1 Features

Identifying hardware

Components included with the computer may vary by region and model. The illustrations in this chapter identify the standard features on most computer models.

To see a list of hardware installed in the computer, follow these steps:

1. Select **Start > Computer > System properties**.

2. In the left pane, click **Device Manager**.

You can also add hardware or modify device configurations using Device Manager.

NOTE: 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 applications, running utilities, or changing Windows settings. Refer to Help and Support for more information.

Top components

### TouchPad
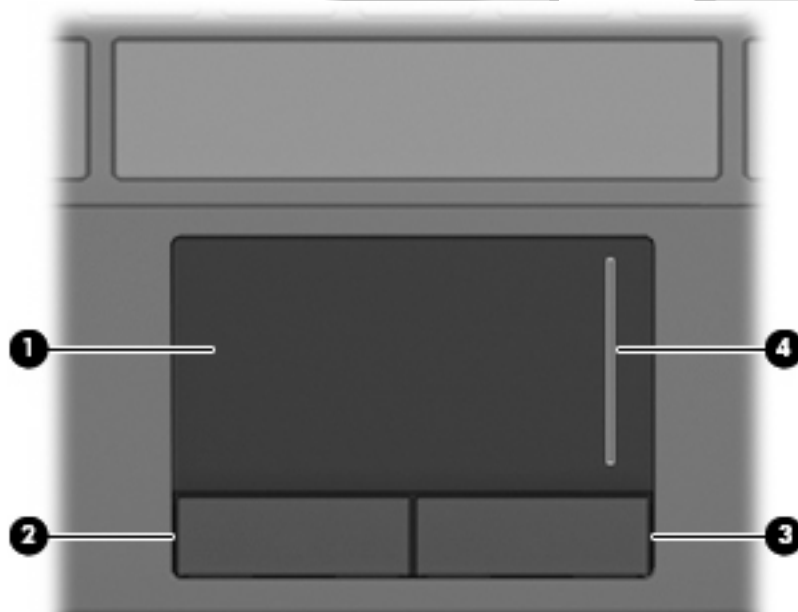
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	Component	Description
(1)	TouchPad*	Moves the pointer and selects or activates items on the screen.
(2)	Left TouchPad button*	Functions like the left button on an external mouse.
(3)	Right TouchPad button*	Functions like the right button on an external mouse.
(4)	TouchPad scroll zone	Scrolls up or down.

*This table describes factory settings. To view or change pointing device preferences, select **Start > Control Panel > Hardware and Sound > Mouse**.

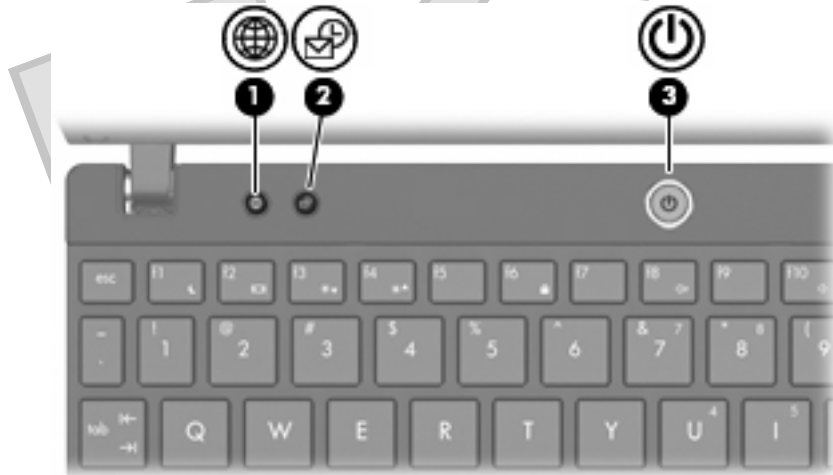# Gucci 1.0 Vista User Guide 537596-001--Final Review

Lights
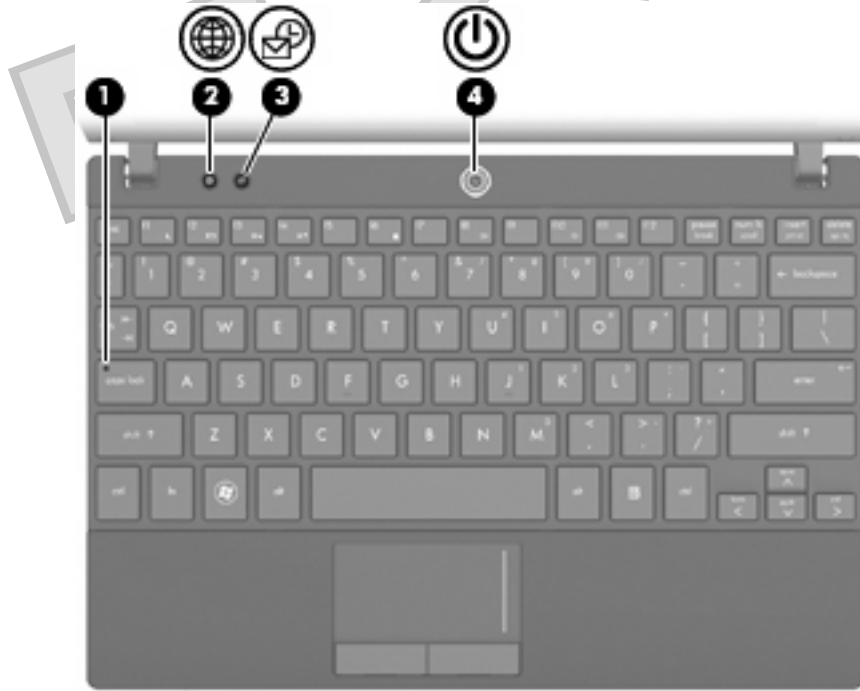
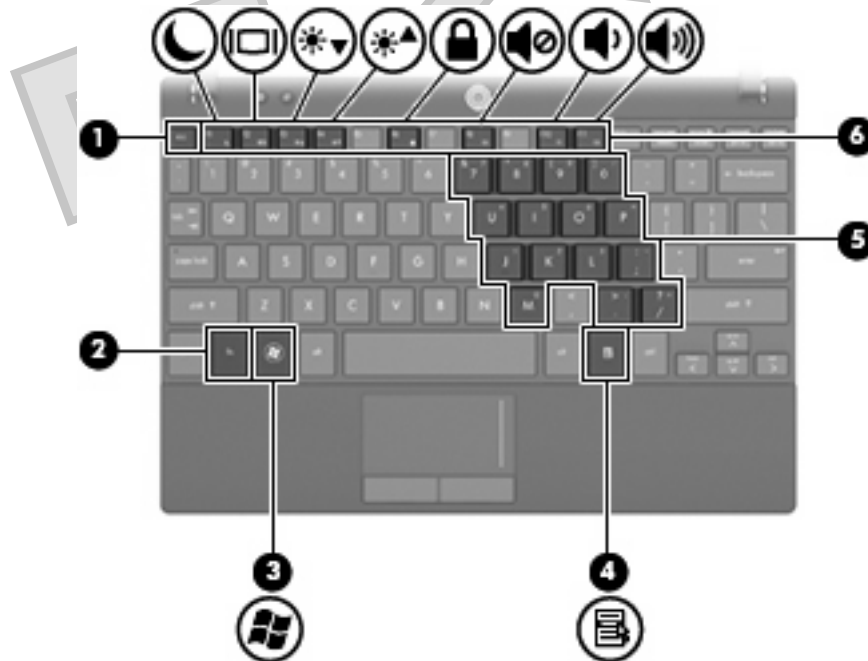| Component		Description
(1)	Caps lock light	On: Caps lock is on.
(2)	QuickWeb light	● On: The Internet browser is being launched.
		● Off: The computer is off or in the Sleep or Hibernation state.
(3)	QuickLook light	● On: QuickLook is being launched.
		● Off: The computer is off or in the Sleep or Hibernation state.
(4)	Power light	● On: The computer is on.
		● Blinking: The computer is in the Sleep state.
		● Off: The computer is off or in Hibernation.

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Buttons

Component		Description
(1)	QuickWeb button	Opens the Internet browser.
(2)	QuickLook button	Opens QuickLook when the computer is on.
(3)	Power button	• When the computer is off, press the button to turn on the computer.
		• When the computer is on, press the button to shut down the computer.
		• When the computer is in the Sleep state, press the button briefly to exit Sleep.
		• When the computer is in Hibernation, press the button briefly to exit Hibernation.
		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.
		To learn more about your power settings, select **Start > Control Panel > System and Maintenance > Power Options**.

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Keys

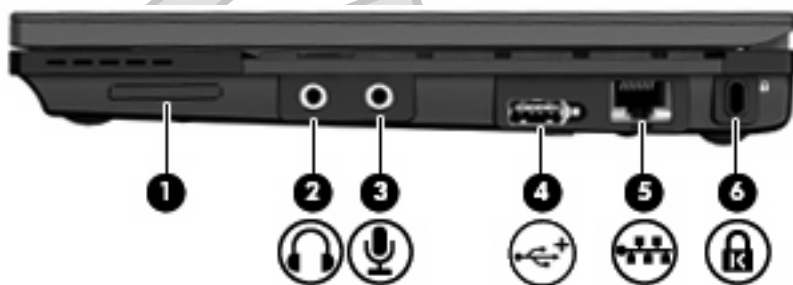|	Component	Description
(1)	esc key	Displays system information when pressed in combination with the fn key.
(2)	fn key	Executes frequently used system functions when pressed in combination with a function key or the esc key.
(3)	Windows logo key	Displays the Windows Start menu.
(4)	Windows applications key	Displays a shortcut menu for items beneath the pointer.
(5)	Embedded numeric keypad keys	Can be used like the keys on an external numeric keypad.
(6)	Function keys	Execute frequently used system functions when pressed in combination with the fn key.

Front components

	Component	Description
(1)	Drive light	Blinking: The hard drive is being accessed.

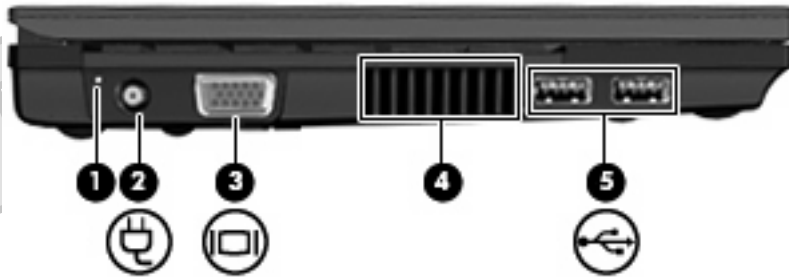| Component		Description
(2)	Wireless light	• Blue: An integrated wireless device, such as a wireless local area network (WLAN) device and/or a Bluetooth® device, is on.
		• Amber: All wireless devices are off.
		NOTE: The wireless light turns amber when the computer turns on and all wireless devices are off.
(3)	Wireless switch	Turns the wireless feature on or off, but does not create a wireless connection.
		NOTE: To establish a wireless connection, a wireless network must already be set up.
(4)	Speakers (2)	Produce sound.

Right-side components

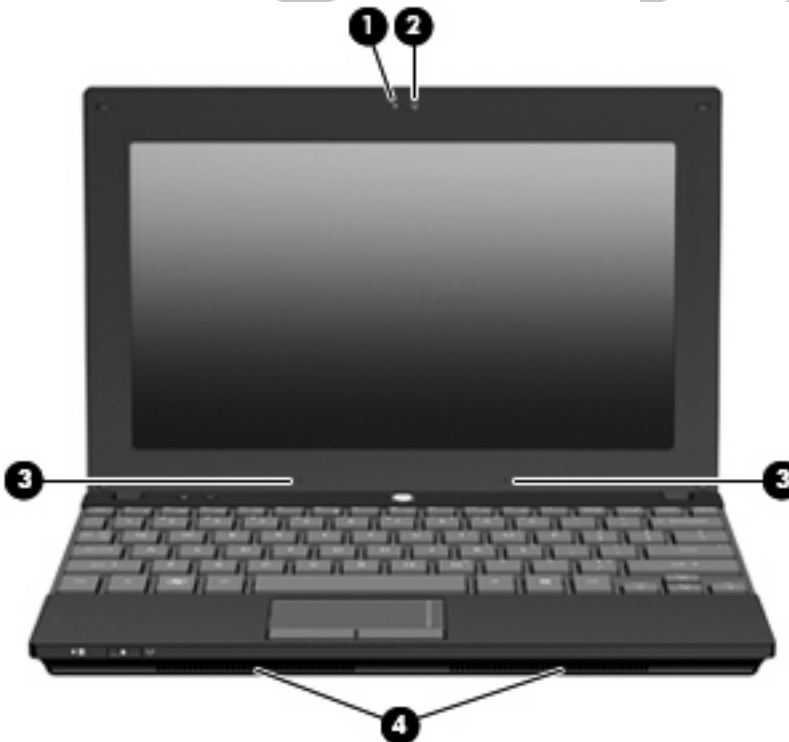| Component		Description
(1)	SD Card Reader	Supports the following optional digital card formats:
		• MultiMediaCard (MMC)
		• Secure Digital (SD) Memory Card
(2)	Audio-out (headphone) jack	Produces sound when connected to optional powered stereo speakers, headphones, ear buds, a headset, or television audio.
		NOTE: When a device is connected to the headphone jack, the computer speakers are disabled.
(3)	Audio-in (microphone) jack	Connects an optional computer headset microphone, stereo array microphone, or monaural microphone.
(4)	Powered USB port	Provides power to a USB device, such as an optional external optical drive, if used with a powered USB cable.
(5)	RJ-45 (network) jack	Connects a network cable.
(6)	Security cable slot	Attaches an optional security cable to the computer.
		NOTE: The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.

Left-side components

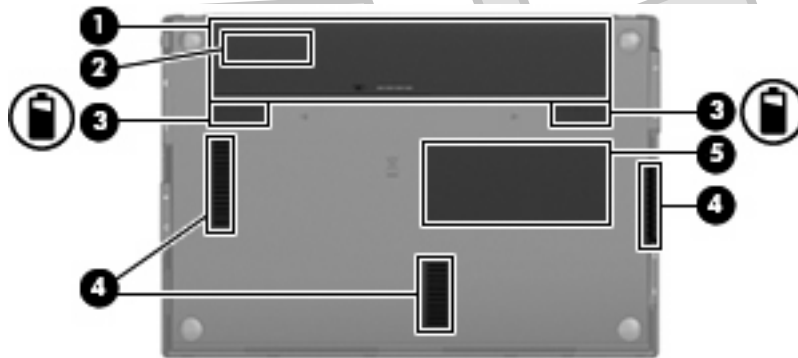|	Component	Description
(1)	Power light	● Blue: The computer is on.
		● Blinking: The computer is in the Sleep state.
		● Off: The computer is off or in Hibernation.
(2)	Power connector	Connects an AC adapter.
(3)	External monitor port	Connects an external VGA monitor or projector.
(4)	Vent	Enables airflow to cool internal components.
		NOTE: 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)	USB ports (2)	Connect optional USB devices.

Display components

Component		Description
(1)	Webcam light	On: The webcam is in use.
(2)	Webcam	Records audio and video and captures still photographs.
(3)	Internal microphones (2)	Record sound.
		NOTE: If there is a microphone icon next to each microphone opening, your computer has internal microphones.
(4)	Speakers (2)	Produce sound.

Bottom components

Component		Description
(1)	Battery bay	Holds the battery.
(2)	Service tag	Provides the product brand and series name, serial number (s/n), and product number (p/n) of your computer. Have this information available when you contact technical support.
(3)	Battery release latches (2)	Release the battery from the battery bay.
(4)	Vents (3)	Enable airflow to cool internal components.
		NOTE: 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)	Memory module compartment	Contains the memory module slot.

Wireless antennas

On select computer models, at least 2 antennas send and receive signals from one or more wireless devices. These antennas are not visible from the outside of the computer.

NOTE: For optimal transmission, keep the areas 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.

Additional hardware components

|	Component	Description
(1)	Power cord*	Connects an AC adapter to an AC outlet.
(2)	AC adapter	Converts AC power to DC power.
(3)	Battery*	Powers the computer when the computer is not plugged into external power.

*Batteries and power cords vary in appearance by region and country.

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.

● Service tag—Provides important information including:
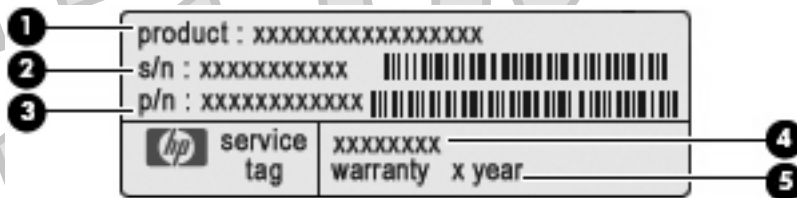
- ○ Product Name **(1)**. This is the product name affixed to the front of your computer.

- ○ Serial Number (s/n) **(2)**. This is an alphanumeric identifier that is unique to each product.

- ○ Part Number/Product Number (p/n) **(3)**. This number provides specific information about the product's hardware components. The part number helps a service technician to determine what components and parts are needed.

- ○ Model Description **(4)**. This is the alphanumeric identifier (mix of text and numbers) you need to locate documents, drivers, and support for your computer.

- ○ Warranty period **(5)**. This number describes the duration (in years) of the warranty period for this computer.

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

● 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 to the bottom of the computer.

● Wireless certification label(s) (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. An optional device may be a wireless local area network (WLAN) device or an optional Bluetooth® device. 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.

2   Power management

Setting power options

Using power-saving states

The computer has two power-saving states enabled at the factory: Sleep and Hibernation.

When Sleep is initiated, the power light blinks and the screen clears. Your work is saved to memory, letting you exit Sleep faster than exiting Hibernation. If the computer is in the Sleep state for an extended period or if the battery reaches a critical battery level while in the Sleep state, the computer initiates Hibernation.

When Hibernation is initiated, your work is saved to a hibernation file on the hard drive and the computer turns off.

△ **CAUTION:**   To prevent possible audio and video degradation, loss of audio or video playback functionality, or loss of information, do not initiate Sleep or Hibernation while reading from or writing to a disc or an external media card.

✎ **NOTE:**   You cannot initiate any type of networking connection or perform any computer functions while the computer is in the Sleep state or in Hibernation.

Initiating and exiting Sleep

The system is set at the factory to initiate Sleep after 15 minutes of inactivity when running on battery power and 30 minutes of inactivity when running on external power.

Power settings and timeouts can be changed using Power Options in Windows® Control Panel.

With the computer on, you can initiate Sleep in any of the following ways:

● Press fn+f1.

● Click **Start**, and then click the **Power** button.

● Click **Start**, click the arrow next to the Lock button, and then click **Sleep**.

To exit Sleep:

Briefly slide the power switch.

When the computer exits Sleep, the power lights turn on and your work returns to the screen where you stopped working.

✎ **NOTE:**   If you have set a password to be required when the computer exits Sleep, you must enter your Windows password before your work will return to the screen.

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Initiating and exiting Hibernation

The system is set at the factory to initiate Hibernation after 120 minutes of inactivity when running on battery power, 1080 minutes (18 hours) of inactivity when running on external power, or when the battery reaches a critical battery level.

Power settings and timeouts can be changed using Power Options in Windows Control Panel.

To initiate Hibernation:

1. Click **Start**, and then click the arrow next to the Lock button.

2. Click **Hibernate**.

To exit Hibernation:

Briefly slide the power switch.

The power lights turn on and your work returns to the screen where you stopped working.

> **NOTE:** If you have set a password to be required when the computer exits Hibernation, you must enter your Windows password before your work will return to the screen.

Using the battery meter

The battery meter is located in the notification area, at the far right of the taskbar. The battery meter allows you to quickly access power settings, view remaining battery charge, and select a different power plan.

- To display the percentage of remaining battery charge and the current power plan, move the pointer over the battery meter icon.

- To access Power Options, or to change the power plan, click the battery meter icon and select an item from the list.

Different battery meter icons indicate whether the computer is running on battery or external power. The icon also displays a message if the battery has reached a critical battery level.

To hide or display the battery meter icon:

1. Right-click the taskbar, and then click **Properties**.

2. Click the **Notification Area** tab.

3. Under **System icons**, clear the **Power** check box to hide the battery meter icon, or select the **Power** check box to display the battery meter icon.

4. Click **OK**.

Using power plans

A power plan is a collection of system settings that manages how the computer uses power. Power plans can help you conserve power or maximize performance.

You can change power plan settings or create your own power plan.

Viewing the current power plan

Move the pointer over the battery meter icon in the notification area, at the far right of the taskbar.

– or –

Select **Start > Control Panel > System and Maintenance > Power Options**.

Selecting a different power plan

Click the battery meter icon in the notification area, and then select a power plan from the list.

– or –

Select **Start > Control Panel > System and Maintenance > Power Options**, and then select a power plan from the list.

Customizing power plans

1. Click the battery meter icon in the notification area and then click **More power options**.

   – or –

   Select **Start > Control Panel > System and Maintenance > Power Options**.

2. Select a power plan, and then click **Change plan settings**.

3. Change the **Turn off the display** and **Put the computer to sleep** timeout settings, as needed.

4. To change additional settings, click **Change advanced power settings** and make your changes.

Setting password protection on wakeup

To set the computer to prompt for a password when the computer exits Sleep or Hibernation, follow these steps:

1. Select **Start > Control Panel > System and Maintenance > Power Options**.

2. In the left pane, click **Require a password on wakeup**.

3. Click **Change Settings that are currently unavailable**.

4. Click **Require a password (recommended)**.

5. Click **Save changes**.

Using external AC power

External AC power is supplied through one of the following devices:

⚠ **WARNING!** To reduce potential safety issues, use only the AC adapter provided with the computer, a replacement AC adapter provided by HP, or a compatible AC adapter purchased from HP.

● Approved AC adapter

● Optional docking device or optional expansion product

Connect the computer to external AC power under any of the following conditions:

⚠ **WARNING!** Do not charge the computer battery while you are onboard aircraft.

- When you are charging or calibrating a battery

- When you are installing or modifying system software

- When you are writing information to a CD or DVD

When you connect the computer to external AC power, the following events occur:

- The battery begins to charge.

- If the computer is turned on, the battery meter icon in the notification area changes appearance.

When you disconnect external AC power, the following events occur:

- The computer switches to battery power.

- The display brightness is automatically decreased to save battery life. To increase display brightness, press the fn+f4 hotkey or reconnect the AC adapter.

Connecting the AC adapter

⚠ **WARNING!** To reduce the risk of electric shock or damage to the equipment:

Plug the power cord into an AC outlet that is easily accessible at all times.

Disconnect power from the computer by unplugging the power cord from the AC outlet (not by unplugging the power cord from the computer).

If provided with a 3-pin attachment plug on the power cord, plug the cord into a grounded (earthed) 3-pin outlet. Do not disable the power cord grounding pin, for example, by attaching a 2-pin adapter. The grounding pin is an important safety feature.

To connect the computer to external AC power, follow these steps:

1. Plug the AC adapter into the power connector **(1)** on the computer.

2. Plug the power cord into the AC adapter **(2)**.

3. Plug the other end of the power cord into an AC outlet **(3)**.

Using battery power

When a charged battery is in the computer and the computer is not plugged into external power, the computer runs on battery power. When the computer is plugged into external AC power, the computer runs on AC power.

If the computer contains a charged battery and is running on external AC power supplied through the AC adapter, the computer switches to battery power if the AC adapter is disconnected from the computer.

NOTE: The display brightness is decreased to save battery life when you disconnect AC power. To increase display brightness, use the fn+f4 hotkey or reconnect the AC adapter.

You can keep a battery in the computer or in storage, depending on how you work. Keeping the battery in the computer whenever the computer is plugged into AC power charges the battery and also protects your work in case of a power outage. However, a battery in the computer slowly discharges when the computer is off and unplugged from external power.

⚠ WARNING! To reduce potential safety issues, use only the battery provided with the computer, a replacement battery provided by HP, or a compatible battery purchased from HP.

Computer battery life varies, depending on power management settings, programs running on the computer, display brightness, external devices connected to the computer, and other factors.

Finding battery information in Help and Support

The "Battery information" section of the Help and Support Learning Center provides the following tools and information:

- Battery Check tool to test battery performance

- Information on calibration, power management, and proper care and storage to maximize battery life

- Information on battery types, specifications, life cycles, and capacity

To access battery information:

Select **Start > Help and Support > Learning Center > HP Power and Battery Learning Center**.

Using Battery Check

Battery Check, a part of the Total Care Advisor, provides information on the status of the battery installed in the computer.

To run Battery Check:

1. Connect the AC adapter to the computer.

NOTE: The computer must be connected to external power for Battery Check to function properly.

2. Select **Start > Help and Support > Troubleshooting tools > Battery Check**.

Battery Check examines the battery and its cells to see if they are functioning properly, and then reports the results of the examination.

Displaying the remaining battery charge

Move the pointer over the battery meter icon in the notification area, at the far right of the taskbar.

– or –

View the estimated number of minutes of battery charge remaining in Windows Mobility Center:

Click the battery meter icon, and then click **Windows Mobility Center**.

– or –

Select **Start > Control Panel > Mobile PC > Windows Mobility Center**.

The time shown indicates the approximate running time remaining on the battery *if the battery continues to provide power at the current level.* For example, the time remaining will decrease when a DVD is playing and will increase when a DVD stops playing.

Inserting or removing the battery

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

To insert the battery:

1. Turn the computer upside down on a flat surface, with the battery bay toward you.

2. Insert the battery into the battery bay **(1)** and push in until it is seated.

The battery release latches **(2)** automatically lock the battery into place.
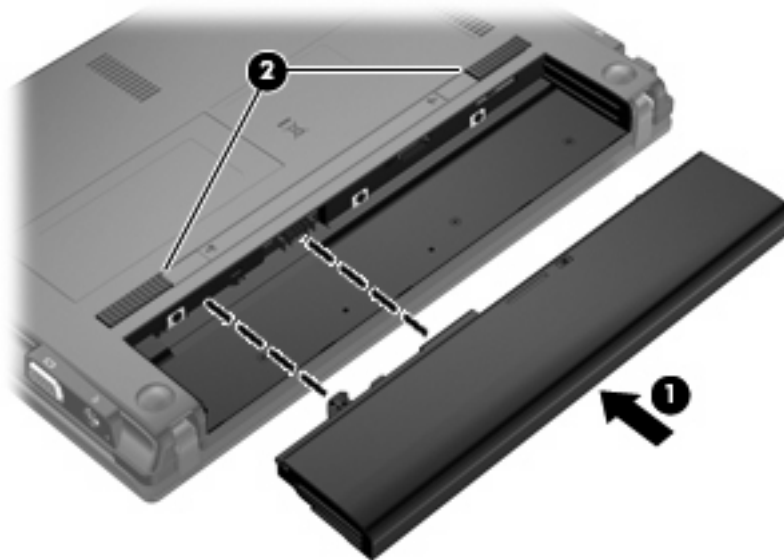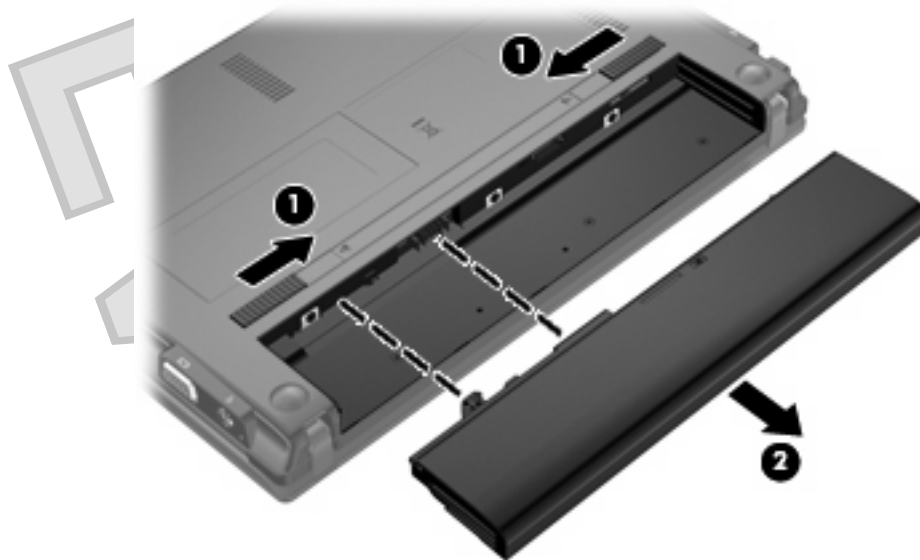

To remove the battery:

1. Turn the computer upside down on a flat surface, with the battery bay toward you.

2. Slide the battery release latches **(1)** to release the battery.

3. Remove the battery **(2)** from the computer.

Charging a battery

⚠ **WARNING!**   Do not charge the computer battery while you are onboard aircraft.

The battery charges whenever the computer is plugged into external power through an AC adapter, an optional power adapter, an optional expansion product, or an optional docking device.

The battery charges whether the computer is off or in use, but it charges faster when the computer is off.

Charging may take longer if a battery is new, has been unused for 2 weeks or more, or is much warmer or cooler than room temperature.

To prolong battery life and optimize the accuracy of battery charge displays, follow these recommendations:

●   If you are charging a new battery, charge it fully before turning on the computer.

●   Charge the battery until the battery light turns off.

    📝 **NOTE:**   If the computer is on while the battery is charging, the battery meter in the notification area may show 100 percent charge before the battery is fully charged.

●   Allow the battery to discharge below 5 percent of a full charge through normal use before charging it.

●   If the battery has been unused for one month or more, calibrate the battery instead of simply charging it.

The battery light displays charge status:

●   On: The battery is charging.

●   Blinking: The battery has reached a low battery level or critical battery level and is not charging.

●   Off: The battery is fully charged, in use, or not installed.

Maximizing battery discharge time

Battery discharge time varies, depending on the features you use while on battery power. Maximum discharge time gradually shortens as the battery storage capacity naturally degrades.

Tips for maximizing battery discharge time:

● Lower the brightness on the display.

● Check the **Power saver** setting in Power Options.

● Remove the battery from the computer when it is not being used or charged.

● Store the battery in a cool, dry location.

Managing low battery levels

The information in this section describes the alerts and system responses set at the factory. Some low-battery alerts and system responses can be changed using Power Options in Windows Control Panel. Preferences set using Power Options do not affect lights.

Identifying low battery levels

When a battery that is the sole power source for the computer reaches a low battery level, the battery light blinks.

If a low battery level is not resolved, the computer enters a critical battery level, and the battery light blinks rapidly.

The computer takes the following actions for a critical battery level:

● If Hibernation is enabled and the computer is on or in the Sleep state, the computer initiates Hibernation.

● If Hibernation is disabled and the computer is on or in the Sleep state, the computer remains briefly in the Sleep state, and then shuts down and loses any unsaved information.

Resolving a low battery level

> △ **CAUTION:** To reduce the risk of losing information when the computer reaches a critical battery level and has initiated Hibernation, do not restore power until the power lights turn off.

Resolving a low battery level when external power is available

Connect one of the following devices:

- AC adapter

- Optional expansion product or docking device

- Optional power adapter

Resolving a low battery level when a charged battery is available

1. Turn off the computer or initiate Hibernation.

2. Remove the discharged battery, and then insert a charged battery.

3. Turn on the computer.

Resolving a low battery level when no power source is available

Initiate Hibernation.

– or –

Save your work and shut down the computer.

Resolving a low battery level when the computer cannot exit Hibernation

When the computer lacks sufficient power to exit Hibernation, follow these steps:

1. Insert a charged battery or plug the computer into external power.

2. Exit Hibernation by briefly sliding the power switch.

Calibrating a battery

Calibrate a battery under the following conditions:

- When battery charge displays seem inaccurate

- When you observe a significant change in battery run time

Even if a battery is heavily used, it should not need to be calibrated more than once a month. It is also not necessary to calibrate a new battery.

Step 1: Fully charge the battery

> △ **WARNING!** Do not charge the computer battery while you are onboard aircraft.

> ✎ **NOTE:** The battery charges whether the computer is off or in use, but it charges faster when the computer is off.

To fully charge the battery:

1. Insert the battery into the computer.

2. Connect the computer to an AC adapter, optional power adapter, optional expansion product, or optional docking device, and then plug the adapter or device into external power.

    The battery light on the computer turns on.

3. Leave the computer plugged into external power until the battery is fully charged.

    The battery light on the computer turns off.

Step 2: Disable Hibernation and Sleep

1. Click the battery meter icon in the notification area, and then click **More power options**.

    – or –

    Select **Start > Control Panel > System and Maintenance > Power Options**.

2. Under the current power plan, click **Change plan settings**.

3. Record the **Turn off the display** and **Put the computer to sleep** settings listed in the **On battery** column so that you can reset them after the calibration.

4. Change the **Turn off the display** and **Put the computer to sleep** settings to **Never**.

5. Click **Change advanced power settings**.

6. Click the plus sign next to **Sleep**, and then click the plus sign next to **Hibernate after**.

7. Record the **On battery** setting under **Hibernate after** so that you can reset it after the calibration.

8. Change the **On battery** setting to **Never**.

9. Click **OK**.

10. Click **Save changes**.

Step 3: Discharge the battery

The computer must remain on while the battery is being discharged. The battery can discharge whether or not you are using the computer, but the battery will discharge faster while you are using it.

●   If you plan to leave the computer unattended during the discharge, save your information before beginning the discharge procedure.

●   If you use the computer occasionally during the discharge procedure and have set energy-saving timeouts, expect the following performance from the system during the discharge process:

    ◦   The monitor will not turn off automatically.

    ◦   Hard drive speed will not decrease automatically when the computer is idle.

    ◦   System-initiated Hibernation will not occur.

To discharge a battery:

1. Unplug the computer from its external power source, but do *not* turn off the computer.

2. Run the computer on battery power until the battery is discharged. The battery light begins to blink when the battery has discharged to a low battery level. When the battery is discharged, the battery light turns off and the computer shuts down.

Step 4: Fully recharge the battery

To recharge the battery:

1. Plug the computer into external power and maintain external power until the battery is fully recharged. When the battery is recharged, the battery light on the computer turns off.

   You can use the computer while the battery is recharging, but the battery will charge faster if the computer is off.

2. If the computer is off, turn it on when the battery is fully charged and the battery light has turned off.

Step 5: Reenable Hibernation and Sleep

△ **CAUTION:** Failure to reenable Hibernation after calibration may result in a full battery discharge and information loss if the computer reaches a critical battery level.

1. Click the battery meter icon in the notification area, and then click **More power options**.

   – or –

   Select **Start > Control Panel > System and Maintenance > Power Options**.

2. Under the current power plan, click **Change plan settings**.

3. Reenter the settings that you recorded for the items in the **On battery** column.

4. Click **Change advanced power settings**.

5. Click the plus sign next to **Sleep**, and then click the plus sign next to **Hibernate after**.

6. Reenter the setting that you recorded for **On battery**.

7. Click **OK**.

8. Click **Save changes**.

Conserving battery power

- Select low power-use settings through Power Options in Windows Control Panel.

- Turn off wireless and local area network (LAN) connections and exit modem applications when you are not using them.

- Disconnect external devices that are not plugged into an external power source, when you are not using them.

- Stop, disable, or remove any external media cards that you are not using.

- Use the fn+f3 and fn+f4 hotkeys to adjust screen brightness as needed.

- If you leave your work, initiate Sleep or Hibernation, or shut down the computer.

Storing a battery

△ **CAUTION:** To prevent damage to a battery, do not expose it to high temperatures for extended periods of time.

If a computer will be unused and unplugged from external power for more than 2 weeks, remove the battery and store it separately.

To prolong the charge of a stored battery, place it in a cool, dry place.

NOTE: A stored battery should be checked every 6 months. If the capacity is less than 50 percent, recharge the battery before returning it to storage.

Calibrate a battery before using it if it has been stored for one month or more.

Disposing of a used battery

WARNING! To reduce the risk of fire or burns, do not disassemble, crush, or puncture; do not short external contacts; do not dispose of in fire or water.

Refer to the *Regulatory, Safety and Environmental Notices* for battery disposal information.

Replacing the battery

Computer battery life varies, depending on the power management settings, programs running on the computer, display brightness, external devices connected to the computer, and other factors.

Battery Check notifies you to replace the battery when an internal cell is not charging properly, or when the battery storage capacity has reached a "weak" condition. A message refers you to the HP Web site for more information about ordering a replacement battery. If the battery is possibly covered by an HP warranty, instructions include a warranty ID.

NOTE: To ensure that you always have battery power when you need it, HP recommends purchasing a new battery when the storage capacity indicator turns green-yellow.

Testing an AC adapter

Test the AC adapter if the computer exhibits any of the following symptoms:

- The computer will not turn on when connected to the AC adapter.

- The display does not turn on when the computer is connected to the AC adapter.

- The power light is off when the computer is connected to the AC adapter.

To test the AC adapter:

1. Remove the battery from the computer.

2. Connect the AC adapter.

3. Turn on the computer.

   - If the power light turns **on**, the AC adapter is functioning properly.

   - If the power light remains **off**, the AC adapter is not functioning and should be replaced.

Contact technical support for information on obtaining a replacement AC power adapter by selecting **Start > Help and Support > Contact support**.

Shutting down the computer

△ **CAUTION:** Unsaved information will be lost when the computer is shut down.

The Shut Down command closes all open programs, including the operating system, and then turns off the display and computer.

Shut down the computer under any of the following conditions:

- When you need to replace the battery or access components inside the computer

- When you are connecting an external hardware device that does not connect to a USB port

- When the computer will be unused and disconnected from external power for an extended period

To shut down the computer, follow these steps:

📝 **NOTE:** If the computer is in the Sleep state or in Hibernation, you must first exit Sleep or Hibernation before shutdown is possible.

1. Save your work and close all open programs.

2. Click **Start**, and then click the arrow next to the Lock button.

3. Click **Shut Down**.

If the computer is unresponsive and you are unable to use the preceding shutdown procedures, try the following emergency procedures in the sequence provided:

- Press ctrl+alt+delete, and then slide the power switch.

- Slide and hold the power switch for at least 5 seconds.

- Disconnect the computer from external power and remove the battery.

3 Wireless

Using wireless devices (select models only)

Wireless technology transfers data across radio waves instead of wires. Your computer may be equipped with one or more of the following wireless devices:

- Wireless local area network (WLAN) device—Connects the computer to wireless local area networks (commonly referred to as Wi-Fi networks, wireless LANs, or WLANs) in corporate offices, your home, and public places such as airports, restaurants, coffee shops, hotels, and universities. In a WLAN, each mobile wireless device communicates with a wireless router or a wireless access point.

- Bluetooth® device—Creates a personal area network (PAN) to connect to other Bluetooth-enabled devices such as computers, phones, printers, headsets, speakers, and cameras. In a PAN, each device communicates directly with other devices, and devices must be relatively close together—typically within 10 meters (approximately 33 feet) of each other.

Computers with WLAN devices support one or more of the following IEEE industry standards:

- 802.11b, the first popular standard, supports data rates of up to 11 Mbps and operates at a frequency of 2.4 GHz.

- 802.11g supports data rates of up to 54 Mbps and operates at a frequency of 2.4 GHz. An 802.11g WLAN device is backward compatible with 802.11b devices, so they can operate on the same network.

- 802.11a supports data rates of up to 54 Mbps and operates at a frequency of 5 GHz.

    NOTE: 802.11a is not compatible with 802.11b and 802.11g.

- Wi-Fi CERTIFIED 802.11n draft 2.0 supports data rates of up to 300 Mbps and may operate at 2.4 GHz or 5 GHz, making it backward compatible with 802.11a, b, and g.

    NOTE: The specifications for the 802.11n WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the computer to communicate with other 802.11n WLAN devices.

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

Identifying wireless and network icons

Icon	Name	Description

	Wireless (connected)	Identifies the location of the wireless light and the wireless switch on the computer.
	Wireless (disconnected)	Indicates that all of the wireless devices are off.
	Network status (connected)	Indicates that one or more of your network drivers are installed and one or more network devices are connected to the network.
	Network status (disconnected)	Indicates that one or more of your network drivers are installed but no network devices are connected to the network.

Using the wireless controls

You can control the wireless devices in your computer using these features:

- Wireless switch

- Operating system controls

Using the wireless switch

The computer has a wireless switch, one or more wireless devices, and one or two wireless lights, depending on the model. All of the wireless devices on your computer are enabled at the factory, so the wireless light is on (blue) when you turn on the computer.

The wireless light indicates the overall power state of your wireless devices, not the status of individual devices. If the wireless light is blue, at least one wireless device is on. If the wireless light is amber, all wireless devices are off.

Because the wireless devices are enabled at the factory, you can use the wireless switch to turn on or turn off the wireless devices simultaneously. Individual wireless devices can be controlled through Computer Setup.

NOTE: If the wireless devices are disabled by Computer Setup, the wireless switch will not work until you reenable your devices.

Using operating system controls

Some operating systems also offer a way to manage integrated wireless devices and the wireless connection. For more information, refer to the operating system documentation.

Using a WLAN

With a WLAN device, you can access a wireless local area network (WLAN), which is composed of other computers and accessories that are linked by a wireless router or a wireless access point.

NOTE: The terms *wireless router* and *wireless access point* are often used interchangeably.

- A large-scale WLAN, such as a corporate or public WLAN, typically uses wireless access points that can accommodate a large number of computers and accessories and can separate critical network functions.

- A home or small office WLAN typically uses a wireless router, which allows several wireless and wired computers to share an Internet connection, a printer, and files without requiring additional pieces of hardware or software.

NOTE: To use the WLAN device in your computer, you must connect to a WLAN infrastructure (provided through a service provider or a public or corporate network).

Setting up a WLAN

To set up a WLAN and connect to the Internet, you need the following equipment:

- A broadband modem (either DSL or cable) **(1)** and high-speed Internet service purchased from an Internet service provider (ISP)

- A wireless router (purchased separately) **(2)**

- The wireless computer **(3)**

The illustration below shows an example of a wireless network installation that is connected to the Internet.
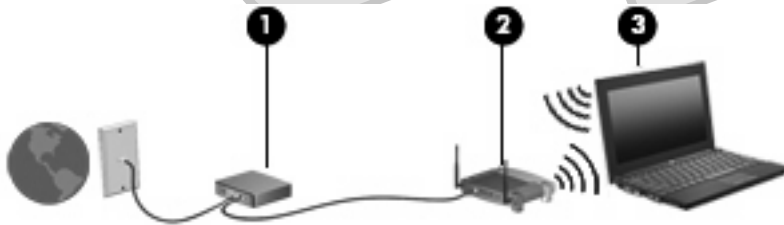
As your network grows, additional wireless and wired computers can be connected to the network to access the Internet.

For help in setting up your WLAN, refer to the information provided by your router manufacturer or your ISP.

Protecting your WLAN

Because the WLAN standard was designed with only limited security capabilities—basically to foil casual eavesdropping rather than more powerful forms of attack—it is essential to understand that WLANs are vulnerable to well-known and well-documented security weaknesses.

WLANs in public areas, or "hotspots," like coffee shops and airports may not provide any security. New technologies are being developed by wireless manufacturers and hotspot service providers that make the public environment more secure and anonymous. If you are concerned about the security of your computer in a hotspot, limit your network activities to noncritical e-mail and basic Internet surfing.

When you set up a WLAN or access an existing WLAN, always enable security features to protect your network from unauthorized access. The common security levels are Wi-Fi Protected Access (WPA) and Wired Equivalent Privacy (WEP). Because wireless radio signals travel outside the network, other WLAN devices can pick up unprotected signals and either connect to your network (uninvited) or capture information being sent across it. However, you can take precautions to protect your WLAN:

- **Use a wireless transmitter with built-in security**

  Many wireless base stations, gateways, and routers provide built-in security features such as wireless security protocols and firewalls. With the correct wireless transmitter, you can protect your network from the most common wireless security risks.

- **Work behind a firewall**

  A firewall is a barrier that checks both data and requests for data that are sent to your network and then discards any suspicious items. Firewalls are available in many varieties, both software and hardware. Some networks use a combination of both types.

- **Use wireless encryption**

  A variety of sophisticated encryption protocols is available for your WLAN. Find the solution that works best for your network security:

  ◦ **Wired Equivalent Privacy (WEP)** is a wireless security protocol that uses a WEP key to encode or encrypt all network data before it is transmitted. Usually, you can allow the network to assign the WEP key. Alternatively, you can set up your own key, generate a different key, or choose other advanced options. Without the correct key, others will not be able to use the WLAN.

  ◦ **WPA (Wi-Fi Protected Access),** like WEP, uses security settings to encrypt and decrypt data that is transmitted over the network. However, instead of using one static security key for encryptions as WEP does, WPA uses *temporal key integrity protocol* (TKIP) to dynamically generate a new key for every packet. It also generates different sets of keys for each computer on the network.

- **Close your network**

  If possible, prevent your network name (SSID) from being broadcast by the wireless transmitter. Most networks initially broadcast the name, telling any computer nearby that your network is available. By closing the network, other computers are less likely to know that your network exists.

NOTE: If your network is closed and the SSID is not broadcast, you will need to know or remember the SSID to connect new devices to the network. Write down the SSID and store it in a secure place before closing the network.

Connecting to a WLAN

To connect to the WLAN, follow these steps:

1. Be sure that the WLAN device is on. If it is on, the wireless light is on. If the wireless light is amber, slide the wireless switch.

2. Select **Start > Connect To**.

3. Select your WLAN from the list, and then type the network security key, if required.

    ●   If the network is unsecured, meaning that anyone can access the network, a warning is displayed. Click **Connect Anyway** to accept the warning and complete the connection.

    ●   If the network is a security-enabled WLAN, you are prompted to enter a network security key, which is a security code. Type the code, and then click **Connect** to complete the connection.

    NOTE: If no WLANs are listed, you are out of range of a wireless router or access point.

    NOTE: If you do not see the network you want to connect to, click **Show all connections**. A list of options will appear that includes creating a new network connection, as well as troubleshooting connection issues.

After the connection is made, place the mouse pointer over the network status icon in the notification area, at the far right of the taskbar, to verify the name and status of the connection.

NOTE: The functional range (how far your wireless signals travel) depends on WLAN implementation, router manufacturer, and interference from other electronic devices or structural barriers such as walls and floors.

More information about using a WLAN is available through the following resources:

●   Information from your ISP and the manufacturer's instructions included with your wireless router and other WLAN equipment

●   Information and Web site links provided in Help and Support

For a list of public WLANs near you, contact your ISP or search the Web. Web sites that list public WLANs include Cisco Internet Mobile Office Wireless Locations, Hotspotlist, and Geektools. Check with each public WLAN location for cost and connection requirements.

For additional information on connecting your computer to a corporate WLAN, contact your network administrator or IT department.

Roaming to another network

When you move your computer within range of another WLAN, Windows attempts to connect to that network. If the attempt is successful, your computer is automatically connected to the new network. If Windows does not recognize the new network, follow the same procedure you used initially to connect to your WLAN.

Using Bluetooth wireless devices (select models only)

A Bluetooth device provides short-range wireless communications that replace the physical cable connections that traditionally link electronic devices such as the following:

● Computers (desktop, notebook, PDA)

● Phones (cellular, cordless, smart phone)

● Imaging devices (printer, camera)

● Audio devices (headset, speakers)

Bluetooth devices provide peer-to-peer capability that allows you to set up a personal area network (PAN) of Bluetooth devices. For information on configuring and using Bluetooth devices, refer to the Bluetooth software Help.

Bluetooth and Internet Connection Sharing (ICS)

HP does **not** recommend setting up one computer with Bluetooth as a host and using it as a gateway through which other computers may connect to the Internet. When two or more computers are connected using Bluetooth, and Internet Connection Sharing (ICS) is enabled on one of the computers, the other computers may not be able to connect to the Internet using the Bluetooth network.

The strength of Bluetooth is in synchronizing information transfers between your computer and wireless devices including cellular phones, printers, cameras, and PDAs. The inability to consistently connect two or more computers to share the Internet through Bluetooth is a limitation of Bluetooth and the Windows operating system.

4 Multimedia

Multimedia features

Your computer includes multimedia features that allow you to listen to music and view pictures. Your computer may include the following multimedia components:

- Integrated speakers for listening to music

- Integrated microphones for recording your own audio

- Integrated webcam that allows you to capture and share video

- Preinstalled multimedia software that allows you to play and manage your music, movies, and pictures

- Hotkeys that provide fast access to volume control

NOTE: Your computer may not include all of the components listed.

The following sections explain how to identify and use the multimedia components included with your computer.

Identifying your multimedia components

The following illustration and table describe the multimedia features of the computer.

Component		Description
(1)	Webcam light	On: The webcam is in use.
(2)	Webcam	Records audio and video and captures still photographs.
(3)	Internal microphones (2)	Record sound.
(4)	Audio-in (microphone) jack	Connects an optional computer headset microphone, stereo array microphone, or monaural microphone.
(5)	Audio-out (headphone) jack	Produces sound when connected to optional powered stereo speakers, headphones, ear buds, or a headset.
		WARNING! 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 *Regulatory, Safety and Environmental Notices*.
		NOTE: When a device is connected to the headphone jack, the computer speakers are disabled.
(5)	Speakers (2)	Produce sound.

Adjusting the volume

You can adjust the volume using the following controls:

- Computer volume hotkey—A combination of the fn key **(1)** and either the f8 **(2)**, f10 **(3)**, or f11 **(4)** function key:

    ◦ To mute or restore volume, press fn+f8.

    ◦ To decrease volume, press fn+f10.

○ To increase volume, press fn+f11.

- Windows volume control:

  a. Click the **Volume** icon in the notification area, at the far right of the taskbar.

  b. Increase or decrease the volume by moving the slider up or down. Click the **Mute** icon to mute the volume.

  – or –

  a. Right-click the **Volume** icon in the notification area, and then click **Open Volume Mixer**.

  b. In the Speakers column, you can increase or decrease the volume by moving the **Volume** slider up or down. You can also mute the volume by clicking the **Mute** icon.

  If the Volume icon is not displayed in the notification area, follow these steps to add it:

  a. Right-click in the notification area, and then click **Properties**.

  b. Click the **Notification Area** tab.

  c. Under System icons, select the **Volume** check box.

  d. Click **OK**.

- Program volume control:

  Volume can also be adjusted within some programs.

Multimedia software

Your computer includes preinstalled multimedia software that allows you to play music and view pictures. The following sections provide details about preinstalled multimedia software and installing multimedia software from a disc.

Using preinstalled multimedia software

To locate preinstalled multimedia software:

Select **Start > All Programs**, and then open the multimedia program you want to use.

NOTE: Some programs may be located in subfolders.

Installing multimedia software from a disc

NOTE: To install multimedia software from a disc, you must have an external optical drive connected to the computer. The computer provides one powered USB port on the left side of the computer. This port provides power to the external optical drive when used with a powered USB cable. An external optical drive connected to the other USB port on the computer must be connected to AC power.

To install any multimedia software from a CD or DVD, follow these steps:

1. Insert the disc into a connected external optical drive.

2. When the installation wizard opens, follow the on-screen instructions.

3. Restart the computer if prompted to do so.

NOTE: For details about using software included with the computer, refer to the software manufacturer's instructions, which may be provided with the software, on disc, or on the manufacturer's Web site.

Sharing optical drives

Although your computer does not have an installed optical drive, you can easily access software, as well as install applications and access data by sharing an optical drive from another computer that has an optical drive and is on the same wired or wireless network. Sharing drives is a feature of the Windows operating system that allows a drive on another computer to be made available for other people to use on a network.

NOTE: For information on setting up a home network and sharing a drive, refer to Help and Support.

NOTE: Some discs, such as DVD movies and game discs, may be copy-protected and therefore unusable through DVD or CD sharing.

Audio

Your computer enables you to use a variety of audio features:

- Play music using your computer speakers and/or connected external speakers

- Record sound using the internal microphones or connect an external microphone

- Download music from the Internet

- Create multimedia presentations using audio and images

- Transmit sound and images with instant messaging programs

- Stream radio programs (select models only) or receive FM radio signals

- Create or "burn" audio CDs using an external optical drive

Connecting external audio devices

⚠ **WARNING!**   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 *Regulatory, Safety and Environmental Notices.*

To connect external devices such as external speakers, headphone, or a microphone, refer to the information provided with the device. For best results, remember the following tips:

- Be sure that the device cable is securely connected to the correct jack on your computer. (Cable connectors are normally color-coded to match the corresponding jacks on the computer.)

- Be sure to install any drivers required by the external device.

    NOTE: A driver is a required program that acts like a translator between the device and the programs that use the device.

Checking your audio functions

To check the system sound on your computer, follow these steps:

1.   Select **Start > Control Panel**.

2.   Click **Hardware and Sound**.

3.   Click **Sound**.

4.   When the Sound window opens, click the **Sounds** tab. Under **Program**, select any sound event, such as a beep or alarm, and click the **Test** button.

    You should hear sound through the speakers or through connected headphones.

To check the record functions of the computer, follow these steps:

1.   Select **Start > All Programs > Accessories > Sound Recorder**.

2.   Click **Start Recording** and speak into the microphone. Save the file to the desktop.

3.   Open Windows Media Player and play back the sound.

📝 **NOTE:** For best results when recording, speak directly into the microphone and record sound in a setting free of background noise.

To confirm or change the audio settings on your computer, right-click the **Sound** icon on the taskbar, or select **Start > Control Panel > Audio**.

Video

Your computer enables you to use a variety of video features:

- Play games over the Internet

- Edit pictures and video to create presentations

- Connect external video devices

Connecting an external monitor or projector

The external monitor port connects an external display device such as an external monitor or a projector to the computer.

To connect a display device, connect the device cable to the external monitor port.
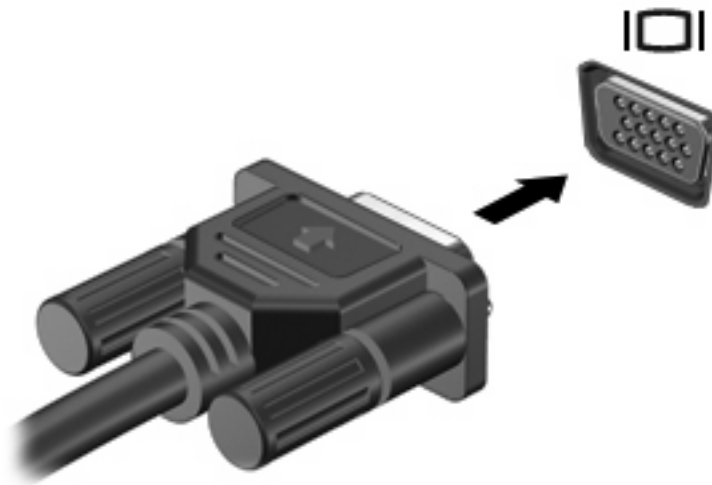
NOTE: If a properly connected external display device does not display an image, press fn+f2 to transfer the image to the device. Repeatedly pressing fn+f2 alternates the screen image between the computer display and the device.

Optical drive (select models only)

Your computer may come with an external optical drive that expands the functionality of the computer. The external optical drive allows you to read data discs, play music, and watch movies.

Identifying the external optical drive

Select **Start > Computer**.

You will see a list of all the devices installed on your computer, including the connected external optical drive. You may have one of the following types of drives:

● DVD-ROM Drive

● DVD/CD-RW Combo Drive

● DVD±RW/CD-RW Combo Drive

NOTE: Some of the drives listed above may not be supported by your computer.

Using optical discs

An optical drive, such as a DVD-ROM drive, supports optical discs (CDs and DVDs). These discs store information, such as music, photos, and movies. DVDs have a higher storage capacity than CDs.

The external optical drive can read standard CD and DVD discs.

NOTE: Some of the optical drives listed may not be supported by your computer. The listed drives are not necessarily all of the supported optical drives.

Some optical drives can also write to optical discs as described in the following table.

Optical drive type	Read from CD and DVD-ROM media	Write to CD-R/RW media	Write to DVD (includes DVD+R DL, DVD±RW/ R, and DVD-ROM media)	Write label to LightScribe CD or DVD
DVD-ROM Drive	Yes	No	No	No
DVD/CD-RW Combo Drive	Yes	Yes	No	No
DVD±RW/CD-RW Combo Drive	Yes	Yes	Yes	No

△ **CAUTION:** To prevent possible audio and video degradation, loss of information, or loss of audio or video playback functionality, do not initiate Sleep or Hibernation while reading or writing to a CD or DVD.

Selecting the right disc

An optical drive supports optical discs (CDs and DVDs). CDs, used to store digital data, are also used for commercial audio recordings and are convenient for your personal storage needs. DVDs are used primarily for movies, software, and data backup purposes. DVDs are the same form factor as CDs but have 6 to 7 times the storage capacity.

NOTE: The external optical drive connected to your computer may not support all the types of optical discs discussed in this section.

CD-R discs

Use CD-R (write-once) discs to create permanent archives and to share files with virtually anyone. Typical uses include the following:

- Distributing large presentations

- Sharing scanned and digital photos, video clips, and written data

- Making your own music CDs

- Keeping permanent archives of computer files and scanned home records

- Offloading files from your hard drive to free up disk space

After data is recorded, it cannot be erased or written over.

CD-RW discs

Use a CD-RW disc (a rewritable version of a CD) to store large projects that must be updated frequently. Typical uses include the following:

- Developing and maintaining large documents and project files

- Transporting work files

- Making weekly backups of hard drive files

- Updating photos, video, audio, and data continuously

DVD±R discs

Use blank DVD±R discs to permanently store large amounts of information. After data is recorded, it cannot be erased or written over.

DVD±RW discs

Use DVD±RW discs if you want to be able to erase or write over data that you saved earlier. This type of disc is ideal for testing audio or video recordings before you burn them to a CD or DVD that cannot be changed.

Playing music

NOTE: Be sure that the external optical drive is connected to your computer before beginning these steps.

1. Turn on the computer.

2. Press the release button **(1)** on the external optical drive bezel to release the disc tray.

3. Pull out the tray **(2)**.

4. Hold the disc by the edges and position the disc label-side up over the tray spindle.

   NOTE: If the tray is not fully accessible, tilt the disc carefully to position it over the spindle.

5. Gently press the disc **(3)** down onto the tray spindle until the disc snaps into place.
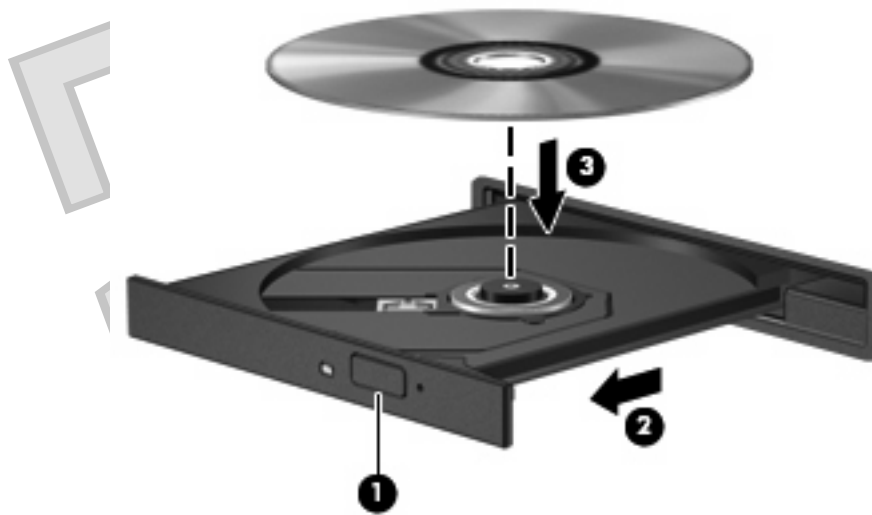
6. Close the disc tray.

7. If you have not yet configured AutoPlay, the AutoPlay dialog box opens and asks how you want to use the media content. Choose Windows Media Player, which is preinstalled on your computer.

NOTE: After you insert a disc, a short pause is normal.

If Sleep or Hibernation is accidentally initiated during playback of a disc:

●   Your playback may be interrupted.

●   You may see a warning message asking if you want to continue. If this message is displayed, click **No**.

●   You may need to restart the CD or DVD to resume playback.

Watching a movie

An external optical drive allows you to watch movies from a disc.

NOTE: Be sure that the external optical drive is connected to your computer before beginning these steps.

1. Turn on the computer.

2. Press the release button **(1)** on the external optical drive bezel to release the disc tray.

3. Pull out the tray **(2)**.

4. Hold the disc by the edges and position the disc label-side up over the tray spindle.

NOTE: If the tray is not fully accessible, tilt the disc carefully to position it over the spindle.

5. Gently press the disc **(3)** down onto the tray spindle until the disc snaps into place.
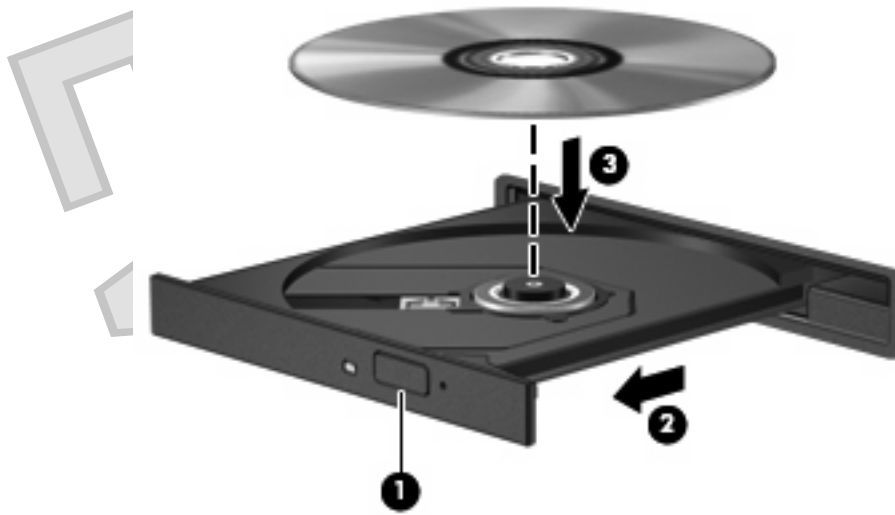
6. Close the disc tray.

NOTE: After you insert a disc, a short pause is normal. If you have not selected a media player, an AutoPlay dialog box opens. It prompts you to select how you want to use the media content.

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.

CAUTION: The region settings 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 DVD drive.

The number of region changes remaining is displayed on the DVD Region tab.

To change settings through the operating system:

1. Select **Start > Computer > System properties**.

2. In the left pane, click **Device Manager**.

NOTE: 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 applications, running utilities, or changing Windows settings. Refer to Windows Help and Support for more information.

3. Click the "+" sign next to **DVD/CD-ROM drives**.

4. Right-click the DVD drive for which you want to change region settings, and then click **Properties**.

5. Make the desired changes on the **DVD Region** tab.

6. Click **OK**.

Creating or "burning" a CD or DVD

If your external optical drive is a CD-RW, DVD-RW, or DVD±RW optical drive, you can use software such as Windows Media Player to burn data and audio files, including MP3 and WAV music files. To burn video files to a CD or DVD, use MyDVD.

Observe the following guidelines when burning a CD or DVD:

- Before burning a disc, save and close any open files and close all programs.

- A CD-R or DVD-R is usually best for burning audio files because after the information is copied, it cannot be changed.

- Because some home and car stereos will not play CD-RWs, use CD-Rs to burn music CDs.

- A CD-RW or DVD-RW is generally best for burning data files or for testing audio or video recordings before you burn them to a CD or DVD that cannot be changed.

- DVD players used in home systems usually do not support all DVD formats. Refer to the user guide that came with your DVD player for a list of supported formats.

- An MP3 file uses less space than other music file formats, and the process for creating an MP3 disc is the same as the process for creating a data file. MP3 files can be played only on MP3 players or on computers with MP3 software installed.

To burn a CD or DVD, follow these steps:

1. Download or copy the source files into a folder on your hard drive.

2. Insert a blank CD or DVD into the external optical drive.

3. Select **Start > All Programs** and the name of the software you want to use.

4. Select the kind of CD or DVD you want to create—data, audio, or video.

5. Right-click **Start**, click **Explore**, and navigate to the folder where the source files are stored.

6. Open the folder, and then drag the files to the drive that contains the blank optical disc.

7. Initiate the burning process as directed by the program you have selected.

For specific instructions, refer to the software manufacturer's instructions, which may be provided with the software, on disc, or on the manufacturer's Web site.

△ **CAUTION:** Observe 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. Do not use this computer for such purposes.

Removing an optical disc (CD or DVD)

1. Press the release button **(1)** on the drive bezel to release the disc tray, and then gently pull out the tray **(2)** until it stops.

2. Remove the disc **(3)** from the tray by gently pressing down on the spindle while lifting the outer edges of the disc. Hold the disc by the edges and avoid touching the flat surfaces.

📝 **NOTE:** If the tray is not fully accessible, tilt the disc carefully as you remove it.
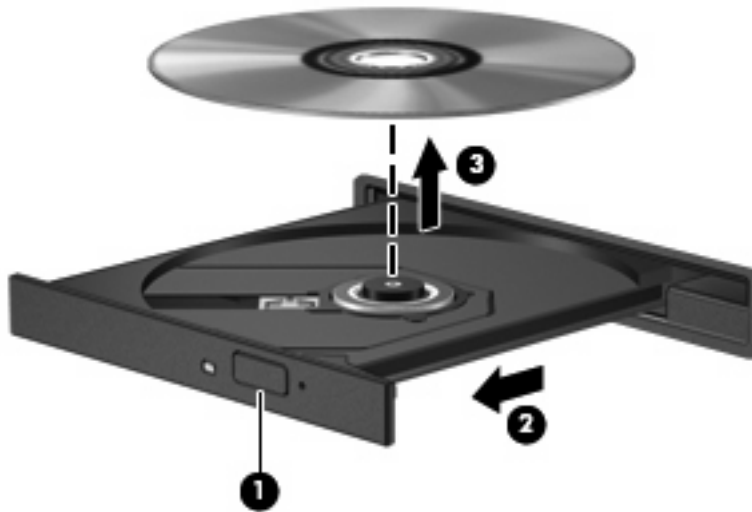
3. Close the disc tray and place the disc in a protective case.

Webcam

Your computer model includes an integrated webcam, located at the top of the display. The webcam can be used with a variety of software for the following functions:

- Capturing video

- Streaming video with instant message software

- Taking still photos

NOTE: For information about using software designed for use with the integrated webcam, refer to the online Help for that software.

For optimum performance, observe the following guidelines while using the integrated webcam:

- Be sure that you have the latest version of an instant message program before attempting a video conversation.

- The webcam may not work properly across some network firewalls.

  NOTE: If you are having trouble viewing or sending multimedia files to someone on another LAN or outside your network firewall, temporarily disable the firewall, perform the task you want to perform, and then reenable the firewall. To permanently resolve the problem, reconfigure the firewall as necessary, and adjust the policies and settings of other intrusion detection systems. For additional information, contact your network administrator or IT department.

- Whenever possible, place bright light sources behind the webcam and out of the picture area.

Adjusting webcam properties

You can adjust webcam properties using the Properties dialog box, which is accessible from various programs that use the integrated webcam, usually from a configuration, settings, or properties menu:

- **Brightness**—Controls the amount of light that is incorporated into the image. A higher brightness setting creates a brighter image; a lower brightness setting creates a darker image.

- **Contrast**—Controls the difference between lighter and darker areas on the image. A higher contrast setting intensifies the image; a lower contrast setting maintains more of the original information's dynamic range but leads to a flatter image.

- **Hue**—Controls the aspect of color that distinguishes it from another color (what makes a color red, green, or blue). Hue is distinct from saturation, which measures the intensity of the hue.

- **Saturation**—Controls the strength of color in the final image. A higher saturation setting creates a bolder image; a lower saturation setting creates a more subtle image.

- **Sharpness**—Controls the definition of edges in an image. A higher sharpness setting creates a more defined image; a lower sharpness setting creates a softer image.

- **Gamma**—Controls the contrast affecting the mid-level grays or midtones of an image. Adjusting the gamma of an image allows you to change the brightness values of the middle range of gray tones without dramatically altering the shadows and highlights. A lower gamma setting makes grays look black, and makes dark colors even darker.

For information about using the webcam, select **Start > Help and Support**.

5 Security

Protecting the computer

NOTE: Security solutions are designed to act as deterrents. These deterrents may not prevent a product from being mishandled or stolen.

NOTE: In some countries or regions, the computer supports CompuTrace, which is an online-security-based tracking and recovery service. If the computer is stolen, CompuTrace can track the computer if the unauthorized user accesses the Internet. You must purchase the software and subscribe to the service in order to use CompuTrace. For information about ordering the CompuTrace software, see the HP Web site at http://www.hpshopping.com.

Security features provided with your computer can protect the computer, personal information, and data from a variety of risks. The way you use your computer will determine which security features you need to use.

The Windows operating system offers certain security features. Additional security features are listed in the following table. Most of these additional security features can be configured in the Computer Setup utility.

To protect against	Use this security feature
Unauthorized use of the computer	Power-on authentication using passwords or smart cards
Unauthorized access to Computer Setup (f10)	Setup password in Computer Setup*
Unauthorized access to the contents of a hard drive	DriveLock password in Computer Setup*
Unauthorized reset of Computer Setup (f10) passwords	Stringent security feature in Computer Setup*
Unauthorized startup from an optical drive, diskette drive, or internal network adapter	Boot options feature in Computer Setup*
Unauthorized access to data	- Firewall software - Windows updates
Unauthorized access to Computer Setup settings and other system identification information	Setup password in Computer Setup*
Unauthorized removal of the computer	Security cable slot (used with an optional security cable)

*Computer Setup is a non-Windows utility accessed by pressing f10 when the computer is turned on or restarted. When using Computer Setup, you must use the keys on your computer to navigate and make selections.

Using passwords

A password is a group of characters that you choose to secure your computer information. Several types of passwords can be set, depending on how you want to control access to your information. Passwords can be set in Windows or in the non-Windows Computer Setup utility that is preinstalled on the computer.

△ **CAUTION:** To prevent being locked out of the computer, record each password you set. Because most passwords are not displayed as they are set, changed, or deleted, it is essential to record each password immediately and store it in a secure place.

You can use the same password for a Computer Setup feature and for a Windows security feature. You can also use the same password for more than one Computer Setup feature.

Use the following guidelines when setting a password in Computer Setup:

● A password can be any combination of up to 8 letters and numbers and is case sensitive.

● A password set in Computer Setup must be entered at a Computer Setup prompt. A password set in Windows must be entered at a Windows prompt.

Use the following tips for creating and saving passwords:

● When creating passwords, follow requirements set by the program.

● Write down your passwords and store them in a secure place away from the computer.

● Do not store passwords in a file on the computer.

● Do not use your name or other personal information that could be easily discovered by an outsider.

The following sections list Windows and Computer Setup passwords and describe their functions. For additional information about Windows passwords, such as screen-saver passwords, select **Start > Help and Support**.

Setting passwords in Windows

Windows passwords	Function
Administrator password*	Protects access to a Windows administrator-level account.
User password*	Protects access to a Windows user account.

*For information about setting a Windows administrator password or a Windows user password, select **Start > Help and Support**.

Setting passwords in Computer Setup

Computer Setup passwords	Function
Setup password	Protects access to Computer Setup.
Power-on password	Protects access to the computer contents when the computer turns on, restarts, or exits Hibernation.

Computer Setup passwords	Function
DriveLock master password	Protects access to the internal hard drive that is protected by DriveLock. It is also used to remove DriveLock protection. This password is set under DriveLock Passwords during the enable process.
DriveLock user password	Protects access to the internal hard drive that is protected by DriveLock, and is set under DriveLock Passwords during the enable process.

Setup password

The Computer Setup setup password protects the configuration settings and system identification information in Computer Setup. After this password is set, it must be entered to access Computer Setup and to make changes using Computer Setup.

Note the following characteristics of the setup password:

- It is not interchangeable with a Windows administrator password, although both passwords can be identical.

- It is not displayed as it is set, entered, changed, or deleted.

- It must be set and entered with the same keys. For example, a setup password set with keyboard number keys will not be recognized if you enter it thereafter with embedded numeric keypad number keys.

- It can include any combination of up to 32 letters and numbers and is not case sensitive.

Managing a setup password

A setup password is set, changed, and deleted in Computer Setup.

To manage, set, change, or delete this password, follow these steps:

1. Open Computer Setup by turning on or restarting the computer, and then pressing f10 while the "F10 = ROM Based Setup" message is displayed in the lower-left corner of the screen.

2. Use the arrow keys to select **Security > Setup Password**, and then press enter.

   ● To set a setup password, type your password in the **New password** and **Verify new password** fields, and then press f10.

   ● To change a setup password, type your current password in the **Old password** field, type a new password in the **New password** and **Verify new password** fields, and then press f10.

   ● To delete a setup password, type your current password in the **Old password** field, and then press f10.

3. To save your preferences, use the arrow keys to select **File > Save changes and exit**. Then follow the instructions on the screen.

Your preferences go into effect when the computer restarts.

Entering a setup password

At the **Setup password** prompt, type your setup password (using the same kind of keys you used to set the password), and then press enter. After 3 unsuccessful attempts to enter the setup password, you must restart the computer and try again.

Power-on password

The Computer Setup power-on password prevents unauthorized use of the computer. After this password is set, it must be entered each time the computer is turned on.

Note the following characteristics of a power-on password:

● It is not displayed as it is set, entered, changed, or deleted.

● It must be set and entered with the same keys. For example, a power-on password set with keyboard number keys will not be recognized if you enter it thereafter with embedded numeric keypad number keys.

● It can include any combination of up to 32 letters and numbers and is not case sensitive.

Managing a power-on password

A power-on password is set, changed, and deleted in Computer Setup.

To manage, set, change, or delete this password, follow these steps:

1. Open Computer Setup by turning on or restarting the computer, and then pressing f10 while the "F10 = ROM Based Setup" message is displayed in the lower-left corner of the screen.

2. Use the arrow keys to select **Security > Power-On password**, and then press enter.

   - To set a power-on password, type the password in the **New password** and **Verify new password** fields, and then press f10.

   - To change a power-on password, type the current password in the **Old password** field, type the new password in the **New password** and **Verify new password** fields, and then press f10.

   - To delete a power-on password, type the current password in the **Old password** field, and then press f10.

3. To save your preferences, use the arrow keys to select **File > Save changes and exit**. Then follow the instructions on the screen.

Your preferences go into effect when the computer restarts.