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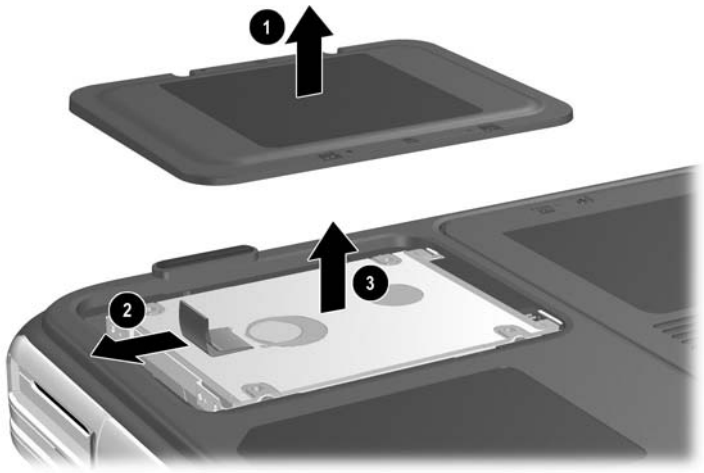
7. Remove the hard drive cover ❶.
8. Using the handle, unseat the hard drive by sliding the hard drive towards the edge of the notebook ❷, then remove it from the hard drive bay ❸.



Removing an internal hard drive

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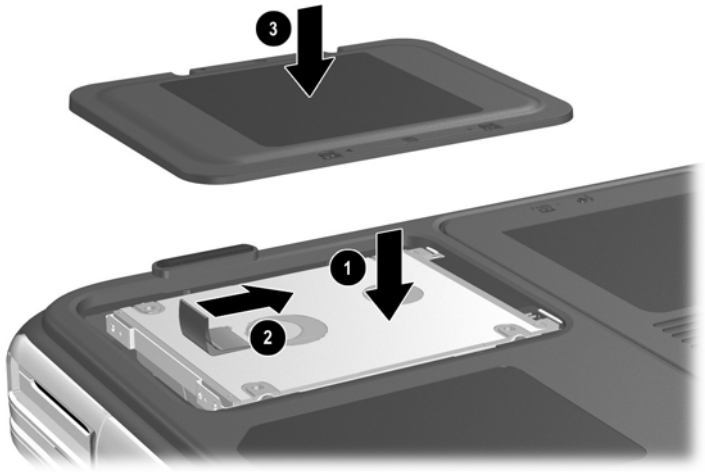
9. To install a hard drive, lower the hard drive into the hard drive bay ❶, then slide the hard drive away from the notebook edge until it is fully seated ❷. Lower the hard drive cover onto the hard drive bay ❸.



Installing an internal hard drive

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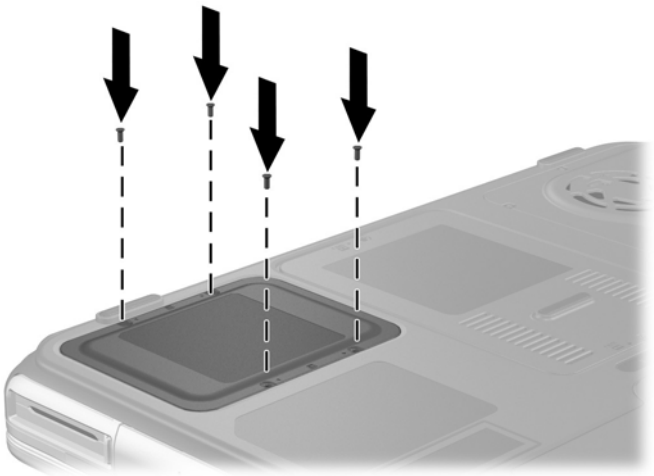
10. If you have installed a hard drive, reinsert the 4 hard drive retaining screws. (If you removed but did not replace a hard drive, put the retaining screws in a safe place.)



Replacing the hard drive retaining screws

Optical Drive

CAUTION: To avoid playback distortion or damage to optical media, stop the CD or DVD and exit media software before inserting or removing an optical drive.

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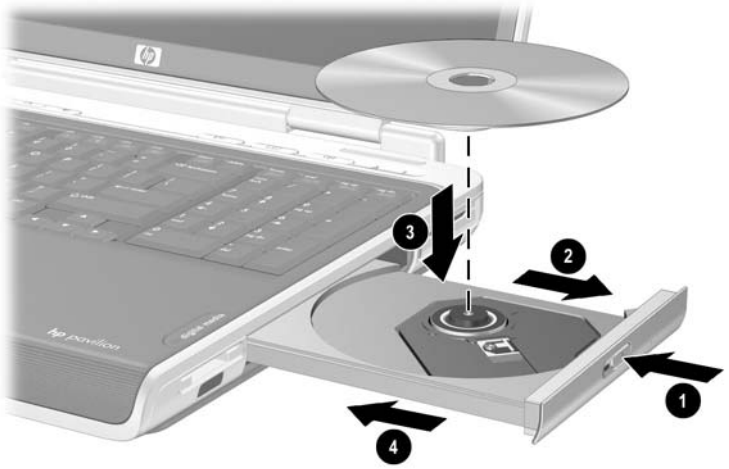
Inserting an Optical Disc

1. Turn on the notebook.
2. Press the release button ❶ on the drive bezel to release the media tray, then pull the tray outward until it is fully extended ❷.
3. Position a CD or one-sided DVD over the tray, label side up.
4. Gently press the center of the disc onto the tray spindle ❸ until the disc snaps into place. Handle the disc by the edges, not the flat surfaces. (If the media tray is not fully extended, tilt the disc to position it over the tray spindle, then press it down into position.)
5. Close the media tray ❹.



Inserting an optical disc into the optical drive

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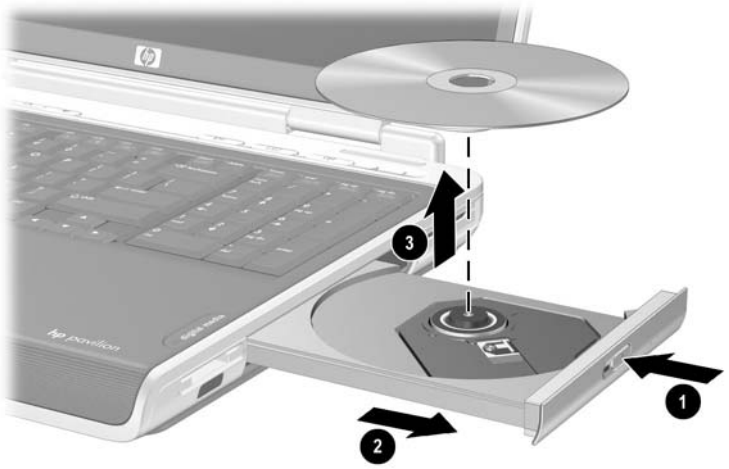
Removing an Optical Disc (With Power)

1. Turn on the notebook.
2. Press the release button ❶ on the drive bezel to release the media tray, then pull the tray outward until it is fully extended ❷.
3. Remove the disc from the tray by gently pushing down on the spindle while pulling up on the outer edges of the disc ❸. Handle the disc by the edges, not the flat surfaces. If the media tray is not fully extended, tilt the disc as you remove it.
4. Close the media tray.
5. Place the disc in a protective case.



Removing an optical disc from the optical drive when power is available

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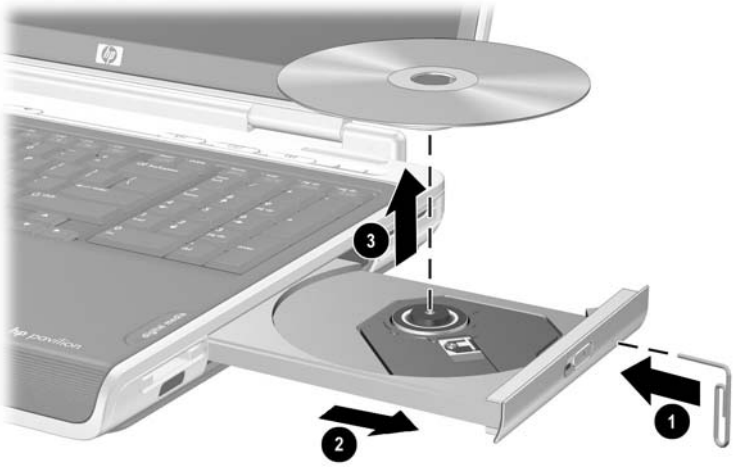
Removing an Optical Disc (Without Power)

If the notebook is turned off or if no power is available, the release button on the optical drive will not work. To remove a disc from an optical drive without using the release button:

1. Insert a small object like the end of a paper clip into the release access ❶ in the front bezel of the drive.
2. Press gently on the paper clip until the media tray is released, then pull the tray out until it is fully extended ❷.
3. Remove the disc from the tray by gently pushing down on the spindle while pulling up on the outer edges of the disc ❸. Handle the disc by the edges, not the flat surfaces. If the media tray is not fully extended, tilt the disc as you remove it.
4. Place the disc in a protective case.



Removing an optical disc from the optical drive when power is not available

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Playing an Optical Disc

You can play a CD in a CD drive or a DVD drive. You can play a DVD only in a DVD drive.

The information in this section applies to most optical drives and most disc software. For information about specific disc software, including Windows Media Player, WinDVD, and Easy CD Creator, refer to "Using Multimedia Software" in chapter 6.

Displaying Optical Disc Contents

When you insert a CD or DVD into the system, the notebook can play the medium, display its contents, take no action, or display a response prompt on the screen. You can choose how the notebook responds to the insertion of a medium by using the operating system AutoPlay feature.

When AutoPlay is enabled, in most cases your notebook responds to the following procedures as described:

- To prevent an audio CD from opening when AutoPlay is enabled on the drive containing it, press the **shift** key as you insert the CD.
- To display the contents of a drive medium when the contents are not displayed by AutoPlay:

  1. Insert the medium into the drive.
  2. Select Start > Run, then type:

     x:

     where x = the designation of the drive containing the disc.
  3. Press **enter.**

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Protecting Playback

CAUTION: Inserting or removing any device while running any multimedia application may pause or stop the play.

CAUTION: Initiating Standby or Hibernation while playing a drive medium may stop the play or diminish the quality of the play.

If Standby or Hibernation is accidentally initiated during playback:

- If you see the warning message "Putting the computer into Hibernation or Standby may stop the playback. Do you want to continue?" select No. (Audio and video may resume or you may need to restart the drive medium.)
- If Standby or Hibernation initiates and no warning message is displayed, resume from Hibernation or Standby by briefly pressing the power button, then restart the medium.

Observing the Copyright Warning

It is a criminal offense, under applicable copyright laws, to make unauthorized copies of copyright-protected material, including computer programs, films, broadcasts, and sound recordings. This notebook should not be used for such purposes.

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Setting the Boot Order

By default, the notebook starts up from the internal hard drive. You can set the notebook to start up from any bootable CD or DVD in the optical drive. A bootable CD or DVD contains files needed by the notebook to start up and operate properly. On some models, you can also start up from a drive connected to the notebook by USB.

Startup preferences are set in the Setup utility. The Setup utility is not a Windows utility and does not support the TouchPad. For information about using the Setup utility, refer to the "Using the Setup Utility" section in Chapter 9.

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6

Multimedia

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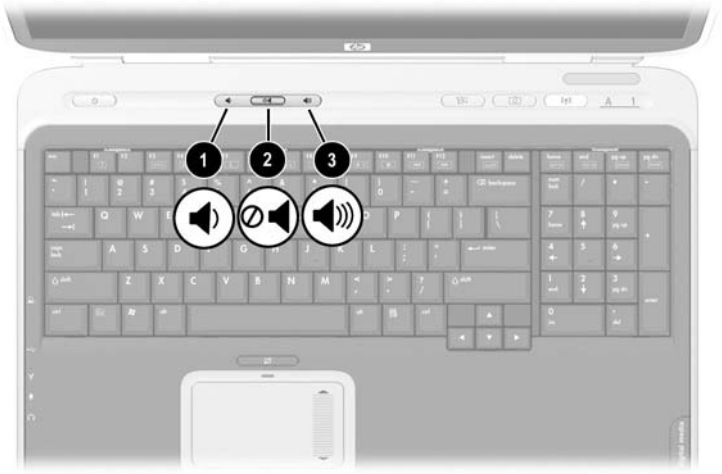
Adjusting Volume

Volume can be adjusted by using the audio buttons on the notebook or by using the volume control software. The mute button overrides all software volume settings.

Using the Volume Buttons

To adjust volume using the audio buttons:

- To increase volume, press the increase volume button ❸.
- To mute or restore volume, press the mute button ❷.
- To decrease volume, press the decrease volume button ❶.



Identifying the audio buttons

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Using the Volume Control

To place the volume control icon on the taskbar:

Select Start > Control Panel > Sounds, Speech, and Audio Devices > Sounds and Audio Devices icon > Volume tab. Select the Place volume icon in the task bar check box.

To adjust volume, click the volume control icon. To increase or decrease volume, select the slide bar and drag it up or down. To mute or restore volume, select or clear the Mute check box.

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

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Using the Speakers

The internal speakers plays sound in stereo from applications, the operating system, games, drive media, the Internet, and other sources.

If an external device, such as a headset, is connected to the audio-out jack, the internal speakers are disabled.

Identifying the internal speakers

Connecting an Audio Device

WARNING: To reduce the risk of personal injury, adjust the volume before putting on headphones or a headset.

CAUTION: To prevent possible damage to an external device, do not plug a monaural (single sound channel) plug into the audio-out jack.

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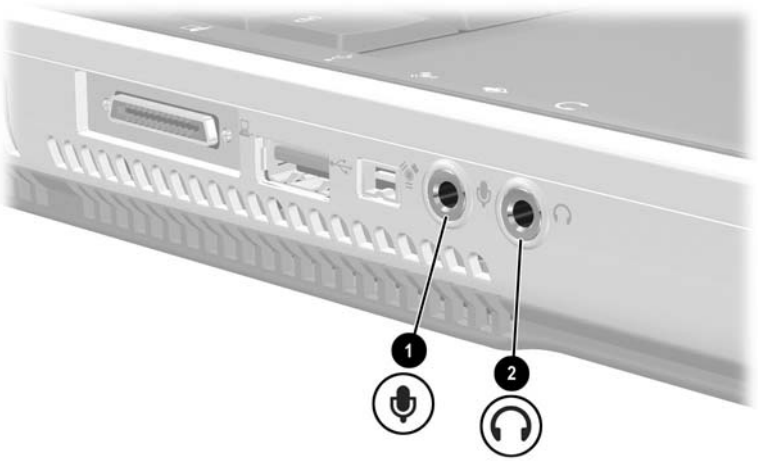
Identifying the Audio Jacks

The notebook has 2 audio jacks:

- The microphone jack ❶, sometimes called the *line-in* jack, connects an optional monaural or stereo microphone.
- The audio line-out jack ❷, sometimes called a *line-out* jack, connects headphones or external stereo speakers.



Identifying the audio jacks

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Using the Microphone Jack

When connecting a microphone to the microphone jack, use a monaural microphone with a 3.5-mm plug. A monaural electret condenser microphone is recommended.

- If you connect a stereo microphone, left channel sound will record on both channels.
- If you connect a dynamic microphone, the recommended sensitivity may not be achieved.

Using the Audio Line-Out Jack

The audio-out jack is also used to connect the audio functions of an audio/video device such as a television or VCR.

When you connect a device to the audio-out jack:

- Use only a 3.5-mm plug.
- For best sound quality, use 24-ohm to 32-ohm headphones.
- The internal speakers are disabled.

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Connecting an S-Video Device

Connecting the Audio

The S-Video jack supports video signals only.

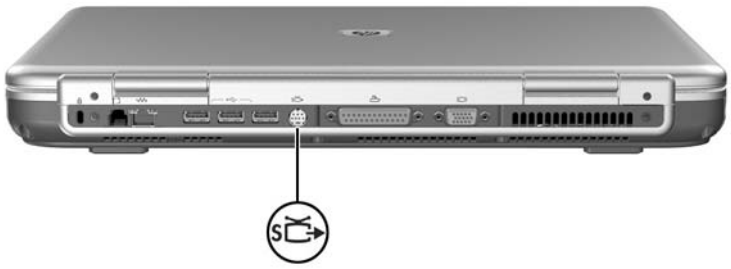
If you are setting up a configuration that combines audio and video functions, such as playing a DVD movie on your notebook and displaying it on your television, you will need a standard 3.5-mm audio cable available from most computer or electronics retailers.

Plug the stereo end of the audio cable into the notebook audio-out jack. Plug the other end of the cable into the audio *input* jack on the external device.

Connecting the Video

To transmit video signals through the S-Video jack, you will need a standard S-Video cable available from most computer or electronics retailers.

Plug either end of the S-Video cable into the notebook S-Video jack. Plug the other end of the cable into the S-Video *input* jack on the external device.



Identifying the S-Video jack

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Turning a Video Device On and Off

When an S-Video device is turned on, an image is displayed. When the device is off, an image is not displayed.

To turn on a video device that is connected to the notebook:

- Start or restart the notebook.
- Repeatedly pressing the **fn+f4** hotkey toggles the image between the notebook display, any connected external monitor, and simultaneous display of the notebook and connected monitor.
- Switching the image to a connected video device turns on the video device.
- Switching the image to the notebook display only turns off the video device.

The preceding methods for turning a video device on and off are interchangeable. If you turned off a connected device in Windows, for example, you can turn on the device by either restarting the notebook or pressing the **fn+f4** hotkey.

To conserve power, turn off the device before disconnecting the device from the system.

Changing the Color Television Format

Color television formats are modes by which television video signals are sent and received. To send signals between the notebook and a television, both the notebook and the television must be using the same color television format.

The NTSC format is common in the United States, Canada, Japan, and South Korea. The PAL format is common in Europe, China, Russia, and Africa, and the PAL-M format is common in Brazil. Other South American and Central American countries may use NTSC, PAL, or PAL-M.

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Region-specific formats are set at the factory for most notebooks, but the region setting can be changed on any notebook. Refer to "Changing DVD Region Settings" later in this chaper.

Color television format settings are changed in the Setup utility. The Setup utility is not a Windows utility and does not support the TouchPad. For information about using the Setup utility, refer to the "Using the Setup Utility" section in Chapter 9.

Using Multimedia Software

This section provides guidelines for playing CDs and DVDs using Windows Media Player and WinDVD. This software supports the integrated optical drive on your notebook.

Playing Audio and Video CDs with Windows Media Player

The Windows Media Player application is a program included with the operating system.

Use Windows Media Player primarily for playing audio CDs. Although video CDs can be played using Windows Media Player, InterVideo WinDVD provides higher quality playback.

To open Windows Media Player and play a CD:

1. Insert a CD into the optical drive, then close the tray.
2. If you do not have Autorun enabled, select Start > All Programs > Windows Media Player.
3. Select the Play button to play the CD.To stop the CD, use the on-screen Play button or Stop button, or use the media hotkeys described in the "Using Hotkey and Shortcut Keys" section of Chapter 3.

To access Windows Media Player Help, select Help on the Windows Media Player menu bar.

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Playing Video CDs and DVDs with InterVideo WinDVD

InterVideo WinDVD is an application that enables you to play DVD movies or video CDs. WinDVD is preinstalled on the notebook. Some DVDs contain third-party DVD player programs such as PCFriendly that may interfere with WinDVD.

Installing WinDVD

If WinDVD has been uninstalled and you insert a DVD that contains a non-HP player program, you are prompted to install that non-HP player program.

If you prefer to use WinDVD, decline the non-HP player installation, close the installation window, and re-install WinDVD.

To re-install WinDVD:

1. Select Start > All Programs > Software Setup. A setup wizard loads, and a list of applications is displayed.
2. Select WinDVD and follow the instructions on the screen.

For more information about WinDVD, select Help on the WinDVD menu bar.

Playing a Video CD or DVD

For best playback quality, save and close all files and software unrelated to playing the DVD or video CD.

If a DVD displays a Playback Of Content From This Region Is Not Permitted error message, stop the DVD, change the region setting, then restart the DVD. For information about changing the region setting, refer to "Changing DVD Region Settings" in this chapter.

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To play a DVD or video CD:

1. Insert the DVD or video CD into the optical drive.
2. Assign WinDVD to play the video:
   - ❏ If the Microsoft Windows XP AppPicker window is displayed, select Play Video By Using WinDVD.
   - ❏ If the Microsoft Windows XP AppPicker window is not displayed, select Start > All Programs > InterVideo WinDVD > InterVideo WinDVD.
3. Follow the instructions on the screen.

After you insert a DVD, a short pause is normal before Autorun opens the DVD and WinDVD Player.

Changing DVD Region Settings

Most DVDs that contain copyrighted files also contain region codes. The region codes help protect copyrights internationally.

You can play a DVD containing a region code only if the region code on the DVD matches the region setting on your DVD drive.

If the region code on a DVD does not match the region setting on your drive, a Playback Of Content From This Region Is Not Permitted message is displayed when you insert the DVD. To play the DVD, you must change the region setting on your DVD drive.

CAUTION: The region setting on your DVD drive can be changed only 5 times.

- The region setting you select the fifth time becomes the permanent region setting on the drive.
- The number of allowable region changes remaining on the drive is displayed in the Remaining Times Until Permanent field in the WinDVD window. The number in the field includes the fifth and permanent change.

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To change the region setting on drive media:

1. Open WinDVD by doing one of the following:
   - ❏ Select the WinDVD icon on the taskbar.
   - ❏ Select Start > All Programs > InterVideo WinDVD > InterVideo WinDVD.
2. Right-click on the WinDVD player window.
3. Select Setup.
4. Select the button for the region.
5. Select the OK button.

Creating CDs with Roxio Easy CD & DVD Creator

Roxio Easy CD & DVD Creator is a data transfer utility that enables you to create or copy optical drive media. Before you can create CDs, you must install this application using the installation CD provided with your notebook.

If your optical drive has DVD+RW capability, DVDs can be used with Easy CD and DVD Creator to store large amounts of data on a disc. To build DVDs containing movies, refer to "Creating DVDs Using InterVideo WinDVD Creator," later in this chapter.

When Easy CD & DVD Creator is installed on your notebook model, a Roxio Easy CD and DVD Creator icon is displayed in Start > All Programs > Roxio Easy CD and DVD Creator.

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Understanding Easy CD & DVD Creator Features

Easy CD & DVD Creator includes the following 4 applications:

Application	Allows you to
Disc Copier	create backup copies of personal discs.
Creator Classic	create CDs backups or archives of files on your hard drive.
Drag-To-Disc	“drag and drop” files to a CD or DVD and automatically record data was you would with a floppy disk. Drag-to-Disc does not copy and burn audio files.
Roxio Label Creator	create personalized labels for your discs.

Additional applications that appear in the Roxio Easy CD & DVD Creator online User’s Guide are not available on this notebook model, as purchased.

These applications can be accessed through the start menu or through the Home window. To open the Home window select Start > All Programs > Roxio Easy CD and DVD Creator > Home.

For a more information concerning Easy CD & DVD Creator applications, features, or use, refer to the Roxio Easy CD & DVD Creator online Userfs Guide. To access the guide, select Start > All Programs > Roxio Easy CD and DVD Creator > User’s Guide.

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Preparing to Use Easy CD & DVD Creator

CAUTION: To prevent loss of work and damage to a CD or DVD:

- Before writing to a CD, connect the notebook to a reliable external power source. Do not write to a CD while the notebook is running on battery power.
- Before writing to a CD, close all open applications (including screen savers and antivirus software) except Easy CD and DVD Creator.
- Do not copy directly from a CD to another CD or from a network drive to a CD. Instead, copy from a CD or network drive to your hard drive, then copy from your hard drive to the CD.
- Do not type on the notebook keyboard or move the notebook while the notebook is writing to a CD. The write process is sensitive to vibration.

Choosing Recording Media

HP recommends using high-quality media that correspond to the maximum speed of the optical drive. The notebook can write or copy to CDs which provide one-time, non-erasable recording (CD-R) or to CDs which provide erasable recording (CD-RW).

In order to write data to a CD, you must use a blank CD-R or disc or a CD-RW disc on which the format has not been finalized. For more information about choosing media for use with Easy CD and DVD Creator, refer to the Roxio Easy CD and DVD Creator online User's Guide.

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Responding to the UDF Prompt

The first time you insert a CD into an optical drive, you may be prompted to install Universal Disk Format (UDF) Reader.

The UDF Reader is preinstalled on select notebook models. If UDF Reader is installed on your notebook, a CD created with the Drag-to-Disc application can be used in a compatible optical drive on a computer without Drag-to-Disc, provided you select the Make this disc readable on any CD-ROM or DVD-ROM drive option during the eject process.

Formatting Recording Media

To record information to a disc using Drag-to-Disc, use a CD formatted for Drag-to-Disc. Drag-to-Disc will automatically format blank discs.

Formatting a disc in Drag-to-Disc may take up to 45 minutes to complete.

To record information to a CD using Creator Classic or Disc Copier, do not use a CD formatted for Drag-to-Disc or erase the information from a rewriteable disc to use it again.

To manually format a disc so that it can be used in Creator Classic or Disc Copier:

1. Insert a disc into the optical drive.
2. Open Drag-to-Disc by selecting Start > All Programs > Roxio Easy CD and DVD Creator > Drag-to-Disc.
3. Open the Drag-to-Disc menu.
4. Select Manually Format Disc, and choose the format settings.
   - ❏ To format a disc for use with only Drag-to-Disc, select Quick Format.
   - ❏ To format a disc for use with another application, select Full Format.
5. Select OK.

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To record information to a CD using Creator Classic or Disc Copier, do not use a CD formatted for Drag-to-Disc or erase the information from a rewriteable disc to use it again.

Creating CDs

Refer to the Roxio Easy CD and DVD Creator online User's Guide for details on burning CDs.

Erasing Recorded Media with Roxio Easy CD & DVD Creator

You cannot erase data from a CD-R or DVD+R disc. Only CD-RW or DVD+RW discs can be used in the following process.

Erasing recorded media in Drag-to-Disc or Creator Classic may take up to 45 minutes to complete.

Erasing Recorded Media with Drag-to-Disc

To erase recorded media created with Drag-to-Disc:

1. Insert the CD into the optical drive.
2. Open the Drag-to-Disc window by selecting Start > All Programs > Roxio Easy CD Creator > Drag-to-Disc.
3. Open the Drag-to-Disc menu.
4. Select Erase Disc.
5. Select OK.

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Erasing Recorded Media with Creator Classic

To erase recorded media formatted with Creator Classic:

1. Insert the CD into the optical drive.
2. Open the Creator Classic window by selecting Start > All Programs > Roxio Easy CD and DVD Creator > Creator Classic.
3. In the Source window, select the optical drive containing the disc you wish to erase.
4. On the Creator Classic menu bar, select Disc > Erase Disc.

Selecting Easy CD & DVD Creator Settings

To use Drag-to-Disc, Creator Classic, or Disc Copier, the default settings shown in the following table must be selected. These settings are compatible; for example, the settings for Drag-to-Disc do not conflict with the settings for Disc Copier.

Application	Required Settings
Drag-to-Disc	Enable Auto Insert Notification*
Creator Classic	Disable Disc-at-Once** and Enable Track-at-Once**
Disc Copier	Disable Disc-at-Once

* Auto Insert Notification settings are selected through the operating system.

** Disk-at-Once and Track-at-Once are recording methods that appear in the Record Setup window after you begin burning a CD.

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The following table describes the Track-at-Once and Disc-at-Once recording methods.

Option	Description
Track-at-Once	Writes data to the disc in multiple passes and allows you to copy one track or data file at a time to the disc. Additional options allow you to choose whether the session is finalized at the end of recording.
Disc-at-Once	Writes all information to the disc at once and finalizes both the session and the disc at the end of recording.

For additional information about Track-at-Once or Disc-at-Once settings, refer to the Roxio Easy CD and DVD Creator online User's Guide.

Creating DVDs Using InterVideo WinDVD Creator

InterVideo WinDVD Creator allows you to create, author, and edit movies and burn them to a DVD. Before you can create DVDs, you must install this application using the installation CD, included with select notebook. This application will not install successfully unless your notebook is equipped with an optical drive that has DVD+RW capability.

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Preparing to Use InterVideo WinDVD Creator

CAUTION: To prevent loss of work and damage to a DVD:

- Before writing to a DVD, connect the notebook to a reliable external power source. Do not write to a DVD while the notebook is running on battery power.
- Before writing to a DVD, close all open applications (including screen savers and antivirus software) except InterVideo WinDVD Creator.
- Do not copy directly from a DVD to another DVD or from a network drive to a DVD. Instead, copy from a DVD or network drive to your hard drive, then copy from your hard drive to the DVD.
- Do not type on the notebook keyboard or move the notebook while the notebook is writing to a DVD. The write process is sensitive to vibration.

Choosing Recording Media

HP recommends using high-quality media that correspond to the maximum speed of the optical drive. The notebook can write or copy to DVDs which provide one-time, non-erasable recording (DVD+R) or to DVDs which provide erasable recording (DVD+RW).

In order to write data to a DVD, you must use a blank DVD+R disc or a DVD+RW disc on which the format has not been finalized. For more information about choosing media for use with WinDVD Creator, select Help on the WinDVD Creator menu bar.

Creating DVDs

To open InterVideo WinDVD Creator, select Start > All Programs > InterVideo WinDVD Creator> InterVideo WinDVD Creator.

For instructions on creating DVDs, select Help on the WinDVD Creator menu bar.

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7

Communications

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Modem

All notebook models include an RJ-11 telephone jack, and a preinstalled V.92 modem. A modem cable with RJ-11 connectors at each end is also included with select models.

If you purchased a notebook with an internal modem in a country where RJ-11 telephone jacks are not standard, a country-specific modem adapter is included with the notebook.

For best performance, you can connect to any Internet Service Provider (ISP) or modem network that has V.90 or V.92 interoperable modems. Check with your ISP for a list of telephone numbers that support V.90 or V.92. (V.92 enables modem on-hold technology that allows an Internet session to be interrupted to answer a phone call, then resumes the Internet session after the call is complete.)

The maximum speed for faxing is 14.4 Kbps, even though the modem is capable of downloading at higher speeds.

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.

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Connecting the Modem

A modem must be connected to an analog telephone line.

WARNING: To reduce the risk of electric shock, fire, or damage to the equipment, do not plug a telephone cable into the RJ-45 network jack.

WARNING: Connecting the notebook to a digital line can permanently damage the modem. Immediately disconnect your modem cable if accidentally connected to a digital line.

CAUTION: Jacks for digital PBX systems may resemble RJ-11 telephone jacks, but are not compatible with the modem.

For more information on connecting and configuring your modem, refer to the *Modem and Networking Guide* included on the *Documentation Library* CD.

Network

All notebook models ship with an RJ-45 network jack. A network cable with RJ-45 connectors at each end is included with select models.

The notebook can be connected to a network whether or not the internal modem is connected to a telephone line.

If your notebook is connected to a network, you may want to confer with your network administrator before changing network settings.

The notebook supports network speeds up to 10 Mbps when connected to a 10BASE-T network and 100 Mbps when connected to a 100BASE-TX network.

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Connecting a Network Cable

For information on connecting a network cable, refer to the *Modem and Networking Guide* included on the *Documentation Library* CD.

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.

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Wireless (Select Models Only)

If your notebook is equipped with a wireless device, you can connect by radio to an 802.11b or 802.11g wireless local area network (WLAN) 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 notebook 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.

Wireless antennae location

WARNING: Exposure to Radio Frequency Radiation. The radiated output power of this device is below the FCC radio frequency exposure limits. Nevertheless, the device should be used in such a manner that the potential for human contact during normal operation is minimized. To avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna should not be less than 20 cm (8 inches) during normal operation, including when the notebook display is closed.

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To Turn Wireless Communication On and Off

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 notebook wireless networking.

In Italy, Singapore, and possibly other countries, you may be required to purchase a license before using the wireless function.

Turning On Communication and Making a Connection

To turn on wireless communication and connect to a wireless network:

1. If the notebook is not on, turn it on.
2. Press the wireless on-off button (Quick Launch button) located above the number pad of the notebook to turn wireless 802.11b or 802.11g communication on and off

   The wireless indicator light on the Wireless On/Off Quick Launch button turns on when 802.11b or 802.11g wireless communication is turned on.

To check the status of your wireless connection, open Network Connections in Control Panel, then select the connection.

Turning Off Communication and Ending a Connection

To end wireless communication and disconnect from a wireless notebook:

1. Close any files that reside on other network notebooks.
2. To turn off the wireless 802.11b or 802.11g communication without turning off the notebook, press the wireless on-off button.

Putting the notebook in Standby or shutting it down also turns off the wireless function.

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Connecting to a 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 “ad hoc” network.

Before you can connect your notebook to an existing 802.11b or 802.11g wireless network, you have to configure the notebook.

For details on how to configure your notebook for wireless networking, open the Windows Help and Support Center and enter “wireless” as a search topic. This provides you with overviews, tutorials, articles, and step by step information on setting up your wireless device.

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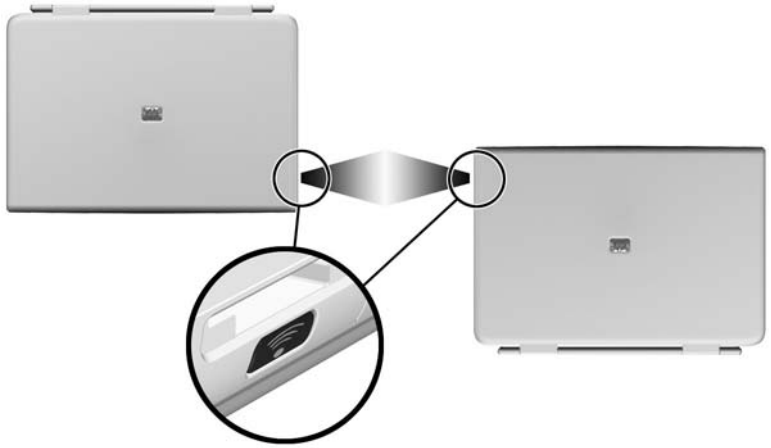
Infrared

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

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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.
- 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.

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8

Hardware Options and Upgrades

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External Devices

The jacks and connectors described in this guide support standard external devices.

- For information about which jack or connector to use, refer to the documentation included with the device.
- For information about installing or loading any software, such as drivers, required by the device, refer to the documentation included with the device.

To connect a standard external device to the notebook:

1. Turn off the notebook.
2. If you are connecting a powered device, turn off the device.
3. Connect the device to the connector on the notebook.
4. If you are connecting a powered device, plug the device power cord into a grounded electrical outlet.
5. Turn on the device.
6. Turn on the notebook.

To disconnect a standard external device from the notebook, turn off the device, then disconnect the device from the notebook.

Connecting a Monitor or Projector

To connect an external monitor or projector to the notebook, insert the monitor cable into the external monitor connector on the back of the notebook.

If a properly connected external monitor or projector does not display an image, try pressing the **fn+f4** hotkey to switch the image to the monitor.

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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 or optional HP Notebook Expansion Base.

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 can support several USB devices.

- 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 earlier devices.

Some USB devices may require additional support software, which is usually included with the device. For more information and software installation instructions, refer to the documentation included with the device.

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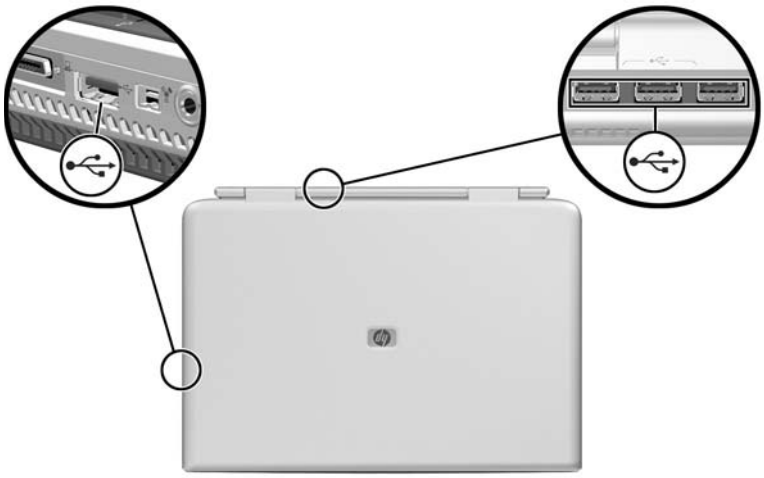
Using a USB Device

To use a USB device, plug the device into one of the four USB connectors on your notebook.

Legacy USB 1.1 support is enabled by default. This supports 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.



Identifying the 3 USB connectors on the rear notebook and 1 USB connector on the left side

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.

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Selecting a PC Card

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

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.

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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

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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 on the taskbar, click the arrow 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

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Using Digital Media

The digital media slot supports the following digital media formats:

- Secure Digital (SD)
- Multimedia Card (MMC)
- Memory Stick (MS)
- SmartMedia (SM)

CAUTION: To prevent damage to the digital media card connectors:

- Use minimal force when inserting a SD, MMC, Memory Stick, or Smart Media into a Digital Media slot.
- Do not move or transport the notebook while Digital Media is inserted.

Digital media formats consist of flash memory cards that provide secure data storage and convenient data sharing. These cards are often used with digital media-equipped cameras and PDAs as well as other notebooks.

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Using the Digital Media Light

The digital media light turns on when an inserted Digital Media card is being accessed. The digital media light turns off when inserted digital media is inactive or when the digital media slot is empty.

Identifying the digital media light

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Inserting Digital Media

To insert a digital media card:

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

Inserting a digital media card

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Removing Digital Media

To remove a Digital Media card:

1. Complete all activities that are supported by the card (such as a data transfer) and close all applications.
2. Push the card in until it is released ❶.
3. Pull the card out of the slot ❷.

Releasing and removing a digital media card

Disabling or Restarting Digital Media

An inserted Digital Media card uses power even when the card is not in use. Disabling the card conserves power.

To disable an inserted Digital Media card, 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 Digital Media Card slot.)

To restart the card, remove, then reinsert, the card. For instructions, refer to "Inserting Digital Media" and "Removing Digital Media" in this chapter.

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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 the amount of free space on your hard drive, double-click My Computer and right-click the hard drive and select properties.

- To display 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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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" section.

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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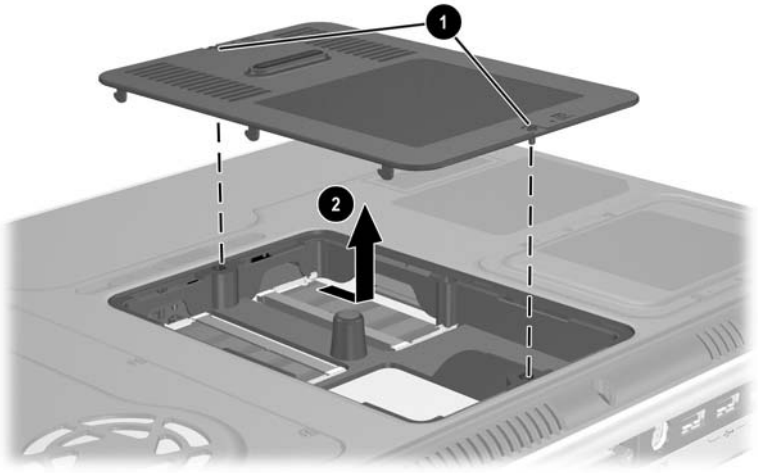
5. Turn the notebook upside down.
6. Remove the two memory compartment screws ❶.
7. Slide the memory compartment cover towards the notebook display hinges and lift up to remove ❷.



Opening the memory compartment

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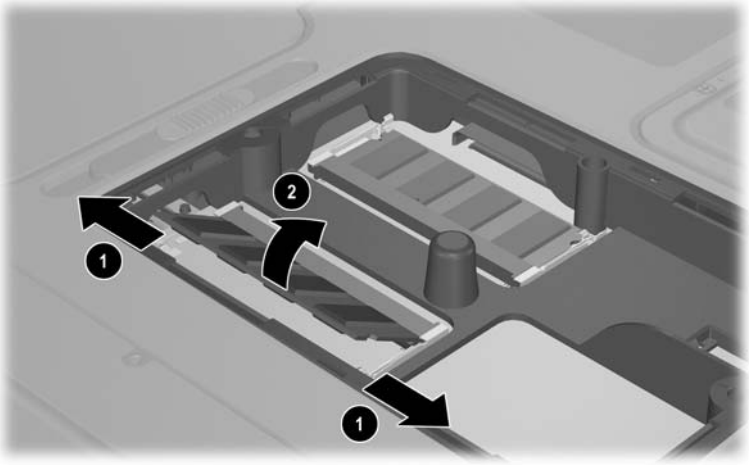
8. Remove or insert the memory module.

   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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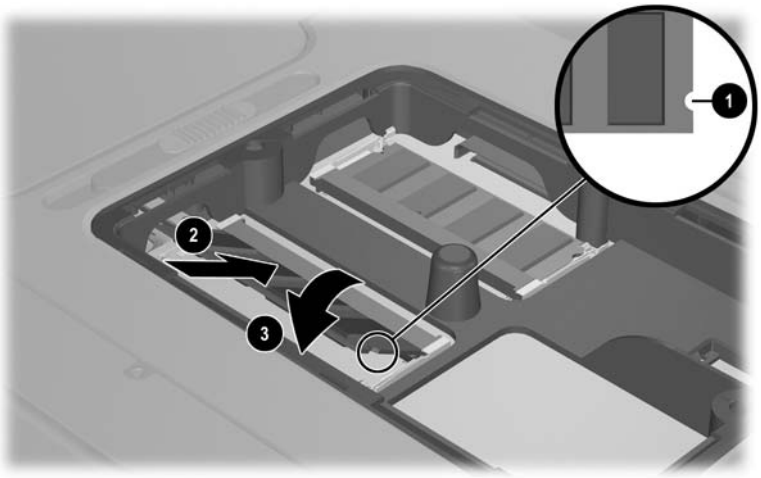
To insert a memory module:

a. Align the keyed (notched) edge of the module with the keyed area in the memory slot ❶.

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 ❷.

c. Push the module down until the retention clips snap into place ❸.



Inserting a memory module

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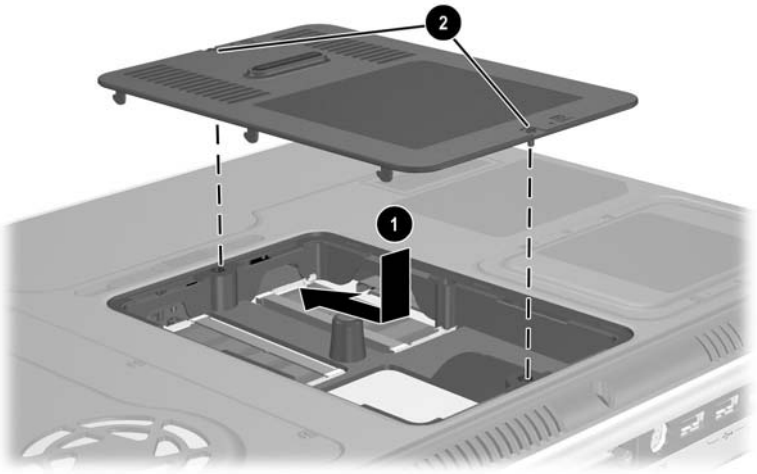
9. Align the tabs on the memory compartment cover with the cover slots on the notebook, then lower the cover and slide it towards the front of the notebook ❶.
10. Reinsert and tighten the two memory compartment screws ❷.
11. Replace the battery pack (if you removed a battery pack at the beginning of this procedure), reconnect external power, then restart the notebook.



Closing the memory compartment

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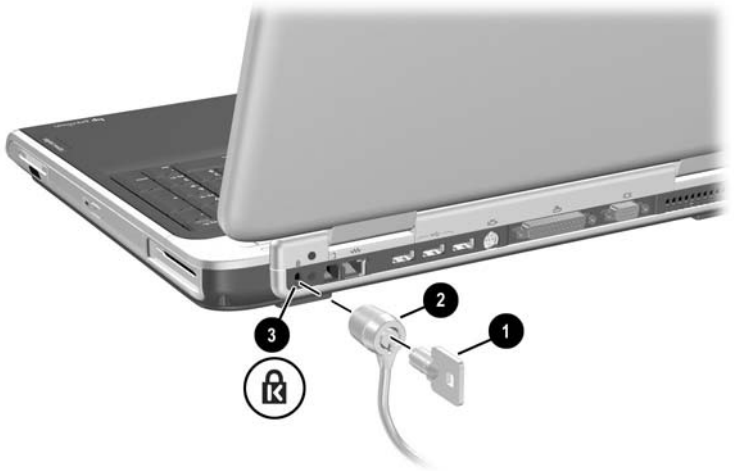
Connecting an Optional Cable Lock

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

To install a security cable:

1. Loop the cable around a secured object.
2. Insert the cable lock key ❶ into the cable lock.
3. Insert the cable lock ❷ into the security cable slot ❸.
4. Lock it with the cable lock key.



Connecting an optional cable lock

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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:

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.

1. Access the updates at the HP Web site.
2. 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.

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 bottom of the notebook.

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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, refer to 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 Press <F10> to enter setup prompt is displayed in the lower left section of the screen, press **f10.**
3. The ROM version and date are displayed in the System BIOS Version field.
4. To exit the Setup utility without changing any settings:
   a. Press **esc** to close the window.
   b. Use the arrow keys to select Ignore changes and exit, then press **enter.**

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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. Readme.txt contains detailed descriptive, installation, and troubleshooting information about the download. Readme.txt 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. (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.

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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.

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 SoftPaq

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 SoftPaq you want to download.
3. At the download area:
   a. Write down the date, name, or other identifier of the SoftPaq 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 SoftPaq 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 "snapshots" or benchmarks 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.

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Repairing or Reinstalling the Operating System

The *Operating System* CD included with your notebook can be used to repair or reinstall the operating system. Either 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, refer to "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, use the *Operating System* CD that was shipped with the notebook:

1. Connect the notebook to external power and turn on the notebook.
2. Immediately insert the *Operating System* 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. Press the power button again 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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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. The notebook restarts in Windows after the process is complete.

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 reinstall. To protect your data, back up your data before beginning the procedure. For back up information and instructions, select Start > Help and Support. Also refer to "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 on the bottom of the notebook.

To reinstall the operating system using the *Operating System* CD included with the notebook:

1. Connect the notebook to external power and turn on the notebook.
2. Immediately insert the *Operating System* CD into the optical drive.
3. Press and hold the power button for 5 seconds to turn off the notebook.
4. Press the power button again 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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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 new copy of the operating system instead of repairing it.
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), and press **enter.**

    ⚠ Formatting a drive will delete all current files.

12. Press **F** to format the drive. The reinstallation process begins. This process may take up to 2 hours to complete. The notebook restarts in Windows after the process is complete.

Reinstalling Device Drivers and Other Software

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

To reinstall drivers use the *Driver Recovery* CD included with the notebook:

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

   If you do not have Autorun enabled, 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. Follow the installation instructions provided with the software.

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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 Press <F10> to enter 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.

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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 **0.**

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 "Exit Saving Changes."
- To close the utility without saving changes from the current session, select "Exit Discarding Changes."

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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	Metric	U.S.
Height (front)	4.25 cm	1.67 inches
Height (rear)	4.70 cm	1.85 inches
Width	39.80 cm	15.67 inches
Depth (with hinge)	28.8 cm	11.33 inches

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Operating Environment

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

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 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

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

Input Power	Rating
Operating voltage	18.5V DC @6.5A- 120W
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, refer to 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.

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