

Mini User Guide

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Product notice

This user guide describes features that are
common to most models. Some features
may not be available on your computer.

To obtain the latest information in the *Mini
User Guide*, go to the HP Web site at
<http://www.hp.com/support>.

Safety warning notice

-
- ⚠ **WARNING!** To reduce the possibility of heat-related injuries or of overheating the computer, 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).
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1 Getting started

Your HP computer's main operating system is SuSE Linux Enterprise Desktop. The operating system displays the desktop on the display and controls your HP computer's hardware, peripherals, and software programs.

2 Knowing the parts

Identifying the hardware

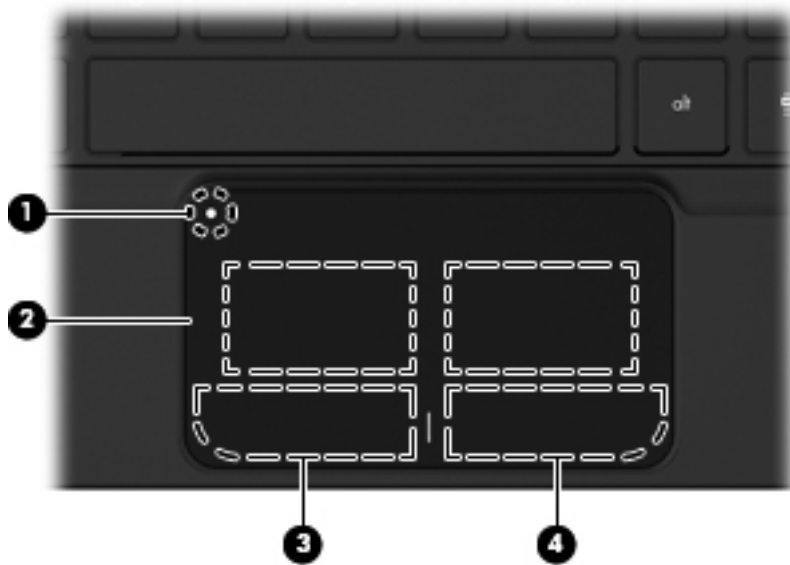
Components included with the computer may vary by region and model. The illustrations in this chapter identify the standard features on most computer models.


To see a list of hardware installed in the computer:

- ▲ Select **Computer > Control Center > YaST > System > Hardware Information**.

Top components





TouchPad



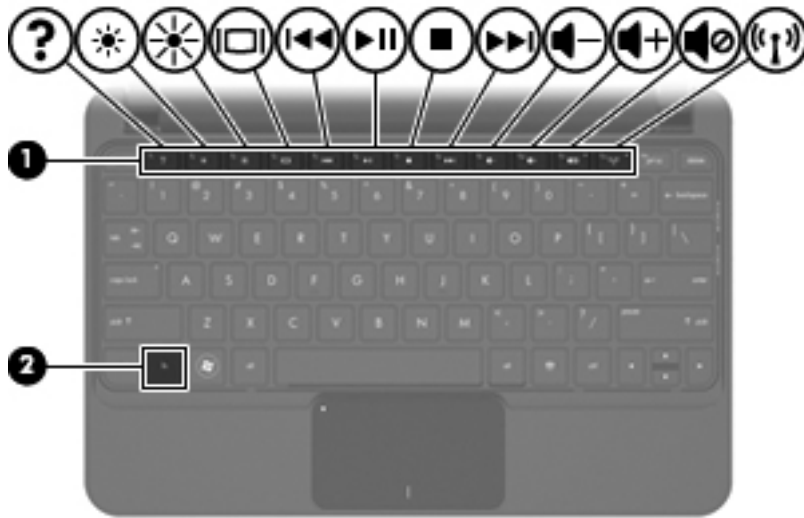
Component	Description
(1)  TouchPad on/off button	Turns the TouchPad on and off. Quickly double-tap the button to turn the TouchPad on and off.
(2) TouchPad	Moves the pointer and selects or activates items on the screen.
(3) Left TouchPad button	Functions like the left button on an external mouse.
(4) Right TouchPad button	Functions like the right button on an external mouse.

Lights



Component	Description
(1)  TouchPad light	<ul style="list-style-type: none">On: The TouchPad is disabled.Off: The TouchPad is enabled.
(2)  Caps lock light	On: Caps lock is on.
(3)  Mute light	On: Speaker sound is off.
(4)  Wireless light	<ul style="list-style-type: none">White: An integrated wireless device, such as a wireless local area network (WLAN) device and/or a Bluetooth® device, is on. <p>NOTE: Wireless devices are enabled at the factory.</p> <ul style="list-style-type: none">Off: All wireless devices are off.

Keys



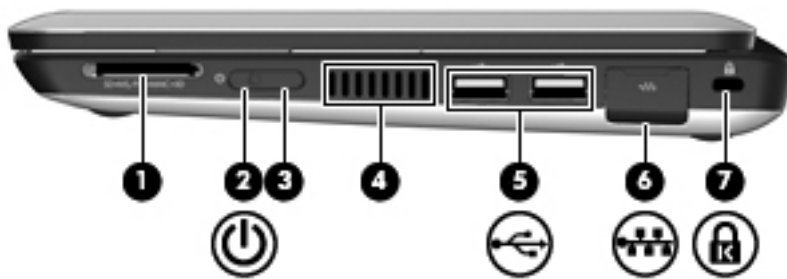
Component	Description
(1) Action keys	Execute frequently used system functions.
(2) <code>fn</code> key	Executes frequently used system functions when pressed in combination with an action key or the <code>esc</code> key. NOTE: The <code>fn+esc</code> key combination displays system information, including the product name and serial number, saving you from removing the battery to see the serial number information.



Front components





Component	Description
(1) Speakers (2)	Produce sound.

Right-side components

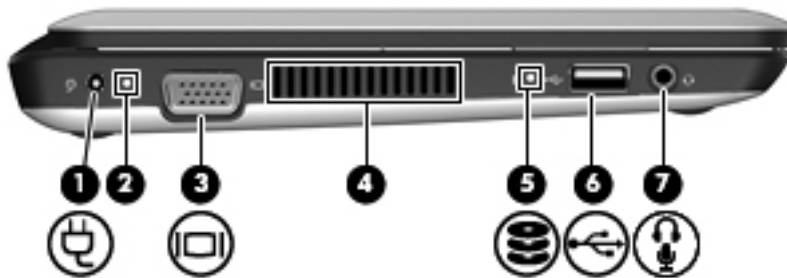







Component	Description
(1) Media Card Reader	<p>Supports the following optional digital card formats:</p> <ul style="list-style-type: none"> • Memory Stick (MS) • MS/Pro • MultiMediaCard (MMC) • Secure Digital High Capacity (SDHC) Memory card (standard and large size) • xD-Picture card
(2)  Power light	<ul style="list-style-type: none"> • White: The computer is on. • Blinking white: The computer is in the Sleep state. • Off: The computer is off or in Hibernation.
(3) Power switch	<ul style="list-style-type: none"> • When the computer is off, slide the switch to turn on the computer. • When the computer is on, briefly slide the switch to initiate Hibernation. • When the computer is in the Sleep state, briefly slide the switch to exit Sleep. • When the computer is in Hibernation, briefly slide the switch to exit Hibernation. <p>If the computer has stopped responding and operating system shutdown procedures are ineffective, slide and hold the power switch for at least 5 seconds to turn off the computer.</p> <p>To learn more about your power settings, select Computer > Control Center > System > Power Management.</p>
(4) Vent	<p>Enables airflow to cool internal components.</p> <p>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.</p>
(5)  USB ports (2)	Connect optional USB devices.



Component	Description
(6)  RJ-45 (network) jack and cover	Connects a network cable.
(7)  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 connector	Connects an AC adapter.
(2)  Battery light	<ul style="list-style-type: none"> Off: The computer is running on battery power. Blinking white: The battery has reached a low battery level, a critical battery level, or there is a battery error. When the battery reaches a critical battery level, the battery light begins blinking rapidly. Amber: A battery is charging. White: The computer is connected to external power and the battery is fully charged.
(3)  External monitor port	Connects an optional external display, such as a monitor or projector, to the computer.
(4)  Vent	Enables airflow to cool internal components.
(5)  Drive light	<ul style="list-style-type: none"> On: The hard drive is being accessed. Off: The hard drive is idle.

Component	Description
(6)  USB port	Connects an optional USB device.
(7)  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. NOTE: When an audio component is connected to the jack, the computer speakers are disabled. The audio component cable must have a 4-conductor connector.

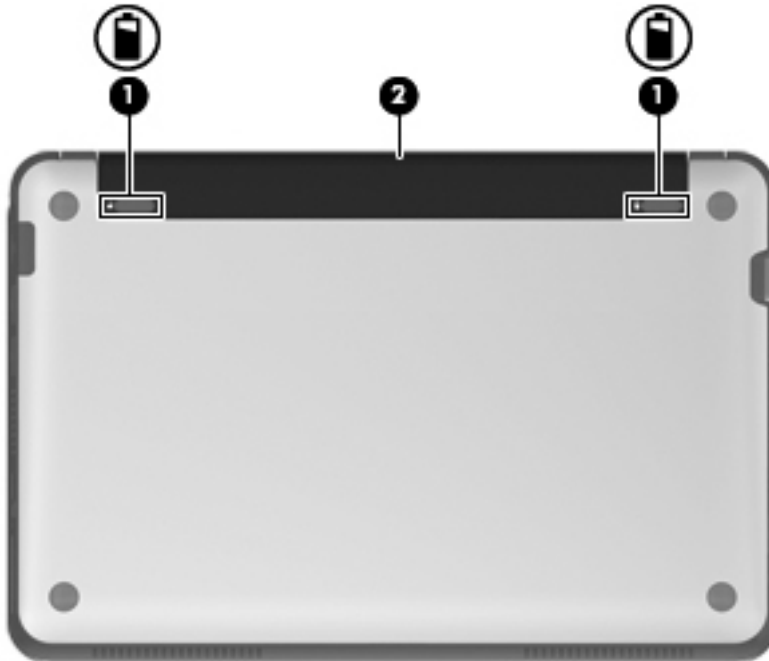
Display components



Component	Description
(1) Internal display switch	Initiates Sleep if the display is closed while the power is on. NOTE: The display switch is not visible from the outside of the computer.
(2) Webcam light	On: The webcam is in use.

Component	Description
(3) Webcam	Records video and captures still photographs. NOTE: To record videos, you need to install additional webcam software.
(4)  Internal microphone	Records sound.

Bottom components




Component	Description
(1)  Battery release latches (2)	Release the battery from the battery bay.
(2) Battery bay	Holds the battery.

Removing the vanity cover


Removing the vanity cover allows access to the memory module compartment, SIM card insertion slot, regulatory label, and other important components. To remove the vanity cover:

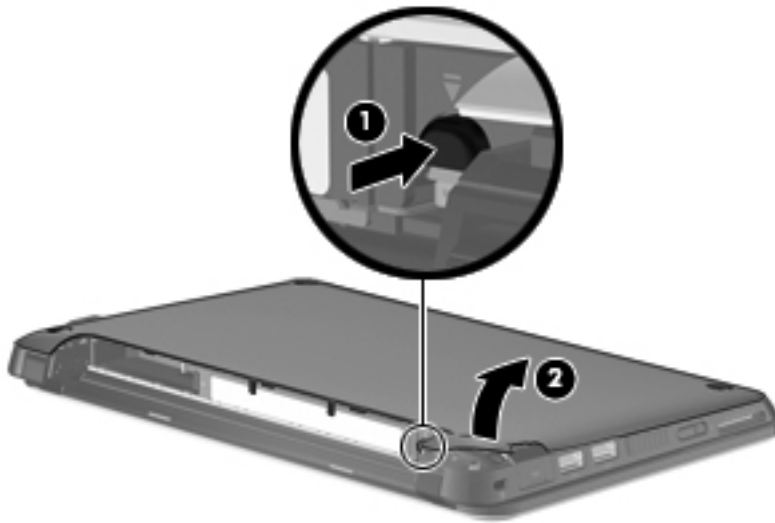
1. Disconnect the computer from AC power.
2. Remove the battery.

 **NOTE:** For more information, refer to the section “Inserting or removing the battery,” later in this guide.

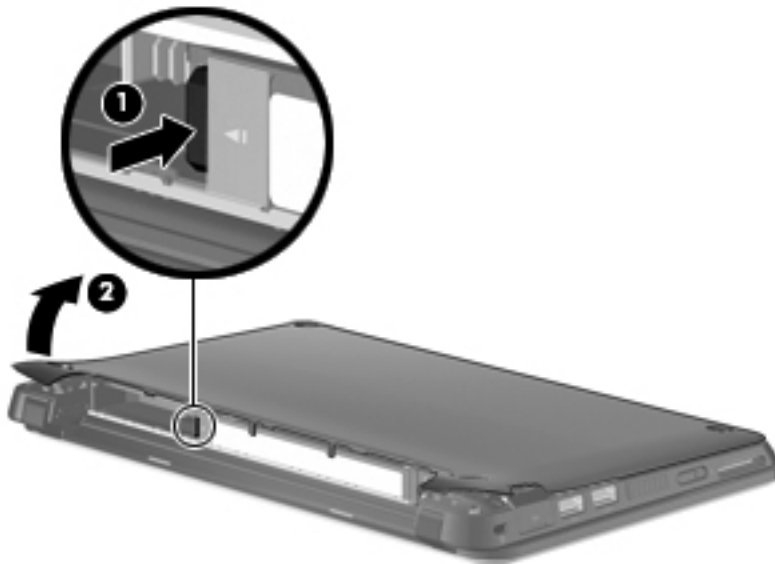
3. Press the right release button (1).

4. Release the right side of the vanity cover (2) by lifting it slightly away from the base.

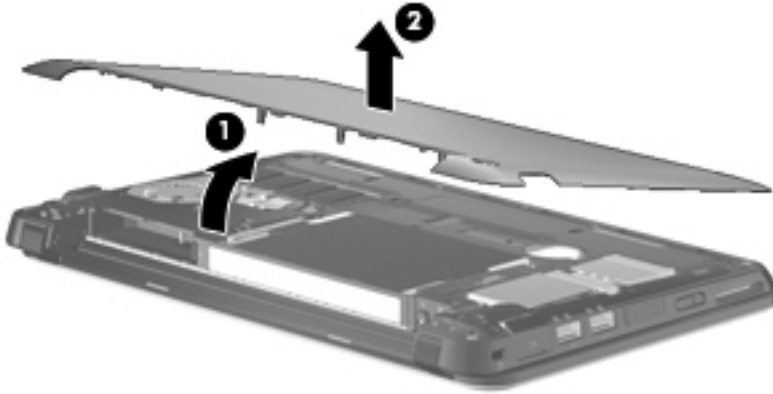
 **NOTE:** It is normal for the vanity cover to flex slightly, and you may also hear some popping noises when the vanity cover tabs disengage from the base.



5. Press the left release button (1).
6. Release the left side of the vanity cover (2) by lifting it slightly away from the base.



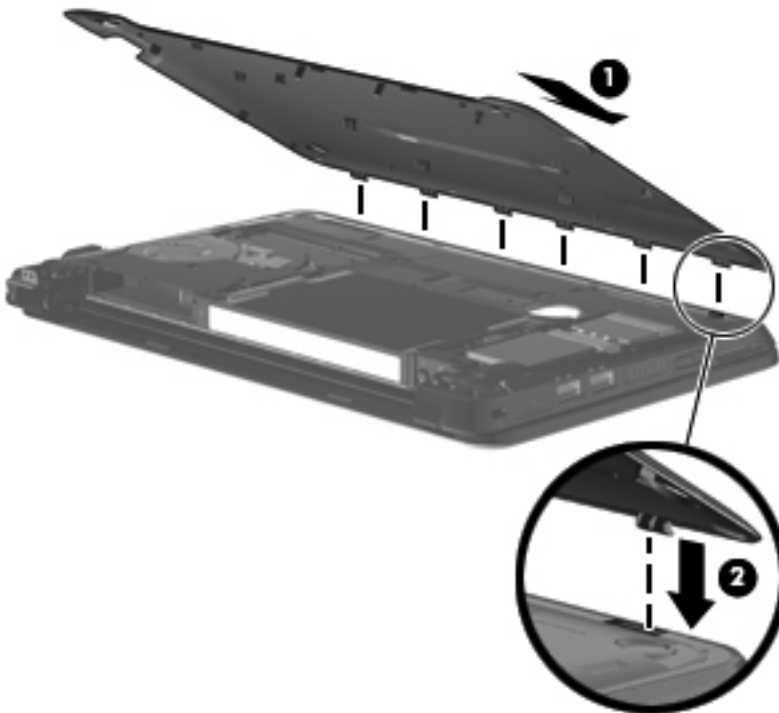
7. Lift the bottom edge of the vanity cover (1) at an angle, and then lift the vanity cover away from the base (2).



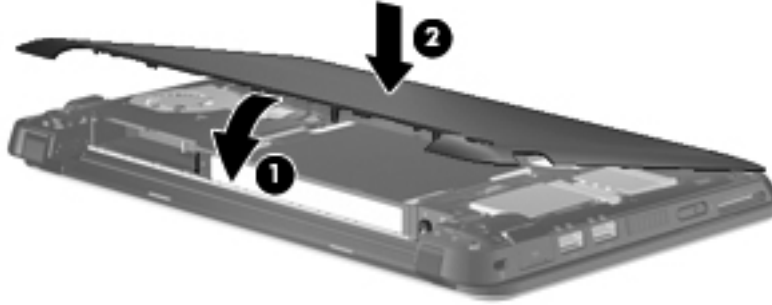
Replacing the vanity cover

Replace the vanity cover after accessing the memory module compartment, SIM card insertion slot, regulatory label, and other important components. To replace the vanity cover:


1. Place the vanity cover (1) above the computer at an angle, with the front edge toward the front of the computer.
2. Seat the back edge of the vanity cover in the back edge of the computer by aligning the six tabs on the vanity cover over the slots in the base, and then inserting the six tabs into the slots (2).



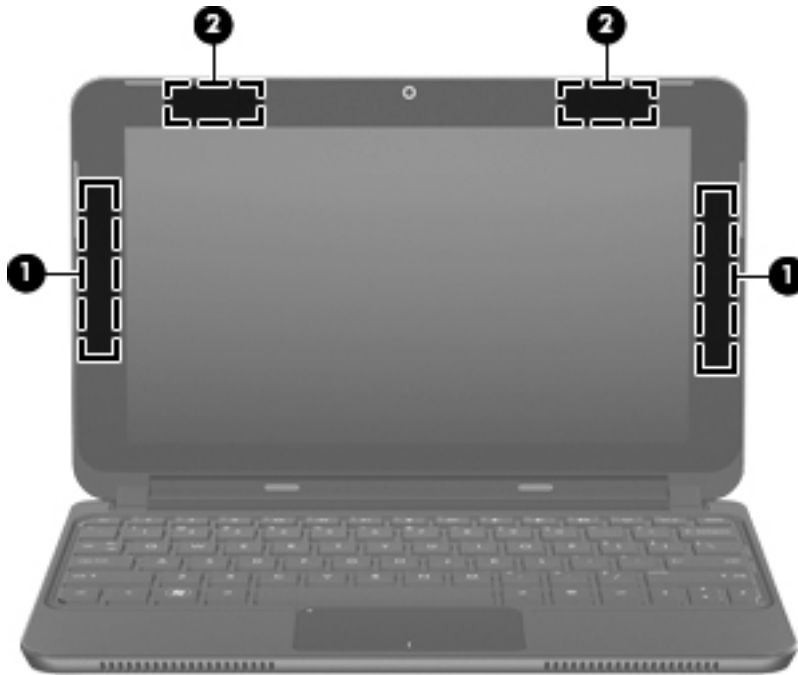
3. Rotate the front edge (1) of the vanity cover down, and then firmly press the vanity cover onto the base of the computer until it snaps into place (2).



4. Replace the battery.

 **NOTE:** For more information, refer to the section “Inserting or removing the battery,” later in this guide.

Wireless antennas



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

Additional hardware components



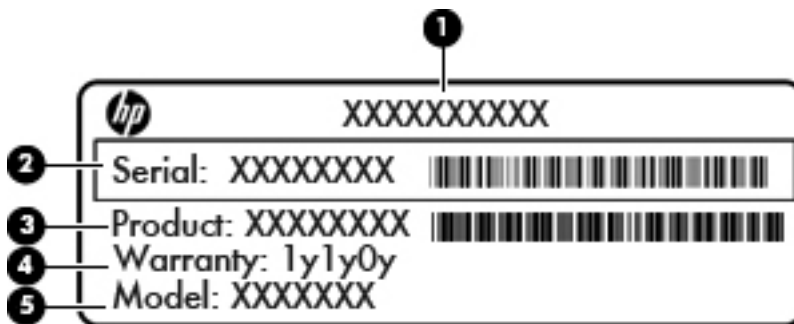
Component	Description
(1) Power cord*	Connects an AC adapter to an AC outlet.
(2) AC adapter	Converts AC power to DC power.
(3) Battery*	Powers the computer when the computer is not plugged into external power.

*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.

- Serial number label—Provides important information that you may need when contacting technical support. The serial number label is affixed inside the battery bay.



Component	Description
(1)	Product name
(2)	Serial number

Component	
(3)	Product number
(4)	Warranty period
(5)	Model description (select models)

- Regulatory label—Provides regulatory information about the computer, including the following:
 - 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. You may need this information when traveling internationally.
 - The serial number of your HP Mobile Broadband Module (select models only).

The regulatory label is located under the vanity cover of the computer. To access the regulatory label in the computer, refer to the section “Removing the vanity cover,” earlier in this guide.

3 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. Exiting Sleep is 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 25 minutes of inactivity when running on external power.

Power settings and timeouts can be changed using Power Management in Control Center.

With the computer on, you can initiate Sleep by clicking **Computer > Shutdown > Suspend**.

To exit Sleep:

- Briefly slide the power switch.

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

Initiating and exiting Hibernation

The system is set at the factory to initiate Hibernation when the battery reaches a critical battery level.

📝 **NOTE:** The system will not initiate Hibernation when running on external power.

NOTE: To reduce the risk of information loss, periodically save your work.

Power settings and timeouts can be changed using Power Management in Control Center.

To initiate Hibernation:

- ▲ Click **Computer > Shutdown > Hibernate**.

To exit Hibernation:

- ▲ Briefly slide the power switch.

When the computer exits Hibernation, the power light turns on and your work returns to the screen where you stopped working.

Using the Power icon

The Power icon is located in the notification area, at the far right of the taskbar. The Power icon 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, hover over the **Power** icon.
- To access Power Management Preferences, right-click the **Power** icon, and then click **Preferences**.

Using power management

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

You can customize power management settings.

Viewing the current power management settings

- ▲ Right-click the **Power** icon in the notification area, at the far right of the taskbar, and then click **Preferences**.

Changing the current power management settings

1. Right-click the **Power** icon in the notification area, and then click **Preferences**.
2. Change the **On AC Power**, **On Battery Power**, and **General** settings, as needed.

Using external AC power

External AC power is supplied through an approved AC adapter.

- ⚠ **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.

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

- ⚠ **WARNING!** Do not charge the 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 Power 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 **f3** action key or reconnect the AC adapter.

Connecting the AC adapter

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

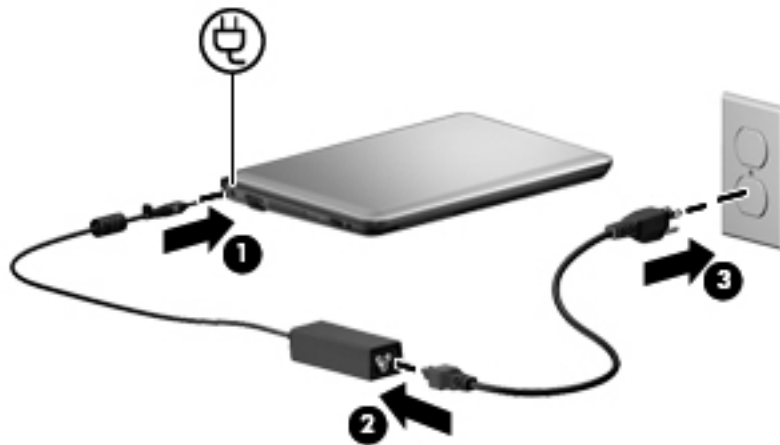
Plug the power cord into an AC outlet that is easily accessible at all times.

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 **f3** action key 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.


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

Displaying the remaining battery charge

 Move the pointer over the **Power** icon in the notification area, at the far right of the taskbar.

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 CD is playing and will increase when a CD stops playing.

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 the operating system before removing the battery.

To insert the battery:

1. Turn the computer upside down on a flat surface.
2. Align the tabs on the battery with the notches on the computer **(1)**, and then insert the battery into the battery bay **(2)**. The battery release latches automatically lock the battery into place.



To remove the battery:

1. Turn the computer upside down on a flat surface.
2. Slide the battery release latches (1) to release the battery, lift the battery (2), and then remove the battery.



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 or an optional power adapter.

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 white.

NOTE: If the computer is on while the battery is charging, the Power icon 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:

- Off: The computer is running on battery power.
- Blinking white: The battery has reached a low battery level, a critical battery level, or there is a battery error.
- Amber: A battery is charging.
- White: The computer is connected to external power and the battery is fully charged.

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:

- Decrease the brightness on the display.
- Remove the battery from the computer when it is not being used or charged.
- Store the battery in a cool, dry location.

To change the settings in Power Management, refer to the “Changing the settings in Power Management” section in this chapter.

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 Management in Control Center. Preferences set using Power Management do not affect lights.

Identifying low battery levels

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 light turns off.

Resolving a low battery level when external power is available

- ▲ Connect to an approved AC 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 and then plug the adapter into external power.
The battery light on the computer turns amber.
3. Leave the computer plugged into external power until the battery is fully charged.
The battery light on the computer turns white.

Step 2: Disable Hibernation and Sleep

1. Click the **Power** icon in the notification area, and then click **Preferences**.
2. Under the **Running on AC** and **Running on Battery** tabs, record the current values for the following settings:
 - **Put the display to sleep when the computer is inactive for**
 - **Put the computer to sleep when it is inactive for**
3. Change all 4 settings to **Never**.
4. Click **Close**.

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 white 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 white.

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 white.

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 **Power** icon in the notification area, and then click **Preferences**.
2. Under the **Running on AC** and **Running on Battery** tabs, reset the previously recorded values for the following settings:
 - **Put the display to sleep when the computer is inactive for**
 - **Put the computer to sleep when it is inactive for**
3. Click **Close**.

Conserving battery power

- Select **Powersave** in Power Management under System Settings.
- 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 **f2** and **f3** action keys 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.

Shutting down the computer


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

The Shutdown 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 **Computer > Shutdown > Shutdown**.

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

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

4 Internet

Your computer supports the following types of Internet access:

- **Wired**—You can access the Internet by connecting to a broadband network using the RJ-45 (network) jack.
- **Wireless**—For mobile Internet access, you can use a wireless connection. To learn about setting up a wireless network or adding your computer to an existing network, refer to the “Connecting to a wireless network” section.

Connecting to a wired network

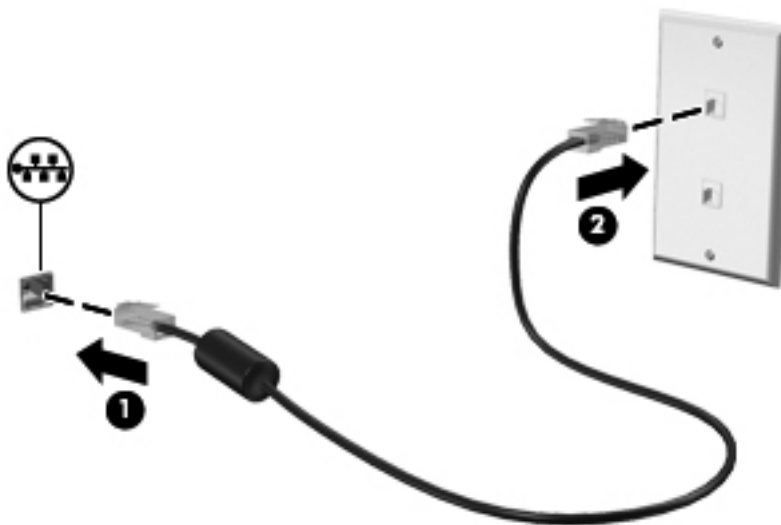
Connecting to a local area network (LAN) requires an 8-pin, RJ-45 network cable (purchased separately). If the network cable contains noise suppression circuitry (1), which prevents interference from TV and radio reception, orient the circuitry end of the cable (2) toward the computer.



To connect the network cable:

⚠ WARNING! To reduce the risk of electric shock, fire, or damage to the equipment, do not plug a modem cable or telephone cable into an RJ-45 (network) jack.

1. Plug the network cable into the network jack (1) on the computer.
2. Plug the other end of the cable into a network wall jack (2).



Connecting to a wireless network

Using wireless devices




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.
- **HP Mobile Broadband Module (select models only)**—A wireless wide area network (WWAN) device that provides access to information wherever mobile network operator service is available. In a WWAN, each mobile device communicates to a mobile network operator's base station. Mobile network operators install networks of base stations (similar to cell phone towers) throughout large geographic areas, effectively providing coverage across entire states, regions, or even countries.
- **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.

The computer supports 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.

Identifying wireless and network icons

Icon	Name	Description
	Wireless (connected)	Indicates that the wireless network is connected and active.
	Network status (connected)	Indicates that the wired network is connected and active. If both wired and wireless connections are active, the operating system uses the wired connection because it is faster.
	Network status (disconnected)	Indicates that either the wired or the wireless network is disconnected.

Using the wireless controls

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


- **Operating system controls**—This is the recommended method.
- The **f12** wireless action key

Using the wireless action key

The computer has a wireless action key (f12), one or more wireless devices, and one wireless light. All of the wireless devices on your computer are enabled at the factory.

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

Because the wireless devices are enabled at the factory, you can use the wireless action key (f12) to turn on or turn off all of the wireless devices simultaneously. Individual wireless devices can be controlled through the Control Center or the Setup Utility.

 **NOTE:** If the wireless devices are disabled, the wireless action key will not work until you reenable your devices. Check the Setup Utility to be sure that the appropriate device is enabled, and then check Network Manager by right-clicking the **Network** icon in the notification area, at the far right of the taskbar.

If WLAN and Bluetooth are integrated on one card (select models only), the wireless action key enables or disables both devices.


Using operating system controls

To enable or disable a wireless and/or wired network device, right click the **Network Connection** icon in the notification area, at the far right of the taskbar. To enable one of the following devices, select the check box from the menu option. To disable the device, clear the check box.

- **Enable Networking** (wired networking device)
- **Enable Wireless**

Using a WLAN

With a WLAN device, you can access a wireless local area network (WLAN), which is composed of other devices 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 devices 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 devices to share an Internet connection, a printer, and files without requiring additional pieces of hardware or software.

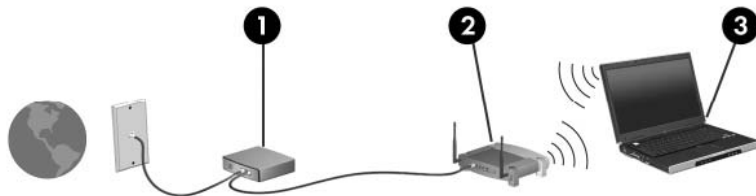
To use the WLAN device in your computer, you must connect to a WLAN infrastructure (provided through a service provider or a public or corporate network).

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)**
- computer equipped with a wireless device **(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 devices 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

It is essential to understand that because the WLAN standard was designed with only limited security capabilities—basically to foil casual eavesdropping rather than more powerful forms of attack—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)-Personal 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, or 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 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 encodes or encrypts all network data before it is transmitted using a WEP key. 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 device on 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 white. If the wireless light is off, press the **f12** action key to turn on the wireless connection.
2. Click the network icon in the notification area, at the far right of the taskbar.
3. Select your WLAN from the list, and then type the network security key, if required.
 - 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.
 - If the network is unsecured, meaning that anyone can access the network, the system connects.

 **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 is displayed 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 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 from your ISP and the manufacturer's instructions included with your wireless router and other WLAN equipment.

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, the operating system attempts to connect to that network. If the attempt is successful, your computer is automatically connected to the new network. If the operating system does not recognize the new network, follow the same procedure you used initially to connect to your WLAN.

Using Bluetooth wireless devices

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, 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


The strength of Bluetooth is in synchronizing information transfers between your Mini 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 operating system.

5 Multimedia

Multimedia features

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

- Integrated speakers for listening to music
- Integrated webcam that allows you to capture photographs and videos
- Preinstalled multimedia software that allows you to play and manage your music, movies, and pictures



 **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.



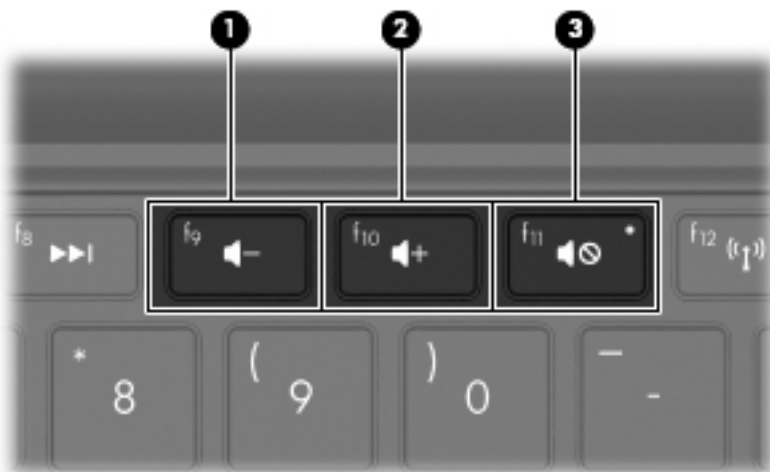
Component	Description
(1)	Webcam light On: The webcam is in use.
(2)	Webcam Records video and captures still photographs. NOTE: To record videos, you need to install additional webcam software.
(3)	Internal microphone Records sound.
(4)	Speakers (2) Produce sound.
(5)	 volume mute action key (f11) Mute speaker sound.
(6)	 volume up action key (f10) Increases speaker sound.

Component	Description
(7)  volume down action key (f9)	Decreases speaker sound.
(8)  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. 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 <i>Regulatory, Safety and Environmental Notices</i> . NOTE: When a device is connected to the jack, the computer speakers are disabled. The audio component must have a 4-conductor connector.

Adjusting the volume

You can adjust the volume using the following computer volume action keys:

- To decrease volume, press the **volume down** action key (f9) (1)
- To increase volume, press the **volume up** action key (f10) (2)
- To mute or restore volume, press the **volume mute** action key (f11) (3)




- Operating system 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 –

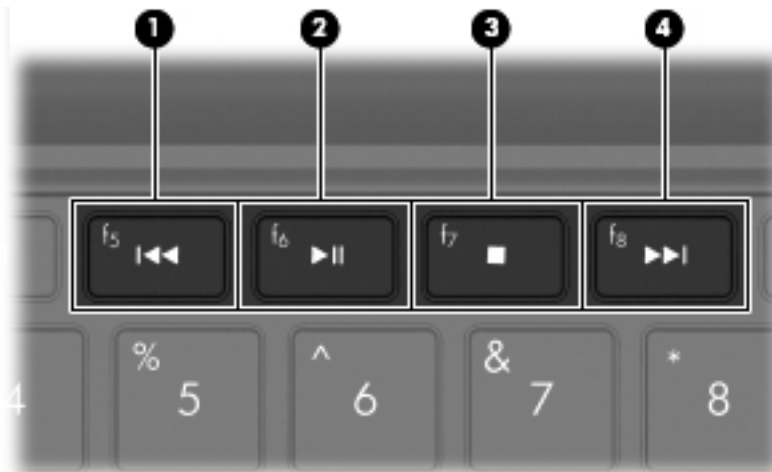
- a. Right-click the **Volume** icon in the notification area, and then click **Open Volume Control**.
 - b. In the Master column, increase or decrease the volume by moving the slider up or down. You can also mute the volume by clicking the **Mute** icon.
- Program volume control:
Volume can also be adjusted within some programs.

Using the media activity action keys

The media activity action keys control the play of an audio CD, or a DVD or BD that is inserted into an external optical drive (purchased separately).

 **NOTE:** The external optical drive must be connected to a USB port *on the computer*, not to a USB port on another external device, such as a hub or docking station.

- When an audio CD, or a DVD or BD is not playing, press the **play/pause** action key (f6) (2) to play the disc.
- When an audio CD, or a DVD or BD is playing, use the following action keys:
 - To play the previous track of an audio CD or the previous chapter of a DVD or BD, press the **previous track** action key (f5) (1).
 - To pause or resume playing the disc, press the **play/pause** action key (f6) (2).
 - To stop the disc, press the **stop** action key (f7) (3).
 - To play the next track of an audio CD or the next chapter of a DVD or BD, press the **next track** action key (f8) (4).



Multimedia software

Your computer includes preinstalled multimedia software. Depending on the hardware and software included with the computer, the following multimedia tasks may be supported:

- Playing digital media, including audio and video CDs, audio and video DVDs, and Internet radio
- Creating or copying data CDs
- Creating, editing, and burning audio CDs
- Creating, editing, and burning a video or movie to a DVD or video CD


Using other preinstalled multimedia software

To locate other preinstalled multimedia software:

- ▲ Select **Computer > More Applications**, and then open the multimedia program you want to use.

Installing multimedia software from the Internet

- ▲ To install multimedia software from the Internet, go to the software manufacturer's Web site and follow the instructions.


 **NOTE:** Software downloaded from the Internet may contain viruses. Refer to the “Security” chapter for more information.

Audio

Your computer has a variety of audio features that allow you to:


- Play music using your computer speakers and/or connected external speakers.
- Record sound using the internal microphone or an optional external headset microphone.
- Download music from the Internet.
- Create multimedia presentations using audio and images.
- Transmit sound and images with instant messaging programs.

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, headphones, or a headset microphone, refer to the information provided with the device. For best results, remember the following tips:

- Be sure that the device cable has a 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone).
- Be sure that the external device cable is securely connected to the jack on your 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 **Computer > Control Center**.
2. Click **Sound**.
3. When the Sound window opens, click the **Sounds** tab.
4. Under **System Sounds**, select the event for which you wish to hear the sound.
5. Select a sound from the list, and click the **Sound** icon located at the right of the event.

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

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

1. Select **Computer > More Applications > Sound Recorder**.
2. Click **Record** and speak into the microphone. Save the file to your desktop.
3. To play the sound, select **Computer > More Applications**.
4. Open an audio player, such as **Helix Banshee**, 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.

Video

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

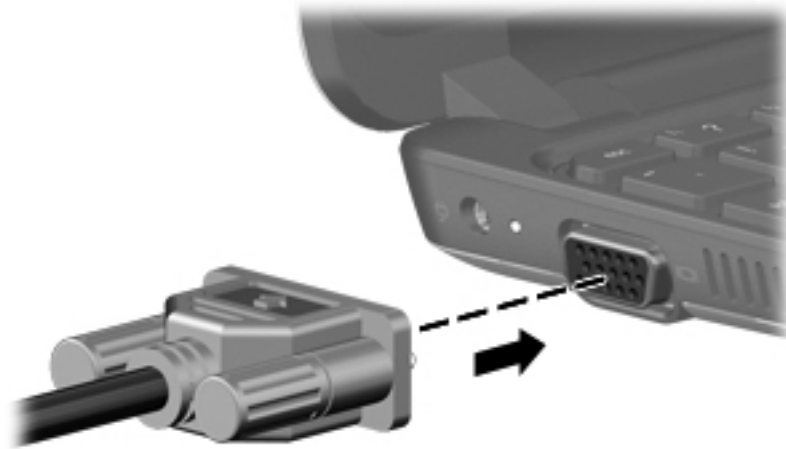
- Watch movies
- Play games over the Internet
- Edit pictures and video to create presentations
- Connect external video devices

Connecting an external monitor or projector


Use a VGA cable (purchased separately) to connect an external display, such as a monitor or projector, to the external monitor port on the computer.

To connect an external monitor or projector:

1. Connect the optional VGA cable to the external monitor port on the computer.




2. Connect the external monitor or projector to the other end of the cable.

 **NOTE:** If a properly connected external monitor or projector does not display a screen image, press the **f4** action key to transfer the image to the external display. Repeatedly pressing **f4** alternates the screen image between the external display and the computer.

Webcam

Your computer includes an integrated webcam located at the top of the display. The webcam is an input device that allows you to record video and capture still photographs.

 **NOTE:** Be sure that you have installed software that is designed for use with the integrated webcam.

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


6 Security

Protecting the computer

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.

Follow the procedures in this chapter to use the following features:

- Passwords
- Built-in firewall software
- Critical security updates


 **NOTE:** Security solutions are designed to act as deterrents, but they may not deter software attacks or prevent the computer from being mishandled or stolen.

NOTE: Before you send your computer for service, remove all password settings.

Computer risk	Security feature
Unauthorized use of the computer	Power-on password
Unauthorized access to data	<ul style="list-style-type: none">• Firewall software• Operating system updates
Unauthorized access to Setup Utility, BIOS settings, and other system identification information	Administrator password
Unauthorized access to a user account	User password

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 the Setup Utility 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 Setup Utility feature and for an operating system security feature. You can also use the same password for more than one Setup Utility feature.

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

- A password can be any combination of up to 8 letters and numbers and is case sensitive.
- A password set in Setup Utility must be entered at a Setup Utility 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 operating system and Setup Utility passwords and describe their functions.

Setting passwords in the operating system

Password	Function
Root password	Protects access to an operating system root-level account.
User password	Protects access to an operating system user account.

Setting passwords in Setup Utility

Password	Function
Administrator password*	<ul style="list-style-type: none">• Protects access to Setup Utility.• After this password is set, it must be entered each time you access Setup Utility. <p>CAUTION: If you forget your administrator password, you cannot access Setup Utility.</p>
Power-on password*	<ul style="list-style-type: none">• Protects access to the computer contents.• After this password is set, it must be entered each time you turn on or restart the computer, or exit Hibernation. <p>CAUTION: If you forget your power-on password, you cannot turn on or restart the computer, or exit Hibernation.</p>

*For details about each of these passwords, refer to the following topics.

Administrator password

Your administrator password protects the configuration settings and system identification information in Setup Utility. After this password is set, you must enter it each time you access Setup Utility.

Your administrator password is not interchangeable with an operating system root password, nor is it displayed as it is set, entered, changed, or deleted. Be sure that you record your password and store it in a safe place.

Managing an administrator password

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

1. Open Setup Utility by turning on or restarting the computer, and then pressing **f10** while the “F10 = BIOS Setup Options” message is displayed in the lower-left corner of the screen.
2. Use the arrow keys to select **Security > Set Administrator Password**, and then press **enter**.
 - To set an administrator password, type your password in the **Enter New Password** and **Confirm New Password** fields, and then press **enter**.
 - To change an administrator password, type your current password in the **Enter Current Password** field, type a new password in the **Enter New Password** and **Confirm New Password** fields, and then press **enter**.
 - To delete an administrator password, type your current password in the **Enter Password** field, and then press **enter** 4 times.
3. To save your changes and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**.

Your changes go into effect when the computer restarts.

Entering an administrator password

At the **Enter Password** prompt, type your administrator password, and then press **enter**. After 3 unsuccessful attempts to enter the administrator password, you must restart the computer and try again.

Power-on password

Your power-on password prevents unauthorized use of the computer. After this password is set, it must be entered each time you turn on or restart the computer, or exit Hibernation. A power-on password is not displayed as it is set, entered, changed, or deleted.

Managing a power-on password

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

1. Open Setup Utility by turning on or restarting the computer, and then pressing **f10** while the “F10 = BIOS Setup Options” message is displayed in the lower-left corner of the screen.
2. Use the arrow keys to select **Security > Set Power-On Password**, and then press **enter**.
 - To set a power-on password, type your password in the **Enter New Password** and **Confirm New Password** fields, and then press **enter**.
 - To change a power-on password, type your current password in the **Enter Current Password** field, type a new password in the **Enter New Password** and **Confirm New Password** fields, and then press **enter**.
 - To delete a power-on password, type your current password in the **Enter Current Password** field, and then press **enter** 4 times.
3. To save your changes and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**.

Your changes go into effect when the computer restarts.

Entering a power-on password


At the **Enter Password** prompt, type your password, and then press [enter](#). After 3 unsuccessful attempts to enter the password, you must restart the computer and try again.

Using firewall software


When you use the computer for e-mail, network, or Internet access, unauthorized persons may be able to gain access to the computer, your personal files, and information about you. Use the firewall software preinstalled on the computer to protect your privacy.

▲ Select **Computer > Control Center > YaST > Security and Users > Firewall**.

Firewall features include logging and reporting of network activity, and automatic monitoring of all incoming and outgoing traffic. Refer to the firewall user guide or contact your firewall manufacturer for more information.

 **NOTE:** Under some circumstances a firewall can block access to Internet games, interfere with printer or file sharing on a network, or block authorized e-mail attachments. To temporarily resolve the problem, disable the firewall, perform the task that you want to perform, and then reenable the firewall. To permanently resolve the problem, reconfigure the firewall.

Setting up automatic online updates

 **NOTE:** You must have a network connection in order to receive automatic online updates.

To set up automatic online updates:

1. Select **Computer > Control Center > YaST > Security and Users > Automatic Online Update**.
2. Select the **Enable Automatic Update** check box.
3. Select your preferred options for the automatic online update.

7 Digital cards

Optional digital cards provide secure data storage and convenient data sharing. These cards are often used with digital media–equipped cameras and PDAs as well as with other devices.

The Digital Media Slot supports the following formats:

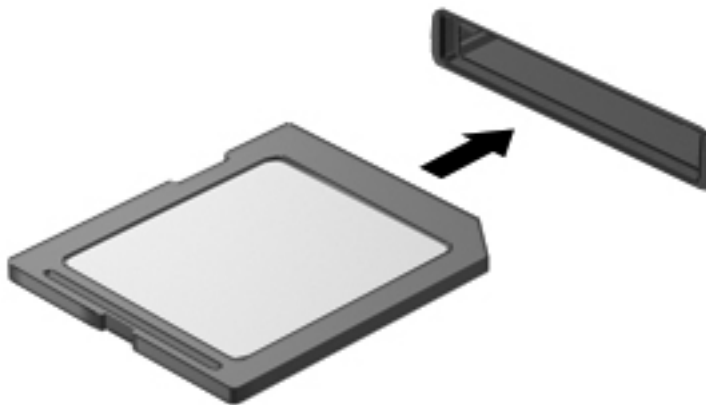
- Memory Stick (MS)
- MS/Pro
- MultiMediaCard (MMC)
- Secure Digital High Capacity (SDHC) Memory card (standard and large size)
- xD-Picture card

Inserting a digital card

△ **CAUTION:** To avoid damaging the digital card or the computer, do not insert any type of adapter into the Digital Media Slot.

CAUTION: To prevent damage to the digital card connectors, use minimal force to insert a digital card.

1. Hold the digital card label-side up, with the connectors toward the computer.
2. Insert the card into the Digital Media Slot, and then push in on the card until it is firmly seated.



You will hear a sound when the device has been detected, and a menu of options may be displayed.

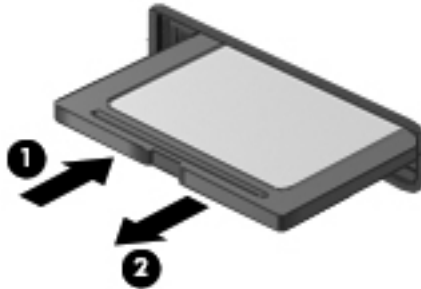
Removing a digital card

△ **CAUTION:** To prevent loss of information or an unresponsive system, be sure that you are not accessing the digital card before removal.

1. Save your information and close all programs associated with the digital card.

📝 **NOTE:** Refer to the digital card user documentation for complete instructions on safe card removal.

2. Press in on the digital card **(1)**, and then remove the digital card from the slot **(2)**.



8 USB devices

Using a USB device

Universal Serial Bus (USB) is a hardware interface that can be used to connect an optional external device, such as a USB keyboard, mouse, drive, printer, scanner, or hub. Devices can be connected to the system.

Some USB devices may require additional support software, which is usually included with the device. For more information about device-specific software, refer to the manufacturer's instructions.

The computer has 3 USB ports, which support USB 1.0, USB 1.1, and USB 2.0 devices. An optional USB hub provides additional USB ports that can be used with the computer.

Connecting a USB device

△ **CAUTION:** To prevent damage to a USB connector, use minimal force to connect a USB device.

▲ To connect a USB device, connect the USB cable for the computer to the USB port.



You will hear a sound when the device has been detected.

📄 **NOTE:** To view the USB devices installed on the computer, select **Computer**. Look under **Status** for a list of installed USB devices.

Removing a USB device

△ **CAUTION:** To prevent loss of information or an unresponsive system, be sure that you are not accessing a USB device before removal.

CAUTION: To prevent damage to a USB connector, do not pull on the cable to remove the USB device.


Refer to the USB device user documentation for complete instructions on device removal.

9 Pointing devices and keyboard

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.

 **NOTE:** For more information on identifying the TouchPad components, refer to the “TouchPad” section earlier in this guide.

Connecting an external mouse


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

Using the keyboard

Using the action keys

Action keys are customized actions that are assigned to specific keys at the top of the keyboard.












To use an action key, press and hold this key to activate the assigned function.

 **NOTE:** Depending on the program you are using, pressing **fn** and one of the action keys opens a specific shortcut menu within that program.

NOTE: The action key feature is enabled at the factory. You can disable this feature in Setup Utility and revert back to pressing the **fn** key and one of the action keys to activate the assigned function. Refer to the “Setup Utility” chapter for additional information.

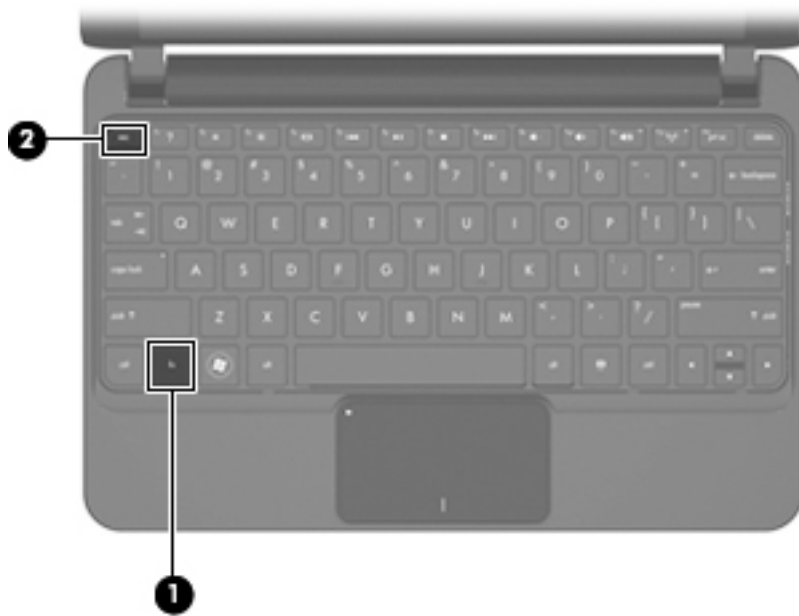


Icon	Description
f1 or fn + f1	Opens Gnome Desktop help.

Icon	Description
	Decreases the screen brightness level incrementally when you hold down this key.
	Increases the screen brightness level incrementally when you hold down this key.
	<p>Switches the screen image among display devices connected to the system. For example, if a monitor is connected to the computer, pressing this key alternates the screen image from computer display to monitor display to simultaneous display on both the computer and the monitor.</p> <p>Most external monitors receive video information from the computer using the external VGA video standard. The f4 action key can also alternate images among other devices that are receiving video information from the computer.</p>
	Plays the previous track of a CD or the previous section of a DVD or BD.
	Pauses or resumes playing the CD, DVD, or BD.
	Stops playback of audio on a CD, or video on a DVD or BD.
	Plays the next track of an audio CD or the next section of a DVD or BD.
	Decreases speaker volume incrementally when you hold down this key.
	Increases speaker volume incrementally when you hold down this key.
	Mutes or restores speaker sound.
	<p>Turns the wireless feature on or off.</p> <p>NOTE: This key does not establish a wireless connection. To establish a wireless connection, a wireless network must also be set up.</p>
<code>prt sc</code>	Takes a snapshot or picture of your computer screen and copies it to the clipboard.

Using hotkeys

The single hotkey combination is the **fn** key **(1)** and the **esc** key **(2)**.



Function	Hotkey	Description
Display system information.	<code>fn+esc</code>	Displays information about system hardware components and the system BIOS version number.

To use a hotkey command on the computer keyboard, follow either of these steps:

- Briefly press the `fn` key, and then briefly press the second key of the hotkey command.
- or –
- Press and hold down the `fn` key, briefly press the second key of the hotkey command, and then release both keys at the same time.

10 Drives

Identifying installed drives

- ▲ To view the drives installed on the computer, click **Computer > System Monitor > File Systems**.

Handling drives

Drives are fragile computer components that must be handled with care. Refer to the following cautions before handling drives. Additional cautions are included with the procedures to which they apply.

△ **CAUTION:** To reduce the risk of damage to the computer, damage to a drive, or loss of information, observe these precautions:

Before you move a computer that is connected to an external hard drive, initiate Sleep and allow the screen to clear, or properly disconnect the external hard drive.

Before handling a drive, discharge static electricity by touching the unpainted metal surface of the drive.

Do not touch the connector pins on a removable drive or on the computer.

Handle a drive carefully; do not drop a drive or place items on it.

Before removing or inserting a drive, shut down the computer. If you are unsure whether the computer is off, in the Sleep state, or in Hibernation, turn the computer on and then shut it down through the operating system.

Do not use excessive force when inserting a drive into a drive bay.

Do not type on the keyboard or move the computer while an optional optical drive is writing to a disc. The write process is sensitive to vibration.

When the battery is the only source of power, be sure that the battery is sufficiently charged before writing to media.

Avoid exposing a drive to temperature or humidity extremes.

Avoid exposing a drive to liquids. Do not spray the drive with cleaning products.

Remove media from a drive before removing the drive from the drive bay, or traveling with, shipping, or storing a drive.

If a drive must be mailed, place the drive in a bubble-pack mailer or other suitable protective packaging and label the package "FRAGILE."

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 will not damage a drive.


Using external drives

Removable external drives expand your options for storing and accessing information.

USB drives include the following types:

- 1.44-megabyte diskette drive
- Hard drive module (a hard drive with an adapter attached)
- DVD-ROM Drive
- DVD/CD-RW Combo Drive
- DVD+RW/R and CD-RW Combo Drive
- DVD±RW/R and CD-RW Combo Drive

Using optional external devices

 **NOTE:** For more information about required software and drivers, or to learn which device port to use, refer to the manufacturer's instructions.

To connect an external device:

△ **CAUTION:** To reduce the risk of damage to the equipment when connecting a powered device, be sure that the computer is turned off and the AC power cord is unplugged.

1. Connect the device.
2. If you are connecting a powered device, plug the device power cord into a grounded AC outlet.
3. Turn on the computer.

To disconnect an unpowered external device, turn off the computer, and then disconnect it. To disconnect a powered external device, turn off the computer, disconnect it, and then unplug the AC power cord.

11 Memory modules

The computer has one memory module compartment, which is located on the bottom of the computer, beneath the vanity cover. The memory capacity of the computer can be upgraded by replacing the existing memory module in the memory module slot.

-
- △ **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 add or replace a memory module:

1. Save your work.
2. Shut down the computer and close the display.

If you are not sure whether the computer is off or in Hibernation, turn the computer on by sliding the power switch. Then shut down the computer through the operating system.

3. Follow the instructions in the section “Removing the vanity cover,” earlier in this guide.
4. Unplug the power cord from the AC outlet.
5. Remove the existing memory module:

- a. Pull away the retention clips **(1)** 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.
-

8. Turn the computer right-side up, and then reconnect external power and external devices.
9. Turn on the computer.

12 Setup Utility

Starting Setup Utility

Setup Utility is a ROM-based information and customization utility that can be used even when your operating system is not working.

The utility reports information about the computer and provides settings for startup, security, and other preferences.

To start Setup Utility:

- ▲ Open Setup Utility by turning on or restarting the computer, and then pressing **f10** while the “F10 = BIOS Setup Options” message is displayed in the lower-left corner of the screen.

Using Setup Utility

Changing the language of Setup Utility

The following procedure explains how to change the language of Setup Utility. If Setup Utility is not already running, begin at step 1. If Setup Utility is already running, begin at step 2.

1. Open Setup Utility by turning on or restarting the computer, and then pressing **f10** while the “F10 = BIOS Setup Options” message is displayed in the lower-left corner of the screen.
2. Use the arrow keys to select **System Configuration > Language**, and then press **enter**.
3. Use the arrow keys to select a language, and then press **enter**.
4. When a confirmation prompt with your language selected is displayed, press **enter**.
5. To save your change and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press **enter**.

Your change goes into effect immediately.

Navigating and selecting in Setup Utility

Because Setup Utility is not operating system based, it does not support the TouchPad. Navigation and selection are by keystroke.

- To choose a menu or a menu item, use the arrow keys.
- To choose an item in a list or to toggle a field, for example an Enable/Disable field, use either the arrow keys or **f5** or **f6**.

- To select an item, press **enter**.
- To close a text box or return to the menu display, press **esc**.
- To display additional navigation and selection information while Setup Utility is open, press **f1**.

Displaying system information

The following procedure explains how to display system information in Setup Utility. If Setup Utility is not open, begin at step 1. If Setup Utility is open, begin at step 2.


1. Open Setup Utility by turning on or restarting the computer, and then pressing **f10** while the “F10 = BIOS Setup Options” message is displayed in the lower-left corner of the screen.
2. Select the **Main** menu. System information such as the system time and date, and identification information about the computer is displayed.
3. To exit Setup Utility without changing any settings, use the arrow keys to select **Exit > Exit Discarding Changes**, and then press **enter**.

Restoring default settings in Setup Utility

The following procedure explains how to restore the Setup Utility default settings. If Setup Utility is not already running, begin at step 1. If Setup Utility is already running, begin at step 2.

1. Open Setup Utility by turning on or restarting the computer, and then pressing **f10** while the “F10 = BIOS Setup Options” message is displayed in the lower-left corner of the screen.
2. Use the arrow keys to select **Exit > Load Setup Defaults**, and then press **enter**.
3. When the Setup Confirmation is displayed, press **enter**.
4. To save your change and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press **enter**.

The Setup Utility default settings go into effect when the computer restarts.

 **NOTE:** Your password, security, and language settings are not changed when you restore the factory default settings.

Exiting Setup Utility

You can exit Setup Utility with or without saving changes.

- To exit Setup Utility and save your changes from the current session:

If the Setup Utility menus are not visible, press **esc** to return to the menu display. Then use the arrow keys to select **Exit > Exit Saving Changes**, and then press **enter**.


- To exit Setup Utility without saving your changes from the current session:

If the Setup Utility menus are not visible, press **esc** to return to the menu display. Then use the arrow keys to select **Exit > Exit Discarding Changes**, and then press **enter**.

After either choice, the computer restarts.

Setup Utility menus

The menu tables in this section provide an overview of the Setup Utility options.

 **NOTE:** Some of the Setup Utility menu items listed in this chapter may not be supported by your computer.

Main menu

Select	To do this
System information	<ul style="list-style-type: none">• View and change the system time and date.• View identification information about the computer.• View specification information about the processor, memory size, and system BIOS.

Security menu

Select	To do this
Administrator password	Enter, change, or delete an administrator password.
Power-On Password	Enter, change, or delete a power-on password.

System Configuration menu

Select	To do this
Language Support	Change the Setup Utility language.
Processor C4 State	Enable/disable the processor C4 sleep state.
Boot Options	Set the following boot options: <ul style="list-style-type: none">• f10 and f12 Delay (sec.)—Set the delay for the f10 and f12 functions of Setup Utility in intervals of 5 seconds each (0, 5, 10, 15, 20).• HP Instant Web—Enable/disable the HP Instant Web menu in Setup Utility.• Internal Network Adapter boot—Enable/disable boot from Internal Network Adapter.• Boot Device Priority—Set the boot device priority for:<ul style="list-style-type: none">◦ Internal hard drive (select models only)◦ USB floppy◦ USB CD/DVD ROM drive◦ USB flash drive◦ USB Hard drive

Select	To do this
	<ul style="list-style-type: none">◦ USB Card reader◦ Network adapter
	NOTE: Only the devices attached to the system appear in the boot order menu.

Diagnostics menu

Select	To do this
Hard Disk Self Test (select models only)	Run a comprehensive self-test on the hard drive.
Memory Test	Run a diagnostic test on the system memory.

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