand the Utility partition on the hard disk—see "To recover the factory installation of your hard disk" on page 184.

If the Standby option is missing from the Shut Down window

- 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.

Printing Problems

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 serial or parallel printer doesn't print

- Make sure the printer is on and has paper in it.

- Make sure you are using the correct printer cable or cable adapter, and that the cable is secure at both ends.

- Check for printer errors.

If the left edge of printed output is missing

- Certain applications may not work properly with 600-dpi printers. If you're using such a printer, try selecting a compatible printer driver for a 300-dpi printer. For example, if you were using a 600-dpi HP LaserJet printer, you might try using the HP LaserJet IIIsi driver (300-dpi).

If an infrared printer doesn't print

- Make sure the line between the two infrared ports is not blocked, and that the ports face each other as squarely as possible. (The computer's infrared port is on its right side, beneath the volume control.) The ports should be no more than 1 meter apart.

- Make sure the printer is on and has paper in it.

- Check for printer errors.

- Make sure Windows is running; otherwise infrared printing is not available.

- See "Infrared Problems" on page 158.

Serial, Parallel, and USB Problems

If a serial mouse doesn't work

- Make sure you followed the manufacturer's installation instructions completely and have installed the mouse properly. If not, repeat the procedure.

- Make sure the port connection is secure.

- Press the blue sleep button to suspend and resume.

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

- Check mouse settings in Control Panel: 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).

- Make sure the serial port is enabled in BIOS Setup—see "To run the BIOS Setup utility" on page 177.

- Use a mouse that connects to the USB or PS/2 port. If you have a PS/2 keyboard connected, use a PS/2 Y adapter (HP accessory F1469A).

- Check the port settings in Control Panel. Open the hardware Device Manager, then double-click Ports (COM & LPT).

If a serial modem doesn't work properly

- See "Modem Problems" on page 162.

- Make sure the port connection is secure.

- Use the Modem troubleshooter in Windows Help: click Start, Help (or Help and Support).

- In Control Panel, open Modems (Windows 98) or Phone and Modem Options (Windows 2000 and XP), and check the modem settings.

- Make sure the serial port is enabled in BIOS Setup—see "To run the BIOS Setup utility" on page 177.

- 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.

- Check the port settings in Control Panel. Open the hardware Device Manager, then double-click Ports (COM & LPT).

If the serial or 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).

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- Use the BIOS Setup utility to make sure the serial and parallel ports are enabled—see "To run the BIOS Setup utility" on page 177.

- Test the ports with the e-Diagtools diagnostics. See "Testing the Hardware" on page 175.

If the USB port is not working

- Contact the vendor of the peripheral device—as well as HP—for the latest versions of the USB drivers.

- Check the port settings in Control Panel. Open the hardware Device Manager, then double-click Universal Serial Bus Controller.

- Contact the vendor of the peripheral device—and the HP Notebook Web site (www.hp.com/notebooks)—for the latest version of the driver for the device.

- Test the USB port with the e-Diagtools diagnostics. See "Testing the Hardware" on page 175.

Startup Problems

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

- Connect the AC adapter.

- Press the blue sleep button to try turning on the unit.

- Reset the computer by inserting a straightened paper clip into the system-off switch on the right side of the computer. Then press the blue sleep button to turn it on.

- If the computer still doesn't respond, remove the battery and AC adapter, remove any PC cards, and undock the computer if docked. Then plug in the AC adapter again, and reset the computer using the system-off switch.

If the computer won't boot from battery power

- Make sure the battery is properly inserted and fully charged. Check the battery's charge by removing it and pressing the pad on the back of the battery. The lights show the charge level.

- If you have a secondary battery, install it and try starting the computer.

- If available, try another battery.

If the computer won't boot from the floppy disk drive

- Make sure the drive is installed or connected correctly—see "To connect the floppy disk drive to the parallel port" on page 76.

- Make sure the floppy disk drive is selected as the boot device—see "To change the boot device" on page 32.

If the computer takes a long time to resume after being suspended

- The computer can routinely take a minute or more to resume if it has a network card 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 re-initialized, the Windows desktop will appear.

If you get a VirusScan error message at startup

- For Windows 2000, if you connect to a network using a logon other than your Windows logon, assign Windows administrator privileges to the network logon.

Wireless Problems

If you have problems with wireless communication

- Make sure the wireless indicator light is on.

- See "LAN problems" on page 161.

If you have trouble connecting to another computer in the Network Neighborhood or My Network Places

- Wait a few minutes, then press F5 to refresh the list of computers on the network.

- Click Start, Find, Find Computer (Windows 98 or 2000) or Start, Search, Computers or People (Windows XP) to locate the computer.

- For Windows 98, disable DNS in the TCP/IP properties: click Start, Settings, Control Panel, then double-click Network.

If you cannot connect to a particular computer on the network

- Make sure the computer is properly connected to the network.

- Make sure your TCP/IP setup is correct for your network: in Control Panel, open Network (Windows 98), Network and Dial-up Connections (Windows 2000), or Network Connections (Windows XP).

If the wireless link icon in the taskbar is red

- Make sure you are using the correct SSID and channel settings: click the wireless link icon in the taskbar and select Advanced Configuration.

- Make sure you are in range of an access point (for an infrastructure connection) or other wireless computer (for an AdHoc connection).

You can connect, but the network is slow

- Check whether you might be in an area served by more than one wireless LAN. If so, the LANs could be interfering with each other.

- Move closer to the access point (for an infrastructure connection) or other wireless computer (for an AdHoc connection). You could be too far away for high-speed communication.

Testing the Hardware

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

- Automated testing using its basic hardware test.

- Advanced testing using individual hardware tests.

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

To run the e-Diagtools diagnostic test

1. Click Start, Shut Down (or Turn Off Computer), Restart.

2. When the HP logo appears, press F10 to start the diagnostic test.

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.

Hint

If a device is not detected or fails its test, it might be configured incorrectly in the BIOS Setup utility. You can confirm this by running BIOS Setup and checking the settings. See "To run the BIOS Setup utility" on page 177.

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 and then F7 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.

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	Runs 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 are finished running tests, press ESC to exit the advanced tests.

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 diagnostics from the hard disk, you can also run it from the *Recovery CD*. Boot from the CD and select the diagnostics option.

Configuring the Computer

Your computer includes two tools that help you configure its operation: the BIOS Setup utility and HP TopTools.

To run the BIOS Setup utility

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

The settings made in BIOS Setup generally control the computer's hardware, and so greatly affect how the computer operates.

1. Click Start, Shut Down (or Turn Off Computer), Restart.

2. When the HP logo appears, press F2 to enter BIOS Setup.

3. The pointing devices are not active in BIOS Setup, so you will need to use the keyboard to navigate:

    *   Press the LEFT and RIGHT arrow keys to move among menus.

    *   Press the UP and DOWN arrow keys to move among parameters in a menu.

    *   Press F5 or F6 to move through values for the current parameter, or press ENTER to change a setting.

4. After you select the options you want, press F10 or use the Exit menu to exit BIOS Setup.

5. If the settings cause a conflict between devices during reboot, the system prompts you to run BIOS Setup, and marks the conflicting settings.

The following tables describe BIOS settings for BIOS version 1.00. If your BIOS is a different version, some settings may differ from those shown.

Main Menu

Setting	Description	Default
BIOS Revision	Shows the current BIOS version.	Detected automatically.
System Time	Sets the time using 24-hour format. Values set take effect immediately.	
System Date	Sets the date using dd/mm/yy format (except English, which uses mm/dd/yy format).	
Internal Hard Disk	Sets the hard disk drive type and various parameters.	Detected automatically.
Quiet Boot	When enabled, hides summary of power-on self-test and messages during boot.	Enabled
Video Display Device	Sets whether the built-in display automatically switches to an external display, if one is detected.	Auto
Video Expansion	When enabled, the video image covers the entire display in lower resolution modes. When disabled, the video image is centered in the display.	Disabled
Primary Video Adapter	Sets whether the computer automatically switches to an external video adapter connected to the docking system, if one is detected.	Auto
Television Type	Controls the signal format (NTSC or PAL) output by the S-video port when Windows is not running.	NTSC
System Memory	Shows the system memory size.	640 KB
Extended Memory	Shows the extended memory size.	Detected automatically.
Unique Dock ID	Sets whether the computer creates a unique hardware profile for each dock (Enabled) or uses a common profile for all docks (Disabled).	Enabled
UUID	Displays the value of the 16-byte UUID (Universally Unique ID) as 32 hex characters.	Detected automatically

System Devices Menu

Setting	Description	Default
PS/2 Pointing Devices	Disables the internal pointing devices when an external PS/2 mouse is connected.	Auto
External Fn Key	Sets whether left CTRL+left ALT on an external keyboard is interpreted as the Fn key.	Enabled
FDD Controller	Enables the floppy drive.	Enabled
Legacy USB Support	Enables BIOS support for USB mouse, keyboard, and floppy disk drive.	Enabled
Internal LAN	Enables the internal (wired) LAN.	Enabled
Mini PCI Slot 1	Enables the PCI slot normally used for a wireless LAN.	Enabled
Mini PCI Slot 2	Enables the PCI slot normally used for a modem, which is located under the door on the bottom of unit. (Does not affect Ambit modem.)	Enabled
Serial port	Enables the serial port.	Enabled
Base I/O address	Sets the I/O address.	3F8h
Interrupt	Sets the I/O interrupt.	IRQ4
Infrared port	Enables the infrared port.	Disabled
Mode	Sets the hardware to support FIR (Fast IR) or SIR (Standard IR) infrared communications.	FIR
Base I/O address	Sets the I/O address.	2F8h
Interrupt	Sets the I/O interrupt.	IRQ3
DMA channel	Sets the DMA channel for Fast IR (FIR) mode.	DMA0
Parallel Port	Enables the parallel port.	Enabled
Mode	Sets the port to output only, bi-directional, EPP, or ECP.	ECP
Base I/O	Sets the I/O address.	378h
Interrupt	Sets the I/O interrupt.	IRQ7
DMA channel	Sets the DMA channel for ECP mode.	DMA1

Security Menu

Setting	Description	Default
User Password is	Shows if a user password is set.	Clear
Administrator Password is	Shows if an administrator password is set.	Clear
Set User Password	Press ENTER to set, change, or clear the user password. The password can have no more than 8 characters (0-9, A-Z), and cannot include special or accented characters.	Enter
Set Administrator Password	Press ENTER to set, change, or clear the administrator password, which protects BIOS Setup settings. The password can have no more than 8 characters (0-9, A-Z), and cannot include special or accented characters.	Enter
Boot	Sets whether a user password is required when the computer boots. Requires the administrator password for changes.	Enabled
Resume*	Sets whether a user password is required when resuming from Standby or Hibernate mode. Requires the administrator password for changes. (Windows 98 only.)	Enabled
Undock*	Sets whether a user password is required when undocking the computer. Requires the administrator password for changes. (Windows 98 only.)	Disabled
Internal hard disk drive lock*	Encodes the current user password (or administrator password if that is the only password set) on the hard disk drive.	Disabled
Removable Device Boot	Sets whether the computer will attempt to boot from a floppy drive or other removable device.	Enabled
* Resume, Undock, and Internal hard disk drive lock options are available only if the Boot option is enabled.		

Power Menu

Windows 2000 and XP use only the settings marked with *. Windows 98 uses only the settings marked with * or **. All other settings in the Power menu are ignored.

Setting	Description	Default
Power Management Mode	Disables time-outs, selects a combination of time-outs, or allows customized time-outs.	Max. Power Savings
Suspend Time-out	Sets the period of inactivity after which the computer goes from Display-off to Standby power mode.	4 minutes
Hibernate Time-out**	Sets whether the computer goes from Standby to Hibernate power mode after the indicated period of inactivity. (Skips Standby mode if the suspend time-out is disabled.)	4 hours
Hard Disk Time-out	Sets the period of hard disk inactivity after which the internal hard disk (and any hard disk drive in the plug-in module bay) stops spinning.	2 minutes
Time-out on AC	Sets whether power management time-outs occur while the AC adapter is connected.	Disabled
Lid Switch Mode	Sets the action that occurs if the computer's lid is closed.	Turn off LCD
Backlight Control*	When switching to battery power, sets whether the display brightness reverts to the previous battery-power brightness (Auto Restore) or to a very low brightness to save power (Auto Dim).	Auto Restore
Graphics Mode*	Sets the graphics system for maximum 3D performance or to save power.	Maximum Performance
Resume On Serial Ring	Sets whether the system resumes if it received a ring signal.	Disabled
Resume On Time of Day	Sets whether the system resumes at a defined time of day.	Disabled
Resume Time	Sets the 24-hour time when the system resumes from if Resume On Time of Day is enabled.	
Auto Low-Battery Hibernate**	Sets whether the computer goes to Hibernate mode or continues running when the battery drains to its critically low level.	Enabled
Auto Suspend on Undock*	Sets whether the computer suspends to Standby power mode after undocking.	When Lid Closed
Auto Turn-On on Dock*	Sets whether the computer turns on after docking.	Enabled
* Windows 98, 2000, and XP use these settings. ** Windows 98 uses these additional settings.		

Boot Menu

Setting	Description	Default
+Hard Disk +Removable Device CD-ROM/DVD Drive Intel Boot Agent	Shows the order of boot devices, with "+" indicating a device category. Move the entries to change the order. If the computer has more than one device in a category, you can select the one scanned. Intel Boot Agent provides diskless boot from a network server.	1. Hard Disk 2. Removable Device 3. CD-ROM/DVD drive 4. Intel Boot Agent

Exit Menu

Setting	Description	Default
Save Changes and Exit	Saves Setup changes, then exits and reboots.	
Discard Changes and Exit	Discards any Setup changes made since last save, then exits and reboots. Does not affect password, date, or time changes.	
Get Default Values	Restores default settings, and remains in Setup. Does not affect password, date, or time changes.	
Load Previous Values	Discards any Setup changes made since last save, and remains in Setup. Does not affect password, date, or time changes.	
Save Changes	Saves Setup changes, and remains in Setup. Security settings are saved when changed.	

To set up TopTools

HP TopTools is for network managers and administrators who are responsible for managing computer systems. It offers configuration and security options that allow you to check which hardware and software components are installed on your computer and how well they are working.

Pavilion models   HP TopTools is not supported on Pavilion models.

The TopTools package is included with your computer, but you'll need to install it before you can use it.

1. Click Start, Programs (or All Programs), HP TopTools for Notebooks, Setup.

2. Follow the instructions that appear on the screen.

TopTools can be run locally on an individual computer, or remotely by a network administrator.

• To run TopTools locally, click Start, Programs (or All Programs), HP TopTools for Notebooks, HP TopTools.

For information on manageable HP computers, HP TopTools, and how they lower PC operating costs, see the HP Web site at www.hp.com/toptools.

Reinstalling and Updating Software

You can use the *Recovery CD* to recover the original software build for your computer.

The *Recovery CD* also provides Windows drivers specific to your computer to configure a custom system. You can find drivers in these locations:

- On your computer's hard drive under C:\hp\Drivers.

- On the *Recovery CD* under \hp\Drivers.

- On the HP Customer Care Web site (www.hp.com/go/support). This Web site contains the latest updates of software drivers for different operating systems.

To recover the factory installation of your hard disk

You can use the *Recovery CD* to reinstall the original factory software on your computer's hard disk. You can also use the same process to create a larger Utility partition on your hard disk, or to create a Utility partition on a new hard disk. The hidden Utility partition contains the e-Diagtools diagnostic tests and stores hibernation data for Windows 98 and other operating systems that don't provide hibernation.

CAUTION

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

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

1. **Important.** Back up all data from your hard disk. The following steps delete all data from the disk.

2. Plug in the AC adapter.

3. Insert the *Recovery CD* in the CD-ROM drive. To open the drive when the computer is turned off, insert a straightened paper clip into the hole on the front of the drive.

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.

6. Select the CD or DVD drive as the boot device.

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 Utility partition without installing the factory software, click Advanced and select the option to not 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. When prompted to reboot the computer, press CTRL+ALT+DEL and follow any instructions that appear onscreen.

For Windows 2000: if you want to convert drive C from FAT32 to NTSF format, click Start, Run, then type **convert c: /fs:ntfs** and click OK. Windows XP is installed using NTFS format, which cannot be converted.

To create a boot disk (Windows 98 or 2000)

*   **Windows 98:** click Start, Settings, Control Panel, then double-click Add/Remove Programs. Use the Startup Disk tab.

*   **Windows 2000:** click Start, Run, and type c:\i386\Bootdisk\Makeboot.exe. You'll need four floppy disks.

To replace a damaged Recovery CD

If you lose or damage the *Recovery CD,* take your computer to a local HP service center to get a replacement CD. Call the HP Customer Care Center for the address and telephone number of an HP service center near you—see "To contact HP for support or service" on page 188.

To update the BIOS

Hewlett-Packard may provide updates to the computer BIOS to enhance your system's capabilities of your system. You can use e-Diagtools for Windows to download and install BIOS updates.

CAUTION

Because a BIOS update replaces the previous version, you must follow these instructions exactly, or you risk damaging your computer. The BIOS update process resets the configuration settings in the BIOS Setup utility, except for the PC Identification and BIOS passwords.

1. In Windows, exit any programs that are running.

2. Remove any PC Cards.

3. If the computer is docked, undock it.

4. Connect the AC adapter.

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 Now 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 complete, reset the computer by inserting a straightened paperclip into the system-off switch on the right side of the computer.

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

To update 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. Follow the instructions included with the drivers.

HP Support and Service

Getting Assistance for Your Computer

To get help from the web

HP has several web sites on the Internet dedicated to providing information to HP
notebook computer users. The following sites are especially useful for helping you get
support for your computer:

- **HP Customer Care web site.** Get e-mail and telephone support information,
  technical information, and software updates.

  www.hp.com/go/support

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

  www.hp.com/notebooks

To contact HP for support or service

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

During the free assistance period, HP will assist with questions about:

- Included applications and operating systems.

- 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 included
  (by HP) with the product.

- How to repair the product yourself.

- Product development, custom installations.

- Consulting.

To contact the HP Customer Care Center by e-mail, visit the HP Customer Care web site (www.hp.com/go/support) under "Contact HP".

To call the Customer Care Center, check the HP Customer Care web site (www.hp.com/go/support) under "Contact HP" for the most complete and current list of phone numbers. If your HP notebook product is not normally sold by HP in the country of use, you must call a Customer Care Center that supports your notebook model. Currently, service and support assistance is provided only in the following countries:

Pavilion models

United States only: (208) 323-2551.

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See the following table.

North America
United States: (970) 635-1000
Canada: (905) 206-4663
Mexico:
      Mexico City: 52-58-9922
      Outside Mexico City: 01-800-472 6684
      Guadalajara: 669-9500
      Monterrey: 378-4240

South America
Argentina:
      From Argentina: 0810-555-5520
      Outside Argentina: 5411-4778-8380
Brazil:
      São Paulo: (11) 3747-7799
      Outside São Paulo: 0800-157751
Venezuela: 0800-157751

Europe
Austria: +43-(0)7114-20-1080
Belgium:
      Dutch: 32-(0)2-626-8806
      French: 32-(0)2-626-8807
Czech Republic: 42-(0)2-6130-7310
Denmark: +45-39-29-4099
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

Russian Federation:
      Moscow: +7-095-797-3520
      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
English (international): +44-(0)171-512-52-02

Asia and Australia
Australia: 61-3-8877-8000
China: 800-810-5959
Hong Kong: 852-800-96-7729
India: 91-11-682-6035
Indonesia: 62-21-350-3408
Japan: 81-3-5344-7181
Korea:
      Seoul: 82-2-3270-0700
      Outside Seoul: 080 999-0700
Malaysia:
      Penang: 60-3-295-2566
      Outside Penang: 03-295-2566
New Zealand: 64-9-356-6640
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
Africa:
      RSA: 086-000-1030
      Outside RSA: +27-(0)11-258-9301

For best service, make sure you have as much of the following available when you call:

- Your computer's model and serial number.

- Your computer's operating system.

- Any messages displayed when the problem occurred.

- Were there any changes to the computer, software, related hardware, or accessories before this occurred? Can the problem be re-created?

To receive repair service

If the HP notebook product is not normally sold by HP in the country of use, it must be returned for service to a country in which it is sold and supported. For example, certain Pavilion notebook products are currently serviced in only the United States.

If your computer is under warranty. To receive warranty repair service, contact an HP-authorized reseller, or contact the HP Customer Care Center—see "To contact HP for support or service" on page 188. The support technician will help qualify your unit for warranty repair based on the warranty applicable to your unit and original purchase date, and will provide you with repair processes. Warranty service may include the cost of shipping, handling, duties, taxes, freight, or fees to or from the service location.

If your computer is no longer under warranty. Contact an HP-authorized reseller or the HP Customer Care Center (see "To contact HP for support or service" on page 188). The support provider will let you know about repair charges and processes.

To prepare your computer for shipment

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

1. **Important.** Back up your hard disk drive. The hard disk may need to be replaced or reformatted while your computer is being repaired.

2. Hewlett-Packard cannot guarantee the return of removable components. Please remove the following prior to sending your computer in for service:

   - PC cards.

   - AC adapter and power cord.

   - Any removable media, such as CDs, DVDs, or floppy disks.

   - Any hardware not involved in the problem and not requested for repair.

3. When sending your computer to Hewlett-Packard, please use the original product packaging or other substantial packaging in order to avoid damage to the unit in transit.

Note

If the hard disk drive is defective, you will receive a replacement drive that is either unformatted or loaded with software for verification. You should restore the computer's original software using your *Recovery CD* (see "To recover the factory installation of your hard disk" on page 184) or other recovery method.

Hewlett-Packard Limited Warranty Statement

1. HP warrants to you, the end-user customer, that HP hardware, accessories and supplies will be free from defects in materials and workmanship after the date of purchase, for the period specified in the Warranty Duration sheet included with your HP notebook computer. 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 sheet included with your computer, 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.

Reference Information

Hardware Specifications

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

Physical Attributes	Size (14-inch display): 315 × 261 × 32 mm (12.4 × 10.3 × 1.3 in). Size (15-inch display): 325 × 261 × 34 mm (12.8 × 10.3 × 1.4 in). Weight: 2.3–2.8 kg (5.1–6.2 lb), depending on configuration. Magnesium display cover.
Processor and Bus Architecture	933- to 1133-MHz Intel Mobile Pentium III-M processor with Intel Speed Step technology or 733- to 866-MHz Celeron processor. Integrated 32-KB (16-KB instruction, 16-KB data) L1 cache and 512-KB (Pentium models) or 128-KB (Celeron models) four-way set-associative L2 cache. 1.4-V core low-power processor with 133-MHz processor system bus. Core logic interfaces processor, system memory, graphics subsystem, 33-MHz system PCI bus, and other I/O.
Graphics	14.1-inch XGA (1024 × 768) or 15.0-inch SXGA+ (1400 × 1050) active-matrix (TFT) LCD display. External monitors up to 1600 × 1200 resolution, 16M (24- or 32-bit) colors, and at least 75 Hz refresh rate (only 60 Hz at 1400 × 1050). ATI Mobility Radeon graphics accelerator with 16-MB (Pentium models) or 8-MB (Celeron models) DDR graphics memory, 4x AGP graphics capability. Hardware 3D acceleration, hardware DVD acceleration. Dual display capability (depends on operating system support). Zoomed Video support for lower PC Card slot.
Power	Rechargeable lithium-ion battery with LED charge-level gauge (11.1 or 14.8 Vdc). Battery life (one battery): up to 4-5 hours typical (varies with model and usage). Fast battery recharge: 80% in 1.5 hour, 100% in 2 hours. Low-battery warning. Suspend/resume capability. Universal AC adapter: 100–240 Vac (50/60 Hz) input, 19 Vdc output, 60 W. Optional secondary battery available for module bay.
Mass Storage	10- to 30-GB removable hard drive with Ultra-DMA 100 interface. 1.44-MB floppy drive module (for certain models). 24x CD-ROM, 6x or 8x DVD, or other drive module (or higher). Optional drive modules available.
RAM	Two slots for PC-133 SDRAM modules. Up to 1024 MB RAM maximum. At least 128 MB RAM preinstalled.

Audio System	16-bit Sound Blaster Pro–compatible stereo sound. Stereo sound via two built-in speakers (500 Hz to 10 kHz range). 3D-enhanced PCI bus audio with Zoomed Video support. Built-in microphone. Separate audio-off button with indicator light. Headphone-out, microphone-in, and audio line-in.
Keyboard and Pointing Devices	87/88-key touch-type QWERTY keyboard with 101/102 key emulation. Embedded numeric keypad. Left and right click buttons, center scroll button. 12 function (Fn) keys. 4 user-programmable One-Touch buttons. Two pointing devices: pointing stick and touch pad.
LAN	Ethernet 10Base-T (10 Mbps) and 100Base-TX (100 Mbps) support. Supports wake-on-LAN (Windows 2000 and XP), fast IP, DMI, dRMON. MBA (Managed Boot Agent) support for PXE/BINL, BOOTP, NCP/IPX, DHCP.
Modem	Hardware-based controllerless modem (3Com/US Robotics) or software-based ACLink modem (Ambit), mini-PCI interface. Data speed: 56 Kbps (V.90) maximum. Fax speed: 14.4 Kbps, Class 1 and 2. Modulation: V.21, V.22, V.22bis, V.23, V.32, V.32bis, V.34, V.90, X2 (USR only), Bell 103, Bell 212A. Synchronous transfer: V.80. Compression: V.42bis, MNP5. Error correction: V.42, MNP2-4. Fax: Group 3 fax, Class 1. V.17, V.27ter, V.29, V.21.
Wireless LAN	Radio: IEEE 802.11b, WECA Wi-Fi compliant, direct-sequence spread-spectrum. Operating frequency: 2.5-GHz ISM band, exact frequencies and channels depend on country. Raw data rate: 1, 2, 5.5, or 11 Mbps. Transmitter output: 15 dBm typical (approx. 30 mW), 16 dBm max (approx. 40 mW). Receiver sensitivity: –84 dBm typical. Range: up to 100 m (300 ft) or more, depending on environment and conditions. On-off button and indicator. Mini-PCI interface.
Input/Output	Universal serial bus (USB), two ports. 9-pin, 115,200-bps serial (16550 UART). 25-pin bi-directional ECP/EPP parallel. 15-pin VGA video-out with DDC support. S-video (TV out). PS/2 keyboard/mouse. 4-Mbps IrDA-compliant infrared port.

Expandability	One Type III or two Type II 16-/32-bit PC Card slots (3.3- and 5-V support). CardBus enabled. Plug-in module bay for accessory modules. Optional port replicator, mini dock, and docking system (only the port replicator is supported on Pavilion models).
Security Features	User and administrator passwords. System, hard drive, and docking passwords. PC identification displayed at boot. DMI-accessible electronic serial number. Kensington MicroSaver lock slot.
Environmental Limits	Operating temperature: 5 to 35 °C (41 to 95 °F). Operating humidity: 20 to 90 percent RH (5 to 35 °C). Operating altitude: up to 3000 m (10,000 ft) at 25 °C (77 °F). Storage temperature: –20 to 50 °C (–4 to 122 °F).
Major ICs	CPU: Intel Mobile Pentium III-M or Celeron processor. Core logic: Intel 830M/ICH3M chipset. Graphics controller: ATI Mobility Radeon M6-P. Audio controller: ESS ES1988. CardBus controller: TI PC1420. Keyboard/embedded controller: National PC87570. Super I/O: National PC87393F. LAN: integrated in core logic. Modem: 3Com/US Robotics controllerless or Ambit ACLink. 802.11b wireless LAN: Actiontec with Intersil Prism 2.5 chipset.

Modem Reference Information

If your computer has a modem port, 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 and XP) in Control Panel, from most communications software, or by using terminal mode in your software. See "To change your modem settings" on page 61.

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. Your computer has either a 3Com/US Robotics or Ambit (ESS) modem. To determine which brand is in your computer:

• Open Modems (Windows 98) or Phone and Modem Options (Windows 2000 or XP) in Control Panel.

Modem Reference (Ambit)

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

AT Commands (Ambit)

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

Command	Function (Ambit)
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
L3	Set high speaker volume
M0	Turn speaker off
M1	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
N1	Turn on automode detection
O0	Go on-line
O1	Go on-line and initiate a retrain sequence
P	Force pulse dialing
Q0	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
V1	Report long form result codes
W0	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
X4	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
Y0	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
&C1	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

Command	Function (Ambit)
&D2	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
&F0	Restore factory configuration 0
&F1	Restore factory configuration 1
&G0	Disable guard tone
&G1	Disable guard tone
&G2	Enable 1800 Hz guard tone
&J0	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
&K6	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
&P0	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
&Q5	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)
&S0	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)
&T5	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

Command	Function (Ambit)
&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
&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
	When modem receives a break from the DTE:
\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
	When modem receives \B in on-line command state:
\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
	When modem receives break from the remote modem:
\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

Modem Reference Information

Command	Function (Ambit)
+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 automode: 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
+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

Command	Function (Ambit)
%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

Command	Function (Ambit)
-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

Command	Function (Ambit)
+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

Command	Function (Ambit)
+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
*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.

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

Register	Function (Ambit)	Range/units	Default
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
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

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

Modem Reference (3Com/US Robotics)

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

AT Commands (3Com/US Robotics)

Command	Function (3Com/US Robotics)
+++	Escape to online command mode (not preceded by AT)
/	Pause (not preceded by AT), 125 ms default
A	Answer manually
A/	Repeat last command (not preceded by AT)
D...	Dial a phone number and issue other optional commands: 0-9=Dial digit, T=Tone dial, P=Pulse dial, R=Call an originate-only modem, W=Wait for second dial tone (X2, X4), @=Wait for answer (X3, X4), (comma)=Pause in dialing, !=Flash switch hook, #=Auxiliary tone dial digit, *=Auxiliary tone dial digit, ;=Stay in command mode after dialing, $=Wait for calling card bong, &=Wait for calling card bong, "=Dial the letters that follow.
D$	Display a list of dial commands
DL	Redial last number
DL?	Display last dialed number
DSn	Dial stored number (n=0,1,2,3)
E0	Turn command echo off
E1	Turn command echo on
F0	Turn online echo on
F1	Turn online echo off
H0	Hang up (go on-hook)
H1	Pick up (go off-hook)
I0	Display the 4-digit product code
I1	Display the checksum
I2	Display the RAM test results
I3	Display the firmware version
I4	Display the current modem settings
I5	Display user profiles
I7	Display the product configuration
I8	Display blacklist screen
I10	Display VXD configuration screen
I11	Display V.34 link screen
L0	Set modem speaker volume off
L1	Set modem speaker volume on (low)
L2	Set modem speaker volume on (medium)
L3	Set modem speaker volume on (high)
M0	The modem's speaker is always off
M1	The modem's speaker is on until a connection is made
M2	The modem's speaker is always on
M3	The modem's speaker is off during dialing, and on after dialing until the connection is made
O0	Return to online mode
O1	Return to online mode and retrain (automatically return to the highest speed)

Command	Function (3Com/US Robotics)
S$	Display the list of S-register settings
Sr=n	Set S-Register "r" to "n"
Sr?	Display the value of S-Register "r"
V0	Display result codes in numeric form
V1	Display result codes in verbose form (words)
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 the connect rates—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 the connect rates i.e., OK, CONNECT, RING, NO CARRIER (also, for busy, if enabled), NO DIAL TONE, NO ANSWER, CONNECT XXXX and ERROR
X3	Report basic call progress result codes and connection rate i.e., OK, CONNECT, RING, NO CARRIER, NO ANSWER, CONNECT XXXX, BUSY and ERROR
X4	Report all call progress result codes and connection rate i.e., OK, CONNECT, RING, NO CARRIER, NO ANSWER, CONNECT XXXX, BUSY, NO DIAL TONE and ERROR
Y0	On the next reset, use &W0 settings
Y1	On the next reset, use &W1 settings
Y2	On the next reset use, &F0 settings
Y3	On the next reset, use &F1 settings
Y4	On the next reset, use &F2 settings
Z0	Reset the modem according to the settings of ATY
Z1	Reset the modem and use &W0 settings
Z2	Reset the modem and use &W1 settings
Z3	Reset the modem using &F0 settings and load factory default profile 1
Z4	Reset the modem using &F1 settings and load factory default profile 0
Z5	Reset the modem using &F2 settings and load factory default profile 2
$	Display the list of AT commands
&$	Display the list of ampersand commands
&A0	Disable data compression result codes
&A1	Enable data compression result codes
&A2	Enable modulation result codes
&A3	Enable data compression result codes and add V.42bis and MNP 5 protocol indicators
&B0	Use a floating DTE speed
&B1	Use a fixed DTE speed
&B2	Use a fixed DTE speed when using data compression
&C0	Carrier detect is always on
&C1	Carrier detect is controlled by the modem.
&D0	Ignore DTR
&D1	Use online command mode
&D2	DTE controls DTR
&D3	DTE controls DTR and reset
&F0	Set the factory profile that uses hardware (RTS/CTS) flow control (this is the active profile when the modem is shipped)
&F1	Set the factory profile that uses hardware (RTS/CTS) flow control
&F2	Set the factory profile that uses software (XON/XOFF) flow control
&G0	No guard tone
&G1	Use 550 Hz guard tone
&G2	Use 1800 Hz guard tone
&H0	Flow control for transmitted data - Disable flow control

Command	Function (3Com/US Robotics)
&H1	Flow control for transmitted data - Enable hardware flow control (RTS/CTS)
&H2	Flow control for transmitted data - Enable software (XON/XOFF)
&H3	Flow control for transmitted data - Enable both software and hardware flow control
&I0	Flow control for received data - Disable flow control
&I1	Flow control for received data - send XON/XOFF signals to modems on both ends
&I2	Flow control for received data - send XON/XOFF signals to your modem only
&I3	HP Eng/Ack in Host mode
&I4	HP Eng/Ack in Terminal Mode
&I5	Flow control for received data - If error correction is used, send XON/XOFF signals to your modem only; if data compression is not used, look for incoming XON/XOFF
&K0	Disable data compression
&K1	Enable data compression (V.42bis, MNP 5, NONE)
&K2	Enable data compression (forces V.42bis)
&K3	Use selective data compression
&M0	Disable error correction in 1200 bps and faster transfers
&M4	Allow V.42 or MNP error correction in 1200 bps and faster transfers
&M5	Allow either V.42 or MNP error correction in 1200 bps and faster transfers
&Nn	Set link speed (bps): **0=Highest speed**, 1=300, 2=1200, 3=2400, 4=4800, 5=7200, 6=9600, 7=12000, 8=14400, 9=16800, 10=19200, 11=21600, 12=24000, 13=26400, 14=28800, 15=31200, 16=33600, 17=28000, 18=29333, 19=30666, 20=32000, 21=33333, 22=34666, 23=36000, 24=37333, 25=38666, 26=40000, 27=41333, 28=42666, 29=44000, 30=45333, 31=46666, 32=48000, 33=49333, 34=50666, 35=52000, 36=53333, 37=54666, 38=56000, 39=57333
&R1	Ignore RTS
&R2	Receive to DTE/RTS high
&S0	Data Set Ready (DSR) is always on
&S1	Data Set Ready (DSR) signals that the modem is ready to send data
&Un	Set minimum link rate (bps): **0=Variable**, 1=300, 2=1200, 3=2400, 4=4800, 5=7200, 6=9600, 7=12000, 8=14400, 9=16800, 10=19200, 11=21600, 12=24000, 13=26400, 14=28800, 15=31200, 16=33600, 17=28000, 18=29333, 19=30666, 20=32000, 21=33333, 22=34666, 23=36000, 24=37333, 25=38666, 26=40000, 27=41333, 28=42666, 29=44000, 30=45333, 31=46666, 32=48000, 33=49333, 34=50666, 35=52000, 36=53333, 37=54666, 38=56000, 39=57333
&W0	Store user profile 0 to memory
&W1	Store user profile 1 to memory
&Zn=s	Store phone number (n= 0,1,2,3)
&Zn?	Display phone number

S-Registers (3Com/US Robotics)

Register	Function (3Com/US Robotics)	Range	Default
S0	Number of rings before the modem auto-answers a call (0 means auto-answer is disabled and manual answer is in effect)	0-255	0 rings
S1	Counts and logs the number of rings	0-255	0 rings
S2	Designates the ASCII character used to indicate an escape character	0-127	43
S3	Designates the ASCII character used for carriage returns	0-127	13
S4	Designates the ASCII character used for line feeds	0-127	10
S5	Designates the ASCII character used for backspaces	0-127	8
S6	Dial tone wait time; if AT command X is set to X2 or X4, the modem ignores this register and dials as soon as it detects a dial tone (seconds)	2-255	3
S7	Carrier wait time (seconds)	1-255	60

Register	Function (3Com/US Robotics)	Range	Default
S8	Pause in dialing time (comma in dialing string) (seconds)	0-255	2
S9	Carrier detect validation time (1/10 second)	1-255	6
S10	Delay time between lost carrier and hang up; if S10=255, the modem will not hang up when the carrier is lost; dropping DTR hangs up the modem (1/10 second)	1-255	7
S11	Duration of the touchtone dialing tone spacing (in milliseconds)	50-255	70
S12	Guard time for the escape code (1/50 second)	0-255	1
S13	Bitmapped register. 1=Reset on DTR loss 2=Reduced non-ARQ transmit buffer 4=Set DEL=backspace 8=Do DS0 on DTR 16=Do DS0 on Reset 128=Escape code hangup	0-255	0
S15	Bitmapped register. 1=MNP/V.42 disabled in V.22 2=MNP/V.42 disabled in V.22bis 4=MNP/V.42 disabled V.32, V.34 8=Disable MNP handshake 16=Disable MNP level 4 32=Disable MNP level 3 64=Unusual MNP incompatibility 128=Disable V.42 136=Disable V.42 detection phase	0-255	0
S16	Bitmapped test register. 2=Dial test	2	0
S18	Test timer for AT command &T - when AT&T=0, the timer is disabled (seconds)	0-255	0
S19	Duration for inactivity timer; S19=0 disables the timer (minutes)	0-255	0
S21	Sets error correction break length (1/100 second)	0-255	1
S22	Designates the ASCII character code for XON	0-127	17
S23	Designates the ASCII character code for XOFF	0-127	19
S25	DTR debounce time indicator (1/100 second)	0-255	0
S27	Bitmapped register. 1=V.21 mode 2=Disable TCM 4=Disable V.32 8=Disable 2100Hz 16=Enable V.23 fallback 32=Disable V.32bis 128=Software compatibility mode		0
S28	V.32 Handshake Time (1/10 second)	0-255	8
S29	V.21 Answer Mode Fallback Timer (1/10 second)	0-255	20
S32	Connection bitmapped operations. 1=V.8 call indicate enable 2=Enable V.8 mode 8=Disable V.34 modulation 16=Disable V.34+ modulation 32=Disable X2 modulation 64=Disable V.90 modulation		2

Register	Function (3Com/US Robotics)	Range	Default
S33	V.34 and V.34+ connection setup bitmapped control flags. 1=Disable 2400 symbol rate 2=Disable 2743 symbol rate 4=Disable 2800 symbol rate 8=Disable 3000 symbol rate 16=Disable 3200 symbol rate 32=Disable 3429 symbol rate 128=Disable shaping		0
S34	V.34 and V.34+ connection setup bitmapped control flags 16=Disable nonlinear coding 32=Disable transmit level deviation 64=Disable preemphasis 128=Disable precoding		0
S38	Delay before forced hangup (optional) (seconds)	0-255	0

Selected Result Codes (3Com/US Robotics)

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

Safety Information

Power Cords

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

Country	Rated Voltage and Current	HP Part Number
Canada Mexico Philippines Taiwan United States	125 Vac (3 A)	8120-6313
East and West Europe Egypt 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

Ergonomics

WARNING

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

Battery Safety

Note

The following batteries are compatible only with HP notebook computers:
– HP F2014 and F2019
– Sanyo 3UR18650P-2-QC-RT and 3UR18650F-2-QC-RT2
– Panasonic CGR-B/634AE and CGR-B/650AE

- To avoid risk of fire, burns, or damage to your battery pack, do not allow a metal object to touch the battery contacts.

- Do not disassemble the battery. There are no serviceable parts inside. Do not dispose of the battery pack in fire or water.

- Handle a damaged or leaking battery with extreme care. If you come in contact with the electrolyte, wash the exposed area with soap and water. If it contacts the eye, flush the eye with water for 15 minutes and seek medical attention.

- Do not expose the battery pack to storage temperatures above 60 °C (140 °F).

- When the battery is not in use, store it in the battery pouch provided.

- When discarding a battery pack, contact your local waste disposal provider regarding local restrictions on the disposal or recycling of batteries.

- To obtain a replacement battery, contact your local dealer or HP sales office.

- Do not charge the battery pack if the ambient temperature exceeds 45 °C (113 °F).

- Replace only with the same or equivalent type battery pack recommended by the manufacturer.

Laser Safety

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

• Ensure proper use by reading and following the instructions carefully.

• If the unit requires service, contact an authorized HP service center—see "To contact HP for support or service" on page 188.

• Do not attempt to make any adjustment of the unit.

• Avoid direct exposure to the laser beam—do not open the unit.

> CLASS 1 LASER PRODUCT
>
> LASER KLASSE 1

LED Safety

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

• If the unit requires service, contact an authorized HP service center—see "To contact HP for support or service" on page 188.

• 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

Exposure to Radio Frequency Radiation

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

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

Regulatory Information

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

U.S.A.

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

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

Declaration of Conformity (U.S.A.)

Responsible Party:	Hewlett-Packard Company
	Manager of Corporate Product Regulations
	3000 Hanover Street
	Palo Alto, CA 94304
	+1 (650) 857-1501
	declares that the product(s)
Trade name:	Hewlett-Packard Company
Product name:	HP Omnibook 6100

Complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Canada

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

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada. Le composant RF interne est conforme à la norme CNR-210 d'Industrie Canada. 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 étre prét 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) and to a radio-frequency wireless network. However, due to differences between the individual PST's provided in different countries, the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point.

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

This equipment has been designed to work in all of the countries of the European Economic Area (Public Switched Telephone Networks). Network compatibility is dependent on internal software settings. Contact your equipment supplier if it is necessary to use the equipment on a different telephone network. For further product support, contact Hewlett-Packard—see "To contact HP for support or service" on page 188.

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.

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 Wirtschaftsgemein-schaft entwickelt (Public Switched Telephone Networks). Die Kompatibilität zum Netz ist von internen Software-Einstellungen abhängig. Wenden Sie sich an den Geräteher-steller, 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, A99-0976JP
Name of Equipment: T18M038.00, 3CN3BN1556B

Russia

Продукт сертифицирован в системе ГОСТ Р

Модем сертифицирован в системе ЭЛЕКТРОСВ

International

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

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

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

declares that the following product

Product Name:	HP notebook PC
Model Numbers:	HP Omnibook 6100
Product Options:	All, including options for analog modem (Ambit/USR) and radio link

conforms to the following product specifications

Safety:	IEC 60950: 1991 +A1,A2,A3,A4 / EN 60950: 1992 +A1,A2,A3,A4,A11 IEC 60825-1: 1993 +A1 / EN 60825-1: 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 GB9254-1998 FCC Title 47 CFR, Part 15 Class B/ANSI C63.4: 1992 AS/NZS 3548: 1995 Rules and Regulations of Class B
Telecom:	TBR 21: 1998, EG 201 121: 1998
Radio: **Equipment Class 2**	ETS 300-826 General EMC requirements for Radio equipment ETS 300-328 Technical requirements for Radio equipment Notified Body Number: 0682 Notified Body Address: CETECOM ICT Services GmbH, Untertuerkheimer Str. 6-10, D-66117 Saarbruecken
Supplementary Information:	The product herewith complies with the requirements of the R&TTE Directive 1999/5/EC 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, May 11, 2001

CE
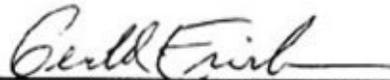
Jerry Erickson, R&D Product Execution Manger

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 (650) 857-1501.

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