User Guide

© Copyright 2017 HP Development Company, L.P.

Adobe Photoshop and Illustrator are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other coutnries. Bluetooth is a trademark owned by its proprietor and used by HP Inc. under license. Intel and Thunderbolt are trademarks of Intel Corporation in the U.S. and other countries. Windows is either a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries.

The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

First Edition: July 2017

Document Part Number: 913263–001

Product notice

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

Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows 10 is automatically updated, which is always enabled. ISP fees may apply and additional requirements may apply over time for updates. See http://www.microsoft.com.

To access the latest user guides or manuals for your product, go to http://www.hp.com/support. Select **Find your product**, and then follow the on-screen instructions.

Software terms

By installing, copying, downloading, or otherwise using any software product preinstalled on this computer, you agree to be bound by the terms of the HP End User License Agreement (EULA). If you do not accept these license terms, your sole remedy is to return the entire unused product (hardware and software) within 14 days for a full refund subject to the refund policy of your seller.

For any further information or to request a full refund of the price of the computer, please contact your seller.

Your product does not support Windows 8 or Windows 7. In accordance with Microsoft's support policy, HP does not support the Windows 8 or Windows 7 operating system on this product or provide any Windows 8 or Windows 7 drivers on http://support.hp.com.

Safety warning notice

WARNING! To reduce the possibility of heat-related injuries or of overheating the computer, do not place the computer directly on your lap or obstruct the computer air vents. Use the computer only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to come into contact with the skin or a soft surface, such as pillows or rugs or clothing, during operation. The computer and the AC adapter comply with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950).

Table of contents

1 Welcome 1

Finding information 2

2 Components 4

Locating hardware 4

Locating software 4

Right 4

Left 6

Front 7

Keyboard base components 10

TouchPad 10

Lights 11

Keyboard connectors, button, and status light 11

Special keys 13

Action keys 14

Hot keys 15

USB port and smart card reader/pen holder slot (select products only) 15

Connecting the tablet to the keyboard base 16

Removing the tablet from the keyboard base 17

Using the keyboard wirelessly 17

Setting the Bluetooth pairing automatically 17

Setting the Bluetooth pairing manually 18

Top 19

Bottom 19

Rear 19

Labels 20

Optional pen 21

3 Network connections 23

Connecting to a wireless network 23

Using the wireless controls 23

Wireless button 23

Operating system controls 23

Connecting to a WLAN 24

Using HP Mobile Broadband (select products only) 24

Using HP Mobile Connect Pro (select products only) 25

Using GPS (select products only) 25
Using Bluetooth wireless devices (select products only) 25
Connecting Bluetooth devices 25
Using NFC to share information (select products only) 25
Sharing 26
Connecting to a wired network 27
Connecting to a local area network (LAN) (select products only) 27
Using HP LAN-WLAN Protection (select products only) 28
Turning on and customizing HP LAN-WLAN Protection 28
Using HP MAC Address Manager to identify your computer on a network (select products only) 28
Turning on and customizing the system MAC address 28

4 Navigating the screen 30
Using TouchPad and touch screen gestures 30
Tap 30
Two-finger pinch zoom 31
Two-finger slide (TouchPad only) 31
Two-finger tap (TouchPad only) 31
Four-finger tap (TouchPad only) 31
Three-finger swipe (TouchPad only) 32
One-finger slide (touch screen only) 33
Using an optional keyboard or mouse 33
Using an on-screen keyboard (select products only) 33

5 HP ZBook x2 Control software 34
Installing the HP ZBook x2 Control software 34
Starting the HP ZBook x2 Control software 34
Customizing tools 34
Programming the Quick Keys 34
Customizing the optional pen 35
Advanced customizing for the pen 35
Customizing the eraser 36
Button functions 36
Calibrating the pen 38
Setting advanced options 38
Adding applications 38
Customizing the on-screen control menu 39
Adding devices 40
Adding tools 40
Viewing button mappings 40
Backing up and restoring settings 41

Importing expert settings 41
Updating the HP ZBook x2 Control software 42
Determining the software version 42
Downloading a software update 42
Troubleshooting 43

6 Entertainment features 44
Using a camera (select products only) 44
Using audio 44
Connecting speakers 44
Connecting headphones 44
Connecting headsets 45
Using sound settings 45
Using video 45
Connecting video devices using a USB Type-C cable (select products only) 46
Connecting video devices using an HDMI cable (select products only) 47
Setting up HDMI audio 47
Discovering and connecting to Miracast-compatible wireless displays (select products only) 48
Discovering and connecting to Intel WiDi certified displays (select Intel products only) 48

7 Managing power 49
Using Sleep and Hibernation 49
Initiating and exiting Sleep 49
Initiating and exiting Hibernation (select products only) 50
Shutting down (turning off) the computer 50
Using the Power icon and Power Options 51
Running on battery power 51
Using HP Fast Charge (select products only) 51
Displaying battery charge 52
Finding battery information in HP Support Assistant (select products only) 52
Conserving battery power 52
Identifying low battery levels 52
Resolving a low battery level 53
Resolving a low battery level when external power is available 53
Resolving a low battery level when no power source is available 53
Resolving a low battery level when the computer cannot exit Hibernation 53
Factory-sealed battery 53
Running on external power 53
Managing power for the keyboard base 54
Viewing battery charge 54
Resolving a keyboard low battery level 54

8 Security 55
Protecting the computer 55
Using passwords 55
Setting passwords in Windows 56
Setting passwords in Computer Setup 57
Managing a BIOS administrator password 57
Entering a BIOS administrator password 59
Using DriveLock Security Options 59
Selecting Automatic DriveLock (select products only) 59
Enabling Automatic DriveLock 59
Disabling Automatic DriveLock 60
Entering an Automatic DriveLock password 60
Selecting manual DriveLock 60
Setting a DriveLock master password 61
Enabling DriveLock and setting a DriveLock user password 61
Disabling DriveLock 62
Entering a DriveLock password 62
Changing a DriveLock password 62
Using Windows Hello (select products only) 63
Using antivirus software 63
Using firewall software 63
Installing software updates 64
Using HP Client Security (select products only) 64
Using HP Touchpoint Manager (select products only) 64
Using an optional security cable (select products only) 64
Using a fingerprint reader (select products only) 65
Locating the fingerprint reader 65

9 Maintenance 66
Improving performance 66
Using Disk Defragmenter 66
Using Disk Cleanup 66
Using HP 3D DriveGuard (select products only) 66
Identifying HP 3D DriveGuard status 67
Updating programs and drivers 67
Cleaning your computer 67
Cleaning procedures 67
Cleaning the display 68
Cleaning the sides or cover 68
Cleaning the TouchPad, keyboard, or mouse (select products only) 68

Traveling with or shipping your computer 68

10 Backing up, restoring, and recovering 70

Creating recovery media and backups 70

Creating HP Recovery media (select products only) 70

Using Windows tools 71

Restore and recovery 72

Recovering using HP Recovery Manager 72

What you need to know before you get started 72

Using the HP Recovery partition (select products only) 73

Using HP Recovery media to recover 73

Changing the computer boot order 74

Removing the HP Recovery partition (select products only) 74

11 Computer Setup (BIOS), TPM, and HP Sure Start 75

Using Computer Setup 75

Starting Computer Setup 75

Navigating and selecting in Computer Setup 75

Restoring factory settings in Computer Setup 75

Updating the BIOS 77

Determining the BIOS version 77

Downloading a BIOS update 77

Changing the boot order using the f9 prompt 78

TPM BIOS settings (select products only) 78

Using HP Sure Start (select products only) 78

12 Using HP PC Hardware Diagnostics (UEFI) 80

Downloading HP PC Hardware Diagnostics (UEFI) to a USB device 80

13 Specifications 82

Input power 82

Operating environment 82

14 Electrostatic Discharge 83

15 Accessibility 84

Supported assistive technologies 84

Contacting support 84

Index 85

1 Welcome

After you set up and register the computer, we recommend the following steps to get the most out of your smart investment:

- **TIP:** To quickly return to the computer Start screen from an open app or the Windows desktop, press the Windows key on your keyboard. Pressing the Windows key again will return you to the previous screen.
- **Connect to the Internet**—Set up your wired or wireless network so that you can connect to the Internet. For more information, see Network connections on page 23.
- **Update your antivirus software**—Protect your computer from damage caused by viruses. The software is preinstalled on the computer. For more information, see Using antivirus software on page 63.
- **Get to know your computer**—Learn about your computer features. See Components on page 4 and Navigating the screen on page 30 for additional information.
- **Find installed software**—Access a list of the software preinstalled on the computer:

  Select the **Start** button.

  – or –

  Right-click the **Start** button, and then select **Apps and Features**.
- Back up your hard drive by creating recovery discs or a recovery flash drive. See Backing up, restoring, and recovering on page 70.

Finding information

To locate resources that provide product details, how-to information, and more, use this table.

Resource	Contents
Setup Instructions	• Overview of computer setup and features
HP support For HP support, go to http://www.hp.com/support.	• Online chat with an HP technician • Support telephone numbers • Replacement parts videos (select products only) • Maintenance and service guides • HP service center locations
Safety & Comfort Guide To access this guide: ▲ Select the **Start** button, select **HP Help and Support**, and then select **HP Documentation**. – or – ▲ Select the **Start** button, select **HP**, and then select **HP Documentation**. – or – ▲ Go to http://www.hp.com/ergo. **IMPORTANT:** You must be connected to the Internet to access the latest version of the user guide.	• Proper workstation setup • Guidelines for posture and work habits that increase your comfort and decrease your risk of injury • Electrical and mechanical safety information
Regulatory, Safety and Environmental Notices To access this document: ▲ Select the **Start** button, select **HP Help and Support**, and then select **HP Documentation**. – or – ▲ Select the **Start** button, select **HP**, and then select **HP Documentation**.	• Important regulatory notices, including information about proper battery disposal, if needed.
*Limited Warranty** To access this document: ▲ Select the **Start** button, select **HP Help and Support**, and then select **HP Documentation**. – or – ▲ Select the **Start** button, select **HP**, and then select **HP Documentation**. – or – ▲ Go to http://www.hp.com/go/orderdocuments. **IMPORTANT:** You must be connected to the Internet to access the latest version of the user guide.	• Specific warranty information about this computer

*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

Resource	Contents
write to HP at POD, PO Box 161, Kitchener Road Post Office, Singapore 912006. Include your product name, and your name, phone number, and postal address.	

2 Components

Your computer features top-rated components. This chapter provides details about your components, where they're located, and how they work.

Locating hardware

To find out what hardware is installed on your computer:

▲ Type `device manager` in the taskbar search box, and then select the **Device Manager** app.

A list displays all the devices installed on your computer.

For information about system hardware components and the system BIOS version number, press fn+esc (select products only).

Locating software

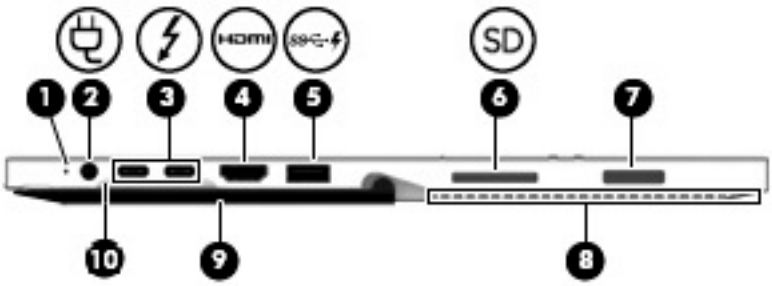
To find out what software is installed on your computer:

▲ Select the **Start** button.

– or –

Right-click the **Start** button, and then select **Apps and Features**.

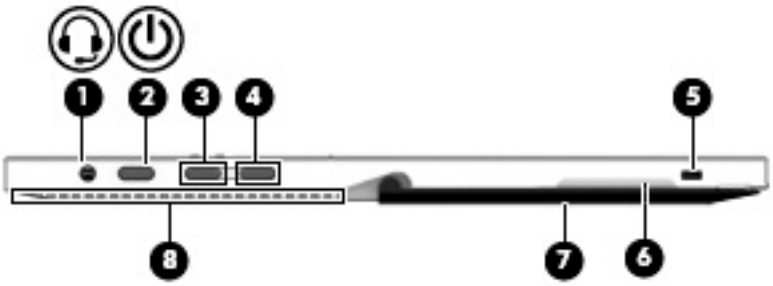
Right



Component		Description
(1)	Battery light	When AC power is connected: • White: The battery charge is greater than 90 percent. • Amber: The battery charge is from 0 to 90 percent. • Off: The battery is not charging. When AC power is disconnected (battery not charging): • Blinking amber: The battery has reached a low battery level. When the battery has reached a critical battery level, the battery light begins blinking rapidly. • Off: The battery is not charging.

Component			Description
(2)		Power connector	Connects an AC adapter.
(3)		USB Type-C Thunderbolt™ ports (2)	Connect an AC adapter that has a USB Type-C connector, supplying power to the computer and, if needed, charging the computer battery. – and – Connect and charge most USB devices that have a Type-C connector, such as a cell phone, camera, activity tracker, or smartwatch, and provides high-speed data transfer. **NOTE:** Cables and/or adapters (purchased separately) may be required. – and – Connect a display device that has a USB Type-C connector, providing DisplayPort output. **NOTE:** Your computer may also support a Thunderbolt docking station.
(4)		HDMI port	Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed High Definition Multimedia Interface (HDMI) device.
(5)		USB 3.x SuperSpeed port with HP Sleep and Charge	Connects a USB device, provides high-speed data transfer, and even when the computer is off, charges most products such as a cell phone, camera, activity tracker, or smartwatch.
(6)		Memory card reader	Reads optional memory cards that store, manage, share, or access information. To insert a card: 1. Hold the card label-side up, with the connectors facing the computer. 2. Insert the card into the memory card reader, and then press in on the card until it is firmly seated. To remove a card: ▲ Press in on the card, and then remove it from the memory card reader.
(7)		Fingerprint reader (select products only)	Allows a fingerprint logon to Windows®, instead of a password logon.
(8)		Vents	Enable airflow to cool internal components. **NOTE:** The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(9)		Kickstand	Provides stability and a variety of viewing angles.
(10)		Kickstand access tab	Provides access to lift the kickstand away from the back of the computer.

Left



Component			Description
(1)		Audio-out (headphone)/Audio-in (microphone) combo jack	Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional standalone microphones. **WARNING!** To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, refer to the *Regulatory, Safety, and Environmental Notices.* To access this guide: 1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app. – or – Click the question mark icon in the taskbar. 2. Select **My PC**, select the **Specifications** tab, and then select **User Guides**. **NOTE:** When a device is connected to the jack, the computer speakers are disabled.
(2)		Power button	• When the computer is off, press the button to turn on the computer. • When the computer is on, press the button briefly to initiate Sleep. • When the computer is in the Sleep state, press the button briefly to exit Sleep. • When the computer is in Hibernation, press the button briefly to exit Hibernation. **CAUTION:** Pressing and holding down the power button results in the loss of unsaved information. If the computer has stopped responding and shutdown procedures are ineffective, press and hold the power button for at least 5 seconds to turn off the computer. To learn more about your power settings, see your power options. ▲ Right-click the **Power meter** icon and then select **Power Options**.
(3)		Volume up button	Increases speaker volume incrementally while you hold down the button.

Component		Description
(4)	Volume down button	Decreases speaker volume incrementally while you hold down the key.
(5)	Security cable slot	Attaches an optional security cable to the computer. **NOTE:** The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.
(6)	Kickstand access tab	Provides access to lift the kickstand away from the back of the computer.
(7)	Kickstand	Provides stability and a variety of viewing angles.
(8)	Vents	Enable airflow to cool internal components. **NOTE:** The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.

Front

Component		Description
(1)	Quick Key programmable button	Press the button for a programmed action. The default action is Button Info, which displays the interactive Virtual Desktop overlay for the programmable buttons and optional pen. The overlay displays what function each button is mapped to perform. For more information, see Viewing button mappings on page 40. To program the button settings, see HP ZBook x2 Control software on page 34.
(2)	Quick Key programmable button	Press the button for a programmed action. The default action is Undo. To program the button settings, see HP ZBook x2 Control software on page 34.
(3)	Quick Key programmable button	Press the button for a programmed action. The default action is Touch On/Off, which toggles the touch option on or off.

Component		Description
		To program the button settings, see HP ZBook x2 Control software on page 34.
(4)	Left Quick Key Mode select button	Press the button to cycle through the three Mode options for the Quick Key Mode change buttons. The Quick Key Mode lights display which of the three Modes are active. The default setting controls only the left buttons. The left and right can be changed to mirror selections; see HP ZBook x2 Control software on page 34. This button also works like a mouse click; use it to make a selection.
(5)	Quick Key Mode change down button	Press the button to execute the Mode action. There are three actions, which depend on the Mode selected. Use the Quick Key Mode select button to choose the mode. The Quick Key Mode lights show which Mode is active. The default actions are: • Switch the Virtual Desktop left • Snap the current window left • Display File Explorer To program the Mode settings, see HP ZBook x2 Control software on page 34.
(6)	Quick Key Mode change mode up button	Press the button to execute the Mode action. There are three actions, which depend on the Mode selected. Use the Quick Key Mode select button to choose the mode. The Quick Key Mode lights show which Mode is active. The default actions are: • Switch the Virtual Desktop right • Snap the current window right • Display Desktop To program the Mode settings, see HP ZBook x2 Control software on page 34.
(7)	Quick Key Mode lights	On: The Mode is in use. In the default setting, the left Mode light displays when the left Quick Key Mode select button is used, and the right mode light displays when the right Quick Key Mode select button is used. The lights cycle to the next light each time the button is pressed, which corresponds to the function the Quick Key Mode button is set to perform.
(8)	WLAN antennas*	Send and receive wireless signals to communicate with wireless local area networks (WLANs).
(9)	Camera lights (select products only)	On: One or more cameras are in use.
(10)	Internal microphones	Record sound.
(11)	Cameras (select products only)	Allow you to video chat, record video, and record still images. To use your camera, see Using a camera (select products only) on page 44. Some cameras also allow a facial recognition logon to Windows, instead of a password logon. For more information, see Using Windows Hello (select products only) on page 63. **NOTE:** Camera functions vary depending on the camera hardware and software installed on your product.
(12)	Right Quick Key Mode select button	Press the button to cycle through the three Mode options for the Quick Key Mode change buttons. The Quick Key Mode lights display which of the three Modes are active.

Component		Description
		The default setting controls only the right buttons. The left and right can be changed to mirror selections; see HP ZBook x2 Control software on page 34. This button also works like a mouse click; use it to make a selection.
(13)	Quick Key programmable button	Press the button to execute the programmed action. The default action is Screen Rotation Lock, which toggles screen rotation on or off. To program the button settings, see HP ZBook x2 Control software on page 34.
(14)	Quick Key programmable button	Press the button to execute the programmed action. The default is Action Center, which displays the Windows Action Center. To program the button settings, see HP ZBook x2 Control software on page 34.
(15)	Quick Key programmable button	Press the button to execute the programmed action. The default action is Cortana Voice, which starts the Windows personal assistant. To program the button settings, see HP ZBook x2 Control software on page 34.

*The antennas are not visible from the outside of the computer, and antenna location varies. For optimal transmission, keep the areas immediately around the antennas free from obstructions.

For wireless regulatory notices, see the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region.

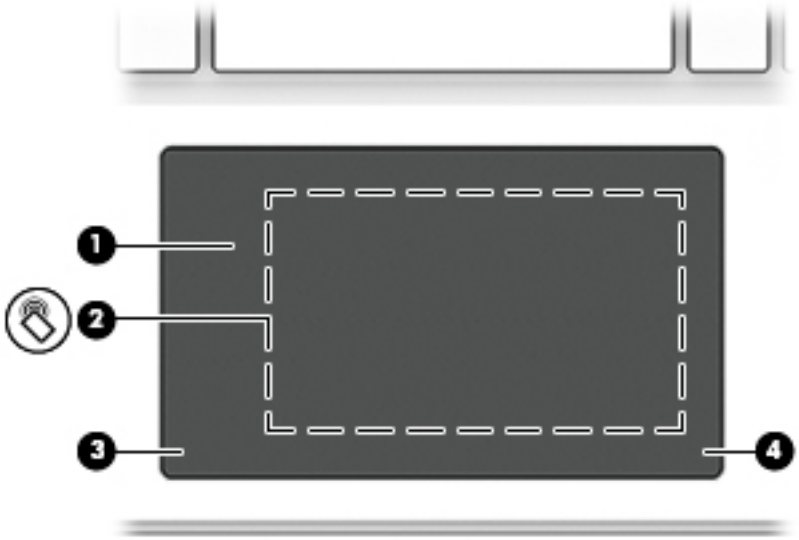
To access this guide:

▲ Select the **Start** button, select **All apps** (required on some products), select **HP Help and Support**, and then select **HP Documentation**.

Keyboard base components

Your tablet supports a keyboard. This section provides information about the features of the keyboard.

TouchPad



Component		Description
(1)	TouchPad zone	Reads your finger gestures to move the pointer or activate items on the screen.
(2)	Near Field Communications (NFC) tapping area and antenna*	Allows you to wirelessly share information when you tap it with an NFC-enabled device.
(3)	Left TouchPad click area	Functions like the left button on an external mouse.
(4)	Right TouchPad click area	Functions like the right button on an external mouse.

*The antenna is not visible from the outside of the computer. For optimal transmission, keep the area immediately around the antenna free from obstructions.

For wireless regulatory notices, see the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region.

To access this guide:

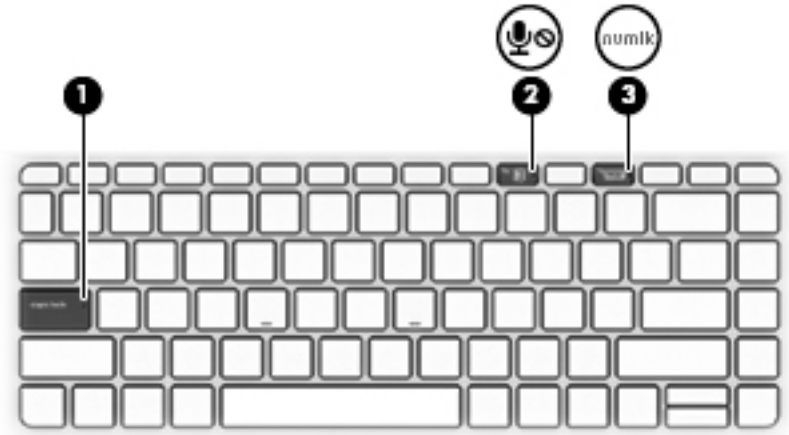
1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.

   – or –

   Click the question mark icon in the taskbar.

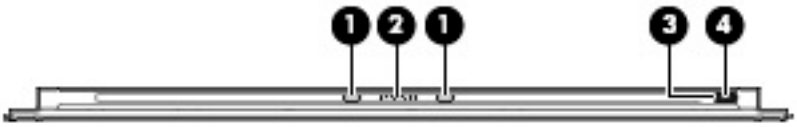
2. Select **My PC**, select the **Specifications** tab, and then select **User Guides**.

Lights



Component			Description
(1)		Caps lock light	On: Caps lock is on, which switches the keys to all capital letters.
(2)		Microphone mute light	• Amber: Microphone sound is off. • Off: Microphone sound is on.
(3)		Num lock light	On: Num lock is on.

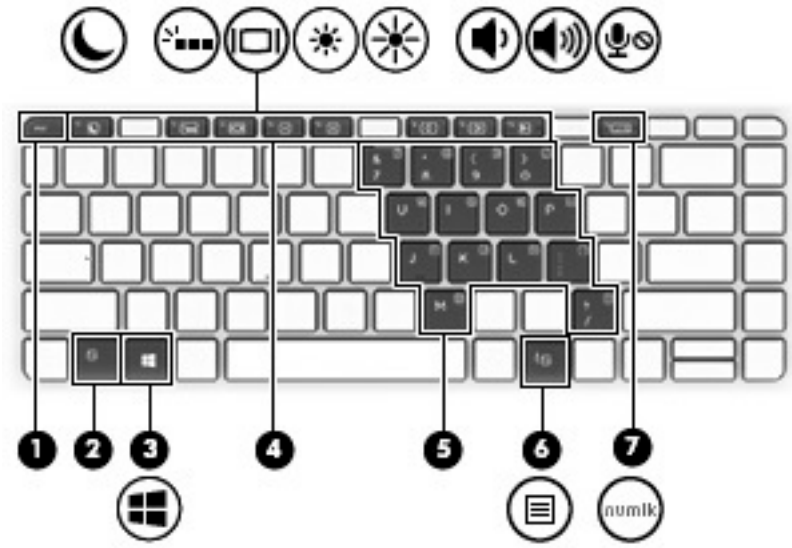
Keyboard connectors, button, and status light



Component			Description
(1)		Alignment posts (2)	Connect to the alignment connectors on the tablet.
(2)		Docking connector	Connects the keyboard to the tablet. The keyboard battery charges automatically when it is connected to the tablet using this connector.
(3)		Keyboard button	Turns the keyboard on or off. The button is also used for manual Bluetooth® pairing.
(4)		Keyboard status light	When AC power is connected: • Red: The keyboard battery charge is less than 10 percent. • White: The keyboard battery is charging using the micro-USB port, and the battery charge is from 10 to 99 percent. • Blue: The keyboard is connected to the tablet using Bluetooth, and the battery charge is 100 percent. • Blinking blue: The keyboard is pairing using Bluetooth, and the battery charge is 100 percent. • Off: The keyboard is off.

Component	Description
	When AC power is disconnected (the battery is not charging): • Red: The keyboard battery charge is less than 10 percent. • Blinking red: The keyboard battery charge is less than 5 percent. • Blue: The keyboard is connected to the tablet using Bluetooth, and the keyboard battery charge is from 10 to 100 percent. • Blinking blue: The keyboard is pairing using Bluetooth, and the keyboard battery charge is from 10 to 100 percent. • Off: The keyboard is off. **NOTE:** If the keyboard does not have enough power to start when the keyboard button is pressed, the light will blink red several times and then turn off.

Special keys



Component			Description
(1)		esc key	Displays system information when pressed in combination with the fn key.
(2)		fn key	Executes frequently used system functions when pressed in combination with another key. Such key combinations are called *action keys* and *hot keys*. See Action keys on page 14 and Hot keys on page 15.
(3)		Windows key	Opens the **Start** menu. **NOTE:** Pressing the Windows key again will close the **Start** menu.
(4)		Action keys	Execute frequently used system functions, when pressed in combination with the fn key. See Action keys on page 14.
(5)		Embedded numeric keypad	A numeric keypad superimposed over the keyboard alphabet keys. When fn+num lk is pressed, the keypad can be used like an external numeric keypad. Each key on the keypad performs the function indicated by the icon in the upper-right corner of the key. **NOTE:** If the keypad function is active when the computer is turned off, that function is reinstated when the computer is turned back on.
(6)		Windows application key	Displays options for a selected object.
(7)		num lk key	Turns the embedded numeric keypad on and off when pressed in combination with the fn key.

Action keys

An action key performs the function indicated by the icon on the key. To determine which keys are on your product, see Special keys on page 13.

▲ To use an action key, press and hold the fn key and then press the action key.

Icon	Description
	Initiates Sleep, which saves your information in system memory. The display and other system components turn off and power is conserved. To exit Sleep, briefly press the power button. **CAUTION:** To reduce the risk of information loss, save your work before initiating Sleep.
	Turns the keyboard backlight off, on high, or on low. **NOTE:** To conserve battery power, turn off this feature.
	Switches the screen image among display devices connected to the system. For example, if a monitor is connected to the computer, repeatedly pressing the key alternates the screen image from computer display to monitor display to simultaneous display on both the computer and monitor.
	Decreases the screen brightness incrementally as long as you hold down the key.
	Increases the screen brightness incrementally as long as you hold down the key.
	Decreases speaker volume incrementally while you hold down the key.
	Increases speaker volume incrementally while you hold down the key.
	Mutes the microphone.

Hot keys

A hot key is the combination of the fn key and another key.

To use a hot key:

▲ Press and hold the fn key, and then press one of the keys listed in the following table.

Key	Description
C	Turns on scroll lock.
E	Turns on the insert function.
R	Breaks the operation.
S	Sends a programing query.
W	Pauses the operation.

USB port and smart card reader/pen holder slot (select products only)

Component		Description
(1)	Micro USB port	Connects a micro USB cable (purchased separately), that can be used to supply power to the keyboard and, if needed, charge the keyboard battery. **NOTE:** The keyboard battery charges automatically when the keyboard is connected to the tablet using the docking connector. See Keyboard connectors, button, and status light on page 11.
(2)	Smart card reader/pen holder slot	Supports optional smart cards or provides a slot for the pen holder insert. **IMPORTANT:** The keyboard must be connected to the tablet for the smart card feature to work.

Connecting the tablet to the keyboard base

To connect the tablet to the keyboard base, follow these steps:

1. Lower the tablet **(1)** onto the alignment posts on the keyboard base.
2. Position the kickstand **(2)** at the desired angle.

NOTE: If you close the kickstand, you can leave the keyboard attached and rotate the keyboard so that the back of the keyboard rests against the back of the behind the tablet. The keyboard keys and TouchPad are locked to prevent you from accidently typing while the keyboard is in this position.

Removing the tablet from the keyboard base

To remove the tablet from the keyboard, pull the tablet away from the keyboard.

Using the keyboard wirelessly

IMPORTANT: The keyboard ships connected to the tablet. During the initial startup, the software will prompt you to pair the keyboard with the tablet. Refer to the *Setup Instructions* for information about the initial pairing.

After your keyboard is paired to the tablet, you can use the keyboard when it is not connected to the tablet. Using the keyboard wirelessly expands your options for use.

NOTE: The keyboard must be connected to the tablet when you are using these functions:

- Computer Setup, or Basic Input/Output System (BIOS)
- HP PC Hardware Diagnostics
- Back up, restore, and recovery

If the keyboard cannot communicate with the tablet, confirm the following:

- The tablet Bluetooth setting is turned on. See Network connections on page 23.
- The keyboard Bluetooth setting is turned on. The keyboard button light should be blue. See Keyboard connectors, button, and status light on page 11.

If needed, set the Bluetooth pairing again.

Setting the Bluetooth pairing automatically

If the keyboard cannot communicate with the tablet, follow these steps to automatically set the Bluetooth pairing:

NOTE: The tablet Bluetooth feature must be turned on.

1. Attach the keyboard to the tablet.

   The Keyboard Pairing Request screen appears.

2. Follow the screen instructions to pair the keyboard to the tablet.

Setting the Bluetooth pairing manually

If the keyboard cannot communicate with the tablet and automatic pairing fails, follow these steps to manually set the Bluetooth pairing:

1. Remove the keyboard from the tablet.
2. Type `blue` in the taskbar search box, and then select **Bluetooth and other device settings**.
3. Turn on Bluetooth, if it is not already turned on.
4. Press the keyboard button for more that 3 seconds. The blue light should begin to blink. For the button and light location, see Keyboard connectors, button, and status light on page 11.
5. Select **Add Bluetooth or other device**.
6. Select **HP Zbook x2 Bluetooth Keyboard**.
7. Select **Pair**.

   A passcode displays on the tablet screen.

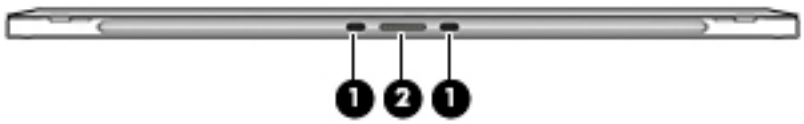
8. Type the passcode on the keyboard and press Enter.

   The installation continues and the keyboard is connected.

Top

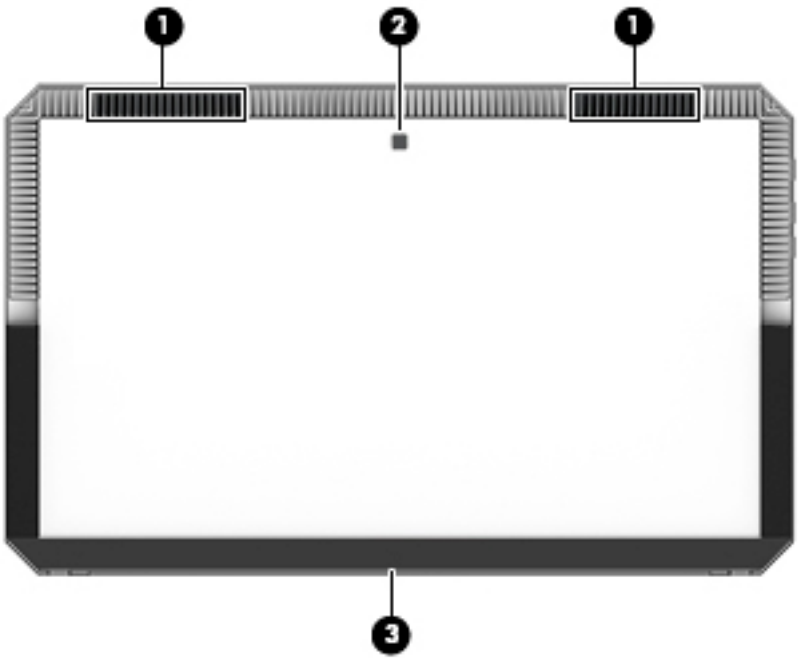
Component	Description
Speakers	Produce sound.

Bottom



Component		Description
(1)	Alignment post connectors (2)	Connect to the alignment posts on the keyboard.
(2)	Docking connector	Connects the tablet to the keyboard.

Rear



Component		Description
(1)	Vents	Enable airflow to cool internal components.

Component		Description
		NOTE: The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(2)	Rear camera (select products only)	Allows you to video chat, record video, and record still images. To use your camera, see Using a camera (select products only) on page 44.
(3)	Kickstand	Provides stability and a variety of viewing angles.

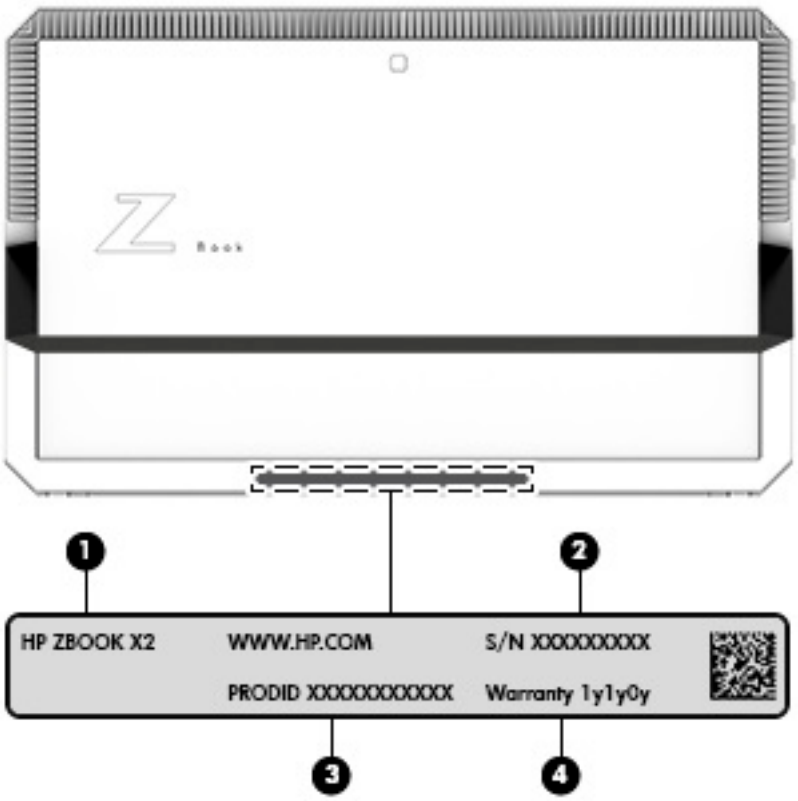
Labels

The labels affixed to the computer provide information you may need when you troubleshoot system problems or travel internationally with the computer.

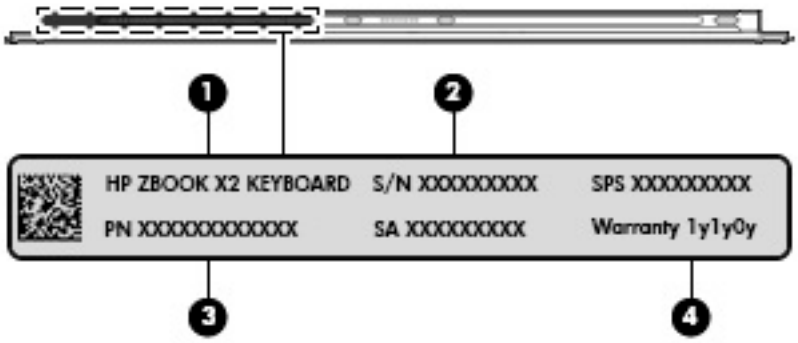
IMPORTANT: Check the following locations for the labels described in this section: the back of the display under the kickstand and the connection area of the keyboard.

- Service label—Provides important information to identify your computer and the keyboard. When contacting support, you will probably be asked for the serial number, and possibly for the product number or the model number. Locate these numbers before you contact support.

  Your service label will resemble the examples shown below.



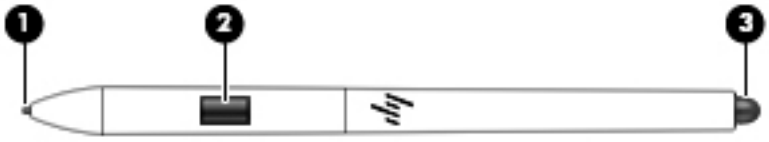
Component	
(1)	Model name (select products only)
(2)	Serial number
(3)	Product number
(4)	Warranty period



Component	
(1)	Model name (select products only)
(2)	Serial number
(3)	Product number
(4)	Warranty period

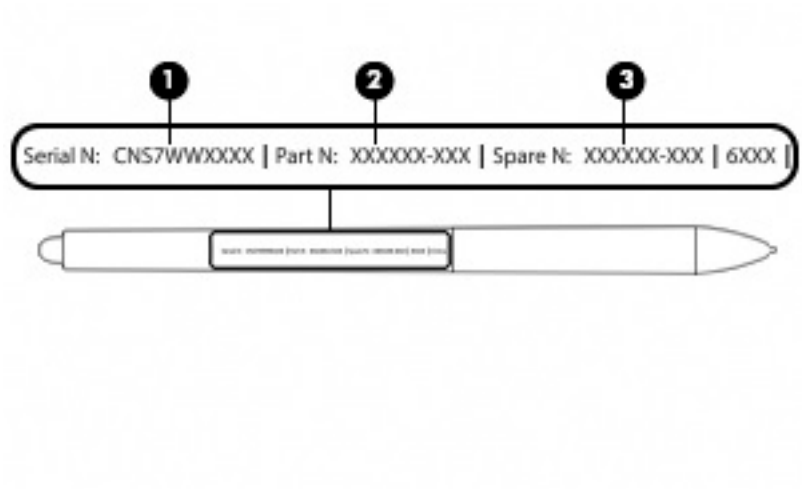
- Regulatory label(s)—Provide(s) regulatory information about the computer.
- Wireless certification label(s)—Provide(s) information about optional wireless devices and the approval markings for the countries or regions in which the devices have been approved for use.

Optional pen



Component		Description
(1)	Tip/removable nib	Draws on the screen. Increased pressure applied to the tip results in wider or darker lines, depending on the software app. The nib is removable.
(2)	Button	Provides additional functions for the pen, depending on the software app. To program the button settings, see HP ZBook x2 Control software on page 34.
(3)	Eraser	Removes what is drawn on the screen, depending on the software app. To program the eraser settings, see HP ZBook x2 Control software on page 34.

The labels affixed to the pen provide information you may need when you troubleshoot problems or replace the pen.



Component	
(1)	Serial number
(2)	Part number
(3)	Spare number

Hold the pen as you would a normal pen or pencil. Adjust your grip so that you can toggle the pen button easily with your thumb or forefinger. Be careful not to accidentally press the button while drawing or positioning with the pen.

Software provided with your tablet offers the following methods for customizing your pen and button settings:

- HP ZBook x2 Control software—For more information see HP ZBook x2 Control software on page 34.
- Windows Pen & Windows Ink software settings—To access this setting, type `pen settings` in the taskbar search box, select **Pen settings**, and then select **Pen & Windows Ink**.

3 Network connections

Your computer can travel with you wherever you go. But even at home, you can explore the globe and access information from millions of websites using your computer and a wired or wireless network connection. This chapter will help you get connected to that world.

Connecting to a wireless network

Your computer may be equipped with one or more of the following wireless devices:

- WLAN device—Connects the computer to wireless local area networks (commonly referred to as Wi-Fi networks, wireless LANs, or WLANs) in corporate offices, your home, and public places such as airports, restaurants, coffee shops, hotels, and universities. In a WLAN, the mobile wireless device in your computer communicates with a wireless router or a wireless access point.
- HP Mobile Broadband Module (select products only)—A wireless wide area network (WWAN) device that gives you wireless connectivity over a much larger area. Mobile network operators install base stations (similar to cell phone towers) throughout large geographic areas, effectively providing coverage across entire states, regions, or even countries.
- Bluetooth® device—Creates a personal area network (PAN) to connect to other Bluetooth-enabled devices such as computers, phones, printers, headsets, speakers, and cameras. In a PAN, each device communicates directly with other devices, and devices must be relatively close together—typically within 10 meters (approximately 33 feet) of each other.

Using the wireless controls

You can control the wireless devices in your computer using one or more of these features:

- Wireless button (also called airplane mode key or wireless key) (referred to in this chapter as wireless button)
- Operating system controls

Wireless button

The computer may have a wireless button, one or more wireless devices, and one or two wireless lights. All the wireless devices on your computer are enabled at the factory.

The wireless light indicates the overall power state of your wireless devices, not the status of individual devices.

Operating system controls

The Network and Sharing Center allows you to set up a connection or network, connect to a network, and diagnose and repair network problems.

To use operating system controls:

1. Type `control panel` in the taskbar search box, and then select **Control Panel**.
2. Select **Network and Internet**, and then select **Network and Sharing Center**.

Connecting to a WLAN

NOTE: When you are setting up Internet access in your home, you must establish an account with an Internet service provider (ISP). To purchase Internet service and a modem, contact a local ISP. The ISP will help set up the modem, install a network cable to connect your wireless router to the modem, and test the Internet service.

To connect to a WLAN, follow these steps:

1. Be sure that the WLAN device is on.
2. Select the network status icon in the taskbar, and then connect to one of the available networks.

   If the WLAN is a security-enabled WLAN, you are prompted to enter a security code. Enter the code, and then select **Next** to complete the connection.

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

   NOTE: If you do not see the WLAN you want to connect to, right-click the network status icon in the taskbar, and then select **Open Network and Sharing Center**. Select **Set up a new connection or network**. A list of options is displayed, allowing you to manually search for and connect to a network or to create a new network connection.

3. Follow the on-screen instructions to complete the connection.

After the connection is made, select the network status icon at the far right of the taskbar, to verify the name and status of the connection.

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

Using HP Mobile Broadband (select products only)

Your HP Mobile Broadband computer has built-in support for mobile broadband service. Your new computer, when used with a mobile operator's network, gives you the freedom to connect to the Internet, send e-mail, or connect to your corporate network without the need for Wi-Fi hotspots.

NOTE: If your computer includes HP Mobile Connect, the instructions in this section do not apply. See Using HP Mobile Connect Pro (select products only) on page 25.

You might need the HP Mobile Broadband Module IMEI and/or MEID number to activate mobile broadband service. The number may be printed on a label located on the bottom of your computer, inside the battery bay, under the service door, or on the back of the display.

– or –

You can find the number following these steps:

1. From the taskbar, select the network status icon.
2. Select **View Connection Settings**.
3. Under the **Mobile broadband** section, select the network status icon.

Some mobile network operators require the use of a SIM card. A SIM card contains basic information about you, such as a personal identification number (PIN), as well as network information. Some computers include a SIM card that is preinstalled. If the SIM card is not preinstalled, it may be provided in the HP Mobile Broadband information provided with your computer or the mobile network operator may provide it separately from the computer.

For information about HP Mobile Broadband and how to activate service with a preferred mobile network operator, see the HP Mobile Broadband information included with your computer.

Using HP Mobile Connect Pro (select products only)

HP Mobile Connect Pro is a prepaid, mobile broadband service that provides a cost-effective, secure, simple, and flexible mobile broadband connection for your computer. To use HP Mobile Connect Pro, your computer must have a SIM card and the HP Mobile Connect app. For more information about HP Mobile Connect Pro and where it is available, go to http://www.hp.com/go/mobileconnect.

Using GPS (select products only)

Your computer may be equipped with a Global Positioning System (GPS) device. GPS satellites deliver location, speed, and direction information to GPS-equipped systems.

To enable GPS, make sure location is enabled under the Windows privacy setting.

1. Type `location` in the taskbar search box, and then select **Location privacy settings**.
2. Follow the on-screen instructions for using location settings.

Using Bluetooth wireless devices (select products only)

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

- Computers (desktop, notebook)
- Phones (cellular, cordless, smartphone)
- Imaging devices (printer, camera)
- Audio devices (headset, speakers)
- Mouse
- External keyboard

Connecting Bluetooth devices

Before you can use a Bluetooth device, you must establish a Bluetooth connection.

1. Type `bluetooth` in the taskbar search box, and then select **Bluetooth and other devices settings**.
2. Turn on Bluetooth, if it is not already turned on.
3. Select your device from the list, and then follow the on-screen instructions.

NOTE: If the device requires verification, a pairing code is displayed. On the device you are adding, follow the on-screen instructions to verify that the code on your device matches the pairing code. For more information, refer to the documentation provided with the device.

NOTE: If your device does not appear in the list, be sure that Bluetooth on that device is turned on. Some devices may have additional requirements; refer to the documentation provided with the device.

Using NFC to share information (select products only)

Your computer supports Near Field Communication (NFC), which allows you to wirelessly share information between two NFC-enabled devices. Information is transferred by tapping the tapping area (antenna) of the

computer with the antenna of your phone or other device. With NFC and supported apps, you can share websites, transfer contact information, transfer payments, and print on NFC-enabled printers.

NOTE: To locate the tapping area on your computer, see Components on page 4.

Sharing

1. Confirm that the NFC function is enabled.
   a. Type `wireless` in the taskbar search box, and then select **Turn wireless devices on or off**.
   b. Confirm that the selection for NFC is **On**.
2. Tap the NFC tapping area with an NFC-enabled device. You may hear a sound when the devices connect.

   NOTE: To find the location of the antenna on the other NFC device, refer to your device instructions.
3. Follow any on-screen instructions to continue.

Connecting to a wired network

Select products may allow wired connections: local area network (LAN) and modem connection. A LAN connection uses a network cable and is much faster than a modem, which uses a telephone cable. Both cables are sold separately.

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

Connecting to a local area network (LAN) (select products only)

Use a LAN connection if you want to connect the computer directly to a router in your home (instead of working wirelessly), or if you want to connect to an existing network at your office.

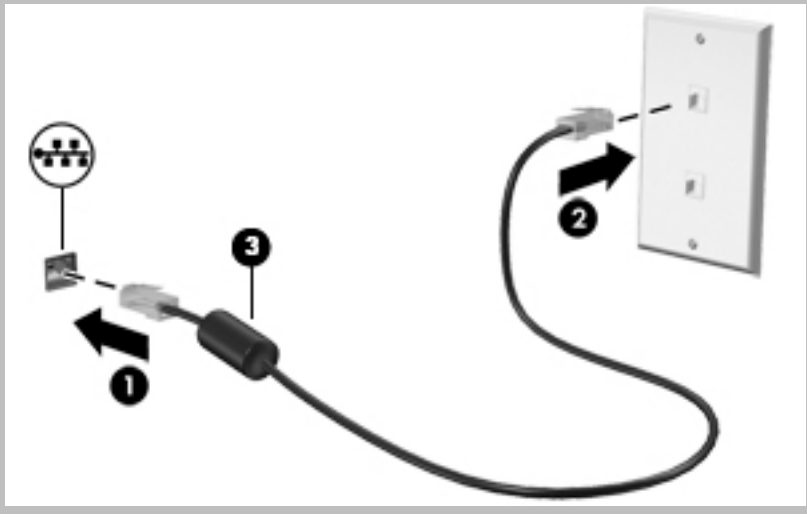
NOTE: A feature called HP LAN-WLAN Protection may be enabled on your computer. It closes your wireless (Wi-Fi) connection when you connect directly to a LAN. For more information about HP LAN-WLAN Protection, see Using HP LAN-WLAN Protection (select products only) on page 28.

If there is no RJ-45 port on the computer, connecting to a LAN requires an 8-pin, RJ-45 network cable or an optional docking device or expansion product.

To connect the network cable, follow these steps:

1. Plug the network cable into the network jack **(1)** on the computer or on an optional docking device or expansion product.
2. Plug the other end of the network cable into a network wall jack **(2)** or router.

NOTE: If the network cable contains noise suppression circuitry **(3)**, which prevents interference from TV and radio reception, orient the circuitry end of the cable toward the computer.



Using HP LAN-WLAN Protection (select products only)

In a LAN environment, you can set HP LAN-WLAN Protection to safeguard your LAN network from unauthorized wireless access. When HP LAN-WLAN Protection is enabled, the WLAN (Wi-Fi) connection is turned off when the computer is connected directly to a LAN.

Turning on and customizing HP LAN-WLAN Protection

1. Connect a network cable to the network jack on the computer, or on an optional docking device or expansion product.
2. Start Computer Setup (BIOS).
   - Computers or tablets with keyboards:
     - ▲ Turn on or restart the computer, and when the HP logo appears, press f10 to enter Computer Setup.
   - Tablets without keyboards:
     - ▲ Turn on or restart the tablet, and then quickly hold down the volume down button until the Startup menu is displayed. Tap **f10** to enter Computer Setup.
3. Select **Advanced**, and then select **Built-in Device Options**.
4. Select the check box for **LAN/WLAN Auto Switching** to turn off WLAN connections when connected to a LAN network.
5. To save your changes and exit Computer Setup, select the **Save** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

   – or –

   Select **Main**, select **Save Changes and Exit**, and then press enter.

Your changes go into effect when the computer restarts.

Using HP MAC Address Manager to identify your computer on a network (select products only)

You can enable a system Media Access Control (MAC) address to provide a customizable way of identifying your computer and its communications on networks. This system MAC address provides unique identification even when your computer is connected through an external device, such as a docking station or external wireless adapter. This address is disabled by default.

Turning on and customizing the system MAC address

1. Connect a network cable to the network jack on the computer, or on an optional docking device or expansion product.
2. Start Computer Setup (BIOS).
   - Computers or tablets with keyboards:
     - ▲ Turn on or restart the computer, and when the HP logo appears, press f10 to enter Computer Setup.
   - Tablets without keyboards:
     - ▲ Turn on or restart the tablet, and then quickly hold down the volume down button until the Startup menu is displayed. Tap **f10** to enter Computer Setup.

3. Select **Advanced**, and then select **Host Based MAC Address**.
4. In the box to the right of **Host Based MAC Address**, select either **System** to enable the host-based MAC address or **Custom** to customize the address.
5. Make selections for boot order and devices supported.
6. If you selected Custom, select **MAC ADDRESS**, enter your customized system MAC address, and then press enter to save the address.
7. To save your changes and exit Computer Setup, select the **Save** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

   – or –

   Select **Main**, select **Save Changes and Exit**, and then press enter.

Your changes go into effect when the computer restarts.

For additional documentation about HP MAC Address Manager and using system MAC addresses, go to http://www.hp.com/support. Select **Find your product**, and then follow the on-screen instructions.

4 Navigating the screen

You can navigate the computer screen in one or more of the following ways:

- Use touch gestures directly on the computer screen
- Use touch gestures on the TouchPad
- Use an optional mouse or keyboard (purchased separately)
- Use an on-screen keyboard
- Use a pointing stick

Using TouchPad and touch screen gestures

The TouchPad helps you navigate the computer screen and control the pointer using simple touch gestures. You can also use the left and right TouchPad buttons as you would use the corresponding buttons on an external mouse. To navigate a touch screen (select products only), touch the screen directly using gestures described in this chapter.

You can also customize gestures and view demonstrations of how they work. Type `control panel` in the taskbar search box, select **Control Panel**, and then select **Hardware and Sound**. Under **Devices and Printers**, select **Mouse**.

NOTE: Unless noted, gestures can be used on the TouchPad or a touch screen (select products only).

Tap

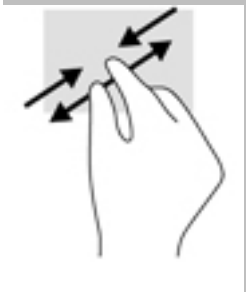
Use the tap/double-tap gesture to select or open an item on the screen.

- Point to an item on the screen, and then tap one finger on the TouchPad zone or touch screen to select the item. Double-tap an item to open it.

Two-finger pinch zoom

Use the two-finger pinch zoom to zoom out or in on images or text.

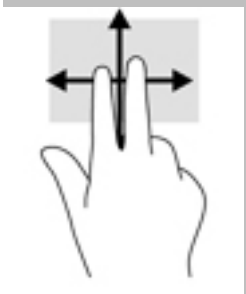
- Zoom out by placing two fingers apart on the TouchPad zone or touch screen and then moving your fingers together.
- Zoom in by placing two fingers together on the TouchPad zone or touch screen and then moving your fingers apart.



Two-finger slide (TouchPad only)

Use the two-finger slide to move up, down, or sideways on a page or image.

- Place two fingers slightly apart on the TouchPad zone and then drag them up, down, left, or right.

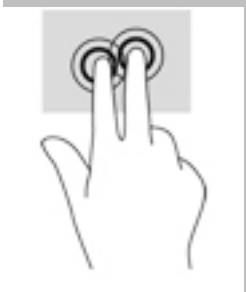


Two-finger tap (TouchPad only)

Use the two-finger tap to open the menu for an object on the screen.

NOTE: The two-finger tap performs the same function as right-clicking with the mouse.

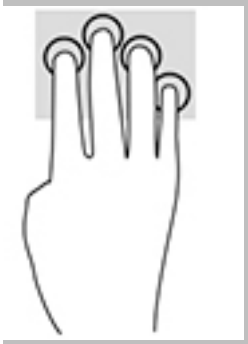
- Tap two fingers on the TouchPad zone to open the options menu for the selected object.



Four-finger tap (TouchPad only)

Use the four-finger tap to open the action center.

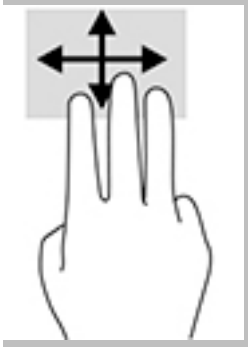
- Tap four fingers on the Touchpad to open the action center and view current settings and notifications.



Three-finger swipe (TouchPad only)

Use the three-finger swipe to view open windows and to switch between open windows and the desktop.

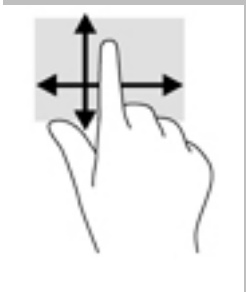
- Swipe 3 fingers away from you to see all open windows.
- Swipe 3 fingers toward you to show the desktop.
- Swipe 3 fingers left or right to switch between open windows.



One-finger slide (touch screen only)

Use the one-finger slide to pan or scroll through lists and pages, or to move an object.

- To scroll across the screen, lightly slide one finger across the screen in the direction you want to move.
- To move an object, press and hold your finger on an object, and then drag your finger to move the object.



Using an optional keyboard or mouse

An optional keyboard or mouse allows you to type, select items, scroll, and perform the same functions as you do using touch gestures. The keyboard also allows you to use action keys and hot keys to perform specific functions.

Using an on-screen keyboard (select products only)

1. To display an on-screen keyboard, tap the keyboard icon in the notification area, at the far right of the taskbar.
2. Begin typing.

NOTE: Suggested words may be displayed above the on-screen keyboard. Tap a word to select it.

NOTE: Action keys and hot keys do not display or function on the on-screen keyboard.

5 HP ZBook x2 Control software

Use HP ZBook x2 Control software to customize your tablet or tools. When you open the software, icons for all connected computers and all tools that have been used on the tablet display in the Tool list. All settings apply to the selected computer or pen.

Installing the HP ZBook x2 Control software

1. Select the **Start** button, and then select **HP ZBook x2 Control** to begin installation.
2. Follow the on-screen instructions.

   After the installation is complete, the HP ZBook x2 Control app appears on the taskbar.

Starting the HP ZBook x2 Control software

▲ Select **HP ZBook x2 Control** app to start the software.

The HP ZBook x2 Control software main panel displays.

Customizing tools

To customize your device, use the controls available on the tabs for Quick Keys, pen, and other features. Changes will take effect immediately.

Programming the Quick Keys

You can program the Quick Keys to execute the functions that make your work quickest and easiest for you. Your tablet has 18 Quick Key combinations when used with the three Modes. For the location of the Quick Keys and Quick Keys Mode lights, see Front on page 7.

To program your Quick Keys:

1. Select the **HP ZBook x2 Control** app.
2. Select the device you are customizing in the **Device** section.

   NOTE: If you have not added other devices, the default ZBook x2 Tablet is selected.

3. Select **Functions** in the **Tool** section.
4. Select **All** in the **Application** section to customize settings for all applications.

   – or –

   Select a specific application.

5. Select the **HP Quick Keys** tab.
6. Select the Mode you want to customize.
7. Select the down arrow next to the Quick Keys settings, for example next to **Keystroke...**, to display program settings. Follow the on-screen instructions. For more information about possible entries, see Button functions on page 36.

NOTE: If the Mirror left/right buttons checkbox is selected, the Quick Keys mirror the other side. The side mirrored depends on how the Windows pen setting for right hand or left hand is set. For example, if the Windows pen setting is for left hand, then the right side buttons are mirrored to the left side settings. And if the Windows pen setting is for right hand, then the left side settings are mirrored to the right side settings.

NOTE: Make sure one of the buttons is assigned to Button Info, so you can easily display the Virtual Desktop overlay for the tablet and pen button mappings.

Customizing the optional pen

Customize settings for pen tip feel and pressure, eraser feel, side button, and application-specific pen functions.

To customize your pen:

1. Select the **HP ZBook x2 Control** app.
2. Select the device you are customizing in the **Device** section.

   NOTE: If you have not added other devices, the default ZBook x2 Tablet is selected.

3. Select **Pro Pen** in the **Tool** section.
4. Select **All** in the **Application** section to customize settings for all applications.

   – or –

   Select a specific application.

5. Select the **HP Pen** tab and choose from the available options.
6. Follow the on-screen instructions. For more information about possible entries, see Button functions on page 36.

NOTE: The tip must be set to **Click to draw** in most graphics applications.

NOTE: The **Tip Feel** slider overrides the advanced pressure settings selected using the **Customize** button.

Advanced customizing for the pen

To further customize tip or eraser pressure settings:

1. Select the **Pen** or **Eraser** tab.
2. Click on the **Customize** button.

   Options within the **Pen Feel Details** dialog box let you independently change the tip or eraser pressure sensitivity and click threshold settings.

3. Use the line on the left to adjust your pen settings. The pressure controls are displayed as symbols on the line that can be moved to change the outcome.
   - **Click Threshold** determines the amount of force required to register pressure or generate a pen click.
   - **Sensitivity** changes the slope of the pressure response curve.
   - **Max Pressure** determines how hard you must press the pen tip to reach maximum pressure.

4. Use the **Try Here** box to test the results of your changes.
5. Select **OK** to save your changes.

Customizing the eraser

To customize your eraser:

1. Select the **HP ZBook x2 Control** app.
2. Select the device you are customizing in **Device** section.

   NOTE: If you have not added other devices, the default ZBook x2 Tablet is selected.

3. Select **Pro Pen** in the **Tool** section.
4. Select **All** in the **Application** section to customize settings for all applications.

   – or –

   Select a specific application.

5. Select the **Eraser** tab.
6. Follow the on-screen instructions. For more information about possible entries, see Button functions on page 36.

   NOTE: To determine pressure levels, position the screen cursor over an empty area of the control panel, and then press down on the **Current Pressure** bar with the eraser.

   NOTE: The **Eraser Feel** slider overrides the advanced pressure settings selected using the **Customize** button.

Button functions

Use HP ZBook x2 Control software to customize the functions that are assigned to tool buttons, Quick Keys, and other elements of your tablet. Note that button function options may vary.

- Clicks
  - Click: Simulates a left mouse button click. Be sure at least one button performs this function so you can always navigate and click.
  - Right click: Simulates a right mouse button click to display a context menu.
  - Middle click: Simulates a middle mouse button click.
  - Double click: Simulates a double-click. For easier double-clicking, use this function instead of tapping twice with the pen tip.
  - Click lock: Simulates holding down the primary mouse button. Press the tool button once to initiate click lock, and again to release it. Use Click lock to drag objects or select blocks of text.
  - 4th click or 5th click: Simulates a fourth or fifth mouse button click.
- Keystroke: Displays the **Define Keystroke** dialog box to create keystroke combinations for Quick Keys, mouse, and other functions.
  - Enter your keystroke combination in the **Keys** box. The combinations can include letters, numbers, function keys, and modifier keys. You can also choose combinations from the **Add Special** list.
  - To learn which keystroke shortcuts are supported by a particular application, see the instructions for the application.

- Modifier: Displays a dialog box that enables you to simulate modifier keys: Shift, Alt, or Ctrl. Use the Key setting to perform modifier functions, and a modifier to simulate pressing the associated button on a mouse.
- Radial Menu: Displays the Radial Menu.
- Back and Forward: Simulates the Back or Forward command in browser applications.
- Pan/Scroll: Enables you to position a document or image within the active pane by pressing a pen button set for Pan/Scroll and then dragging with the pen tip across the tablet active area. Use the **Pan/Scroll** slider to set a scrolling speed for use in applications that do not support grabber hand (pixel-level) panning.
- Scroll Up: Scrolls your active application up.
- Scroll Down: Scrolls your active application down.
- Zoom In: Zooms your active application in.
- Zoom Out: Zooms your active application out.
- Show Desktop: Minimizes all open windows to display a clean desktop.
- Switch Application: Brings up the application-switching dialog box with focus on the next open application.
- Launchpad: Displays menu where you can start applications.
- Open/Run: Opens a dialog box to select a specific application, file, or a script to launch. Browse to select the item, and it will appear in the **Name** box. Click **OK** to assign the item as your tool button option.
- Pressure Hold: Locks the pressure at the current pressure level until the button is released. For example, you can paint with pressure sensitivity until you reach the brush size you like. You can then press the button and continue painting with the same size brush until the button is released.
- Erase: Sets your strokes to erase mode.
- Tablet PC Options: Displays a menu of Tablet PC options.
- Disabled: Disables the button function.
- Application Defined: This is for applications, such as CAD programs, that have built-in tablet support. It reports only the button number to the application. It may also be used by some integrated applications for direct control of the Quick Keys.
- Default: Resets the button to its default function.
- Button Function Toggles
  - Precision Mode: Use the slider to change the mapping around the current pen tip position. Press the button again to return to normal mapping.
  - Mode Toggle: This setting for pen buttons toggles between Pen mode and Mouse mode. When first setting a button to **Mode Toggle** when in Mouse mode, use the sliders to adjust the screen cursor acceleration and tracking speed.
  - Skip: Sets the Toggle Button to skip a function mode that has been assigned this option in the toggle sequence.
  - Touch On/Off: Use Touch On/Off when you want to work in Pen mode only. Disable touch by pressing a Quick Key you have assigned to Touch On/Off. Press the Quick Key again to enable touch.

– On Screen Keyboard: Use On Screen Keyboard option to toggle the Windows On Screen Keyboard for pen or touch keyboard input.

– Button Info: Displays the interactive Virtual Desktop overlay for the programmable buttons and optional pen.

Calibrating the pen

Your pen is calibrated at the factory. Calibration is required to compensate for viewing angle and to adjust for parallax. You can also manually recalibrate your pen:

1. Select the **HP ZBook x2 Control** app.
2. Select the device you are customizing in **Device** section.

   NOTE: If you have not added other devices, the default ZBook x2 Tablet is selected.

3. Select **Pro Pen** in the **Tool** section.
4. Select **All** in the **Application** area to customize settings for all applications.

   – or –

   Select a specific application.

5. Select the **Calibrate** tab.
6. Select down arrow beside **Monitor** to choose your monitor.

   NOTE: If you have not added other devices, use the default HP Z Book x2 Display.

7. Select the **Calibrate** button, and then follow the on-screen instructions.

Setting advanced options

The Options feature lets you set several use preferences for your pen, such as the type of click supported for the pen or the pressure compatibility if you are using graphics applications that support a maximum of 1024 levels of pressure.

1. Select the **HP ZBook x2 Control** app.
2. Select **Options**, and then follow the on-screen instructions.

Adding applications

1. Select the **HP ZBook x2 Control** app.
2. Select the **+** to the right of the **Application** section.

   The **Add Application for custom Settings** dialog box displays.

3. Select an application you want to create custom settings for, or browse to select the executable file of any application installed on your computer.
4. Select **OK**.

NOTE: If you are working with a commonly used application such as Adobe Photoshop® or Illustrator®, your tablet's software will identify the application and set the Quick Keys to commonly used functions for that application. Default settings will take effect automatically only if you have not entered your own Quick Key settings for that application.

NOTE: If two programs have the same executable file name, they will share the same customized settings.

Integrated applications

Some software applications may directly control Quick Key settings, which may cause them to perform differently than the function set in HP ZBook x2 Control software.

- When a Quick Key setting is overridden by an application, the Quick Key automatically updates, using either Application Defined or the new function name. Some or all of the Quick Keys may be overridden, depending on the application.
- An integrated application has control only when that application is active and in the foreground. When you close that application or select a new application to work in, your settings are returned to their previous state.
- To review settings for the current application, set a Quick Key to Button Info and press the key at any time.
- Applications that have been integrated typically allow you to disable this functionality when first using your tablet with the application. Refer to your application documentation for specific instructions on how to customize or disable this feature. If that information is not available, use the HP ZBook x2 Control software to create application-specific settings that will override the behavior of the integrated application.

Customizing the on-screen control menu

Use the software to customize the display of a hierarchical menu (in radial format) for on-screen controls. The menu is an on-screen extension of the Quick Keys and pen options, using eight slices of the circle to display shortcuts to various features and options.

For example, if you assign a Quick Key to the Radial Menu, the Radial Menu displays anytime you press that Quick Key button. You can then tap on the menu slice to perform the function you want.

NOTE: The Radial Menu works for all of the devices set up using the software.

Assigning the option to display the Radial Menu

Before you can customize the Radial Menu, you must assign a Quick Key button or pen button to display the menu.

1. Select the **HP ZBook x2 Control** app.
2. To assign a Quick Key button to display the Radial Menu, select **Functions** in the **Tool** section.

   – or –

   To assign the pen button to display the Radial Menu, select **Pro Pen** in the **Tool** section.
3. Select the **Radial Menu** from the list corresponding to the button assignment you want.

Customizing the Radial Menu options

1. Select the **HP ZBook x2 Control** app.
2. Select the **Radial Menu** tab.
3. Use the list corresponding to the assignments you want to customize the Radial Menu options displayed.

   NOTE: A default set of Key Assignments is provided that you can keep or use as a guide for customization.
4. Follow the on-screen instructions.

NOTE: When you display the Radial Menu, you can keep the menu open by selecting the **Push Pin** icon.

You can also open the HP ZBook x2 Control menu from the Radial Menu by clicking the **Wrench** icon.

Adding devices

You can customize tool and application settings for certain devices connected to your tablet. An icon for each device will appear in the **Device** list.

To add a new device:

1. Connect the device to your tablet.

   The new device's icon will appear in the **Device** list.

   NOTE: If an icon for the device does not display, the device is not supported.

2. Click on that icon to customize settings.

   NOTE: Settings can only be viewed or changed for an attached device.

   NOTE: The eraser function may not work in some applications when using an added device.

Adding tools

You can add a tool simply by using the tool on your tablet. An icon for each tool appears in the **Tool** list.

- When you select a tool that has been added to the Tool list, the tab settings for that tool are displayed. Any changes you make to the tab settings will then apply to the tool.
- If a similar tool has been added, the new tool will inherit the settings of that tool. These settings can then be customized for the newly added tool. Identical tools use the same settings.

To display the **Tool** list:

1. Select the **HP ZBook x2 Control** app.
2. An icon for each tool appears in the **Tool** list.

   NOTE: To remove a selected tool from the Tool list, click on the Tool list **-** button, and then select **Delete**. The selected tool is removed from the list, along with any custom settings you may have created for it.

   The **-** button is inactive when there is only one item in the list. The Functions icon cannot be deleted.

Viewing button mappings

You can view the current button mappings for the Quick Keys and pen by displaying the Virtual Desktop.

- In the HP ZBook x2 Control tab, set a Quick Key to Button Info. See Programming the Quick Keys on page 34.
- To view the settings on the screen, press that Quick Key.
- To open the Pen settings, select the **Pen Setting** button on the Virtual Desktop button information screen.

- To open the Quick Key settings, click on the Quick Key mappings display area with your mouse or tap it with your pen.
- To close the Virtual Desktop button information screen, click on it with your mouse, tap it with your pen, or press the Quick Key again.

NOTE: If you do not want to display the HP ZBook x2 Control software screen, click or tap on nonselectable area.

NOTE: Some applications can override and control the Quick Key functions.

Backing up and restoring settings

The **HP ZBook x2 Preferences** app allows you to save your current settings to a file and then restore them if needed. You can also use the utility to remove your preferences or remove all user preferences.

To back up settings:

1. Select the **Start** button, and then select the **HP ZBook x2 Preferences** app.
2. Select **Backup**.
3. Follow the on-screen instructions.

To restore settings:

1. Select the **Start** button, and then select the **HP ZBook x2 Preferences** app.
2. Select **Restore**.
3. Follow the on-screen instructions.

Importing expert settings

The import expert settings feature enables you to import customized settings that have been specified in an XML (Extensible Markup Language) file. Some software developers create custom settings files which are designed to provide optimum performance when using your tablet with their applications.

Each XML file may include customized settings for one or more applications. These settings may apply to the Quick Keys, On-Screen Controls, pen button or eraser, and other functions.

To import expert settings:

1. Back up any existing settings. See Backing up and restoring settings on page 41.
2. Choose the XML file with settings for use with a particular application. Double-click on your file selection.
3. Follow the on-screen instructions.

NOTE: When you choose to import settings, only the settings specified in the XML file are imported. Any corresponding settings are overwritten with the new values. All other existing settings remain unchanged.

Updating the HP ZBook x2 Control software

Updated versions of the software may be available on the HP website.

The updates on the HP website are packaged in compressed files called *SoftPaqs*.

Some download packages contain a file named Readme.txt, which contains information regarding installing and troubleshooting the file.

Determining the software version

To decide whether you need to update the software, first determine the software version on your computer.

1. Select the **HP ZBook x2 Control** app.
2. Select **About**.
3. Make note of the driver version, and then select **OK**.

To check for later HP ZBook x2 Control software versions, see Downloading a software update on page 42.

Downloading a software update

CAUTION: To reduce the risk of damage to the computer or an unsuccessful installation, download and install a software update only when the computer is connected to reliable external power using the AC adapter. Do not download or install a software update while the computer is running on battery power, docked in an optional docking device, or connected to an optional power source. During the download and installation, follow these instructions:

Do not disconnect power on the computer by unplugging the power cord from the AC outlet.

Do not shut down the computer or initiate Sleep.

Do not insert, remove, connect, or disconnect any device, cable, or cord.

1. Type `support` in the taskbar search box, and then select the HP Support Assistant app.

   – or –

   Select the question mark icon in the taskbar.
2. Select **Updates**, and then select **Check for updates and messages**.
3. Follow the on-screen instructions.
4. At the download area, follow these steps:
   a. Identify the most recent HP ZBook x2 Control software update and compare it to the HP ZBook x2 Control software version currently installed on your computer. Make a note of the version number. You may need this information to locate the update later, after it has been downloaded to your hard drive.
   b. Follow the on-screen instructions to download your selection to the hard drive.

      Make a note of the path to the location on your hard drive where the HP ZBook x2 Control software update is downloaded. You will need to access this path when you are ready to install the update.

NOTE: If you connect your computer to a network, consult the network administrator before installing any software updates.

HP ZBook x2 Control software installation procedures vary. Follow any instructions that are displayed on the screen after the download is complete. If no instructions are displayed, follow these steps:

1. Type `file` in the taskbar search box, and then select **File Explorer**.
2. Select your hard drive designation. The hard drive designation is typically Local Disk (C:).
3. Using the hard drive path you recorded earlier, open the folder that contains the update.
4. Double-click the file that has an .exe extension (for example, *filename*.exe).

   The HP ZBook x2 Control software installation begins.
5. Complete the installation by following the on-screen instructions.

NOTE: After a message on the screen reports a successful installation, you can delete the downloaded file from your hard drive.

Troubleshooting

If you have problems with the software, buttons, or pen, use the Diagnose tool.

1. Select the **HP ZBook x2 Control** app.
2. Select **About**.
3. Select **Diagnose**, and then follow the on-screen instructions.

6 Entertainment features

Use your HP computer for business or pleasure to meet with others via the webcam, mix audio and video, or connect external devices like a projector, monitor, TV, or speakers. See Components on page 4 to locate the audio, video and camera features on your computer.

Using a camera (select products only)

Your computer has a camera (integrated camera) that records video and captures photographs. Some models allow you to video conference and chat online using streaming video.

▲ To access the camera, type `camera` in the taskbar search box, and then select **Camera** from the list of applications.

Using audio

You can download and listen to music, stream audio content (including radio) from the web, record audio, or mix audio and video to create multimedia. You can also play music CDs on the computer (on select models) or attach an external optical drive to play CDs. To enhance your listening enjoyment, attach headphones or speakers.

Connecting speakers

You can attach wired speakers to your computer by connecting them to a USB port or to the audio-out (headphone)/audio-in (microphone) combo jack on your computer or on a docking station.

To connect wireless speakers to your computer, follow the device manufacturer's instructions. To connect high-definition speakers to the computer, see Setting up HDMI audio on page 47. Before connecting speakers, lower the volume setting.

Connecting headphones

⚠ **WARNING!** To reduce the risk of personal injury, lower the volume setting before putting on headphones, earbuds, or a headset. For additional safety information, see the *Regulatory, Safety and Environmental Notices*.

To access this document:

1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.

   – or –

   Click the question mark icon in the taskbar.

2. Select **My PC**, select the **Specifications** tab, and then select **User Guides**.

You can connect wired headphones to the headphone jack or to the audio-out (headphone)/audio-in (microphone) combo jack on your computer.

To connect wireless headphones to your computer, follow the device manufacturer's instructions.

Connecting headsets

WARNING! To reduce the risk of personal injury, lower the volume setting before putting on headphones, earbuds, or a headset. For additional safety information, see the *Regulatory, Safety and Environmental Notices*.

To access this document:

1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.

   – or –

   Click the question mark icon in the taskbar.

2. Select **My PC**, select the **Specifications** tab, and then select **User Guides**.

Headphones combined with a microphone are called headsets. You can connect wired headsets to the audio-out (headphone)/audio-in (microphone) combo jack on your computer.

To connect wireless headsets to your computer, follow the device manufacturer's instructions.

Using sound settings

Use sound settings to adjust system volume, change system sounds, or manage audio devices.

To view or change sound settings:

▲ Type `control panel` in the taskbar search box, select **Control Panel**, select **Hardware and Sound**, and then select **Sound**.

– or –

Right-click the **Start** button, select **Control Panel**, select **Hardware and Sound**, and then select **Sound**.

Your computer may include an enhanced sound system by Bang & Olufsen, DTS, Beats audio, or another provider. As a result, your computer may include advanced audio features that can be controlled through an audio control panel specific to your audio system.

Use the audio control panel to view and control audio settings.

▲ Type `control panel` in the taskbar search box, select **Control Panel**, select **Hardware and Sound**, and then select the audio control panel specific to your system.

– or –

Right-click the **Start** button, select **Control Panel**, select **Hardware and Sound**, and then select the audio control panel specific to your system.

Using video

Your computer is a powerful video device that enables you to watch streaming video from your favorite websites and download video and movies to watch on your computer when you are not connected to a network.

To enhance your viewing enjoyment, use one of the video ports on the computer to connect an external monitor, projector, or TV.

IMPORTANT: Be sure that the external device is connected to the correct port on the computer, using the correct cable. Follow the device manufacturer's instructions.

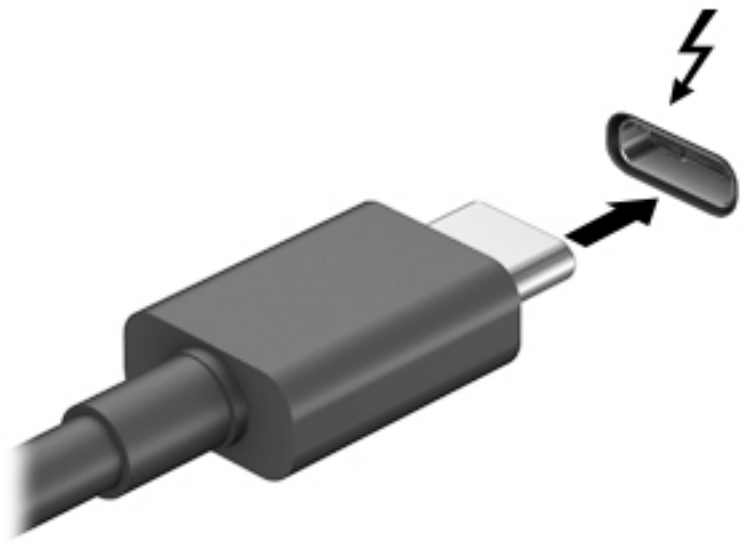
For information on using your video features, refer to HP Support Assistant.

Connecting video devices using a USB Type-C cable (select products only)

NOTE: To connect a USB Type-C Thunderbolt device to your computer, you need a USB Type-C cable, purchased separately.

To see video or high-resolution display output on an external Thunderbolt device, connect the Thunderbolt device according to the following instructions:

1. Connect one end of the USB Type-C cable to the USB Type-C Thunderbolt port on the computer.



2. Connect the other end of the cable to the external Thunderbolt device.
3. Press fn+f4 to alternate the computer screen image between 4 display states.
   - **PC screen only:** View the screen image on the computer only.
   - **Duplicate:** View the screen image simultaneously on both the computer and external device.
   - **Extend:** View the screen image extended across both the computer and external device.
   - **Second screen only:** View the screen image on the external device only.

   Each time you press fn+f4 the display state changes.

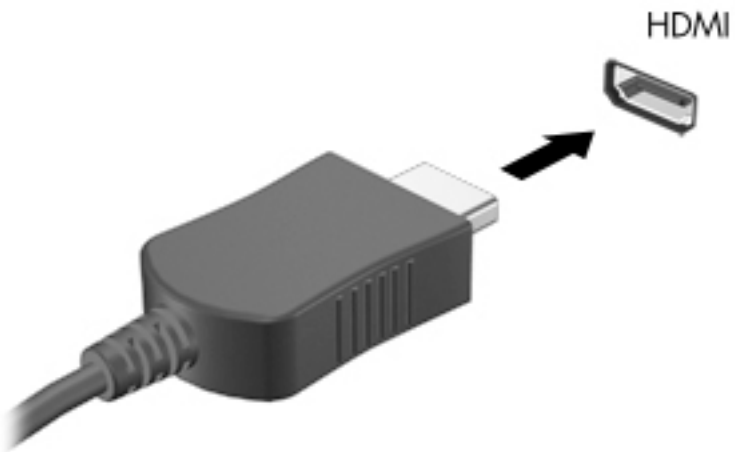
   NOTE: For best results, especially if you choose the "Extend" option, increase the screen resolution of the external device, as follows. Select the **Start** button, select **Settings**, and then select **System**. Under **Display**, select the appropriate resolution, and then select **Keep changes**.

Connecting video devices using an HDMI cable (select products only)

NOTE: To connect an HDMI device to your computer, you need an HDMI cable, purchased separately.

To see the computer screen image on a high-definition TV or monitor, connect the high-definition device according to the following instructions:

1. Connect one end of the HDMI cable to the HDMI port on the computer.



2. Connect the other end of the cable to the high-definition TV or monitor.
3. Press fn+f4 to alternate the computer screen image between 4 display states:
   - **PC screen only:** View the screen image on the computer only.
   - **Duplicate:** View the screen image simultaneously on both the computer and the external device.
   - **Extend:** View the screen image extended across both the computer and the external device.
   - **Second screen only:** View the screen image on the external device only.

   Each time you press fn+f4, the display state changes.

   NOTE: For best results, especially if you choose the "Extend" option, increase the screen resolution of the external device, as follows. Select the **Start** button, select **Settings**, and then select **System**. Under **Display**, select the appropriate resolution, and then select **Keep changes**.

Setting up HDMI audio

HDMI is the only video interface that supports high-definition video and audio. After you connect an HDMI TV to the computer, you can then turn on HDMI audio by following these steps:

1. Right-click the **Speakers** icon in the notification area, at the far right of the taskbar, and then select **Playback devices**.
2. On the **Playback** tab, select the name of the digital output device.
3. Click **Set Default**, and then click **OK**.

To return the audio stream to the computer speakers:

1. Right-click the **Speakers** icon in the notification area, at the far right of the taskbar, and then click **Playback devices**.
2. On the Playback tab, click **Speakers**.
3. Click **Set Default**, and then click **OK**.

Discovering and connecting to Miracast-compatible wireless displays (select products only)

NOTE: To learn what type of display you have (Miracast-compatible or Intel® WiDi), refer to the documentation that came with your TV or secondary display.

To discover and connect to Miracast-compatible wireless displays without leaving your current apps, follow the steps below.

To open Miracast:

- Type `project` in the taskbar search box, and then click **Project to a second screen**. Click **Connect to a wireless display**, and then follow the on-screen instructions.

Discovering and connecting to Intel WiDi certified displays (select Intel products only)

Use Intel WiDi to wirelessly project individual files such as photos, music, or videos, or to duplicate your entire computer screen to a TV or a secondary display device.

Intel WiDi, a premium Miracast solution, makes it easy and seamless to pair your secondary display device; provides for full-screen duplication; and improves speed, quality, and scaling.

To connect to Intel WiDi certified displays:

- Type `project` in the taskbar search box, and then click **Project to a second screen**. Click **Connect to a wireless display**, and then follow the on-screen instructions.

To open Intel WiDi:

- Type `Intel WiDi` in the taskbar search box, and then click **Intel WiDi**.

7 Managing power

Your computer can operate on either battery power or external power. When the computer is running on battery power and an external power source is not available to charge the battery, it is important to monitor and conserve the battery charge.

Some power management features described in this chapter may not be available on your computer.

Using Sleep and Hibernation

CAUTION: Several well-known vulnerabilities exist when a computer is in the Sleep state. To prevent an unauthorized user from accessing data on your computer, even encrypted data, HP recommends that you always initiate Hibernation instead of Sleep anytime the computer will be out of your physical possession. This practice is particularly important when you travel with your computer.

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

Windows has two power-saving states, Sleep and Hibernation.

- Sleep—The Sleep state is automatically initiated after a period of inactivity. Your work is saved to memory, allowing you to resume your work very quickly. You can also initiate Sleep manually. For more information, see Initiating and exiting Sleep on page 49.
- Hibernation—The Hibernation state is automatically initiated if the battery reaches a critical level. In the Hibernation state, your work is saved to a hibernation file and the computer powers down. You can also initiate Hibernation manually. For more information, see Initiating and exiting Hibernation (select products only) on page 50.

Initiating and exiting Sleep

You can initiate Sleep in any of the following ways:

- Close the display (select products only).
- Select the **Start** button, select the **Power** icon, and then select **Sleep**.
- Press the Sleep hot key; for example, fn+ f1

You can exit Sleep in any of the following ways:

- Briefly press the power button.
- If the computer is closed, raise the display (select products only).
- Press a key on the keyboard (select products only).
- Tap the TouchPad (select products only).

When the computer exits Sleep, your work returns to the screen.

NOTE: If you have set a password to be required on exiting Sleep, you must enter your Windows password before your work returns to the screen.

Initiating and exiting Hibernation (select products only)

You can enable user-initiated Hibernation and change other power settings and timeouts using Power Options.

1. Right-click the **Power** icon , and then select **Power Options**.
2. In the left pane, select **Choose what the power buttons do** (wording may vary by product).
3. Depending on your product, you can enable Hibernation for battery power or external power in any of the following ways:
   - **Power button**—Under **Power and sleep buttons and lid settings** (wording may vary by product), select **When I press the power button**, and then select **Hibernate**.
   - **Sleep button** (select products only)—Under **Power and sleep buttons and lid settings** (wording may vary by product), select **When I press the sleep button**, and then select **Hibernate**.
   - **Lid** (select products only)—Under **Power and sleep buttons and lid settings** (wording may vary by product), select **When I close the lid**, and then select **Hibernate**.
   - **Power menu**—Select **Change Settings that are currently unavailable**, and then, under **Shutdown settings**, select the **Hibernate** check box.

     The Power menu can be accessed by selecting the **Start** button.
4. Select **Save changes**.

▲ To initiate Hibernation, use the method that you enabled in step 3.

▲ To exit Hibernation, briefly press the power button.

NOTE: If you have set a password to be required on exiting Hibernation, you must enter your Windows password before your work returns to the screen.

Shutting down (turning off) the computer

CAUTION: Unsaved information is lost when the computer shuts down. Be sure to save your work before shutting down the computer.

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

Shut down the computer when it will be unused and disconnected from external power for an extended period.

The recommended procedure is to use the Windows Shut down command.

NOTE: If the computer is in the Sleep state or in Hibernation, first exit Sleep or Hibernation by briefly pressing the power button.

1. Save your work and close all open programs.
2. Select the **Start** button, select the **Power** icon, and then select **Shut down**.

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

- Press ctrl+alt+delete, select the **Power** icon, and then select **Shut down**.
- Press and hold the power button for at least 10 seconds.
- If your computer has a user-replaceable battery (select products only), disconnect the computer from external power, and then remove the battery.

Using the Power icon and Power Options

The Power icon is located on the Windows taskbar. The Power icon allows you to quickly access power settings and view the remaining battery charge.

- To view the percentage of remaining battery charge and the current power plan, place the mouse pointer over the **Power** icon .
- To use Power Options, right–click the **Power** icon , and then select **Power Options**.

Different Power icons indicate whether the computer is running on battery or external power. Placing the mouse pointer over the icon reveals a message if the battery has reached a low or critical battery level.

Running on battery power

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

When a charged battery is in the computer and the computer is not plugged into external power, the computer runs on battery power. When the computer is off and unplugged from external power, the battery in the computer slowly discharges. The computer displays a message when the battery reaches a low or critical battery level.

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

NOTE: When you disconnect external power, the display brightness is automatically decreased to conserve battery charge. Select computer products can switch between graphic modes to conserve battery charge.

Using HP Fast Charge (select products only)

The HP Fast Charge feature allows you to quickly charge your computer battery. Charging time may vary by +/- 10%. Depending on your computer model and the HP AC adapter provided with your computer, HP Fast Charge operates in one of the following ways:

- When the remaining battery charge is between zero and 50%, the battery will charge to 50% of full capacity in no more than 30 minutes.
- When the remaining battery charge is between zero and 90%, the battery will charge to 90% of full capacity in no more than 90 minutes.

To use HP Fast Charge, shut down your computer, and then connect the AC adapter to your computer and to external power.

Displaying battery charge

To view the percentage of remaining battery charge and the current power plan, place the mouse pointer over the **Power** icon .

Finding battery information in HP Support Assistant (select products only)

To access battery information:

1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.

   – or –

   Select the question mark icon in the taskbar.

2. Select **My PC**, select the **Diagnostics and tools** tab, and then select **HP Battery Check**. If HP Battery Check indicates that your battery should be replaced, contact support.

HP Support Assistant provides the following tools and information about the battery:

- HP Battery Check
- Information about battery types, specifications, life cycles, and capacity

Conserving battery power

To conserve battery power and maximize battery life:

- Lower the brightness of the display.
- Select the **Power saver** setting in Power Options.
- Turn off wireless devices when you are not using them.
- Disconnect unused external devices that are not plugged into an external power source, such as an external hard drive connected to a USB port.
- Stop, disable, or remove any external media cards that you are not using.
- Before you leave your work, initiate Sleep or shut down the computer.

Identifying low battery levels

When a battery that is the sole power source for the computer reaches a low or critical battery level, the following behavior occurs:

- The battery light (select products only) indicates a low or critical battery level.

– or –

- The Power icon shows a low or critical battery notification.

NOTE: For additional information about the Power icon, see Using the Power icon and Power Options on page 51.

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

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

Resolving a low battery level

Resolving a low battery level when external power is available

Connect one of the following to the computer and to external power:

- AC adapter
- Optional docking device or expansion product
- Optional power adapter purchased as an accessory from HP

Resolving a low battery level when no power source is available

Save your work and shut down the computer.

Resolving a low battery level when the computer cannot exit Hibernation

1. Connect the AC adapter to the computer and to external power.
2. Exit Hibernation by pressing the power button.

Factory-sealed battery

To monitor the status of the battery, or if the battery is no longer holding a charge, run HP Battery Check in the HP Support Assistant app (select products only).

1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.

   – or –

   Select the question mark icon in the taskbar.
2. Select **My PC**, select the **Diagnostics and tools** tab, and then select **HP Battery Check**. If HP Battery Check indicates that your battery should be replaced, contact support.

The battery[ies] in this product cannot be easily replaced by users themselves. Removing or replacing the battery could affect your warranty coverage. If a battery is no longer holding a charge, contact support.

When a battery has reached the end of its useful life, do not dispose of the battery in general household waste. Follow the local laws and regulations in your area for battery disposal.

Running on external power

For information about connecting to external power, refer to the *Setup Instructions* poster provided in the computer box.

The computer does not use battery power when the computer is connected to external power with an approved AC adapter or an optional docking device or expansion product.

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

WARNING! Do not charge the computer battery while you are aboard aircraft.

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

- When charging or calibrating a battery
- When installing or updating system software
- When updating the system BIOS
- When writing information to a disc (select products only)
- When running Disk Defragmenter on computers with internal hard drives
- When performing a backup or recovery

When you connect the computer to external power:

- The battery begins to charge.
- The screen brightness increases.
- The Power icon changes appearance.

When you disconnect external power:

- The computer switches to battery power.
- The screen brightness automatically decreases to conserve battery charge.
- The Power icon changes appearance.

Managing power for the keyboard base

The keyboard base runs on battery power whenever it is not plugged into external AC power. Battery life varies, depending on use and whether the backlight is used. The keyboard supports sleep state after being idle for 30 minutes.

Viewing battery charge

The Keyboard battery icon is located on the Windows taskbar. The icon allows you to quickly view the remaining battery charge.

To view the percentage of remaining battery charge, select the **Keyboard battery** icon .

NOTE: The keyboard button light also provides information about battery status. See Keyboard connectors, button, and status light on page 11.

Resolving a keyboard low battery level

To charge the keyboard, use one of these options:

- Connect the keyboard to the tablet. See Connecting the tablet to the keyboard base on page 16.
- Connect the keyboard to external AC power using the USB port on the keyboard and a USB adapter (purchased separately). To locate the USB port on the keyboard, see USB port and smart card reader/pen holder slot (select products only) on page 15.

8 Security

Protecting the computer

Standard security features provided by the Windows operating system and the Windows Computer Setup utility (BIOS, which runs under any operating system) can protect your personal settings and data from a variety of risks.

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

NOTE: Before you send your computer for service, back up and delete confidential files, and remove all password settings.

NOTE: Some features listed in this chapter may not be available on your computer.

NOTE: Your computer supports Computrace, which is an online security-based tracking and recovery service available in select regions. If the computer is stolen, Computrace can track the computer if the unauthorized user accesses the Internet. You must purchase the software and subscribe to the service in order to use Computrace. For information about ordering the Computrace software, go to http://www.hp.com.

Computer risk	Security feature
Unauthorized use of the computer	• HP Client Security software, in combination with a password, smart card, contactless card, registered fingerprints, or other authentication credential • BIOS power-on password
Unauthorized access to Computer Setup (BIOS)	BIOS administrator password in Computer Setup*
Unauthorized access to the contents of a hard drive	DriveLock password (select products only) in Computer Setup*
Unauthorized startup from an optional external optical drive (select products only), optional external hard drive (select products only), or internal network adapter	Boot options feature in Computer Setup*
Unauthorized access to a Windows user account	Windows user password
Unauthorized access to data	Windows BitLocker
Unauthorized removal of the computer	Security cable slot (used with an optional security cable on select products only)

*Computer Setup is an embedded, ROM-based utility that can be used even when the operating system is not working or will not load. You can use a pointing device (TouchPad, pointing stick, or USB mouse) or the keyboard to navigate and make selections in Computer Setup.

NOTE: On tablets without keyboards, you can use the touch screen.

Using passwords

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

- BIOS administrator, power-on, and DriveLock passwords are set in Computer Setup and are managed by the system BIOS.
- Windows passwords are set only in the Windows operating system.
- If you forget both the DriveLock user password and the DriveLock master password set in Computer Setup, the hard drive that is protected by the passwords is permanently locked and can no longer be used.

You can use the same password for a Computer Setup feature and for a Windows security feature.

Use the following tips for creating and saving passwords:

- When creating passwords, follow requirements set by the program.
- Do not use the same password for multiple applications or websites, and do not reuse your Windows password for any other application or website.
- Use the Password Manager feature of HP Client Security to store your user names and passwords for your websites and applications. You can securely read them in the future if they cannot be remembered.
- Do not store passwords in a file on the computer.

The following tables list commonly used Windows and BIOS administrator passwords and describe their functions.

Setting passwords in Windows

Password	Function
Administrator password*	Protects access to a Windows administrator-level account. **NOTE:** Setting the Windows administrator password does not set the BIOS administrator password.
User password*	Protects access to a Windows user account.
*For information about setting a Windows administrator password or a Windows user password, type `support` in the taskbar search box, and then select the **HP Support Assistant** app.	

Setting passwords in Computer Setup

Password	Function
BIOS administrator password*	Protects access to Computer Setup. **NOTE:** If features have been enabled to prevent removing the BIOS administrator password, you may not be able to remove it until those features have been disabled.
Power-on password	• Must be entered each time you turn on or restart the computer. • If you forget your power-on password, you cannot turn on or restart the computer.
DriveLock master password*	Protects access to the internal hard drive that is protected by DriveLock, and is set under DriveLock Passwords during the enable process. This password is also used to remove DriveLock protection.
DriveLock user password*	Protects access to the internal hard drive that is protected by DriveLock, and is set under DriveLock Passwords during the enable process.
*For details about each of these passwords, see the following topics.	

Managing a BIOS administrator password

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

Setting a new BIOS administrator password

1. Start Computer Setup.
   - Computers or tablets with keyboards:
     - ▲ Turn on or restart the computer, and when the HP logo appears, press f10 to enter Computer Setup.
   - Tablets without keyboards:
     - ▲ Turn off the tablet. Press the power button in combination with the volume down button until the Startup menu is displayed, and then tap **f10** to enter Computer Setup.
2. Select **Security**, select **Create BIOS administrator password** or **Set Up BIOS administrator Password** (select products only), and then press enter.
3. When prompted, type a password.
4. When prompted, type the new password again to confirm.
5. To save your changes and exit Computer Setup, select the **Save** icon and then follow the on-screen instructions.

   – or –

   Select **Main**, select **Save Changes and Exit**, and then press enter.

Your changes go into effect when the computer restarts.

Changing a BIOS administrator password

1. Start Computer Setup.

- Computers or tablets with keyboards:
  - ▲ Turn on or restart the computer, and when the HP logo appears, press f10 to enter Computer Setup.
- Tablets without keyboards:
  - ▲ Turn off the tablet. Press the power button in combination with the volume down button until the Startup menu is displayed, and then tap **f10** to enter Computer Setup.

2. Enter your current BIOS administrator password.
3. Select **Security**, select **Change BIOS administrator Password** or **Change Password** (select products only), and then press enter.
4. When prompted, type your current password.
5. When prompted, type your new password.
6. When prompted, type your new password again to confirm.
7. To save your changes and exit Computer Setup, select the **Save** icon, and then follow the on-screen instructions.

   – or –

   Select **Main**, select **Save Changes and Exit**, and then press enter.

Your changes go into effect when the computer restarts.

Deleting a BIOS administrator password

1. Start Computer Setup.
   - Computers or tablets with keyboards:
     - ▲ Turn on or restart the computer, and when the HP logo appears, press f10 to enter Computer Setup.
   - Tablets without keyboards:
     - ▲ Turn off the tablet. Press the power button in combination with the volume down button until the Startup menu is displayed, and then tap **f10** to enter Computer Setup.
2. Enter your current BIOS administrator password.
3. Select **Security**, select **Change BIOS administrator Password** or **Change Password** (select products only), and then press enter.
4. When prompted, type your current password.
5. When prompted for the new password, leave the field empty, and then press enter.
6. When prompted to type your new password again, leave the field empty, and then press enter.
7. To save your changes and exit Computer Setup, select the **Save** icon, and then follow the on-screen instructions.

   – or –

   Select **Main**, select **Save Changes and Exit**, and then press enter.

Your changes go into effect when the computer restarts.

Entering a BIOS administrator password

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

Using DriveLock Security Options

DriveLock protection prevents unauthorized access to the contents of a hard drive. DriveLock can be applied only to the internal hard drive(s) of the computer. After DriveLock protection is applied to a drive, the appropriate password must be entered to access the drive. The drive must be inserted into the computer or an advanced port replicator in order for it to be unlocked.

DriveLock Security Options offers the following features:

- **Automatic DriveLock**—See Selecting Automatic DriveLock (select products only) on page 59.
- **Set DriveLock Master Password**—See Selecting manual DriveLock on page 60.
- **Enable DriveLock**—See Enabling DriveLock and setting a DriveLock user password on page 61.

Selecting Automatic DriveLock (select products only)

A BIOS administrator password must be set before you can enable Automatic DriveLock. When Automatic DriveLock is enabled, a random DriveLock user password and a DriveLock master password derived from the BIOS administrator password are created. When the computer is turned on, the random user password automatically unlocks the drive. If the drive is moved to another computer, you must enter the BIOS administrator password for the original computer at the DriveLock password prompt to unlock the drive.

Enabling Automatic DriveLock

To enable Automatic DriveLock, follow these steps:

1. Start Computer Setup.
   - Computers or tablets with keyboards:
     1. Turn off the computer.
     2. Press the power button, and when the HP logo appears, press f10 to enter Computer Setup.
   - Tablets without keyboards:
     1. Turn off the tablet.
     2. Press the power button in combination with the volume down button until the Startup menu is displayed, and then tap **f10** to enter Computer Setup.
2. At the BIOS administrator password prompt, enter the BIOS administrator password, and then press enter.
3. Select **Security**, select **Hard Drive Utilities**, select **DriveLock/Automatic DriveLock**, and then press enter.
4. Use the enter key, left mouse click, or touch screen to select the **Automatic DriveLock** check box.
5. To save your changes and exit Computer Setup, select the **Save** icon and then follow the on-screen instructions.

   – or –

   Select **Main**, select **Save Changes and Exit**, and then press enter.

Disabling Automatic DriveLock

To disable Automatic DriveLock, follow these steps:

1. Start Computer Setup.
   - Computers or tablets with keyboards:
     1. Turn off the computer.
     2. Press the power button, and when the HP logo appears, press f10 to enter Computer Setup.
   - Tablets without keyboards:
     1. Turn off the tablet.
     2. Press the power button in combination with the volume down button until the Startup menu is displayed, and then tap **f10** to enter Computer Setup.
2. At the BIOS administrator password prompt, enter the BIOS administrator password, and then press enter.
3. Select **Security**, select **Hard Drive Utilities**, select **DriveLock/Automatic DriveLock**, and then press enter.
4. Select an internal hard drive, and then press enter.
5. Use the enter key, left mouse click, or touch screen to clear the **Automatic DriveLock** check box.
6. To save your changes and exit Computer Setup, select the **Save** icon, and then follow the on-screen instructions.

   – or –

   Select **Main**, select **Save Changes and Exit**, and then press enter.

Entering an Automatic DriveLock password

While Automatic DriveLock is enabled and the drive remains attached to the original computer, you will not be prompted to enter a DriveLock password to unlock the drive. However, if the drive is moved to another computer, or the system board is replaced on the original computer, you will be prompted to provide the DriveLock password.

If this happens, at the **DriveLock Password** prompt, type the BIOS administrator password for the original computer (using the same kind of keys you used to set the password), and then press enter to unlock the drive.

After three incorrect attempts to enter the password, you must shut down the computer and try again.

Selecting manual DriveLock

⚠ **CAUTION:** To prevent a DriveLock-protected hard drive from becoming permanently unusable, record the DriveLock user password and the DriveLock master password in a safe place away from your computer. If you forget both DriveLock passwords, the hard drive will be permanently locked and can no longer be used.

To manually apply DriveLock protection to an internal hard drive, a master password must be set, and DriveLock must be enabled in Computer Setup. Note the following considerations about using DriveLock protection:

- After DriveLock protection is applied to a hard drive, the hard drive can be accessed only by entering either the DriveLock user password or the master password.
- The owner of the DriveLock user password should be the day-to-day user of the protected hard drive. The owner of the DriveLock master password may be either a system administrator or the day-to-day user.
- The DriveLock user password and the DriveLock master password can be identical.

Setting a DriveLock master password

To set a DriveLock master password, follow these steps:

1. Start Computer Setup.
   - Computers or tablets with keyboards:
     1. Turn off the computer.
     2. Press the power button, and when the HP logo appears, press f10 to enter Computer Setup.
   - Tablets without keyboards:
     1. Turn off the tablet.
     2. Press the power button in combination with the volume down button until the Startup menu is displayed, and then tap **f10** to enter Computer Setup.
2. Select **Security**, make the selection for **Hard Drive Utilities**, select **DriveLock/Automatic DriveLock**, and then press enter.
3. Select the hard drive you want to protect, and then press enter.
4. Select **Set DriveLock Master Password**, and then press enter.
5. Carefully read the warning.
6. Follow the on-screen instructions to set a DriveLock master password.

   NOTE: You can enable DriveLock and set a DriveLock user password before exiting from Computer Setup. For more information, see Enabling DriveLock and setting a DriveLock user password on page 61.

7. To exit Computer Setup, select **Main**, select **Save Changes and Exit**, and then select **Yes**.

Enabling DriveLock and setting a DriveLock user password

To enable DriveLock, and set a DriveLock user password, follow these steps:

1. Start Computer Setup.
   - Computers or tablets with keyboards:
     1. Turn off the computer.
     2. Press the power button, and when the HP logo appears, press f10 to enter Computer Setup.
   - Tablets without keyboards:

1. Turn off the tablet.
2. Press the power button in combination with the volume down button until the Startup menu is displayed, and then tap **f10** to enter Computer Setup.

2. Select **Security**, select **Hard Drive Utilities**, select **DriveLock/Automatic DriveLock**, and then press enter.
3. Select the hard drive you want to protect, and then press enter.
4. Select **Enable DriveLock** and then press enter.
5. Carefully read the warning.
6. Follow the on-screen instructions to set a DriveLock user password and enable DriveLock.
7. To exit Computer Setup, select **Main**, select **Save Changes and Exit**, and then select **Yes**.

Disabling DriveLock

1. Start Computer Setup.
   - Computers or tablets with keyboards:
     1. Turn off the computer.
     2. Press the power button, and when the HP logo appears, press f10 to enter Computer Setup.
   - Tablets without keyboards:
     1. Turn off the tablet.
     2. Press the power button in combination with the volume down button until the Startup menu is displayed, and then tap **f10** to enter Computer Setup.
2. Select **Security**, select **Hard Drive Utilities**, select **DriveLock/Automatic DriveLock**, and then press enter.
3. Select the hard drive you want to manage, and then press enter.
4. Select **Disable DriveLock**, and then press enter.
5. Follow the on-screen instructions to disable DriveLock.
6. To exit Computer Setup, select **Main**, select **Save Changes and Exit**, and then select **Yes**.

Entering a DriveLock password

Be sure that the hard drive is inserted into the computer (not into an optional docking device or external MultiBay).

At the **DriveLock Password** prompt, type your DriveLock user or master password (using the same kind of keys you used to set the password), and then press enter.

After three incorrect attempts to enter the password, you must shut down the computer and try again.

Changing a DriveLock password

To change a DriveLock password in Computer Setup, follow these steps:

1. Turn off the computer.
2. Press the power button.

3. At the **DriveLock Password** prompt, type the current DriveLock user password or master password that you are changing, press enter, and then press or tap f10 to enter Computer Setup.
4. Select **Security**, select **Hard Drive Utilities**, select **DriveLock/Automatic DriveLock**, and then press enter.
5. Select the hard drive you want to manage, and then press enter.
6. Make the selection for the DriveLock password that you want to change, and then follow the on-screen instructions to enter passwords.

   NOTE: The **Change DriveLock Master Password** option is visible only if the DriveLock master password was provided at the DriveLock Password prompt in step 3.

7. To exit Computer Setup, select **Main**, select **Save Changes and Exit**, and then follow the on-screen instructions.

Using Windows Hello (select products only)

On products equipped with a fingerprint reader or an infrared camera, you can use Windows Hello to sign in by swiping your finger or looking at the camera.

To set up Windows Hello, follow these steps:

1. Select the **Start** button, select **Settings**, select **Accounts**, and then select **Sign-in options**.
2. Under **Windows Hello**, follow the on-screen instructions to add both a password and a numeric PIN, and then enroll your fingerprint or facial ID.

   NOTE: The PIN is not limited in length, but it must consist of numbers only. No alphabetic or special characters are allowed.

Using antivirus software

When you use the computer to access e-mail, a network, or the Internet, you potentially expose it to computer viruses. Computer viruses can disable the operating system, programs, or utilities, or cause them to function abnormally.

Antivirus software can detect most viruses, destroy them, and, in most cases, repair any damage they have caused. To provide ongoing protection against newly discovered viruses, antivirus software must be kept up to date.

Windows Defender is preinstalled on your computer. It is strongly recommended that you continue to use an antivirus program in order to fully protect your computer.

For more information about computer viruses, access the HP Support Assistant.

Using firewall software

Firewalls are designed to prevent unauthorized access to a system or network. A firewall can be a software program you install on your computer and/or network, or it can be a solution made up of both hardware and software.

There are two types of firewalls to consider:

- Host-based firewalls—Software that protects only the computer it is installed on.
- Network-based firewalls—Installed between your DSL or cable modem and your home network to protect all the computers on the network.

When a firewall is installed on a system, all data sent to and from the system is monitored and compared with a set of user-defined security criteria. Any data that does not meet those criteria is blocked.

Your computer or networking equipment may already have a firewall installed. If not, firewall software solutions are available.

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

Installing software updates

HP, Windows, and third-party software installed on your computer should be regularly updated to correct security problems and improve software performance.

IMPORTANT: Microsoft sends out alerts regarding Windows updates, which may include security updates. To protect the computer from security breaches and computer viruses, install all updates from Microsoft as soon as you receive an alert.

You can install these updates automatically.

To view or change the settings:

1. Select the **Start** button, select **Settings**, and then select **Update & Security**.
2. Select **Windows Update**, and then follow the on-screen instructions.
3. To schedule a time for installing updates, select **Advanced Options**, and then follow the on-screen instructions.

Using HP Client Security (select products only)

HP Client Security software is preinstalled on your computer. This software can be accessed through the HP Client Security icon at the far right of the taskbar or Windows Control Panel. It provides security features that help protect against unauthorized access to the computer, networks, and critical data. For more information, see the HP Client Security software Help.

Using HP Touchpoint Manager (select products only)

HP Touchpoint Manager is a cloud-based IT solution that enables businesses to effectively manage and secure their company assets. HP Touchpoint Manager helps protect devices against malware and other attacks, monitors device health, and enables customers to reduce time spent solving end-user device and security issues. Customers can quickly download and install the software, which is highly cost effective relative to traditional in-house solutions. For more information, see http://www.hptouchpointmanager.com.

Using an optional security cable (select products only)

A security cable (purchased separately) is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen. To connect a security cable to your computer, follow the device manufacturer's instructions.

Using a fingerprint reader (select products only)

Integrated fingerprint readers are available on select products. In order to use the fingerprint reader, you must enroll your fingerprints in HP Client Security's Credential Manager. Refer to the HP Client Security software Help.

After you enroll your fingerprints in Credential Manager, you can use HP Client Security's Password Manager to store and fill in your user names and passwords in supported websites and applications.

Locating the fingerprint reader

The fingerprint reader is a small metallic sensor that is located in one of the following areas of your computer:

- Near the bottom of the TouchPad
- On the right side of the keyboard
- On the upper-right side of the display
- On the left side of the display
- On the back of the display

Depending on your product, the reader may be oriented horizontally or vertically.

9 Maintenance

It is important to perform regular maintenance to keep your computer in optimal condition. This chapter explains how to use tools like Disk Defragmenter and Disk Cleanup. It also provides instructions for updating programs and drivers, steps to clean the computer, and tips for traveling with (or shipping) the computer.

Improving performance

You can improve the performance of your computer by performing regular maintenance tasks with tools such as Disk Defragmenter and Disk Cleanup.

Using Disk Defragmenter

HP recommends using Disk Defragmenter to defragment your hard drive at least once a month.

NOTE: It is not necessary to run Disk Defragmenter on solid-state drives.

To run Disk Defragmenter:

1. Connect the computer to AC power.
2. Type `defragment` in the taskbar search box, and then select **Defragment and optimize your drives**.
3. Follow the on-screen instructions.

For additional information, access the Disk Defragmenter software Help.

Using Disk Cleanup

Use Disk Cleanup to search the hard drive for unnecessary files that you can safely delete to free up disk space and help the computer run more efficiently.

To run Disk Cleanup:

1. Type `disk` in the taskbar search box, and then select **Disk Cleanup**.
2. Follow the on-screen instructions.

Using HP 3D DriveGuard (select products only)

HP 3D DriveGuard protects a hard drive by parking the drive and halting data requests under either of the following conditions:

- You drop the computer.
- You move the computer with the display closed while the computer is running on battery power.

A short time after the end of one of these events, HP 3D DriveGuard returns the hard drive to normal operation.

NOTE: Only internal hard drives are protected by HP 3D DriveGuard. A hard drive installed in an optional docking device or connected to a USB port is not protected by HP 3D DriveGuard.

NOTE: Because solid-state drives (SSDs) lack moving parts, HP 3D DriveGuard is unnecessary for these drives.

For more information, see the HP 3D DriveGuard software Help.

Identifying HP 3D DriveGuard status

The hard drive light on the computer changes color to show that the drive in a primary hard drive bay and/or the drive in a secondary hard drive bay (select products only) is parked. To determine whether a drive is currently protected or whether it is parked, view the icon on the Windows desktop in the notification area, at the far right of the taskbar.

Updating programs and drivers

HP recommends that you update your programs and drivers on a regular basis. Updates can resolve issues and bring new features and options to your computer. For example, older graphics components might not work well with the most recent gaming software. Without the latest driver, you would not be getting the most out of your equipment.

Go to http://www.hp.com/support to download the latest versions of HP programs and drivers. In addition, register to receive automatic notifications when updates become available.

If you would like to update your programs and drivers, follow these instructions:

1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.

   – or –

   Click the question mark icon in the taskbar.
2. Select **My PC**, select the **Updates** tab, and then select **Check for updates and messages**.
3. Follow the on-screen instructions.

Cleaning your computer

Use the following products to safely clean your computer:

- Dimethyl benzyl ammonium chloride 0.3 percent maximum concentration (for example, disposable wipes, which come in a variety of brands)
- Alcohol-free glass-cleaning fluid
- Solution of water and mild soap
- 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 computer. If you are not sure that a cleaning product is safe for your computer, check the product contents to make sure that ingredients such as alcohol, acetone, ammonium chloride, methylene chloride, and hydrocarbons are not included in the product.

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

Cleaning procedures

Follow the procedures in this section to safely clean your computer.

WARNING! To prevent electric shock or damage to components, do not attempt to clean your computer while it is on.

1. Turn off the computer.
2. Disconnect AC power.
3. Disconnect all powered external devices.

CAUTION: To prevent damage to internal components, do not spray cleaning agents or liquids directly on any computer surface. Liquids dripped on the surface can permanently damage internal components.

Cleaning the display

Gently wipe the display using a soft, lint-free cloth moistened with an alcohol-free glass cleaner. Be sure that a display is dry before you close the computer.

Cleaning the sides or cover

To clean the sides or cover, use a soft microfiber cloth or chamois moistened with one of the cleaning solutions listed previously, or use an acceptable disposable wipe.

NOTE: When cleaning the cover of the computer, use a circular motion to aid in removing dirt and debris.

Cleaning the TouchPad, keyboard, or mouse (select products only)

WARNING! To reduce the risk of electric shock or damage to internal components, do not use a vacuum cleaner attachment to clean the keyboard. A vacuum cleaner can deposit household debris on the keyboard surface.

CAUTION: To prevent damage to internal components, do not allow liquids to drip between the keys.

- To clean the TouchPad, keyboard, or mouse, use a soft microfiber cloth or a chamois moistened with one of the cleaning solutions listed previously or use an acceptable disposable wipe.
- To prevent keys from sticking and to remove dust, lint, and particles from the keyboard, use a can of compressed air with a straw extension.

Traveling with or shipping your computer

If you have to travel with or ship your computer, follow these tips to keep your equipment safe.

- Prepare the computer for traveling or shipping:
  - Back up your information to an external drive.
  - Remove all discs and all external media cards, such as memory cards.
  - Turn off and then disconnect all external devices.
  - Shut down the computer.
- Take along a backup of your information. Keep the backup separate from the computer.
- When traveling by air, carry the computer as hand luggage; do not check it in with the rest of your luggage.

CAUTION: Avoid exposing a drive to magnetic fields. Security devices with magnetic fields include airport walk-through devices and security wands. Airport conveyer belts and similar security devices that check carry-on baggage use X-rays instead of magnetism and do not damage drives.

- If you plan to use the computer during a flight, listen for the in-flight announcement that tells you when you are allowed to use your computer. In-flight computer use is at the discretion of the airline.
- If you are shipping the computer or a drive, use suitable protective packaging and label the package “FRAGILE.”
- The use of wireless devices may be restricted in some environments. Such restrictions may apply aboard aircraft, in hospitals, near explosives, and in hazardous locations. If you are uncertain of the policy that applies to the use of a wireless device in your computer, ask for authorization to use your computer before you turn it on.
- If you are traveling internationally, follow these suggestions:
  - Check the computer-related customs regulations for each country or region on your itinerary.
  - Check the power cord and adapter requirements for each location in which you plan to use the computer. Voltage, frequency, and plug configurations vary.

    ⚠ **WARNING!** To reduce the risk of electric shock, fire, or damage to the equipment, do not attempt to power the computer with a voltage converter kit sold for appliances.

10 Backing up, restoring, and recovering

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

- Creating recovery media and backups
- Restoring and recovering your system

For additional information, refer to the HP Support Assistant app.

▲ Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.

– or –

Select the question mark icon in the taskbar.

IMPORTANT: If you will be performing recovery procedures on a tablet, the tablet battery must be at least 70% charged before you start the recovery process.

IMPORTANT: For a tablet with a detachable keyboard, connect the tablet to the keyboard base before beginning any recovery process.

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 computer model.

- Use HP Recovery Manager to create HP Recovery media after you successfully set up the computer. This step creates a backup of the HP Recovery partition on the computer. 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 70. For information on the recovery options that are available using the recovery media, see Using Windows tools on page 71.
- 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 72.

  NOTE: If storage is 32 GB or less, Microsoft System Restore is disabled by default.
- On select products, use the HP Cloud Recovery Download Tool to create a bootable USB drive for your HP recovery media. Go to https://support.hp.com/us-en/document/c05115630?openCLC=true, select your country or region, and follow the on-screen instructions.

Creating HP Recovery media (select products only)

If possible, check for the presence of the Recovery partition and the Windows partition. Right-click the **Start** menu, select **File Explorer**, and then select **This PC**.

- If your computer does not list the Windows partition and the Recovery partition, you can obtain recovery media for your system from support. You can 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 71.

- If your computer 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 computer. 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 computer and determines the required storage capacity for the media that will be required.
  - To create recovery discs, your computer 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 computer 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 computer; 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 computer from HP. You can 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 computer 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:

IMPORTANT: For a tablet with a detachable keyboard, connect the tablet to the keyboard base before beginning these steps.

1. Type `recovery` in the taskbar search box, and then select **HP Recovery Manager**.
2. 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 72.

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 the Get help app.

▲ Select the **Start** button, and then select the **Get Help** app.

NOTE: You must be connected to the Internet to access the Get help app.

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 computer, and resetting the computer to its original state. For more information see the Get help app.

  ▲ Select the **Start** button, and then select the **Get Help** app.

  NOTE: You must be connected to the Internet to access the Get help app.

- 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 72. If you have not already created recovery media, see Creating HP Recovery media (select products only) on page 70.
- On select products, if you want to recover the computer'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 72.
- 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 74.

Recovering using HP Recovery Manager

HP Recovery Manager software allows you to recover the computer 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 70.

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 computer, 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 computer issues.

- HP Recovery media must be used if the computer hard drive fails. If you have not already created recovery media, see Creating HP Recovery media (select products only) on page 70.

- 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 70.
- If your computer 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. You can 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 computer 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 computer 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:

IMPORTANT: For a tablet with a detachable keyboard, connect the tablet to the keyboard base before beginning these steps (select products only).

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

   – or –

   For computers or tablets with keyboards attached, press f11 while the computer boots, or press and hold f11 as you press the power button.

   For tablets without keyboards:

   - Turn on or restart the tablet, and then quickly hold down the volume up button; then select **f11**.

   – or –

   - Turn on or restart the tablet, and then quickly hold down the volume down button; then select **f11**.
2. Select **Troubleshoot** from the boot options menu.
3. Select **Recovery Manager**, 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 computer.

   NOTE: If the computer does not automatically restart in HP Recovery Manager, change the computer boot order. See Changing the computer boot order on page 74.

3. Follow the on-screen instructions.

Changing the computer boot order

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

To change the boot order:

IMPORTANT: For a tablet with a detachable keyboard, connect the tablet to the keyboard base before beginning these steps.

1. Insert the HP Recovery media.
2. Access the system **Startup** menu.

   For computers or tablets with keyboards attached:

   ▲ Turn on or restart the computer or tablet, quickly press esc, and then press f9 for boot options.

   For tablets without keyboards:

   ▲ Turn on or restart the tablet, and then quickly hold down the volume up button; then select **f9**.

   – or –

   Turn on or restart the tablet, and then quickly hold down the volume down button; then select **f9**.

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 70.

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.

11 Computer Setup (BIOS), TPM, and HP Sure Start

Using Computer Setup

Computer Setup, or Basic Input/Output System (BIOS), controls communication between all the input and output devices on the system (such as disk drives, display, keyboard, mouse, and printer). Computer Setup includes settings for the types of devices installed, the startup sequence of the computer, and the amount of system and extended memory.

NOTE: Use extreme care when making changes in Computer Setup. Errors can prevent the computer from operating properly.

Starting Computer Setup

IMPORTANT: The keyboard must be attached to the tablet.

▲ Turn on or restart the computer, and when the HP logo appears, press f10 to enter Computer Setup.

Navigating and selecting in Computer Setup

- To select a menu or a menu item, use the tab key and the keyboard arrow keys and then press enter, or use a pointing device to select the item.
- To scroll up and down, select the up arrow or the down arrow in the upper-right corner of the screen, or use the up arrow key or the down arrow key on the keyboard.
- To close open dialog boxes and return to the main Computer Setup screen, press esc, and then follow the on-screen instructions.

To exit Computer Setup menus, choose one of the following methods:

- To exit Computer Setup menus without saving your changes:

  Select the **Exit** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

  – or –

  Select **Main**, select **Ignore Changes and Exit**, and then press enter.
- To save your changes and exit Computer Setup menus:

  Select the **Save** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

  – or –

  Select **Main**, select **Save Changes and Exit**, and then press enter.

Your changes go into effect when the computer restarts.

Restoring factory settings in Computer Setup

NOTE: Restoring defaults will not change the hard drive mode.

To return all settings in Computer Setup to the values that were set at the factory, follow these steps:

1. Start Computer Setup. See Starting Computer Setup on page 75.
2. Select **Main**, and then select **Apply Factory Defaults and Exit**.

   NOTE: On select products, the selections may display **Restore Defaults** instead of **Apply Factory Defaults and Exit**.

3. Follow the on-screen instructions.
4. To save your changes and exit, select the **Save** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

   – or –

   Select **Main**, select **Save Changes and Exit**, and then press enter.

Your changes go into effect when the computer restarts.

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

Updating the BIOS

Updated versions of the BIOS may be available on the HP website.

Most BIOS updates on the HP website are packaged in compressed files called *SoftPaqs*.

Some download packages contain a file named Readme.txt, which contains information regarding installing and troubleshooting the file.

Determining the BIOS version

To decide whether you need to update Computer Setup (BIOS), first determine the BIOS version on your computer.

BIOS version information (also known as *ROM date* and *System BIOS*) can be accessed by pressing fn+esc (if you are already in Windows) or by using Computer Setup.

1. Start Computer Setup. See Starting Computer Setup on page 75.
2. Select **Main**, and then select **System Information**.
3. To exit Computer Setup without saving your changes, select the **Exit** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

   – or –

   Select **Main**, select **Ignore Changes and Exit**, and then press enter.

To check for later BIOS versions, see Downloading a BIOS update on page 77.

Downloading a BIOS update

⚠ **CAUTION:** To reduce the risk of damage to the computer or an unsuccessful installation, download and install a BIOS update only when the computer is connected to reliable external power using the AC adapter. Do not download or install a BIOS update while the computer is running on battery power, docked in an optional docking device, or connected to an optional power source. During the download and installation, follow these instructions:

Do not disconnect power on the computer by unplugging the power cord from the AC outlet.

Do not shut down the computer or initiate Sleep.

Do not insert, remove, connect, or disconnect any device, cable, or cord.

1. Type `support` in the taskbar search box, and then select the HP Support Assistant app.

   – or –

   Select the question mark icon in the taskbar.
2. Select **Updates**, and then select **Check for updates and messages**.
3. Follow the on-screen instructions.
4. At the download area, follow these steps:
   a. Identify the most recent BIOS update and compare it to the BIOS version currently installed on your computer. Make a note of the date, name, or other identifier. You may need this information to locate the update later, after it has been downloaded to your hard drive.
   b. Follow the on-screen instructions to download your selection to the hard drive.

      Make a note of the path to the location on your hard drive where the BIOS update is downloaded. You will need to access this path when you are ready to install the update.

NOTE: If you connect your computer to a network, consult the network administrator before installing any software updates, especially system BIOS updates.

BIOS installation procedures vary. Follow any instructions that are displayed on the screen after the download is complete. If no instructions are displayed, follow these steps:

1. Type `file` in the taskbar search box, and then select **File Explorer**.
2. Select your hard drive designation. The hard drive designation is typically Local Disk (C:).
3. Using the hard drive path you recorded earlier, open the folder that contains the update.
4. Double-click the file that has an .exe extension (for example, *filename*.exe).

   The BIOS installation begins.
5. Complete the installation by following the on-screen instructions.

NOTE: After a message on the screen reports a successful installation, you can delete the downloaded file from your hard drive.

Changing the boot order using the f9 prompt

To dynamically choose a boot device for the current startup sequence, follow these steps:

IMPORTANT: The keyboard must be attached to the tablet.

1. Turn on or restart the computer, and when the HP logo appears, press f9 to enter the **Boot Device Options** menu.
2. Select a boot device, press enter, and then follow the on-screen instructions.

TPM BIOS settings (select products only)

IMPORTANT: Before enabling Trusted Platform Module (TPM) functionality on this system, you must ensure that your intended use of TPM complies with relevant local laws, regulations and policies, and approvals or licenses must be obtained if applicable. For any compliance issues arising from your operation/usage of TPM which violates the above mentioned requirement, you shall bear all the liabilities wholly and solely. HP will not be responsible for any related liabilities.

TPM provides additional security for your computer. You can modify the TPM settings in Computer Setup (BIOS).

NOTE: If you change the TPM setting to Hidden, TPM is not visible in the operating system.

To access TPM settings in Computer Setup:

1. Start Computer Setup. See Starting Computer Setup on page 75.
2. Select **Security**, select **TPM Embedded Security**, and then follow the on-screen instructions.

Using HP Sure Start (select products only)

Select computer models are configured with HP Sure Start, a technology that monitors the computer's BIOS for attacks or corruption. If the BIOS becomes corrupted or is attacked, HP Sure Start automatically restores the BIOS to its previously safe state, without user intervention.

HP Sure Start is configured and already enabled so that most users can use the HP Sure Start default configuration. The default configuration can be customized by advanced users.

To access the latest documentation on HP Sure Start, go to http://www.hp.com/support. Select **Find your product**, and then follow the on-screen instructions.

12 Using HP PC Hardware Diagnostics (UEFI)

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

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

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

IMPORTANT: The keyboard must be attached to the tablet.

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

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

   a. Connected USB drive

      NOTE: To download the HP PC Hardware Diagnostics (UEFI) tool to a USB drive, see Downloading HP PC Hardware Diagnostics (UEFI) to a USB device on page 80.

   b. Hard drive

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

NOTE: To stop a test, press the button you used to access UEFI.

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

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

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

Download the latest UEFI version

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

Download any version of UEFI for a specific product

1. Go to http://www.hp.com/support.
2. Select **Get software and drivers**.
3. Enter the product name or number.

4. Select your computer, and then select your operating system.
5. In the **Diagnostic** section, follow the on-screen instructions to select and download the UEFI version you want.

13 Specifications

Input power

The power information in this section may be helpful if you plan to travel internationally with the computer.

The computer operates on DC power, which can be supplied by an AC or a DC power source. The AC power source must be rated at 100–240 V, 50–60 Hz. Although the computer can be powered from a standalone DC power source, it should be powered only with an AC adapter or a DC power source supplied and approved by HP for use with this computer.

The computer can operate on DC power within the following specifications.

Input Power	Rating
Operating voltage and current	19.5 V dc @ 3.33 A – 65 W
	19.5 V dc @ 4.62 A – 90 W

NOTE: This product is designed for IT power systems in Norway with phase-to-phase voltage not exceeding 240 V rms.

NOTE: The computer operating voltage and current can be found on the system regulatory label.

Operating environment

Factor	Metric	U.S.
Temperature		
Operating (writing to optical disc)	**5°C to 35°C**	41°F to 95°F
Nonoperating	**-20°C to 60°C**	-4°F to 140°F
Relative humidity (noncondensing)		
Operating	**10% to 90%**	10% to 90%
Nonoperating	**5% to 95%**	5% to 95%
Maximum altitude (unpressurized)		
Operating	**-15 m to 3,048 m**	-50 ft to 10,000 ft
Nonoperating	**-15 m to 12,192 m**	-50 ft to 40,000 ft

14 Electrostatic Discharge

Electrostatic discharge is the release of static electricity when two objects come into contact—for example, the shock you receive when you walk across the carpet and touch a metal door knob.

A discharge of static electricity from fingers or other electrostatic conductors may damage electronic components.

To prevent damage to the computer, damage to a drive, or loss of information, observe these precautions:

- If removal or installation instructions direct you to unplug the computer, first be sure that it is properly grounded.
- Keep components in their electrostatic-safe containers until you are ready to install them.
- Avoid touching pins, leads, and circuitry. Handle electronic components as little as possible.
- Use nonmagnetic tools.
- Before handling components, discharge static electricity by touching an unpainted metal surface.
- If you remove a component, place it in an electrostatic-safe container.

15 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 +1 (888) 259-5707, Monday through Friday, 6 a.m. to 9 p.m. North American 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 +1 (877) 656-7058, Monday through Friday, 6 a.m. to 9 p.m. North American Mountain Time.

NOTE: Support is in English only.

Index

A

accessibility 84
action keys
  using 14
administrator password 56
airplane mode key 23
antivirus software 63
Audio 45
audio-out (headphone)/audio-in (microphone) combo jack, identifying 6
Automatic DriveLock
  disabling 60
  enabling 59
Automatic Drivelock 59
Automatic DriveLock password
  entering 60

B

backup, graphic software settings 41
backups 70
battery
  conserving power 52
  discharging 52
  factory-sealed 53
  finding information 52
  low battery levels 52
  resolving low battery level 53
battery charge 52
battery information, finding 52
battery light 4
battery power 51
BIOS
  determining version 77
  downloading an update 77
  updating 77
Bluetooth device 23, 25
Bluetooth label 21
boot order
  changing 74
bottom 21
button mappings 40
buttons
  customizing 34
  power 6
  volume down 7
  volume up 6

C

camera
  identifying 8, 20
  using 44
caring for your computer 67
change mode down button, identifying 8
change mode up button, identifying 8
cleaning your computer 67
click area
  left TouchPad 10
  right TouchPad 10
components
  bottom 19
  front 7
  keyboard base 10
  left side 6
  rear 19
  right side 4
  top 19
Computer Setup
  BIOS administrator password 57
  navigating and selecting 75
  restoring factory settings 75
connecting to a WLAN 24
connector, power 5
corporate WLAN connection 24
critical battery level 53

D

Disk Cleanup software 66
Disk Defragmenter software 66
docking connector, identifying 19
DriveLock
  description 60
  disabling 62
  enabling 61
DriveLock master password
  changing 62
DriveLock password
  changing 62
  entering 62
  setting 61

E

electrostatic discharge 83
embedded numeric keypad, identifying 13
eraser 36
esc key, identifying 13
expert graphic software settings 41
external power, using 53

F

factory-sealed battery 53
fingerprint reader 65
fingerprint reader, identifying 5
fingerprints, registering 63
firewall software 63
fn key, identifying 13
four-finger tap TouchPad gesture 31
function and mode light, identifying 8
function keys, identifying 13

G

GPS 25
graphics software
  customizing 34

H

HDMI port
  connecting 47
HDMI port, identifying 5
HDMI, configuring audio 47
headphones, connecting 44
headsets, connecting 45
Hibernation
  exiting 50
  initiated during critical battery level 53
  initiating 50

high-definition devices, connecting 47, 48
hot keys
microphone mute 14
hotkeys, using 15
HP 3D DriveGuard 66
HP Client Security 64
HP Fast Charge 51
HP LAN-WLAN Protection 28
HP MAC Address Manager 28
HP Mobile Connect 25
HP PC Hardware Diagnostics (UEFI)
Failure ID code 80
using 80
HP Recovery Manager
correcting boot problems 74
starting 73
HP Recovery media
creating 70
recovery 73
HP Recovery partition
recovery 73
removing 74
HP resources 2
HP Touchpoint Manager 64
HP ZBook x2 Control software
adding apps 38
adding devices 40
adding tools 40
customizing 34
deleting tools 40
determining version 42
downloading 42
installing 34
troubleshooting 43
updating 42
using 34
view mappings 40
Virtual Desktop 40

I
import expert graphic software settings 41
infrared camera light, identifying 8
initiating Sleep and Hibernation 49
input power 82
internal microphones, identifying 8

J
jacks
audio-out (headphone)/audio-in (microphone) combo 6

K
keyboard and optional mouse
using 33
keyboard base
components 10
connecting 16
pairing 17
removing 17
using wirelessly 17
keyboard battery
resolving low battery level 54
keyboard button 11
keyboard status light, identifying 11
keypad
embedded numeric 13
keys
esc 13
fn 13
Windows application 13
Windows key 13
kickstand access tabs, identifying 5, 7
kickstand, identifying 5, 7, 20

L
labels
Bluetooth 21
regulatory 21
serial number 20
service 20
wireless certification 21
WLAN 21
lights
battery 4
keyboard status 11
microphone mute 11
num lock 11
locating information
hardware 4
software 4
low battery level 52

M
maintenance
Disk Cleanup 66
Disk Defragmenter 66
HP 3D DriveGuard 66
updating programs and drivers 67
managing power 49
memory card reader, identifying 5
microphone mute key, identifying 14
microphone mute light, identifying 11
minimized image recovery 73
minimized image, creating 72
Miracast 48

N
NFC 25
NFC tapping area
Near Field Communications 10
num lock light 11

O
on-screen control menu
customizing 39
using 39
one-finger slide touch screen gesture 33
operating environment 82
original system recovery 72

P
passwords
administrator 56
BIOS administrator 57
user 56
pen 21
advanced options 38
calibrating 35, 38
customizing 34, 35
POGO pin connector, identifying 19
ports
HDMI 5, 47
Miracast 48
USB 3.x SuperSpeed port with HP Sleep and Charge 5
USB Type-C Thunderbolt 46
USB Type-C Thunderbolt port 5
power
battery 51
external 53
power button, identifying 6
power connector, identifying 5

Power icon, using 51, 54
power settings, using 51, 54
product name and number, computer 20
programmable button, identifying 7, 9
public WLAN connection 24

Q

Quick Key programmable button, identifying 7, 9
Quick Keys, programming 34

R

Radial Menu
  customizing 39
  using 39
recover
  options 72
recovery
  discs 71, 73
  HP Recovery Manager 72
  media 73
  starting 73
  supported discs 71
  system 72
  USB flash drive 73
  using HP Recovery media 71
recovery media
  creating 70
  creating using HP Recovery Manager 71
recovery partition
  removing 74
regulatory information
  regulatory label 21
  wireless certification labels 21
restore, graphic software settings 41

S

security cable slot, identifying 7
select or confirm button, identifying 8
serial number 20
serial number, computer 20
service labels, locating 20
setup utility
  navigating and selecting 75
  restoring factory settings 75
shipping the computer 68
shutdown 50
Sleep
  exiting 49
  initiating 49
Sleep and Hibernation
  initiating 49
slots
  pen holder 15
  security cable 7
  smart card 15
smart card
  slot 15
software
  antivirus 63
  Disk Cleanup 66
  Disk Defragmenter 66
  firewall 63
  HP 3D DriveGuard 66
software updates, installing 64
sound settings, using 45
speakers
  connecting 44
speakers, identifying 19
supported discs, recovery 71
Sure Start
  using 78
system recovery 72
system restore point
  creating 71
system restore point, creating 70

T

Tablet Preference File Utility 41
tap TouchPad and touch screen gesture 30
three-finger swipe TouchPad gesture 32
Thunderbolt
  connecting USB Type-C 46
  identifying USB Type-C 5
touch screen gestures
  one-finger slide 33
TouchPad
  click area 10
  using 30
TouchPad and touch screen gestures
  tap 30
  two-finger pinch zoom 31
TouchPad gestures
  four-finger tap 31
  three-finger swipe 32
  two-finger slide 31
  two-finger tap 31
TouchPad zone
  identifying 10
TPM settings 78
traveling with the computer 21, 68
turning off the computer 50
two-finger pinch zoom TouchPad and touch screen gesture 31
two-finger slide TouchPad gesture 31
two-finger tap TouchPad gesture 31

U

unresponsive system 50
updating programs and drivers 67
USB 3.x SuperSpeed port with HP Sleep and Charge, identifying 5
USB Type-C port, connecting 46
USB Type-C Thunderbolt port, identifying 5
user password 56
using external power 53
using Power icon 51, 54
using power settings 51, 54
using sound settings 45
using the keyboard and optional mouse 33
using the TouchPad 30

V

vents, identifying 5, 7, 19
video 45
Virtual Desktop
  view mappings 40
Virtual Desktop overlay
  programming 9, 34
volume down button 7
volume up button 6

W

Windows
  system restore point 70, 71
Windows application key, identifying 13
Windows Hello
  using 63
Windows key, identifying 13
Windows tools
  using 71

wireless button 23
wireless certification label 21
wireless controls
button 23
operating system 23
wireless key 23
wireless light 23
wireless network (WLAN)
connecting 24
corporate WLAN connection 24
functional range 24
public WLAN connection 24
WLAN antennas, identifying 8
WLAN device 21
WLAN label 21
WWAN device 23, 24