HP Z1 G2 Workstation

User Guide

About this guide

This guide provides setup and basic troubleshooting information for the HP Z1 G2 Workstation. It includes these topics:

☆ **TIP:** If you do not find what you are looking for in this guide:

- Find technical details in the *Maintenance and Service Guide* at http://www.hp.com/support/workstation_manuals.

- View removal and replacement videos at http://www.hp.com/go/sml.

- Go to http://www.hp.com/go/workstations for additional information on your workstation.

Table of contents

1 Locating HP resources

This section provides information on the following resources for your HP workstation:

- Product information
- Support
- Product documentation
- Product diagnostics
- Product updates

Product information

Topic	Location
Technical specifications	Go to http://www.hp.com/go/quickspecs. In the left pane, select your region and then select **Workstations**.
Regulatory, safety and environmental notices	Refer to the *Regulatory, Safety and Environmental Notices* for product regulatory information. You can also refer to the regulatory label on the workstation chassis.
Accessories	For complete and current information on supported accessories and components, go to http://www.hp.com/go/workstations.
System board	A diagram of the system board is located on the inside of the chassis (all-in-one configuration). Additional information is located in the workstation *Maintenance and Service Guide* on the Web at http://www.hp.com/support/workstation_manuals/.
Serial number, Certificate of Authenticity (COA), and Genuine Microsoft® Label (GML) (if applicable)	The serial number label is on a pull-out card on the side of the display (all-in-one configuration). The COA (Windows 7) and GML (Windows 8) are typically located near the serial number label. On some workstations, this label is on the bottom panel.

Support

Topic	Location
Product support	For U.S. support, go to http://www.hp.com/go/contactHP.
	For worldwide support, go to http://welcome.hp.com/country/us/en/wwcontact_us.html.
	Here you can access the following types of support:
	● Chat online with an HP technician
	● Obtain email support
	● Find support telephone numbers
	● Locate an HP service center
Warranty information	To locate base warranty information, go to http://www.hp.com/support/warranty-lookuptool.
	To locate an existing Care Pack, go to http://www.hp.com/go/lookuptool.
	To extend a standard product warranty, go to http://h20219.www2.hp.com/services/us/en/warranty/carepack-overview.html. HP Care Pack Services offer upgraded service levels to extend and expand a standard product warranty.
	You can find your HP Limited Warranty located with the user guides on your product and/or on the CD or DVD provided in the box. In some countries or regions, HP may provide a printed warranty in the box. For countries or regions where the warranty is not provided in printed format, you can request a copy from http://www.hp.com/go/orderdocuments. For products purchased in Asia Pacific, you can write to HP at
	Hewlett-Packard, POD, P.O. Box 200
	Alexandra Post Office, Singapore 911507
	Include your product name, and your name, phone number, and postal address.

Product documentation

Topic	Location
HP user documentation, white papers, and third-party documentation	User documentation is located on your hard drive. On Windows 7, select **Start**, select **HP Help and Support**, and then select **HP Documentation**. On Windows 8, from the Start screen, select the app **HP Documentation**. On Windows 10, select **Start**, select **All Apps**, select **HP**, and then select **HP Documentation**. For the latest online documentation, go to http://www.hp.com/support/workstation_manuals. The documentation incudes this user guide and the *Maintenance and Service Guide.*
Removal and replacement videos	To learn how to remove and replace workstation components, go to http://www.hp.com/go/sml.
Product notifications	Subscriber's Choice is an HP program that allows you to sign up to receive driver and software alerts, proactive change notifications (PCNs), the HP newsletter, customer advisories, and more. Sign up at http://www.hp.com/go/subscriberschoice.
Technical specifications	The Product Bulletin contains QuickSpecs for HP Workstations. QuickSpecs include information about the operating system, power supply, memory, CPU, and many other system components. To access the QuickSpecs, go to http://www.hp.com/go/quickspecs/.
Customer Advisories, Security Bulletins, and Notices	To find advisories, bulletins, and notices: 1. Go to http://www.hp.com/go/workstationsupport. 2. Select the desired product. 3. Under the Knowledge Base heading, use the scroll bar to select **Advisories, Bulletins & Notices**.

Product diagnostics

Topic	Location
Windows diagnostics tools	The UEFI Diagnostics utility is preinstalled on select Windows workstations. For additional information, see the workstation *Maintenance and Service Guide* at http://www.hp.com/support/workstation_manuals.
Audible beep and light code definitions	See the workstation *Maintenance and Service Guide* at http://www.hp.com/support/workstation_manuals.
POST error codes	See the workstation *Maintenance and Service Guide* at http://www.hp.com/support/workstation_manuals.

Product updates

Topic	Location
Driver and BIOS updates	Go to http://www.hp.com/go/workstationsupport to verify that you have the latest drivers for the workstation. To determine the current workstation BIOS on your workstation, follow these steps during system startup: 1. Turn on the workstation, and press Esc during startup (boot). 2. Press F10 to enter Computer Setup (F10). 3. Go to **File > System Information**. Note the BIOS version and date and compare it with the BIOS versions that appear on the HP website. In Windows 7, you can also find the BIOS version number by following these steps: 1. Go to **Start > All Programs > Accessories > System Tools > System Information**. 2. In the right pane, find the line with **BIOS Version/Date**. 3. Note the BIOS version and date and compare it with the versions that appear on the HP website. In Windows 8, you can also find the BIOS version number by following these steps: 1. Point to or swipe from the upper-right or lower-right corner of the Start screen to display the charms. 2. Select **Settings > Change PC Settings**.
Operating systems	For information, go to the following locations: ● Operating systems supported on HP workstations, go to http://www.hp.com/go/wsos. ● Windows operating systems, go to http://www.support.microsoft.com. ● Linux operating systems, go to http://www.linux.com.

2 HP Z1 G2 Workstation features

The HP Z1 G2 Workstation is offered in both a touch and a non-touch model. The touch model has a glossy glass front, and the non-touch model has a matte surface, surrounded by a plastic bezel.

For complete and current information on supported accessories and components for the workstation, go to http://partsurfer.hp.com.

Components

Front and bottom components
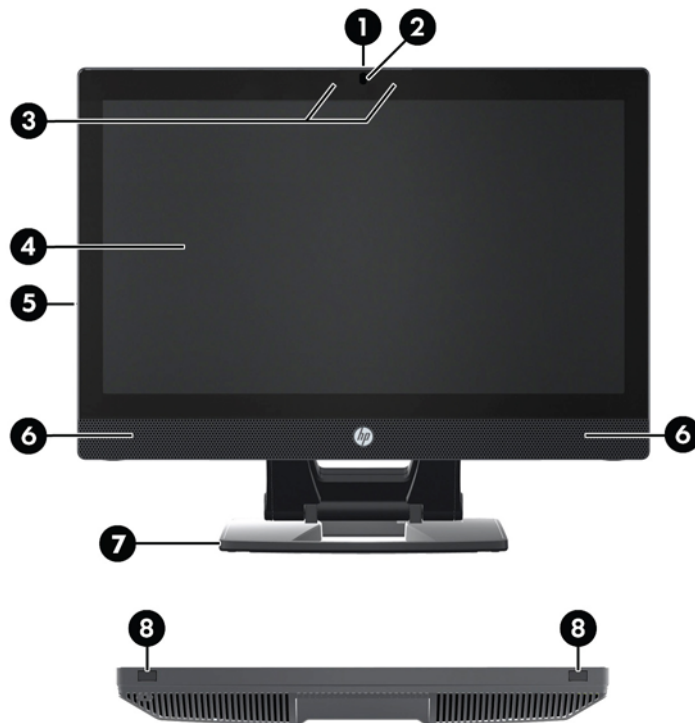
1	Camera angle adjustment dial	5	Serial number pull-out card
2	Camera	6	Speakers
3	Left and right digital microphones	7	Stand
4	Display panel	8	Chassis latches (bottom view)

Side components

1	⏻	Power button	5	SS⟋	USB 3.0 ports (2) The bottom USB port is also a battery charging port.
2	🎞	Hard drive activity light	6	🎧	Headphone jack
3		Slimline tray optical drive (or optional Thunderbolt module)	7	🎤	Microphone jack
4		Memory card reader			

Rear components

1		Handle	6		Power cord connector
2	$\blacktriangleleft$Sub	Subwoofer jack (orange)	7	$\cdot\mathrel{\leftarrow}\kern-0.3em$	USB 2.0 ports (4)
3	$((\cdot\mathrel{\twoheadrightarrow}$	Audio line-out jack (green)	8	S/PDIF	Optical S/PDIF audio output
4	$((\cdot\mathrel{\rightarrowtail}$	Audio line-in jack (blue)	9		RJ-45 network connector
5		DisplayPort connector	10		Security cable slot

Product specifications

Physical characteristics

Weight	With stand (non-touch)	19.2 kg (42.3 lbs)
	With stand (touch)	21.0 kg (46.3 lbs)
	Without stand (non-touch)	13.3 kg (29.3 lbs)
	Without stand (touch)	15.1 kg (33.3 lbs)
	Stand only	5.9 kg (13.0 lbs)
Dimensions	Upright, including stand	**Height**: 533.4 mm (21.0 in)
		Width: 660.4 mm (26.0 in)
		Depth: 419.1 mm (16.5 in)
	Unit only	**Height**: 457.2 mm (18.0 in)
		Width: 660.4 mm (26.0 in)
		Depth: 81.3 mm (3.2 in)

Environmental specifications

Temperature	**Operating**: 5°C to 35°C (40°F to 95°F)
	Non-operating: –40°C to 60°C (–40°F to 140°F)
	NOTE: The ambient upper limit of 35°C is good up to 1524 m (5000 ft) elevation. Derate by 1°C for every 305 m (1000 ft) above 1524 m (5000 ft). For example, at 3,048 m (10,000 ft), the upper ambient air temperature limit is 30°C.
Humidity	**Operating**: 8% to 85% relative humidity, non-condensing
	Non-operating: 8% to 90% relative humidity, non-condensing
Altitude	**Operating:** 0 to 3,048 m (10,000 ft)
	Non-operating: 0 to 9,144 m (30,000 ft)
Shock	**Operating**: ½-sine: 40g, 2-3ms (~62 cm/sec)
	Non-operating:
	• ½-sine: 160 cm/s, 2-3ms (~105g)
	• 20g, square: 422 cm/s
	NOTE: Values represent individual shock events and do not indicate repetitive shock events.
Vibration	**Operating random**: 0.5g (rms), 5-300 Hz, up to 0.0025 g^2/Hz
	Non-operating random: 2.0g (rms), 5-500 Hz, up to 0.0150 g^2/Hz
	NOTE: Values do not indicate continuous vibration.

3 Setting up and using the workstation

Setting up the workstation

Location and ventilation

Proper ventilation for the system is important for workstation operation. To be sure that there is adequate ventilation:

- Operate the workstation on a sturdy, level surface.
- Provide at least the following clearance:
  - 12 cm (4.7 in) clearance at the front, back, top, and bottom of the workstation
  - 16 cm (6.3 in) clearance on the right side for the optical drive
- Be sure that the ambient air temperature surrounding the workstation falls within the specified limits (see).
- Never restrict the incoming or outgoing airflow of the workstation by blocking any vents or air intakes.

Setup procedure

1. The HP Z1 G2 Workstation weighs 19.2 kg (42.3 lbs) for the non-touch model and 21.0 kg (46.3 lbs) for the touch model, and must be removed from the box by two people.

   ⚠ **WARNING!** If a product is shipped in packaging marked with this icon ⛏, the product must always be lifted by two people to avoid personal injury due to product weight.

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

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

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

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

   For more safety and regulatory information, refer to the *Regulatory, Safety and Environmental Notices* located with the user guide on your workstation.

2. Push the unit down to its lowest horizontal position.

   ⚠ **CAUTION:** Never open the unit unless it is in the lowest horizontal position. Otherwise, system components may be damaged.
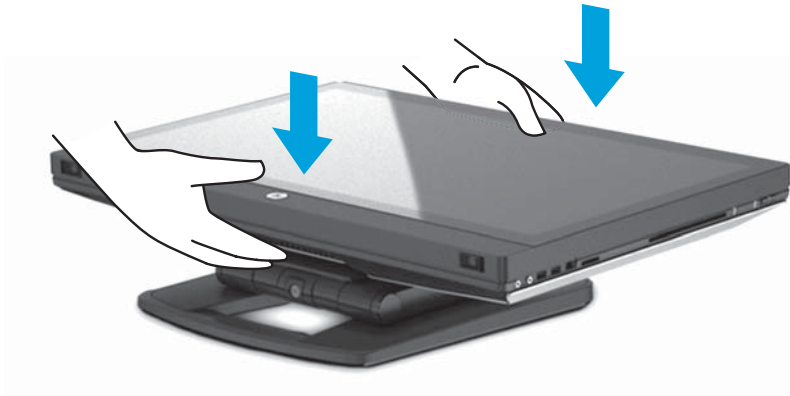
3. Slide the latches on the bottom of the workstation outward and open the chassis.
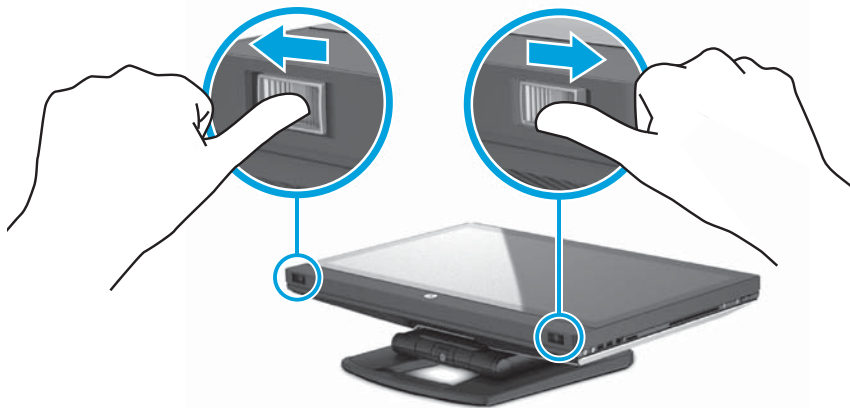
4. Insert the USB wireless transceiver in the internal USB port, and close the chassis.
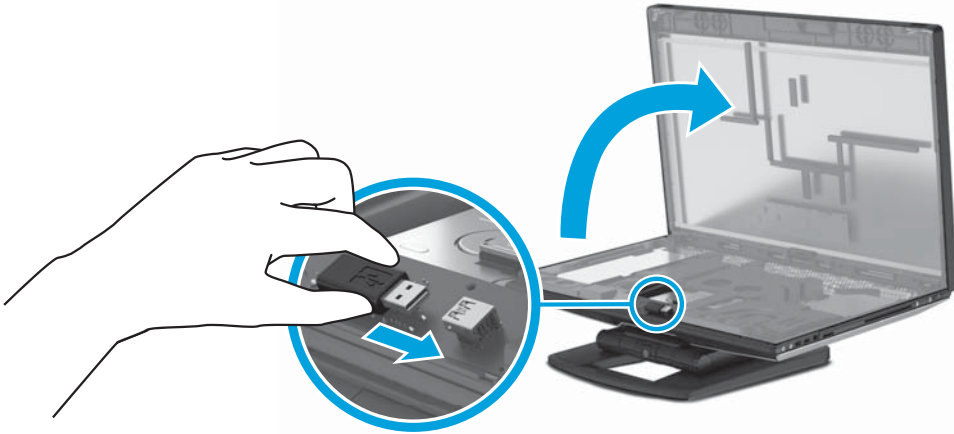
NOTE: Keep in mind the following:

● An outline around the internal USB port identifies the maximum area allowed for an internal USB device. The USB wireless transceiver must fit within this area.

● The USB wireless transceiver is in the keyboard box.

● You can also install the USB wireless transceiver into a side USB port.

● Be sure that the mouse and keyboard are within 30 cm (12 in) of the workstation and away from interference from other devices.

5. Press down on the front of the unit, and then press in on the green button until you hear a click.
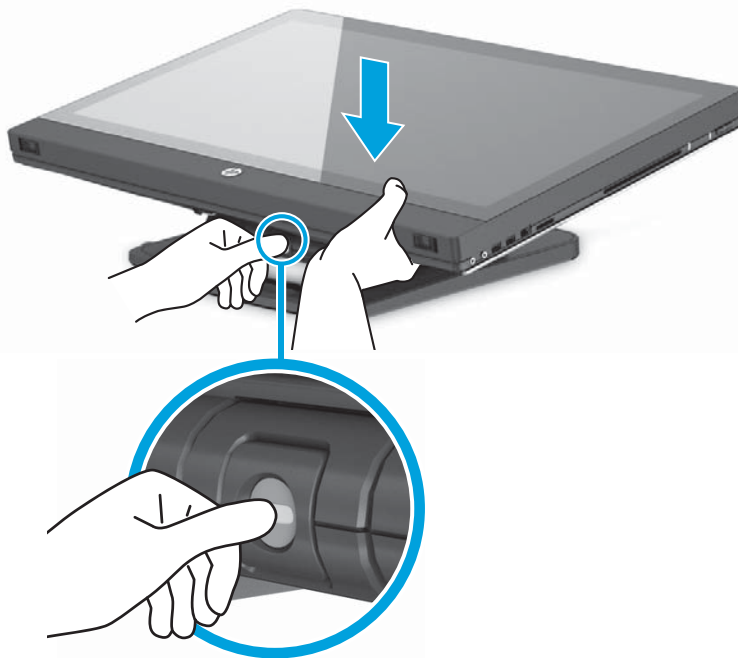
6. Raise the unit up to its highest horizontal position.
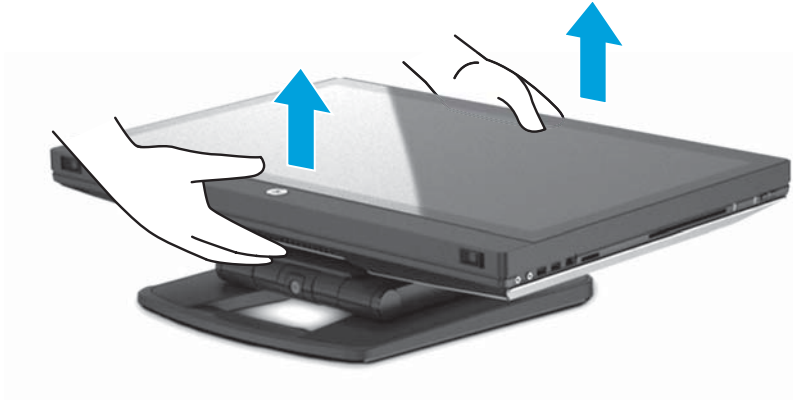
7. Rotate the monitor to its full vertical upright position (some force is required).
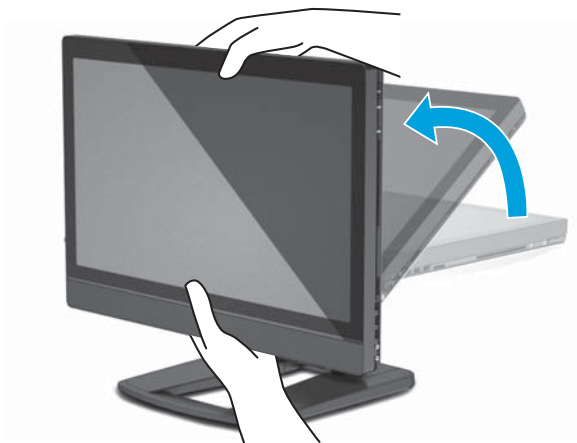
8. Connect the power cord and peripherals.
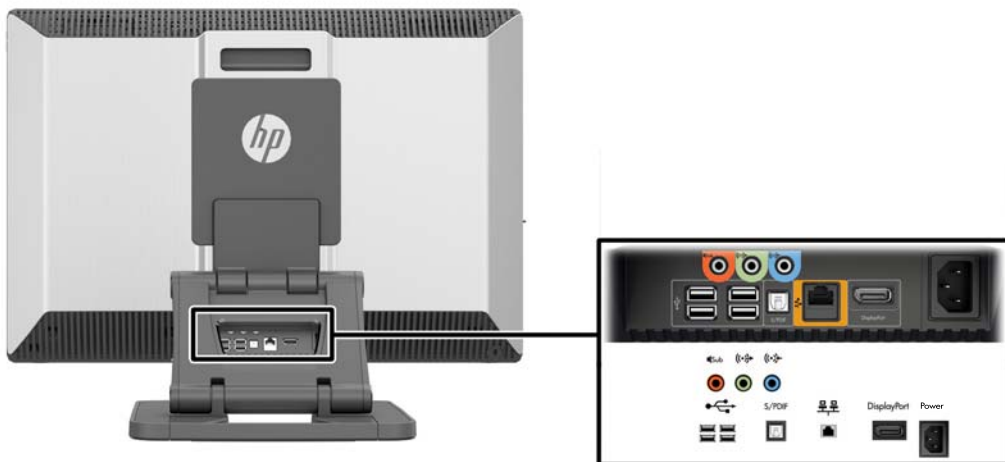
IMPORTANT: DO NOT insert the USB wireless transceiver at this location. Refer to steps 3 and 4 for instructions.

9. Connect the workstation to a grounded AC power outlet (1) and turn on the unit (2).
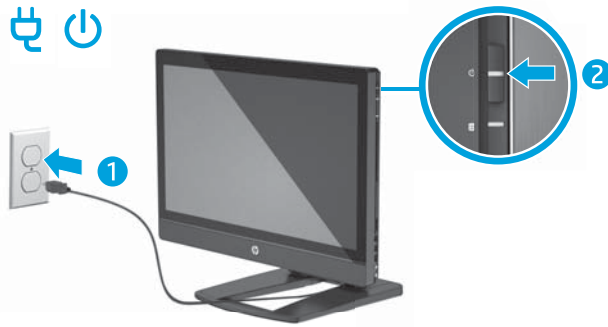
10. Connect the unit to the Internet through the wireless feature or with an RJ-45 network cable.

To set up a WLAN and connect to the Internet, you need a broadband modem (either DSL or cable) (purchased separately), high-speed Internet service purchased from an Internet service provider, and a wireless router (purchased separately).

Connecting Bluetooth devices

The workstation is Bluetooth®-enabled. To connect a Bluetooth wireless device:

1. Make your Bluetooth device send out a radio signal so that it is discoverable by the workstation (refer to the device documentation for instructions).

2. In the Windows **Control Panel**, go to **Hardware and Sound** then to to **Devices and Printers**.

- If your Bluetooth device is a printer, select **Add a printer**, select **Add a network, wireless or Bluetooth printer**, and follow the on-screen instructions.
- For all other devices, select **Add a device**, select **Bluetooth devices**, and then follow the on-screen instructions.

Disabling Bluetooth devices

The Bluetooth features can be disabled through the system BIOS, through the operating system, or by removing the wireless modules from the system.

NOTE: Disabling the Bluetooth features through the system BIOS or by removing the wireless modules from the system will also disable the WLAN functionality.

To disable the Bluetooth features using the system BIOS, do the following:

1. During system boot, press **F10** to enter the BIOS setup.

2. Locate and select the **Security** menu from the available menu selections displayed near the top of the screen.

3. Select **Slot Security**.

4. Select **Slot 1 mini PCIe / mSATA**.

5. Use the arrow keys to change **Enabled** to **Disabled**, and then press **F10** to accept the change.

6. Select **File** from the header menus, and then select **Save Changes and Exit**.

To disable the Bluetooth features in Windows 7, do the following:

1. Change **View By** from **Category** to either **Large Icon** or **Small Icon**.

2. In **Control Panel**, go to **Device Manager**.

3. Expand **Bluetooth Radios**.

4. Find **Intel® Wireless Bluetooth® 4.0 Adapter**.

5. Select **Disable**.

6. Select **Yes**.

7. To re-enable, select **Enable**.

To disable the Bluetooth features in Windows 8 or Windows 10, do the following:

1. Change **View By** from **Category** to either **Large Icon** or **Small Icon**.

2. In **Control Panel**, go to **Device Manager**.

3. Expand **Bluetooth**.

4. Select **Intel® Wireless Bluetooth® 4.0 + HS Adapter** to open the menu.

5. Go to the **Driver** menu and select **Disable**.

6. Select **Yes**.

7. To re-enable, select **Enable**.

To remove the wireless modules, see one of the following for information on removal and replacement of components:

- The *Maintenance and Service Guide* for your workstation at http://www.hp.com/support/workstation_manuals

- Videos for your workstation at http://www.hp.com/go/sml

Disabling WLAN

NOTE: The HP Z1 G2 Workstation is WLAN-enabled by default.

NOTE: Disabling the WLAN functionality through the system BIOS or by removing the wireless modules from the system will also disable the Bluetooth features.

The WLAN can be disabled through the system BIOS, through the operating system, or by removing the wireless modules from the system.

To disable the WLAN using the system BIOS, do the following:

1. During system boot, press **F10** to enter the BIOS setup.

2. Locate and select the **Security** menu from the available menu selections displayed near the top of the screen.

3. Select **Slot Security**.

4. Select **Slot 1 mini PCIe / mSATA**.

5. Use the arrow keys to change **Enabled** to **Disabled**, and then press **F10** to accept the change.

6. Select **File** from the header menus, and then select **Save Changes and Exit**.

To disable the WLAN in Windows 7, do the following:

1. Change **View By** from **Category** to either **Large Icon** or **Small Icon**.

2. In **Control Panel**, go to **Device Manager**.

3. Expand **Network Adapters**.

4. Select **Intel® Dual Band Wireless-AC 7260**.

5. Select **Disable**.

6. Select **Yes**.

7. To re-enable, select **Enable**.

To disable the WLAN in Windows 8 or Windows 10, do the following:

1. Change **View By** from **Category** to either **Large Icon** or **Small Icon**.

2. In **Control Panel**, go to **Device Manager**.

3. Expand **Network Adapters**.

4. Select **Intel® Dual Band Wireless-AC 7260**.

5. Go to **Driver** menu.

6. Select **Disable**.

7. Select **Yes**.

8. To re-enable, select **Enable**.

To remove the wireless modules, see one of the following for information on removal and replacement of components:

●   The *Maintenance and Service Guide* for your workstation at http://www.hp.com/support/workstation_manuals

●   Videos for your workstation at http://www.hp.com/go/sml

Using touchscreen gestures

A touchscreen workstation allows you to control items on the screen directly with your fingers. To use touch gestures, you must have a touch model that has Microsoft Windows installed on it.

☼ **TIP:**   On touchscreen workstations, you can perform the gestures on the screen or using the keyboard and mouse.

📝 **NOTE:**   Not all gestures are supported in all programs. Unless otherwise specified, gestures are supported in all versions of Windows.

One-finger slide

The one-finger slide is mostly used to pan or scroll through lists and pages, but you can use it for other interactions, too, such as moving an object.

● To scroll across the screen, lightly slide one finger across the screen in the direction you want to move.

NOTE: On Windows 8, when many apps are revealed on the Start screen, you can slide your finger to move the screen left or right.

● To drag, press and hold an object, and then drag the object to move it.
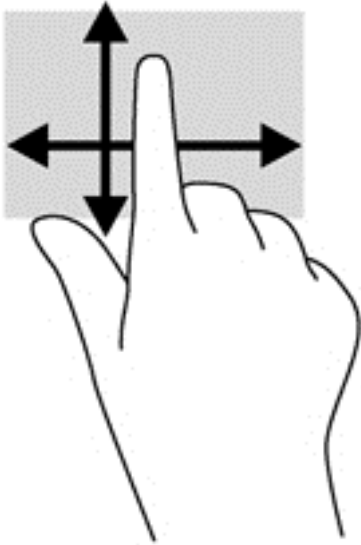
Tapping

To make an on-screen selection, use the tap function.

● Use one finger to tap an object on the screen to make a selection. Double-tap an item to open it.

Scrolling

Scrolling is useful for moving the pointer up, down, left, or right on a page or image.

- Place two fingers on the screen and then drag them in an up, down, left, or right motion.
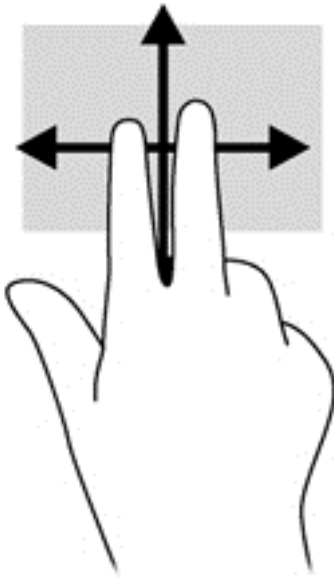
Pinching/stretching

Pinching and stretching allows you to zoom out or in on images or text.

- Zoom in by placing two fingers together on the display and then move your fingers apart.
- Zoom out by placing two fingers apart on the display and then move your fingers together.
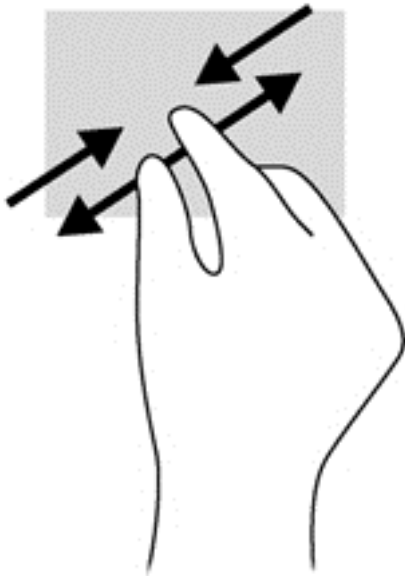
Rotating (select models only)

Rotating allows you to turn items such as photos.

- Anchor the forefinger of your left hand on the object you want to rotate. Using your right hand, slide your forefinger around in a sweeping motion from 12 o'clock to 3 o'clock. To reverse the rotation, move your forefinger from 3 o'clock to 12 o'clock.

NOTE: Rotate is intended for specific apps where you can manipulate an object or image. Rotate may not be functional for all apps.
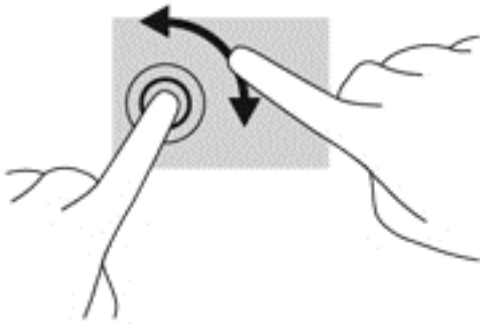
Edge swipes (Windows 8 models only)

With edge swipes you can perform tasks such as changing settings and finding or using apps.

Right-edge swipe

The right-edge swipe reveals the charms, which let you search, share, start apps, access devices, or change settings.

- Gently swipe your finger inward from the right edge of the display onto the screen to reveal the charms.
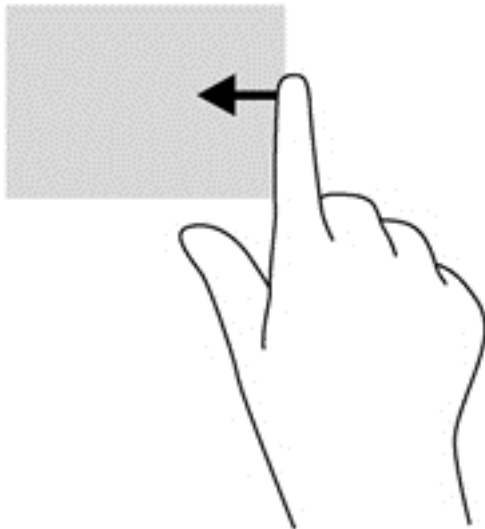
Left-edge swipe

The left-edge swipe reveals your open apps so that you can switch to them quickly.

- Gently swipe your finger inward from the left edge of the display to switch between apps. Without lifting your finger, swipe back toward the left edge to reveal all open apps.
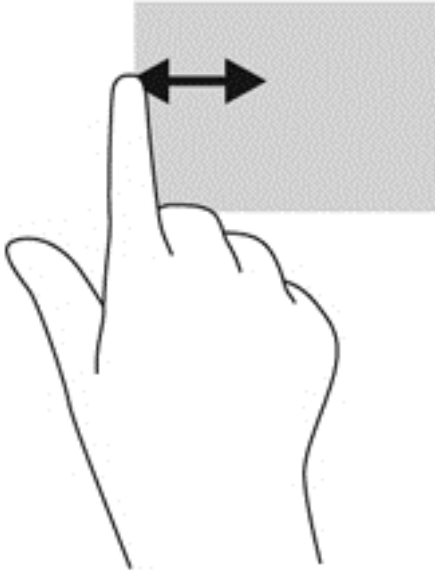
Bottom-edge swipe

The bottom-edge swipe allows you to open a list of apps available on your workstation.

▲ From the Windows Start screen, gently swipe your finger from the bottom edge of the display onto the screen to view available apps.

Tapping

Tap or double-tap an item on the screen as you would click or double-click with an external mouse. Tap and hold an item to see the context menu.

NOTE: You must tap and hold your finger until a circle appears around the area you are touching, and then the context menu appears.

Flicking (Windows 7 models only)

Touch the screen in a light, quick flicking motion up, down, left, or right to navigate through screens or quickly scroll through documents.

📝 **NOTE:** For the flick movement to work, a scrollbar must be present in the active window.
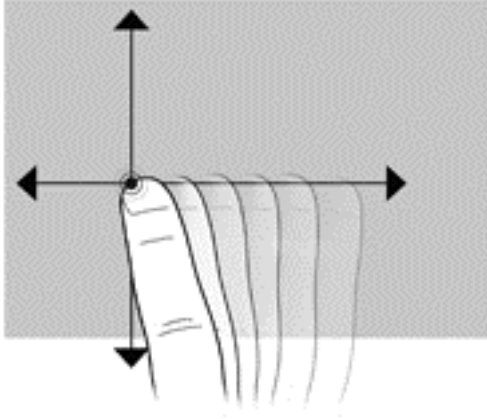
Dragging

Press your finger on an item on the screen, and then move your finger to drag the item to a new location. You can also use this motion to slowly scroll through documents.
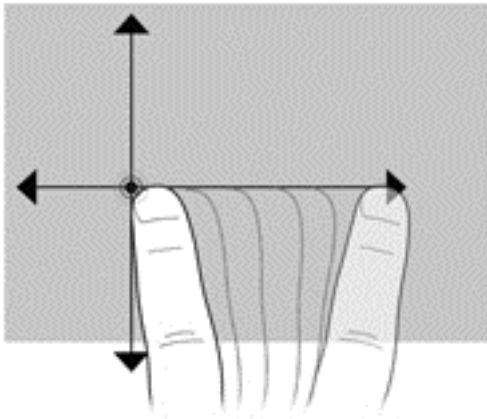
Setting touchscreen preferences

1. To set preferences, perform one of the following:

   ● (Windows 7) Go to **Control Panel > Hardware and Sound > Pen and Touch**.

   ● (Windows 8) From the **Start** screen, select **Control Panel**, then select **Hardware and Sound**, then select **Pen and Touch**.

   These preferences are specific to the touchscreen and the workstation.

2. To set preferences for left-handed or right-handed users, go to **Control Panel**, select **Hardware and Sound**, then **Tablet PC Settings**, and then select **Other**.

   These preferences are specific to the touchscreen and the workstation.

Display options

Adjusting display brightness

The HP Z1 G2 Workstation uses two methods to control the display brightness.

- The backlight brightness settings control the overall brightness of the internal display panel only.

- The pixel color brightness settings control the individual pixel color intensity for the internal display panel and an external monitor. Changing the pixel color brightness will affect the color of the pixels and will affect the colors of your display.

Controlling display panel brightness

Internal display panel backlight brightness

Windows offers two methods for controlling the backlight brightness of the internal display panel. These two options adjust the backlight brightness from 100% down to 30%.

Windows 7 and Windows 10

1. Select **Control Panel**.

2. Change **View By** from **Category** to either **Large icons** or **Small icons**.

3. Select **Power Options**.

4. Move the screen brightness slider at the bottom of the window to make adjustments.

5. At the bottom of the window, select **Apply** or **OK** to save the changes.

– or –

1. Select **Start > Programs > Productivity and Tools > HP My Display**.

2. Select **Adjust**.

3. Move the slider to make adjustments.

4. At the bottom of the window, select **Apply** or **OK** to save the changes.

Windows 8

1. Change **View By** from **Category** to either **Large Icon** or **Small Icon**.

2. Point to the upper-right of the Start screen to display the charms.

3. Select **Settings**.

4. In the lower-right corner, select **Brightness**.

5. Move the slider to make adjustments.

Controlling the brightness of the display panel and an external monitor

Pixel color brightness is controlled with either the Intel® iGFx or the NVIDIA MXM graphics controller interface. Both controllers can adjust the internal display panel and an external monitor. This adjustment affects the brightness level of the individual RGB pixels and affects the colors of the pixels.

Intel iGFx adjustments for an internal display panel

1. Right-click a blank area on the display desktop to open the system display-control window. Select **Graphics Properties**.

2. Select the **Advanced** option, and select **OK**. The Intel Graphics and Media control panel opens.

3. From the left side of the Intel Graphics and Media control panel, select **Display > Color Enhancement**.

4. Open the **Display** drop-down menu, and then select **Built-In Display**.

5. The brightness slider is set to 0%. Move the slider to adjust the brightness up to 100% or down to –60%.

6. At the bottom of the window, select **Apply** or **OK** to save the changes.

Intel iGFx pixel color adjustments for an external monitor

1. Right-click a blank area on the display desktop to open the system display-control window. Select **Graphics Properties**.

2. Select the **Advanced** option, and then select **OK**. The Intel Graphics and Media control panel opens.

3. From the left side of the control panel, select **Display > Color Enhancement**.

4. Open the **Display** drop-down menu, and then under **External Monitor**, select the listing for your monitor. For example, if a ZR2740w monitor is connected, select **Digital Display ZR2740w**.

5. The brightness slider is set to 50%. Move the slider up or down to adjust the brightness.

6. At the bottom of the window, select **Apply** or **OK** to save the changes.

NVIDIA MXM controller pixel color adjustments for an internal display panel

1. Right-click a blank area on the display desktop to open the system display-control window. Select the **NVIDIA** control panel.

2. Select the **HP Z1 G2** display panel icon. A green box outlines the icon.

3. On the left side of the NVIDIA Control Panel, select **Adjust desktop color settings**, and select the internal display panel to adjust the settings.

4. Select the **Use NVIDIA Settings** option.

5. The brightness slider is set to 50%. Move the slider up or down to adjust the brightness.

6. At the bottom of the window, select **Apply** or **OK** to save the changes.

NVIDIA MXM controller pixel color adjustments for an external monitor

1. Right-click a blank area on the display desktop to open the system display-control window. Select the **NVIDIA** control panel.

2. Select the icon for your external monitor. A green box outlines the icon.

3. On the left side of the NVIDIA Control Panel, select **Adjust desktop color settings**, and select the external monitor to adjust the settings.

4. Select the **Use NVIDIA Settings** option.

5. The brightness slider is set to 50%. Move the slider up or down to adjust the brightness.

6. At the bottom of the window, select **Apply** or **OK** to save the changes.

Adding an external monitor

To connect a monitor to the workstation:

1. Determine the correct cable and/or adapter requirements for the monitor.

Monitor Interface	Required connection
DisplayPort	DisplayPort cable
VGA	DisplayPort to VGA adapter with VGA cable
DVI	DisplayPort to DVI adapter with DVI-D cable
Dual-Link DVI	DisplayPort to DLDVI adapter with Dual-Link cable
HDMI	DisplayPort to HDMI adapter with HDMI cable

2. Connect the DisplayPort end of the cable/adapter to the DisplayPort connector on the back of the workstation.

3. Connect the other end of the cable to the external monitor.

4. Turn on the monitor. If the workstation is running Windows and a graphics driver is installed, the workstation automatically detects the external monitor and uses it as a display.

Customizing the display panel or an external monitor

You can manually select or change the monitor refresh rates, screen resolution, color settings, font sizes, and power management settings of the workstation's display panel or external monitor. Use either the control panel of the graphics processing unit (MXM card or integrated graphics) or select the Windows **Control Panel > Display** options.

For more information about customizing your external monitor, refer to the documentation included with the monitor.

Using the HP Z1 G2 Workstation as a monitor

The DisplayPort connector on the HP Z1 G2 Workstation is bi-directional and lets you use the workstation as a display for another computer, such as a laptop. The other computer (referred to as the *external graphics source*) must have a graphics DisplayPort output connector.

A set of keystrokes on the workstation keyboard switches the port from output to input and back. While in output mode, the port drives an external monitor. While in input mode, an external graphics source drives the workstation display panel.

NOTE: This feature is described here as supported on the Windows operating system. Similar functionality is available for some Linux operating systems. The Linux package is available for download at http://www.hp.com/linux or might be included in the pre-loaded Linux operating system.

To use the workstation as a monitor:

1. Connect one end of a DisplayPort cable to the external graphics source's DisplayPort connector. Connect the other end to the DisplayPort connector on the back of the HP Z1 G2 Workstation.

2. On the HP Z1 G2 Workstation keyboard, simultaneously press **Ctrl+Shift+S+D** (*switch display*) to enable the workstation to display output from the external graphics source.

3. To switch back, simultaneously press **Ctrl+Shift+S+D** on the HP Z1 G2 Workstation keyboard to reinstate the internal graphics source and place the workstation display panel in standby mode. On the HP Z1 G2 Workstation, move the mouse or press the space bar to wake up the display panel.

NOTE: This feature relies on the **My Display** utility, which is subject to change with new software and driver releases. To download the latest software and driver, go to http://www.portrait.com/dtune/hpw/enu/upgrade_instructions.html.

Adjusting the audio signal

- There is no hardware volume control on the HP Z1 G2 Workstation. (However, some keyboards do have volume buttons, usually in the upper-right corner.)

- Volume can be adjusted with the operating system (OS) master control or the software (SW) audio player control.

- The OS master control and SW audio player control are independent. However, they are both simultaneously active and affect the overall volume of the audio signal.

- If the audio signal is not audible, check the OS master control and SW audio player control to be sure that neither is set too low.

Using the webcam

The webcam works automatically with any webcam software.

A white activity light is on when the webcam is active. Optimal performance of the fixed-focus lens is at 0.5 meters.

A dial at the top of the workstation lets you perform the following tasks:

- Adjust the camera angle.

- Disable the camera by turning the dial all the way toward the front of the workstation. A red stripe in the camera viewport indicates the lens is pointing straight down into the chassis. The user is not visible.

Installing optional components

You can install additional components such as memory, hard drives, and wireless modules in your workstation.

- To view component installation videos, go to http://www.hp.com/go/sml.

- For installation guidelines and technical information, refer to the *Maintenance and Service Guide* at http://www.hp.com/support/workstation_manuals.

Security

You can secure your workstation by attaching a lock to the security cable slot. The workstation includes several security features to reduce the risk of theft and to warn of chassis intrusion. Refer to the *Maintenance and Service Guide* for information about additional hardware and software security features available for your system.

Product recycling

HP encourages customers to recycle used electronic hardware, HP original print cartridges, and rechargeable batteries.

For information about recycling HP components or products, go to http://www.hp.com/go/recycle.

4 Setting up, backing up, restoring, and recovering Windows 7

This chapter provides setup and update information for the Windows 7 operating system. It includes these topics:

- Setting up the Windows 7 operating system
- Backing up, restoring, and recovering Windows 7

CAUTION: Do not add optional hardware or third-party devices to the HP workstation until the operating system is successfully installed. Adding hardware might cause errors and prevent the operating system from installing correctly.

NOTE: After you set up the operating system, be sure that the latest BIOS, drivers, and software updates are installed on the workstation. See Updating the workstation on page 55.

Setting up the Windows 7 operating system

CAUTION: After installation has started, do *not* turn off the workstation until the process is complete. Turning off the workstation during installation can damage the installation and operation of the software.

For complete installation and configuration instructions, go to http://windows.microsoft.com/en-US/windows7/help. Additional information is available in the Windows 7 online Help after you successfully install the operating system.

Installing or upgrading device drivers

You must install the appropriate device drivers before you install hardware devices. Follow the installation instructions that came with each device. For optimum performance, your operating system must have the most recent updates, patches, and service packs. See http://www.hp.com for HP-qualified drivers. For additional driver and software update information, see Updating the workstation on page 55.

Transferring files and settings

The Windows operating system offers data migration tools that help you select and transfer files and data from one Windows-based workstation to another.

For information about these tools, go to http://www.microsoft.com.

Backing up, restoring, and recovering Windows 7

Your workstation includes tools provided by HP and Windows to help you safeguard your information and retrieve it if you ever need to. These tools will help you return your workstation to a proper working state or even back to the original factory state, all with simple steps.

This section provides information about the following processes:

- Creating backups

- Restoring and recovering your system

NOTE: For more details about the Windows Backup and Restore tools provided, see Help and Support. To access Help and Support: select **Start**, and then select **Help and Support**.

Recovery after a system failure is only as good as your most recent backup.

1. After you successfully set up the workstation, use Windows tools to create recovery media. In Windows 7, select **Start > Control Panel > System and Security > Backup and Restore > Create a system image**.

2. As you add hardware and software programs, create system restore points. A system restore point is a snapshot of certain hard drive contents saved by Windows System Restore at a specific time. A system restore point contains information that Windows uses, such as registry settings. Windows creates a system restore point for you automatically during a Windows update and during other system maintenance activities (such as a software update, security scanning, or system diagnostics). You can also manually create a system restore point at any time. For more information and steps for creating specific system restore points, see Help and Support. To access Help and Support: select **Start**, and then select **Help and Support**.

3. As you add photos, video, music, and other personal files, create a backup of your personal information. If files are accidentally deleted from the hard drive and they can no longer be restored from the Recycle Bin, or if files become corrupted, you can restore the files that you backed up. In case of system failure, you can use the backup files to restore the contents of your workstation. See Backing up your information on page 28.

NOTE: HP recommends that you print the recovery procedures and save them for later use, in case of system instability.

Backing up your information

NOTE: Windows includes the User Account Control feature to improve the security of your workstation. You may be prompted by User Account Control for your permission or password when you perform certain tasks. To continue a task, select the appropriate option. For information about User Account Control, see Help and Support: select **Start** and then select **Help and Support**.

You should create your initial backup immediately after initial system setup. As you add new software and data files, you should continue to back up your system on a regular basis to maintain a reasonably current backup. Your initial and subsequent backups allow you to restore your data and settings if a failure occurs.

NOTE: For detailed instructions on various backup and restore options, perform a search for these topics in Help and Support. To access Help and Support: select **Start** and then select **Help and Support**.

You can back up your information to an optional external hard drive, a network drive, or discs.

Note the following when backing up your information:

- Store personal files in the Documents library, and back it up regularly.

- Back up templates that are stored in their associated directories.

- Save customized settings that appear in a window, toolbar, or menu bar by taking a screen shot of your settings. The screen shot can be a time-saver if you have to reset your preferences.

- When backing up to discs, number each disc after removing it from the drive.

To create a backup using Windows Backup and Restore:

NOTE: The backup process may take over an hour, depending on file size and the speed of the workstation.

1. Select **Start** > **All Programs** > **Maintenance** > **Backup and Restore**.

2. Follow the on-screen instructions to set up your backup.

System Restore

If you have a problem that might be due to software that you installed on your workstation, use System Restore to return the workstation to a previous restore point. You can also set restore points manually.

NOTE: Always use this System Restore procedure before you use the System Recovery feature.

To start System Restore:

1. Close all open programs.

2. Select **Start**, select **Computer**, and then select **Properties**.

3. Select **System protection > System Restore > Next**, and then follow the on-screen instructions.

System Recovery

⚠ **CAUTION:** This procedure will delete all user information. To prevent loss of information, be sure to back up all user information so you can restore it after recovery.

Always use the System Restore procedure before you use the System Recovery program. See System Restore on page 29.

System Recovery completely erases and reformats the hard disk drive, deleting all data files that you have created, and then reinstalls the operating system, programs, and drivers. However, you must reinstall any software that was not installed on the workstation at the factory. This includes software that came on media included in the workstation accessory box, and any software programs that you have installed.

You can order a recovery media set from support. For U.S. support, go to http://www.hp.com/support. For worldwide support, go to http://www8.hp.com/us/en/contact-hp/ww-contact-us.html. You can also order the recovery media set by calling support.

📝 **NOTE:** Some features might not be available on systems that are shipped without a Windows operating system.

You must choose one of the following methods to perform a System Recovery:

● Recovery image — Run System Recovery from a recovery image stored on your hard disk drive. The recovery image is a file that contains a copy of the original factory-shipped software. To perform a System Recovery from a recovery image, see System Recovery from a recovery partition image on page 30.

● Recovery media — Run System Recovery from recovery media that you have purchased separately.

System Recovery from a recovery partition image

⚠ **CAUTION:** System Recovery deletes all data and programs that you have created or installed.

A Windows system from the HP factory ships with a recovery partition. You can use the recovery partition to recover the factory operating system.

1. Turn off the workstation. If necessary, press and hold the power button until the workstation turns off.

2. Disconnect all peripheral devices from the workstation except the monitor, keyboard, and mouse.

3. Press the power button to turn on the workstation.

4. As soon as you see the HP logo screen, repeatedly press the F11 key on your keyboard until the *Windows is Loading Files...* message appears on the screen.

5. At the HP Recovery Manager screen, follow the on-screen instructions to continue.

6. When Windows has loaded, shut down the workstation, reconnect all peripheral devices, and then turn the workstation back on.

Using HP Recovery Disc operating system discs

⚠ **CAUTION:** Using a Windows 7 operating system DVD completely erases hard drive contents and reformats the hard drive. All files that you have created and any software that you have installed on the workstation are permanently removed. When reformatting is complete, the recovery process helps you restore the operating system, as well as the original drivers. Software that came with the system can be downloaded at http://www.hp.com.

Use the steps provided in this section if you ordered a Windows 7 operating system DVD and Driver DVD.

To order a Windows 7 operating system DVD and Driver DVD, go to the HP website. For U.S. support, go to http://www.hp.com/cgi-bin/hpsupport/index.pl. For worldwide support, go to http://www8.hp.com/us/en/contact-hp/ww-contact-us.html. You can also order the DVDs by calling support.

To initiate recovery using a Windows 7 operating system DVD:

NOTE: This recovery process takes several minutes.

1. Backup all personal files.

2. Restart the workstation, and then insert the Windows 7 operating system DVD into the optical drive.

    NOTE: If the workstation does not boot to the DVD, restart the workstation and press Esc as the workstation is powering on to see the startup menu. Use the arrow keys to select the boot menu and press enter. Use the arrow keys to select the location where the recovery DVD is inserted to boot from that device. Booting the DVD from UEFI Boot sources will result in a GPT boot partition. Booting from Legacy Boot sources will result in an MBR boot partition.

3. When prompted, press any keyboard key.

4. Follow the on-screen instructions.

After the operating system installation has completed:

1. Eject the Windows 7 operating system DVD, and insert the Driver DVD once the system is booted into the OS for the first time.

    NOTE: The Driver DVD will load prerequisite software, and then allow you to load drivers.

2. Install the Hardware Enabling Drivers. HP recommends installing all available drivers.

3. You can download applications that came with the workstation at http://www.hp.com.

NOTE: For more information on using the restore media, refer to the white paper "Restoring Windows 7 on the HP Z420, Z620 and Z820: Using HP OS DVD and Driver DVD." This white paper can be found on http://www.hp.com/support.

5 Setting up, backing up, restoring, and recovering Windows 8

This chapter provides setup and update information for the Windows 8 operating system. It includes these topics:

- Supplementary information
- Setting up the Windows 8 operating system
- Downloading Windows 8 updates
- Backing up, restoring, and recovering Windows 8

⚠ **CAUTION:** Do not add optional hardware or third-party devices to the HP workstation until the operating system is successfully installed. Adding hardware might cause errors and prevent the operating system from installing correctly.

📝 **NOTE:** After you set up the operating system, be sure that the latest BIOS, drivers, and software updates are installed on the workstation. Refer to the chapter on updating the workstation.

Supplementary information

Additional information is available in Help and Support after you customize the operating system. To learn more about Windows 8, review the *Windows Basics* guide included with your workstation. The guide provides information on common tasks using the touchscreen or the keyboard.

Setting up the Windows 8 operating system

The first time you turn on the workstation you can customize the operating system. When you are connected to the Internet, Microsoft activates your operating system. This process takes about 15 to 30 minutes. Carefully read and follow the instructions on the screen.

We recommend that you register your workstation with HP, so you can receive important software updates, request support, and sign up for special offers.

⚠ **CAUTION:** After the initial setup process has begun, DO NOT TURN OFF THE WORKSTATION UNTIL THE PROCESS IS COMPLETE. Turning off the workstation during this process may damage the software that runs the workstation or prevent its proper installation.

📝 **NOTE:** Windows includes the User Account Control feature to improve the security of your workstation. You may be prompted by User Account Control for your permission or password when you perform certain tasks. To continue a task, select the appropriate option. For information about User Account Control, see Help and Support: from the Start screen type `help` and then select **Help and Support**.

Downloading Windows 8 updates

Microsoft may release updates to the operating system. To help keep the workstation running optimally, HP recommends checking for the latest updates during the initial installation and periodically throughout the life of the workstation.

Run Windows Update as soon as possible after you set up your workstation.

1. Point to the upper-right or lower-right corner of the Start screen to display the charms.

2. Select **Settings** > **Change PC Settings** > **Update and Recovery** > **Windows Update**.

Backing up, restoring, and recovering Windows 8

Your workstation includes tools provided by HP and Windows to help you safeguard your information and retrieve it if you ever need to. These tools will help you return your workstation to a proper working state or even back to the original factory state, all with simple steps.

This section provides information about the following processes:

● Creating recovery media and backups

● Restoring and recovering your system

NOTE: For more details about the tools provided, see Help and Support. From the Start screen, type `help`, and then select **Help and Support**.

HP recommends that you print the recovery procedures and save them for later use, in case of system instability.

Backing up your information

NOTE: Windows includes the User Account Control feature to improve the security of your workstation. You may be prompted by User Account Control for your permission or password when you perform certain tasks. To continue a task, select the appropriate option. For information about User Account Control, from the Start screen type `help` and then select **Help and Support**.

Recovery after a system failure is as good as your most recent backup. You should create system repair media and your initial backup immediately after initial system setup. As you add new software and data files, you should continue to back up your system on a regular basis to maintain a reasonably current backup. The system repair media is used to start up (boot) the workstation and repair the operating system in case of system instability or failure. Your initial and subsequent backups allow you to restore your data and settings if a failure occurs.

NOTE: For detailed instructions on various backup and restore options, perform a search for these topics in Help and Support. To access Help and Support: from the Start screen, type `help` and then select **Help and Support**.

From the Start screen, type `backup`, and then select **Save backup copies of your files with File History**.

You can back up your information to an optional external hard drive or a network drive.

Note the following when you perform a backup:

- Store personal files in the Documents library, and back it up regularly.

- Back up templates that are stored in their associated programs.

- Save customized settings that appear in a window, toolbar, or menu bar by taking a screen shot of your settings. The screen shot can be a time-saver if you have to reset your preferences.

To create a backup using Windows Backup and Restore:

NOTE: The backup process may take more than an hour, depending on file size and the speed of the workstation.

1. From the Start screen, type `backup`, and then select from the list of displayed options.

2. Follow the on-screen instructions to set up your backup, create a system image, or create system repair media.

Creating recovery media and backups

Recovery after a system failure is only as good as your most recent backup.

⚠ **CAUTION:** Use a flash drive with a capacity of at least 8 GB. Any information on the USB flash drive will be erased before the recovery media is created.

1. After you successfully set up the workstation, create recovery media. This step creates a backup of the recovery partition on the workstation. The backup can be used to reinstall the original operating system in cases where the hard drive is corrupted or has been replaced.

    You will use a USB flash drive to create a bootable recovery drive that can be used to troubleshoot a Windows 8 workstation that is unable to start. The USB flash drive can be used to reinstall the original operating system and the programs that were installed at the factory.

    ⚠ **CAUTION:** If you select **Copy contents from the recovery partition to the recovery drive**, you will have the option to delete the recovery partition when the Recovery Media creation is finished. On most systems, this partition is 10 GB in size. HP recommends that you not delete this recovery partition. If the partition is deleted, you will be unable to restore the Windows 8 factory recovery partition to the hard drive using the recovery USB drive. You can free up drive space by deleting the recovery partition, but you won't be able to refresh or reset the PC again.

    To create the recovery media, from the Start screen, type `create a recovery drive`, and then select **Create a recovery drive**. Follow the on-screen instructions to continue.

2. As you add hardware and software programs, create system restore points. A system restore point is a snapshot of certain hard drive contents saved by Windows System Restore at a specific time. A system restore point contains information that Windows uses, such as registry settings. Windows automatically creates a system restore point for you during a Windows update and during other system maintenance activities (such as a software update, security scanning, or system diagnostics). You can also manually create a system restore point at any time. For more information and steps for creating specific system restore points, see Windows Help and Support. From the Start screen, type `help`, and then select **Help and Support**.

3. As you add photos, video, music, and other personal files, create a backup of your personal information. Windows File History can be set to regularly and automatically back up files from libraries, desktop, contacts, and favorites. If files are accidentally deleted from the hard drive and they can no longer be restored from the Recycle Bin, or if files become corrupted, you can use File History to restore the files that you backed up. Restoring files is also useful if you ever choose to reset the workstation by reinstalling Windows.

    📝 **NOTE:** File History is not enabled by default, so you must turn it on.

    For more information and steps for enabling Windows File History, see Windows Help and Support. From the Start screen, type `help`, and then select **Help and Support**.

Restoring and recovering using Windows 8 tools

Windows recovery tools provide access to several options for recovering your system. Choose the method that best matches your situation and level of expertise:

- If you need to restore your personal files and data, you can use Windows File History to restore your information from the backups you created. For more information and steps for using File History, see Windows Help and Support. From the Start screen, type `help`, and then select **Help and Support**.

- If you want to restore the system to a previous state without losing any personal information, Windows System Restore is an option. System Restore allows you to restore without the requirements of Windows Refresh or a reinstallation. Windows creates system restore points automatically during a Windows update and other system maintenance events. Even if you did not manually create a restore point, you can choose to restore to an automatically created restore point. For more information and steps for using Windows System Restore, see Windows Help and Support. From the Start screen, type `help`, and then select **Help and Support**.

- If you want a quick and easy way to recover the system without losing your personal information, settings, or the apps that came preinstalled on your workstation or were purchased from the Windows Store, Windows Refresh is an option. This method does not require backing up data to another drive. See Using Windows 8 Refresh on page 36.

- If you want to reset your workstation to its original state, Windows Reset provides an easy way to remove all personal data, apps, and settings, and reinstall Windows. The Reset recovery tool reinstalls the operating system and HP programs and drivers that were installed at the factory. Software not installed at the factory must be reinstalled. Any personal files must be restored from backups you made. See Using Windows 8 Reset on page 37.

- If the workstation is unable to start, you can use the Windows recovery USB flash drive you created to recover the system. See Recovery using the Windows 8 recovery USB flash drive on page 38.

- If the workstation is unable to start and you did not create a recovery USB flash drive or the one you created does not work, see Recovery using Windows 8 restore media on page 39.

Using Windows 8 Refresh

IMPORTANT: Refresh removes any traditional applications that were not originally installed on the system at the factory.

NOTE: You may be prompted by User Account Control for your permission or password when you perform certain tasks. To continue a task, select the appropriate option. For information about User Account Control, see Help and Support: from the Start screen type `help`, and then select **Help and Support**.

If Windows is responding, use these steps to start Refresh:

NOTE: During Refresh, a list of removed traditional applications will be saved so that you have a quick way to see what you might need to reinstall. See Help and Support for instructions on reinstalling traditional applications. From the Start screen, type `help`, and then select **Help and Support**.

1. On the Start screen, point to the far-right upper or lower corner of the screen to display the charms.

2. Select **Settings**.

3. Select **Change PC settings** in the bottom-right corner of the screen, and then select **Update and Recovery** > **Recovery** from the PC settings screen.

4. Under **Refresh your PC without affecting your files**, select **Get started**, and follow the on-screen instructions.

If Windows is not responding, use these steps to start Refresh:

1. If possible, back up all personal files.

2. If possible, check for the presence of the HP Recovery partition: from the Start screen, type `This PC`, and then select **This PC**.

   NOTE: If the HP Recovery partition is not listed, or you cannot check for its presence, you must recover using the recovery media that you created. See Recovery using the Windows 8 recovery USB flash drive on page 38. If you did not create recovery media, you must use the Windows 8 restore media (available separately). See Recovery using Windows 8 restore media on page 39.

3. If the HP Recovery partition is listed, restart the workstation, and then press esc while the company logo is displayed. The workstation Startup Menu opens.

4. Press f11 to select the **System Recovery** option.

5. Choose your keyboard layout.

6. Select **Troubleshoot**.

7. Select **Refresh**.

8. Follow the on-screen instructions to continue.

Using Windows 8 Reset

IMPORTANT: Reset does not provide backups of your information. Before using Reset, back up any personal information you want to retain.

If Windows is responding, use these steps to start Reset:

NOTE: You may be prompted by User Account Control for your permission or password when you perform certain tasks. To continue a task, select the appropriate option. For information about User Account Control, see Help and Support: from the Start screen type `help`, and then select **Help and Support**.

1. On the Start screen, point to the far-right upper or lower corner of the screen to display the charms.

2. Select **Settings**.

3. Select **Change PC settings** in the bottom-right corner of the screen, select **Update and Recovery** then select **Recovery**

4. Under **Remove everything and reinstall Windows**, select **Get started**, and follow the on-screen instructions.

If Windows is not responding, use these steps to start Reset:

1. If possible, back up all personal files.

2. If possible, check for the presence of the HP Recovery partition: from the Start screen, type `This PC`, and then select **This PC**.

   NOTE: If the HP Recovery partition is not listed, or you cannot check for its presence, you must recover using the recovery media that you created. See Recovery using the Windows 8 recovery USB flash drive on page 38. If you did not create recovery media, you must use the Windows 8 restore media (available separately). See Recovery using Windows 8 restore media on page 39.

3. If the HP Recovery partition is listed, restart the workstation, and then press esc while the company logo is displayed. The workstation Startup Menu opens.

4. Press f11 to select the **System Recovery** option.

5. Choose your keyboard layout.

6. Select **Troubleshoot**.

7. Select **Reset**.

8. Follow the on-screen instructions to continue.

Recovery using the Windows 8 recovery USB flash drive

⚠ **CAUTION:** Using f11 completely erases hard drive contents and reformats the hard drive. All files that you have created and any software that you have installed on the workstation are permanently removed. The f11 recovery tool reinstalls the operating system and the HP programs and drivers that were installed at the factory. You must reinstall all other software.

To recover your system using the recovery USB flash drive you previously created:

📝 **NOTE:** If you did not create a recovery USB flash drive or the one you created does not work, see .

1. If possible, back up all personal files.

2. Insert the recovery USB flash drive into a USB port on your workstation.

3. Restart the workstation and as soon as you see the HP logo screen, press f9 to display a list of boot devices. Use the arrow keys to select your USB flash drive from the UEFI Boot Sources list. Press enter.

4. Choose your keyboard layout.

5. Select **Troubleshoot**.

6. Select **Refresh your PC**.

7. Follow the on-screen instructions.

Recovery using Windows 8 restore media

This recovery process requires Windows 8 restore discs, which can be ordered from the support website. The Windows 8 restore media consists of a Windows 8 operating system disc and a Windows 8 driver disc.

For U.S. support, go to http://www.hp.com/support. For worldwide support, go to http://www8.hp.com/us/en/contact-hp/ww-contact-us.html. You can also order the media by calling support.

CAUTION: Using the Windows 8 operating system disc completely erases hard drive contents and reformats the hard drive. All files that you have created and any software that you have installed on the workstation are permanently removed. When reformatting is complete, the recovery process helps you restore the operating system, as well as drivers, software, and utilities.

Begin recovery using the Windows 8 operating system disc:

NOTE: It can take several minutes to load the operating system disc.

1. Back up all personal files.

2. Restart the workstation, and then follow the instructions provided with the Windows 8 operating system disc to install the operating system.

3. When prompted, press any keyboard key.

   NOTE: If the workstation does not boot to the DVD, restart the workstation and press esc as the workstation is starting to see the Startup menu. Use the arrow keys to select the boot menu, and then press enter. Use the arrow keys to select the location where the recovery DVD is inserted to boot from that device. Booting the DVD from UEFI Boot sources will result in a GPT boot partition. Booting from Legacy Boot sources will result in an MBR boot partition. It is recommended that you boot Windows 8 from UEFI Boot sources to take full advantage of the features available in Windows 8.

4. Follow the on-screen instructions.

After the repair is completed and the Windows 8 desktop appears:

1. Remove the Windows 8 operating system disc, and then insert the driver disc.

   NOTE: The driver disc will load prerequisite software, and then allow you to load drivers and applications.

2. Install the Hardware Enabling Drivers first, and then install Recommended Applications.

3. Install Recommended Applications of your choice. Only applications that are not available for download from http://www.hp.com are included on the driver disc.

6 Setting up, backing up, restoring, and recovering Windows 10

This chapter provides setup and update information for the Windows 10 operating system. It includes these topics:

- [Activating and customizing the software](#)
- [Turning off the workstation](#)
- [Finding more information](#)
- [If you encounter issues](#)

Activating and customizing the software

Additional information is available in online help after you activate the operating system.

NOTE: Be sure there is a 10.2 cm (4 inch) clearance at the back of the unit and above the monitor to permit the required airflow.

Initial Windows operating system setup

The first time you turn on the workstation, the operating system is set up and activated automatically. This process takes about 5 to 10 minutes. Carefully read and follow the instructions on the screen to complete the initial Windows setup.

We recommend that you register your workstation with HP during operating system set up so you can receive important software updates, facilitate support questions, and sign up for special offers.

CAUTION: After the setup process has begun, DO NOT TURN OFF THE WORKSTATION UNTIL THE PROCESS IS COMPLETE. Turning off the workstation during the setup process may damage the software that runs the workstation or prevent its proper installation.

Customizing the monitor display

If you wish, you can select or change the monitor refresh rates, screen resolution, color settings, font sizes, and power management settings.

For more information, see the online documentation provided with the graphics controller utility or the documentation that came with your monitor.

▲ Right-click on the Windows desktop, then click **Personalize** or **Screen resolution** to change display settings.

– or –

Click the **Start** icon, click **Settings**, and the click **Personalization**.

Turning off the workstation

To properly turn off the workstation, shut down the operating system software.

▲ Click the **Start** icon, click the **Power** icon, and then select **Shut down**.

– or –

From the taskbar, type `settings`, select **Settings**, type `shut`, and then click **Turn off your PC**.

Finding more information

📝 **NOTE:** Some or all of the following documents are available on the workstation hard drive.

- *Getting Started*—Helps you connect the workstation and peripheral devices and set up factory-provided software; also includes basic troubleshooting information should you encounter any problems during initial startup.

- *Hardware Reference Guide*—Provides an overview of the product hardware, as well as instructions for upgrading this series of workstation; includes information on RTC batteries, memory, and power supply.

- *Maintenance and Service Guide* (English only)—Provides information on parts removal and replacement, troubleshooting, Desktop Management, setup utilities, safety, routine care, connector pin assignments, POST error messages, diagnostic indicator lights and error codes.

- *Regulatory, Safety and Environmental Notices*—Provides safety and regulatory information that ensures compliance with U.S., Canadian, and various international regulations.

If you encounter issues

There are several means to diagnose and resolve potential issues. HP provides several proprietary diagnostics tools but recommends a sequential troubleshooting approach that addresses the most basic root cause to the more complex. Steps include:

- Visual inspection

- Blink or beep codes

- HP PC Hardware Diagnostics

- HP Support

- System restore

- System recovery

Performing basic troubleshooting

You can find troubleshooting information in the comprehensive *Maintenance and Service Guide* (English only) available under the reference library at http://www.hp.com/support. Select your country and language, select **Product Support & Troubleshooting**, enter the model number of the workstation, and click Search.

Visual inspection: No boot, no power, no video

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

- Check that the workstation and monitor are plugged into a working electrical outlet.

- Check to see that the voltage select switch (some models) is set to the appropriate voltage for your region (115V or 230V).

- Check to see that the workstation is turned on and the power light is on.

- Check to see that the monitor is turned on and the monitor light is on.

- Turn up the brightness and contrast controls of the monitor if the monitor is dim.

- If the system does not boot, press and hold any key. If the system beeps, then the keyboard is operating correctly.

- Check all cable connections for loose connections or incorrect connections.

- Wake the workstation by pressing any key on the keyboard or pressing the power button. If the system remains in sleep mode, shut down the workstation by pressing and holding the power button for at least four seconds. Then press the power button again to restart the workstation. If the system will not shut down, unplug the power cord, wait a few seconds, and then plug it in again. The workstation will restart if automatic start on power loss is set in Computer Setup. If the workstation does not restart, press the power button.

- Reconfigure your workstation after installing a non-Plug and Play expansion board or other option.

- 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 printer model.

- Remove any 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.

- If the system has multiple video sources (embedded, PCI, or PCI-Express adapters) installed (embedded video on some models only) and a single monitor, the monitor must be connected to the monitor port on the source that is set as the primary video source. During boot, the other video ports are disabled and if the monitor is connected to one of these ports, the monitor will not function. You can select or change the primary video source in Computer Setup.

> ⚠ **CAUTION:** When the workstation is plugged into an AC power source, there is always voltage applied to the system board. To reduce the risk of system board or component damage, always disconnect the power cord from the power source before opening the workstation.

Blink or beep codes: Interpreting POST diagnostic front panel LEDs and audible codes

If you see flashing LEDs on the front of the workstation or if you hear beeps, see the *Maintenance and Service Guide* (English only) for interpretation and recommended action.

Using HP PC Hardware Diagnostics

The HP PC Hardware Diagnostic tools simplify the process of diagnosing hardware issues and expedite the support process when issues are found. The tools save time by pinpointing the component that needs to be replaced.

- **Isolate true hardware failures**: The diagnostics run outside of the operating system so they effectively isolate hardware failures from issues that may be caused by the operating system or other software components.

- **Failure ID**: When a failure is detected that requires hardware replacement, a 24-digit Failure ID is generated. This ID can then be provided to the call agent, who will either schedule support or provide replacement parts.

How to access and run HP PC Hardware Diagnostics

You can run the diagnostics from one of three places, depending on your preference and the health of the workstation.

1. Turn on the workstation and press Esc repeatedly until the BIOS Boot Menu appears.

2. Press F2 or select **Diagnostics (F2)**.

    Pressing F2 signals the system to search for the diagnostics in the follow sequence:

    a. A connected USB drive

    b. The hard disk drive

    c. A core set of diagnostics in the BIOS (for memory and hard disk drive) that are accessible only if the USB or hard disk drive versions are not detected

Downloading HP PC Hardware Diagnostics to a USB device

NOTE: Instructions for downloading HP PC Hardware Diagnostics (UEFI) are provided in English only.

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

Option 1: HP PC Diagnostics homepage— Provides access to the latest UEFI version

1. Go to http://hp.com/go/techcenter/pcdiags.

2. Click the **UEFI Download** link, and then select **Run**.

Option 2: Support and Drivers pages—Provide downloads for a specific product for earlier and later versions

1. Go to http://www.hp.com.

2. Point to **Support**, located at the top of the page, and then click **Download Drivers**.

3. In the text box, enter the product name, and then click **Go**.

    – or –

    Click **Find Now** to let HP automatically detect your product.

4. Select your workstation model, and then select your operating system.

5. In the **Diagnostic** section, click **HP UEFI Support Environment**.

    – or –

    Click **Download**, and then select **Run**.

Before you call for technical support

WARNING! When the workstation 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 you touch them.

If you are having problems with the workstation, try the appropriate solutions as described in the previous sections and summarized below to try to isolate the exact problem before calling for technical support.

- Check the power LED on the front of the workstation to see if it is flashing and listen for a series of beeps emanating from the workstation. The flashing lights and/or beeps are error codes that will help you diagnose the problem. See the *Maintenance and Service Guide* (English only) for details.

- If the screen is blank, plug the monitor into a different video port on the workstation if one is available. Or, replace the monitor with a monitor that you know is functioning properly.

- If you are working on a network:

- Use a different network cable to connect your workstation to the network.

- Connect a different workstation with a different cable to the network.

  If your problem is not resolved, the network jack on your workstation or the network wall jack might be faulty.

- If you recently added new hardware, remove the hardware.

- If you recently installed new software, uninstall the software.

- Comprehensive online technical support is also available at http://www.hp.com/support.

- If the workstation will turn on but will not boot into the operating system, you may run the "pre-boot" diagnostics utility, HP PC Hardware Diagnostics.

- If the workstation will boot into the operating system, there are two possible tools that provide self-solve diagnostics and online chat features (if internet access is also available).

  - If you have HP Support Assistant, you may access it from the Start screen by clicking the **HP Support Assistant** app, clicking **My computer**, and then clicking **Diagnostics**.

  - If you do not have HP Support Assistant installed, you may access HP Instant Support Professional Edition at http://www.hp.com/go/ispe.

You may also access the Business Support Center (BSC) at http://www.hp.com/go/bizsupport for the latest online support information, software and drivers, for proactive notification, and access to a worldwide community of peers and HP experts.

Comprehensive online technical support is also available at http://www.hp.com/support.

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 workstation when you call.

- Before calling, write down the product ID number, workstation and monitor serial numbers, and the failure ID produced by running the diagnostics if applicable.

- 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.

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

Backing up, restoring, and recovering in Windows 10

This section provides information about the following processes. The information in the section is standard procedure for most products.

- Creating recovery media and backups

- Restoring and recovering your system

For additional information, see Help and Support.

▲ Type `help` in the taskbar search box, and then select **Help and Support**.

Creating recovery media and backups

The following methods of creating recovery media and backups are available on select products only. Choose the available method according to your workstation model.

- Use HP Recovery Manager to create HP Recovery media after you successfully set up the workstation. This step creates a backup of the HP Recovery partition on the workstation. The backup can be used to reinstall the original operating system in cases where the hard drive is corrupted or has been replaced. For information on creating recovery media, see Creating HP Recovery media (select products only) on page 45. For information on the recovery options that are available using the recovery media, see Using Windows tools on page 46.

- Use Windows tools to create system restore points and create backups of personal information.

  For more information, see Recovering using HP Recovery Manager on page 47.

📝 **NOTE:** If storage is 32 GB or less, Microsoft System Restore is disabled by default.

Creating HP Recovery media (select products only)

If possible, check for the presence of the Recovery partition and the Windows partition. From the Start menu, select **File Explorer**.

- If your workstation does not list the Windows partition and the Recovery partition, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the workstation. You can also find contact information on the HP website. Go to http://www.hp.com/support, select your country or region, and follow the on-screen instructions.

  You can use Windows tools to create system restore points and create backups of personal information, see Using Windows tools on page 46.

- If your workstation does list the Recovery partition and the Windows partition, you can use HP Recovery Manager to create recovery media after you successfully set up the workstation. HP Recovery media can be used to perform system recovery if the hard drive becomes corrupted. System recovery reinstalls the original operating system and software programs that were installed at the factory and then configures the settings for the programs. HP Recovery media can also be used to customize the system or restore the factory image if you replace the hard drive.

  ◦ Only one set of recovery media can be created. Handle these recovery tools carefully, and keep them in a safe place.

  ◦ HP Recovery Manager examines the workstation and determines the required storage capacity for the media that will be required.

  ◦ To create recovery discs, your workstation must have an optical drive with DVD writer capability, and you must use only high-quality blank DVD-R, DVD+R, DVD-R DL, or DVD+R DL discs. Do not use rewritable discs such as CD±RW, DVD±RW, double-layer DVD±RW, or BD-RE (rewritable Blu-ray) discs; they are not compatible with HP Recovery Manager software. Or, instead, you can use a high-quality blank USB flash drive.

  ◦ If your workstation does not include an integrated optical drive with DVD writer capability, but you would like to create DVD recovery media, you can use an external optical drive (purchased separately) to create recovery discs. If you use an external optical drive, it must be connected directly to a USB port on the workstation; the drive cannot be connected to a USB port on an external device, such as a USB hub. If you cannot create DVD media yourself, you can obtain recovery discs for your workstation from HP. See the *Worldwide Telephone Numbers* booklet included with the workstation. You can also find contact information on the HP website. Go to http://www.hp.com/support, select your country or region, and follow the on-screen instructions.

◦ Be sure that the workstation is connected to AC power before you begin creating the recovery media.

◦ The creation process can take an hour or more. Do not interrupt the creation process.

◦ If necessary, you can exit the program before you have finished creating all of the recovery DVDs. HP Recovery Manager will finish burning the current DVD. The next time you start HP Recovery Manager, you will be prompted to continue.

To create HP Recovery media:

1. Type `recovery` in the taskbar search box, and then select **HP Recovery Manager**.

2. If prompted, click **Yes** to allow the program to continue.

3. Select **Create recovery media**, and then follow the on-screen instructions.

If you ever need to recover the system, see Recovering using HP Recovery Manager on page 47.

Using Windows tools

You can create recovery media, system restore points, and backups of personal information using Windows tools.

NOTE: If storage is 32 GB or less, Microsoft System Restore is disabled by default.

For more information and steps, see Help and Support.

▲ Type `help` in the taskbar search box, and then select Help and Support.

Restore and recovery

There are several options for recovering your system. Choose the method that best matches your situation and level of expertise:

IMPORTANT: Not all methods are available on all products.

● Windows offers several options for restoring from backup, refreshing the workstation, and resetting the workstation to its original state. For more information see Help and Support.

▲ Type `help` in the taskbar search box, and then select **Help and Support**.

● If you need to correct a problem with a preinstalled application or driver, use the Reinstall drivers and/ or applications option (select products only) of HP Recovery Manager to reinstall the individual application or driver.

▲ Type `recovery` in the taskbar search box, select **HP Recovery Manager**, select **Reinstall drivers and/or applications**, and then follow the on-screen instructions.

● If you want to recover the Windows partition to original factory content, you can choose the System Recovery option from the HP Recovery partition (select products only) or use the HP Recovery media. For more information, see Recovering using HP Recovery Manager on page 47. If you have not already created recovery media, see Creating HP Recovery media (select products only) on page 45.

● On select products, if you want to recover the workstation's original factory partition and content, or if you have replaced the hard drive, you can use the Factory Reset option of HP Recovery media. For more information, see Recovering using HP Recovery Manager on page 47.

● On select products, if you want to remove the recovery partition to reclaim hard drive space, HP Recovery Manager offers the Remove Recovery Partition option.

For more information, see Removing the HP Recovery partition (select products only) on page 48.

Recovering using HP Recovery Manager

HP Recovery Manager software allows you to recover the workstation to its original factory state by using the HP Recovery media that you either created or that you obtained from HP, or by using the HP Recovery partition (select products only). If you have not already created recovery media, see Creating HP Recovery media (select products only) on page 45.

What you need to know before you get started

- HP Recovery Manager recovers only software that was installed at the factory. For software not provided with this workstation, you must either download the software from the manufacturer's website or reinstall the software from the media provided by the manufacturer.

> **IMPORTANT:** Recovery through HP Recovery Manager should be used as a final attempt to correct workstation issues.

- HP Recovery media must be used if the workstation hard drive fails. If you have not already created recovery media, see Creating HP Recovery media (select products only) on page 45.

- To use the Factory Reset option (select products only), you must use HP Recovery media. If you have not already created recovery media, see Creating HP Recovery media (select products only) on page 45.

- If your workstation does not allow the creation of HP Recovery media or if the HP Recovery media does not work, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the workstation. You can also find contact information from the HP website. Go to http://www.hp.com/support, select your country or region, and follow the on-screen instructions.

> **IMPORTANT:** HP Recovery Manager does not automatically provide backups of your personal data. Before beginning recovery, back up any personal data you want to retain.

Using HP Recovery media, you can choose from one of the following recovery options:

> **NOTE:** Only the options available for your workstation display when you start the recovery process.

- System Recovery—Reinstalls the original operating system, and then configures the settings for the programs that were installed at the factory.

- Factory Reset—Restores the workstation to its original factory state by deleting all information from the hard drive and re-creating the partitions. Then it reinstalls the operating system and the software that was installed at the factory.

The HP Recovery partition (select products only) allows System Recovery only.

Using the HP Recovery partition (select products only)

The HP Recovery partition allows you to perform a system recovery without the need for recovery discs or a recovery USB flash drive. This type of recovery can be used only if the hard drive is still working.

To start HP Recovery Manager from the HP Recovery partition:

1. Type `recovery` in the taskbar search box, select **Recovery Manager**, and then select **HP Recovery Environment**.

   - or -

   Press f11 while the workstation boots, or press and hold f11 as you press the power button.

2. Select **Troubleshoot** from the boot options menu.

3. Select **Recovery Manager**, select **System Recovery**, and then follow the on-screen instructions.

Using HP Recovery media to recover

You can use HP Recovery media to recover the original system. This method can be used if your system does not have an HP Recovery partition or if the hard drive is not working properly.

1. If possible, back up all personal files.

2. Insert the HP Recovery media, and then restart the workstation.

    NOTE: If the workstation does not automatically restart in HP Recovery Manager, change the workstation boot order. See Changing the workstation boot order on page 48.

3. Follow the on-screen instructions.

Changing the workstation boot order

If your workstation does not restart in HP Recovery Manager, you can change the workstation boot order, which is the order of devices listed in BIOS where the workstation looks for startup information. You can change the selection to an optical drive or a USB flash drive.

To change the boot order:

1. Insert the HP Recovery media.

2. Access BIOS.

    Restart the workstation, quickly press esc, and then press f9 for boot options.

3. Select the optical drive or USB flash drive from which you want to boot.

4. Follow the on-screen instructions.

Removing the HP Recovery partition (select products only)

HP Recovery Manager software allows you to remove the HP Recovery partition to free up hard drive space.

IMPORTANT: After you remove the HP Recovery partition, you will not be able to perform System Recovery or create HP recovery media from the HP Recovery partition. So before you remove the Recovery partition, create HP Recovery media; see Creating HP Recovery media (select products only) on page 45.

NOTE: The Remove Recovery Partition option is only available on products that support this function.

Follow these steps to remove the HP Recovery partition:

1. Type `recovery` in the taskbar search box, and then select **HP Recovery Manager**.

2. Select **Remove Recovery Partition**, and then follow the on-screen instructions.

7 Setting up and restoring Linux

HP offers a variety of Linux solutions for HP workstation customers:

- HP certifies and supports Red Hat® Enterprise Linux (RHEL) on HP workstations.

- HP certifies and supports SUSE Linux Enterprise Desktop (SLED) on HP workstations.

- HP certifies and supports Canonical Ubuntu on HP Workstations.

- HP offers a SLED 11 preload on some Z series Workstations.

- HP offers an Ubuntu preload on some Z series Workstations.

This chapter describes how to set up and restore the Linux operating system. It includes these topics:

- HP Installer Kit for Linux (HPIKL)

- Setting up Red Hat Enterprise Linux

- Setting up SUSE Linux Enterprise Desktop (SLED)

- Setting up Ubuntu

- Proprietary graphics drivers

NOTE: After you set up the operating system, be sure that the latest BIOS, drivers, and software updates are installed. See Updating the workstation on page 55.

CAUTION: Do not add optional hardware or third-party devices to the workstation until the operating system is successfully installed. Adding hardware might cause errors and prevent the operating system from installing correctly.

HP Installer Kit for Linux (HPIKL)

The HP Installer Kit for Linux helps users install certified versions of RHEL, SLED, or Ubuntu on HP workstations. It is available as an operating system option on all HP workstations.

- The kit contains tested drivers that augment and/or replace those found in RHEL, SLED, or Ubuntu, to enable proper use and behavior on HP workstations.

- The kit does not include the Linux operating system, which the user must supply. Commercial Linux distributions are available for purchase from vendors such as Red Hat and SUSE. A variety of other Linux distributions are available for free (e.g., Ubuntu). To view supported configurations and operating systems, go to http://www.hp.com/support/linux_hardware_matrix.

The HPIKL option may include a FreeDOS preload. This operating system option accommodates those who have a customized Linux distribution or who have a licensed version of RHEL, SLED, or Ubuntu and would like to install the HP-recommended driver additions.

The kit also can be downloaded using the following steps:

1. Go to http://www.hp.com/support/workstation_swdrivers.

2. Select your workstation model.

3. Select the desired operating system.

4. Select your software/driver language, and then click the **Software** quick jump link.

5. Select the **Obtain Software** link for the appropriate package (typically the most recent revision).

6. Click **I Accept** to accept the terms of the license agreement.

7. Download the software ISO image and save it on a disc. This disk is your *HP driver disc*.

Setting up Red Hat Enterprise Linux

HP Z series Workstations are certified and supported on RHEL streams appropriate to the hardware technology.

- For details of RHEL support for a particular platform, see the *Linux Hardware Matrix for HP Workstations* at http://www.hp.com/support/linux_hardware_matrix.

- For information about Red Hat certifications on HP workstations, go to https://hardware.redhat.com.

HPIKL driver disc

Recent versions of Red Hat Linux typically require only driver updates with minor fixes to support HP workstations. These releases can usually be supported with the HPIKL driver disc, which can be used as a post-installation utility for the standard Red Hat Linux install.

After you complete the standard Red Hat install and restart the system, a Red Hat *first-boot* utility runs. After you specify a number of settings (such as the security level, time and date, 'root' password, and user accounts), the utility lets you load an additional disc.

The driver disc is used during this phase. All content added by HP is in the **/HP** directory on the disc. You can use it to build your own image or to browse the HP content.

Please see /HP directory on the disk for any last-minute README pointers for elements on the disk.

NOTE: Some installations may encounter problems if they are performed with a DisplayPort connection to the monitor. This is because the default drivers that the OS installers use do not support DisplayPort functionality. If you experience problems, try overriding the monitor choice for DisplayPort during the start of the install and using the VESA driver instead. You can then set up the DisplayPort monitor later.

Installing with the HP Red Hat Linux driver disc

1. If you do not have the appropriate HP driver disc for a supported stream, create one (see HP Installer Kit for Linux (HPIKL) on page 50.)

2. Install the operating system using the optical media included in the Red Hat Linux box-set.

3. If you have a Red Hat driver disk for the OS version you are installing, enter `linux dd` when the initial install splash screen appears, and then press **Enter**.

4. When asked if you have a driver disc, select **Yes**. Place the Red Hat driver disc in the drive, and select the appropriate `drive:hd[abcd]`. Continue the normal installation.

5. After successfully installing the operating system, reboot the workstation.

   ● RHEL 6 or RHEL 7: Insert your HP driver disc. The HPIKL installation software automatically starts. Follow the on-screen instructions to install the contents.

Setting up SUSE Linux Enterprise Desktop (SLED)

HP offers a 64-bit SLED 11 preload on some Z series Workstations and supports 64-bit SLED 11 on other workstations.

Various versions of SLED are certified and supported by SUSE on HP workstations. For more information, go to the SUSE certification bulletin search page at https://www.suse.com/yessearch/Search.jsp.

Setting up preloaded SLED

To set up SLED on systems preloaded with the operating system:

1. Start the workstation.

2. When prompted, enter the workstation installation settings: password, network, graphics, time, keyboard settings, and SUSE Customer Center Configuration.

   📝 **NOTE:** You can activate your SUSE subscription from the SUSE Customer Center Configuration screen. To view the full SUSE Customer Center documentation, go to http://www.suse.com/documentation, and select your operating system.

Installing SLED with the DVD Installer Kit

1. If an HP driver disc did not come with your workstation, create one (see HP Installer Kit for Linux (HPIKL) on page 50).

2. Install the operating system using the discs included in the SUSE box-set.

3. After successfully installing the operating system, reboot the workstation.

4. Insert your HP driver disc. The HPIKL installation software automatically starts. Follow the on-screen instructions to install the contents.

Restoring SLED (preloaded systems only)

To restore SLED, you must use the SLED restore media. To create restore media:

1. Click the SUSE ISO icon on the desktop to go to the */iso* folder. This folder contains all ISO images used to preload your workstation.

2. Follow the instructions in the readme file in this folder to copy the ISO image file onto optical media.

3. Store the media in a safe place. If your workstation experiences a hard drive failure, use the ISO recovery images to restore your operating system.

⚠️ **CAUTION:** Restoring the operating system does **not** restore data. Back up your data using the method and media of your choice.

Setting up Ubuntu

HP offers a 64-bit Ubuntu 14.04 LTS preload on some Z series Workstations and supports 64-bit Ubuntu 14.04 on other workstations.

Various versions of Ubuntu are certified and supported by Canonical on HP workstations. For more information, go to the Ubuntu Desktop certified hardware search page at http://www.ubuntu.com/certification/desktop/make/HP/?category=Desktop and filter the list using the word "Workstation".

Setting up preloaded Ubuntu

To set up Ubuntu on systems preloaded with the operating system:

1. Start the workstation.

   The system boots and performs some setup activities in a non-interactive mode.

   The system then reboots and plays a short video. After the video, an initial set of settings dialogs are presented.

2. When prompted, enter the desired language and keyboard settings, time zone, first user name and identity, and the user password.

   NOTE: This initial user has privileges to become system administrator using the sudo command. There is no user root in the typical Ubuntu installation.

   After completion of the setup, the login screen appears.

3. Type the login information in the fields.

Using the HP Installer Kit Driver Disk

Ubuntu does not require registration to obtain software package updates. Updates can be obtained from various "repositories" on the web using a variety of tools built into the OS. An internet connection and proxy are all that may be required.

The HP Installer Kit for Linux driver disk for Ubuntu relies on the same mechanisms in order to satisfy dependencies during installation. So the same internet access is needed, as well as capability to elevate from the current user session to administrator privileges.

In some cases, HP-tested proprietary graphics drivers may be the only "payload" delivered by the driver disk.

1. Install the operating system from your own installation media.

   Ubuntu is available at no cost from www.ubuntu.com.

2. Restart the workstation.

3. Insert your HP driver disc. The HPIKL installation software automatically starts.

4. When prompted for the administrator password, type the password in the field.

5. Follow the onscreen instructions to install the drivers appropriate to your hardware configuration.

Restoring Ubuntu (preloaded systems only)

There are several methods available for restoration of the initial factory image. All assume the installed image is in a functional state (at least initially).

CAUTION: System image restoration involves repartitioning and rewriting the image. Applications and drivers will have to be reinstalled afterwards. The F11 and boot-loader methods described below offer you the option to have your /home data saved across the restoration. Data and configuration information in other file trees (such as /etc) are not preserved.

Restoring the operating system does not restore data. Back up your data using the method and media of your choice.

Create a restore disk or drive key

The initial image includes a tool that can create a restore image as an ISO file, which can then be burned to a bootable DVD or copied to a USB drive key. Taking this action is advisable to have media to use should the boot drive need to be replaced.

To create the ISO:

1. Log in and go to the **DASH** interface that helps you find applications.

2. Type `recovery` in the field and choose **recovery-media-creator**.

   The application starts and prompts you for the password to grant administrator privileges. It also asks where to write the ISO file.

3. After ISO creation is complete, copy or burn the ISO to your desired medium.

Use the F11 function key during system boot

While the system BIOS is initially booting, the F11 key can be pressed to go into a restoration process for the hard drive image.

Intercept the boot loader and choose the restore option

When the system boot has proceeded past the BIOS prompts, a purple border appears on the screen for a short time. If the OS boot loader is interrupted at this point using the Esc key, you should be presented with a short menu including a restore option.

Proprietary graphics drivers

Most HP workstations can be ordered with graphics cards that have been through extensive verification by HP. See the *Linux Hardware Matrix for HP Workstations* at http://www.hp.com/support/linux_hardware_matrix for a list of supported cards.

NOTE: Not all graphics cards are available on every workstation. Limitations generally occur for cards that consume large amounts of power in lower-power workstations.

Third-party proprietary graphics drivers supported by HP and the graphics vendors are available with the HP Installer Kit for Linux, with the SLED 11 and Ubuntu preloads on Z series Workstations, and from HP Workstation Support at http://www.hp.com/go/workstationsupport.

These proprietary drivers are not a standard part of the RHEL, SLED, or Ubuntu distributions because they are not open source. Driver revisions more recent than those at the HP support website are supported directly by the vendor.

8   Updating the workstation

- Updating the workstation after first boot
- Updating the BIOS
- Upgrading device drivers

HP is constantly working on improving your total workstation experience. To ensure that the workstation leverages the latest enhancements, HP recommends that you install the latest BIOS, driver, and software updates on a regular basis.

Updating the workstation after first boot

After successfully booting the workstation for the first time, follow these guidelines to be sure that the workstation is up-to-date:

- Be sure that you have the latest system BIOS version loaded. See Updating the BIOS on page 55.
- Be sure that you have the latest drivers for your system. See Upgrading device drivers on page 56.
- Become familiar with your available HP resources.
- Consider a subscription to Driver Alerts at http://www.hp.com/go/subscriberschoice.

Updating the BIOS

For optimum performance, determine the BIOS version on the workstation, and upgrade it if necessary.

Determining the current BIOS version

To determine the current BIOS version:

1. Press Esc during startup (boot).
2. Press F10 to enter Computer Setup (F10).
3. Select **File > System Information**. Note the workstation BIOS version.

   NOTE: For procedures for upgrading the BIOS as well as the Computer Setup (F10) BIOS Menu settings, see the *Maintenance and Service Guide* at http://www.hp.com/support/workstation_manuals.

Upgrading BIOS

To find and download the latest available BIOS version, which includes the latest enhancements:

1. Go to http://www.hp.com/go/workstationsupport.

2. In the **Download options** tab, select **drivers, software & firmware**.

3. Follow the instructions to locate the latest BIOS version available for the workstation.

4. Compare the BIOS version on your workstation to the BIOS versions on the website (see Determining the current BIOS version on page 55). If the BIOS version on the website is the same as the version on your system, no further action is required.

5. If the BIOS version on the website is a version later than the one on your system, download the appropriate version for the workstation. Follow the instructions in the release notes to complete the installation.

Upgrading device drivers

If you install a peripheral device (such as a printer, display adapter, or network adapter), confirm that you have the latest device drivers loaded. If you purchased your device through HP, go to the HP website to download the latest drivers for your device. These drivers have been tested to ensure the best compatibility between your device and your HP workstation.

If you did not purchase your device from HP, HP recommends that you go to the HP website first to see if your device and its drivers have been tested for HP workstation compatibility. If no driver is available, go to the device manufacturer's website to download the latest drivers.

To upgrade device drivers:

1. Go to http://www.hp.com/go/workstationsupport and specify your product.

2. Follow the instructions to find the latest drivers available for the workstation.

If a required driver is not found, see the website of the manufacturer of the peripheral device.

9 Diagnostics and minor troubleshooting

Calling support

At times you might encounter an issue that requires support. Before you call support:

- Have the workstation readily accessible.

- Write down the workstation serial numbers, product numbers, model names, and model numbers and have them in front of you.

- Note any applicable error messages.

- Note any add-on options.

- Note the operating system.

- Note any third-party hardware or software.

- Note the details of any blinking lights on the front of the workstation (tower and desktop configurations) or on the side of the workstation (all-in-one configurations).

- Note the applications you were using when you encountered the problem.

NOTE: When calling in for service or support, you might be asked for the product number (example: PS988AV) of the workstation. If the workstation has a product number, it is generally located next to the 10- or 12-digit serial number of the workstation.

NOTE: The serial number and product number labels can be found on a pull-out card at the side of the display.

For a listing of all worldwide support phone numbers, go to http://www.hp.com/support, select your region, and then, in the upper-right corner, select **Connect with HP**.

Locating ID labels

To assist in troubleshooting, product, serial, and authentication numbers are available on each workstation.

- All workstations have a serial number (unique for each workstation) and product number. Have these numbers available when you contact support.

- The Certificate of Authentication (COA) is used only for systems with Windows 7 preinstalled.

- The Genuine Microsoft Label (GML) is used only for systems with Windows 8 preinstalled.

- A service label shows the build ID and Feature Byte strings, which are needed for system board replacement.

The all-in-one service label can be found in the location shown in the figure below (pull-out card).

Locating warranty information

To locate base warranty information, go to http://www.hp.com/support/warranty-lookuptool.

To locate an existing Care Pack, go to http://www.hp.com/go/lookuptool.

To extend a standard product warranty, go to http://www.hp.com/hps/carepack. HP Care Pack Services offer upgraded service levels to extend and expand a standard product warranty.

HP troubleshooting resources and tools

This section provides information to guide you in troubleshooting your system.

Online support

Online support resources include web-based troubleshooting tools, technical knowledge databases, driver and patch downloads, online communities, and product change notification services.

The following websites are also available to you:

- http://www.hp.com—Provides useful product information.

- http://www.hp.com/support/workstation_manuals—Provides the latest online documentation.

- http://www.hp.com/go/workstationsupport—Provides technical support information for workstations.

- http://www8.hp.com/us/en/contact-hp/phone-assist.html—Provides a listing of the worldwide technical support telephone numbers. Select your region.

- http://www.hp.com/support/workstation_swdrivers—Provides access to software and drivers for workstations.

HP Support Center

To help you troubleshoot problems yourself, HP provides the HP Support Center. The HP Support Center is a portal to an extensive selection of online tools. To access the HP Support Center, complete the following steps:

1. Go to http://www.hp.com/go/workstationsupport.

2. Search for your product.

3. In the **Top issues & solutions** tab, under **Other solution options**, select **Troubleshoot a problem**.

4. Select the problem that you are troubleshooting.

HP Chat Support

HP Chat Support is a set of web-based support tools that automate and speed up the resolution of problems concerning desktop computing, tape storage, and printing.

HP Chat Support enables you to electronically submit a support ticket to HP over the web. When you submit a support ticket, HP Chat Support collects information about the workstation and passes it to an online support specialist. The collection of information might take up to 30 seconds, depending on the workstation configuration. When you submit a support ticket, you receive a confirmation message containing your case ID, the support hours for your location, and the estimated time of response.

For more information about HP Chat Support, go to http://instantsupport.hp.com/.

NOTE: This feature is not available for Linux.

Customer Advisories, Customer and Security Bulletins, and Customer Notices

To find advisories, bulletins, and notices:

1. Go to http://www.hp.com/go/workstationsupport.

2. Search for your product.

3. In the **Top issues & solutions** tab, under **Other solution options**, select **Advisories, bulletins & notices**.

4. Select an item for viewing.

Product Change Notifications

Product Change Notifications (PCNs) are proactive notifications for product changes occurring within a 30- to 60-day window of the effective date of the change in the manufacturing process. PCNs give customers advance notice of changes to their product, such as an updated BIOS version that they might need to decide whether to download prior to the change taking place. To view a list of PCNs, go to the **Advisories, Bulletins & Notices** page for your product.

Helpful hints

If you encounter a problem with the workstation, monitor, or software, the following general suggestions might help you isolate and focus on the problem before taking further action.

At startup

- Verify that the workstation is plugged into a functional AC outlet.

- Remove all optical discs and USB flash drives before starting the workstation.

- Verify that the workstation is on and the power light is on.

- If you have installed an operating system other than the factory-installed operating system, confirm that it is supported on your system by going to http://www.hp.com/go/quickspecs.

- Verify that the internal display panel is lit.

- If the internal display panel is dim, turn up the brightness.

- If you have an external monitor:

   ◦ Verify that the monitor is plugged into a functional AC outlet.

   ◦ Verify that the monitor is on and the green monitor light is on.

   ◦ If the monitor is dim, turn up the brightness and contrast controls.

During operation

- Beeps and blinking lights on the workstation are error codes that can help you diagnose problems. For more information on interpreting these codes, see the *Diagnostic LED and audible (beep) codes* section in the *Maintenance and Service Guide* for your workstation.

- Press and hold any key. If the system beeps, your keyboard is operating correctly.

- Check all cables for loose or incorrect connections.

- Wake the workstation by pressing the power button or any key on the keyboard. If the system remains in suspend mode, shut down the system by pressing and holding the power button for at least four seconds. Then press the power button again to restart the system.

   If the system does not shut down, unplug the power cord, wait a few seconds, and then plug it in again. If the system does not restart, press the power button.

- After installing a non-PnP expansion board or other option (such as a diskette drive), restart the workstation.

- Be sure that all required device drivers have been installed. For example, if you have connected a printer, you must install a printer driver.

- If you are working on a network, use another cable to plug your workstation into the network connection. If you still cannot connect, there might be a problem with the network plug.

- If you recently added new hardware, remove the hardware to see whether the workstation functions properly.

- If you recently installed new software, uninstall the software to see whether the workstation functions properly.

- If the internal display panel on an all-in-one workstation is blank, open the workstation and be sure that both ends of the cable between the system board and the internal display panel are connected. If you are using a graphics card, verify that the card is properly installed.

- Upgrade the BIOS. A new release of the BIOS might have been released that supports new features or fixes your problem.

- For more detailed information, see the troubleshooting chapter in the *Maintenance and Service Guide* at http://www.hp.com/support/workstation_manuals.

Customer Self Repair

Under the Customer Self Repair programs, you can order a replacement part and install the part without on-site HP technical assistance. Customer Self Repair might be required for some components. For more information, go to http://www.hp.com/go/selfrepair and select your product.

NOTE: Some components are not eligible for Customer Self Repair and must be returned to HP for service. Call support for further instructions before attempting to remove or repair these components.

More troubleshooting options

The following additional information about troubleshooting techniques and tools is provided in the *Maintenance and Service Guide* at http://www.hp.com/support/workstation_manuals:

- POST Error Codes.

- Diagnostic lights and audible (beep) codes.

- Troubleshooting scenarios and solutions.

- HP PC Hardware Diagnostics (UEFI) — A set of diagnostic tests that helps determine whether the hardware is functioning properly.

10 Routine Care

The cleaning methods listed below are applicable to both the touch and the non-touch models of the HP Z1 G2 Workstation.

General cleaning safety precautions

- Never use solvents or flammable solutions to clean the workstation.

- Never immerse any component in water or cleaning solutions; apply any liquids to a clean cloth and then use the cloth on the workstation.

- Always unplug the workstation before cleaning the keyboard, mouse, or air vents.

- Always disconnect the keyboard before cleaning it.

- Wear safety glasses equipped with side shields when using compressed air, to prevent dust and debris from getting into your eyes.

Cleaning products

Use the following products to safely clean your workstation:

- Dimethyl benzyl ammonium chloride 0.3 percent maximum concentration, usually in the form of disposable wipes in a variety of brand names

- Alcohol-free glass cleaning fluid

- Water with mild soap solution

- Dry microfiber cleaning cloth or a chamois (static-free cloth without oil)

- Static-free cloth wipes

⚠ **CAUTION:** Avoid strong cleaning solvents that can permanently damage your workstation. If you are not sure if a cleaning product is safe for your workstation, check the product contents to be sure that ingredients such as alcohol, acetone, ammonium chloride, methylene chloride, and hydrocarbons are not included.

- Fibrous materials, such as paper towels, can scratch the workstation. Over time, dirt particles and cleaning agents can get trapped in the scratches.

Cleaning the chassis

- Follow the safety precautions in the *Maintenance and Service Guide* for your workstation before cleaning the workstation.

- To remove light stains or dirt, use plain water with a clean, lint-free cloth or swab.

- For stronger stains, use a soft microfiber cloth or chamois moistened with mild dish washing liquid diluted with water. Rinse well by wiping the surface with a cloth or swab dampened with clear water.

- After cleaning, always wipe the workstation with a clean, lint-free cloth.

- Occasionally, clean the air vents on the workstation. Lint and other foreign matter can block the vents and limit the airflow.

Cleaning the keyboard

- If the keyboard has an on/off switch, turn it off.

- Follow the safety precautions in the *Maintenance and Service Guide* for your workstation before cleaning the keyboard.

- Visible debris underneath or between the keys can be removed by vacuuming or shaking.

- Canned, pressurized air can be used to clean debris from under the keys. Use caution because too much air pressure can dislodge lubricants applied under the wide keys.

- If you remove a key, use a specially designed key remover to prevent damage to the keys. This tool is available from many electronic supply outlets.

⚠ **CAUTION:** Never remove a wide key (like the space bar key) from the keyboard. If these keys are improperly removed or installed, the keyboard might not function properly.

- Clean under a key with a swab moistened with one of the products mentioned in Cleaning products on page 63 of this guide. Be careful not to wipe away lubricants necessary for proper key functions. Allow the parts to air dry before reassembly.

- Use tweezers to remove any fibers or dirt in confined areas.

Cleaning the monitor

- Follow the safety precautions in the *Maintenance and Service Guide* for your workstation before cleaning the monitor.

- Gently wipe the display using a soft, lint-free cloth moistened with water or an alcohol-free glass cleaner.

⚠ **CAUTION:** Do not use sprays or aerosols directly on the screen—the liquid might seep into the housing and damage a component.

Never use solvents or flammable liquids on the monitor because display or housing damage may result.

Cleaning the mouse

1. Follow the safety precautions in the *Maintenance and Service Guide* for your workstation before cleaning the mouse.

2. If the mouse has an on/off switch, turn it off.

3. Wipe the body of the mouse with a soft microfiber cloth or chamois moistened with alcohol-free glass cleaning fluid or water with mild soap solution.

4. Note these guidelines:

   - Laser or light: use a cotton swab dampened with cleaning solution to gently brush out any dust around the laser or light, and then wipe again with a dry swab. Do not wipe the laser or light directly with the swab.

   - Scroll wheel: spray canned, pressurized air into the gap between the scroll wheel and the click buttons. To avoid condensation, do not blow air directly on one spot for an extended period.

   - Roller ball: remove and clean the roller ball, remove any debris from the ball socket, wipe out the socket with a dry cloth, and reassemble the mouse.

11 Accessibility

HP designs, produces, and markets products and services that can be used by everyone, including people with disabilities, either on a stand-alone basis or with appropriate assistive devices.

Supported assistive technologies

HP products support a wide variety of operating system assistive technologies and can be configured to work with additional assistive technologies. Use the Search feature on your device to locate more information about assistive features.

NOTE: For additional information about a particular assistive technology product, contact customer support for that product.

Contacting support

We are constantly refining the accessibility of our products and services and welcome feedback from users. If you have an issue with a product or would like to tell us about accessibility features that have helped you, please contact us at (888) 259-5707, Monday through Friday, 6 a.m. to 9 p.m. Mountain Time. If you are deaf or hard-of-hearing and use TRS/VRS/WebCapTel, contact us if you require technical support or have accessibility questions by calling (877) 656-7058, Monday through Friday, 6 a.m. to 9 p.m. Mountain Time.

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