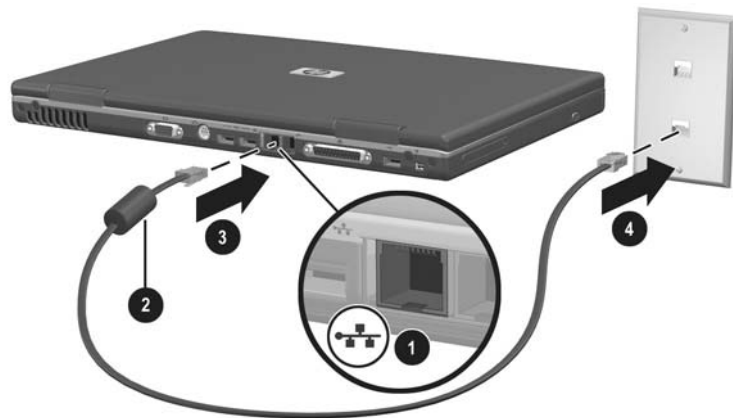


## Connecting the Network Cable

A network cable has an 8-pin RJ-45 network connector at each end and may contain noise suppression circuitry, which prevents interference with TV and radio reception. To connect the cable:

1. Identify the RJ-45 network jack **1** on the notebook.
2. Orient the end of a network cable with noise suppression circuitry **2** toward the notebook.
3. Plug the network cable into the notebook RJ-45 network jack **3**.
4. Plug the other end of the cable into the network RJ-45 jack **4**.



*Connecting a network cable*



**WARNING:** To reduce the risk of electric shock, disconnect the network cable before accessing an internal compartment of the notebook. Internal compartments include the memory compartment and the battery and hard drive bays.

## Turning a Network Connection Off and On

To conserve power, turn off a network connection you are not using.

- To turn off a network connection, log off the network, then disconnect the network cable.
- To turn on a network connection, connect the network cable, then log on to the network.

## Accessing the Network at Startup

To connect the notebook to a PXE (Preboot eXecution Environment) server during startup, you must enable the internal NIC for startup, then respond to the Network Service Boot prompt each time you want to connect to the server.

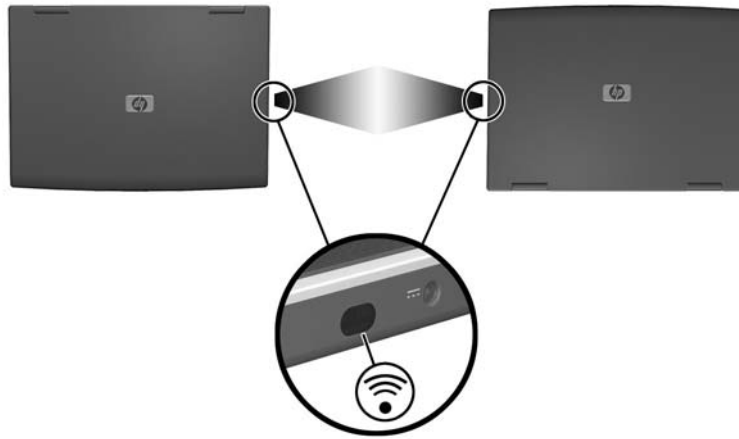
- To enable the NIC for startup and set the notebook to display the Network Service Boot prompt each time the notebook is started or restarted, set your preferences in the Setup utility. The Setup utility is not a Windows utility and does not support the TouchPad. For more information about using the Setup utility, refer to the “Using the Setup Utility” section in Chapter 9 of this guide.
- To respond to the Network Service Boot prompt, press **F12** while the prompt F12 = Boot from LAN appears very briefly in the lower left corner of the screen before Windows loads.

## Infrared

The notebook is IrDA-compliant and can communicate with another infrared-equipped device that is also IrDA-compliant. The IrDA connection speed standard is 4 megabits per second (Mbps).

The infrared port supports low-speed connections up to 115 kilobits per second (Kbps) as well as high-speed connections up to 4 Mbps.

Infrared signals are sent through an invisible beam of infrared light and must have an unobstructed line of sight. Infrared performance may vary with the performance of infrared peripherals, the distance and angle between infrared devices, and the applications being used.



*Linking to an infrared device*

## Setting Up an Infrared Transmission

For information about using infrared software and enabling or disabling infrared ports, refer to the operating system Help files and to the documentation included with the external infrared device.

To set up 2 infrared devices, such as the notebook and an optional printer, for optimal transmission:

- Position the devices so that their infrared ports face each other at a distance of no more than 3.3 feet (1 meter).
- Position the ports so that they face each other directly. The maximum capture angle is 30 degrees, so the ports must be aligned no more than 15 degrees off center vertically or horizontally.

### *Communications*

---

- Shield the ports from direct sunlight, flashing incandescent light, and fluorescent light.
- Be sure that signals from a remote control or other wireless device (such as a cell phone, a headset, or an audio device) do not aim at either port.
- During the transmission, do not move either device and do not allow objects or movement to disrupt the beam.

## **Avoiding Standby While Using Infrared**

Standby is not compatible with infrared transmission. If the notebook is in Standby, an infrared transmission cannot be initiated.

If Standby initiates *during* an infrared transmission, the transmission stops. To resume from Standby, briefly press the power button. The transmission resumes when the notebook resumes from Standby.

# 8

## Hardware Options and Upgrades

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## Hardware Options and Upgrades

### Connecting a Powered Device

To connect the notebook to an optional external device that has a power cord:

1. Be sure the device is turned off.
2. Connect the device to the jack or connector on the notebook specified by the device manufacturer.
3. Plug the device power cord into a grounded electrical outlet.
4. Turn on the device.



If a properly connected external monitor or other display device does not display an image, try pressing the **Fn+F4** hotkeys to switch the image to the new device.

To disconnect a powered external device from the notebook:

1. Turn off the device.
2. Disconnect the device from the notebook.

### Connecting a USB Device

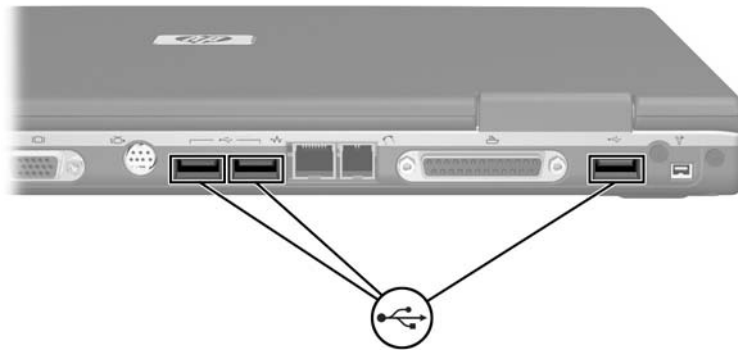
USB (universal serial bus) is a hardware interface that can be used to connect external devices such as a USB keyboard, mouse, drive, printer, scanner, or hub to the notebook.

A hub is a connecting device that can be either powered or unpowered. USB hubs can be connected to a USB connector on the notebook or to other USB devices. Hubs support varying numbers of USB devices and are used to increase the number of USB devices in the system.

- Powered hubs must be connected to external power.
- Unpowered hubs must be connected either to a USB connector on the notebook or to a port on a powered hub.

The USB connectors on the notebook support USB 2.0- and 1.1-compliant devices.

By default, USB devices function only while the operating system is loaded. To use a USB keyboard or hub connected to a USB connector on the notebook during startup (before Windows loads) or in a non-Windows application or utility, enable USB legacy support in the Setup utility. For more information about using the Setup utility, see the “Using the Setup Utility” section in Chapter 9.



*Identifying the 3 USB connectors on the notebook*

## Using a PC Card

A PC Card is a credit card–sized accessory designed to conform to the standard specifications of the Personal Computer Memory Card International Association (PCMCIA). The notebook PC Card slot supports both 32-bit CardBus and 16-bit PC Cards.

PC Cards can be used to add modem, sound, storage, wireless communication, or digital camera functions to the notebook.

## Selecting a PC Card

A Type I or Type II PC Card can be used. Zoomed video cards are not supported.

## Hardware Options and Upgrades

### Configuring a PC Card



**CAUTION:** If you install all of the software or any of the enablers provided by a PC Card manufacturer, you may not be able to use other PC Cards. If you are instructed by the documentation included with your PC Card to install device drivers:

- Install only the device drivers for your operating system.
- Do not install other software, such as card services, socket services, or enablers, that may also be supplied by the PC Card manufacturer.

### Inserting a PC Card



**CAUTION:** To prevent damage to the PC Card connectors:

- Use minimal force when inserting a PC Card into a PC Card slot.
- Do not move or transport the notebook while a PC Card is inserted.

1. Hold the PC Card label-side up with the connectors facing the notebook.
2. Gently push the card into the slot until the card is seated.



*Inserting a PC Card*

## Stopping and Removing a PC Card



**CAUTION:** To prevent loss of work or an unresponsive system, stop the PC Card before removing it.



Stopping a PC Card, even if it is not in use, conserves power.

1. Close all applications and complete all activities that are supported by the PC Card.
2. To stop a PC Card, select the Safely Remove Hardware icon on the taskbar, then select the PC Card. (To display the Safely Remove Hardware icon, select in the taskbar the icon for Show Hidden Icons.)
3. To release the PC Card, press the PC Card eject button ❶. (If the PC Card button does not extend while a PC Card is in the PC Card slot, press the button once to extend the button, then press the button again to release the PC Card.)
4. Gently pull out the PC Card ❷.



*Removing a PC Card*

## Hardware Options and Upgrades

### Using an SD Card or MMC



**CAUTION:** To prevent damage to the SD Card connectors:

- Use minimal force when inserting an SD Card or MMC into an SD Card slot.
- Do not move or transport the notebook while an SD Card or MMC is inserted.



SD (Secure Digital) Cards and MMCs (multimedia cards) are flash memory cards that provide secure data storage and convenient data sharing. These cards are often used with SD-equipped cameras and PDAs as well as notebooks. The SD Card features on the notebook support both SD Cards and MMCs.

### Using the SD Card Light

The SD Card light turns on when an inserted SD Card or MMC is being accessed. The SD Card light turns off when an inserted SD Card or MMC is inactive or when the SD Card slot is empty.



*Identifying the SD Card light*

## **Inserting an SD Card or MMC**

To insert an SD Card or MMC:

1. Hold the card label-side up with the connectors facing the notebook.
2. Gently push the card into the SD Card slot until the card is seated. (The card will extend outward slightly beyond the notebook.)



*Inserting an SD Card or MMC*

## Hardware Options and Upgrades

### Removing an SD Card or MMC

To remove an SD Card or MMC:

1. Close all applications and complete all activities that are supported by the card. (To stop a data transfer, select the cancel button in the operating system Copying window.)
2. Push the card inward until it is released ❶.
3. Pull the card out of the slot ❷.



*Releasing and removing an SD Card or MMC*

### Disabling or Restarting an SD Card or MMC

An inserted SD Card or MMC uses power even when the card is not in use. Disabling the card conserves power.

To disable an inserted SD Card or MMC, double-click the My Computer icon on the Windows Desktop, right-click the drive assigned to the card, then select Eject. (The card is stopped but is not released from the SD Card slot.)

To restart the card, remove, then reinsert, the card. For instructions, see “Inserting an SD Card or MMC” and “Removing an SD Card or MMC” in this chapter.

## Increasing Memory

You can increase the amount of RAM (random access memory) in the notebook with an optional HP-approved memory module.

The notebook memory slot supports one 128-MB, 256-MB, 512-MB, or 1024-MB memory module.

Some notebook models ship with a vacant memory slot. On other models the memory slot contains a preinstalled memory module that can be replaced at any time.

## Displaying Memory Information

When RAM is increased, the operating system increases the hard drive space reserved for the hibernation file.

If you experience problems with Hibernation after increasing RAM, verify that your hard drive has enough free space for the larger hibernation file.

- To display the amount of RAM in the system:

Select Start > Control Panel > Performance and Maintenance icon > System icon > General tab.

- To display both the amount of free space on your hard drive and the amount of space required by the hibernation file:

Select Start > Control Panel > Performance and Maintenance icon > Power Options icon > Hibernate tab.

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*Hardware Options and Upgrades*

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## Removing or Inserting a Memory Module



**WARNING:** To prevent exposure to electrical shock, access only the memory compartment during this procedure. The memory compartment and the battery and hard drive bays are the only user-accessible internal compartments on the notebook. All other areas that require a tool to access should be opened only by an HP authorized service provider.



**WARNING:** To prevent exposure to electrical shock and damage to the notebook, shut down the notebook, unplug the power cord, and remove the battery pack before installing a memory module.



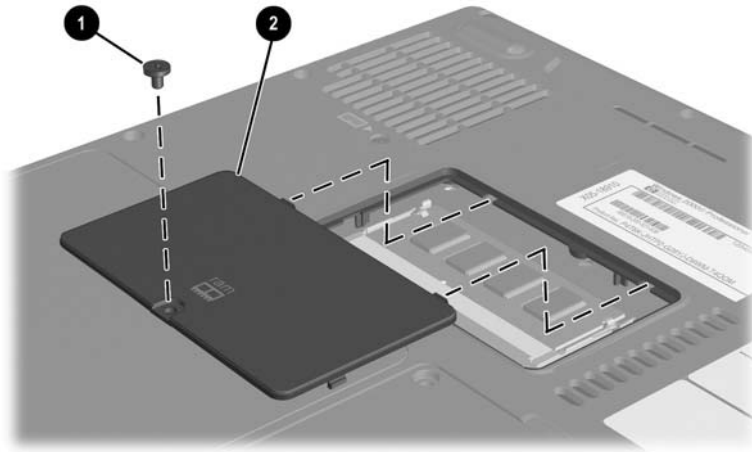
**CAUTION:** To prevent electrostatic discharge from damaging electronic components: before beginning this procedure, discharge yourself of static electricity by touching a grounded metal object. For more information about preventing electrostatic damage, refer on the *Documentation Library* CD to the *Regulatory and Safety Notices* guide, "Electrostatic Discharge" chapter.

1. Save your work and shut down the notebook. If you are not sure whether the notebook is off or in Hibernation, briefly press the power button. If your work returns to the screen, save your work, exit all applications, then shut down the notebook.
2. Disconnect all external devices connected to the notebook.
3. Disconnect the power cord.
4. Remove the battery pack.

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*Hardware Options and Upgrades*

5. Turn the notebook underside up.
6. Remove the memory compartment screw **1**, then lift up and remove the memory compartment cover **2**.



*Opening the memory compartment*

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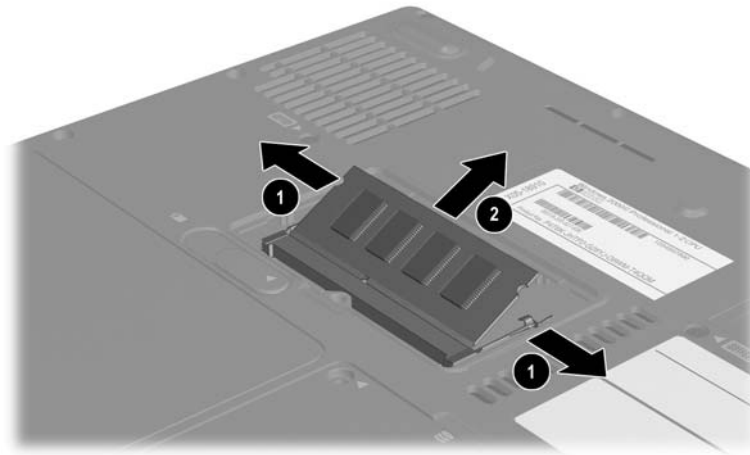
*Hardware Options and Upgrades*

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**7. Remove or insert the memory module.**

To remove a memory module:

- a. Pull away the retention clips on each side of the module **❶**. (The module tilts upward.)
- b. Grasp the edges of the module and gently pull the module out of the memory slot **❷**.
- c. To protect a memory module after removal, place it in an electrostatic-safe container.



*Removing a memory module*

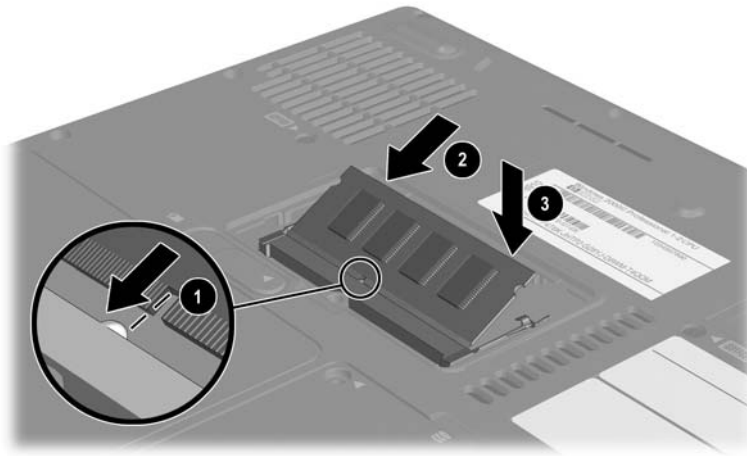
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*Hardware Options and Upgrades*

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To insert a memory module:

- a. Align the keyed (notched) edge of the module with the keyed area in the memory slot **1**.
- b. With the module at a 45-degree angle from the surface of the memory compartment, press the module into the memory slot until it is seated **2**.
- c. Push the module downward until the retention clips snap into place **3**.



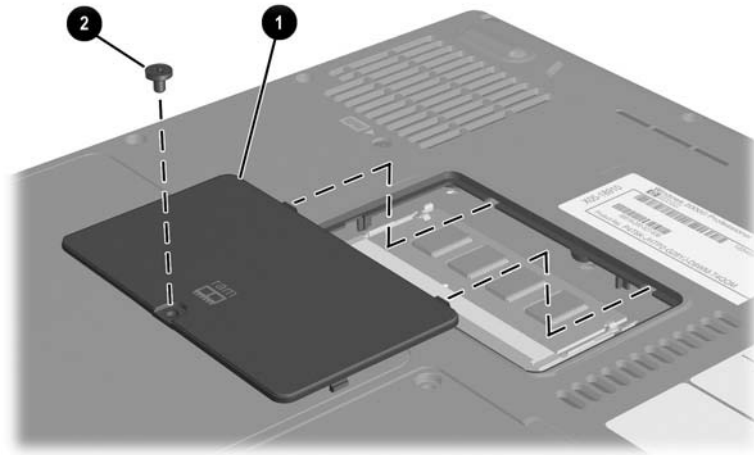
*Inserting a memory module*

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*Hardware Options and Upgrades*

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8. Align the tabs on the memory compartment cover with the cover slots on the notebook, then tilt the cover downward until it is seated **1**.
9. Reinsert and tighten the memory compartment screw **2**.
10. Replace the battery pack (if you removed a battery pack at the beginning of this procedure), reconnect the notebook to external power, then restart the notebook.



*Closing the memory compartment*

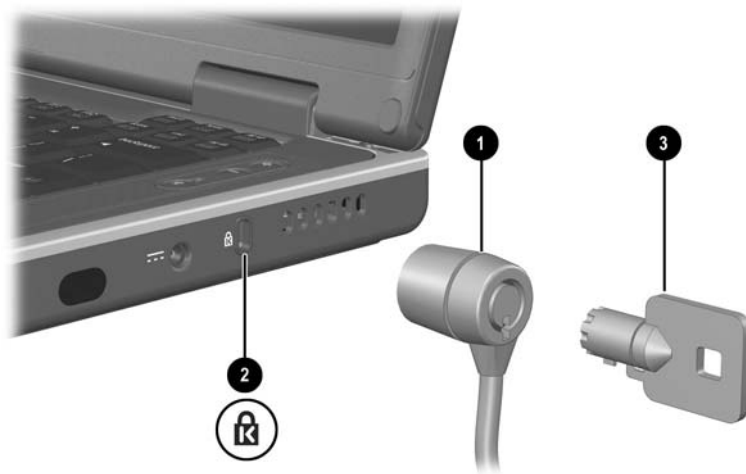
## Connecting an Optional Cable Lock



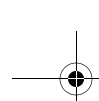
The purpose of security solutions is to act as a deterrent. These solutions do not prevent the product from being mishandled or stolen.

An optional cable lock is a security device that prevents unauthorized removal of the notebook.

Loop the cable around a secure object, then insert the cable lock **1** into the security cable slot **2** and lock it with the cable lock key **3**.

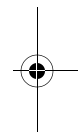
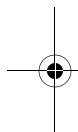


*Connecting an optional cable lock*



## *Hardware Options and Upgrades*

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# 9

## Software Updates, Restorations and Utilities

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## Updating Software

For optimal notebook performance and to make sure your notebook remains compatible with changing technologies, install the latest versions of the software provided with your notebook as they become available.

To update notebook software:

1. Prepare for any update by identifying your notebook type, series or family, and model.

Prepare for a ROM (read-only memory) update by identifying the ROM version currently installed on the notebook.

2. Access the updates at the HP Web site.
3. Download and install the updates.



The notebook ROM stores the BIOS (basic input-output system). The BIOS determines how the notebook hardware interacts with the operating system and external devices and also supports such notebook services as time and date.

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## Preparing for a Software Update

If your notebook connects to a network, consult with your network administrator before installing any software updates, particularly a ROM update.

## Accessing Notebook Product Information

To access the updates for your notebook, you will need the following information:

- The product *category* is Notebook.
- The product *family name* and *series number* are printed on the display bezel.
- More complete *model* information is provided on the serial number label on the underside of the notebook.

The product name, notebook model, and notebook serial number are also displayed in the same section of the Setup utility that displays ROM information, as described in the next section.

## Accessing Notebook ROM Information

To determine whether an available ROM update is a later ROM version than the ROM version currently installed on the notebook, you need to know the version of the currently installed ROM.

ROM information is displayed in the Setup utility. The Setup utility is a non-Windows utility that does not support the TouchPad. For complete information about using the Setup utility, see the “Using the Setup Utility” section in Chapter 9.

1. To open the Setup utility, turn on or restart the notebook.
2. Before Windows opens and while the F10 = ROM Based Setup prompt is displayed in the lower left section of the screen, press **F10**.
3. Use the arrow keys to select the File menu, then press **enter**.
4. Use the down arrow key to select System Info, then press **enter**. (The ROM version and date are displayed in the System BIOS Version field.)
5. To close the System Info window and exit the Setup utility without changing any settings:
  - a. Press **esc** to close the window.
  - b. Use the arrow keys to select the File menu, then press **enter**.
  - c. Use the arrow keys to select Ignore changes and exit, then press **enter**.

## Downloading and Installing an Update

Most software at the HP Web site is packaged in a compressed file called a *SoftPaq*. Some ROM updates may be packaged in a compressed file called a *RomPaq*. Other ROM updates may be provided as a CPQFlash SoftPaq.

Most download packages contain a file named Readme.txt. A Readme.txt file contains detailed descriptive, installation, and troubleshooting information about the download. The Readme.txt files included with RomPaqs are English only.

The following sections provide instructions for downloading and installing:

- A ROM update.
- A SoftPaq containing an update other than a ROM update.

## Downloading and Installing a ROM Update



**CAUTION:** To prevent serious damage to the notebook or an unsuccessful installation, download and install a ROM update only while the notebook is connected to reliable external power using the AC adapter or a DC cable. (Do not download or install a ROM update while the notebook is docked or running on battery power.) During the download and installation:

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

### Downloading a ROM Update:

1. Access the page at the HP Web site that provides software for your notebook: Select Start > Help and Support, then select a software update link. Or, visit the HP Web Site at:  
<http://www.hp.com/support>
2. Follow the instructions on the screen to identify your notebook and access the ROM update you want to download.

3. At the download area:
  - a. Record the date, name, or other identifier of any ROM update that is later than the ROM currently installed on your notebook. (You may need to identify the update later, after it has been downloaded to the hard drive.)
  - b. Record the path to the default or custom location on the hard drive to which the ROM package will download. (You may need to access the ROM package after it has been downloaded.)
  - c. Follow the online instructions to download your selection to the hard drive.

### **Installing a ROM Update**

ROM installation procedures vary. Follow any instructions that are displayed on the screen after the download is complete. If no instructions are displayed:

1. Open Windows Explorer. To open Windows Explorer from the Start button, select Start > All Programs > Accessories > Windows Explorer.
2. In the left pane of the Windows Explorer window, select My Computer > your hard drive designation. (The hard drive designation is typically Local Disk C.) Then follow the path you recorded earlier to the folder on your hard drive containing the update.
3. To begin the installation, open the folder, then double-click the file with an .exe extension, for example, Filename.exe. (The ROM update installation begins.)
4. To complete the installation, follow the instructions on the screen.



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After a message on the screen reports a successful installation, you can delete the downloaded file from the destination folder.

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## **Downloading and Installing a Non-ROM SoftPak**

To update software other than a ROM update:

1. Access the page at the HP Web site that provides software for your notebook: Select Start > Help and Support, then select a software update link. Or, visit the HP Web site at:  
<http://www.hp.com/support>
2. Follow the instructions on the screen to identify your notebook and access the SoftPak you want to download.
3. At the download area:
  - a. Write down the date, name, or other identifier of the SoftPak you plan to download. (You will need to identify the update later, after it has been downloaded to the hard drive.)
  - b. Follow the online instructions to download the SoftPak to the hard drive.
4. When the download is complete, open Windows Explorer. To open Windows Explorer from the Start button, select Start > All Programs > Accessories > Windows Explorer.
5. In the left pane of the Windows Explorer window, select My Computer > your hard drive designation, which is typically Local Disk C > HP.
6. In the HP folder, select the name or number of the software package you have downloaded.
7. Select the file that includes an .exe extension, for example, Filename.exe. (The installation begins.)
8. To complete the installation, follow the instructions on the screen.



---

After a message on the screen reports a successful installation, you can delete the downloaded file from the HP folder.

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## Backing Up and Restoring Data

The System Restore utility enables you to safeguard your system files and functional configurations by using System Restore points.

System Restore points are restorable, benchmark “snapshots” of your system. The notebook may set System Restore points whenever you change personal settings or add software or hardware. Setting System Restore points manually provides additional protection for your system files and settings. HP recommends that you set System Restore points:

- Before you add or extensively modify software or hardware.
- Periodically, whenever the system is performing optimally.

### Setting a System Restore Point

To set a System Restore point manually:

1. Select Start > Help & Support > Tools. (Notebook and diagnostic information is displayed.)
2. Select System Restore, then follow the on-screen instructions for setting a Restore Point.

### Restoring to a System Restore Point

To restore the notebook to a System Restore point:

1. Select Start > Help & Support > Tools. (Notebook and diagnostic information is displayed.)
2. Select System Restore, then follow the on-screen instructions for restoring the notebook to a Restore Point.

## Repairing or Reinstalling the Operating System

The OS CD included with your notebook can be used to repair or reinstall the operating system. Both operations may take 1 to 2 hours to complete.

- Repairing the operating system preserves your data and settings.
- Reinstalling the operating system deletes all files on the notebook. After the operating system has been reinstalled, all device drivers must also be reinstalled.

HP recommends that you try to restore your system by using the System Restore utility before you consider repairing or reinstalling your operating system. For restoration instructions, see “Backing Up and Restoring Data” earlier in this chapter.

If a System Restore restoration fails to restore functionality, first try to repair the operating system. If the repair procedure does not restore functionality, you may need to reinstall the operating system.

### Repairing the Operating System

To repair the operating system without deleting your personal data:

1. Connect the notebook to external power and turn on the notebook.
2. Immediately insert the OS CD (included with the notebook) into the optical drive.
3. Press and hold the power button for 5 seconds to turn off the notebook.
4. Briefly press the power button to start the notebook.
5. When prompted, press any key to boot from CD. (After a few minutes, the Welcome to Setup screen is displayed.)

6. Press **enter** to continue. (A Licensing Agreement screen is displayed.)
7. Press **F8** to accept the agreement and continue. (The Setup window is displayed.)
8. Press **R** to repair the selected Windows installation. (The repair process begins.)

After the repair process is complete, which may take up to 2 hours, the notebook restarts in Windows.

## Reinstalling the Operating System

If the System Recovery and operating system repair procedures did not restore functionality to your notebook, it may be necessary to reinstall the operating system.



**CAUTION:** Personal data and any software you have installed on the notebook will be lost during the operating system reinstallation procedure described in this section. To protect your data, back up your My Documents folder before beginning the procedure. For back up information and instructions, select Start > Help and Support. Also see "Backing Up and Restoring Data" earlier in this section.



During the reinstallation, you may be prompted for your product key. The product key is displayed on the Microsoft Certificate of Authenticity label affixed to the underside of the notebook.

To reinstall the operating system using the OS CD included with the notebook:

1. Connect the notebook to external power and turn on the notebook.
2. Immediately insert the OS CD into the optical drive.
3. Press and hold the power button for 5 seconds to turn off the notebook.
4. Briefly press the power button to start the notebook.
5. When prompted, press any key to boot from CD. (After a few minutes, the Welcome to Setup screen is displayed.)

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*Software Updates, Restorations and Utilities*

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6. Press **enter** to continue. (A Licensing Agreement screen is displayed.)
7. Press **F8** to accept the agreement and continue. (The Setup window is displayed.)
8. Press **esc** to continue installing a fresh copy of the operating system.
9. Press **enter** to set up the operating system.
10. Press **C** to continue setup using this partition.
11. Select Format the partition using the NTFS file system (Quick), then press enter. (A caution is displayed. The caution explains that formatting this drive will delete all current files.)
12. Press **F** to format the drive. (The reinstallation process begins.)

After the repair process is complete, which may take up to 2 hours, the notebook restarts in Windows, and you can begin to reinstall device drivers.

## Reinstalling Device Drivers and Other Software

After the installation process is complete, you must reinstall drivers.

To reinstall drivers using the Driver Recovery CD included with the notebook:

1. While running Windows, insert the Driver Recovery CD into the optical drive.

If the CD does not open within several seconds, select Start > Run. Then type D:\SWSETUP\APPINSTL\SETUP.EXE (where D indicates the optical drive).

2. Follow the on-screen instructions for installing drivers.

After the drivers are reinstalled, you must reinstall any software you added to the notebook. Reinstallation instructions are usually provided on the software CD, in the CD package, or at the manufacturer's Web site.

## Installing a Retail Version of an Operating System

The Windows operating system provided on the notebook or on a restoration CD is enhanced by HP. The HP enhancements add power and security features and provide supplementary support for external devices such as drives and PC Cards.



**CAUTION:** Replacing an operating system enhanced by HP with a retail version of an operating system will result in the loss of all HP enhancements. In some cases, the loss of these enhancements may result in an unresponsive system or the loss of complete USB support.

## Using the Setup Utility

The Setup utility is a preinstalled, ROM-based information and customization utility that can be used even when your operating system is not working or will not load.

The utility reports information about the notebook and provides settings for startup, password, port, Setup utility appearance, and other preferences.

## Opening the Setup Utility

To access most settings:

1. Start up or restart the notebook.
2. Before Windows opens and while the F10 = ROM Based Setup prompt is displayed in the lower left corner of the screen, press **F10**.

On some models, you must start up (not restart) the notebook to access the settings for a hard drive password.

## Navigating and Selecting in the Setup Utility

Because the Setup utility is not Windows-based, it does not support the TouchPad. Navigation and selection are by keystroke.

- To navigate, use the up and down arrow keys or **tab**.
- To select an item, use the arrow keys to select the item, then press **enter**.
- To close a display but remain in the Setup utility, press **esc**.

An on-screen guide to navigation and selection is displayed at the lower edge of most Setup utility submenu screens. To minimize keystrokes by using the <Alt> Key Activates Accelerators feature:

1. Press and hold **alt**. (A letter or number in most on-screen items is highlighted.)
2. Press the keyboard key corresponding to the highlighted letter or number in the item you want to select.

For example, to select an on-screen OK button, press **alt**. When the “O” in OK is highlighted, press **O**.

## Restoring Setup Utility Default Settings

To return all Setup utility settings to default values, select File menu > Restore Defaults. (Identification information, including ROM version information, is retained.)

## Exiting the Setup Utility

The Setup Utility exit options are on the File menu. When you select either option, Windows opens after the Setup utility closes.

- To close the utility and save your changes from the current session, select Save changes and exit.
- To close the utility without saving changes from the current session, select Ignore changes and exit.

## Using the Support Utilities

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

## Using the Help and Support Window

Select Start > Help and Support or press the **Fn+F1** hotkeys. The Help and Support window provides access to information about using your operating system and to support areas of the HP Web site.

Most of the support areas are available in several languages, but some links may be unavailable in some regions. You can use the links in the Help and Support window to:

- Initiate an online service event with a support specialist.
- Download the latest drivers, utilities, and software updates for your notebook.
- Obtain information about your notebook such as specifications, white papers, customer advisories, and all documentation included with your notebook.

## Using Support Telephone Numbers

### Obtaining Support Telephone Numbers

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

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

### Preparing to Call Technical Support

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

- Serial number and model description, which are provided on labels affixed to the notebook.
- Purchase date on the invoice.
- Conditions under which the problem occurred.
- Error messages that have been displayed.
- Operating system version number and registration number.
- To display the operating system version number and registration number, select Start > Control Panel > Performance and Maintenance icon > System icon > General tab.
- Brand and model of an optional printer.

# A

## Specifications

The information in this appendix may be helpful if you plan to use or transport the notebook internationally or in extreme environments.

### Notebook Dimensions

Dimension	U.S.	Metric
Height	1.24 inches	3.15 cm
Width	14.06 inches	35.7 cm
Depth	10 inches	25.4 cm

### Operating Environment

Factor	U.S.	Metric
<b>Temperature</b>		
Operating	50° to 95° F	10° to 35° C
Nonoperating	-4° to 140° F	-20° to 60° C
<b>Relative humidity (noncondensing)</b>		
Operating	10% to 90%	10% to 90%
Nonoperating	5% to 95%	5% to 95%
<b>Maximum altitude (unpressurized)</b>		
Operating	10,000 ft	3,048 m
Nonoperating	30,000 ft	9,144 m

## Specifications

### Rated Input Power

The notebook operates on DC power, which can be supplied by an AC or a DC power source. Although the notebook can be powered from a stand-alone DC power source, HP strongly recommends that the notebook be powered only with an AC adapter or DC cable supplied or approved by HP.

An AC adapter provided by HP for use with this notebook is capable of accepting AC power within the following specifications:

Input Power	Rating
Operating voltage	100–240V AC @ 1.7A - 50–60Hz
Operating current	1.5A rms
Operating frequency range	50 to 60Hz

The notebook is capable of accepting DC power within the following specifications:

Input Power	Rating
Operating voltage	18.5V DC @ 3.5A- 65W
Operating current	4.9A

This product is designed for IT power systems in Norway with phase-to-phase voltage not exceeding 240 Vrms.

## Finding More Environmental Information

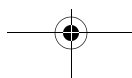
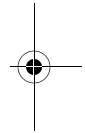
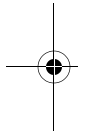
The specifications in this appendix contain information about exposing the notebook to environmental extremes.

- For similar information about storing battery packs, see the “Storing a Battery Pack” section in Chapter 4.
- For information about exposing the notebook to sunlight, ultraviolet light, x-rays, or magnetic fields, refer on the *Documentation Library* CD to the *Maintenance, Shipping and Travel* guide.



## *Specifications*

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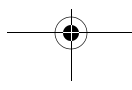
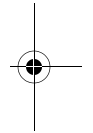
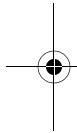
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