



Maintenance and Service Guide

HP Engage One Prime

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

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1 Product overview

Standard features



Standard features include the following:

- Full HD 35.5 cm (14-inch) display with ultra-wide viewing angles
- Android™ operating system 8.1.0
- Computer and peripheral devices available in black or white
- HP Engage One Prime Plus with 2.2 GHz + 4 GB memory + 32GB eMMC and HP Engage One Prime with 1.8 GHz + 2 GB memory + 16 GB eMMC models
- Two USB Type-A and two USB Type-C ports
- Near Field Communications (NFC)
- Integrated magnetic stripe reader (MSR)
- Integrated Wi-Fi
- Integrated Bluetooth®
- Front and rear cameras; rear camera primarily used to rear barcodes
- Optional customer-facing display
- Expanded connectivity with optional hub
- Optional handheld barcode scanner
- Optional iButton
- Optional standalone printer
- Optional fingerprint reader



IMPORTANT: The maximum operating temperature is 35°C (95°F).

Bezel components

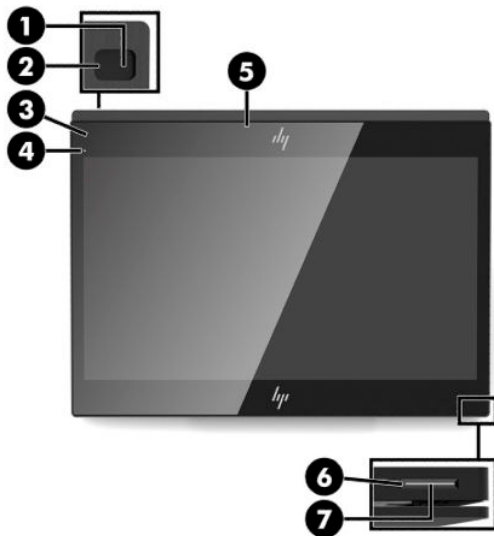


Table 1-1 Bezel components

Bezel components	
(1) Rear-facing camera	(5) MSR
(2) Rear-facing camera light	(6) Power button
(3) Magnetic stripe reader (MSR) light	(7) Power button light
(4) Front-facing camera	

Rear components

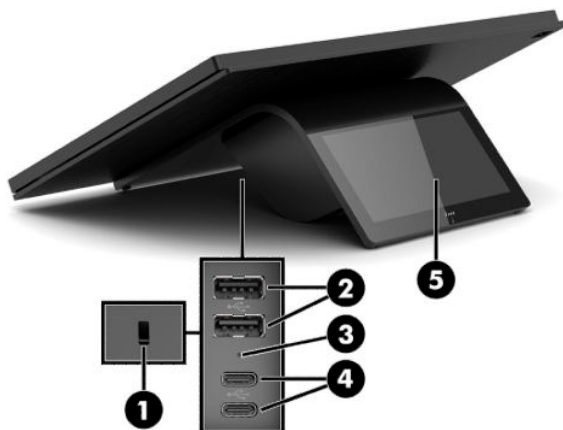


Table 1-2 Rear components

Rear components	
(1) Security cable slot	(4) USB Type-C ports (2)
(2) USB Type-A ports (2)	(5) Customer-facing display (optional)
(3) Volume button	

Optional hub components

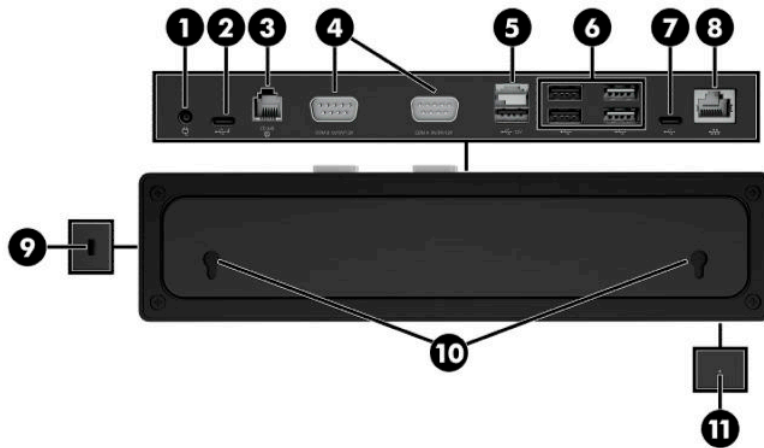



Table 1-3 Hub components

Hub components	
(1) Power connector	(7) USB Type-C port
(2) USB Type-C powered port	(8) RJ-45 (network) jack
(3) Cash drawer jack	(9) Security cable slot
(4) Powered serial ports	(10) Wall mount keyholes
(5) Powered USB 12 V port	(11) Power light
(6) USB ports (4)	

Configuring the hub's powered serial ports

The serial ports can be configured as standard (non-powered) serial ports or powered serial ports. Some devices use a powered serial port. If the serial port is configured as a powered port, devices that support a powered serial interface do not require an external power source.

 **IMPORTANT:** The computer must be turned off before you connect or disconnect serial port devices.


 **NOTE:** The hub ships with all serial ports configured in standard, non-powered serial mode (0 volts).

There are three voltage settings for each serial port:

- 0 volts
- 5 volts
- 12 volts

To change the voltage setting for each powered serial port:

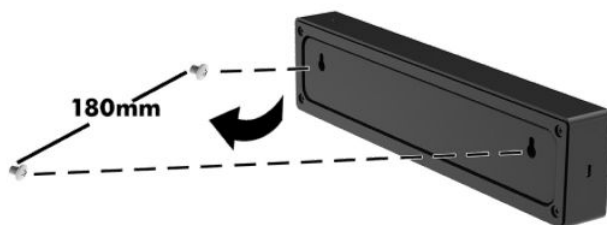
1. In the software included with the product, select **Settings**.
2. Select **Connected devices** and then select **Powered Serial Port Voltage**.
3. Select the appropriate voltage for the connected device.

 **IMPORTANT:** To reduce the risk of damage to a connected device, make sure that you select the correct serial port voltage.

Mounting the hub

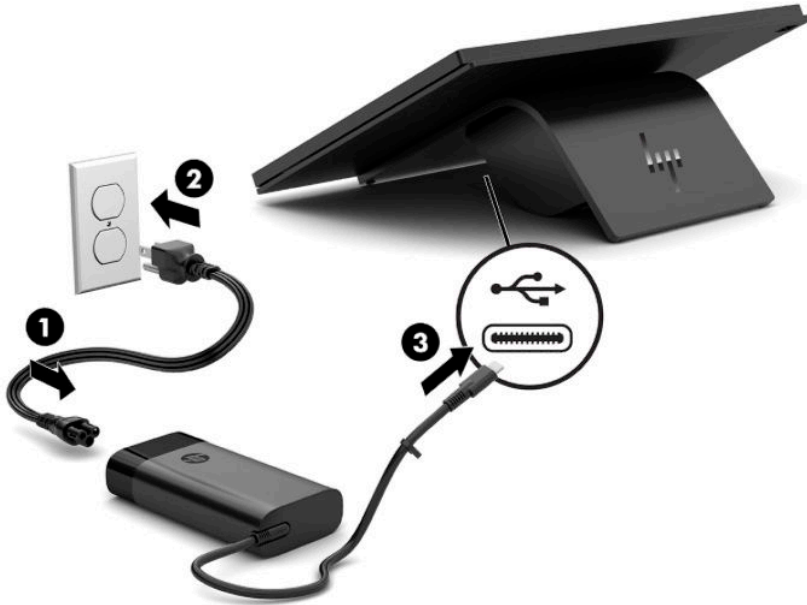
The hub can be attached to a wall or other surface using the keyholes on the back of the hub.

The suspension height for the hub should not exceed 2 meters. The spacing for the two screws embedded in the wall is 180 mm. The screw thread size should be M3, and the screw length should be no less than 6 mm with a diameter of 3 mm.



Connecting power to the computer

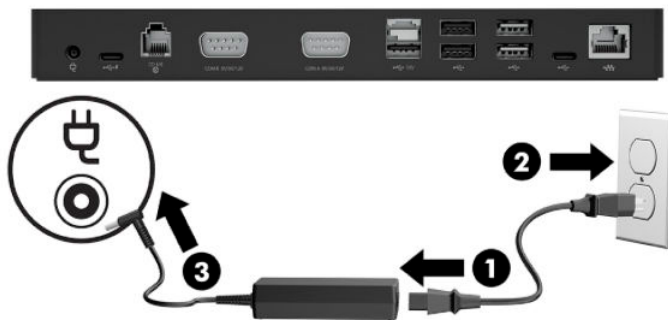
To connect an AC adapter to the computer, connect one end of the power cord to the AC adapter (1) and the other end to a grounded AC outlet (2), and then connect the AC adapter to one of the USB Type-C ports on the computer (3).



NOTE: If the computer is connected to the optional hub, you can connect a USB Type-C cable to the hub's USB Type-C powered port instead of using the AC adapter to power the computer.


Connecting power to the hub

To connect an AC adapter to the hub, connect one end of the power cord to the AC adapter (1) and the other end to a grounded AC outlet (2), and then connect the AC adapter to the power connector on the hub (3).



Connecting the optional hub to the computer

Use a USB Type-C cable to connect the computer and the USB Type-C powered port on the hub.


 **NOTE:** The computer does not need to be connected to an AC adapter when connected to the USB Type-C powered port on the hub.



Locating the computer power button

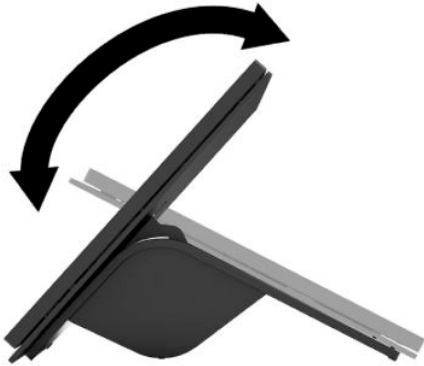
The power button is located on the bottom right edge of the bezel.



 **NOTE:** The power button light is white when the computer is on. The power button light is off when the computer is off. The power button light blinks when the computer is in the Sleep state.

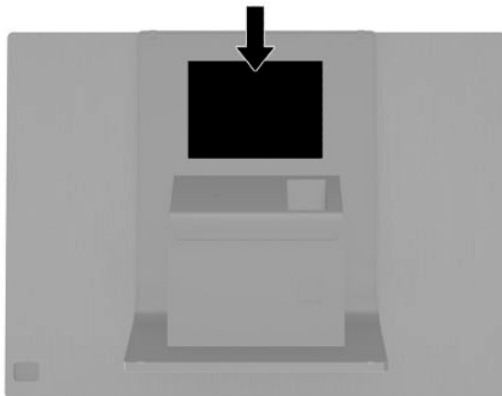
Adjusting the tilt

You can tilt the computer so that it is facing the cashier or the customer. The image on the screen automatically rotates to match the position of the computer. The computer can be stabilized at various angles to adjust for glare and counter height.



Computer serial number location

Each computer has a unique serial number and a product ID number that are located on the exterior of the unit. Keep these numbers available for use when contacting support for assistance.



Hub serial number location

Each hub has a unique serial number and a product ID number that are located on the exterior of the hub. Keep these numbers available for use when contacting support for assistance.



Contacting support

To resolve a hardware or software problem, go to <http://www.hp.com/support>. Use this site to get more information about your product, including links to discussion forums and instructions on troubleshooting. You can also find information about how to contact HP and open a support case.

2 Using and updating the computer

Turning on the computer

- ▲ Press and hold the power key for three seconds. The startup logo should display in about two seconds.

Turning off the computer

1. Press the power key.
2. Select **Shutdown**.

Installing HP updates

1. Open the **HP Device Hub** application.
2. Select **Update to the latest OS**.
3. Select the update.

Updating the firmware

1. Open the **HP Device Hub** application.
2. Select **HP Device Firmware Update**.
3. Select the available update and follow on-screen instructions.

Performing a soft reset

- ▲ Press and hold the power button for about 10 seconds to reset the computer.

 **TIP:** The only function of the RTC battery is to keep the current time.

Android devices do not include a BIOS or CMOS.

Computer power button light behavior

The computer power button light functions as follows:

- On (S0): Computer is on.
- Off (S5): Computer is off.
- Blinking (fades in for three seconds, fades out for three seconds): Computer is in the Sleep (S3) state.

For more information about the computer power button light location, see [Bezel components on page 2](#).

Hub power light behavior

When connected to the computer, the hub power light functions as follows:

- On (S0): Computer light is on. Hub power light is on
- Off (S5): Computer is off. Hub power light is off.
- Blinking (fades in for three seconds, fades out for three seconds): Computer and hub are in the Sleep (S3) state.

When not connected to the computer, the hub power light functions as follows:

- On for 15 seconds, then blinking (fades in for three seconds, fades out for three seconds): Computer removed.
- On for 15 seconds, then blinking (fades in for three seconds, fades out for three seconds): AC adapter connected, computer not connected.

Hub power light error blinking functions as follows:

- Blinking (one for one second, off or one second): Insufficient AC adapter (less than 120 W) connected.
- Blinking (one for one second, off or one second): Overpowered AC adapter connected.

For more information about the computer power button light location, see [Bezel components on page 2](#).

For more information about the hub power light location, see [Optional hub components on page 3](#).

Over-the-air (OTA) update

Preparing the USB flash drive

Performing an OTA update requires a 2 GB or larger USB flash drive. You must format the drive using the FAT32 file system.

To prepare the USB flash drive:

1. Insert the USB flash drive containing the OTA package into a Windows® computer.
2. Open File Explorer.
3. Right-click the USB drive in the navigation panel.
4. Select **Format**.
5. Under **Capacity** verify that the USB flash drive capacity is at least 2 GB.
6. Under **File system** select **FAT32**.
7. Copy the OTA package to the root of the USB drive.

Performing the OTA update from the Additional System Updates menu


1. Insert the USB flash drive containing the OTA package into the Android device.
2. Confirm that the USB drive is recognized in the Files app on the Android device.
3. Tap **Settings**, and then tap **Additional System Updates**.
4. Tap the upgrade package, and then tap **Install**.

5. Tap **Update** to start the update process. Once the update is complete, the computer restarts.
6. Go to the **About device** menu to check the build number to verify that the update was successful.

Performing the OTA update from Recovery

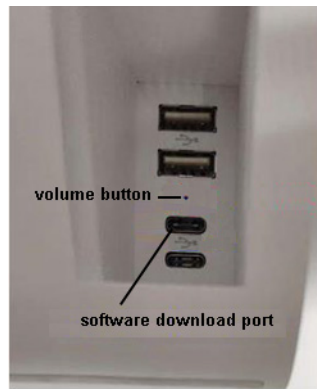
1. Enter the Recovery menu:

Method 1 (from the Android operating system)

- a. Tap **Settings**, and then tap **Additional System Updates**.
- b. Insert the USB flash drive into the Android device.
- c. Tap the Options button , and then tap **Reboot in recovery**.

Method 2 (from restart)

- a. Power off the Android device.
- b. Use a pin or similar thin tool to hold the volume button, located between the USB ports on the back of the device.




- c. While holding the volume button, press the power button to turn the device on.
2. Move the cursor to **Apply update from SD Card**, and then press the power button to select.
 3. Select the OTA update package, and then press the power button to start the update.
After the update has completed, the Android Recovery screen displays.
 4. Select **Reboot system now** to restart the computer.
 5. Go to the **About device** menu and check the build number to verify that the update was successful.

Operating system recovery using Fastboot flash device

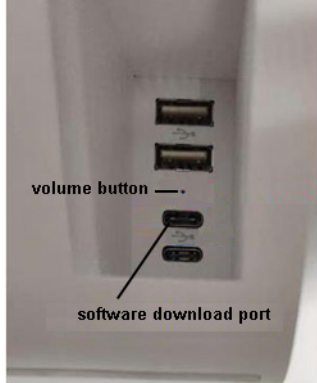
Entering Fastboot mode

If you can start the operating system:

1. Tap **Settings**, tap **About device**, and then tap **Additional System Updates**.
2. Tap the Options button , and then tap **Reboot in recovery**.
3. In the Recovery Menu, tap **Reboot to bootloader** to enter Fastboot mode.

If the operating system is corrupt:

1. Start the device using the power button.
2. Press and release the volume button, located between the USB ports on the back of the device.



3. Use the volume button to navigate to **Fastboot**, and then use the power button to select.

Downloading the Android Bootloader driver

1. Using the first (top) USB Type-C port, connect the device to a Windows computer.
2. Open Windows Device Manager.
3. Find the Android device. It may be listed under **Other devices**.

Confirm that Android Bootloader is displayed under the Android device. If Android Bootloader is not displayed:

- a. Download Android Bootloader from <https://developer.android.com/studio/run/win-usb>.
 - b. In Device Manager, right click the Android device. It may be labeled 'Android'.
 - c. Select **Update Driver**.
 - d. Select **Browse my computer for driver software**.
 - e. Select **Let me pick from a list**.
 - f. Select **Android Device**, and then click **Next**.
 - g. Select **Have Disk**.
 - h. Browse to the downloaded ABI files, and then select **OK**.
4. Unzip and open the Android OTA image files.
 5. Open flash-all.bat.

After the flash has completed, the device automatically starts the installed operating system.

3 Operating guidelines, routine care, and shipping preparation

Operating guidelines and routine care

Follow the guidelines below to properly set up and care for the computer:

- Keep the computer away from excessive moisture, direct sunlight, and extremes of heat and cold.
- Never operate the computer with any access panels removed.
- Do not stack computers on top of each other or place them so near each other that they are subject to each other's recirculated or preheated air.
- If the computer is to be operated within a separate enclosure, intake and exhaust ventilation must be provided on the enclosure, and the same operating guidelines listed above still apply.
- Keep liquids away from the computer and hub.
- Never cover the vents on the computer or hub with any type of material.
- Install or enable power management functions of the operating system or other software, including Sleep states.
- Turn off the computer and wipe the exterior with a soft, damp cloth as necessary. Using cleaning products may discolor or damage the finish.
 - Wipe the exterior with a soft, damp cloth as necessary. Using cleaning products may discolor or damage the finish.



NOTE: For more information on your retail system care and maintenance, go to <http://www.hp.com/support>. Then type 'Retail Point of Sales Systems - Routine Care and Maintenance' and click **Search all support**.

Touch screen maintenance

Keep your touch screen clean. The touch screen requires very little maintenance. HP recommends that you periodically clean the glass surface. Be sure to turn off your display before cleaning. Typically, an isopropyl alcohol and water solution ratio of 50:50 is the best cleaning agent for your touch screen. It is important to avoid using any caustic chemicals on the touch screen. Do not use any vinegar-based solutions.

Apply the cleaner with a soft, lint-free cloth. Avoid using gritty cloths. Always dampen the cloth and then clean the sensor. Be sure to spray the cleaning liquid onto the cloth, not the sensor, so that drips do not seep inside the display or stain the bezel.

MSR maintenance

To clean the MSR (magnetic stripe reader), swipe a standard cleaning card through the MSR a couple of times. You can order a standard cleaning card online. You can also put a thin oil-free cloth around a credit card.

Cleaning the barcode scanner

Exterior surfaces and scan windows exposed to spills, smudges, or debris require periodic cleaning to ensure best performance during scanning. Use a soft, dry cloth to clean the product. If the product is very soiled, clean it with a soft cloth moistened with a diluted non-aggressive cleaning solution or diluted ethyl alcohol.



IMPORTANT: Do not use abrasive or aggressive cleansing agents or abrasive pads to clean scan windows or plastics. Do not spray or pour liquids directly onto the unit.

Cleaning the printer

Because of the way the printer sits while in use, paper and other debris from the knife can build up. HP recommends that you keep the printer in working order by periodically cleaning the debris from the printer.

To clean the printer, open the cover, remove the paper roll, and then use a can of compressed air to blow out the debris from the bottom plate where it accumulates.

Cleaning I/O ports

The computer has a series of ports. Dust and debris can collect in these ports, which can reduce connectivity and performance. Use a battery-powered vacuum to remove any debris that has accumulated in and around these ports.

Updating drivers and firmware

HP recommends that you regularly download and install the latest drivers and firmware updates to help enhance system performance, resolve known issues, and avoid replacing parts unnecessarily.

To download and install the latest drivers and updates for your specific Retail Point of Sale model, go to <http://www.hp.com/support>, and follow the instructions to find your product. Then select **Software, Drivers, and Firmware**.

Shipping preparation

Follow these suggestions when preparing to ship the computer:

1. Back up the hard drive files. Be sure that the backup media is not exposed to electrical or magnetic impulses while stored or in transit.



NOTE: The hard drive locks automatically when the computer power is turned off.

2. Remove and store all removable media.
3. Turn off the computer and external devices.
4. Disconnect the power cord from the AC outlet, and then from the computer.
5. Disconnect the computer components and external devices from their power sources, and then from the computer.
6. Pack the computer components and external devices in their original packing boxes or similar packaging with sufficient packing material to protect them.

Electrostatic discharge information

A sudden discharge of static electricity from your finger or other conductor can destroy static-sensitive devices or microcircuitry. Often the spark is neither felt nor heard, but damage occurs. An electronic device exposed to electrostatic discharge (ESD) may not appear to be affected at all and can work perfectly throughout a normal cycle. The device may function normally for a while, but it has been degraded in the internal layers, reducing its life expectancy.

Networks built into many integrated circuits provide some protection, but in many cases, the discharge contains enough power to alter device parameters or melt silicon junctions.



IMPORTANT: To prevent damage to the device when you are removing or installing internal components, observe these precautions:

Keep components in their electrostatic-safe containers until you are ready to install them.

Before touching an electronic component, discharge static electricity by using the guidelines described in this section.

Avoid touching pins, leads, and circuitry. Handle electronic components as little as possible.

If you remove a component, place it in an electrostatic-safe container.

Generating static electricity

Note the following:

- Different activities generate different amounts of static electricity.
- Static electricity increases as humidity decreases.

Table 3-1 Static electricity occurrence based on activity and humidity

Event	Relative humidity		
	55%	40%	10%
Walking across carpet	7,500 V	15,000 V	35,000 V
Walking across vinyl floor	3,000 V	5,000 V	12,000 V
Motions of bench worker	400 V	800 V	6,000 V
Removing DIPs from plastic tube	400 V	700 V	2,000 V
Removing DIPs from vinyl tray	2,000 V	4,000 V	11,500 V
Removing DIPs from Styrofoam	3,500 V	5,000 V	14,500 V
Removing bubble pack from PCB	7,000 V	20,000 V	26,500 V
Packing PCBs in foam-lined box	5,000 V	11,000 V	21,000 V

Electronic components are multi-packaged inside plastic tubes, trays, or Styrofoam.



NOTE: As little as 700 volts can degrade a product.

Preventing electrostatic damage to equipment

Many electronic components are sensitive to ESD. Circuitry design and structure determine the degree of sensitivity. The following packaging and grounding precautions are necessary to prevent static electricity damage to electronic components.

- To avoid hand contact, transport products in static-safe containers such as tubes, bags, or boxes.
- Protect all electrostatic parts and assemblies with conductive or approved containers or packaging.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free stations.
- Place items on a grounded surface before removing them from their container.
- Always be properly grounded when touching a sensitive component or assembly.
- Avoid contact with pins, leads, or circuitry.
- Place reusable electrostatic-sensitive parts from assemblies in protective packaging or conductive foam.

Personal grounding methods and equipment

Use the following equipment to prevent static electricity damage to electronic components:

- **Wrist straps** are flexible straps with a maximum of one-megohm \pm 10% resistance in the ground cords. To provide proper ground, a strap must be worn snug against bare skin. The ground cord must be connected and fit snugly into the banana plug connector on the grounding mat or workstation.
- **Heel straps/Toe straps/Boot straps** can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use them on both feet with a maximum of one-megohm \pm 10% resistance between the operator and ground.

Table 3-2 Static shielding protection levels

Static shielding protection levels	
Method	Voltage
Antistatic plastic	1,500
Carbon-loaded plastic	7,500
Metallized laminate	15,000

Grounding the work area

To prevent static damage at the work area, use the following precautions:

- Cover the work surface with approved static-dissipative material. Provide a wrist strap connected to the work surface and properly grounded tools and equipment.
- Use static-dissipative mats, foot straps, or air ionizers to give added protection.
- Handle electrostatic sensitive components, parts, and assemblies by the case or PCB laminate. Handle them only at static-free work areas.
- Turn off power and input signals before inserting and removing connectors or test equipment.
- Use fixtures made of static-safe materials when fixtures must directly contact dissipative surfaces.
- Keep work area free of nonconductive materials such as ordinary plastic assembly aids and Styrofoam.
- Use field service tools, such as cutters, screwdrivers, and vacuums, that are conductive.

Recommended materials and equipment

Materials and equipment that are recommended for use in preventing static electricity include:

- Antistatic tape
- Antistatic smocks, aprons, or sleeve protectors
- Conductive bins and other assembly or soldering aids
- Conductive foam
- Conductive tabletop workstations with ground cord of one-megohm +/- 10% resistance
- Static-dissipative table or floor mats with hard tie to ground
- Field service kits
- Static awareness labels
- Wrist straps and footwear straps providing one-megohm +/- 10% resistance
- Material handling packages
- Conductive plastic bags
- Conductive plastic tubes
- Conductive tote boxes
- Opaque shielding bags
- Transparent metallized shielding bags
- Transparent shielding tubes

A Power cord set requirements

The power supplies on some computers have external power switches. The voltage select switch feature on the computer permits it to operate from any line voltage between 100-120 or 220-240 volts AC. Power supplies on those computers that do not have external power switches are equipped with internal switches that sense the incoming voltage and automatically switch to the proper voltage.

The power cord set received with the computer meets the requirements for use in the country where you purchased the equipment.


Power cord sets for use in other countries must meet the requirements of the country where you use the computer.

General requirements

The requirements listed below are applicable to all countries:

1. The power cord must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be installed.
2. The power cord set must have a minimum current capacity of 10A (7A Japan only) and a nominal voltage rating of 125 or 250 volts AC, as required by each country's power system.
3. The diameter of the wire must be a minimum of 0.75 mm² or 18AWG, and the length of the cord must be between 1.8 m (6 feet) and 3.6 m (12 feet).

The power cord should be routed so that it is not likely to be walked on or pinched by items placed upon it or against it. Particular attention should be paid to the plug, electrical outlet, and the point where the cord exits from the product.

 **WARNING!** Do not operate this product with a damaged power cord set. If the power cord set is damaged in any manner, replace it immediately.

Japanese power cord requirements

For use in Japan, use only the power cord received with this product.

 **CAUTION:** Do not use the power cord received with this product on any other products.

Country-specific requirements

Additional requirements specific to a country are shown in parentheses and explained below.

Table A-1 Power cord country-specific requirements

Country	Accrediting Agency	Country	Accrediting Agency
Australia (1)	EANSW	Italy (1)	IMQ
Austria (1)	OVE	Japan (3)	METI
Belgium (1)	CEBC	Norway (1)	NEMKO
Canada (2)	CSA	Sweden (1)	SEMKO
Denmark (1)	DEMKO	Switzerland (1)	SEV
Finland (1)	SETI	United Kingdom (1)	BSI
France (1)	UTE	United States (2)	UL
Germany (1)	VDE		

1. The flexible cord must be Type H05VV-F, 3-conductor, 0.75mm₂ conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
2. The flexible cord must be Type SVT or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15A, 125V) or NEMA 6-15P (15A, 250V) configuration.
3. Appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. Flexible cord must be Type VCT or VCTF, 3-conductor, 0.75 mm₂ conductor size. Wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7A, 125V) configuration.


B Statement of memory volatility

 **IMPORTANT:** Information in this chapter may not apply to all models with the Android operating system.

The purpose of this chapter is to provide general information regarding nonvolatile memory in HP Business computers. This chapter also provides general instructions for restoring nonvolatile memory that can contain personal data after the system has been powered off and the hard drive has been removed.

HP Business computer products that use Intel®-based or AMD®-based system boards contain volatile DDR memory. The amount of nonvolatile memory present in the system depends upon the system configuration. Intel-based and AMD-based system boards contain nonvolatile memory subcomponents as originally shipped from HP, assuming that no subsequent modifications have been made to the system and assuming that no applications, features, or functionality have been added to or installed on the system.

Following system shutdown and removal of all power sources from an HP Business computer system, personal data can remain on volatile system memory (DIMMs) for a finite period of time and will also remain in nonvolatile memory. Use the steps below to remove personal data from the computer, including the nonvolatile memory found in Intel-based and AMD-based system boards.

 **NOTE:** If your tablet has a keyboard base, connect to the keyboard base before beginning steps in this chapter.

Nonvolatile memory usage

Table B-1 Troubleshooting steps for nonvolatile memory usage

Nonvolatile Memory Type	Amount (Size)	Does this memory store customer data?	Does this memory retain data when power is removed?	What is the purpose of this memory?	How is data input into this memory?	How is this memory write-protected?
Real Time Clock (RTC) battery backed-up CMOS configuration memory	256 bytes	No	Yes	Stores system date and time and noncritical data.	RTC battery backed-up CMOS is programmed using Computer Setup (BIOS), or by changing the Microsoft® Windows date & time.	This memory is not write-protected.
Controller (NIC) EEPROM	64 KB (not customer accessible)	No	Yes	Stores NIC configuration and NIC firmware.	NIC EEPROM is programmed using a utility from the NIC vendor that can be run from DOS.	A utility must be used to write data to this memory and is available from the NIC vendor. Writing data to this ROM in an inappropriate manner will render the NIC non-functional.
DIMM Serial Presence Detect (SPD) configuration data	256 bytes per memory module, 128 bytes programmable (not customer accessible)	No	Yes	Stores memory module information.	DIMM SPD is programmed by the memory vendor.	Data cannot be written to this memory when the module is installed in a computer. The specific write-protection method varies by memory vendor.
Bluetooth flash (select products only)	2 Mb	No	Yes	Stores Bluetooth configuration and firmware.	Bluetooth flash is programmed at the factory. Tools for writing data to this memory are not publicly available but can be obtained from the silicon vendor.	A utility must be used for writing data to this memory and is made available through newer versions of the driver whenever the flash requires an upgrade.
802.11 WLAN EEPROM	4 Kb to 8 Kb	No	Yes	Stores configuration and calibration data.	802.11 WLAN EEPROM is programmed at the factory. Tools for writing data to this memory are not made public.	A utility must be used for writing data to this memory and is typically not made available to the public unless a firmware upgrade is necessary to address a unique issue.
Webcam (select products only)	64 Kb	No	Yes	Stores webcam configuration and firmware.	Webcam memory is programmed using a utility from the device manufacturer that can be run from Windows.	A utility must be used for writing data to this memory and is typically not made available to the public unless a firmware upgrade is necessary to address a unique issue.
Fingerprint reader (select products only)	512 KB flash	Yes	Yes	Stores fingerprint templates.	Fingerprint reader memory is programmed by user enrollment in HP ProtectTools Security Manager.	Only a digitally signed application can make the call to write to the flash.

C Specifications

Computer specifications

Table C-1 Computer specifications

	Metric	U.S.
Dimensions		
Length	260 mm	10.24 in
Width	334 mm	13.15 in
Height	127 mm	5.00 in
Temperature		
Operating	0°C to 35°C	32°F to 95°F
Nonoperating	-30°C to 65°C	-22°F to 149°F
Relative humidity (operating)	10% to 90%	
Maximum altitude (unpressurized)		
Operating	0 m to 3,048 m	0 ft to 10,000 ft
Nonoperating	0 m to 9,144 m	0 ft to 30,000 ft
Power supply	45 W, 87.8% efficient at 15 V, active PFC	
AC voltage range	90 V – 265 VAC	
Rated line frequency	50~60 HZ	
Operating line frequency range	47~63 HZ	
Rated input current	1.4A RMS @ 90 VAC & max load, 2.2A RMS @ 90 VAC & max load	
Magnetic Stripe Reader	Integrated MSR reader, triple-track head, ISO 7811/7812/7813 Compliant, encryption capable	
Front Camera	Integrated front camera (5M, FF)	
Barcode Reader (back camera)	Integrated back camera (5M, FF) with flash LED	
Acoustic functions		
1 microphone	integrated	
1 speaker	integrated, 1 W, embedded codec	
I/O Ports		
USB-C port x2	Supports PD (power and data), if one USB-C port becomes PD power sink (15 V/3 A), another port can be PD source (5 V/0.9 A, 5 V/3 A, 9 V/3 A)	
USB 2.0 port x2	USB 2.0 (5 V/0.5 A)	

Main display specifications

Table C-2 Main display specifications¹

	Metric	U.S.
Active diagonal size	35.6 cm	14.0 in
Operating temperature range	0 to 50°C	32°F to 122°F
Touch technology	Projected capacitive touch screen	
Resolution	1920 × 1080	
Aspect ratio	16:9	
Maximum color	262K	
Brightness	Typical 220 nits ²	
Contrast ratio	Typical 700:1 ²	
Pixel pitch	161 µm × 161 µm	
Viewing angle	Horizontal 85°, Vertical 85°	
Response rate	30 ms	
Backlight	LED	
Surface treatment	Anti glare	

¹ All specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower.

² Nits is the measure of the typical brightness of the panel as specified, prior to anti-glare coating

Customer-facing display specifications

Table C-3 Customer-facing display specifications¹

	Metric	U.S.
Active diagonal size	14.0 cm	5.5 in
Operating temperature range	0 to 50°C	32°F to 122°F
Display technology	AMOLED	
Resolution	1920 × 1080	
Aspect ratio	16:9	
Maximum color	16.7M	
Brightness	Typical 420 nits ²	
Contrast ratio	Minimum 100K:1	
Pixel pitch	63.25 μm × 63.25 μm	
Viewing angle	All view	
Response rate	1 ms	

¹ All specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower.

² Nits is the measure of the typical brightness of the panel as specified, prior to anti-glare coating

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