

To update SMBIOS information in Computer Setup:

1. Turn on or restart the computer.
2. Press **Esc** while the “Press the ESC key for Startup Menu” message is displayed at the bottom of the screen.



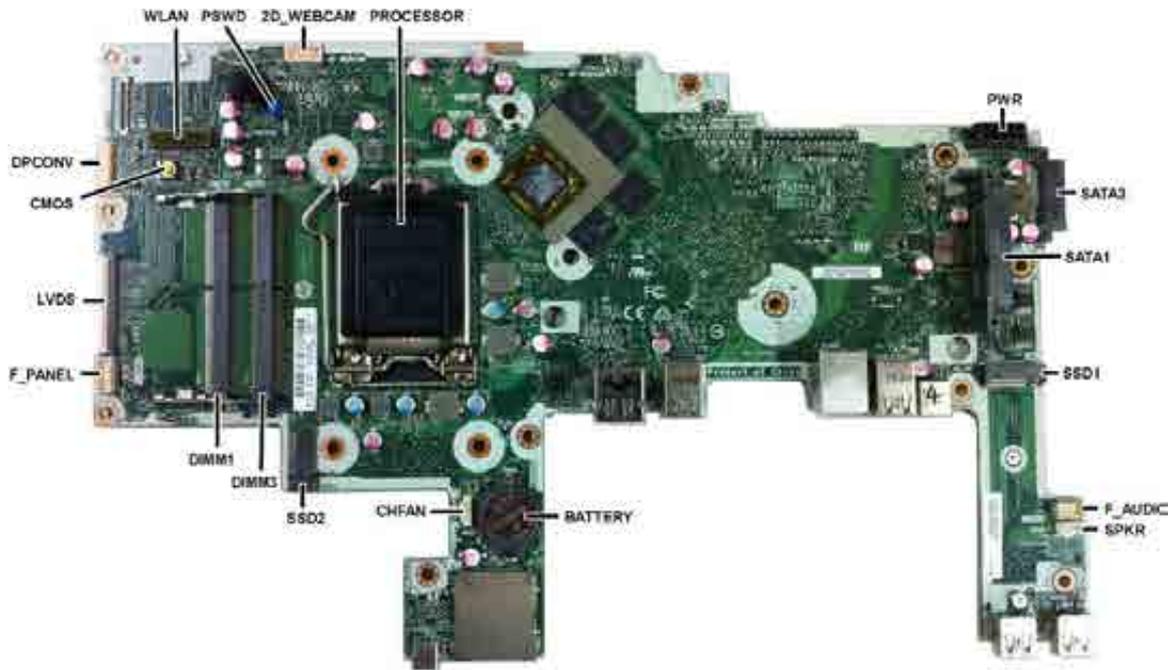
NOTE: If you do not press **Esc** at the appropriate time, you must restart the computer and again press **Esc** when the display light turns green to access the utility.

3. Press **F10** to enter Computer Setup.
4. Go to **Main > Set Machine Unique Data**.
5. If necessary, press **Ctrl+A** to initiate edit mode.
6. Edit the fields listed. If the feature byte has data or is not editable, then it was not cleared and cannot be edited.

System ID Setup Page

Setup Field Name	Comment	Label
Product Name	Enter the Model name/number or marketing name.	Flexbuild
Serial Number	Enter the Serial Number of Unit.	Support
SKU Number	Enter the SKU or Product Number including Localization Code.	Support
Asset Tag	Enter the 18-byte identifier assigned to the computer.	Support
Feature Byte	Enter the Feature Byte string. The feature byte string is case sensitive. The label includes spaces after every four characters. You can enter or ignore these spaces – their only purpose is to help with data entry. There is a character limitation of 40 bytes per line. When you reach this limit, go to the next line to continue data entry. BIOS ignores the spaces and lines. If you make an error during data entry, the data will not validate, and the computer asks you to correct your data input.	Flexbuild
Build ID	The Build ID of the unit.	Flexbuild

System board callouts



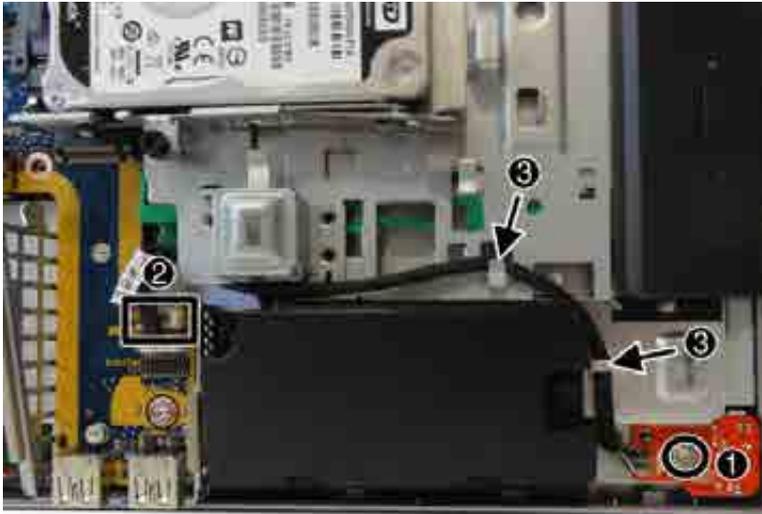
Sys Bd Label	Color	Component	Sys Bd Label	Color	Component
WLAN	Black	WLAN module connector	BATTERY	Black	RTC battery
PSWD	Blue	Clear system passwords	CHFAN	White	Fan connector
2D WEBCAM	White	Webcam connector	SSD2	Black	M.2 SSD drive
PROCESSOR	Silver	Processor socket	DIMM3	Black	Memory module
PWR	Black	Main power connector	DIMM1	Black	Memory module
SATA3	Black	Optical drive connector	F_PANEL	White	Front panel
SATA1	Black	Hard drive connector	LVDS	Black	Display connector
SSD1	Black	M.2 SSD drive	CMOS	Yellow	Reset CMOS
F_AUDIO	White	Front audio	DPCONV	White	Backlight cable
SPKR	Black	Speaker			

Audio board

The audio board is located on the bottom corner of the computer. It is secured with one Torx screw.

To remove the audio board:

1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the access panel (see [Access panel on page 21](#)).
3. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
4. Remove the stand (see [Stands on page 20](#)).
5. Remove the access panel (see [Access panel on page 21](#)).
6. Remove the Torx screw **(1)** that secures the audio board to the computer.
7. Disconnect the cable from the system board **(2)**
8. Remove the cable from the clips built into the chassis **(3)**



9. Lift the audio board out of the computer.



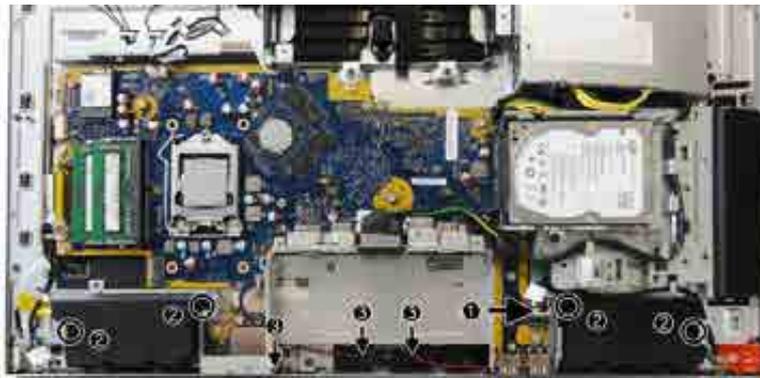
To replace the audio board, reverse the removal procedures.

Speakers

The speakers are located at the bottom of the computer. Two separate speakers are each secured by two Torx screws.

To remove the speakers:

1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
3. Remove the stand (see [Stands on page 20](#)).
4. Remove the access panel (see [Access panel on page 21](#)).
5. Remove the rear I/O cover (see [Rear I/O cover on page 47](#)).
6. Disconnect the speaker cable from the system board **(1)**.
7. Remove two Torx screws **(2)** that secure each speaker to the computer.
8. Remove speaker cable from the clips and routing path built into the chassis **(3)**.



9. Remove the speakers from the computer.



To install the speakers, reverse the removal procedures.

When installing the speakers, make sure the rubber grommets are correctly installed in the speakers.

Display panel

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-  **IMPORTANT:** Install the new display panel together with all other parts in the replacement kit. Do not reuse any old parts. Return all old parts to HP for warranty processing.
 -  **CAUTION:** it is very important to use the exact cable that shipped with the replacement panel. Failure to use the correct cable may result in panel failure.
 -  **IMPORTANT:** You must install the latest touch drivers. Failure to install the latest drivers could result in a loss of touch functionality. Go to www.hp.com/support to install the latest drivers.
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To remove the display panel:

1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
3. Remove the stand (see [Stands on page 20](#)).
4. Remove the access panel (see [Access panel on page 21](#)).
5. Remove the heat sink (see [Heat sink on page 35](#)).
6. Remove the webcam plastic cover (see [Webcam module on page 40](#)).
7. Remove the power button board and disconnect the cable from the fingerprint reader board (see [Power button and fingerprint reader boards on page 33](#)).
8. Disconnect the audio board cable from the system board (see [Audio board on page 54](#)).
9. Remove the VESA bracket/Fan assembly (see [VESA mounting bracket/fan assembly on page 43](#)).
10. Remove the rear I/O cover (see [Rear I/O cover on page 47](#)).
11. Remove the I/O bracket (see [I/O bracket on page 48](#)).
12. Remove the 11 Phillips screws (**1**) that secure the main frame to the display panel.

13. Disconnect the main display cable (2) and the power button/touch cable (3) from the system board, and then route both cables through the holes in the plate.



14. Lift the frame from the display.



15. From the rear of the display panel, remove the Mylar tape (1) that secures the display cable to the panel.
16. Disconnect the touch cable (2).

17. Disconnect the display cable (3). Lift the clear tape from atop the connector, press in on each side of the cable near the connector, and then pull the cable from the connector.



18. Separate the middle frame from the display by rotating the top of the display away from the frame (1), and then pulling the frame away from the display (2).

 **NOTE:** Display and middle frame appearance may vary.



To install the display panel, reverse the removal procedures.

Antennas

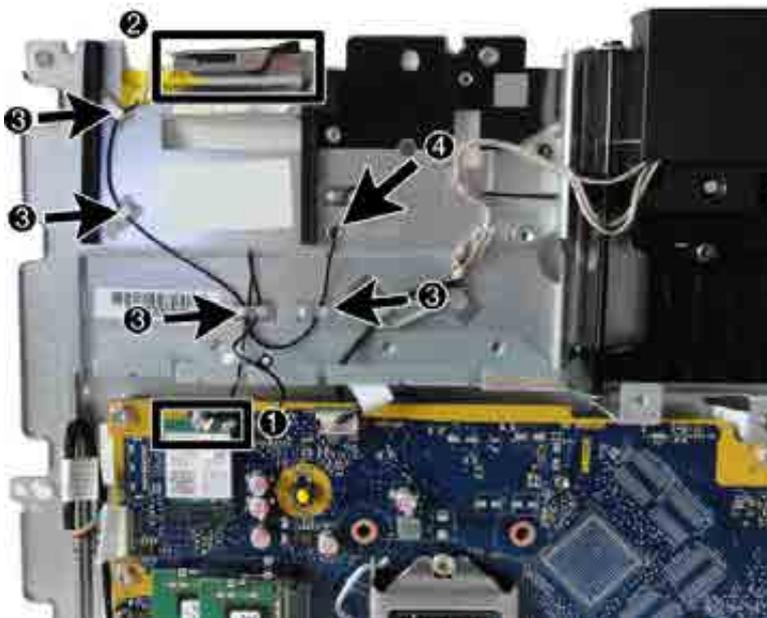
The antennas route from the WLAN module to transceivers at the top of the computer. The transceivers are secured to the computer with adhesive.

 **NOTE:** WLAN module orientation may vary.

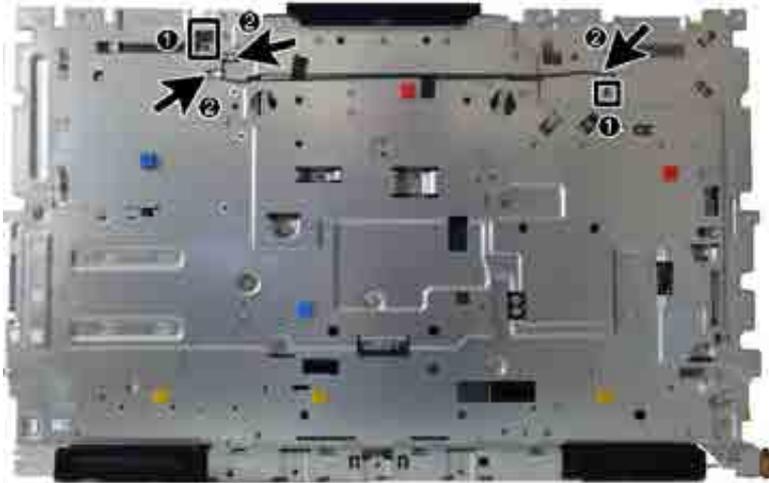
To remove the antennas:

1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
3. Remove the stand (see [Stands on page 20](#)).
4. Remove the access panel (see [Access panel on page 21](#)).
5. Remove the heat sink (see [Heat sink on page 35](#)).
6. Remove the webcam plastic cover (see [Webcam module on page 40](#)).
7. Remove the power button board and disconnect the cable from the fingerprint reader board (see [Power button and fingerprint reader boards on page 33](#)).
8. Remove the audio board (see [Audio board on page 54](#)).
9. Remove the VESA bracket/Fan assembly (see [VESA mounting bracket/fan assembly on page 43](#)).
10. Remove the rear I/O cover (see [Rear I/O cover on page 47](#)).
11. Remove the I/O bracket (see [I/O bracket on page 48](#)).
12. Separate the display from the computer (see [Display panel on page 56](#)).
13. Disconnect the antennas from the WLAN module **(1)**.
14. Peel the right antenna off the frame **(2)**.
15. Remove the cables from the clips built into the chassis **(3)**. Remove the right antenna and cable.

 **NOTE:** Note the hole that the left antenna cable runs through **(4)** as it routes behind the chassis.



16. On the rear of the chassis, note the locations the cables route through **(1)**, and the remove the cables from the clips built into the chassis **(2)**.



17. Peel the left antenna from the chassis **(1)**, and then pull the other end of the cable through the hole in the chassis **(2)**. Remove the left antenna and cable.



To install the antenna, reverse the removal procedures.

 **NOTE:** When connecting the antennas cables, be sure to match the numbers on the cable with the same number printed on the WLAN module.

Connecting cables

1. Place the computer face down on a soft flat surface. HP recommends that you set down a blanket, towel, or other soft cloth to protect the bezel and screen surface from scratches or other damage.
2. If the rear port cover is installed, remove the cover.
See [Removing the rear port cover on page 19](#).
3. Route the power and all peripheral cables through the opening in the base of the stand.



4. Connect the peripheral cables to the appropriate ports.
5. Reassemble the computer.

5 Computer Setup (F10) Utility

Computer Setup (F10) Utilities

Use Computer Setup (F10) Utility to do the following:

- Change settings from the defaults or restore the settings to default values.
- View the system configuration, including settings for processor, graphics, memory, audio, storage, communications, and input devices.
- Modify the boot order of bootable devices such as hard drives, optical drives, or USB flash media devices.
- (Windows 7 only) Establish an Ownership Tag, the text of which is displayed each time the system is turned on or restarted.
- Enter the Asset Tag or property identification number assigned by the company to this computer.
- Enable the power-on password prompt during system restarts (warm boots) as well as during power-on.
- Establish an administrator password that controls access to the Computer Setup (F10) Utility and the settings described in this section.
- Establish minimum requirements for valid passwords, including length and required types of characters.
- Secure integrated I/O functionality, including the serial, USB, or audio, or embedded NIC, so that they cannot be used until they are unsecured.
- Enable or disable different types of boot sources.
- Configure features such as Secure Boot, power management, virtualization support, and language and keyboard type used in Setup and POST.
- Replicate the system setup by saving system configuration information on a USB device and restoring it on one or more computers.
- Enable or disable DriveLock security or securely erase a hard drive (when supported by drive).

Using Computer Setup (F10) Utilities

Computer Setup can be accessed only by turning the computer on or restarting the system. To access the Computer Setup Utilities menu, complete the following steps:

1. Turn on or restart the computer.
2. Repeatedly press **F10** when the display light turns green to access the utility.

You can also press **Esc** to a menu that allows you to access different options available at startup, including the Computer Setup utility.



NOTE: If you do not press **F10** at the appropriate time, you must restart the computer and again repeatedly press **F10** when the display light turns green to access the utility.

3. A choice of four headings appears in the Computer Setup Utilities menu: Main, Security, Advanced, and UEFI Drivers.



NOTE: Selecting UEFI Drivers restarts the computer into the 3rd party option ROM management application. You can access this application directly by pressing **F3** during startup.

4. Use the arrow (left and right) keys to select the appropriate heading. Use the arrow (up and down) keys to select the option you want, then press **Enter**. To return to the Computer Setup Utilities menu, press **Esc**.
5. To apply and save changes, select **Main > Save Changes and Exit**.
 - If you have made changes that you do not want applied, select **Ignore Changes and Exit**.
 - To restore settings from the Advanced and Main menus to original values, select **Apply Factory Defaults and Exit**.
 - To restore settings from the Advanced and Main menus to those previously saved by **Save Custom Defaults**, select **Apply Custom Defaults and Exit**. If no custom defaults have been saved, then factory defaults are used.

 **NOTE:** Settings in the **Security** menu are not modified by **Apply Defaults**. Those values are reset by **Restore Security Settings to Factory Defaults** at the bottom of the **Security** menu.

 **NOTE:** Not all settings shown in the following sections are available for all models

 **CAUTION:** Do NOT turn the computer power OFF while the BIOS is saving the Computer Setup (F10) changes because the settings could become corrupted. It is safe to turn off the computer only after exiting the F10 Setup screen.

Computer Setup—Main



NOTE: Support for specific Computer Setup options may vary depending on the hardware configuration.

Table 5-1 Computer Setup—Main

Option	Description
System Information	<p>Lists all information in following list if Advanced System Information is selected. Lists smaller subset if Basic System Information is selected.</p> <ul style="list-style-type: none">• Product name• Installed memory size• Processor<ul style="list-style-type: none">Processor type• Processor cache size (L1/L2/L3)• Processor speed• MicroCode revision• Processor stepping• DIMM size (for each installed module)• Firmware<ul style="list-style-type: none">System BIOS version• ME Firmware version (Intel only)• Video BIOS version• Reference code version• Super I/O Firmware version• USB Type-C controller(s) firmware version• Service<ul style="list-style-type: none">Born on date• Serial number• SKU number• UUID (Universally Unique Identifier)• Asset tracking number• Feature byte• Build ID• Product family• System board ID• System board CT number• Communication<ul style="list-style-type: none">Integrated MAC Address
System Diagnostics	<p>If the hard drive has the HP Advanced Diagnostics installed, the application will launch. If HP Advanced Diagnostics is not installed, then a basic version built into the BIOS will provide the capability to perform the following functions:</p> <ul style="list-style-type: none">• Provide detailed system information

Table 5-1 Computer Setup—Main (continued)

Option	Description
	<ul style="list-style-type: none"> • Hardware subsystem tests • Component tests • Show test logs • Language selection
Update System BIOS	<p>Lets you update the system BIOS from www.hp.com or another network server, from a removable USB drive, or from a file located on the hard drive.</p> <p>Displays current BIOS version information.</p> <ul style="list-style-type: none"> • ‘Check HP.com for BIOS Updates’ or ‘Check the Network for BIOS Updates’ <p>The string that appears here depends on the setting in ‘BIOS Update Preferences’. This selection checks for the latest BIOS release revision on the network and lets you choose whether to download the BIOS image and update the computer.</p> <p>NOTE: If MS Windows BitLocker Drive Encryption (BDE) is enabled, you must suspend BDE temporarily before flashing. Be sure to obtain the BDE recovery password or recovery PIN before suspending BDE. You can enable BDE after updating the BIOS.</p> • BIOS Rollback Policy <p>Lets you select whether a minimum BIOS version can be allocated. If ‘Restricted rollback to older BIOS’ is selected, ‘Minimum BIOS version’ becomes active. Select to enter the minimum BIOS version that can be rolled back to.</p> <ul style="list-style-type: none"> ■ Unrestricted rollback to older BIOS ■ Restricted rollback to older BIOS • Allow BIOS updates using a network • BIOS Update Preferences <p>Allows the administrator to select the source of network updates (www.hp.com or another network server) and allows configuration of a periodic check for updates, including policies for:</p> <ul style="list-style-type: none"> ■ Check for updates and prompt the user to accept or reject the update at that time ■ Check for updates and install all new versions ■ Check for updates and install only new versions marked important • Network Configuration Settings
Change Date and Time	Allows you to set system time and date.
Set Machine Unique Data	Allows you to set/view data that is unique to each machine such as feature byte, build ID, serial number, SKU number, product family, and product name.
System IDs	<p>Lets you set the following values:</p> <ul style="list-style-type: none"> • Asset Tracking Number • Ownership Tag
Replicated Setup	<p>Backup current settings to USB device</p> <p>Saves system configuration to a formatted USB flash media device.</p> <p>Restore current settings from USB device</p> <p>Restores system configuration from a USB flash media device.</p>
Save Custom Defaults	Saves the current system configuration settings as the custom default set.

Table 5-1 Computer Setup—Main (continued)

Option	Description
Apply Custom Defaults and Exit	Applies the custom default settings to the computer after rebooting. Does not apply to options in the Security menu.
Apply Factory Defaults and Exit	Restores the factory system configuration settings to the computer after rebooting. Does not apply to options in the Security menu.
Ignore Changes and Exit	Exits Computer Setup without applying or saving any changes.
Save Changes and Exit	Saves changes to current system configuration, exits Computer Setup, and reboots.
Suppress POST Errors	Select to suppress most system messages during POST (Power-On Self Test).

Computer Setup—Security



NOTE: Support for specific Computer Setup options may vary depending on the hardware configuration.

Table 5-2 Computer Setup—Security

Option	Description
Set up BIOS Administrator Password	<p>Lets you set and enable a BIOS administrator password, which controls access to the following features:</p> <ul style="list-style-type: none"> • Setup Menu (F10) • 3rd Party Option ROM Management (F3) • Update system ROM • WMI commands that change system settings • BIOS Configuration Utility (BCU) • Alternative power-on password <p>NOTE: Creating a BIOS user disables the Fast Boot option.</p> <p>NOTE: If the password is set, it is required to change Computer Setup options, update the BIOS, and make changes to certain plug and play settings under Windows.</p>
Change BIOS Administrator Password (This selection is active only if a BIOS administrator password is set.)	<p>Lets you change the BIOS administrator password.</p> <p>You must know the current password to be able to change it.</p>
Password Policies	<p>Let you set the guidelines for a valid password. Options include:</p> <ul style="list-style-type: none"> • Password minimum length • Requires at least one symbol • Requires at least one number • Requires at least one upper case character • Requires at least one lower case character • Allow spaces <p>Clear Password Jumper</p> <p>Select 'Honor' to allow or 'Ignore' to not allow the absence of the password jumper to clear the passwords at boot up. Default is 'Honor'.</p>

Table 5-2 Computer Setup—Security (continued)

Option	Description
Security Configuration	TPM Embedded Security <ul style="list-style-type: none">• TPM Specification Version<p>Displays the current TPM version.</p>• TPM Device<p>Lets you set the Trusted Platform Module as available or hidden.</p>• TPM State<p>Select to enable the TPM.</p>• ClearTPM<p>Select to reset the TPM to an unowned state. After the TPM is cleared, it is also turned off. To temporarily suspend TPM operations, turn the TPM off instead of clearing it.</p><p>CAUTION: Clearing the TPM resets it to factory defaults and turns it off. You will lose all created keys and data protected by those keys.</p>
Utilities	Hard Drive Utilities <ul style="list-style-type: none">• Save/Restore MBR of System Hard Drive<p>NOTE: Windows 10 systems are generally not formatted to include an MBR. Instead they use GUID Partition Table (GPT) format, which better supports large hard drives.</p><p>Enabling this feature will save the Master Boot Record (MBR) of the system hard drive. If the MBR gets changed, the user will be prompted to restore the MBR. Default is disabled.</p><p>The MBR contains information needed to successfully boot from a disk and to access the data stored on the disk. Master Boot Record Security may prevent unintentional or malicious changes to the MBR, such as those caused by some viruses or by the incorrect use of certain disk utilities. It also allows you to recover the "last known good" MBR, should changes to the MBR be detected when the system is restarted.</p><p>NOTE: Most operating systems control access to the MBR of the current bootable disk; the BIOS cannot prevent changes that may occur while the operating system is running.</p><p>Restores the backup Master Boot Record to the current bootable disk. Default is disabled.</p><p>Only appears if all of the following conditions are true:</p><ul style="list-style-type: none">– MBR security is enabled– A backup copy of the MBR has been previously saved– The current bootable disk is the same disk from which the backup copy was saved<p>CAUTION: Restoring a previously saved MBR after a disk utility or operating system has modified the MBR, may cause the data on the disk to become inaccessible. Only restore a previously saved MBR if you are confident that the current bootable disk's MBR has been corrupted or infected with a virus.</p>• Save/Restore GPT of System Hard Drive<p>Enabling this feature will save the GUID Partition Table (GPT) of the system hard drive. If the GPT is subsequently changed, the user is prompted to choose whether to restore GPT.</p>• DriveLock<p>Allows you to assign or modify a master or user password for hard drives. When this feature is enabled, the user is prompted to provide one of the DriveLock passwords during POST. If neither is successfully entered, the hard drive will remain inaccessible until one of the passwords is successfully provided during a subsequent cold-boot sequence.</p>

Table 5-2 Computer Setup—Security (continued)

Option	Description
	<p>NOTE: This selection will only appear when at least one drive that supports the DriveLock feature is attached to the system.</p> <p>CAUTION: Be aware that these settings take place immediately. A save is not necessary.</p> <p>CAUTION: Be sure to document the DriveLock password. Losing a DriveLock password will render a drive permanently locked.</p> <p>After you select a drive, the following options are available:</p> <p>Set DriveLock Master Password. Sets the drive's master password but does not enable DriveLock.</p> <p>Enable DriveLock. Sets the drive's user password and enables DriveLock.</p> <ul style="list-style-type: none"> • Secure Erase <p>Lets you select a hard drive to completely erase.</p> <p>Once a hard drive has been erased with a program that utilizes Secure Erase firmware commands, no file recovery program, partition recovery program, or other data recovery method will be able to extract data from the drive.</p> <ul style="list-style-type: none"> • Allow OPAL Hard Drive SID Authentication
System Management Command	Allows authorized personnel to reset security settings during a service event. Default is enabled.
Restore Security Settings to Default	This action resets security devices, clears BIOS passwords (not including DriveLock), and restores settings in the Security menu to factory defaults.

Computer Setup—Advanced



NOTE: Support for specific Computer Setup options may vary depending on the hardware configuration.

Table 5-3 Computer Setup—Advanced (for advanced users)

Option	Heading
Display Language	Lets you select the language of the menus in F10 Setup and the keyboard layout.
Scheduled Power-On	This feature wakes the system up from a powered off state at a specified date and time.
Boot Options	<p>Select the devices that the computer can boot from, as well as other options, including:</p> <ul style="list-style-type: none"> • Startup Menu Delay(sec). Enabling this feature will add a user-specified delay to the POST process. One purpose for the delay is to provide additional time to activate hotkeys such as Esc for the Startup Menu or F10 for Computer Setup. • Fast Boot. Default is enabled. • CD-ROM Boot. Default is enabled. • USB Storage Boot. Default is enabled. • Network (PXE) Boot. Default is enabled. • After Power Loss. Default is Power Off. <ul style="list-style-type: none"> ■ Power off—causes the computer to remain powered off when power is restored. ■ Power on—causes the computer to power on automatically as soon as power is restored. ■ Previous state—causes the computer to power on automatically as soon as power is restored, if it was on when power was lost.

Table 5-3 Computer Setup—Advanced (for advanced users) (continued)

Option	Heading
	<p>NOTE: If the system is configured to 'Power On from Keyboard Ports' (see Power Management Options), then this setting is forced to 'Power On'.</p> <ul style="list-style-type: none">• Audio Alerts During Boot. Default is enabled. When disabled, most audible beeps from errors, warnings, and password prompts during boot up are suppressed.• Prompt on Memory Size Change. Default is enabled.• Prompt on Fixed Storage Change. Default is disabled.• UEFI Boot Order. <p>Default is enabled. Specify the order in which UEFI boot sources (such as a internal hard drive, USB hard drive, USB optical drive, or internal optical drive) are checked for a bootable operating system image.</p> <p>UEFI boot sources always have precedence over legacy boot sources.</p>
Secure Boot Configuration	<p>Configure Legacy Support and Secure Boot</p> <p>Lets you turn off all legacy support on the computer, including booting to DOS, running legacy graphics cards, booting to legacy devices, and so on.</p> <p>Lets you make sure an operating system is legitimate before booting to it, making Windows resistant to malicious modification from preboot to full OS booting, preventing firmware attacks. UEFI and Windows Secure Boot only allow code signed by pre-approved digital certificates to run during the firmware and OS boot process.</p> <ul style="list-style-type: none">• Legacy Support Enable and Secure Boot Disable• Legacy Support Disable and Secure Boot Enable• Legacy Support Disable and Secure Boot Disable <p>Default is 'Legacy Support Disable and Secure Boot Disable'.</p> <p>Secure Boot Key Management</p> <p>Lets you manage the custom key settings.</p> <p>Import Custom Secure Boot keys</p> <p>Default is disabled.</p> <p>Clear Secure Boot Keys</p> <p>Lets you delete any previously loaded custom boot keys. Clearing keys will disable secure boot. Default is disabled.</p> <p>Reset Secure Boot keys to factory defaults</p> <p>Default is disabled.</p> <p>Enable MS UEFI CA key</p> <p>Disabling this setting alters the Secure Boot key list to further restrict the allowed software components. Set this option to 'disable' to support Device Guard.</p>
System Options	<p>Turbo boost</p> <p>Intel Turbo Boost Technology (TBT) automatically allows processor cores to run faster than the base operating frequency if it is operating below power, current, and temperature specification limits. Default is enabled.</p> <p>Multi-processor</p> <p>Use this option to disable multi-processor support under the operating system. Default is enabled.</p> <p>Virtualization Technology (VTx) (Intel only)</p>

Table 5-3 Computer Setup—Advanced (for advanced users) (continued)

Option	Heading
	<p>Controls the virtualization features of the processor. Changing this setting requires turning the computer off and then back on. Default is disabled.</p> <p>Virtualization Technology for Directed I/O (VTd) (Intel only)</p> <p>Controls virtualization DMA remapping features of the chipset. Changing this setting requires turning the computer off and then back on. Default is disabled.</p> <p>PCI Express Slot x (enable/disable)</p> <p>Lets you disable individual expansion slots. Default is enabled.</p> <p>M.2 WLAN/BT</p> <p>Lets you disable the wireless module slot. Default is enabled.</p> <p>M.2 SSD</p> <p>Lets you disable the M.2 solid-state drive slot. Default is enabled.</p> <p>Allow PCIe/PCI SERR# Interrupt (enable/disable)</p> <p>Allows PCI devices to report PCI/PCIe System Error signals, such as address parity errors, data parity errors, and critical errors other than parity. Default is enabled.</p> <p>Power Button Override (disable/4 sec/15 sec)</p> <p>Lets you disable or enable and select the number of seconds you have to hold down the power button for it to force the system to power off. Default is '4 sec'.</p>
Built-In Device Options	<p>Embedded LAN Controller</p> <p>Select to show the device in the operating system. Default is enabled.</p> <p>Wake On LAN</p> <p>Lets you either disable the Wake On LAN feature, or configure where the computer boots, including the network or hard drive. Default is Boot to Network.</p> <p>Dust Filter</p> <p>Select to enable the Dust Filter replacement reminder, which can be set for 15, 30, 60, 90, 120, or 180 days. The reminder will show during POST after the reminder timer has expired.</p> <p>Video Memory Size</p> <p>Use this option to manage graphics memory allocation. The value you choose is allocated permanently to graphics and is unavailable to the operating system.</p> <p>Audio Device</p> <p>Select to show the device in the operating system. Default is enabled.</p> <p>Internal Speakers (does not affect external speakers)</p> <p>Clear to disable the chassis speaker or speakers. This function is applicable to normal audio playback in the operating system and does not affect the error or warning beeps during POST. Default is enabled.</p> <p>Increase Idle Fan Speed(%)</p> <p>Sets idle fan speed percentage. This setting only changes the minimum fan speed. The fan is still automatically controlled.</p>
Port Options	<p>Serial Port B</p> <p>Lets you disable the port. Default is enabled.</p> <p>I/O Address B</p> <p>Lets you specify the address. Default is enabled.</p>

Table 5-3 Computer Setup—Advanced (for advanced users) (continued)

Option	Heading
	<p data-bbox="528 260 635 287">Interrupt B</p> <p data-bbox="528 306 954 333">Lets you specify the address. Default is enabled.</p> <p data-bbox="528 352 1023 380">Lets you disable the following ports (default is enabled):</p> <ul data-bbox="528 399 1358 695" style="list-style-type: none"><li data-bbox="528 399 724 426">• SATA connectors<li data-bbox="528 445 719 472">• Front USB ports<li data-bbox="528 491 715 518">• Rear USB ports<li data-bbox="528 537 807 564">• USB Legacy Port Charging Enables USB charging port capability when the system is in hibernate or shutdown state.<li data-bbox="528 625 935 653">• Front USB Type-C Downstream Charging Enables USB charging port capability when the system is in hibernate or shutdown state. <p data-bbox="528 714 719 741">Restrict USB Devices</p> <p data-bbox="528 760 1038 787">Specify the following categories of USB devices to enable:</p> <ul data-bbox="528 806 919 919" style="list-style-type: none"><li data-bbox="528 806 842 833">• Allow all USB devices (default)<li data-bbox="528 852 858 879">• Allow only keyboard and mouse<li data-bbox="528 898 919 926">• Allow all but storage devices and hubs. <p data-bbox="528 945 1417 1043">When some devices are restricted, the system will disable USB ports that do not meet the allowed criteria. This feature is usually combined with similar policies within the operating system since USB devices can be moved to different ports. The ports disabled by the BIOS will remain disabled until the system is restarted.</p> <p data-bbox="528 1062 895 1089">USB Type-C Controller Firmware Update</p> <p data-bbox="528 1108 695 1136">Default is enabled.</p>
Option ROM Launch Policy	<p data-bbox="528 1157 1437 1205">These policies control whether Legacy Option ROMs or UEFI drivers are loaded. Default is 'All legacy' for Windows 7 and other non-Windows configurations. Default is 'All UEFI' for Windows 10 or later.</p> <p data-bbox="528 1224 863 1251">Configure Option ROM Launch Policy</p> <ul data-bbox="528 1270 759 1388" style="list-style-type: none"><li data-bbox="528 1270 663 1297">• All legacy<li data-bbox="528 1316 647 1344">• All UEFI<li data-bbox="528 1362 759 1390">• All UEFI except video
Power Management Options	<p data-bbox="528 1415 938 1442">Runtime Power Management (enable/disable)</p> <p data-bbox="528 1461 1437 1509">Allows certain operating systems to reduce processor voltage and frequency when the current software load does not require the full capabilities of the processor. Default is enabled.</p> <p data-bbox="528 1528 927 1556">Extended Idle Power States (enable/disable)</p> <p data-bbox="528 1575 1437 1623">Allows certain operating systems to decrease the processors power consumption when the processor is idle. Default is enabled.</p> <p data-bbox="528 1642 927 1669">S5 Maximum Power Savings (enable/disable)</p> <p data-bbox="528 1688 1406 1766">Enabling this feature reduces the power of the system as much as possible in the S5 state. Power is removed from the wake up circuitry, the expansion slots, and any management features while in S5. Default is disabled.</p> <p data-bbox="528 1785 906 1812">SATA Power Management (enable/disable)</p> <p data-bbox="528 1831 1262 1858">Enables or disables SATA bus and/or device power management. Default is enabled.</p>

Table 5-3 Computer Setup—Advanced (for advanced users) (continued)

Option	Heading
	<p>PCI Express Power Management (enable/disable)</p> <p>Enabling this option permits the PCI Express links to use Active Power State Management (ASPM) to enter lower power states while not in use. Default is enabled.</p> <p>Unique Sleep State Blink Rates (enable/disable)</p> <p>This feature is designed to provide a visual indication of what sleep state the system is in. Each sleep state has a unique blink pattern. Default is disabled.</p> <p>NOTE: A normal shutdown goes to the S4 state for Windows 10 or later.</p> <p>S0 (On) = Solid white LED.</p> <p>S3 (Stand By)= 3 blinks at 1Hz (50% duty cycle) followed by a pause of 2 seconds (white LED) — repeated cycles of 3 blinks and a pause.</p> <p>S4 (Hibernation)= 4 blinks at 1Hz (50% duty cycle) followed by a pause of 2 seconds (white LED) — repeated cycles of 4 blinks and a pause.</p> <p>S5 (Soft Off) = LED is off.</p> <p>Power On from Keyboard Ports (enable/disable)</p> <p>When enabled, this feature allows a key press to power on the system when it is off (S5 state). If using a USB keyboard, it must be plugged into one of the rear ports labeled with the keyboard icon. Default is disabled.</p>
Remote Management Options	<p>Active Management (AMT) (Intel only) (enable/disable). Default is enabled.</p> <p>Allows you to discover, repair, and protect networked computing devices.</p> <p>USB Key Provisioning Support (enable/disable) Default is disabled.</p> <p>USB Redirection Support (enable/disable). Default is enabled.</p> <p>USB redirection allows USB devices plugged into a client computer to be transparently redirected to the guest operating system.</p> <p>Unconfigure AMT on next boot (Do Not Apply/Apply). Default is 'Do Not Apply'.</p> <p>SOL Terminal Emulation Mode (ANSI / VT100). Default is ANSI.</p> <p>SOL terminal emulation mode is only activated during remote AMT redirection operations. The emulation options allow administrators to select which mode works best with their console.</p> <p>Show Unconfigure ME Confirmation Prompt (enable/disable). Default is enabled.</p> <p>Verbose Boot Messages (enable/disable). Default is enabled.</p> <p>Verbose boot shows additional logging information during the boot. mainly for debugging if something goes wrong during bootup.</p> <p>Watchdog Timer (enable/disable). Default is enabled.</p> <p>Allows you to set amount of time for a operating system and BIOS watchdog alert to be sent if the timers are not deactivated. BIOS watchdog is deactivated by BIOS and would indicate that a halt occurred during execution if the alert is sent to the management console. An operating system alert is deactivated by the operating system image and would indicate that a hang occurred during its initialization.</p> <ul style="list-style-type: none"> • OS Watchdog Timer (min.) – (5/10/15/20/25). Default is 5 min. • BIOS Watchdog Timer (min.) – (5/10/15/20/25). Default is 5 min. <p>CIRA Timeout (min.) (1/2/3/4/Never)</p> <p>CIRA is Customer Initiated Remote Assistance, an Intel service to help users employing Active Management Technology (AMT).</p>

Computer Setup—UEFI Drivers

Lets you restart the computer into the 3rd Party Option ROM Management application. You can start this application directly by pressing **F3** during startup.

Recovering the Configuration Settings

This method of recovery requires that you first perform the **Save to Removable Media** command with the Computer Setup (F10) Utility before **Restore** is needed. (See [Computer Setup—Main on page 64](#) in the Computer Setup—File table.)

The **Save to Removable Media** option creates a file named HPSETUP.TXT on an inserted USB flash media device. This file can be edited to change the settings on Restore. An asterisk (*) marks the selected option for a setting.



NOTE: It is recommended that you save any modified computer configuration settings to a USB flash media device and save the device for possible future use.

To restore the configuration, insert the USB flash media device with the saved configuration and perform the **Restore from Removable Media** command with the Computer Setup (F10) Utility. (See [Computer Setup—Main on page 64](#) in the Computer Setup—File table.)

6 Using HP PC Hardware Diagnostics (UEFI)

HP PC Hardware Diagnostics is a Unified Extensible Firmware Interface (UEFI) that allows you to run diagnostic tests to determine whether the computer hardware is functioning properly. The tool runs outside the operating system so that it can isolate hardware failures from issues that are caused by the operating system or other software components.

When HP PC Hardware Diagnostics (UEFI) detects a failure that requires hardware replacement, a 24-digit Failure ID code is generated. This ID code can then be provided to support to help determine how to correct the problem.

 **NOTE:** To start diagnostics on a convertible computer, your computer must be in notebook mode and you must use the keyboard attached.

To start HP PC Hardware Diagnostics (UEFI), follow these steps:

1. Turn on or restart the computer, and quickly press *esc*.
2. Press *f2*.

The BIOS searches three places for the diagnostic tools, in the following order:

- a. Connected USB drive

 **NOTE:** To download the HP PC Hardware Diagnostics (UEFI) tool to a USB drive, see [Downloading HP PC Hardware Diagnostics \(UEFI\) to a USB device on page 74](#).

- b. Hard drive

- c. BIOS

3. When the diagnostic tool opens, select the type of diagnostic test you want to run, and then follow the on-screen instructions.

 **NOTE:** If you need to stop a diagnostic test, press *esc*.

Downloading HP PC Hardware Diagnostics (UEFI) to a USB device

 **NOTE:** The HP PC Hardware Diagnostics (UEFI) download instructions are provided in English only, and you must use a Windows computer to download and create the HP UEFI support environment because only .exe files are offered.

There are two options to download HP PC Hardware Diagnostics to a USB device.

Download the latest UEFI version

1. Go to <http://www.hp.com/go/techcenter/pcdiags>. The HP PC Diagnostics home page is displayed.
2. In the HP PC Hardware Diagnostics section, select the **Download** link, and then select **Run**.

Download any version of UEFI for a specific product

1. Go to <http://www.hp.com/support>.
2. Select **Get software and drivers**.

3. Enter the product name or number.

– or –

Select **Identify now** to let HP automatically detect your product.

4. Select your computer, and then select your operating system.

5. In the **Diagnostic** section, follow the on-screen instructions to select and download the UEFI version you want.

7 Troubleshooting without diagnostics

This chapter provides information on how to identify and correct minor problems, such as USB devices, hard drive, optical drive, graphics, audio, memory, and software problems. If you encounter problems with the computer, refer to the tables in this chapter for probable causes and recommended solutions.

 **NOTE:** For information on specific error messages that may appear on the screen during Power-On Self-Test (POST) at startup, refer to [POST error messages and diagnostic front panel LEDs and audible codes on page 112](#).

Safety and comfort

 **WARNING!** Misuse of the computer or failure to establish a safe and comfortable work environment may result in discomfort or serious injury. Refer to the *Safety & Comfort Guide* at <http://www.hp.com/ergo> for more information on choosing a workspace and creating a safe and comfortable work environment. For more information, refer to the *Safety & Regulatory Information* guide.

Before you call for technical support

If you are having problems with the computer, try the appropriate solutions below to try to isolate the exact problem before calling for technical support.

- Run the HP diagnostic tool.
- Run the hard drive self-test in Computer Setup. Refer to [Computer Setup \(F10\) Utility on page 62](#) for more information.
- Check the Power LED on the front of the computer to see if it is flashing red. The flashing lights are error codes that will help you diagnose the problem. Refer to [POST error messages and diagnostic front panel LEDs and audible codes on page 112](#) for more information.
- If you are working on a network, plug another computer with a different cable into the network connection. There may be a problem with the network plug or cable.
- If you recently added new hardware, remove the hardware and see if the computer functions properly.
- If you recently installed new software, uninstall the software and see if the computer functions properly.
- Boot the computer to the Safe Mode to see if it will boot without all of the drivers loaded. When booting the operating system, use “Last Known Configuration.”
- Refer to the comprehensive online technical support at <http://www.hp.com/support>.
- Refer to [Helpful hints on page 77](#) in this guide.

To assist you in resolving problems online, HP Instant Support Professional Edition provides you with self-solve diagnostics. If you need to contact HP support, use HP Instant Support Professional Edition's online chat feature. Access HP Instant Support Professional Edition at: <http://www.hp.com/go/ispe>.

Access the Business Support Center (BSC) at <http://www.hp.com/go/bizsupport> for the latest online support information, software and drivers, proactive notification, and worldwide community of peers and HP experts.

If it becomes necessary to call for technical assistance, be prepared to do the following to ensure that your service call is handled properly:

- Be in front of your computer when you call.
- Write down the computer serial number and product ID number before calling.
- Spend time troubleshooting the problem with the service technician.
- Remove any hardware that was recently added to your system.
- Remove any software that was recently installed.
- Restore the system from the Recovery Disc Set that you created or restore the system to its original factory condition in System Software Requirement Disks (SSRD).

 **CAUTION:** Restoring the system will erase all data on the hard drive. Be sure to back up all data files before running the restore process.

 **NOTE:** For sales information and warranty upgrades (Care Packs), call your local authorized service provider or dealer.

Helpful hints

If you encounter problems with the computer or software, see the following list of general suggestions before taking further action:

- Check that the computer is plugged into a working electrical outlet.
- Check that the voltage select switch (some models) is set to the appropriate voltage for your region (115V or 230V).
- Check that the computer is turned on and the white power light is on.
- Check the power LED on the front of the computer to see if it is flashing red. The flashing lights are error codes that will help you diagnose the problem. Refer to [POST error messages and diagnostic front panel LEDs and audible codes on page 112](#) for more information.
- Press and hold any key. If the system beeps, then the keyboard should be operating correctly.
- Check all cable connections for loose connections or incorrect connections.
- Wake the computer by pressing any key on the keyboard or pressing the power button. If the system remains in suspend mode, shut down the computer by pressing and holding the power button for at least four seconds then press the power button again to restart the computer. If the system will not shut down, unplug the power cord, wait a few seconds, then plug it in again. The computer will restart if it is set to power on automatically as soon as power is restored in Computer Setup. If it does not restart, press the power button to start the computer.
- Reconfigure the computer after installing a non-plug and play expansion board or other option. See [Solving hardware installation problems on page 91](#) for instructions.
- Be sure that all the needed device drivers have been installed. For example, if you are using a printer, you need a driver for that model printer.
- Remove all bootable media (CD/DVD or USB device) from the system before turning it on.
- If you have installed an operating system other than the factory-installed operating system, check to be sure that it is supported on the system.

 **CAUTION:** When the computer is plugged into an AC power source, there is always voltage applied to the system board. You must disconnect the power cord from the power source before opening the computer to prevent system board or component damage.

Solving general problems

You may be able to easily resolve the general problems described in this section. If a problem persists and you are unable to resolve it yourself or if you feel uncomfortable about performing the operation, contact an authorized dealer or reseller.

⚠ WARNING! When the computer is plugged into an AC power source, voltage is always applied to the system board. To reduce the risk of personal injury from electrical shock and/or hot surfaces, be sure to disconnect the power cord from the wall outlet and allow the internal system components to cool before touching.

Cannot access the Computer Setup (F10) Utility when booting the computer.

Cause	Solution
The Computer Setup (F10) Utility is set to “fast boot” causing the F10 access screen to display too briefly when booting the computer.	Before turning on the computer, press and hold F10 . Turn on the computer and continue to hold F10 until the Computer Setup (F10) Utility is displayed. - or - Follow the Windows instructions for rebooting the computer into the Computer Setup (F10) Utility.

Computer appears locked up and will not turn off when the power button is pressed.

Cause	Solution
Software control of the power switch is not functional.	<ol style="list-style-type: none">1. Press and hold the power button for at least four seconds until the computer turns off.2. Disconnect the power cord from the electrical outlet.

Computer will not respond to keyboard or mouse.

Cause	Solution
Computer is in Sleep state.	To resume from Sleep state, press the power button. CAUTION: When attempting to resume from Sleep state, do not hold down the power button for more than four seconds. Otherwise, the computer will shut down and you will lose any unsaved data.
System has locked up.	Restart computer.

Computer date and time display is incorrect.

Cause	Solution
RTC (real-time clock) battery may need to be replaced. NOTE: Connecting the computer to a live AC outlet prolongs the life of the RTC battery.	Reset the date and time under Control Panel (Computer Setup can also be used to update the RTC date and time). If the problem persists, replace the RTC battery. See the Removal and Replacement section for instructions on installing a new battery, or contact an authorized dealer or reseller for RTC battery replacement. To access Control Panel in Windows 7, select Start , and then select Control Panel .

Computer date and time display is incorrect.

Cause	Solution
	To access Control Panel in Windows 10, type <code>control panel</code> in the taskbar search box, and then select Control Panel.

There is no sound or sound volume is too low.

Cause	Solution
System volume may be set low or muted.	<ol style="list-style-type: none">1. Check the Computer Setup settings to make sure the internal system speaker is not muted (this setting does not affect the external speakers).2. Make sure the external speakers are properly connected and powered on and that the speakers' volume control is set correctly.3. Use the system volume control available in the operating system to make sure the speakers are not muted or to increase the volume.

Cannot remove computer cover or access panel.

Cause	Solution
Smart Cover Lock, featured on some computers, is locked.	Unlock the Smart Cover Lock using Computer Setup. In case of forgotten password, power loss, or computer malfunction, you must manually disable the Smart Cover lock . A key to unlock the Smart Cover Lock is not available from HP. Keys are typically available from a hardware store.

Poor performance.

Cause	Solution
Processor is too hot.	<ol style="list-style-type: none">1. Make sure airflow to the computer is not blocked. Leave a 10.2-cm (4-inch) clearance on all vented sides of the computer to permit the required airflow.2. Make sure fans are connected and working properly (some fans only operate when needed).3. Make sure the processor heat sink is installed properly.
Hard drive is full.	Transfer data from the hard drive to create more space on the hard drive.
Low on memory.	Add more memory.
Hard drive fragmented.	Defragment hard drive.
Program previously accessed did not release reserved memory back to the system.	Restart the computer.
Virus resident on the hard drive.	Run virus protection program.
Too many applications running.	<ol style="list-style-type: none">1. Close unnecessary applications to free up memory.

Poor performance.

Cause	Solution
	<ol style="list-style-type: none">2. Add more memory.3. Some applications run in the background and can be closed by right-clicking on their corresponding icons in the task tray. To prevent these applications from launching at startup: In Windows 7:<ol style="list-style-type: none">a. Go to Start > All Programs > Accessories > Runb. Type <code>msconfig</code>, and then press Enter.c. On the Startup tab of the System Configuration Utility, clear applications that you do not want to launch automatically, and then click OK. In Windows 10:<ol style="list-style-type: none">a. Type <code>msconfig</code> in the taskbar search box, and then select msconfig.b. On the Startup tab of the System Configuration Utility, click Open Task Manager.c. Select applications that you do not want to launch automatically, and then click Disable.
Some software applications, especially games, are stressful on the graphics subsystem.	<ol style="list-style-type: none">1. Lower the display resolution for the current application or consult the documentation that came with the application for suggestions on how to improve performance by adjusting parameters in the application.2. Add more memory.3. Upgrade the graphics solution.
Cause unknown.	Restart the computer.

Computer powered off automatically and the Power LED flashes red four times and then white two times.

Cause	Solution
Processor thermal protection activated: A fan may be blocked or not turning. OR The heat sink is not properly attached to the processor.	<ol style="list-style-type: none">1. Ensure that the computer air vents are not blocked and the processor cooling fan is running.2. Open the access panel, press the power button, and see if the processor fan (or other system fan) spins. If the fan does not spin, make sure the fan cable is plugged onto the system board header.3. If fan is plugged in and not spinning, replace it.

System does not power on and the LEDs on the front of the computer are not flashing.

Cause	Solution
System unable to power on.	Press and hold the power button for less than 4 seconds. If the hard drive LED turns white, then:

System does not power on and the LEDs on the front of the computer are not flashing.

Cause	Solution
	<ol style="list-style-type: none">1. If equipped with a voltage selector, check that the voltage selector (located on the rear of the power supply) is set to the appropriate voltage. Proper voltage setting depends on your region.2. Remove the expansion cards one at a time until the 5V_aux light on the system board turns on.3. Replace the system board. <p>OR</p> <p>Press and hold the power button for less than 4 seconds. If the hard drive LED does not turn on white then:</p> <ol style="list-style-type: none">1. Check that the unit is plugged into a working AC outlet.2. Open the access panel and check that the power button cable is properly connected to the system board.3. Check that the power supply cables are properly connected to the system board.4. Check to see if the 5V_aux light on the system board is turned on. If it is turned on, then replace the power button assembly.5. If the 5V_aux light on the system board is off, then replace the power supply.6. Replace the system board.

Solving power problems

Common causes and solutions for power problems are listed in the following table.

Power supply shuts down intermittently.

Cause	Solution
If equipped with a voltage selector, voltage selector switch on rear of computer chassis (some models) not switched to correct line voltage (115V or 230V).	Select the proper AC voltage using the selector switch.
Power supply will not turn on because of internal power supply fault.	Replace the power supply.

Computer powered off automatically and the Power LED flashes Red two times, once every second, followed by a two second pause, and the computer beeps two times. (Beeps stop after fifth iteration but LEDs continue flashing.)

Computer powered off automatically and the Power LED flashes red four times and then white two times.

Cause	Solution
Processor thermal protection activated: A fan may be blocked or not turning. OR The heat sink is not properly attached to the processor.	<ol style="list-style-type: none">1. Ensure that the computer air vents are not blocked and the processor cooling fan is running.2. Open the access panel, press the power button, and see if the processor fan (or other system fan) spins. If the fan does not spin, make sure the fan cable is plugged onto the system board header.3. If fan a plugged in and not spinning, replace it.

Power LED flashes Red four times, once every second, followed by a two second pause, and the computer beeps four times. (Beeps stop after fifth iteration but LEDs continue flashing.)

Computer powered off automatically and the Power LED flashes red three times and then white four times.

Cause	Solution
Power failure (power supply is overloaded).	<ol style="list-style-type: none">1. If equipped with a voltage selector, check that the voltage selector, located on the rear of the power supply (some models), is set to the appropriate voltage. Proper voltage setting depends on your region.2. Open the access panel and ensure the power supply cable is seated into the connector on the system board.3. Check if a device is causing the problem by removing ALL attached devices (such as hard drives or optical drives and expansion cards). Power on the system. If the system enters POST, then power off and replace one device at a time and repeat this procedure until failure occurs. Replace the device that is causing the failure. Continue adding devices one at a time to ensure all devices are functioning properly.4. Replace the power supply.5. Replace the system board.

Solving hard drive problems

Hard drive error occurs.

Cause	Solution
Hard disk has bad sectors or has failed.	<ol style="list-style-type: none">1. In Windows 7, click Start, click Computer, and right-click on a drive. Select Properties, and then select the Tools tab. Under Error-checking click Check Now. In Windows 10, type <i>file</i> in the taskbar search box, and then select File Explorer from the list of applications. In the left column, expand This PC, right-click on a drive, select Properties, and then select the Tools tab. Under Error checking click Check.2. Use a utility to locate and block usage of bad sectors. If necessary, reformat the hard disk.

Disk transaction problem.

Cause	Solution
Either the directory structure is bad or there is a problem with a file.	<p>In Windows 7, click Start, expand Computer, and right-click on a drive. Select Properties, and then select the Tools tab. Under Error-checking click Check Now.</p> <p>In Windows 10, type <i>file</i> in the taskbar search box, and then select File Explorer from the list of applications. In the left column, expand This PC, right-click on a drive, select Properties, and then select the Tools tab. Under Error checking click Check.</p>

Drive not found (identified).

Cause	Solution
Cable could be loose.	Check cable connections.
The system may not have automatically recognized a newly installed device.	<p>See reconfiguration directions in the Solving hardware installation problems on page 91 section. If the system still does not recognize the new device, check to see if the device is listed within Computer Setup. If it is listed, the probable cause is a driver problem. If it is not listed, the probable cause is a hardware problem.</p> <p>If this is a newly installed drive, run the Computer Setup utility and try adding a POST delay under Advanced > Boot Options.</p>
The device is attached to a SATA port that has been hidden in Computer Setup.	Run the Computer Setup utility and ensure Device Available is selected for the device's SATA port in Advanced > Port Options .
Drive responds slowly immediately after power-up.	Run Computer Setup and increase the POST Delay in Advanced > Boot Options .

Nonsystem disk/NTLDR missing message.

Cause	Solution
The system is trying to start from the hard drive but the hard drive may have been damaged.	▲ Perform Drive Protection System (DPS) testing in system ROM.
System files missing or not properly installed.	<ol style="list-style-type: none">1. Insert bootable media and restart the computer.2. Boot to the windows installation media and select the recovery option. If only a restore kit is available, then select the File Backup Program option, and then restore the system.3. Install system files for the appropriate operating system.
Hard drive boot has been disabled in Computer Setup.	Run the Computer Setup utility and enable the hard drive entry in the Advanced > Boot Options list.
Bootable hard drive is not attached as first in a multi-hard drive configuration.	If attempting to boot from a hard drive, ensure it is attached to the system board dark blue SATA connector.
Bootable hard drive is not listed first in the Boot Order.	Run the Computer Setup utility and select Advanced > Boot Options and ensure the bootable hard drive is listed immediately under the Hard Drive entry.

Computer will not boot from hard drive.

Cause	Solution
The device is attached to a SATA port that has been hidden in Computer Setup.	<ol style="list-style-type: none">1. Check SATA cable connections.2. Run the Computer Setup utility and ensure Device Available is selected for the device's SATA port in Advanced > Port Options.
Boot order is not correct.	Run the Computer Setup utility and change boot sequence in Advanced > Boot Options .
Hard drive is damaged.	Observe if the front panel Power LED is blinking RED and if any beeps are heard. See POST error messages and diagnostic front panel LEDs and audible codes on page 112 to determine possible causes for the blinking red and beep codes. See the Worldwide Limited Warranty for terms and conditions.

Computer seems to be locked up.

Cause	Solution
Program in use has stopped responding to commands.	<ol style="list-style-type: none">1. Use the task manager to close programs that do not respond.2. Attempt the normal Windows "Shut Down" procedure. If this fails, press the power button for four or more seconds to turn off the power. To restart the computer, press the power button again.

Solving media card reader problems

Media card will not work in a digital camera after formatting it in Windows.

Cause	Solution
By default, Windows will format any media card with a capacity greater than 32MB with the FAT32 format. Some digital cameras use the FAT (FAT16 & FAT12) format and can not operate with a FAT32 formatted card.	Either format the media card in the digital camera or select FAT file system to format the media card in a computer with Windows.

A write-protected or locked error occurs when attempting to write to the media card.

Cause	Solution
Media card is locked. Locking the media card is a safety feature that prevents writing to and deleting from an SD/Memory Stick/PRO card.	If using an SD card, make sure that the lock tab located on the right of the SD card is not in the locked position. If using a Memory Stick/PRO card, make sure that the lock tab located on the bottom of the Memory Stick/PRO card is not in the locked position.

Can not write to the media card.

Cause	Solution
The media card is a read-only memory (ROM) card.	Check the manufacturer's documentation included with your card to see if it writable. Refer to the previous section for a list of compatible cards.
Media card is locked. Locking the media card is a safety feature that prevents writing to and deleting from an SD/Memory Stick/PRO card.	If using an SD card, make sure that the lock tab located on the right of the SD card is not in the locked position. If using a Memory Stick/PRO card, make sure that the lock tab located on the bottom of the Memory Stick/PRO card is not in the locked position.

Unable to access data on the media card after inserting it into a slot.

Cause	Solution
The media card is not inserted properly, is inserted in the wrong slot, or is not supported.	Ensure that the card is inserted properly with the gold contact on the correct side. The green LED will light if inserted properly.

Do not know how to remove a media card correctly.

Cause	Solution
The computer's software is used to safely eject the card.	<p>In Windows 7, click Start, select Computer, right-click on the corresponding drive icon, and then select Eject. Pull the card out of the slot.</p> <p>In Windows 10, type <code>file</code> in the taskbar search box, and then select File Explorer from the list of applications. In the left column, expand This PC, right-click on the corresponding drive icon, and then select Eject. Pull the card out of the slot.</p> <p>NOTE: Never remove the card when the green LED is flashing</p>

After installing the media card reader and booting to Windows, the reader and the inserted cards are not recognized by the computer.

Cause	Solution
The operating system needs time to recognize the device if the reader was just installed into the computer and you are turning the PC on for the first time.	Wait a few seconds so that the operating system can recognize the reader and the available ports, and then recognize the media inserted in the reader.

After inserting a media card in the reader, the computer attempts to boot from the media card.

Cause	Solution
The inserted media card has boot capability.	<ol style="list-style-type: none">1. If you do not want to boot from the media card, remove it during boot or do not select the option to boot from the inserted media card during the boot process.2. During POST (Power On Self-Test), press F9 to modify the boot menu.3. Change the boot sequence in F10 Computer Setup.

Solving audio problems

If the computer has audio features and you encounter audio problems, see the common causes and solutions listed in the following table.

Headset microphone connected to the front is not working or is very quiet.

Cause	Solution
The front Headset connector supports CTIA (Cellular Telephone Industries Association) style headsets and not OMTP (Open Mobile Terminal Platform) style headsets. These differ by the microphone connections.	Make sure that a CTIA style headset is being used or use an OMTP style headset with a commercially available adapter that converts an OMTP headset to the CTIA pinout.

Sound cuts in and out.

Cause	Solution
Processor resources are being used by other open applications.	Shut down all open processor-intensive applications.

Sound does not come out of the speaker or headphones.

Cause	Solution
Software volume control is turned down or muted.	Double-click the Speaker icon on the taskbar, then make sure that Mute is not selected and use the volume slider to adjust the volume.
Audio is hidden in Computer Setup.	Enable the audio in Computer Setup: Advanced > Built-in Device Options .
The external speakers are not turned on.	Turn on the external speakers.