

# User Guide

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First Edition: March 2014

Document Part Number: 760166-001

### **Product notice**

This 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  
of Windows. This computer may require  
upgraded and/or separately purchased  
hardware, drivers and/or software to take  
full advantage of Windows functionality. Go  
to <http://www.microsoft.com> for details.

To access the latest user guide, go to  
<http://www.hp.com/support>, and select your  
country. Select **Drivers & Downloads**, and  
then follow the on-screen instructions.


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By installing, copying, downloading, or  
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accept these license terms, your sole  
remedy is to return the entire unused  
product (hardware and software) within 14  
days for a 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.

## Safety warning notice

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 **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).

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# 1 Getting information

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Task	Instructions
<ul style="list-style-type: none"><li>• Set up your computer</li></ul>	<i>Setup Instructions</i> poster
<ul style="list-style-type: none"><li>• Connect to the Internet</li></ul>	See <a href="#">Connecting to the Internet (select models only) on page 3</a> .
<ul style="list-style-type: none"><li>• Recover factory settings</li></ul>	See <a href="#">Backing up, restoring, and recovering on page 11</a> .
<ul style="list-style-type: none"><li>• Troubleshoot the most common computer hardware and software issues</li></ul>	See <a href="#">Troubleshooting on page 15</a> .
<ul style="list-style-type: none"><li>• Find electronic user guides and specifications for your computer model</li></ul>	Go to <a href="http://www.hp.com/support">http://www.hp.com/support</a> , and select your country. Select <b>Drivers &amp; Downloads</b> , and then follow the on-screen instructions.
<ul style="list-style-type: none"><li>• Order parts and find additional troubleshooting help</li></ul>	Go to <a href="http://www.hp.com/go/contactHP">http://www.hp.com/go/contactHP</a> .
<ul style="list-style-type: none"><li>• Upgrade or replace components of your computer</li><li>• Find computer warranty information</li><li>• Find safety and regulatory notices</li><li>• Find ergonomic information</li></ul>	
<ul style="list-style-type: none"><li>• Get up-to-date information and help from the Windows community</li></ul>	Go to <a href="http://www.hp.com/support/consumer-forum">http://www.hp.com/support/consumer-forum</a> .
<ul style="list-style-type: none"><li>• Maintain your computer</li></ul>	See <a href="#">Maintenance on page 4</a> .
<ul style="list-style-type: none"><li>• Find worldwide support<ul style="list-style-type: none"><li>◦ Online chat with an HP technician</li><li>◦ Email support</li><li>◦ Support telephone numbers</li><li>◦ HP service center locations</li></ul></li></ul>	For support in your language, go to <a href="http://welcome.hp.com/country/us/en/wwcontact_us.html">http://welcome.hp.com/country/us/en/wwcontact_us.html</a> .

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## 2 Getting to know your computer

### Locating hardware

To find out what hardware is installed on your computer:

- ▲ From the Desktop, right-click the Start menu in the lower-left corner of the screen, and then select **Device Manager**.

A list displays all the devices installed on your computer.

To find out information about system hardware components and the system BIOS version number:

1. From the Start screen, point to the far-right upper or lower corner of the screen to display the charms.
2. Select **Settings**.
3. Select **Change PC Settings**.
4. Select **Update and recovery**.
5. Select **Recovery**, and then under **Advanced startup**, select **Restart now**.
6. From the Choose an option screen, select **Troubleshoot**.
7. From the Troubleshoot screen, click **Advanced options**.
8. From the Advanced options screen, click **UEFI Firmware Settings**.
9. From the UEFI Firmware Settings screen, select **Restart**.

System information displays.

### Locating software

To find out what software is installed on your computer:

- ▲ Point to the lower-left area of the Start screen, and then click the arrow.



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# 3 Connecting to the Internet (select models only)


## Connecting to a wireless network (select models only)

1. Be sure that the WLAN device is on. If the device is on, the wireless light is on. If the wireless light is off, press the wireless button.
2. From the Start screen, point to the far-right upper or lower corner of the screen to display the charms.
3. Select **Settings**, and then click the network status icon.
4. Select your WLAN from the list.
5. Click **Connect**.

If the WLAN is a security-enabled WLAN, you are prompted to enter a security code. Type the code, and then click **Sign in**.

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 **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, from the Windows desktop, right-click the network status icon, and then select **Open Network and Sharing Center**. Click **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.

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

After the connection is made, place the mouse pointer over the network status icon in the notification area, at the far right of the taskbar, to verify the name and status of the connection.

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 **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.

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## Connecting to a wired network (select models only)

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

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

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# 4 Maintenance

## Updating programs and drivers

HP recommends that you update your programs and drivers on a regular basis to the latest versions. Go to <http://www.hp.com/support> to download the latest versions. You can also register to receive automatic update notifications when they become available.

## 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
- Water with mild soap solution
- Dry microfiber cleaning cloth or a chamois (static-free cloth without oil)
- Static-free cloth wipes

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**⚠ 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.

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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.

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

Turn off the computer.

Disconnect AC power.

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.


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## Cleaning the display (All-in-Ones or Notebooks)

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


## 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.

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## Cleaning the TouchPad, keyboard, or mouse

 **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.

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- 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 the computer

For best results, follow these traveling and shipping tips.

- Prepare the computer for traveling or shipping:
  - Back up your information.
  - Remove all discs and all external media cards, such as memory cards.
-  **CAUTION:** To reduce the risk of damage to the computer, damage to a drive, or loss of information, remove the media from a drive before removing the drive from a drive bay and before shipping, storing, or traveling with a drive.
- 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 include it with your checked baggage.
-  **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 scan carry-on baggage use X-rays instead of magnetism and do not damage drives.
- In-flight computer use is at the discretion of the airline. If you plan to use the computer during a flight, check with the airline in advance.
- If the computer will be unused and disconnected from external power for more than 2 weeks, remove the battery and store it separately.
- If you are shipping the computer or a drive, use suitable protective packaging and label the package “FRAGILE.”

- If the computer has a wireless device, such as Bluetooth 4.0 LE (backward compatible with 1.1, 1.2, 2.0, 2.1 and 3.0 plus high speed), or an HP Mobile Broadband Module installed, such as an 802.11b/g/n (2.4GHz) device, Global System for Mobile Communications (GSM) device, or a General Packet Radio Service (GPRS) device, the use of these 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 particular device, ask for authorization to use it before you turn it on.
- If you are traveling internationally, follow these suggestions:
  - Verify the computer-related customs regulations for each country or region on your itinerary.
  - Verify the power cord and adapter requirements for each location in which you plan to use the computer. Voltage, frequency, and plug configurations vary.


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 **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.

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# 5 Securing your computer and information

Computer security is essential for protecting the confidentiality, integrity, and availability of your information. Security solutions provided by the Windows operating system, HP applications, the non-Windows Computer Setup (BIOS), and other third-party software can help protect your computer from a variety of risks, such as viruses, worms, and other types of malicious code.

 **IMPORTANT:** Some security features listed in this chapter may not be available on your computer.

Computer risk	Security feature
Unauthorized use of the computer	HP Client Security, in combination with a password, smart card, contactless card, registered fingerprints, or other authentication credential
Unauthorized access to the contents of a hard drive	DriveLock password or Automatic DriveLock password in Computer Setup*
Unauthorized startup from an optional external optical drive (select models only), optional external hard drive (select models 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	<ul style="list-style-type: none"><li>• HP Drive Encryption software</li><li>• Windows Defender</li></ul>
Unauthorized access to Computer Setup settings and other system identification information	BIOS administrator password in Computer Setup*
Unauthorized removal of the computer	Security cable slot (used with an optional security cable)

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

## 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 the non-Windows Computer Setup utility that is preinstalled on the computer.

- BIOS administrator and DriveLock passwords are set in Computer Setup and are managed by the system BIOS.
- Automatic DriveLock passwords are enabled in Computer Setup.
- Windows passwords are set only in the Windows operating system.

- If HP SpareKey has been set up previously, and if you forget the BIOS administrator password set in Computer Setup, you can use HP SpareKey to access the utility.
- 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. You can also use the same password for more than one Computer Setup 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 HP Client Security's Password Manager to store your user names and passwords for all of 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.  <b>NOTE:</b> Setting the Windows Administrator password does not set the BIOS Administrator password.
User password*	Protects access to a Windows user account.

## Setting passwords in Computer Setup

Password	Function
BIOS administrator password*	Protects access to Computer Setup.  <b>NOTE:</b> 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.
DriveLock master password*	Protects access to the internal hard drive that is protected by DriveLock. It is also used to remove DriveLock protection. This password is set under DriveLock Passwords during the enable process.  <b>NOTE:</b> A BIOS Administrator password must be set before you can set a DriveLock password.
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.  <b>NOTE:</b> A BIOS Administrator password must be set before you can set a DriveLock password.

\*For details about each of these passwords, see the following topics.

## Using Internet security software

When you use your computer to access email, a network, or the Internet, you potentially expose your computer to computer viruses, spyware, and other online threats. To help protect your computer, Internet security software that includes antivirus and firewall features may be preinstalled on your computer as a trial offer. To provide ongoing protection against newly discovered viruses and other security risks, security software must be kept up to date. It is strongly recommended that you upgrade the security software trial offer or purchase the software of your choice in order to fully protect your computer.

### Using antivirus software

Computer viruses can disable programs, utilities, or the operating system, 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.

An antivirus program may be preinstalled on your computer. It is strongly recommended that you use the antivirus program of your choice in order to fully protect your computer.

### Using firewall software

Firewalls are designed to prevent unauthorized access to a system or network. A firewall can be software you install on your computer and/or network, or it can be a combination 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 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.

## Installing software updates

HP, Microsoft Windows, and third-party software installed on your computer should be regularly updated to correct security problems and improve software performance. For more information, see [Updating programs and drivers on page 4](#).

## Installing critical security updates

HP recommends that you regularly update the software and drivers that were originally installed on your computer. To download the latest versions, go to <http://www.hp.com/go/contactHP>. At this location, you can also register to receive automatic update notifications when they become available.

If you have installed third-party software after you purchased your computer, regularly update the software. Software companies provide software updates to their products to correct security problems and improve functionality of the software.

## Installing HP and third-party software updates

HP recommends that you regularly update the software and drivers that were originally installed on your computer. To download the latest versions, go to <http://www.hp.com/go/contactHP>. At this location, you can also register to receive automatic update notifications when they become available.

If you have installed third-party software after you purchased your computer, regularly update the software. Software companies provide software updates to their products to correct security problems and improve functionality of the software.

## Securing your wireless network

When you set up your wireless network, always enable security features. For more information, see [Connecting to a wireless network \(select models only\) on page 3](#).

## Backing up your software applications and information

Regularly back up your software applications and information to protect them from being permanently lost or damaged through a virus attack or a software or hardware failure. For more information, see [Backing up, restoring, and recovering on page 11](#).



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## 6 Backing up, restoring, and recovering

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

This chapter provides information about the following processes:

- Creating a Microsoft recovery drive (select models only)
- Using Microsoft's Refresh your PC or Remove everything and reinstall Windows options to address issues with your computer
- Backing up data using File History

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 **NOTE:** This chapter describes an overview of backing up, restoring and recovering options. For more details about the tools provided, see Help and Support. From the Start screen, type `help`, and then select **Help and Support**.

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### Creating a Microsoft recovery drive (select models only)

After you successfully set up the computer, create a Microsoft recovery drive. The MS recovery drive backs up the recovery partition on the computer and ensure access to the Refresh your PC and Remove everything and reinstall Windows options even if the recovery partition on the computer has been corrupted or removed.


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 **NOTE:** On select models, a recovery drive can be created on a USB flash drive (purchased separately). A micro USB to USB adapter cable (purchased separately) with a micro USB male (B-type) connector and a USB female (A-type) connector is also required.

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1. On the Start screen, type `create recovery drive`, and then select **Create a recovery drive**.

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 **IMPORTANT:** Be sure that the check box labeled **Copy the recovery partition from the PC to the recovery drive** is selected.


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2. Select **Next**, and then follow the on-screen instructions.
3. After you have created the recovery drive, a prompt is displayed asking if you want to remove the recovery partition. If you select **No** and later reconsider, you must complete the entire process again before the prompt will be displayed a second time.


## Using Windows Refresh for quick and easy recovery

When your computer is not working properly and you need to regain system stability, the Windows Refresh option allows you to start fresh and keep what is important to you.

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 **IMPORTANT:** Refresh removes any applications that were not originally installed on the system at the factory. Any Windows 8 apps that came preinstalled on your computer and any that were purchased from the Windows Store will be saved.

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

 **NOTE:** You may be prompted for your permission or password when using Refresh. See Help and Support for more information. From the Start screen, type `help`, and then select **Help and Support**.

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To start Refresh:

1. On the Start screen, type `recover`, and then select **Refresh your PC without affecting your files**.
2. Select **Get started**, and then follow the on-screen instructions.

## Removing everything and reinstalling Windows

Sometimes you want to perform detailed reformatting of your computer, or you want to remove personal information before you give away or recycle your computer. The process described in this section provides a speedy, simple way to return the computer to its original state. This option removes all personal data, apps, and settings from your computer, and reinstalls Windows.

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 **IMPORTANT:** This option does not provide backups of your information. Before using this option, back up any personal information you wish to retain.

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You can initiate this option from the Start screen:

1. On the Start screen, type `recover`, and then select **Remove everything and reinstall Windows**.
2. Select **Get started**, and then follow the on-screen instructions.


## Backing up data using File History

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

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

File History is not enabled by default, so you must turn it on as follows:

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 **NOTE:** To enable File History and backup, you must connect using an optional external USB optical drive or an optional external hard drive.

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- ▲ On the Start screen, type `file history`, select **File History settings**, and then follow the on-screen instructions.

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# 7 Support information

## How to get help

HP support can help you get the most from your computer. You will find what you need with tools located on your computer and with information available on the Web, by phone, or through your local retailer.

Before contacting HP support, it's important to have the following product information handy:

- Model number
- Product number
- Serial number
- Software build number
- Operating system
- Purchase date

Please take a moment to write down your product information for future reference.

The first four items on the list (model number, product number, serial number, and software build number) can be viewed by using HP Support Information. From the Start screen, type `support`, and then select **HP Support Information**.

Don't forget to register your product at <http://www.hp.com/apac/register>.

## Where to get help

- Use Windows Help and Support for help with hardware and software questions. From the Start screen, type `help`, and then select **Help and Support**.
- For help online, go to <http://www.hp.com/go/contactHP>.

Telephone assistance to get you up and running is covered for thirty (30) days from the time you purchase your computer. After thirty (30) days, there may be a charge, but the helpful support is still available.

## Customer support for repairs

If your computer needs to be repaired, or to have parts replaced, you have two choices:

- You can easily replace many of your computer parts that are considered consumer replaceable. This is the fastest method of repair, because many times HP can send the part directly to your home or business in a few days. (This option may not be available in all countries or regions.)
- If a repair is necessary, HP support will make arrangements to repair your computer.

These cost of these services is covered during the warranty period.

There are some limitations and exclusions to the warranty (as well as some important details), which are described in the *HP Worldwide Limited Warranty and Technical Support* guide.

# 8 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 V dc @ 2.1 A – 40 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.
<b>Temperature</b>		
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
<b>Relative humidity</b> (noncondensing)		
Operating	10% to 90%	10% to 90%
Nonoperating	5% to 95%	5% to 95%
<b>Maximum altitude</b> (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

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# 9 Troubleshooting


## Troubleshooting resources

 **NOTE:** Some checkup and repair tools require an Internet connection. HP also provides additional tools that do not require an Internet connection.

- Contact HP support. For U.S. support, go to <http://www.hp.com/go/contactHP>. For worldwide support, go to [http://welcome.hp.com/country/us/en/wwcontact\\_us.html](http://welcome.hp.com/country/us/en/wwcontact_us.html).

Choose from the following types of support:

- Chat online with an HP technician.

 **NOTE:** When chat is not available in a particular language, it is available in English.

- Find HP support worldwide telephone numbers.
- Locate an HP service center.


## Resolving issues

The following sections describe several common issues and solutions.

### The computer is unable to start up

If the computer does not turn on when you press the power button, the following suggestions may help you determine why the computer does not start up:

- If the computer is plugged into an AC outlet, plug another electrical device into the outlet to be sure that the outlet is providing adequate power.

 **NOTE:** Use only the AC adapter provided with the computer or one approved by HP for this computer.

- If the computer is plugged into an external power source other than an AC outlet, plug the computer into an AC outlet using the AC adapter. Be sure that the power cord and AC adapter connections are secure.

### The computer screen is blank

If the screen is blank but you have not turned off the computer, one or more of these settings may be the cause:

- The computer may be in the Sleep state. To exit Sleep, briefly press the power button. Sleep is an energy-saving feature that turns off the display. Sleep can be initiated by the system while the computer is on but is not in use, or when the computer has reached a low battery level. To change these and other power settings, see your power options. From the Start screen, type `power`, and then select **Power and sleep settings**. Under the **Sleep** option, select the time

interval in which you want your computer to go into the Sleep state on battery power and when plugged in.

- The computer may not be set to display the image on the computer screen. To transfer the image to the computer screen, press **fn+f6**. On most models, when an optional external display, such as a monitor, is connected to the computer, the image can be displayed on the computer screen or the external display, or on both devices simultaneously. When you press **fn+f6** repeatedly, the image alternates among the computer display, one or more external displays, and simultaneous display on all devices.


## Software is functioning abnormally

If the software is unresponsive or responds abnormally, restart the computer by pointing to the right side of the screen. When the charms display, click **Settings**. Click the **Power** icon, and then click **Shut down**. If you cannot restart the computer using this procedure, see the next section, [The computer is on but not responding on page 16](#).

## The computer is on but not responding

If the computer is turned on but is not responding to software or keyboard commands, try the following emergency shutdown procedures, in the sequence provided, until shutdown occurs:

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 **CAUTION:** Emergency shutdown procedures result in the loss of unsaved information.

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- Press and hold the power button for at least 5 seconds.
- Disconnect the computer from external power.

## The computer is unusually warm


It is normal for the computer to feel warm to the touch while it is in use. But if the computer feels *unusually* warm, it may be overheating because a vent is blocked.

If you suspect that the computer is overheating, allow the computer to cool to room temperature. Be sure to keep all vents free from obstructions while you are using the computer.

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

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 **NOTE:** The fan in the computer starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during operation.

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## An external device is not working

Follow these suggestions if an external device does not function as expected:

- Turn on the device according to the manufacturer's instructions.
- Be sure that all device connections are secure.
- Be sure that the device is receiving electrical power.

- Be sure that the device, especially if it is older, is compatible with the operating system.
- Be sure that the correct drivers are installed and updated.

## The wireless network connection is not working

If a wireless network connection is not working as expected, follow these suggestions:

- To enable or disable a wireless or wired network device, right-click the **Network Connection** icon on the Windows desktop in the notification area, at the far right of the taskbar. To enable a device, select the check box from the menu option. To disable a device, clear the check box.
- Be sure that the wireless device is turned on.
- Be sure that the computer wireless antennas are free from obstructions.
- Be sure that the cable or DSL modem and its power cord are properly connected and that the lights are on.
- Be sure that the wireless router or access point is properly connected to its power adapter and to the cable or DSL modem, and that the lights are on.
- Be sure that Airplane mode is turned off.
- Disconnect and then reconnect all cables, and turn the power off and then back on.

## A movie is not visible on an external display

1. If both the computer display and an external display are turned on, press **fn+f6** one or more times to switch between the 2 displays.
2. Configure the monitor settings to make the external display primary:
  - a. From the Windows desktop, right-click on a blank area of the computer desktop, and select **Screen resolution**.
  - b. Specify a primary display and a secondary display.



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**NOTE:** When a primary and secondary display are specified, the DVD image will appear on only the primary display.

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# 10 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, unplug it after being properly grounded and before removing a cover.
- 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 of the component.
- If you remove a component, place it in an electrostatic-safe container.

If you need more information about static electricity or assistance with component removal or installation, contact HP support.



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