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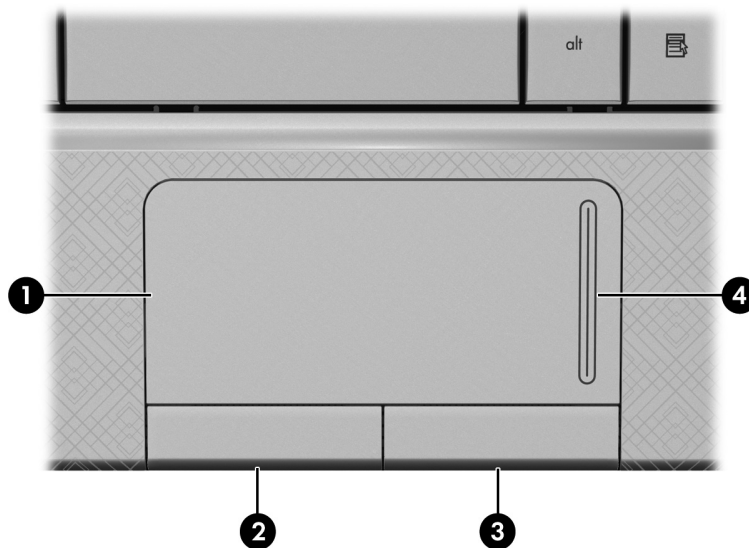
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# Chapter 1: Getting to know your computer

After you set up and register the computer, it is important to learn about your computer features.

## Top

### TouchPad

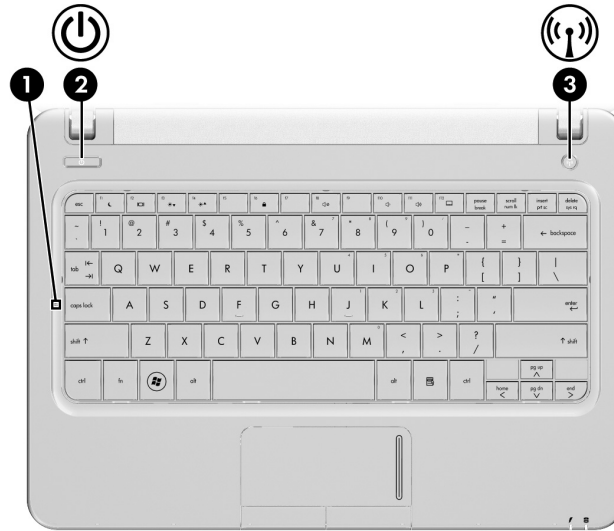




Component	Description
❶ TouchPad	Moves the pointer and selects or activates items on the screen.
❷ Left TouchPad button	Functions like the left button on an external mouse.
❸ Right TouchPad button	Functions like the right button on an external mouse.
❹ TouchPad scroll zone	Scrolls up or down.

This table describes factory settings. To view or change pointing device preferences, select **Start > Devices and Printers**.

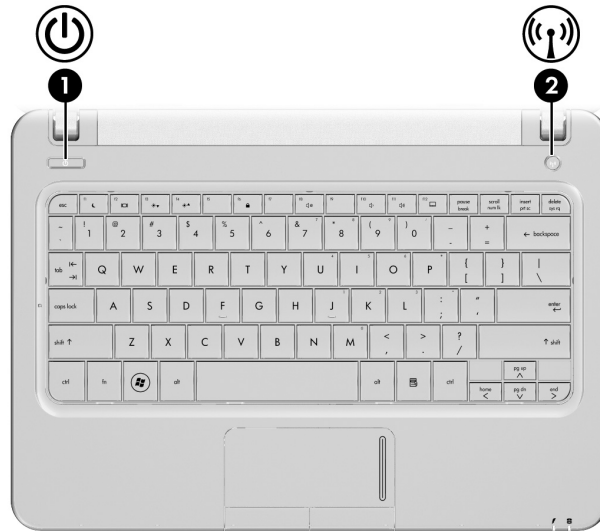
## Chapter 1: Getting to know your computer


### Lights



Component	Description	
① Caps lock light	On: Caps lock is on.	
②  Power light	<ul style="list-style-type: none"> <li>■ On: The computer is on.</li> <li>■ Blinking: The computer is in the Sleep state.</li> <li>■ Off: The computer is off or in Hibernation.</li> </ul>	
③  Wireless light	<ul style="list-style-type: none"> <li>■ Blue: An integrated wireless device, such as a wireless local area network (WLAN) device and/or a Bluetooth® device, is on.</li> <li>■ Amber: All wireless devices are off.</li> </ul>	

## Buttons

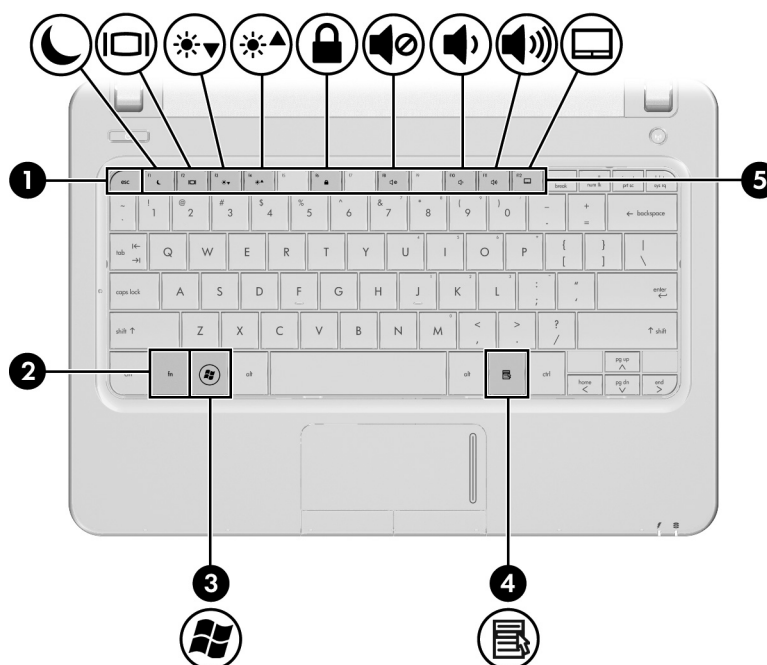




Component	Description
❶ Power button*	<ul style="list-style-type: none"> <li>■ When the computer is off, press the button to turn on the computer.</li> <li>■ When the computer is on, press the button briefly to initiate Sleep.</li> <li>■ When the computer is in the Sleep state, press the button briefly to exit Sleep.</li> <li>■ When the computer is in Hibernation, press the button briefly to exit Hibernation.</li> </ul> <p>If the computer has stopped responding and Windows shutdown procedures are ineffective, press and hold the power button for at least 5 seconds to turn off the computer.</p> <p>To learn more about your power settings, select <b>Start &gt; Control Panel &gt; System and Security &gt; Power Options</b>.</p>
❷ Wireless button	<p>Turns the wireless feature on or off but does not create a wireless connection.</p> <p> To establish a wireless connection, a wireless network must already be set up.</p>

\*This table describes factory settings.

## Chapter 1: Getting to know your computer



### Keys



Component	Description
① <b>esc</b> key	Displays system information when pressed in combination with the <b>fn</b> key.
② <b>fn</b> key	Executes frequently used system functions when pressed in combination with a function key.
③  Windows logo key	Displays the Windows® Start menu.
④  Windows applications key	Displays a shortcut menu for items beneath the pointer.
⑤ Function keys	Execute frequently used system functions when pressed in combination with the <b>fn</b> key.

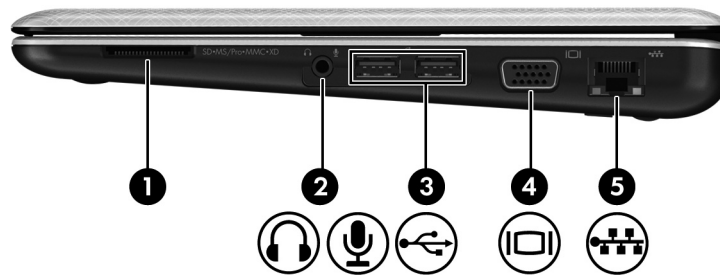
## Front





Component		Description
1	Speakers (2)	Produce sound.
2	 Battery light	<ul style="list-style-type: none"><li>■ On: A battery is charging.</li><li>■ Blinking: A battery that is the only available power source has reached a low battery level. When the battery reaches a critical battery level, the battery light begins blinking rapidly.</li><li>■ Off: If the computer is plugged into an external power source, the light turns off when all batteries in the computer are fully charged. If the computer is not plugged into an external power source, the light stays off until the battery reaches a low battery level.</li></ul>
3	 Drive light	Blinking: The hard drive or flash drive is being accessed.

## Chapter 1: Getting to know your computer

### Right side





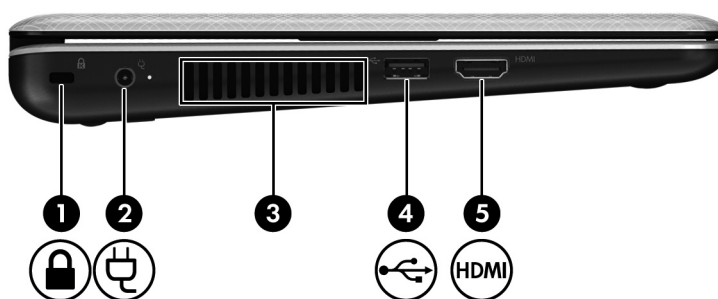
Component	Description
<b>1</b> Digital Media Slot	Supports the following optional digital card formats: <ul style="list-style-type: none"> <li>■ Memory Stick (MS)</li> <li>■ Memory Stick Pro (MS/Pro)</li> <li>■ MultiMediaCard (MMC)</li> <li>■ Secure Digital (SD) Memory Card</li> <li>■ xD-Picture card</li> </ul>
<b>2</b>  Audio-out (headphone) jack/Audio-in (microphone) jack	Produces sound when connected to optional powered stereo speakers, headphones, earbuds, a headset, or television audio. Also connects an optional headset microphone. <p><b>WARNING:</b> To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, refer to the <i>Regulatory, Safety and Environmental Notices</i>. To access these notices, select <b>Start &gt; Help and Support &gt; User Guides</b>.</p> <p> When a device is connected to the jack, the computer speakers are disabled.</p> <p>The audio component cable must have a 4-conductor connector.</p>




(Continued)



*Chapter 1: Getting to know your computer*



Component	Description
③  USB ports (2)	Connect optional USB devices.
④ External monitor port	Connects an external VGA monitor or projector.
⑤  RJ-45 (network) jack	Connects a network cable.

**Left side**

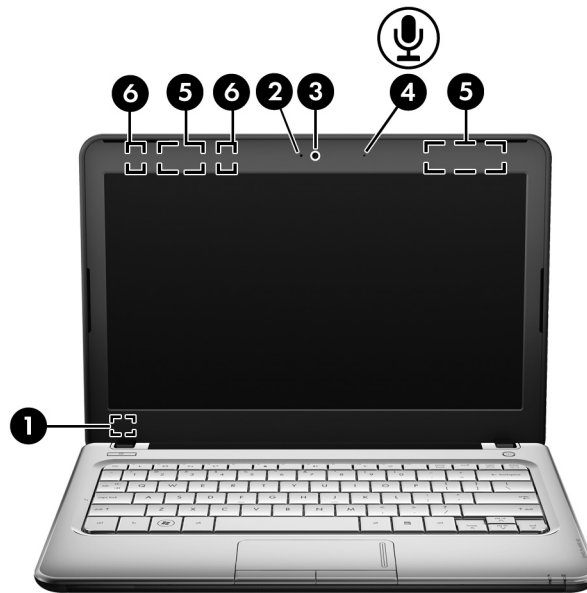
Component	Description
①  Security cable slot	Attaches an optional security cable to the computer.  The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.
②  Power connector	Connects an AC adapter.



*(Continued)*

*Chapter 1: Getting to know your computer*

Component		Description
③	Vent	Enables airflow to cool internal components.   The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
④	 USB port	Connects an optional USB device.
⑤	HDMI port	Connects an optional video or audio device, such as a high-definition television, or any compatible digital or audio component. Depending on your computer model, the computer may include an HDMI port or a USB port at this location.

## Display



Component	Description
❶ Internal display switch	Turns off the display if the display is closed while the power is on.  The display switch is not visible from the outside of the computer.
❷ Webcam light	On: The webcam is in use.
❸ Webcam	Captures still photographs and records video.  To capture videos, you must install additional webcam software.
❹ Internal microphone	Records sound.

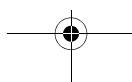
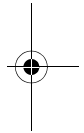
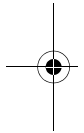
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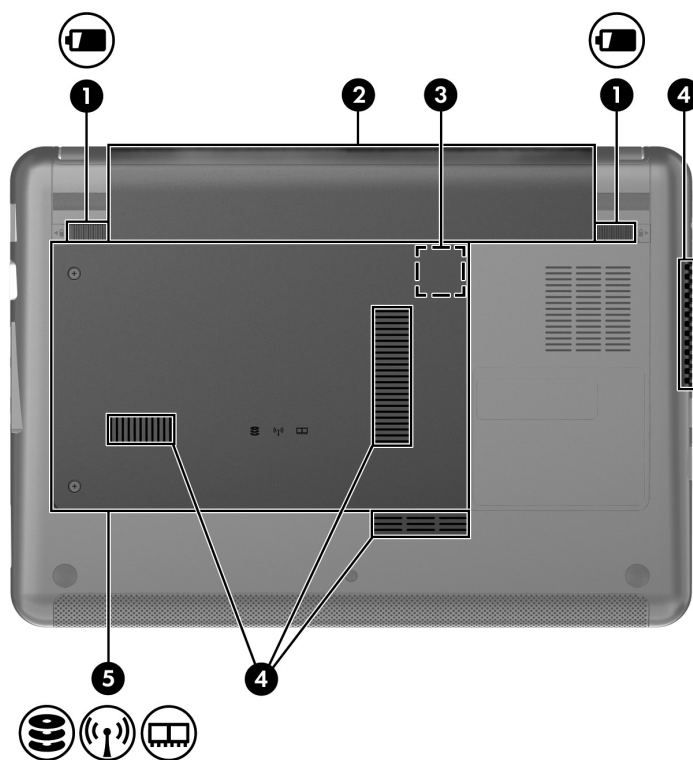
## Chapter 1: Getting to know your computer


Component	Description
⑤ WWAN antennas (2) (select models only)*	Send and receive wireless signals to communicate with wireless wide-area networks (WWANs).
⑥ WLAN antennas (2)*	Send and receive wireless signals to communicate with wireless local-area networks (WLANs).

\*The antennas are not visible from the outside of the computer. For optimal transmission, keep the area immediately around the antennas free from obstructions. To see wireless regulatory notices, refer to the section of the *Regulatory, Safety and Environmental Notices* that applies to your country or region. These notices are located in Help and Support.








## Bottom



Component	Description
❶  Battery release latches (2)	Release the battery from the battery bay.
❷ Battery bay	Holds the battery.
❸ SIM Card slot	Contains a wireless subscriber identity module (SIM) Card. The SIM Card slot is located inside the battery bay.

*(Continued)*

*Chapter 1: Getting to know your computer*

Component		Description
④	Vents (4)	Enable airflow to cool internal components.   The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
⑤	   Hard drive bay	Contains the hard drive, the wireless LAN module slot, and the memory module slot.   <b>CAUTION:</b> To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module to restore computer functionality, and then contact technical support through Help and Support.

## Keyboard and pointing devices

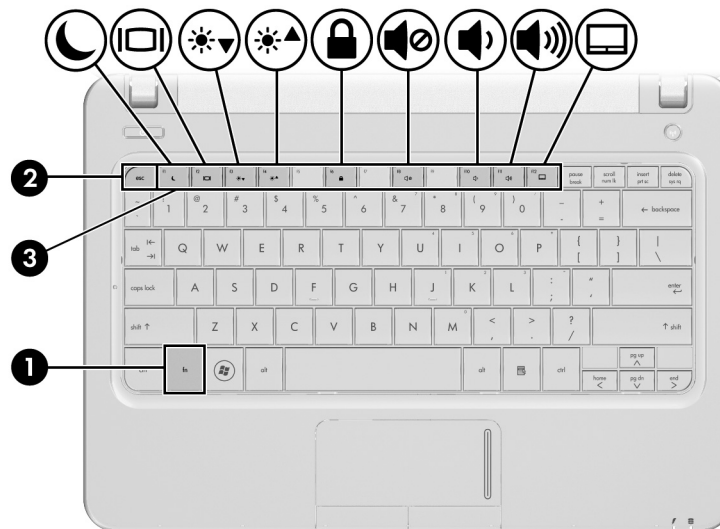
### Using the keyboard

#### Identifying the hotkeys










A hotkey is a combination of the **fn** key ❶ and either the **esc** key ❷ or one of the function keys ❸.

To use a hotkey:

- » Briefly press the **fn** key, and then briefly press the second key of the hotkey combination.






## Chapter 1: Getting to know your computer

Hotkey combination	Description
 <b>fn+f1</b>	<p>Initiates Sleep, which saves your information in system memory. The display and other system components turn off and power is conserved.</p> <p>To exit Sleep, briefly press the power button.</p> <p> <b>CAUTION:</b> To reduce the risk of information loss, save your work before initiating Sleep.</p> <p> If a critical battery level occurs while the computer is in the Sleep state, the computer initiates Hibernation and the information stored in is saved to the hard drive.</p> <p>The function of the <b>fn+f1</b> hotkey can be changed. For example, you can set the <b>fn+f1</b> hotkey to initiate Hibernation instead of Sleep. In all Windows operating system windows, references to the <i>sleep button</i> apply to the <b>fn+f1</b> hotkey.</p>
 <b>fn+f2</b>	<p>Switches the screen image among display devices connected to the system. For example, if a monitor is connected to the computer, <b>fn+f2</b> alternates the screen image from computer display to monitor display to simultaneous display on both the computer and the monitor. Most external monitors receive video information from the computer using the external VGA video standard. The <b>fn+f2</b> hotkey can also alternate images among other devices that are receiving video information from the computer.</p>
 <b>fn+f3</b>	<p>Decreases the screen brightness level.</p>
 <b>fn+f4</b>	<p>Increases the screen brightness level.</p>
 <b>fn+f6</b>	<p>Initiates the QuickLock security feature. QuickLock protects your information by displaying the operating system Log On window. While the Log On window is displayed, the computer cannot be accessed until a Windows user password or a Windows administrator password is entered.</p> <p> Before you can use QuickLock, you must set a Windows user password or a Windows administrator password. For instructions, refer to Help and Support.</p>
 <b>fn+f8</b>	<p>Mutes or restores speaker sound.</p>

(Continued)



Hotkey combination	Description
 <b>fn+f10</b>	Decreases speaker volume.
 <b>fn+f11</b>	Increases speaker volume.
 <b>fn+f12</b>	Enables or disables the TouchPad.

## Using keypads

The computer has an embedded numeric keypad and also supports an optional external numeric keypad or an optional external keyboard that includes a numeric keypad.



Component	Description
<b>❶</b> <b>fn</b> key	Enables/disables the embedded numeric keypad when pressed in combination with the <b>num lk</b> key.
<b>❷</b> Embedded numeric keypad	When the keypad has been enabled, it can be used like an external numeric keypad.
<b>❸</b> <b>num lk</b> key	Enables/disables the embedded numeric keypad when pressed in combination with the <b>fn</b> key.


## Chapter 1: Getting to know your computer

### Using the embedded numeric keypad

The 15 keys of the embedded numeric keypad can be used like the keys on an external keypad. When the embedded numeric keypad is turned on, each key on the keypad performs the function indicated by the icon in the upper-right corner of the key.

#### Enabling and disabling the embedded numeric keypad

Press **fn+num lk** to enable the embedded numeric keypad. Press **fn+num lk** again to return the keys to their standard keyboard functions.

 The embedded numeric keypad will not function while an external keyboard or numeric keypad is connected to the computer, an optional docking device, or an optional expansion product.

#### Switching key functions on the embedded numeric keypad

You can temporarily alternate the functions of keys on the embedded numeric keypad between their standard keyboard functions and their keypad functions by using the **fn** key or the **fn+shift** key combination.

- To change the function of a keypad key to keypad functions while the keypad is off, press and hold the **fn** key while pressing the keypad key.
- To use the keypad keys temporarily as standard keys while the keypad is on:
  - ☐ Press and hold the **fn** key to type in lowercase.
  - ☐ Press and hold **fn+shift** to type in uppercase.

### Using an optional external numeric keypad

Keys on most external numeric keypads function differently according to whether num lock is on or off. (Num lock is turned off at the factory.) For example:

- When num lock is on, most keypad keys type numbers.
- When num lock is off, most keypad keys function like the arrow, page up, or page down keys.

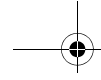
To turn num lock on or off on an external keypad as you work:

- » Press the **num lk** key on the external keypad, not on the computer.

### Setting pointing device preferences

To access Mouse Properties, select **Start > Devices and Printers > Mouse**. Then, right-click **Mouse** to access **Mouse settings**.

Use Mouse Properties in Windows to customize settings for pointing devices, such as button configuration, click speed, and pointer options.



## Using pointing devices

### Using the TouchPad

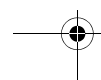
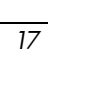
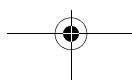
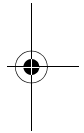
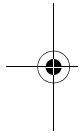
To move the pointer, slide your finger across the TouchPad surface in the direction you want the pointer to go. Use the TouchPad buttons like the corresponding buttons on an external mouse. To scroll up and down using the TouchPad vertical scroll zone, slide your finger up or down over the lines.

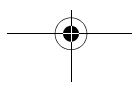
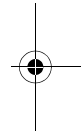
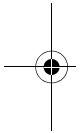
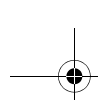


If you are using the TouchPad to move the pointer, you must lift your finger off the TouchPad before moving it to the scroll zone. Simply sliding your finger from the TouchPad to the scroll zone will not activate the scrolling function.

### Connecting an external mouse

You can connect an external USB mouse to the computer using one of the USB ports on the computer.







## Chapter 2: Welcome to Verizon Wireless


### Thank you for choosing Verizon Wireless


You are now connected to the power of America's largest and most reliable 3G network. This chapter will help you set up Mobile Broadband and explore the features of your new Verizon Wireless computer. So let's get started.

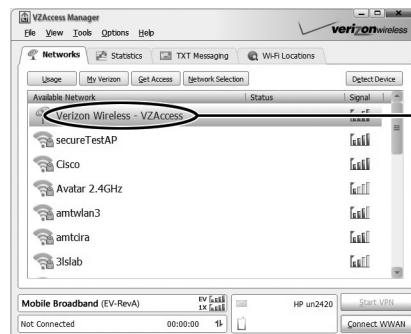
 Software screens may vary and instructions may change, depending on the version of the software on your computer.

### Mobile Broadband setup

 If Windows Update or HP Update prompts you to update your system, click **Ignore** or **Cancel**, so that the setup process will not be interrupted.

1. Make sure wireless (Wi-Fi) is turned on. The wireless light should be blue. (If the light is amber, press the wireless button to turn it on.)
2. Double-click the **VZAccess® Manager** icon  on the desktop.
3. In the VZAccess Manager window, double-click **Verizon Wireless - VZAccess**, and follow the on-screen instructions to activate Mobile Broadband.

 If you are prompted at anytime during this setup process to update VZAccess Manager, click **Yes**.



Verizon Wireless - VZAccess

## Chapter 2: Welcome to Verizon Wireless

- When you see the Set Network Location screen, choose **Home**, **Work**, or (for more security) **Public**, and then follow the on-screen instructions to add your preferences.



To change this setting after initial setup, select **Start > Control Panel > Network and Internet > Choose Homegroups and Sharing options > Change advanced settings**.

- On the Mobile Broadband Self Activation screen, click **Sign-up**. If the Sign-up button is grayed out, click **Next** to continue the self-activation process.

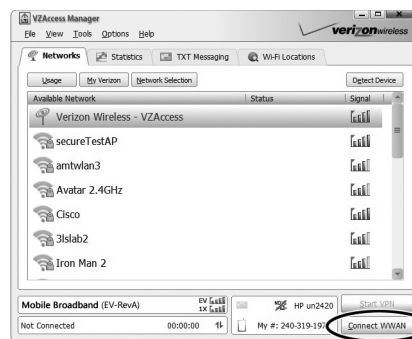


## Chapter 2: Welcome to Verizon Wireless

6. Select your service plan. If the service plans are grayed out, click **Finish** to complete the self-activation process.



7. Click the **Connect WWAN** button in the lower-right corner of the VZAccess Manager window.



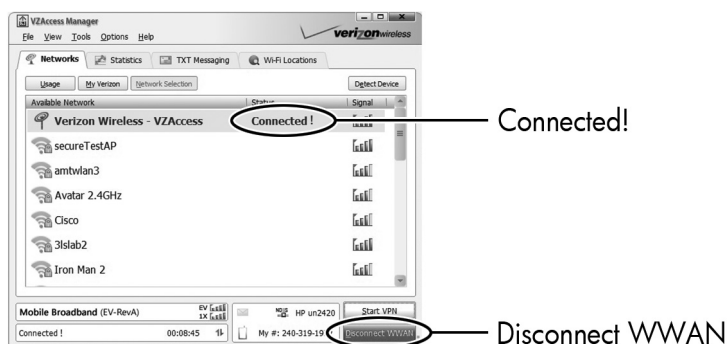
Connect WWAN

8. To connect to Mobile Broadband account, click **Continue**.



## Chapter 2: Welcome to Verizon Wireless

9. When Mobile Broadband is connected, you will see the word “Connected” next to **Verizon Wireless - VZAccess** and the red Disconnect WWAN button in the lower-right corner of the window.




10. Launch your Web browser, e-mail, or other Internet application to get started! If you are prompted to update Verizon information, such as hotspots, click **Yes**. If you can access the Internet, you have successfully connected your Mobile Broadband account. Congratulations!
- If you cannot access the Internet, refer to Chapter 4, “Troubleshooting.”
11. To end your session, click **Disconnect WWAN** in the lower-right corner of the VZAccess Manager window.

## Verizon Wi-Fi

Mobile Broadband customers on America’s largest and most reliable 3G network have Internet access at thousands of Verizon Wi-Fi hotspots across the U.S., Canada, and Mexico—without using a single megabyte of their Mobile Broadband data allowance. Verizon Wi-Fi locations include many airports, hotels, restaurants, cafes, bookstores and more.


Verizon Wi-Fi gives you a fast connection to the Internet. That means more surfing, more downloading, more e-mail, more social networking—more of everything you use the Web for. Verizon Wi-Fi is included with your Mobile Broadband Plan, so there’s no additional charge.

To access a Verizon Wi-Fi hotspot:

1. Make sure wireless (Wi-Fi) is turned on. The wireless light should be blue. (If the light is amber, press the wireless button to turn it on.)
2. Double-click the **VZAccess® Manager** icon  on the desktop.
3. In the VZAccess Manager window, select the **Wi-Fi Locations** tab, and then search by name, country or region, state, city, ZIP code, or even by type of venue.



4. When in range of a Verizon Wi-Fi hotspot, select **Verizon Wi-Fi** under **Available Network**, and then click **Connect Wi-Fi**.
5. Launch your Web browser, e-mail, or other Internet application.

 Verizon Wi-Fi hotspots are not owned or operated by Verizon Wireless. Verizon Wireless is not able to estimate upload or download speeds at these locations. Customers are responsible for providing security measures for their computers and data. Many Wi-Fi hotspots are not secure. Customers should not connect to the Mobile Broadband network when more security is needed.

## Upgrade VZAccess Manager software

Newer versions of VZAccess Manager are released periodically. VZAccess Manager automatically checks for upgrades weekly. When a new version is available, a pop-up alert is displayed.

- » Select **Download** to begin the process. If you choose not to upgrade, you can manually upgrade in the future by selecting **Check for Updates** from the **Help** menu in VZAccess Manager. You can also go to <http://www.vzam.net> to download the latest software.

Upgrading and installing can take up to 20 minutes. Download time depends on coverage conditions and should be done while connected to an external power source with the AC adapter.

If the download is interrupted (disconnected), the updater will continue from the partial file the next time the update is performed. The file size of the upgrade is approximately 20 MB and does not apply against your Mobile Broadband plan allowance. You may also download the software from <http://www.vzam.net> using Wi-Fi or a LAN connection.

## Finding Verizon Wireless help in the U.S.

- For Mobile Broadband and VZAccess Manager software questions, please call **1-800-922-0204** for technical support or go to <http://www.verizonwireless.com/netbooks>.
- For hardware, software, or computer repair, refer to Chapter 4, “Troubleshooting.”
- For Limited Warranty information, select **Start > Help and Support > HP Warranty**, or go to <http://www.hp.com/go/orderdocuments>.

### <http://www.verizonwireless.com/welcome>

The Welcome page includes:

- Information on your wireless device, coverage, calling plan, and billing and payment information
- FAQs, interactive demos for your wireless device, and how to read your bill
- My Verizon registration for online account management

## Chapter 2: Welcome to Verizon Wireless


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**<http://www.verizonwireless.com/myverizon>**

My Verizon can be used to:

- Check your balance and usage or make payments
- Add or remove features

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 When setting up My Verizon for the first time, you will be sent a temporary password by text message to your computer. You may view this text message in VZAccess Manager by selecting the **TXT Messaging** tab at the top of the screen.

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Customer Service Representatives are also available at your local Verizon Wireless Communications Store during normal business hours. For Customer Service, call **1-800-922-0204** (toll-free in the U.S., 6 a.m.–11 p.m.).

## Global access outside of the U.S. and Canada

Your computer is equipped with a global SIM (subscriber identity module) Card that enables you to access the Internet outside the U.S. in over 200 countries and regions, 110 of which have 3G Internet access.

Refer to the Global Support Pack included with the computer for additional information about how to use your global SIM Card. For information on GlobalAccess service availability, rates, and countries and regions, go to <http://www.verizonwireless.com/global> or call U.S. Customer Service prior to traveling at 1-800-922-0204.

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 The SIM Card is a small rectangular plastic card that stores your phone number and important information about your wireless service.

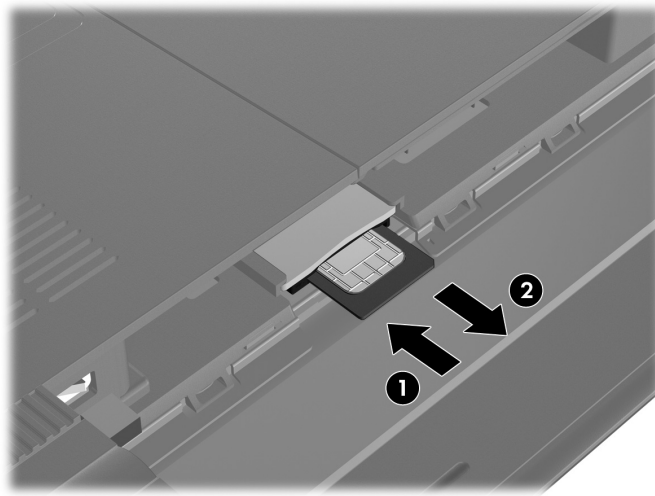
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## Removing or inserting a global SIM Card

**CAUTION:** Do not bend or scratch your SIM Card. Avoid exposing your SIM Card to static electricity, water, or dirt.

A global SIM Card, which provides international Internet access, is preinstalled in the computer. If you need to remove or reinstall the card, follow these instructions:

1. Remove the battery.
2. Press in on the SIM Card **1**, and then remove it from the slot **2**.





3. Replace the battery.

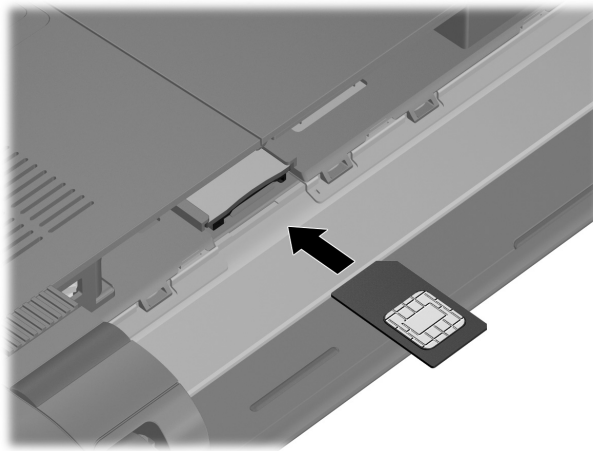
## Chapter 2: Welcome to Verizon Wireless

To insert the SIM Card:

1. Remove the battery.


 **CAUTION:** When inserting the SIM Card, hold it so that the orientation matches the SIM Card icon  located in the battery bay of the computer. If a SIM Card is inserted backwards or upside down, the battery may not snap into place properly and could damage the SIM Card and the SIM Card connector. To prevent damage to the connectors, use minimal force when inserting a SIM Card.

2. Insert the SIM Card into the SIM Card slot, and gently push the SIM Card into the slot until it is firmly seated.




3. Replace the battery.

## Using VZAccess Manager outside of the U.S. and Canada

1. Prior to traveling, be sure that you are subscribed to a GlobalAccess plan and that you have installed and activated the SIM Card on your wireless device.
2. Turn on the computer.
3. Launch VZAccess Manager.  
VZAccess Manager searches for a network. This may take several minutes.
4. View the coverage information in the lower-left side of the window to verify that you are in a suitable coverage area.  
 If VZAccess Manager does not display coverage in your current location, you may need to change the network setting by selecting **Network Selection** from the **Options** menu.
5. Select **VZGlobal** under **Available Network** in the Networks window.
6. Click **Connect WWAN**. The word “Connected” appears at the bottom left of the VZAccess Manager window when a connection is established. If you are not within a coverage area, a “No Service” message is displayed. Be sure that you are in a suitable coverage area.

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 If your SIM Card is lost or damaged, call **1-800-922-0204** to speak with a Customer Service Representative. From outside the U.S. call + **1-908-559-4899** for 24/7 Global Support.

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## GPS functionality

Your computer is equipped with an embedded GPS receiver. To protect your privacy, the default setting for GPS is “Disabled” to prevent access by third parties.

For privacy and security purposes, it is recommended that you maintain the GPS receiver in a disabled state. To determine if GPS has been enabled, select **Start > Control Panel > System > Device Manager > Ports (COM & LPT)**. If **HP un2420 Mobile Broadband Module NMEA** is listed, then GPS functionality has been enabled. To disable GPS functionality again, download and install the Verizon Wireless Mobile Broadband Software—Qualcomm Gobi2000 SoftPak available at <http://www.hp.com>.

## Verizon Wireless network technology

Verizon Wireless offers CDMA (Code Division Multiple Access) digital network technology to most of its customers. CDMA digital technology offers many benefits compared to analog, such as less static, enhanced voice clarity, increased privacy, and longer battery life. A CDMA digital device is necessary to subscribe to our digital service. Verizon Wireless only sells digital wireless devices that are E911 compatible and all-digital.

## Chapter 2: Welcome to Verizon Wireless

### VZAccess Manager user tips

- **Signal Strength Indicators**—Both EV and 1X signal strength indicators are available. EV represents EV-DO 3G Mobile Broadband service and 1X represents NationalAccess service. Typical EV-DO Rev. A download speeds are 600 Kbps to 1.4 Mbps and upload speeds average 500 to 800 Kbps.
  - ✎ When traveling in the Extended Broadband Services and Rates Coverage Area, you can expect download speeds of 400–700 Kbps and upload speeds of 60–80 Kbps. Mobile Broadband speed claims are based on our network tests with 5 MB FTP data files, without compression. Outside the Mobile Broadband Rate and Coverage Areas, you can expect download and upload speeds of 60–80 Kbps.
- **Usage Button**—Displays a pop-up message that shows your megabyte usage since your last billing statement. This does not include data from your current session. Some megabyte usage may be delayed more than 24 hours. International roaming usage can be delayed longer. This usage pop-up is the same that shows during initial connection.
  - ✎ You may also check your megabyte usage by accessing My Verizon or My Business Account at <http://www.verizonwireless.com/myverizon>.
- **Statistics**—See your download and upload throughput speeds and megabytes used during the current session.
- **Session Log**—Under **Options > Session Log**—Displays session time and megabytes used.
  - ✎ Note that megabytes listed in the session log may not match billed usage and should be used as an approximation.

### Windows automatic updates

- If you selected Automatic Updates in the initial Windows configuration, you may later change how the update is delivered to you.
- Select **Start > Control Panel > System and Security > Windows Update > Change Settings**, select **Check for updates but let me choose whether to download**, and install them under **Important Updates**.
  - ✎ By selecting this option, you can decide when to install the updates and the method—using a LAN, Wi-Fi, or Mobile Broadband connection. The initial updates to your computer can exceed 500 megabytes and will apply to your monthly Mobile Broadband allowance if you are connected using your Mobile Broadband connection. Verizon Wireless recommends using a LAN or Wi-Fi connection whenever possible for large software updates.

## Loss or theft

If your wireless device is lost or stolen, contact Verizon Wireless Customer Service at **1-800-922-0204** to suspend your service. From outside the U.S., call + **1-908-559-4899**. If your wireless device is malfunctioning, refer to your warranty guide. For Limited Warranty information, select **Start > Help and Support > HP Warranty**, or go to <http://www.hp.com/go/orderdocuments>.

## Fraud prevention

Verizon Wireless wants to protect your privacy and works hard to prevent unauthorized phone usage or fraud. Wireless device numbers and calls are capable of being intercepted by someone with specialized equipment. We use anti-fraud technology to make fraudulent calling very difficult, particularly on digital calls.

- Report a lost or stolen wireless device to the police and Verizon Wireless immediately.
- Never leave your wireless device unattended, especially in your office or car.
- When not in use, password-protect your device.
- Review your bill and report any suspicious activity. If we conclude that the usage is fraudulent, you will not be held responsible for the charges.
- Record your wireless device's ME ID number in the back of this guide and keep it safe.
- Have your wireless device serviced only at a manufacturer's service center or by an authorized agent or retailer.



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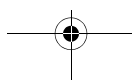
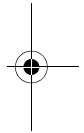
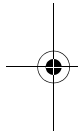
## *Chapter 2: Welcome to Verizon Wireless*

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### **My Verizon**

Save time. Save money. Register at <http://www.verizonwireless.com/myverizon>. My Verizon can be used for the following:

- **Manage your account.** Quickly check your voice, text, and data usage or make adjustments to your plan at any time.
- **Get personalized support.** My Support answers your questions quickly.
- **Pay bills your way.** Go green and set up paperless billing, make a one-time payment, or use Auto Pay and never worry about missing a payment.
- **Much more.** Transfer your contacts in no time with Backup Assistant<sup>SM</sup>, move your media, pick your Friends & Family<sup>®</sup>, or set some boundaries for your kids.





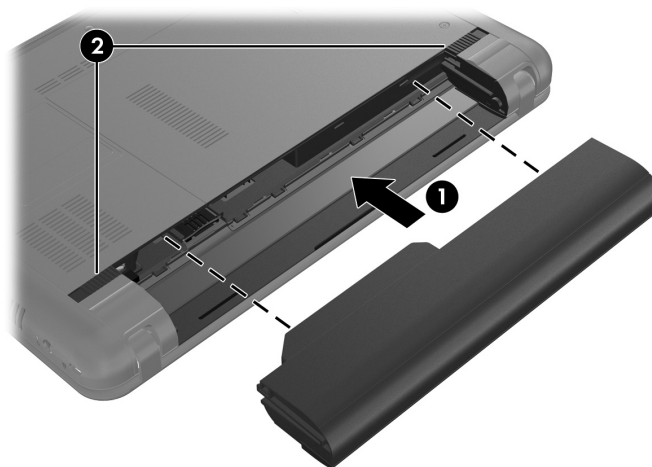
## Chapter 3: Upgrading and routine care

### Inserting or removing the battery

**CAUTION:** Removing a battery that is the sole power source may cause loss of information. To prevent loss of information, save your work and initiate Hibernation or shut down the computer through Windows before removing the battery.

To insert the battery:

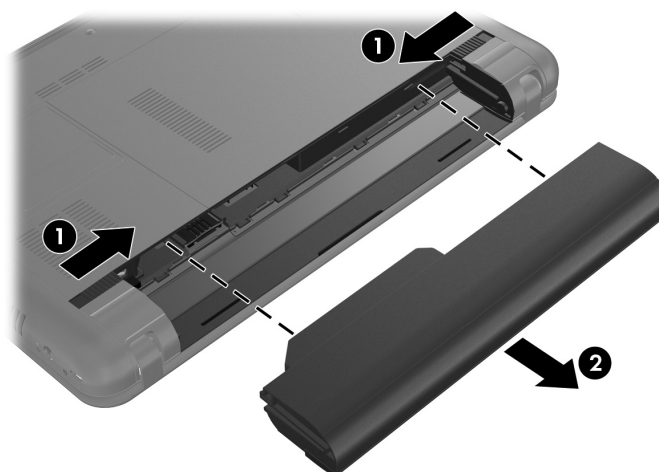
- » Align the tabs on the battery with the notches on the computer ❶, and then insert the battery into the battery bay. The battery release latches ❷ automatically lock the battery into place.



### Chapter 3: Upgrading and routine care

To remove the battery:

- » Slide the battery release latches ❶ to release the battery, and then remove the battery ❷.



## Replacing or upgrading the hard drive



**CAUTION:** To prevent information loss or an unresponsive system:

- Shut down the computer before removing the hard drive from the hard drive bay. Do not remove the hard drive while the computer is on, in the Sleep state, or in Hibernation.
- If you are not sure whether the computer is off or in Hibernation, turn the computer on by pressing the power button. Then shut down the computer through the operating system.

To remove the hard drive:

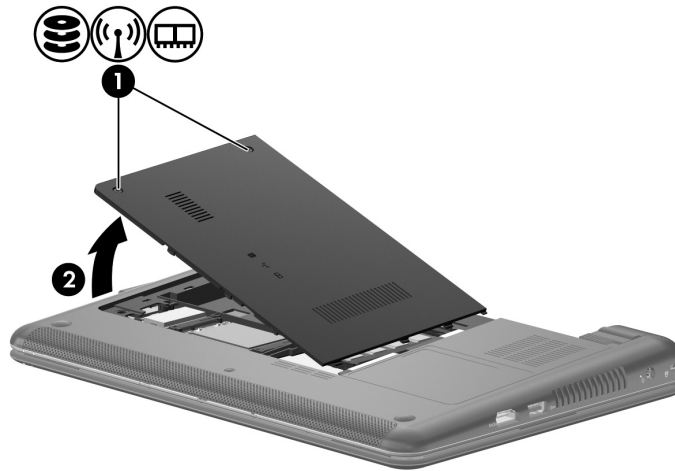
1. Save your work and shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Unplug the power cord from the AC outlet.
4. Remove the battery from the computer.

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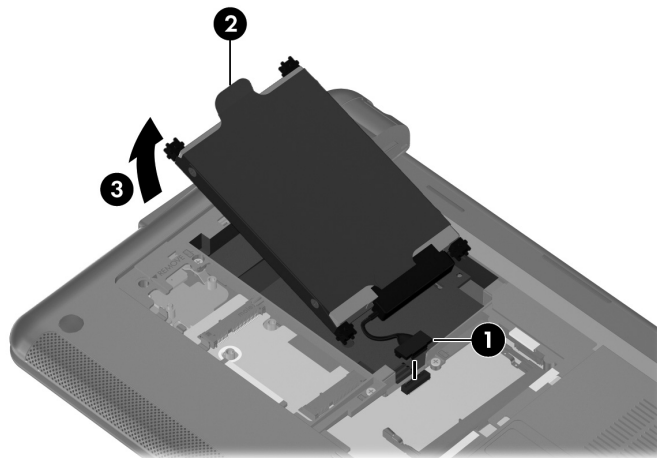
*Chapter 3: Upgrading and routine care*

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5. With the hard drive bay toward you, loosen the hard drive cover screws ❶ using a small Phillips screwdriver.
6. Lift the hard drive cover ❷ away from the computer.



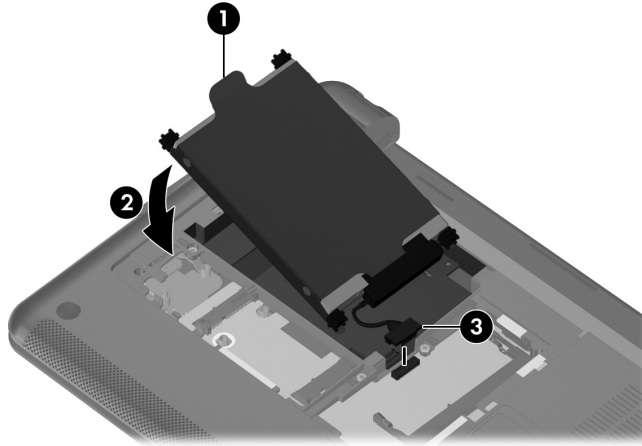
7. Disconnect the hard drive cable ❶ that connects the hard drive to the computer.
8. Pull the hard drive tab ❷ up and lift the hard drive ❸ out of the hard drive bay.



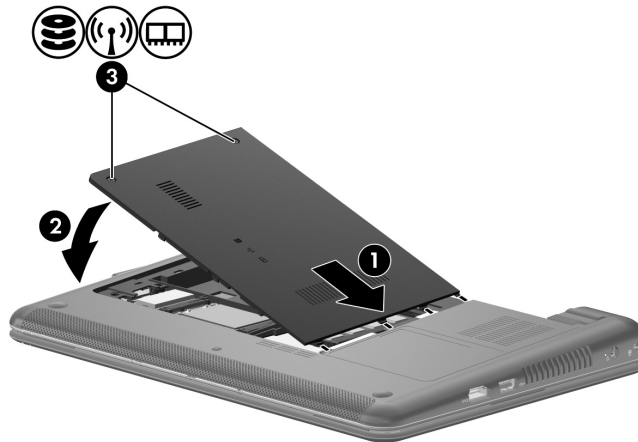
### Chapter 3: Upgrading and routine care

To install a hard drive:

1. Grasp the hard drive tab **1** and insert the hard drive **2** into the hard drive bay, until the rubber stops slide into place.
2. Reconnect the hard drive cable **3**.



3. Align the tabs on the hard drive cover with the notches on the computer **1**, and then close the cover **2**.
4. Tighten the hard drive cover screws **3**.



5. Replace the battery.
6. Reconnect external power and external devices.
7. Turn on the computer.

## Adding or replacing memory modules

The computer has one memory module slot, which is located inside the hard drive bay. The memory capacity of the computer can be upgraded by replacing the existing memory module.

**WARNING:** To reduce the risk of electric shock and damage to the equipment, unplug the power cord and remove all batteries before installing a memory module.

**CAUTION:** Electrostatic discharge (ESD) can damage electronic components. Before beginning any procedure, ensure that you are discharged of static electricity by touching a grounded metal object.

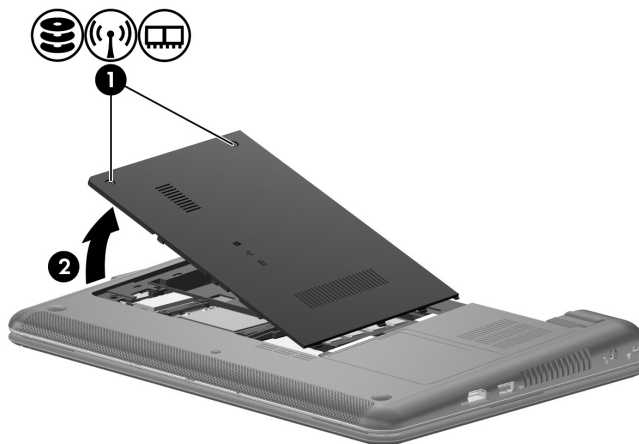
To replace a memory module:

1. Save your work and shut down the computer.

**CAUTION:** To prevent information loss or an unresponsive system:

- Shut down the computer before removing the hard drive from the hard drive bay. Do not remove the hard drive while the computer is on, in the Sleep state, or in Hibernation.
- If you are not sure whether the computer is off or in Hibernation, turn the computer on by pressing the power button. Then shut down the computer through the operating system.

2. Disconnect all external devices connected to the computer.
3. Unplug the power cord from the AC outlet.
4. Remove the battery from the computer.
5. Using a small Phillips screwdriver, loosen the hard drive cover screws **1**.
6. Lift the hard drive cover **2** away from the computer.



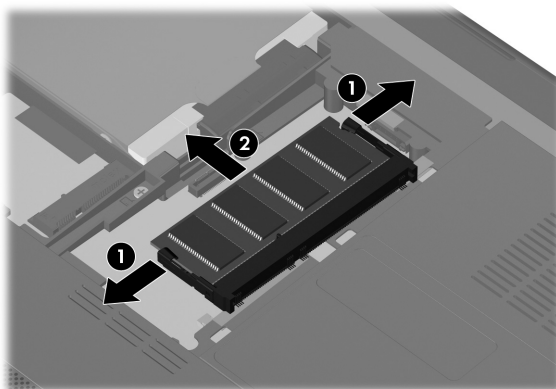
### Chapter 3: Upgrading and routine care

#### 7. Remove the existing memory module:

- a. Pull away the retention clips ❶ on each side of the memory module. The memory module tilts up.

⚠ **CAUTION:** To prevent damage to the memory module, hold the memory module by the edges only. Do not touch the components on the memory module.

- b. Grasp the edge of the memory module ❷, and gently pull the module out of the memory module slot.

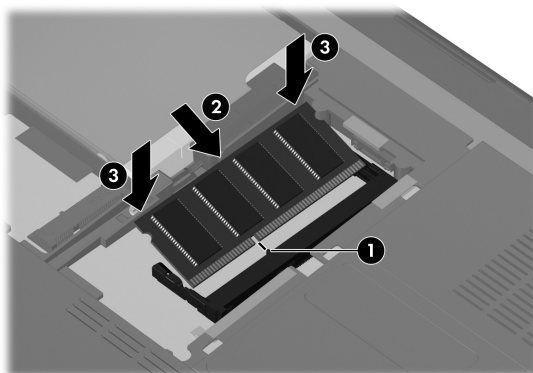


To protect a memory module after removal, place it in an electrostatic-safe container.

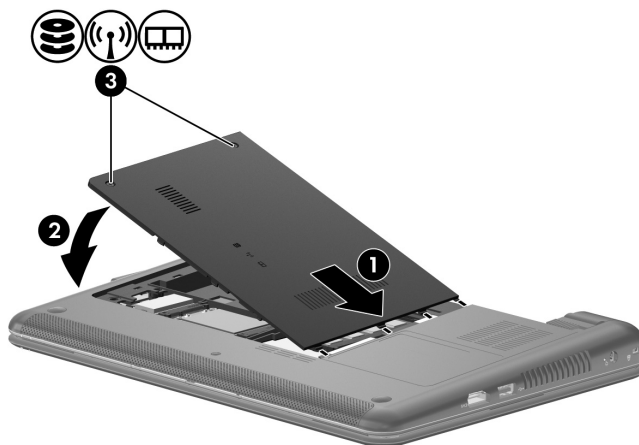
#### 8. Insert a new memory module:

⚠ **CAUTION:** To prevent damage to the memory module, hold the memory module by the edges only. Do not touch the components on the memory module, and do not bend the memory module.

- a. Align the notched edge ❶ of the memory module with the tab in the memory module slot.
- b. With the memory module at a 45-degree angle from the surface of the memory module compartment, press the module ❷ into the memory module slot until it is seated.
- c. Gently press the memory module ❸ down, applying pressure to both the left and right edges of the memory module, until the retention clips snap into place.




9. Align the tabs on the hard drive cover with the notches on the computer ❶, and then close the cover ❷.
10. Tighten the hard drive cover screws ❸.




11. Replace the battery.
12. Reconnect external power and external devices.
13. Turn on the computer.

## Updating programs and drivers


To download and install software other than a BIOS update, follow these steps:

1. Access the page on the HP Web site that provides software for your computer:  
Select **Start > Help and Support**, and then select the software and drivers update.
2. Follow the instructions on the screen to find the software you want to update.
3. At the download area, select the software you want to download and follow the instructions on the screen.  
 Make a note of the path to the location on your hard drive where the software is to be downloaded. You must access this path when you are ready to install the software.
4. When the download is complete, open Windows Explorer by selecting **Start > Computer**.
5. Double-click your hard drive designation. The hard drive designation is typically Local Disk (C:).
6. Using the hard drive path you recorded earlier, open the folder on your hard drive that contains the update.
7. Double-click the file that has an .exe extension (for example, *filename.exe*).  
The installation begins.
8. Complete the installation by following the instructions on the screen.

 After a message on the screen reports a successful installation, you can delete the downloaded file from your hard drive.

## Chapter 3: Upgrading and routine care


### Cleaning the display

 **CAUTION:** To prevent permanent damage to the computer, never spray water, cleaning fluids, or chemicals on the display.

To remove smudges and lint, frequently clean the display with a soft, damp, lint-free cloth. If the screen requires additional cleaning, use premoistened antistatic wipes or an antistatic screen cleaner.

### Cleaning the TouchPad and keyboard

Dirt and grease on the TouchPad can cause the pointer to jump around on the screen. To avoid this, clean the TouchPad with a damp cloth, and wash your hands frequently when using the computer.


 **WARNING:** To reduce the risk of electric shock or damage to internal components, do not use a vacuum cleaner attachment to clean the keyboard. A vacuum cleaner can deposit household debris on the keyboard surface.

Clean the keyboard regularly to prevent keys from sticking and to remove dust, lint, and particles that can become trapped beneath the keys. A can of compressed air with a straw extension can be used to blow air around and under the keys to loosen and remove debris.

### Traveling and shipping

For best results, follow these traveling and shipping tips:

- Prepare the computer for traveling or shipping:
  1. Back up your information.
  2. Remove all optical discs and all external media cards, such as digital cards and ExpressCards.

 **CAUTION:** To reduce the risk of damage to the computer, damage to a drive, or loss of information, remove the media from a drive before removing the drive from a drive bay, and before shipping, storing, or traveling with a drive.
  3. Turn off and then disconnect all external devices.
  4. Shut down the computer.
- Take along a backup of your information. Keep the backup separate from the computer.



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*Chapter 3: Upgrading and routine care*

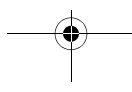
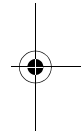
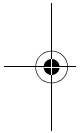
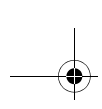
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- When traveling by air, carry the computer as hand luggage, and do not check it in with the rest of your bags.

△ **CAUTION:** Avoid exposing a drive to magnetic fields. Security devices with magnetic fields include airport walk-through devices and security wands. The airport security devices that check carry-on luggage, such as conveyor belts, use X-rays instead of magnetism and do not damage a drive.

- In-flight computer use is at the discretion of the airline. If you plan to use the computer during a flight, check with the airline in advance.
- If the computer will be unused and disconnected from external power for more than 2 weeks, remove the battery and store it separately.
- If you are shipping the computer or a drive, use suitable protective packaging and label the package "FRAGILE."
- If the computer has a wireless device or a cell phone device installed, such as an 802.11b/g device, a Global System for Mobile Communications (GSM) device, or a General Packet Radio Service (GPRS) device, the use of these devices may be restricted in some environments. Such restrictions may apply onboard aircraft, in hospitals, near explosives, and in hazardous locations. If you are uncertain of the policy that applies to the use of a particular device, ask for authorization to use it before you turn it on.
- If you are traveling internationally, follow these suggestions:
  - Check the computer-related customs regulations for each country or region on your itinerary.
  - Check the power cord and adapter requirements for each location in which you plan to use the computer. Voltage, frequency, and plug configurations vary.

⚠ **WARNING:** To reduce the risk of electric shock, fire, or damage to the equipment, do not attempt to power the computer with a voltage converter kit sold for appliances.



## Chapter 4: Troubleshooting

### Contacting customer support


You can receive customer support from both Verizon Wireless and HP.

For questions about Mobile Broadband service or VZAccess Manager software, access support online 24 hours a day, seven days a week at <http://verizonwireless.com/support>.

For computer hardware, other software, or computer repair inquiries, contact HP Support at 1-800-474-6836 or visit them online at <http://hp.com/support>.

If the information provided in your *Getting Started Guide* or Learning Center does not address your questions, you can contact HP Customer Support at: <http://hp.com/go/contactHP>

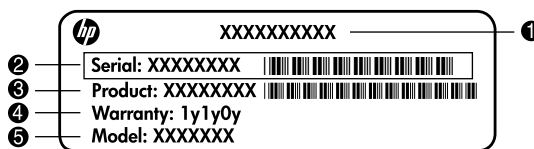
Here you can:

- Chat online with an HP technician.
  -  When technical support chat is not available in a particular language, it is available in English.
- E-mail HP Customer Support.
- Find HP Customer Support worldwide telephone numbers.
- Locate an HP service center.

### Identifying the labels

The labels affixed to the computer provide information you may need when you troubleshoot system problems or travel internationally with the computer.

- Serial number label—Provides important information including the following:



#### Components

① Product name	④ Warranty period
② Serial number (s/n)	⑤ Model description
③ Part number/Product number (p/n)	


Have this information available when you contact technical support. The serial number label is affixed to the bottom of the computer.

## Chapter 4: Troubleshooting

- Microsoft® Certificate of Authenticity—Contains the Windows Product Key. You may need the Product Key to update or troubleshoot the operating system. This certificate is affixed to the bottom of the computer.
- Regulatory label—Provides regulatory information about the computer. The regulatory label is affixed inside the battery bay.
- Wireless certification label or labels (select models only)—Provide information about optional wireless devices and the approval markings of some of the countries or regions in which the devices have been approved for use. If your computer model includes one or more wireless devices, one or more certification labels are included with your computer. You may need this information when traveling internationally. Wireless certification labels are affixed to the bottom of the computer.
- SIM (subscriber identity module) Card label (select models only)—Provides the ICCID (Integrated Circuit Card Identifier) of the SIM Card. This label is located inside the battery bay.
- HP Mobile Broadband Module serial number label (select models only)—Provides the serial number of the HP Mobile Broadband Module. This label is located inside the battery bay.

## Troubleshooting resources


If you experience computer problems, perform these troubleshooting steps in the order provided until the problem is resolved:

- Refer to “Quick troubleshooting,” the next section in this chapter.
  - Access Web site links and additional information about the computer through Help and Support. Select **Start > Help and Support**.
-  Although many checkup and repair tools require an Internet connection, other tools, like Help and Support, can help you fix a problem when the computer is offline.

## Quick troubleshooting

### The computer is unable to start up

If the computer does not turn on when you press the power button, the following suggestions may help you resolve the problem:

- If the computer is plugged into an AC outlet, plug another electrical device into the outlet to be sure that the outlet is providing adequate power.
  -  Use only the AC adapter provided with the computer or one approved by HP for this computer.
- If the computer is running on battery power or is plugged into an external power source other than an AC outlet, plug the computer into an AC outlet using the AC adapter. Be sure that the power cord and AC adapter connections are secure.

### The computer screen is blank

If the screen is blank, but the computer is on and the power light is on, the computer may not be set to display the image on the computer screen. To transfer the image to the computer screen, press **fn+f2**.

### Software is functioning abnormally


If the software is unresponsive or responds abnormally, follow these suggestions:

- Restart the computer by clicking **Start**, clicking the arrow next to the Shut down button, and then clicking **Restart**.

If you cannot restart the computer using this procedure, refer to the next section, "The computer is on but is not responding."
- Run a virus scan. For information about using the antivirus resources on the computer, refer to the *HP Notebook Reference Guide*. To access this guide, select **Start > Help and Support > User Guides**.

### The computer is on but is not responding

If the computer is on but is not responding to software or keyboard commands, try the following emergency shutdown procedures, in the sequence provided, until shutdown occurs:

 **CAUTION:** Emergency shutdown procedures result in the loss of unsaved information.

- Press and hold the power button for at least 5 seconds.
- Disconnect the computer from external power and remove the battery.

## Chapter 4: Troubleshooting

### The computer is unusually warm

It is normal for the computer to feel warm to the touch while it is in use. But if the computer feels *unusually* warm, it may be overheating because a vent is blocked.

If you suspect that the computer is overheating, allow the computer to cool to room temperature. Then be sure to keep all vents free from obstructions while you are using the computer.



**WARNING:** To reduce the possibility of heat-related injuries or of the computer overheating, do not place the computer directly on your lap or obstruct the computer air vents. Use the computer only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to contact the skin or a soft surface, such as pillows or rugs or clothing, during operation. The computer and the AC adapter comply with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950).



The fan in the computer starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during operation.

### The wireless network connection is not working

If a wireless network connection is not working as expected, follow these suggestions:



If you are connecting to a corporate network, contact the IT administrator.

- Place your pointer over the wireless icon in the taskbar to see the status of your connection. If your device is connected, you will see the name of your wireless network, download speed, and signal strength.
- If you are not connected, right-click the wireless icon in the taskbar, and then click **Repair**. Windows will briefly disable the wireless adapter and refresh your IP address. This simple step can often refresh the wireless signal and fix the problem.



Do not turn off the wireless device by pressing the wireless button above the keyboard. This will require you to access Computer Setup to re-enable your wireless device.

If the wireless connection is still not working, follow these suggestions:

- Select **Start > Control Panel > Network and Internet > Network and Sharing Center > Troubleshoot problems**, and then follow the on-screen instructions.
- Be sure that the computer wireless device is turned on.
- Be sure that the computer wireless antennas are free from obstructions.
- Be sure that the cable or DSL modem and its power cord are properly connected and that the lights are on.
- Be sure that the wireless router or access point is properly connected to its power adapter and the cable or DSL modem, and that the lights are on.
- Disconnect and then reconnect all cables, and turn the power off and then back on.



For more information on wireless technology, refer to the information and the Web site links in Help and Support.

## Chapter 5: Backup and recovery

Recovery after a system failure is as good as your most recent backup. HP recommends that you create recovery discs immediately after software setup. As you add new software and data files, you should continue to back up your system on a regular basis to maintain a reasonably current backup.


Tools provided by the operating system and by HP Recovery Manager software are designed to help you with the following tasks for safeguarding your information and restoring it in case of a system failure:

- Creating a set of recovery discs (Recovery Manager software feature)
- Backing up your information
- Creating system restore points
- Recovering a program or driver
- Performing a full system recovery (from the partition or recovery discs)


Recovery discs have been included if your computer does not have a partition. Use these discs to recover your operating system and software. To check for the presence of a recovery partition, click **Start**, right-click **Computer**, click **Manage**, and then click **Disk Management**. If the partition is present, an HP Recovery drive is listed in the window.

### Recovery discs

HP recommends that you create recovery discs to be sure that you can restore your computer to its original factory state if the hard drive fails, or if for any reason you cannot recover using the recovery partition tools. Create these discs after setting up the computer for the first time. Handle these discs carefully and keep them in a safe place. The software allows the creation of only one set of recovery discs.

 If your computer does not include an integrated optical drive, you can use an optional external optical drive (purchased separately) to create recovery discs, or you can purchase recovery discs for your computer from the HP Web site. If you use an external optical drive, it must be connected directly to a USB port on the computer, not to a USB port on an external device, such as a USB hub.

#### Guidelines:

- Purchase high-quality DVD-R, DVD+R, BD-R (writable Blu-ray), or CD-R discs. All these discs are purchased separately. DVDs have a much larger storage capacity than CDs. If you use CDs, up to 20 discs may be required, whereas only a few DVDs are required.
-  Read-write discs, such as CD-RW, DVD±RW, double-layer DVD±RW, and BD-RE (rewritable Blu-ray) discs, are not compatible with the Recovery Manager software.

## Chapter 5: Backup and recovery

- The computer must be connected to AC power during this process.
- Only one set of recovery discs can be created per computer.
- Number each disc before inserting it into the optical drive.
- If necessary, you can exit the program before you have finished creating the recovery discs. The next time you open Recovery Manager, you will be prompted to continue the disc creation process.

To create a set of recovery discs:

1. Select **Start > All Programs > Recovery Manager > Recovery Disc Creation**.
2. Follow the on-screen instructions.

## Performing a recovery

Recovery Manager software allows you to repair or restore the computer to its original factory state. Recovery Manager works from recovery discs or from a dedicated recovery partition (select models only) on the hard drive.

Note the following when performing a system recovery:

- You can recover only files that you have previously backed up. HP recommends that you use Recovery Manager to create a set of recovery discs (entire drive backup) as soon as you set up your computer.
- Windows has its own built-in repair features, such as System Restore. If you have not already tried these features, try them before using Recovery Manager.
- Recovery Manager recovers only the software that was preinstalled at the factory. Software not provided with this computer must be downloaded from the manufacturer's Web site or reinstalled from the disc provided by the manufacturer.

## Recovering using the partition on the hard drive (select models only)

On some models, you can perform a recovery from the partition on the hard drive, by accessing Recovery Manager from the Start menu or by pressing **f11**. This type of recovery restores the computer to its factory condition without using recovery discs.

To restore the system from the partition, follow these steps:

1. Access Recovery Manager in either of the following ways:
  - ☐ Select **Start > All Programs > Recovery Manager > Recovery Manager**.
  - or –
  - a. Turn on or restart the computer, and then press **esc** while the “Press the ESC key for Startup Menu” message is displayed at the bottom of the screen.
  - b. Press **f11** while the “F11 (HP Recovery)” message is displayed on the screen.
2. In the Recovery Manager window, click **System Recovery**.
3. Follow the on-screen instructions.




## Recovering using the recovery discs

1. If possible, back up all personal files.
2. Insert the first recovery disc into the optical drive on your computer or an optional external optical drive, and then restart the computer.
3. Follow the on-screen instructions.

## Backing up your information

You should back up your computer files on a regular schedule to maintain a current backup. You can back up your information to an optional external hard drive, a network drive, or discs. Back up your system at the following times:

- At regularly scheduled times
  -  Set reminders to back up your information periodically.
- Before the computer is repaired or restored
- Before you add or modify hardware or software

Guidelines:

- Create system restore points using the Windows System Restore feature, and periodically copy them to an optical disc or an external hard drive.
- Store personal files in the Documents library and back up this folder periodically.
- Save the customized settings in a window, toolbar, or menu bar by taking a screen shot of the settings. The screen shot can be a time-saver if you have to reset your preferences.

## Using Windows Backup and Restore


Windows Backup and Restore allows you to back up individual files or back up the entire computer image.

Guidelines:

- Be sure that the computer is connected to AC power before you start the backup process.
- Allow enough time to complete the process. Depending on file sizes, it may take over an hour.

To create a backup:


1. Select **Start > Control Panel > System and Security > Backup and Restore**.
2. Follow the on-screen instructions to schedule and create a backup.

 Windows includes the User Account Control feature to improve the security of your computer. You may be prompted for your permission or password for tasks such as installing software, running utilities, or changing Windows settings. Refer to Help and Support for more information.

## Chapter 5: Backup and recovery

### Using system restore points


A system restore point allows you to save and name a snapshot of your hard drive at a specific point in time. You can then recover back to that point if you want to reverse subsequent changes.

 Recovering to an earlier restore point does not affect data files saved or e-mails created since the last restore point.

You also can create additional restore points to provide increased protection for your system files and settings.

### When to create restore points

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

 If you revert to a restore point and then change your mind, you can reverse the restoration.

### Create a system restore point

1. Select **Start > Control Panel > System and Security > System**.
2. In the left pane, click **System Protection**.
3. Click the **System Protection** tab.
4. Follow the on-screen instructions.

### Restore to a previous date and time

To revert to a restore point (created at a previous date and time), when the computer was functioning optimally, follow these steps:

1. Select **Start > Control Panel > System and Security > System**.
2. In the left pane, click **System Protection**.
3. Click the **System Protection** tab.
4. Click **System Restore**.
5. Follow the on-screen instructions.

## Chapter 6: Important consumer information

### Security deposit

You may have been asked to leave a security deposit at the time you activated your wireless service. You are eligible to receive your security deposit back at the end of 1 year of uninterrupted service, or upon termination of your contract. Your deposit will automatically be refunded after 1 year, with interest, provided that you have kept your account in “good standing” (this means that you paid your bill continuously for one year in a timely manner). This refund may take up to 3 billing cycles to be processed. If you are disconnected at any time during the first year for lack of payment, you forfeit any interest accrued during that time frame. If you terminate your service but have not paid your final bill, the deposit will be applied to your account, and you will receive any remaining funds. If your service is terminated after the initial 30-day Worry Free Guarantee period but before the end of your minimum term, your deposit will be applied against any applicable early termination fee, in addition to any outstanding balance, before a check is processed.

### FCC rules and regulations

The FCC requires that wireless devices be operated in accordance with FCC rules and regulations and under supervision of the licensee. Severe punishment can result from failure to comply with the following regulations:

- No person shall knowingly utter or transmit any false or fraudulent signal or distress communication.
- No person shall willfully or maliciously interfere with, or cause interference to, any radio communication or signal.
- It is unlawful to “listen in” on conversations intended for others or to divulge any information thereby obtained.
- No person shall utter any obscene, indecent or profane language by means of radio communication.

### National Do Not Call Registry

Protect yourself from unwanted calls with the National Do Not Call Registry Program.

- FCC regulations prohibit telemarketers from using automated dialers to call wireless numbers.
- Personal wireless device users can add their wireless numbers to the National Do Not Call Registry.
- The federal government does not maintain a national wireless device registry.

You can register by either of the following methods:

- By wireless device: **1-888-382-1222** from the number you wish to register.
- Online at: <http://www.donotcall.gov>.

Your registration becomes effective within 31 days of signing up and is active for five years. There is no cutoff date or deadline for registering.

## Chapter 6: Important consumer information

### Radio emission safety

Your wireless device, which contains a radio transmitter and receiver, emits radio frequency energy during use. The following consumer information addresses commonly asked questions about the health effects of wireless devices.

### Are wireless phones and devices safe?

Scientific research on the subject of wireless devices and radio frequency (RF) energy has been conducted worldwide for many years, and continues. In the United States, the Food and Drug Administration (FDA) and the Federal Communications Commission (FCC) set policies and procedures for wireless devices. The FDA issued a Web site publication on health issues related to cell phone usage where it states, “The scientific community at large... believes that the weight of scientific evidence does not show an association between exposure to radio frequency (RF) from cell phones and adverse health outcomes. Still the scientific community does recommend conducting additional research to address gaps in knowledge. That research is being conducted around the world and FDA continues to monitor developments in this field.” You can access the FDA Web site at <http://www.fda.gov> (under “c” in the subject index, select **Cell Phones > Research**). You can also contact the FDA toll-free at (888) 463-6332 or (888) INFO-FDA. The FCC issued its own Web site publication stating that “[t]here is no scientific evidence that proves that wireless telephone usage can lead to cancer or other problems, including headaches, dizziness or memory loss.” This publication is available at <http://www.fcc.gov/cgb/cellular.html> or through the FCC at (888) 225-5322 or (888) CALL-FCC. The National Cancer Institute (NCI) states that concerns about the potential health effects of using cellular phones – “and specifically the suggestion that using a cell phone may increase a person’s risk of developing brain cancer – are not supported by a growing body of research on the subject.” You can access NCI’s review of the research at [http://www.cancer.gov/ncicancerbulletin/NCI\\_Cancer\\_Bulletin\\_092308/page7](http://www.cancer.gov/ncicancerbulletin/NCI_Cancer_Bulletin_092308/page7).

### What does specific absorption rate (SAR) mean?

In 1996, the FCC, working with the FDA, the U.S. Environmental Protection Agency (EPA) and other agencies, established RF exposure safety guidelines for wireless devices in the United States. Before a wireless device model is available for sale to the public, it must be tested by the manufacturer and certified to the FCC that it does not exceed limits established by the FCC. One of these limits is expressed as a specific absorption rate, or SAR. SAR is a measure of the rate of absorption of RF energy in the body. Tests for SAR are conducted with the wireless device transmitting at its highest power level in all tested frequency bands. Since 1996, the FCC has required that the SAR of handheld wireless devices not exceed 1.6 watts per kilogram, averaged over one gram of tissue. Although the SAR is determined at the highest power level, the actual SAR value of a wireless device while operating can be less than the reported SAR value. This is because the SAR value may vary from call to call, depending on factors such as proximity to a cell site, the proximity of the wireless device to the body while in use, and the use of handsfree devices.

For more information about SARs, see the FCC's OET Bulletins 56 and 65 at [http://www.fcc.gov/Bureaus/Engineering\\_Technology/Documents/bulletins](http://www.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins) and <http://www.fcc.gov/oet/ea>. You may also wish to contact the manufacturer of your wireless device.

## Can I minimize my RF exposure while using my phone or device?

If you are concerned about RF, there are several simple steps you can take to minimize your RF exposure. You can, of course, reduce your talk time. You can place more distance between your body and the source of the RF, as the exposure level drops off dramatically with distance. The FDA/FCC Web site states that “[h]ands-free kits can be used with wireless devices for convenience and comfort. These systems reduce absorption of RF energy in the head because the phone, which is a source of the RF emissions, will not be placed against the head. On the other hand, if the phone is mounted against the waist or other part of the body during use, then that part of the body will absorb more RF energy. Wireless phones marketed in the U.S. are required to meet safety requirements regardless of whether they are used against the head or against the body. Either configuration should result in compliance with the safety limit.” Also, if you use your wireless device while in a car, you can use a wireless device with an antenna on the outside of the vehicle. You should also read and follow your wireless device manufacturer's instructions for the safe operation of your wireless device.

## Do wireless phones pose any special threat to children?

The FDA Web site states that “[t]he scientific evidence does not show a danger to any users of cell phones from RF exposure, including children and teenagers.” The FDA Web site further states that “[s]ome groups sponsored by other national governments have advised that children be discouraged from using cell phones at all. For example, the Stewart Report from the United Kingdom [UK] made such a recommendation in December 2000. In this report a group of independent experts noted that no evidence exists that using a cell phone causes brain tumors or other ill effects. [The UK's] recommendation to limit cell phone use by children was strictly precautionary; it was not based on scientific evidence that any health hazard exists.” A copy of the UK's leaflet is available at <http://www.dh.gov.uk> (search “mobile”), or you can write to: NRPB, Chilton, Didcot, Oxon OX11 0RQ, United Kingdom. Copies of UK's annual reports on mobile phones and RF are available online at <http://www.iegmp.org.uk> and <http://www.hpa.org.uk/radiation/> (search “mobile”). Parents who wish to reduce their children's RF exposure may choose to restrict their children's wireless device use.

## Where can I get further information about RF emissions?

For further information, see the following additional resources (Web sites current as of April 2005).  
U.S. Food and Drug Administration  
*FDA Consumer Magazine*, November–December 2000  
Telephone: **1-888-INFO-FDA**  
<http://www.fda.gov> (Under “c” in the subject index, select **Cell Phones > Research.**)

## Chapter 6: Important consumer information

American National Standards Institute  
1819 L Street, N.W., Suite 600,  
Washington, D.C. 20036  
Telephone: **1-202-293-8020**  
<http://www.ansi.org>

### Implantable medical devices

A minimum separation of six (6) inches should be maintained between a wireless phone and an implantable medical device, such as a pacemaker or implantable cardioverter defibrillator, to avoid potential interference with the device. Persons who have such devices:

- Should ALWAYS keep the wireless phone more than six (6) inches from their implantable medical device when the wireless phone is turned ON.
- Should not carry the wireless phone in a breast pocket.
- Should use the ear opposite the implantable medical device to minimize the potential for interference.
- Should turn the wireless phone OFF immediately if there is any reason to suspect that interference is taking place.
- Should read and follow the directions from the manufacturer of your implantable medical device.

If you have any questions about using your wireless phone with such a device, consult your health care provider.

For additional information, see <http://www.fda.gov> (under “c” in the subject index, select **Cell Phones > Interference with Pacemakers and Other Medical Devices**).

### Drive responsibly

When behind the wheel, safe driving is your responsibility and it should always be your first priority.

Scientific research on the subject of wireless phone use and driving has been conducted worldwide for several years. According to the National Highway Traffic Safety Administration (NHTSA), the available research indicates that using a wireless phone while driving degrades a driver’s performance, whether it is a hands-free or hand-held wireless phone. NHTSA advises that the “safest course of action is to refrain from using a cell phone while driving.” NHTSA’s policy on “Cell Phone Use While Driving,” as well as Frequently Asked Questions on the subject, are available at <http://www.nhtsa.gov> (click **Traffic Safety**, and then click **Drowsy and Distracted Driving**.)

For your well-being and the well-being of those around you, you should consider turning your cell phone off and allowing calls to go to voice mail while you are driving.

If you choose to use your cell phone while driving, several jurisdictions have adopted “hands-free” and other restrictions on the use of wireless devices while driving. It is your responsibility to know and comply with the law in your area.

## Chapter 7: Specifications

### Operating environment

The operating environment information in the following table may be helpful if you plan to use or transport the computer in extreme environments.

Factor	Metric	U.S.
<b>Temperature</b>		
Operating (writing to optical disc)	<b>5°C to 35°C</b>	41°F to 95°F
Nonoperating	<b>-20°C to 60°C</b>	-4°F to 140°F
<b>Relative humidity (noncondensing)</b>		
Operating	<b>10% to 90%</b>	10% to 90%
Nonoperating	<b>5% to 95%</b>	5% to 95%
<b>Maximum altitude (unpressurized)</b>		
Operating	<b>-15 m to 3,048 m</b>	-50 ft to 10,000 ft
Nonoperating	<b>-15 m to 12,192 m</b>	-50 ft to 40,000 ft

### Input power



The power information in this section may be helpful if you plan to travel internationally with the computer.

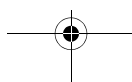
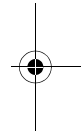
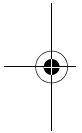
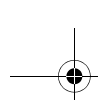
The computer operates on DC power, which can be supplied by an AC or a DC power source.

The AC power source must be rated at 100–240 V, 50–60 Hz.

Although the computer can be powered from a standalone DC power source, it should be powered only with an AC adapter or a DC power source supplied and approved by HP for use with this computer.

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

Input power	Rating
Operating voltage and current	18.5 V dc @ 3.50 A; 19 V dc @ 4.74 A; or 19.5 V dc @ 3.33 A
 This product is designed for IT power systems in Norway with phase-to-phase voltage not exceeding 240 V rms.	
 The computer operating voltage and current can be found on the system regulatory label affixed inside the battery bay.	





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