



Getting Started

HP Business PCs

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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 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.

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.

About this book

 **WARNING!** Text set off in this manner indicates that failure to follow directions could result in bodily harm or loss of life.

 **CAUTION:** Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

 **NOTE:** Text set off in this manner provides important supplemental information.

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1 Getting started in Windows 7

Windows 7 does not support the embedded TPM 2.0. You can either download a hotfix from Microsoft to add support or downgrade to TPM 1.2.

Activating and customizing the software

If your computer was not shipped with a Windows® operating system, some portions of this documentation do not apply. Additional information is available in online help after you activate the operating system.

 **CAUTION:** Do not add optional hardware or third-party devices to the computer until the operating system is successfully activated. Doing so may cause errors and prevent the operating system from installing properly.

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

Activating the Windows operating system

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

We recommend that you register your computer with HP during operating system setup so you can receive important software updates and sign up for special offers.

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

 **NOTE:** If the computer was shipped with more than one operating system language on the hard drive, the activation process could take up to 60 minutes.

Downloading Windows 7 updates

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

1. To set up your Internet connection, click **Start > Internet Explorer** and follow the instructions on the screen.
2. After an Internet connection has been established, click **Start > All Programs > Windows Update**.
3. Run Windows Update monthly thereafter.

Installing or upgrading device drivers

When installing optional hardware devices after the operating system installation is complete, you must also install the drivers for each of the devices.

In Windows 7, if prompted for the i386 directory, replace the path specification with `C:\i386`, or use the **Browse** button in the dialog box to locate the i386 folder. This action points the operating system to the appropriate drivers.

Obtain the latest support software, including support software for the operating system, from <http://www.hp.com/support>. Select your country and language, select **Download drivers and software** (and firmware), enter the model number of the computer, and press **Enter**.

Customizing the monitor display

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

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

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

Turning off the computer

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

▲ Click **Start** > **Shut down**.

If you encounter issues

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

1. Visual inspection
2. Blink or beep codes
3. HP Support Assistant troubleshooter
4. HP PC Hardware Diagnostics
5. HP Support
6. System restore
7. System recovery

Performing basic troubleshooting

Perform the troubleshooting procedures in this section in the order presented, until your issue is resolved. You can find additional troubleshooting information in the comprehensive *Maintenance and Service Guide* (English only) available at <http://www.hp.com/support>. Select **Find your product**, enter the model number of the computer, and click **Search**.

Visual inspection: No boot, no power, no video

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

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

- Be sure that the computer and monitor are plugged into a working electrical outlet.
- Check to see that the voltage select switch (some models) is set to the appropriate voltage for your region (115 V or 230 V).
- Check to see that the computer is on (the power light is on).
- Check to see that the monitor is on (the monitor light is on).
- Turn up the brightness and contrast controls of the monitor if the monitor is dim.
- If the system does not boot, press and hold any key. If the system beeps, then the keyboard is operating correctly.
- Check all cable connections for loose connections or incorrect connections.
- Wake the computer by pressing any key on the keyboard or pressing the power button. If the system remains in the Sleep state, shut down the computer by pressing and holding the power button for at least four seconds. Then press the power button again to restart the computer. If the system will not shut down, unplug the power cord, wait a few seconds, and then plug it in again. The computer will restart if automatic start on power loss is set in Computer Setup. If the computer does not restart, press the power button.
- Reconfigure your computer after installing a non-Plug and Play expansion board or other option.
- Be sure that all the needed device drivers have been installed. For example, if you are using a printer, you need a driver for that printer model.
- Remove any bootable media (CD/DVD or USB device) from the system before turning it on.
- If you have installed an operating system other than the factory-installed operating system, check to be sure that it is supported on the system.
- If the system has multiple video sources (embedded, PCI, or PCI-Express adapters) installed (embedded video on some models only) and a single monitor, the monitor must be connected to the monitor port on the source that is set as the primary video source. During boot, the other video ports are disabled; if the monitor is connected to one of these ports, the monitor will not function. You can select or change the primary video source in Computer Setup.

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

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

HP Support Assistant

HP Support Assistant is an HP application that helps you maintain the performance of your computer and resolve problems through automated updates and tune-ups, built-in diagnostics, and guided assistance. HP Support Assistant is preinstalled on all HP or Compaq computers running Windows 7.

To access HP Support Assistant in Windows 7, double-click the **HP Support Assistant** icon on your desktop.

Using HP PC Hardware Diagnostics

If HP Support Assistant is unable to detect a problem, try the UEFI-based hardware diagnostic solution that HP includes on all products. You can use this tool even if the computer will not boot to the operating system. This tool also works with components not diagnosed in HP Support Assistant.

Why run HP PC Hardware Diagnostics

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

- **Isolate true hardware failures:** The diagnostics run outside of the operating system so they effectively isolate hardware failures from issues that may be caused by the operating system or other software components.
- **Failure ID:** When a failure is detected that requires hardware replacement, a 24-digit Failure ID is generated. This ID can then be provided to the call agent, who will either schedule support or provide replacement parts.

How to access and run HP PC Hardware Diagnostics

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

1. Turn on the computer and press **Esc** repeatedly until the BIOS Boot Menu appears.
2. Press **F2** or select **Diagnostics (F2)**.

Pressing **F2** signals the system to search for the diagnostics in the following locations:

- a. A connected USB drive (to download the diagnostics tools to a USB drive, see the instructions in [Downloading HP PC Hardware Diagnostics to a USB device on page 4](#))
- b. The hard drive
- c. A core set of diagnostics in the BIOS (for memory and hard drive) that are accessible only if the USB or hard drive versions are not detected

Downloading HP PC Hardware Diagnostics to a USB device



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

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

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

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

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

1. Go to <http://www.hp.com>.
2. Point to **Support**, located at the top of the page, and then click **Download Drivers**.
3. In the text box, enter the product name, and then click **Go**.

– or –

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

4. Select your computer model, and then select your operating system.
5. In the **Diagnostic** section, click **HP UEFI Support Environment**.

– or –

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

Before you call for support

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

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

- Check the power LED on the front of the computer to see if it is flashing and listen for a series of beeps emanating from the computer. The flashing lights and/or beeps are error codes that will help you diagnose the problem. Refer to the *Maintenance and Service Guide* (English only) for details.
- If the screen is blank, plug the monitor into a different video port on the computer if one is available, or replace the monitor with a monitor that you know is functioning properly.
- If you are working on a network:
 - Use a different network cable to connect your computer to the network.
 - Connect a different computer with a different cable to the network.

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

- If you recently added new hardware, remove the hardware.
- If you recently installed new software, uninstall the software.
- Boot the computer to Safe Mode to see if it will boot without all of the drivers loaded. To boot to Safe Mode:
 1. Restart the computer.
 2. Press and hold the **F8** key before the operating system starts. The Advanced Boot Options screen appears.
 3. Use the arrow keys to highlight **Last Known Good Configuration**, and then press **Enter** to boot the computer.
- If the computer will turn on but will not boot into the operating system, you may run the “pre-boot” diagnostics utility, HP PC Hardware Diagnostics. Refer to [Using HP PC Hardware Diagnostics on page 3](#) for more information.
- If the computer will boot into the operating system, use one of the following tools. They provide self-solve diagnostics and online chat features (if Internet access is also available).
 - If you have HP Support Assistant, access it by double-clicking the **HP Support Assistant** icon.
 - If you do not have HP Support Assistant installed, access HP Instant Support Professional Edition at <http://www.hp.com/go/ispe>.

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

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

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

- Before calling:

- Remove any hardware that was recently added to your system.
- Remove any software that was recently installed.
- Write down the product ID number, computer and monitor serial numbers, and the failure ID produced by running the diagnostics, if applicable.
- Be in front of your computer when you call.
- Spend time troubleshooting the problem with the service technician.

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

Backing up, restoring, and recovering in Windows 7

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

This section provides information about the following processes:

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

 **NOTE:** This section describes an overview of backing up, restoring, and recovering options. For more details about the Windows Backup and Restore tools provided, see Help and Support. To access Help and Support, select **Start > Help and Support**.

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

1. After you successfully set up the computer, create recovery media. This media can be used to reinstall the original operating system in cases where the hard drive is corrupted or has been replaced. See [Creating recovery media on page 6](#).
2. As you add hardware and software programs, create system restore points. A system restore point is a snapshot of certain hard drive contents saved by Windows System Restore at a specific time. A system restore point contains information that Windows uses, such as registry settings. Windows creates a system restore point for you automatically during a Windows update and during other system maintenance (such as a software update, security scanning, or system diagnostics). You can also manually create a system restore point at any time. For more information and steps for creating specific system restore points, see Help and Support. To access Help and Support, select **Start > Help and Support**.
3. As you add photos, video, music, and other personal files, create a backup of your personal information. If files are accidentally deleted from the hard drive and they can no longer be restored from the Recycle Bin, or if files become corrupted, you can restore the files that you backed up. In case of system failure, you can use the backup files to restore the contents of your computer. See [Backing up your information on page 8](#).

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

Creating recovery media

After you successfully set up the computer, create recovery media. The media can be used to reinstall the original operating system in cases where the hard drive is corrupted or has been replaced.

There are two types of recovery media. To determine which steps to follow for your computer:

1. Click the **Start** button.
2. Click **All Programs**.
 - If **Security and Protection** is listed, continue with the steps in [Creating recovery media using HP Recovery Manager \(select models only\) on page 7](#).
 - If **Productivity and Tools** is listed, continue with the steps in [Creating recovery discs with HP Recovery Disc Creator \(select models only\) on page 8](#).

Creating recovery media using HP Recovery Manager (select models only)

- To create recovery discs, your computer must have a DVD writer. Use DVD+R or DVD-R discs (purchased separately). The discs you use will depend on the type of optical drive you are using.

 **NOTE:** DVD+R DL, DVD-R DL, or DVD±RW discs are not supported.

- You have the option of creating a recovery USB flash drive instead, using a high-quality USB drive.
- If you are creating recovery discs, be sure to use high-quality discs. It is normal for the system to reject defective discs. You will be prompted to insert a new blank disc to try again.
- The number of discs in the recovery-disc set depends on your computer model (typically 3 to 6 DVDs). The Recovery Media Creation program tells you the specific number of blank discs needed to make the set. If you are using a USB flash drive, the program will tell you the size of the drive required to store all the data (minimum of 8 GB).

 **NOTE:** The process of creating recovery media is lengthy. You can quit the process at any time. The next time you initiate the process, it resumes where it left off.

 **NOTE:** Do not use media cards for creating recovery media. The system may not be able to boot up from a media card and you may not be able to run system recovery.

To create recovery discs:

1. Close all open programs.
2. Click the **Start** button, click **All Programs**, click **Security and Protection**, click **Recovery Manager**, and then click **HP Recovery Media Creation**. If prompted, click **Yes** to allow the program to continue.
3. Click **Create recovery media using blank DVD (s)**, and then click **Next**.
4. Follow the on-screen instructions. Label each disc after you make it (for example, Recovery 1, Recovery 2), and then store the discs in a secure place.

To create a recovery USB flash drive:

 **NOTE:** You must use a USB flash drive with a capacity of at least 8 GB.

 **NOTE:** Recovery Media Creation formats the USB flash drive, deleting any files on it.

1. Close all open programs.
2. Insert the USB flash drive into a USB port on the computer.
3. Click the **Start** button, click **All Programs**, click **Security and Protection**, click **Recovery Manager**, and then click **Recovery Media Creation**.
4. Click **Create recovery media with a USB flash drive**, and then click **Next**.

5. Select the USB flash drive from the list of media. The program will let you know how much storage is required to create the recovery drive. If the USB flash drive does not have enough storage capacity, the list item will appear dimmed, and you must use a larger USB flash drive. Click **Next**.
6. Follow the on-screen instructions. When the process is complete, label the USB flash drive and store it in a secure place.

Creating recovery discs with HP Recovery Disc Creator (select models only)

HP Recovery Disc Creator is a software program that offers an alternate way to create recovery discs on select models. After you successfully set up the computer, you can create recovery discs using HP Recovery Disc Creator. The recovery discs allow you to reinstall your original operating system as well as select drivers and applications if the hard drive becomes corrupted. HP Recovery Disc Creator creates two kinds of recovery discs:

- Windows 7 operating system DVD—Installs the operating system without additional drivers or applications.
- *Driver Recovery* DVD—Installs specific drivers and applications only, in the same way that the HP Software Setup utility installs drivers and applications.

To create recovery discs, your computer must have a DVD writer. Use any of the following types of discs (purchased separately): DVD+R, DVD+R DL, DVD-R, DVD-R DL, or DVD±RW. The discs you use will depend on the type of optical drive you are using.

Creating recovery discs



NOTE: The Windows 7 operating system DVD can be created only once. The option to create that media will not be available after you create a Windows DVD.

To create the Windows DVD:

1. Select **Start > All Programs > Productivity and Tools > HP Recovery Disc Creator**.
2. Select **Windows disk**.
3. From the drop-down menu, select the drive for burning the recovery media.
4. Click the **Create** button to start the burning process. Label the disc after you create it, and store it in a secure place.

After the Windows 7 operating system DVD has been created, create the *Driver Recovery* DVD:

1. Select **Start > All Programs > Productivity and Tools > HP Recovery Disc Creator**.
2. Select **Driver disk**.
3. From the drop-down menu, select the drive for burning the recovery media.
4. Click the **Create** button to start the burning process. Label the disc after you create it, and store it in a secure place.

Backing up your information

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

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

Note the following when backing up:

- Store personal files in the Documents library, and back it up regularly.
- Back up templates that are stored in their associated directories.
- Save customized settings that appear in a window, toolbar, or menu bar by taking a screen shot of your settings. The screen shot can be a time-saver if you have to reset your preferences.
- When backing up to discs, number each disc after removing it from the drive.

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

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

To create a backup using Windows Backup and Restore:

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

1. Select **Start > All Programs > Maintenance > Backup and Restore**.
2. Follow the on-screen instructions to set up your backup.

System Restore

If you have a problem that might be due to software that you installed on your computer, or if you want to restore the system to a previous state without losing any personal information, use System Restore to return the computer to a previous restore point.

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

To start System Restore:

1. Close all open programs.
2. Click the **Start** button, right-click **Computer**, and then click **Properties**.
3. Click **System protection**, click **System Restore**, click **Next**, and then follow the on-screen instructions.

System Recovery

 **WARNING!** This procedure deletes all user information. To prevent loss of information, be sure to back up all user information so you can restore it after recovery.

System Recovery completely erases and reformats the hard drive, deleting all data files that you have created, and then reinstalls the operating system, programs, and drivers. However, you must reinstall any software that was not installed on the computer at the factory. This includes software that came on media included in the computer accessory box, and any software programs you installed after purchase. Any personal files must be restored from backups you made.

If you were not able to create system recovery DVDs or USB flash drive, you can order a recovery disc set from support. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.

 **NOTE:** Always use the System Restore procedure before you use the System Recovery program. See [System Restore on page 9](#).

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

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

Recovery from a recovery image, see [System Recovery when Windows is responding on page 10](#) or [System Recovery when Windows is not responding on page 10](#).

- Recovery media — Run System Recovery from recovery media that you have created from files stored on your hard drive or purchased separately. See [System Recovery using recovery media \(select models only\) on page 11](#).

System Recovery when Windows is responding

 **CAUTION:** System Recovery deletes all data and programs you have created or installed. Before you begin, back up any important data to a CD or DVD or to a USB flash drive.

 **NOTE:** In some cases, you must use recovery media for this procedure. If you have not already created this media, follow the instructions in [Creating recovery media on page 6](#).

If the computer is working and Windows 7 is responding, use these steps to perform a System Recovery:

1. Turn off the computer.
2. Disconnect all peripheral devices from the computer except the monitor, keyboard, and mouse.
3. Turn on the computer.
4. When Windows has loaded, click the **Start** button, and then click **All Programs**.
 - If **Security and Protection** is listed, continue with step [5](#).
 - If **Productivity and Tools** is listed, follow the steps in [System Recovery when Windows is not responding on page 10](#).
5. Click **Security and Protection**, click **Recovery Manager**, and then click **Recovery Manager**. If prompted, click **Yes** to allow the program to continue.
6. Under **I need help immediately**, click **System Recovery**.
7. Select **Yes**, and then click **Next**. Your computer restarts.
8. When the computer restarts, you will see the Recovery Manager welcome screen again. Under **I need help immediately**, click **System Recovery**. If you are prompted to back up your files, and you have not done so, select **Back up your files first** (recommended), and then click **Next**. Otherwise, select **Recover without backing up your files**, and then click **Next**.
9. System Recovery begins. After System Recovery is complete, click **Finish** to restart the computer.
10. When Windows has loaded, shut down the computer, reconnect all peripheral devices, and then turn the computer back on.

System Recovery when Windows is not responding

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

If Windows is not responding, but the computer is working, follow these steps to perform a System Recovery.

1. Turn off the computer. If necessary, press and hold the power button until the computer turns off.
2. Disconnect all peripheral devices from the computer, except the monitor, keyboard, and mouse.
3. Press the power button to turn on the computer.
4. As soon as you see the HP logo screen, repeatedly press the **F11** key on your keyboard until the *Windows is Loading Files...* message appears on the screen.

5. At the HP Recovery Manager screen, follow the on-screen instructions to continue.
6. When Windows has loaded, shut down the computer, reconnect all peripheral devices, and then turn the computer back on.

System Recovery using recovery media (select models only)

Use the steps provided in this section if you created recovery media using [Creating recovery media using HP Recovery Manager \(select models only\) on page 7](#). If you used HP Recovery Disc Creator to create a Windows 7 operating system DVD and a *Driver Recovery* DVD, use the steps in [Using HP Recovery Disc operating system discs \(select models only\) on page 11](#).

 **CAUTION:** System Recovery deletes all data and programs you have created or installed. Back up any important data to a CD or DVD or to a USB flash drive.

To perform a System Recovery using recovery media:

1. If you are using a set of DVDs, insert the first recovery disc into the DVD drive tray, and close the tray. If you are using a recovery USB flash drive, insert it into a USB port.
2. Click the **Start** button, and then click **Shut Down**.
– or –
If the computer is not responding, press and hold the power button for approximately 5 seconds or until the computer turns off.
3. Disconnect all peripheral devices from the computer except the monitor, keyboard, and mouse.
4. Press the power button to turn on the computer, and press **Esc** as the computer is powering on to display the startup menu.
5. Use the arrow keys to select the boot menu, and press **Enter**. Use the arrow keys to select the location where the recovery media is inserted (USB or DVD). Press **Enter** to boot from that device.
6. If Recovery Manager asks if you want to run System Recovery from Media or Hard Drive, select **Media**. On the Welcome screen, under **I need help immediately**, click **Factory Reset**.
7. If you are prompted to back up your files, and you have not done so, select **Back up your files first** (recommended), and then click **Next**. Otherwise, select **Recover without backing up your files**, and then click **Next**.
8. If you are prompted to insert the next recovery disc, do so.
9. When Recovery Manager is finished, remove the recovery disc or the recovery USB flash drive from the system.
10. Click **Finish** to restart the computer.

Using HP Recovery Disc operating system discs (select models only)

Use the steps provided in this section if you used HP Recovery Disc Creator to create a Windows 7 operating system DVD and a *Driver Recovery* DVD. If you created recovery media using [Creating recovery media using HP Recovery Manager \(select models only\) on page 7](#), use the steps in [System Recovery using recovery media \(select models only\) on page 11](#).

If you cannot use the recovery discs you previously created using the HP Recovery Disc Creator (select models only), you must purchase a Windows 7 operating system DVD to reboot the computer and repair the operating system.

To order a Windows 7 operating system DVD, contact support. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.

 **CAUTION:** Using a Windows 7 operating system DVD completely erases the hard drive contents and reformats the hard drive. All files that you have created and any software that you have installed on the computer are permanently removed. When reformatting is complete, the recovery process helps you restore the operating system, as well as drivers, software, and utilities.

To initiate recovery using a Windows 7 operating system DVD:

 **NOTE:** This process takes several minutes.

1. If possible, back up all personal files.
2. Restart the computer, and then insert the Windows 7 operating system DVD into the optical drive before the Windows operating system loads.

 **NOTE:** If the computer does not boot to the DVD, restart the computer and press **Esc** as the computer is powering on to see the startup menu. Use the arrow keys to select the boot menu and press **Enter**. Use the arrow keys to select the location where the recovery DVD is inserted. Press **Enter** to boot from that device.

3. When prompted, press any keyboard key.
4. Follow the on-screen instructions.
5. Click **Next**.
6. Select **Install now**.
7. Follow the on-screen instructions.

After the repair is completed:

1. Eject the Windows 7 operating system DVD and then insert the *Driver Recovery* DVD.
2. Follow the on-screen instructions to install the Hardware Enabling Drivers first, and then install Recommended Applications.

Using, updating, and maintaining your PC

From one location you can perform the following tasks:

- View or change your computer name and other system settings
- Add a device or printer and change other system settings
- Get help and support for your specific model
- Install HP support software for your computer
- Purchase supplies and accessories for your computer

To access this location, click **Start > Devices and Printers** and then double-click the icon for your PC.

2 Getting started in Windows 8

Activating and customizing the software

If your computer was not shipped with a Windows® operating system, some portions of this documentation do not apply. Additional information is available in online help after you activate the operating system.

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



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

Activating the Windows operating system

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

We recommend that you register your computer with HP during operating system setup so you can receive important software updates and sign up for special offers. You can also register your computer with HP using the **Register with HP** app on the Start screen.



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

Downloading Windows 8 updates

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

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

1. Point to the upper-right or lower-right corner of the Start screen to display the charms.
2. Click **Settings > Change PC Settings > Windows Update**.
3. Run Windows Update monthly thereafter.

Customizing the monitor display

You can customize display settings for Windows 8 separately for the Start screen and the desktop.

To customize the Start screen:

1. Point to the upper-right or lower-right corner of the Start screen to display the charms.
2. Click **Settings > Change PC Settings**.
3. Click **Personalize** to change the display settings.

To customize the Desktop:

1. Click the Desktop app on the Start screen.
2. Right-click on the desktop, and then click **Personalize** to change display settings.

Turning off the computer

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

1. Point to the upper-right or lower-right corner of the Start screen to display the charms, and then click **Settings**.
2. Click the **Power** icon, and then click **Shut down**.

If you encounter issues

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

1. Visual inspection
2. Blink or beep codes
3. HP Support Assistant troubleshooter
4. HP PC Hardware Diagnostics
5. HP Support
6. System restore
7. System recovery

Performing basic troubleshooting

Perform the troubleshooting procedures in this section in the order presented, until your issue is resolved. You can find additional troubleshooting information in the comprehensive *Maintenance and Service Guide* (English only) available at <http://www.hp.com/support>. Select **Find your product**, enter the model number of the computer, and click **Search**.

Visual inspection: No boot, no power, no video

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

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

1. Be sure that the computer and monitor are plugged into a working electrical outlet.
2. Check to see that the voltage select switch (some models) is set to the appropriate voltage for your region (115 V or 230 V).
3. Check to see that the computer is on (the power light is on).
4. Check to see that the monitor is on (the monitor light is on).
5. Turn up the brightness and contrast controls of the monitor if the monitor is dim.

6. If the system does not boot, press and hold any key. If the system beeps, then the keyboard is operating correctly.
7. Check all cable connections for loose connections or incorrect connections.
8. Wake the computer by pressing any key on the keyboard or pressing the power button. If the system remains in the Sleep state, shut down the computer by pressing and holding the power button for at least four seconds. Then press the power button again to restart the computer. If the system will not shut down, unplug the power cord, wait a few seconds, and then plug it in again. The computer will restart if automatic start on power loss is set in Computer Setup. If the computer does not restart, press the power button.
9. Reconfigure your computer after installing a non-Plug and Play expansion board or other option.
10. Be sure that all the needed device drivers have been installed. For example, if you are using a printer, you need a driver for that printer model.
11. Remove any bootable media (CD/DVD or USB device) from the system before turning it on.
12. If you have installed an operating system other than the factory-installed operating system, check to be sure that it is supported on the system.
13. If the system has multiple video sources (embedded, PCI, or PCI-Express adapters) installed (embedded video on some models only) and a single monitor, the monitor must be connected to the monitor port on the source that is set as the primary video source. During boot, the other video ports are disabled; if the monitor is connected to one of these ports, the monitor will not function. You can select or change the primary video source in Computer Setup.

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

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

HP Support Assistant

HP Support Assistant is an HP application that helps you maintain the performance of your computer and resolve problems through automated updates and tune-ups, built-in diagnostics, and guided assistance. HP Support Assistant is preinstalled on all HP or Compaq computers running Windows 8.

To access HP Support Assistant in Windows 8, click the **HP Support Assistant** app on the Start screen.

Using HP PC Hardware Diagnostics

If HP Support Assistant is unable to detect a problem, try the UEFI-based hardware diagnostic solution that HP includes on all products. You can use this tool even if the computer will not boot to the operating system. This tool also works with components not diagnosed in HP Support Assistant.

Why run HP PC Hardware Diagnostics

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

- **Isolate true hardware failures:** The diagnostics run outside of the operating system so they effectively isolate hardware failures from issues that may be caused by the operating system or other software components.
- **Failure ID:** When a failure is detected that requires hardware replacement, a 24-digit Failure ID is generated. This ID can then be provided to the call agent, who will either schedule support or provide replacement parts.

How to access and run HP PC Hardware Diagnostics

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

1. Turn on the computer and press **Esc** repeatedly until the BIOS Boot Menu appears.
2. Press **F2** or select **Diagnostics (F2)**.

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

- a. A connected USB drive (to download the diagnostics tools to a USB drive, see the instructions in [Downloading HP PC Hardware Diagnostics to a USB device on page 16](#))
- b. The hard drive
- c. A core set of diagnostics in the BIOS (for memory and hard drive) that are accessible only if the USB or hard drive versions are not detected

Downloading HP PC Hardware Diagnostics to a USB device



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

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

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

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

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

1. Go to <http://www.hp.com>.
2. Point to **Support**, located at the top of the page, and then click **Download Drivers**.
3. In the text box, enter the product name, and then click **Go**.

– or –

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

4. Select your computer model, and then select your operating system.
5. In the **Diagnostic** section, click **HP UEFI Support Environment**.

– or –

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

Before you call for support



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

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

- Check the power LED on the front of the computer to see if it is flashing and listen for a series of beeps emanating from the computer. The flashing lights and/or beeps are error codes that will help you diagnose the problem. Refer to the *Maintenance and Service Guide* (English only) for details.
- If the screen is blank, plug the monitor into a different video port on the computer if one is available, or replace the monitor with a monitor that you know is functioning properly.
- If you are working on a network:
 - Use a different network cable to connect your computer to the network.
 - Connect a different computer with a different cable to the network.

If your problem is not resolved, the network jack on your computer or the network wall jack might be faulty.
- If you recently added new hardware, remove the hardware.
- If you recently installed new software, uninstall the software.
- Comprehensive online technical support is also available at <http://www.hp.com/support>.
- If the computer will turn on but will not boot into the operating system, you may run the “pre-boot” diagnostics utility, HP PC Hardware Diagnostics. Refer to [Using HP PC Hardware Diagnostics on page 3](#) for more information.
- If the computer will boot into the operating system, use one of the following tools. They provide self-solve diagnostics and online chat features (if Internet access is also available).
 - If you have HP Support Assistant, access it from the Start screen by clicking the **HP Support Assistant** app, clicking **My computer**, and then clicking **Diagnostics**.
 - If you do not have HP Support Assistant installed, access HP Instant Support Professional Edition at <http://www.hp.com/go/ispe>.

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

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

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

- Before calling:
 - Remove any hardware that was recently added to your system.
 - Remove any software that was recently installed.
 - Write down the product ID number, computer and monitor serial numbers, and the failure ID produced by running the diagnostics, if applicable.
- Be in front of your computer when you call.
- Spend time troubleshooting the problem with the service technician.



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

Backing up, restoring, and recovering in Windows 8.1 or Windows 8

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

This section provides information about the following processes:

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

 **NOTE:** This section 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**.

Creating recovery media and backups

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

1. After you successfully set up the computer, create recovery media. This step creates a backup of the 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.

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

 **NOTE:** Any information on the USB flash drive will be erased before the recovery media is created.

- To create the Windows 8.1 recovery media, from the Start screen, type `recovery drive`, then click **Create a recovery drive**. Follow the on-screen instructions to continue.
 - To create the Windows 8 recovery media, from the Start screen, type `recovery manager`, and then click **HP Recovery Media Creation**. If prompted, click **Yes** to allow the program to continue. Follow the on-screen instructions to continue. (select models only)
2. Use the Windows tools to create system restore points and create backups of personal information. For more information and steps, see Help and Support. From the Start screen, type `help`, and then select **Help and Support**.

System Recovery when Windows is responding (select models only)

 **CAUTION:** System Recovery deletes all data and programs you have created or installed. Before you begin, back up any important data to a CD or DVD or to a USB flash drive.

 **NOTE:** In some cases, you must use recovery media for this procedure. If you have not already created this media, follow the instructions in [Creating recovery media and backups on page 18](#).

1. Turn off the computer.
2. Disconnect all peripheral devices from the computer except the monitor, keyboard, and mouse.
3. Turn on the computer.
4. From the Start screen, type `recovery manager`, and then click **HP Recovery Manager**. If prompted, click **Yes** to allow the program to continue.
5. Click **HP Recovery Environment**, and then click **OK** to restart your computer.

6. When the computer restarts, you will see the HP Recovery Manager main screen, click **System Recovery**. If you are prompted to back up your files, and you have not done so, select **Back up your files first** (recommended), and then click **Next**. Otherwise, select **Recover without backing up your files**, and then click **Next**.
7. Follow the on-screen instructions to continue.

System Recovery when Windows is not responding (select models only)

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

If Windows is not responding, but the computer is working, follow these steps to perform a System Recovery.

1. Turn off the computer. If necessary, press and hold the power button until the computer turns off.
2. Disconnect all peripheral devices from the computer, except the monitor, keyboard, and mouse.
3. Press the power button to turn on the computer.
4. As soon as you see the HP logo screen, repeatedly press the **F11** key on your keyboard until the **F11 HP Recovery** message appears on the screen.
5. Select **Troubleshoot**.
6. Select **Recovery Manager**.
7. At the HP Recovery Manager screen, click **System Recovery**. If you are prompted to back up your files, and you have not done so, select **Back up your files first** (recommended), and then click **Next**. Otherwise, select **Recover without backing up your files**, and then click **Next**.
8. Follow the on-screen instructions to continue.

System Recovery using HP Recovery Media (select models only)

Use the steps provided in this section if you created HP recovery media using [Creating recovery media and backups on page 18](#).

 **CAUTION:** System Recovery deletes all data and programs you have created or installed. Back up any important data to a CD or DVD or to a USB flash drive.

To perform a System Recovery using recovery media:

1. If you are using a set of DVDs, insert the first recovery disc into the DVD drive tray, and close the tray. If you are using a recovery USB flash drive, insert it into a USB port.
2. Click the **Start** button, and then click **Shut Down**.
- or -
If the computer is not responding, press and hold the power button for approximately 5 seconds or until the computer turns off.
3. Disconnect all peripheral devices from the computer except the monitor, keyboard, and mouse.
4. Press the power button to turn on the computer, and then press **F9** into **Boot Device Options**.
5. Use the arrow keys to select the boot menu, and press Enter. Use the arrow keys to select the location where the recovery media is inserted (USB or DVD). Press Enter to boot from that device.
6. Select **Run program from media**.
7. At the HP Recovery Manager screen, click **Factory Reset**.
8. Follow the on-screen instructions to continue.

Restoring and recovering using Windows tools

Windows offers several options for restoring from backup, refreshing the computer, and resetting the computer to its original state. For more information and steps, see Help and Support. From the Start screen, type `help`, and then select **Help and Support**.

Using Reset when the system is not responding

-
-  **NOTE:** You may be prompted by User Account Control for your permission or password when you perform certain tasks. To continue a task, select the appropriate option. For information about User Account Control, see Help and Support. From the Start screen, type `help`, and then select **Help and Support**.
-  **IMPORTANT:** Reset does not provide backups of your information. Before using Reset, back up any personal information you want to retain.
-

If Windows recovery steps are not working and the system is not responding, use these steps to start Reset:

1. If possible, back up all personal files.
2. If possible, check for the presence of the HP Recovery partition:
 - For Windows 8.1, from the Start screen, type `pc`, and then select **This PC**.
 - For Windows 8, from the Start screen, type `c`, and then select **Computer**.

 **NOTE:** If the HP Recovery partition is not listed, or you cannot check for its presence, you must recover using the recovery media you created; see [Recovery using the Windows recovery USB flash drive on page 20](#). Or you must use the Windows operating system media and the *Driver Recovery* media (purchased separately); see [Recovery using Windows operating system media \(purchased separately\) on page 21](#).

3. If the HP Recovery partition is listed, restart the computer, and then press `esc` while the HP logo is displayed. The computer Startup Menu displays.
4. Press `f11` to select the System Recovery option.
5. Choose your keyboard layout.
6. Select **Troubleshoot**.
7. Select **Reset**.
8. Follow the on-screen instructions to continue.

Recovery using the Windows recovery USB flash drive

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

 **NOTE:** If you did not create a recovery USB flash drive or the one you created does not work, see [Recovery using Windows operating system media \(purchased separately\) on page 21](#).

1. If possible, back up all personal files.
2. Insert the recovery USB flash drive you created into a USB port on your computer.
3. Restart the computer and as soon as you see the HP logo screen, press `f9` to display a list of boot devices. Use the arrow keys to select your USB flash drive from the UEFI Boot Sources list. Press `Enter` to boot from that device.
4. Choose your keyboard layout.
5. Select **Troubleshoot**.

6. Select **Refresh your PC**.
7. Follow the on-screen instructions.

Recovery using Windows operating system media (purchased separately)

To order a Windows operating system DVD, contact support. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.

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

To initiate recovery using Windows operating system media:

 **NOTE:** This process takes several minutes.

1. If possible, back up all personal files.
2. Restart the computer, and then follow the instructions provided with the Windows operating system media to install the operating system.
3. When prompted, press any keyboard key.
4. Follow the on-screen instructions.

After the repair is completed and the Windows desktop appears:

1. Remove the Windows operating system media, and then insert the *Driver Recovery* media.
2. Install the Hardware Enabling Drivers first, and then install Recommended Applications.

Using, updating, and maintaining your PC

From one location you can perform the following tasks:

- View or change your computer name and other system settings
- Add a device or printer and change other system settings
- Get help and support for your specific model
- Install HP support software for your computer
- Purchase supplies and accessories for your computer

To access this location, point to the upper-right or lower-right corner of the Start screen to display the charms, and then click **Settings > Change PC Settings**.

3 Getting started in Windows 10

Activating and customizing the software

If your computer was not shipped with a Windows® operating system, some portions of this documentation do not apply. Additional information is available in online help after you activate the operating system.

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



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

Activating the Windows operating system

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

We recommend that you register your computer with HP during operating system setup so you can receive important software updates and sign up for special offers. You can also register your computer with HP using the **Register with HP** app on the Start screen.



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

Downloading Windows updates

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

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

1. From the taskbar, type `Windows Update`, and then from the Search window, select **Check for updates**.
2. Click **Update & recovery**, and then click **Check for updates**.
3. Run Windows Update monthly thereafter.

Customizing the monitor display

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

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

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

– or –

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

Turning off the computer

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

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

– or –

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

If you encounter issues

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

- Visual inspection
- Blink or beep codes
- HP Support Assistant troubleshooter
- HP PC Hardware Diagnostics
- HP Support
- System restore
- System recovery

Performing basic troubleshooting

Perform the troubleshooting procedures in this section in the order presented, until your issue is resolved. You can find additional troubleshooting information in the comprehensive *Maintenance and Service Guide* (English only) available at <http://www.hp.com/support>. Select **Find your product**, enter the model number of the computer, and click **Search**.

Visual inspection: No boot, no power, no video

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

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

- Be sure that the computer and monitor are plugged into a working electrical outlet.
- Check to see that the voltage select switch (some models) is set to the appropriate voltage for your region (115 V or 230 V).
- Check to see that the computer is on (the power light is on).
- Check to see that the monitor is on (the monitor light is on).
- Turn up the brightness and contrast controls of the monitor if the monitor is dim.
- If the system does not boot, press and hold any key. If the system beeps, then the keyboard is operating correctly.
- Check all cable connections for loose connections or incorrect connections.

- Wake the computer by pressing any key on the keyboard or pressing the power button. If the system remains in the Sleep state, shut down the computer by pressing and holding the power button for at least four seconds. Then press the power button again to restart the computer. If the system will not shut down, unplug the power cord, wait a few seconds, and then plug it in again. The computer will restart if automatic start on power loss is set in Computer Setup. If the computer does not restart, press the power button.
- Reconfigure your computer after installing a non–Plug and Play expansion board or other option.
- Be sure that all the needed device drivers have been installed. For example, if you are using a printer, you need a driver for that printer model.
- Remove any bootable media (CD/DVD or USB device) from the system before turning it on.
- If you have installed an operating system other than the factory-installed operating system, check to be sure that it is supported on the system.
- If the system has multiple video sources (embedded, PCI, or PCI-Express adapters) installed (embedded video on some models only) and a single monitor, the monitor must be connected to the monitor port on the source that is set as the primary video source. During boot, the other video ports are disabled, if the monitor is connected to one of these ports, the monitor will not function. You can select or change the primary video source in Computer Setup.

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

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

HP Support Assistant

HP Support Assistant is an HP application that helps you maintain the performance of your computer and resolve problems through automated updates and tune-ups, built-in diagnostics, and guided assistance. HP Support Assistant is preinstalled on all HP or Compaq computers running Windows 10.

To access HP Support Assistant in Windows 10, type `support` in the taskbar search box, and then select the **HP Support Assistant** app.

Using, updating, and maintaining your PC

Using HP Support Assistant, from one location you can perform the following tasks:

- View your computer name and other system specifications
- View the user documentation
- Add a device or printer and change other system settings
- Get help and support for your specific model
- Install HP support software for your computer
- Purchase printer supplies for your computer

Using HP PC Hardware Diagnostics

If HP Support Assistant is unable to detect a problem, try the UEFI-based hardware diagnostic solution that HP includes on all products. You can use this tool even if the computer will not boot to the operating system. This tool also works with components not diagnosed in HP Support Assistant.

Why run HP PC Hardware Diagnostics

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

- **Isolate true hardware failures:** The diagnostics run outside of the operating system so they effectively isolate hardware failures from issues that may be caused by the operating system or other software components.
- **Failure ID:** When a failure is detected that requires hardware replacement, a 24-digit Failure ID is generated. This ID can then be provided to the call agent, who will either schedule support or provide replacement parts.

How to access and run HP PC Hardware Diagnostics

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

1. Turn on the computer and press **Esc** repeatedly until the BIOS Boot Menu appears.
2. Press **F2** or select **Diagnostics (F2)**.

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

- a. A connected USB drive (to download the diagnostics tools to a USB drive, see the instructions in [Downloading HP PC Hardware Diagnostics to a USB device on page 16](#))
- b. The hard drive
- c. A core set of diagnostics in the BIOS (for memory and hard drive) that are accessible only if the USB or hard drive versions are not detected

Downloading HP PC Hardware Diagnostics to a USB device



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

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

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

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

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

1. Go to <http://www.hp.com>.
2. Point to **Support**, located at the top of the page, and then click **Download Drivers**.
3. In the text box, enter the product name, and then click **Go**.

– or –

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

4. Select your computer model, and then select your operating system.
5. In the **Diagnostic** section, click **HP UEFI Support Environment**.

– or –

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

Before you call for support

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

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

- Check the power LED on the front of the computer to see if it is flashing and listen for a series of beeps emanating from the computer. The flashing lights and/or beeps are error codes that will help you diagnose the problem. Refer to the *Maintenance and Service Guide* (English only) for details.
- If the screen is blank, plug the monitor into a different video port on the computer if one is available, or replace the monitor with a monitor that you know is functioning properly.
- If you are working on a network:
 - Use a different network cable to connect your computer to the network.
 - Connect a different computer with a different cable to the network.

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

- If you recently added new hardware, remove the hardware.
- If you recently installed new software, uninstall the software.
- Comprehensive online technical support is also available at <http://www.hp.com/support>.
- If the computer will turn on but will not boot into the operating system, you may run the “pre-boot” diagnostics utility, HP PC Hardware Diagnostics. Refer to [Using HP PC Hardware Diagnostics on page 3](#) for more information.
- If the computer will boot into the operating system, use one of the following tools. They provide self-solve diagnostics and online chat features (if Internet access is also available).
 - If you have HP Support Assistant, access it from the Start screen by clicking the **HP Support Assistant** app, clicking **My computer**, and then clicking **Diagnostics**.
 - If you do not have HP Support Assistant installed, access HP Instant Support Professional Edition at <http://www.hp.com/go/ispe>.

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

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

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

- Before calling:

- Remove any hardware that was recently added to your system.
- Remove any software that was recently installed.
- Write down the product ID number, computer and monitor serial numbers, and the failure ID produced by running the diagnostics, if applicable.
- Be in front of your computer when you call.
- Spend time troubleshooting the problem with the service technician.



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

Backing up, restoring, and recovering in Windows 10

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

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

For additional information, refer to Help and Support.

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

Creating recovery media and backups

The following methods of creating recovery media and backups are available on select products only. Choose the 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 27](#). For information on the recovery options that are available using the recovery media, see [What you need to know before you get started on page 29](#).
- Use Windows tools to create system restore points and create backups of personal information.

For more information, see [Using Windows tools on page 28](#).



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

Creating HP Recovery media (select products only)

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

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

You can use Windows tools to create system restore points and create backups of personal information, see [Using Windows tools on page 28](#).

- 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. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information on the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.
- Be sure that the computer is connected to AC power before you begin creating the recovery media.
- The creation process can take an hour or more.
- If necessary, you can exit the program before you have finished creating all of the recovery DVDs. HP Recovery Manager will finish burning the current DVD. The next time you start HP Recovery Manager, you will be prompted to continue.

To create HP Recovery media:

1. Type `recovery` in the taskbar search box, and then select **HP Recovery Manager**.
2. If prompted, click **Yes** to allow the program to continue.
3. Select **Create recovery media**, and then follow the on-screen instructions.

If you ever need to recover the system, see [Recovering using HP Recovery Manager on page 29](#).

Using Windows tools

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



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

For more information and steps, see Help and Support.

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

Restore and recovery

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



IMPORTANT: Not all methods are available on all products.

- Windows offers several options for restoring from backup, refreshing the computer, and resetting the computer to its original state. For more information see Help and Support.
 - ▲ Type `help` in the taskbar search box, and then select **Help and Support**.
- If you need to correct a problem with a preinstalled application or driver, use the Reinstall drivers and/ or applications option (select products only) of HP Recovery Manager to reinstall the individual application or driver.
 - ▲ Type `recovery` in the taskbar search box, select **HP Recovery Manager**, select **Reinstall drivers and/or applications**, and then follow the on-screen instructions.
- If you want to recover the Windows partition to original factory content, you can choose the System Recovery option from the HP Recovery partition (select products only) or use the HP Recovery media. For more information, see [Recovering using HP Recovery Manager on page 29](#). If you have not already created recovery media, see [Creating HP Recovery media \(select products only\) on page 27](#).
- 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 29](#).
- 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 30](#).

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 27](#).

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 27](#).
- 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 27](#).
- 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. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.

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

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

 **NOTE:** Only the options available for your 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:

1. Type `recovery` in the taskbar search box, select **Recovery Manager**, and then select **HP Recovery Environment**.
- or -
Press **f11** while the computer boots, or press and hold **f11** as you press the power button.
2. Select **Troubleshoot** from the boot options menu.
3. Select **Recovery Manager**, select **System Recovery**, and then follow the on-screen instructions.

Using HP Recovery media to recover

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

1. If possible, back up all personal files.
2. Insert the HP Recovery media, and then restart the 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 30](#).

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:

1. Insert the HP Recovery media.
2. Access BIOS:
Restart the computer, quickly press **esc**, and then press **f9** for boot options.
3. Select the optical drive or USB flash drive from which you want to boot.
4. Follow the on-screen instructions.

Removing the HP Recovery partition (select products only)

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

 **IMPORTANT:** After you remove the HP Recovery partition, you will not be able to perform System Recovery or create HP recovery media from the HP Recovery partition. So before you remove the Recovery partition, create HP Recovery media; see [Creating HP Recovery media \(select products only\) on page 27](#).

 **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.

4 Finding more information



NOTE: Some or all of the following documents are available on the computer hard drive.

- *Getting Started*—Helps you connect the computer and peripheral devices and set up factory-provided software; also includes basic troubleshooting information should you encounter any problems during initial startup.
- *Hardware Reference Guide*—Provides an overview of the product hardware, as well as instructions for upgrading this series of computers; includes information on RTC batteries, memory, and power supply.
- *Maintenance and Service Guide* (English only)—Provides information on parts removal and replacement, troubleshooting, Desktop Management, setup utilities, safety, routine care, connector pin assignments, POST error messages, diagnostic indicator lights and error codes.
- *Regulatory, Safety and Environmental Notices*—Provides safety and regulatory information that ensures compliance with US, Canadian, and various international regulations.

Accessing user guides (Windows 7 systems)

- ▲ Click **Start > All Programs > HP Help and Support > HP Documentation**.

Accessing user guides (Windows 8 systems)

1. From the Start screen type `support`, and then select the **HP Support Assistant** app.
2. Select **My PC**, and then select **User Guides**.

Accessing user guides (Windows 10 systems)

1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.
2. Select **My PC**, select the **Specifications** tab, and then select **User Guides**.

Accessing user guides (Linux systems)

Double-click the **HP User Manuals** icon on your desktop. Select the folder for your language. Select the guide you want to access.

5 Accessibility

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

Supported assistive technologies

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

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

Contacting support

We are constantly refining the accessibility of our products and services and welcome feedback from users. If you have an issue with a product or would like to tell us about accessibility features that have helped you, please contact us at (888) 259-5707, Monday through Friday, 6 a.m. to 9 p.m. 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 (877) 656-7058, Monday through Friday, 6 a.m. to 9 p.m. North American Mountain Time.

 **NOTE:** Support is in English only.
