

Drives
User Guide

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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.

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1 Identifying installed drives

To view the drives installed on the computer, select **Start > My Computer**.

2 Handling drives

Drives are fragile computer components that must be handled with care. Refer to the following cautions before handling drives. Additional cautions are included with the procedures to which they apply.

△ **CAUTION:** To reduce the risk of damage to the computer, damage to a drive, or loss of information, observe these precautions:

Before you move a computer that is connected to an external hard drive, initiate Standby and allow the screen to clear, or properly disconnect the external hard drive.

Before handling a drive, discharge static electricity by touching the unpainted metal surface of the drive.

Do not touch the connector pins on a removable drive or on the computer.

Handle a drive carefully; do not drop a drive or place items on it.

Before removing or inserting a drive, shut down the computer. If you are unsure whether the computer is off, in Standby, or in Hibernation, turn the computer on, and then shut it down through the operating system.

Do not use excessive force when inserting a drive into a drive bay.

Do not type on the keyboard or move the computer while the optical drive (select models only) is writing to a disc. The write process is sensitive to vibration.

When the battery is the only source of power, be sure that the battery is sufficiently charged before writing to media.

Avoid exposing a drive to temperature or humidity extremes.

Avoid exposing a drive to liquids. Do not spray the drive with cleaning products.

Remove media from a drive before removing the drive from the drive bay, or traveling with, shipping, or storing a drive.

If a drive must be mailed, place the drive in a bubble-pack mailer or other suitable protective packaging and label the package "FRAGILE."

Avoid exposing a drive to magnetic fields. Security devices with magnetic fields include airport walk-through devices and security wands. The airport security devices that check carry-on luggage, such as conveyor belts, use X-rays instead of magnetism and will not damage a drive.

3 Using an optical drive (select models only)


Identifying the installed optical drive

- ▲ Select **Start > My Computer**.

Using optical discs (CDs and DVDs)

An optical drive, such as a DVD-ROM drive, supports optical discs (CDs and DVDs). These discs store or transport information and play music and movies. DVDs have a higher storage capacity than CDs.

All optical drives can read from optical discs and some drives can also write to optical discs, as described in the following table.

 **NOTE:** Some of the optical drives listed may not be supported by your computer. The listed drives are not necessarily all of the supported optical drives.


Optical drive type	Read CD and DVD-ROM media	Write to CD-R/RW media	Write to DVD (includes DVD+R DL, DVD±RW/R, and DVD-RAM media)	Write label to LightScribe CD or DVD	Read Blu-ray	Write to Blu-ray R/RE
DVD-ROM Drive	Yes	No	No	No	No	No
DVD/CD-RW Combo Drive	Yes	Yes	No	No	No	No
DVD±RW SuperMulti DL* LightScribe† Drive	Yes	Yes	Yes	Yes	No	No
Blu-ray R/RE DVD±RW SuperMulti DL* Drive	Yes	Yes	Yes	No	Yes	Yes

*Double-layer discs can store more data than single-layer discs. However, double-layer discs burned with this drive may not be compatible with many single-layer DVD drives and players.

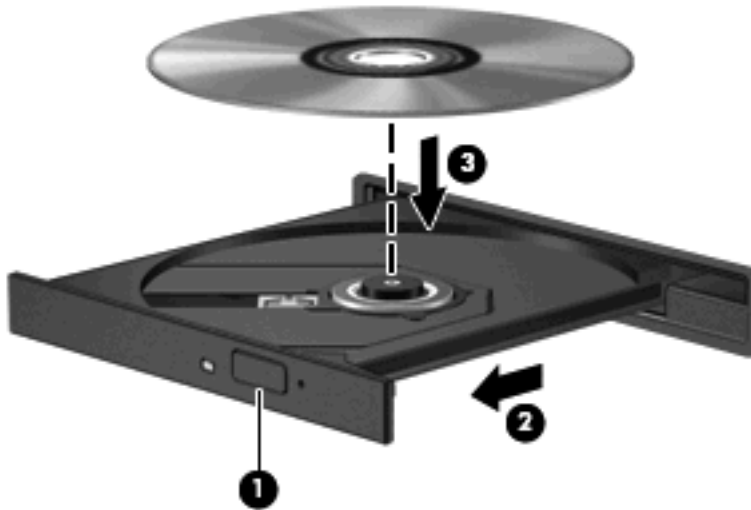
†LightScribe discs must be purchased separately. LightScribe creates a grayscale image similar to black-and-white photography.

Playing a CD or DVD

1. Turn on the computer.
2. Press the release button (1) on the drive bezel to release the disc tray.
3. Pull out the tray (2).
4. Hold the disc by the edges to avoid touching the flat surfaces and position the disc label-side up over the tray spindle.

 **NOTE:** If the tray is not fully accessible, tilt the disc carefully to position it over the spindle.

5. Gently press the disc (3) down onto the tray spindle until the disc snaps into place.




6. Close the disc tray.

If you have not yet configured AutoPlay, as described in the following section, an AutoPlay dialog box opens. It prompts you to select how you want to use the media content.

Configuring AutoPlay

1. Select **Start > My Computer**.
2. Right-click the device (such as CD-ROM drive), and then click **Properties**.
3. Click the **AutoPlay** tab, and then select one of the available actions.
4. Click **OK**.

 **NOTE:** For more information about AutoPlay, refer to Help and Support.

Observing the copyright warning

It is a criminal offense, under applicable copyright laws, to make unauthorized copies of copyright-protected material, including computer programs, films, broadcasts, and sound recordings. Do not use this computer for such purposes.


△ **CAUTION:** To prevent loss of information or damage to a disc, observe the following guidelines:

Before writing to a disc, connect the computer to a reliable external power source. Do not write to a disc while the computer is running on battery power.

Before writing to a disc, close all open programs except the disc software you are using.

Do not copy directly from a source disc to a destination disc or from a network drive to a destination disc.

Do not use the computer keyboard or move the computer while the computer is writing to a disc. The write process is sensitive to vibration.

 **NOTE:** For details about using software included with the computer, refer to the software manufacturer's instructions, which may be provided with the software, on disc, or on the manufacturer's Web site.

Copying a CD or DVD

1. Select **Start > All Programs > Roxio > Creator Business**.
2. In the right pane, click **Copy Disc**.
3. Insert the disc you want to copy into the optical drive.
4. Click **Copy** at the bottom right of the screen.

Creator Business reads the source disc and copies the data to a temporary folder on your hard drive.

5. When prompted, remove the source disc from the optical drive and insert a blank disc into the drive.

After the information is copied, the disc you created is ejected automatically.

Creating or “burning” a CD or DVD

If your computer includes a CD-RW, DVD-RW, or DVD+/-RW optical drive, you can use software such as Windows® Media Player or Roxio Creator Business to burn data and audio files, including MP3 and WAV music files. To burn video files to a CD or DVD, use Windows Movie Maker.

Observe the following guidelines when burning a CD or DVD:

- Before burning a disc, save and close any open files and close all programs.
- A CD-R or DVD-R is usually best for burning audio files because after the information is copied, it cannot be changed.
- Because some home and car stereos will not play CD-RWs, use CD-Rs to burn music CDs.
- A CD-RW or DVD-RW is generally best for burning data files or for testing audio or video recordings before you burn them to a CD or DVD that cannot be changed.
- DVD players used in home systems usually do not support all DVD formats. Refer to the user guide that came with your DVD player for a list of supported formats.
- An MP3 file uses less space than other music file formats, and the process for creating an MP3 disc is the same as the process for creating a data file. MP3 files can be played only on MP3 players or on computers with MP3 software installed.

To burn a CD or DVD, follow these steps:

1. Download or copy the source files into a folder on your hard drive.
2. Insert a blank CD or DVD into the optical drive.
3. Select **Start > All Programs** and the name of the software you want to use.
4. Select the kind of CD or DVD you want to create—data, audio, or video.
5. Right-click **Start > Explore** and navigate to the folder where the source files are stored.
6. Open the folder, and then drag the files to the drive that contains the blank optical disc.
7. Initiate the burning process as directed by the program you have selected.


Refer to the software Help file or user guide for more specific instructions.

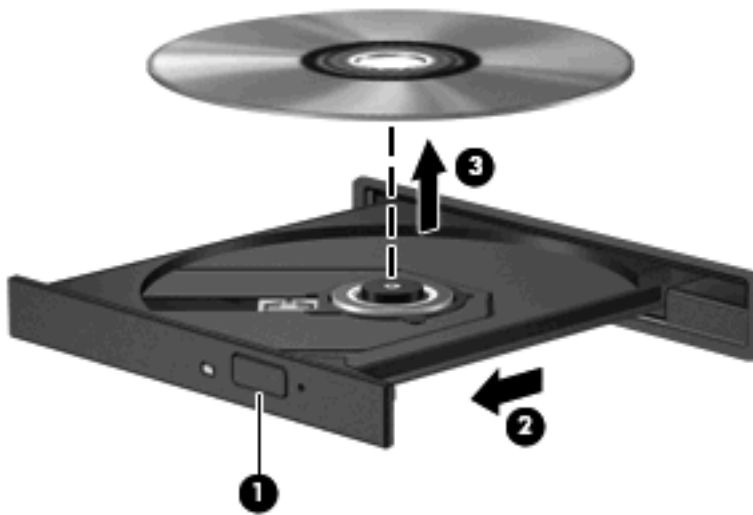
Removing a CD or DVD

There are 2 ways to remove a disc, depending on whether the disc tray opens normally or not.

When the disc tray opens

1. Press the release button **(1)** on the drive bezel to release the disc tray, and then gently pull out the tray **(2)** until it stops.
2. Remove the disc **(3)** from the tray by gently pressing down on the spindle while lifting the outer edges of the disc. Hold the disc by the edges and avoid touching the flat surfaces.

 **NOTE:** If the tray is not fully accessible, tilt the disc carefully as you remove it.




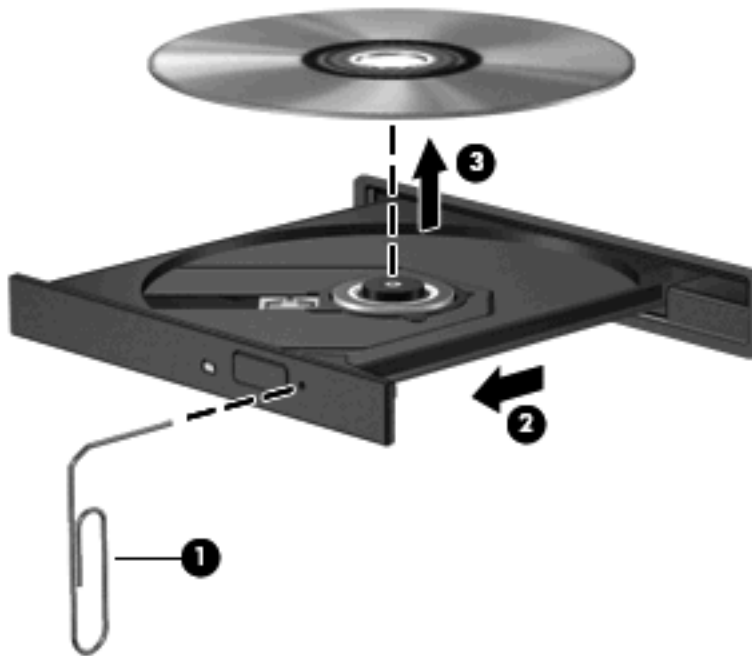
3. Close the disc tray and place the disc in a protective case.

When the disc tray does not open

1. Insert the end of a paper clip **(1)** into the release access in the front bezel of the drive.
2. Press in gently on the paper clip until the tray is released, and then pull out the tray **(2)** until it stops.

3. Remove the disc (3) from the tray by gently pressing down on the spindle while lifting the outer edges of the disc. Hold the disc by the edges and avoid touching the flat surfaces.

 **NOTE:** If the tray is not fully accessible, tilt the disc carefully as you remove it.



4. Close the disc tray and place the disc in a protective case.

Preventing playback disruptions

- Save your work and close all open programs before playing a CD or a DVD.
- Log off the Internet before playing a CD or a DVD.
- Be sure that you insert the disc properly.
- Be sure that the disc is clean. If necessary, clean the disc with filtered water and a lint-free cloth. Wipe from the center of the disc to the outer edge.
- Check the disc for scratches. If you find scratches, treat the disc with an optical disc repair kit available at many electronics stores.
- Disable Standby before playing the disc.

Do not initiate Hibernation or Standby while playing a disc. Otherwise, you may see a warning message asking if you want to continue. If this message is displayed, click **No**. After you click No, the computer may behave in either of the following ways:

- Playback may resume.

– or –

- The playback window in the multimedia program may close. To return to playing the disc, click the **Play** button in your multimedia program to restart the disc. In rare cases, you may need to exit the program and then restart it.

- Increase system resources:

Turn off external devices such as printers and scanners. This practice frees up valuable system resources and results in better playback performance.

Change desktop color properties. Because the human eye cannot easily tell the difference between colors beyond 16 bits, you should not notice any loss of color while watching a movie if you lower system color properties to 16-bit color, as follows:

- Right-click anywhere on the desktop—not on an icon—select **Properties > Settings**.
- Set **Colors** to **Medium (16 bit)**.

Changing DVD region settings

Most DVDs that contain copyrighted files also contain region codes. The region codes help protect copyrights internationally.

You can play a DVD containing a region code only if the region code on the DVD matches the region setting on your DVD drive.

△ **CAUTION:** The region settings on your DVD drive can be changed only 5 times.

The region setting you select the fifth time becomes the permanent region setting on the DVD drive.

The number of region changes remaining is displayed on the DVD Region tab.

To change settings through the operating system:


1. Select **Start > My Computer**.
2. Right-click in the window, and select **Properties > Hardware tab > Device Manager**.
3. Click the plus sign (+) next to **DVD/CD-ROM drives**.
4. Right-click the DVD drive for which you want to change region settings, and then click **Properties**.
5. Click the **DVD Region** tab, and change settings.
6. Click **OK**.

4 Using external drives


Removable external drives expand your options for storing and accessing information. A USB drive can be added by connecting the drive to a USB port on the computer or on an optional docking device (select models only).

USB drives include the following types:

- 1.44-megabyte diskette drive
- Hard drive module (a hard drive with an adapter attached)
- DVD-ROM Drive
- DVD/CD-RW Combo Drive
- DVD+RW and CD-RW Combo Drive
- DVD±RW and CD-RW Combo Drive

 **NOTE:** For more information about required software and drivers, or to learn which computer port to use, refer to the manufacturer's instructions.

To connect an external drive to the computer:

 **CAUTION:** To reduce the risk of damage to the equipment when connecting a powered drive, be sure that the AC power cord is unplugged.

1. Connect the drive to the computer.
2. If you are connecting a powered drive, plug the drive power cord into a grounded AC outlet.


To disconnect a powered external drive, disconnect it from the computer, and then unplug the AC power cord.

5 Using HP 3D DriveGuard

HP 3D DriveGuard protects the hard drive by parking the drive and halting I/O requests under either of the following conditions:

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

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

 **NOTE:** If the upgrade bay contains a hard drive, the hard drive is protected by HP 3D DriveGuard. Hard drives installed in optional docking devices or connected to USB ports are not protected by HP 3D DriveGuard.

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

Identifying HP 3D DriveGuard status

The drive light on the computer changes to an amber color to show that the drive is parked. To determine whether drives are currently protected or whether a drive is parked, use the icon in the notification area, at the far right of the taskbar:

- If the software is enabled, a green check mark is superimposed over the hard drive icon.
- If the software is disabled, a red X is superimposed over the hard drive icon.
- If the drives are parked, a yellow moon is superimposed over the hard drive icon.

If HP 3D DriveGuard has parked the drive, the computer will behave in the following ways:

- The computer will not shut down.
- The computer will not initiate Standby or Hibernation, except as described in the following Note.



NOTE: If the computer is running on battery power and reaches a critical battery level, HP 3D DriveGuard allows the computer to initiate Hibernation.


- The computer will not activate battery alarms set on the Alarms tab in Power Options properties.

Before you move the computer, HP recommends that you either shut it down or initiate Standby or Hibernation.

Using HP 3D DriveGuard software

The HP 3D DriveGuard software enables you to perform the following tasks:

- Enable and disable HP 3D DriveGuard.

 **NOTE:** Depending on your user privileges, you may not be able to enable or disable HP 3D DriveGuard. Additionally, members of an Administrator group can change the privileges for non-Administrator users.

- Determine whether a drive in the system is supported.

To open the software and change settings, follow these steps:

1. Double-click the icon in the notification area, at the far right of the taskbar.

– or –

Right-click the icon in the notification area, and then select **Settings**.

2. Click the appropriate button to change settings.
3. Click **OK**.

6 Improving hard drive performance

Using Disk Defragmenter

As you use the computer, files on the hard drive become fragmented. Disk Defragmenter consolidates the fragmented files and folders on the hard drive so that the system can run more efficiently.

After you start Disk Defragmenter, it works without supervision. Depending on the size of your hard drive and the number of fragmented files, Disk Defragmenter may take more than an hour to complete. You may want to set it to run during the night or another time when you do not need access to your computer.

HP recommends defragmenting your hard drive at least once a month. You may set Disk Defragmenter to run on a monthly schedule, but you can defragment your computer manually at any time.

To run Disk Defragmenter:

1. Select **Start > All Programs > Accessories > System Tools > Disk Defragmenter**.
2. Under **Volume**, click the listing for the hard drive, usually listed as (C:), and then click **Defragment**.

For additional information, access the Disk Defragmenter software Help.

Using Disk Cleanup

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

To run Disk Cleanup:

1. Select **Start > All Programs > Accessories > System Tools > Disk Cleanup**.
2. Follow the on-screen instructions.

7 Replacing a hard drive

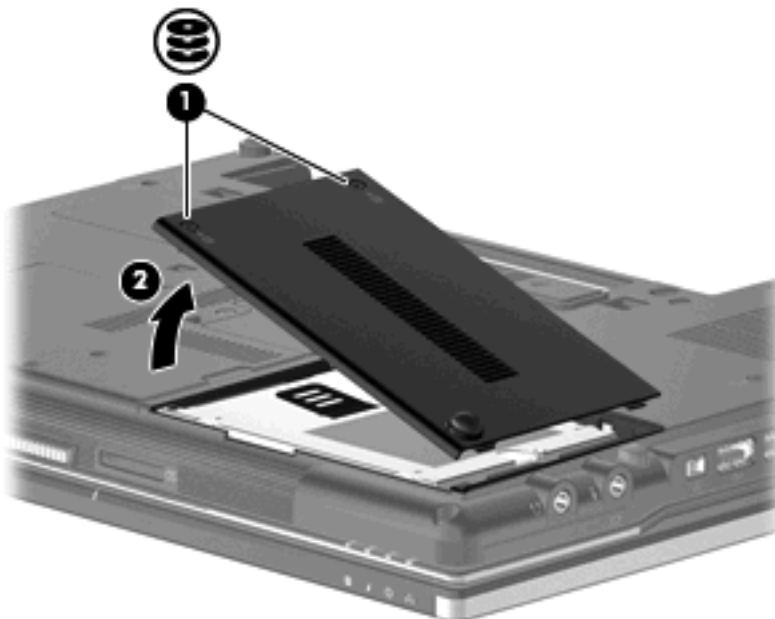
△ **CAUTION:** To prevent information loss or an unresponsive system:

Shut down the computer before removing the hard drive from the hard drive bay. Do not remove the hard drive while the computer is on, in Standby, or in Hibernation.

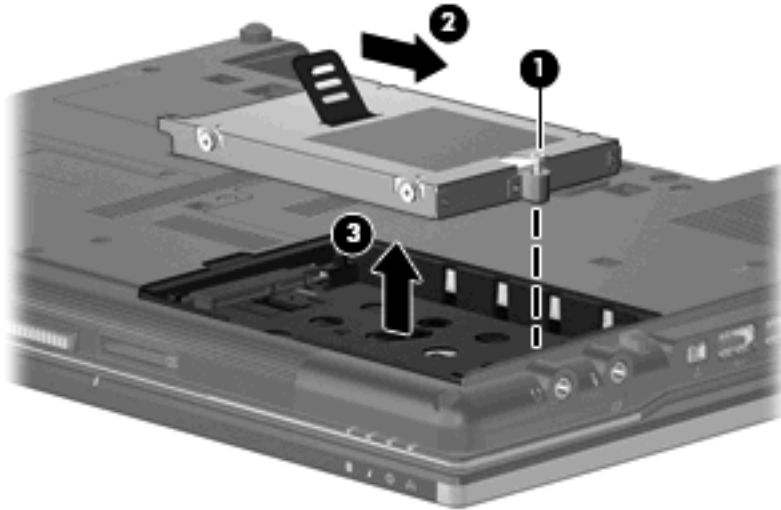
If you are not sure whether the computer is off or in Hibernation, turn the computer on by pressing the power button. Then shut down the computer through the operating system.

To remove a hard drive:

1. Save your work.
2. Shut down the computer and close the display.
3. Disconnect all external hardware devices connected to the computer.
4. Unplug the power cord from the AC outlet.
5. Turn the computer upside down on a flat surface, with the hard drive bay toward you.
6. Remove the battery from the computer.
7. Loosen the 2 hard drive cover screws (1).
8. Lift the hard drive cover away from the computer (2).

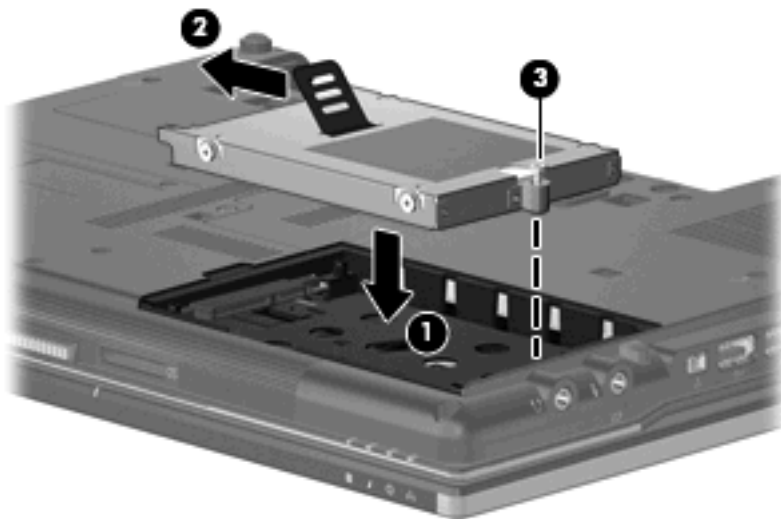


9. Loosen the hard drive screw (1).
10. Pull the hard drive tab (2) to the right to disconnect the hard drive.
11. Lift the hard drive (3) out of the hard drive bay.



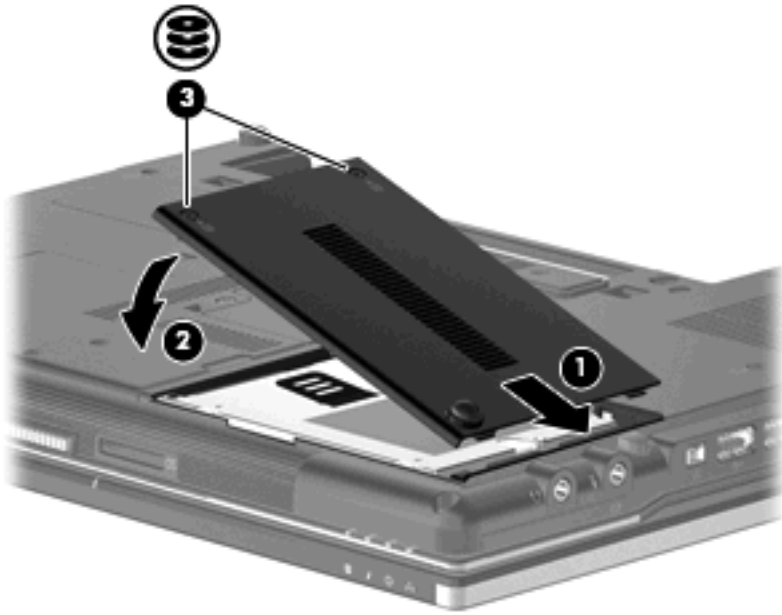
To install a hard drive:

1. Insert the hard drive into the hard drive bay (1).
2. Pull the hard drive tab (2) to the left to connect the hard drive.
3. Tighten the hard drive screw (3).



4. Align the tabs (1) on the hard drive cover with the notches on the computer.
5. Replace the cover (2).

6. Tighten the hard drive cover screws (3).



8 Replacing a drive in the upgrade bay

The upgrade bay can hold either a hard drive or an optical drive.

Replacing a hard drive

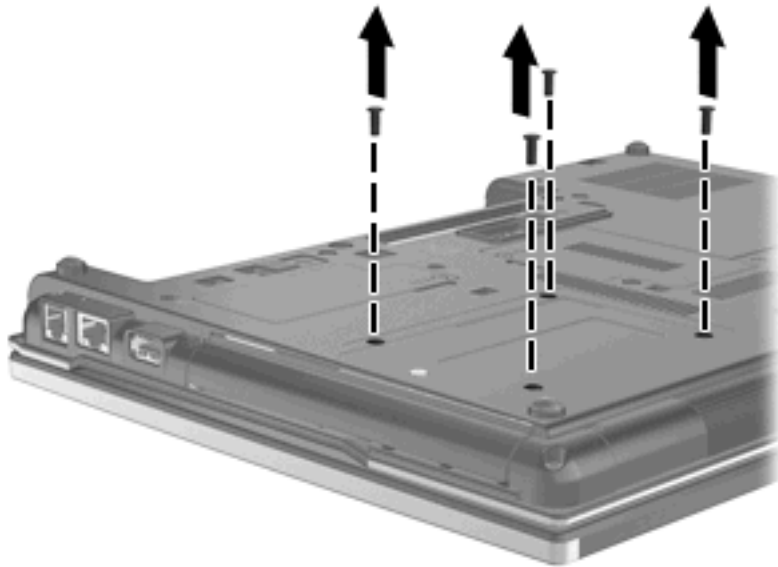
△ **CAUTION:** To prevent information loss or an unresponsive system:

Shut down the computer before removing the hard drive from the upgrade bay. Do not remove the hard drive while the computer is on, in Standby, or in Hibernation.

If you are not sure whether the computer is off or in Hibernation, turn the computer on by pressing the power button. Then shut down the computer through the operating system.

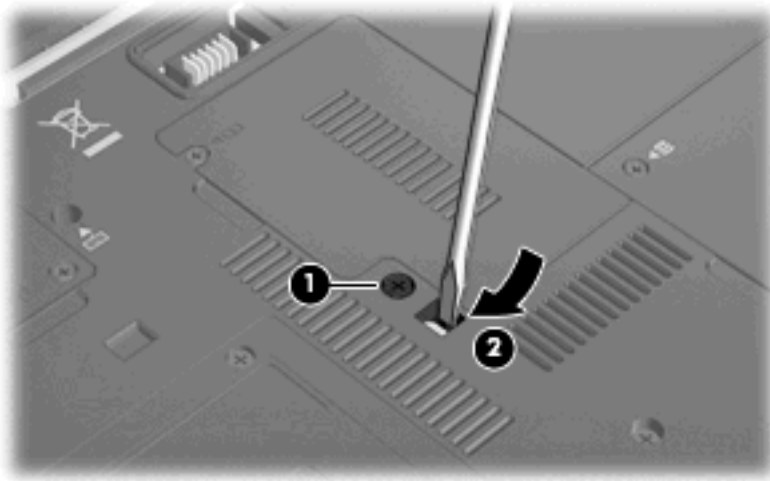
To remove a hard drive from the upgrade bay:

1. Save your work.
2. Shut down the computer and close the display.
3. Disconnect all external hardware devices connected to the computer.
4. Unplug the power cord from the AC outlet.
5. Turn the computer upside down on a flat surface, with the upgrade bay toward you.
6. Remove the battery from the computer.
7. Remove the 4 hard drive screws.

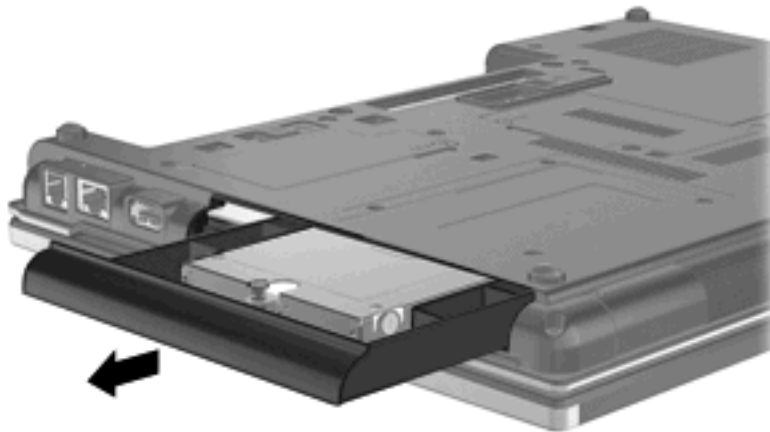


8. Loosen the upgrade bay screw (1).

9. Using a flat-bladed screwdriver, gently push the tab to release the hard drive (2).

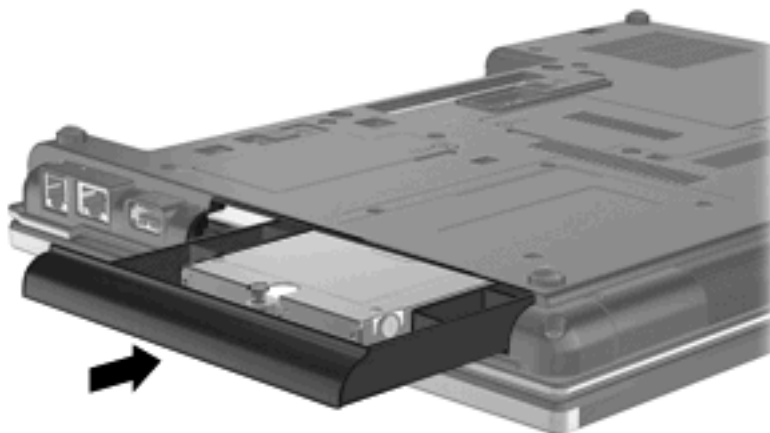


10. Remove the hard drive from the upgrade bay.

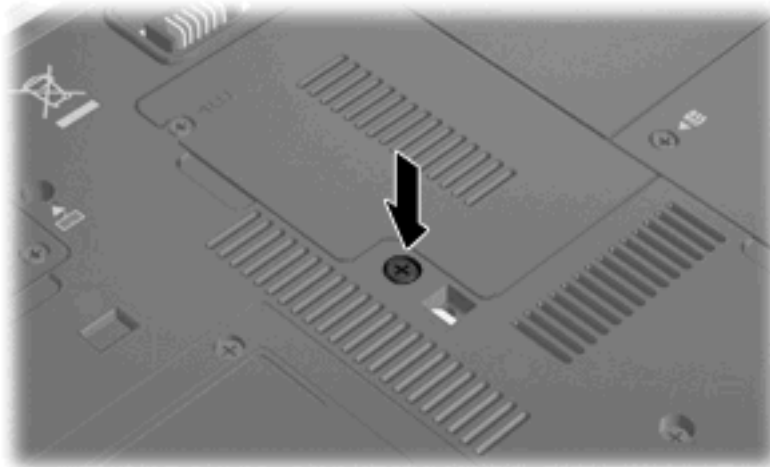


To install a hard drive in the upgrade bay:

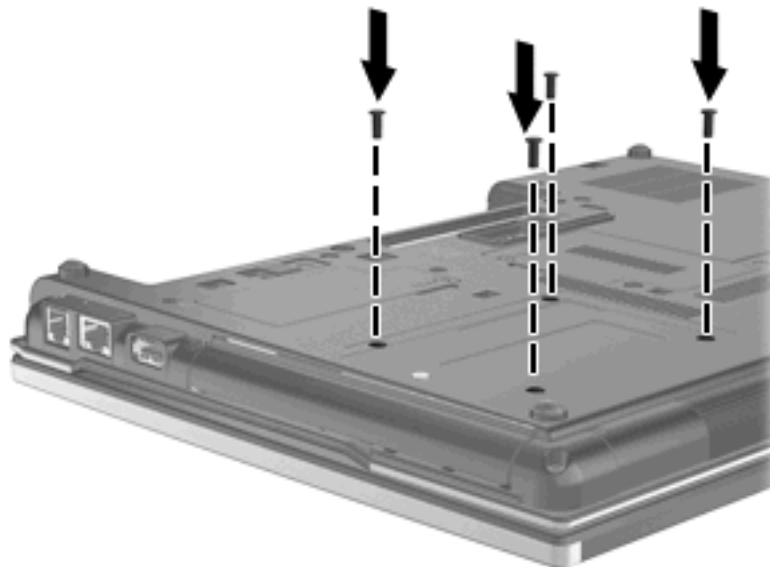
1. Insert the hard drive into the upgrade bay.



2. Tighten the upgrade bay screw.



3. Replace the 4 hard drive screws.



Replacing an optical drive

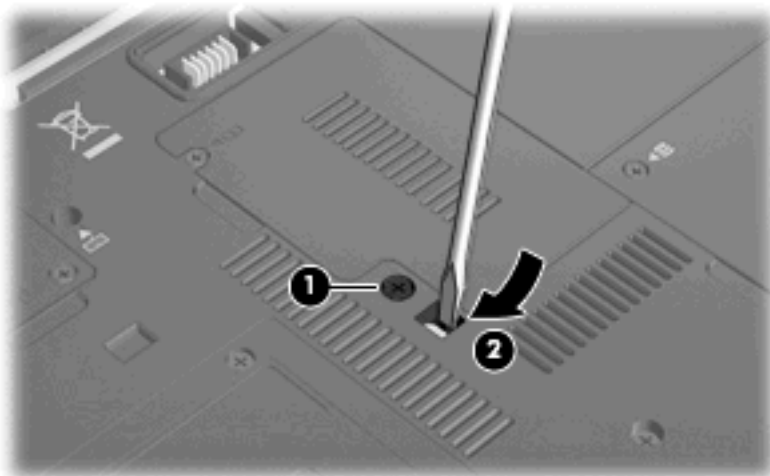
△ **CAUTION:** To prevent information loss or an unresponsive system:

Shut down the computer before removing the optical drive from the upgrade bay. Do not remove the optical drive while the computer is on, in Standby, or in Hibernation.

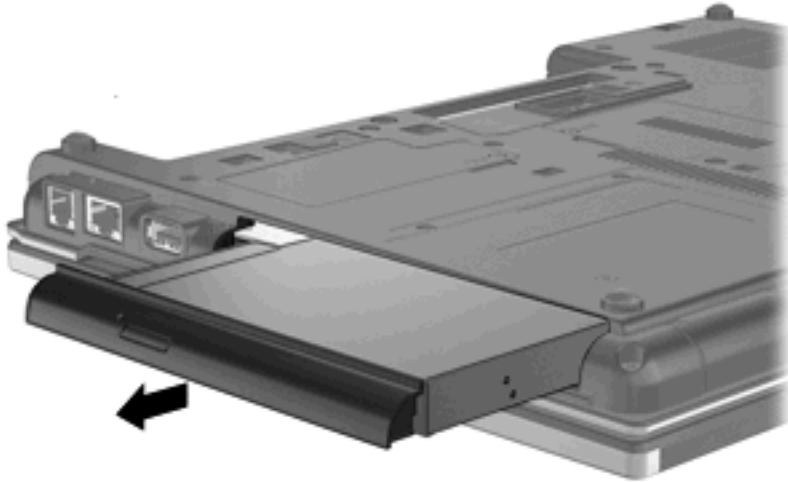
If you are not sure whether the computer is off or in Hibernation, turn the computer on by pressing the power button. Then shut down the computer through the operating system.

To remove an optical drive from the upgrade bay:

1. Save your work.
2. Shut down the computer and close the display.
3. Disconnect all external hardware devices connected to the computer.
4. Unplug the power cord from the AC outlet.
5. Turn the computer upside down on a flat surface, with the upgrade bay toward you.
6. Remove the battery from the computer.
7. Loosen the upgrade bay screw **(1)**.
8. Using a flat-bladed screwdriver, gently push the tab to release the optical drive **(2)**.

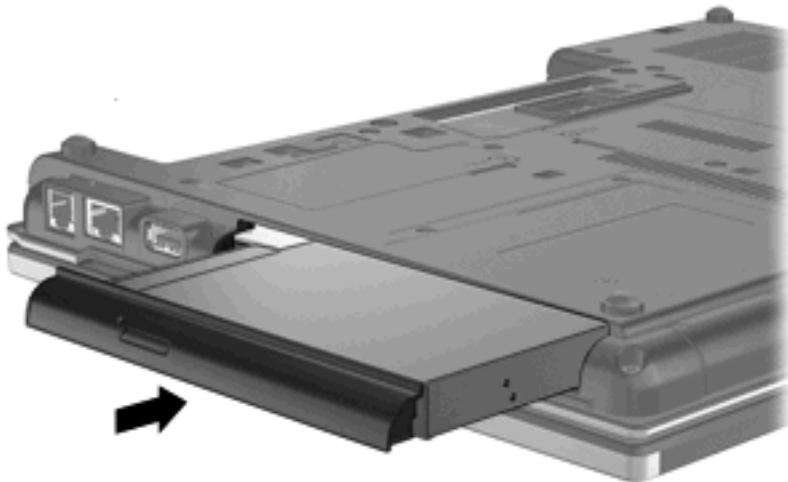


9. Remove the optical drive from the upgrade bay.

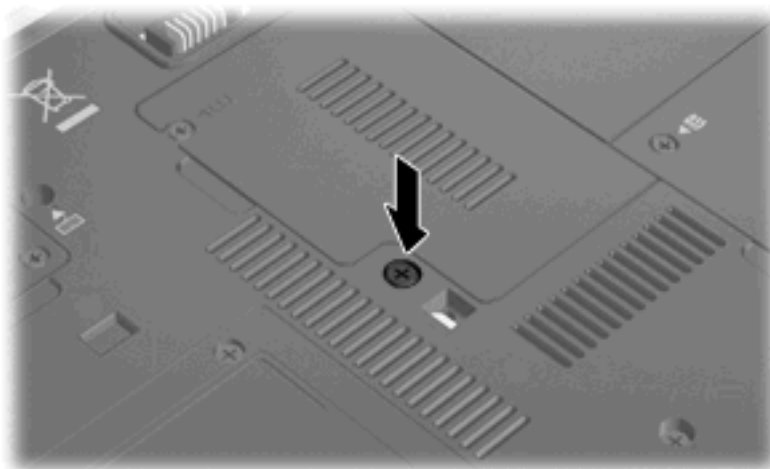


To install an optical drive in the upgrade bay:

1. Insert the optical drive into the upgrade bay.



2. Tighten the upgrade bay screw.



9 Troubleshooting

The computer does not detect the optical drive

If the computer does not detect the optical drive, use Device Manager to troubleshoot the device and then update, uninstall, or disable the device driver.

To check your devices and drivers in Device Manager, follow these steps:

1. Remove any discs from the optical drive.
2. Select **Start > My Computer**.
3. Right-click in the window and select **Properties > Hardware** tab, and then click **Device Manager**.
4. In the Device Manager window, click the plus sign (+) next to **Disc Drives** or **DVD/CD-ROM drives**, unless a minus sign (-) is already showing. Look for the optical drive listing.
5. Right-click the optical device listing to perform the following tasks:
 - Update the driver.
 - Uninstall the device.
 - Scan for hardware changes. Windows scans your system for installed hardware and installs any required drivers.
 - Click **Properties** to see if the device is working properly:
 - Click **Troubleshoot** to fix problems.
 - Click the **Driver** tab to update, disable, or uninstall drivers for this device.

A new device driver is needed

Obtaining Microsoft device drivers

Your computer is set to automatically check for and install Microsoft device drivers when new devices are connected to your computer.

Obtaining HP device drivers

You can obtain the latest HP device drivers in either of the following ways:

- Using HP Update
- Using the HP Web site

To use HP Update:


1. Select **Start > All Programs > HP > HP Update**.
2. On the HP Welcome screen, click **Settings**, and then select a time when the utility should check for software updates on the Web.
3. Click **Next** to immediately check for HP software updates.

To use the HP Web site:

1. Open your Internet browser, and go to <http://www.hp.com/support>.
2. Select your country or region.
3. Click the option for software and driver downloads, and then type your computer model number in the product box.
4. Press **enter**, and then follow the on-screen instructions.

An optical disc does not play automatically

1. Select **Start > My Computer**.
2. Right-click the device (such as CD-ROM drive), and then click **Properties**.
3. Click the **AutoPlay** tab, and then select one of the available actions.
4. Click **OK**.

 **NOTE:** For more information about AutoPlay, refer to **Help and Support**.

The process of burning a disc does not begin, or it stops before completion

- Be sure that all other programs are closed.
- Turn off Standby and Hibernation.
- Be sure that you are using the right kind of disc for your drive. See your user guides for more information about disc types.
- Be sure that the disc is inserted properly.
- Select a slower write speed and try again.
- If you are copying a disc, save the information on the source disc to your hard drive before trying to burn the contents to a new disc, and then burn from your hard drive.
- Reinstall the disc-burning device driver located in the DVD/CD-ROM drives category in Device Manager.

A DVD playing in Windows Media Player produces no sound or display

You must use WinDVD, which is preinstalled on the computer, to play a DVD.

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