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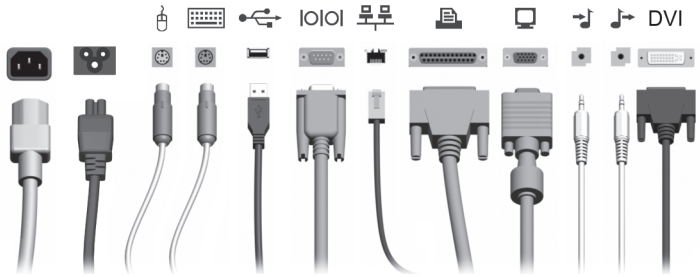

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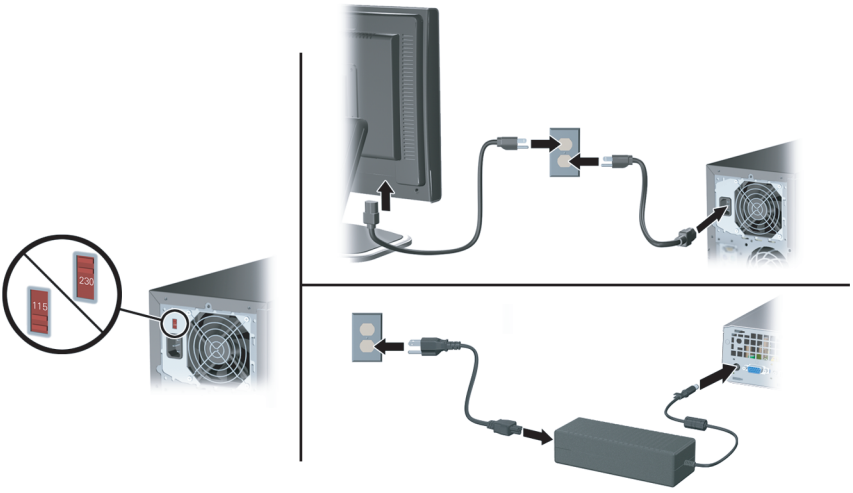

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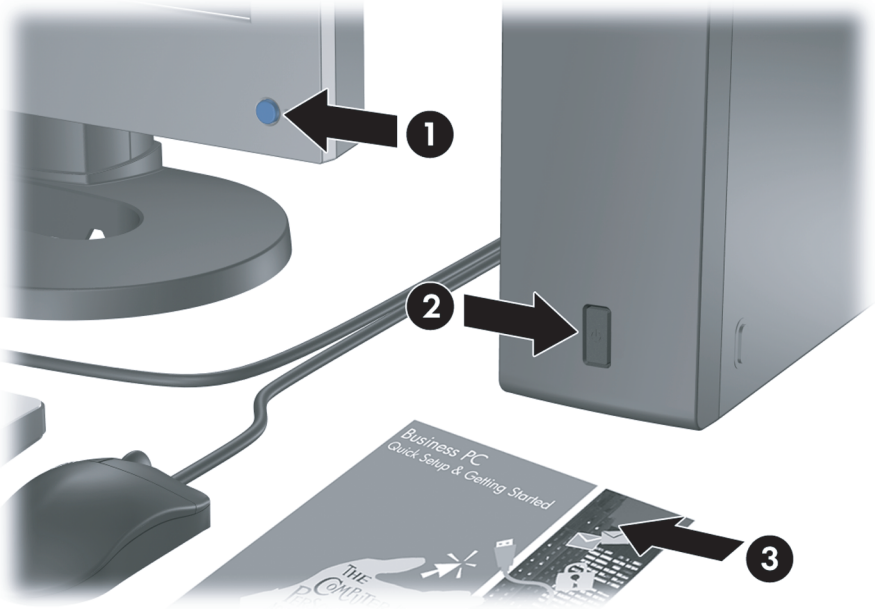
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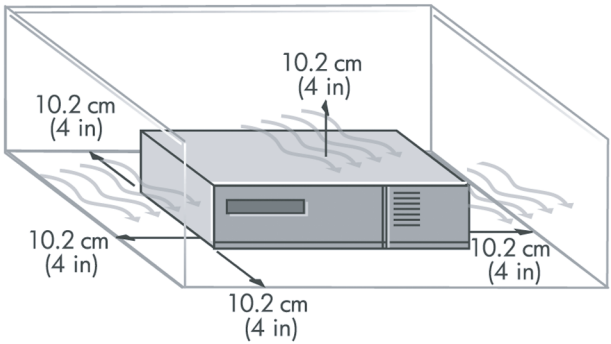
Business PC
Quick Setup & Getting Started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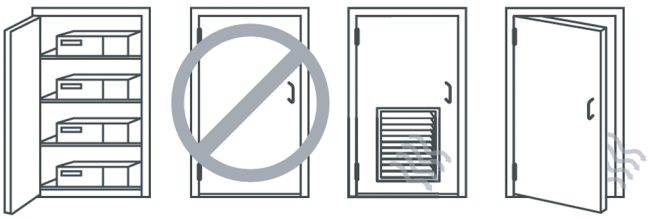

Quick Setup & Getting Started

Business PCs

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Quick Setup & Getting Started

Business PCs

Second Edition (October 2007)

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About This Book

Accessing User Guides and HP Insight Diagnostics

HP user guides and HP Insight Diagnostics are available on the hard drive (some models) and are also available at http://www.hp.com/support.

To access HP user guides:

- Select **Start** > **All Programs** > **HP User Manuals**.

To access HP Insight Diagnostics:

- Refer to *Accessing HP Insight Diagnostics* in this guide.

Notices

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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Quick Setup & Getting Started

Installing and Customizing the Software

NOTE: If the computer was shipped with Windows Vista loaded, you will be prompted to register the computer with HP Total Care before installing the operating system. You will see a brief movie followed by an online registration form. Fill out the form, click the **Begin** button, and follow the instructions on the screen.

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

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.

Installing the Operating System

The first time you turn on the computer, the operating system is installed automatically. This process takes about 5 to 10 minutes, depending on which operating system is being installed. Carefully read and follow the instructions on the screen to complete the installation.

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

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

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

Downloading Microsoft Windows Updates

1. To set up your Internet connection, click **Start** > **Internet Explorer** and follow the instructions on the screen.
2. Once an Internet connection has been established, click the **Start** button.
3. Select the **All Programs** menu.
4. Click on the **Windows Update** link.

   In Windows Vista, the **Windows Update** screen appears. Click **view available updates** and make sure all critical updates are selected. Click the **Install** button and follow the instructions on the screen.

   In Windows XP, you will be directed to the **Microsoft Windows Update Web site**. If you see one or more pop-up windows that ask you to install a program

from http://www.microsoft.com, click **Yes** to install the program. Follow the instructions on the Microsoft Web site to scan for updates and install critical updates and service packs.

It is recommended that you install all of the critical updates and service packs.

5. After the updates have been installed, Windows will prompt you to reboot the machine. Be sure to save any files or documents that you may have open before rebooting. Then select **Yes** to reboot the machine.

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.

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**, enter the model number of the computer, and press Enter.

Customizing the Monitor Display

If you wish, you can select or change the monitor model, refresh rates, screen resolution, color settings, font sizes, and power management settings. To do so, right-click on the Windows Desktop, then click **Personalize** in Windows Vista or **Properties** in Windows XP to change display settings. For more information, refer to the online documentation provided with the graphics controller utility or the documentation that came with your monitor.

Protecting the Software

To protect the software from loss or damage, keep a backup copy of all system software, applications, and related files stored on the hard drive. Refer to the operating system or backup utility documentation for instructions on making backup copies of your data files.

HP Backup and Recovery Manager

The HP Backup and Recovery Manager is an easy-to-use, versatile application that allows you to back up and recover the primary hard drive on the PC. The application works within Windows to create backups of Windows, all applications, and all data files. Backups can be scheduled to occur automatically at designated intervals, or they can be initiated manually. Important files can be archived separately from regular backups.

HP Backup and Recovery Manager is preinstalled on the hard drive's Recovery Partition.

Recovery Points and file backups can be copied to CD or DVD discs, while all backups can be copied to network or secondary hard disks.

HP highly recommends that you create a Recovery Disc Set immediately before using the computer and schedule regular automatic Recovery Point backups.

To create the Recovery Disc Set:

1. Click **Start** > **HP Backup and Recovery** > **HP Backup and Recovery Manager** to open the Backup and Recovery Wizard, then click **Next**.
2. Select **Create a set of recovery discs (Recommended)** and click **Next**.
3. Follow the instructions in the wizard.

For more information on using HP Backup and Recovery Manager, refer to the *HP Backup and Recovery Manager User Guide* by selecting **Start** > **HP Backup and Recovery** > **HP Backup and Recovery Manager Manual**.

NOTE: You can order a Recovery Disc Set from HP by calling the HP support center. Go to the following Web site, select your region, and click the **Technical support after you buy** link under the **Call HP** heading to obtain the support center telephone number for your region.

http://welcome.hp.com/country/us/en/wwcontact_us.html

HP Insight Diagnostics

NOTE: HP Insight Diagnostics is included on CD with some computer models only.

The HP Insight Diagnostics utility allows you to view information about the hardware configuration of the computer and perform hardware diagnostic tests on the subsystems of the computer. The utility simplifies the process of effectively identifying, diagnosing, and isolating hardware issues.

The Survey tab is displayed when you invoke HP Insight Diagnostics. This tab shows the current configuration of the computer. From the Survey tab, there is access to several categories of information about the computer. Other tabs provide additional information, including diagnostic test options and test results. The information in each screen of the utility can be saved as an html file and stored on a diskette or USB HP Drive Key.

Use HP Insight Diagnostics to determine if all the devices installed on the computer are recognized by the system and functioning properly. Running tests is optional but recommended after installing or connecting a new device.

You should run tests, save the test results, and print them so that you have printed reports available before placing a call to the Customer Support Center.

NOTE: Third party devices may not be detected by HP Insight Diagnostics.

Accessing HP Insight Diagnostics

To access HP Insight Diagnostics, you must create a Recovery Disc Set then boot to the CD containing the utility. It can also be downloaded from

http://www.hp.com. See Downloading the Latest Version of HP Insight Diagnostics on page 8 for more information.

NOTE: HP Insight Diagnostics is included as part of the Recovery Disk Set with some computer models only.

If you have already created a Recovery Disc Set, begin the following procedure at step 4.

1. Click **Start** > **HP Backup and Recovery** > **HP Backup and Recovery Manager** to open the Backup and Recovery Wizard, then click **Next**.
2. Select **Create a set of recovery discs (Recommended)** and click **Next**.
3. Follow the instructions in the wizard to create a Recovery Disc Set.
4. Use Windows Explorer to search the Recovery Disc Set for the CD with the **compaq\hpdiags** directory.
5. While the computer is on, insert the CD into an optical drive on the computer.
6. Shut down the operating system and turn off the computer.
7. Turn on the computer. The system will boot to the CD.

   NOTE: If the system does not boot to the CD in the optical drive, you may need to change the boot order in the Computer Setup (F10) utility so that the system attempts to boot to the optical drive before booting to the hard drive. Refer to the *Computer Setup (F10) Utility Guide* for more information.
8. Select the appropriate language and click **Continue**.

   NOTE: It is recommended that you accept the assigned default keyboard for your language unless you want to test your specific keyboard.
9. In the End User License Agreement page, click **Agree** if you agree with the terms. The HP Insight Diagnostics utility launches with the Survey tab displayed.

Survey Tab

The **Survey** tab displays important system configuration information.

In the **View level** field, you can select the **Summary** view to see limited configuration data or select the **Advanced** view to see all the data in the selected category.

In the **Category** field, you can select the following categories of information to display:

All—Gives a listing of all categories of information about the computer.

Overview—Gives you a listing of general information about the computer.

Architecture—Provides system BIOS and PCI device information.

Asset Control—Shows product name, asset tag, system serial number, and processor information.

Communication—Shows information about the computer parallel (LPT) and serial (COM) port settings, plus USB and network controller information.

Graphics—Shows information about the graphics controller of the computer.

Input Devices—Shows information about the keyboard, mouse, and other input devices connected to the computer.

Memory—Shows information about all memory in the computer. This includes memory slots on the system board and any memory modules installed.

Miscellaneous—Shows HP Insight Diagnostics version information, computer configuration memory (CMOS) information, system board data, and system management BIOS data.

Storage—Shows information about storage media connected to the computer. This list includes all fixed disks, diskette drives, and optical drives.

System—Shows information about the computer model, processor, chassis, and BIOS, plus internal speaker and PCI bus information.

Test Tab

The Test tab allows you to choose various parts of the system to test. You can also choose the type of test and testing mode.

There are three types of tests to choose from:

- **Quick Test**—Provides a predetermined script where a sample of each hardware component is exercised and requires no user intervention in either Unattended or Interactive mode.
- **Complete Test**—Provides a predetermined script where each hardware component is fully tested. There are more tests available in the Interactive mode, but these require user intervention.
- **Custom Test**—Provides the most flexibility in controlling the testing of a system. The Custom Test mode allows you to specifically select which devices, tests, and test parameters are run.

For each test type, there are two test modes to choose from:

- **Interactive Mode**—Provides maximum control over the testing process. The diagnostic software will prompt you for input during tests that require your interaction. You may also determine whether the test passed or failed.
- **Unattended Mode**—Does not display prompts and requires no interaction. If errors are found, they are displayed when testing is complete.

To begin testing:

1. Select the Test tab.
2. Select the tab for the type of test you want to run: **Quick**, **Complete**, or **Custom**.

3. Select the **Test Mode**: **Interactive** or **Unattended**.
4. Choose how you want the test to be executed, either **Number of Loops** or **Total Test Time**. When choosing to run the test over a specified number of loops, enter the number of loops to perform. If you desire to have the diagnostic test for a specified time period, enter the amount of time in minutes.
5. If performing a Quick Test or Complete Test, select the device to be tested from the drop-down list. If performing a Custom Test, Click the **Expand** button and select the devices to be tested or click the **Check All** button to select all devices.
6. Click the **Begin Testing** button at the bottom right corner of the screen to start the test. The Status tab, which allows you to monitor the progress of the test, is automatically displayed during the testing process. When the test is complete, the Status tab shows whether the device passed or failed.
7. If errors are found, go to the Log tab and click the **Error Log** to display more detailed information and recommended actions.

Status Tab

The Status tab displays the status of the selected tests. The type of test executed (**Quick**, **Complete**, or **Custom**) is also displayed. The main progress bar displays the percent complete of the current set of tests. While testing is in progress, a **Cancel Testing** button is displayed for use if you want to cancel the test.

After testing has completed, the **Cancel Testing** button is replaced with a **Retest** button. The **Retest** button will retest the last set of tests executed. This enables you to re-run the set of tests without having to re-enter the data in the Test tab.

The Status tab also shows:

- The devices being tested
- The test status (running, passed, or failed) of each device being tested
- The overall test progress of all devices being tested
- The test progress for each device being tested
- The elapsed test times for each device being tested

Log Tab

The Log tab contains a **Test Log** tab and an **Error Log** tab.

The **Test Log** displays all tests that have been executed, the number of times of execution, the number of times failed, and the time it took to complete each test. The **Clear Test Log** button will clear the contents of the **Test Log**.

The **Error Log** displays the tests for devices that have failed during the diagnostic testing and includes the following columns of information.

- The **Device** section displays the device tested.
- The **Test** section displays the type of test run.

- The **Description** section describes the error that the diagnostic test found.
- The **Recommended Repair** will give a recommended action that should be performed to resolve the failed hardware.
- The **Failed Count** is the number of times the device has failed a test.
- The **Error Code** provides a numerical code for the failure. The error codes are defined in the Help tab.

The **Clear Error Log** button will clear the contents of the Error Log.

Help Tab

On the Help tab contains an **HP Insight Diagnostics** tab, an **Error Codes** tab, and a **Test Components** tab.

The **HP Insight Diagnostics** tab contains help topics and includes search and index features.

The **Error Codes** tab provides a description of each numerical error code that may appear in the **Error Log** tab located on the **Log** tab. Each code has a corresponding error **Message** and a **Recommended Repair** action that should help solve the problem. To find an error code description quickly, enter the code in the box at the top of the tab and click the **Find Error Codes** button.

The **Test Components** tab displays low-level information on tests that are run.

Saving and Printing Information in HP Insight Diagnostics

You can save the information displayed in the HP Insight Diagnostics **Survey** and **Log** tabs to a diskette or a USB 2.0 HP Drive Key (64MB or higher). You can not save to the hard drive. The system will automatically create an html file that has the same appearance as the information displayed on the screen.

1. Insert a diskette or USB 2.0 HP Drive Key (capacity must be 64MB or higher). USB 1.0 Drive Keys are not supported.
2. Click **Save** in the bottom right corner of the screen.
3. Select **Save to the floppy** or **Save to USB key**.
4. Enter a file name in the **File Name** box and click the **Save** button. An html file will be saved to the inserted diskette or USB HP Drive Key.

   NOTE: Do not remove the diskette or USB key until you see a message indicating that the html file has been written to the media.

5. Print the information from the storage device used to save it.

NOTE: To exit HP Insight Diagnostics, click Exit Diagnostics button in the bottom left corner of the screen then remove the CD from the optical drive.

Downloading the Latest Version of HP Insight Diagnostics

1. Go to http://www.hp.com.
2. Click the **Software & Driver Downloads** link.
3. Enter your product number (for example, dc7700) in the text box and press the Enter key.
4. Select your specific computer model.
5. Select your OS.
6. Click the **Diagnostic** link.
7. Click **HP Insight Diagnostics Offline Edition**.
8. Select a language and click **Download**.

NOTE: The download includes instructions on how to create the bootable CD.

Turning Off the Computer

To properly turn off the computer, first shut down the operating system software. In Windows Vista, click **Start**, click the arrow on the lower right corner of the Start menu, then select **Shut Down**. The computer automatically shuts down. In Windows XP Professional, click **Start** > **Shut Down**. In Windows XP Home, click **Start** > **Turn Off Computer**.

Depending on the operating system, pressing the power button may cause the computer to enter a low-power or “standby” state instead of automatically turning the power off. This allows you to conserve energy without closing software applications; later, you can start using the computer immediately without having to restart the operating system and without losing any data.

△ **CAUTION:** Manually forcing the computer off will cause the loss of any unsaved data.

To force the computer off manually and bypass the “standby state,” press and hold the power button for four seconds.

On some models, you can reconfigure the power button to work in On/Off mode by running Computer Setup. Refer to the *Computer Setup (F10) Utility Guide* for more information about using the Computer Setup utility.

Finding More Information

The following publications are available on the computer hard drive:

- *Quick Setup & Getting Started* (also available in print)—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.
- *Computer Setup (F10) Utility Guide*—Provides instructions on using this tool to reconfigure or modify default settings for maintenance purposes or when installing new hardware devices.
- *Desktop Management Guide*—Provides definitions and “how to” instructions for security and Intelligent Manageability features that are preinstalled on some models.
- *Troubleshooting Guide*—A comprehensive guide that provides helpful hints for troubleshooting this computer and scenarios for resolving possible hardware or software problems; includes information about diagnostic codes, as well as information on running the diagnostics utility.
- *Safety & Regulatory Information Guide*—Provides safety and regulatory information that ensures compliance with U.S., Canadian, and various international regulations.

Accessing the User Guides

HP user guides and HP Insight Diagnostics are available on the hard drive (some models) and are also available at http://www.hp.com/support.

To access HP user guides:

▲ Select **Start** > **All Programs** > **HP User Manuals**.

To access HP Insight Diagnostics:

▲ Refer to *Accessing HP Insight Diagnostics* in this guide.

To access the *HP Backup and Recovery Manager User Guide*:

▲ Select **Start** > **HP Backup and Recovery** > **HP Backup and Recovery Manager Manual**.

To access the *Safety and Comfort Guide*:

▲ Select **Start** > **All Programs** > **HP Safety and Comfort Guide**.

The menu and books are displayed in the language chosen during initial system setup or as specified later in the Windows Regional Settings. If the Regional Settings do not match one of the supported languages, the menu and books are displayed in English.

Before You Call for Technical Support

If you are having problems with the computer, try the appropriate solutions below to try to isolate the exact problem before calling for technical support.

- Run the diagnostics utility. Refer to the *Troubleshooting Guide* for more information.
- Run the Drive Protection System (DPS) Self-Test in Computer Setup. Refer to the *Computer Setup (F10) Utility Guide* for more information.

NOTE: The Drive Protection System (DPS) Self-Test software is available on some models only.

- Check the power LED on the front of the computer to see if it is flashing red. The flashing lights are error codes that will help you diagnose the problem. Refer to Interpreting POST Diagnostic Front Panel LEDs and Audible Codes on page 19 in this guide for details.
- If the screen is blank, plug the monitor into a different video port on the computer if one is available. Or, change out the monitor with a monitor that you know is functioning properly.
- If you are working on a network, plug another computer with a different cable into the network connection. There may be a problem with the network plug or cable.
- If you recently added new hardware, remove the hardware and see if the computer functions properly.
- If you recently installed new software, uninstall the software and see if the computer functions properly.
- Boot the computer to the Safe Mode to see if it will boot without all of the drivers loaded. When booting the operating system, use “Last Known Configuration.”
- Refer to the comprehensive online technical support at http://www.hp.com/support.
- Refer to Helpful Hints on page 11 in this guide for more general suggestions.
- Refer to the comprehensive *Troubleshooting Guide* for more detailed information.
- Restore the system from the Recovery Disc Set that you created or restore the system to its original factory condition in HP Backup and Recovery Manager.

CAUTION: Restoring the system will erase all data on the hard drive. Be sure to back up all data files before running the restore process.

To assist you in resolving problems online, HP Instant Support Professional Edition provides you with self-solve diagnostics. If you need to contact HP support, use HP Instant Support Professional Edition's online chat feature. Access HP Instant Support Professional Edition at: http://www.hp.com/go/ispe.

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 worldwide community of peers and HP experts.

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

- Be in front of your computer when you call.
- Write down the computer serial number and product ID number, and the monitor serial number before calling.
- Spend time troubleshooting the problem with the service technician.
- Remove any hardware that was recently added to your system.
- Remove any software that was recently installed.
- Restore the system from the Recovery Disc Set that you created or restore the system to its original factory condition in HP Backup and Recovery Manager.

△ **CAUTION:** Restoring the system will erase all data on the hard drive. Be sure to back up all data files before running the restore process.

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

Helpful Hints

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

- Check 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 (115V or 230V).
- Check to see that the computer is turned on and the green power light is on.
- Check to see that the monitor is turned on and the green monitor light is on.
- Check the Power LED on the front of the computer to see if it is flashing. The flashing lights are error codes that will help you diagnose the problem. Refer to Interpreting POST Diagnostic Front Panel LEDs and Audible Codes on page 19 in this guide for details.
- Turn up the brightness and contrast controls of the monitor if the monitor is dim.
- Press and hold any key. If the system beeps, then the keyboard should be 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 suspend mode, 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, then plug it in again. The computer will restart if automatic start on power loss is set in Computer Setup. If it does not restart, press the power button to start the computer.

- Reconfigure your computer after installing a non–plug and play expansion board or other option. See Solving Hardware Installation Problems on page 16 for instructions.
- 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 model printer.
- Remove all bootable media (diskette, CD, 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 plugged into the monitor connector on the source selected as the primary VGA adapter. During boot, the other monitor connectors are disabled and if the monitor is connected into these ports, the monitor will not function. You can select which source will be the default VGA source in Computer Setup.

△ **CAUTION:** When the computer is plugged into an AC power source, there is always voltage applied to the system board. You must disconnect the power cord from the power source before opening the computer to prevent system board or component damage.

Basic Troubleshooting

This section concentrates on problems that you might encounter during the initial set up process. A comprehensive *Troubleshooting Guide* is available on the hard drive and under the reference library at http://www.hp.com/support. Select your country and language, select **See support and troubleshooting information**, enter the model number of the computer, and press Enter.

Solving General Problems

You may be able to easily resolve the general problems described in this section. If a problem persists and you are unable to resolve it yourself or if you feel uncomfortable about performing the operation, contact an authorized dealer or reseller.

⚠ **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 touching.

Table 1 Solving General Problems

Computer appears locked up and will not turn off when the power button is pressed.

Cause	Solution
Software control of the power switch is not functional.	1. Press and hold the power button for at least four seconds until the computer turns off. 2. Disconnect the power cord from the electrical outlet.

Computer will not respond to USB keyboard or mouse.

Cause	Solution
Computer is in **standby** mode.	To resume from **standby** mode, press the power button or press any key. **CAUTION:** When attempting to resume from **standby** mode, do not hold down the power button for more than four seconds. Otherwise, the computer will shut down and you will lose any unsaved data.
System has locked up.	Restart computer.

Computer date and time display is incorrect.

Cause	Solution
RTC (real-time clock) battery may need to be replaced. **NOTE:** Connecting the computer to a live AC outlet prolongs the life of the RTC battery.	First, reset the date and time under **Control Panel** (Computer Setup can also be used to update the RTC date and time). If the problem persists, replace the RTC battery. See the *Hardware Reference Guide* for instructions on installing a new battery, or contact an authorized dealer or reseller for RTC battery replacement.

Cursor will not move using the arrow keys on the keypad.

Cause	Solution
The Num Lock key may be on.	Press the Num Lock key. The Num Lock light should not be on if you want to use the arrow keys. The Num Lock key can be disabled (or enabled) in Computer Setup.

Table 1 Solving General Problems (continued)

There is no sound or sound volume is too low.

Cause	Solution
System volume may be set low or muted.	1. Check the F10 BIOS settings to make sure the internal system speaker is not muted (this setting does not affect the external speakers). 2. Make sure the external speakers are properly connected and powered on and that the speakers' volume control is set correctly. 3. Use the system volume control available in the operating system to make sure the speakers are not muted or to increase the volume.

Cannot remove computer cover or access panel.

Cause	Solution
Smart Cover Lock, featured on some computers, is locked.	Unlock the Smart Cover Lock using Computer Setup. The Smart Cover FailSafe Key, a device for manually disabling the Smart Cover Lock, is available from HP. You will need the FailSafe Key in case of forgotten password, power loss, or computer malfunction. Order PN 166527-001 for the wrench-style key or PN 166527-002 for the screwdriver bit key.

Poor performance is experienced.

Cause	Solution
Processor is hot.	1. Make sure airflow to the computer is not blocked. Leave a 10.2-cm (4-inch) clearance on all vented sides of the computer and above the monitor to permit the required airflow 2. Make sure fans are connected and working properly (some fans only operate when needed). 3. Make sure the processor heatsink is installed properly.
Hard drive is full.	Transfer data from the hard drive to create more space on the hard drive.
Low on memory.	Add more memory.

Table 1 Solving General Problems (continued)

Poor performance is experienced.

Cause	Solution
Hard drive fragmented.	Defragment hard drive.
Program previously accessed did not release reserved memory back to the system.	Restart the computer.
Virus resident on the hard drive.	Run virus protection program.
Too many applications running.	1. Close unnecessary applications to free up memory. 2. Add more memory.
Some software applications, especially games, are stressful on the graphics subsystem	1. Lower the display resolution for the current application or consult the documentation that came with the application for suggestions on how to improve performance by adjusting parameters in the application. 2. Add more memory. 3. Upgrade the graphics solution.
Cause unknown.	Restart the computer.

Computer powered off automatically and the Power LED flashes Red two times, once every second, followed by a two second pause, and the computer beeps two times. (Beeps stop after fifth iteration but LEDs continue flashing).

Cause	Solution
Processor thermal protection activated: A fan may be blocked or not turning. OR The heatsink is not properly attached to the processor.	1. Ensure that the computer air vents are not blocked and the processor cooling fan is running. 2. Open hood, press power button, and see if the processor fan spins. If the processor fan is not spinning, make sure the fan's cable is plugged onto the system board header. 3. If fan is plugged in, but is not spinning, then replace the heatsink/fan assembly. 4. Contact an authorized reseller or service provider.

Table 1 Solving General Problems (continued)

System does not power on and the LEDs on the front of the computer are not flashing.

Cause	Solution
System unable to power on.	Press and hold the power button for less than 4 seconds. If the hard drive LED turns green, then: 1. Check that the voltage selector, located on the rear of the power supply on some models, is set to the appropriate voltage. Proper voltage setting depends on your region. 2. Remove the expansion cards one at a time until the 5V_aux light on the system board turns on. 3. Replace the system board. OR Press and hold the power button for less than 4 seconds. If the hard drive LED does not turn on green then: 1. Check that the unit is plugged into a working AC outlet. 2. Open hood and check that the power button harness is properly connected to the system board. 3. Check that both power supply cables are properly connected to the system board. 4. Check to see if the 5V_aux light on the system board is turned on. If it is turned on, then replace the power button harness. 5. If the 5V_aux light on the system board is off, then replace the power supply. 6. Replace the system board.

Solving Hardware Installation Problems

You may need to reconfigure the computer when you add or remove hardware, such as an additional drive or expansion card. If you install a plug and play device, Windows automatically recognizes the device and configures the computer. If you install a non–plug and play device, you must reconfigure the computer after completing installation of the new hardware. In Windows, use the **Add Hardware Wizard** and follow the instructions that appear on the screen.

⚠ **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 touching.

Table 2 Solving Hardware Installation Problems

A new device is not recognized as part of the system.

Cause	Solution
Device is not seated or connected properly.	Ensure that the device is properly and securely connected and that pins in the connector are not bent down.
Cable(s) of new external device are loose or power cables are unplugged.	Ensure that all cables are properly and securely connected and that pins in the cable or connector are not bent down.
Power switch of new external device is not turned on.	Turn off the computer, turn on the external device, then turn on the computer to integrate the device with the computer system.
When the system advised you of changes to the configuration, you did not accept them.	Reboot the computer and follow the instructions for accepting the changes.
A plug and play board may not automatically configure when added if the default configuration conflicts with other devices.	Use Windows Device Manager to deselect the automatic settings for the board and choose a basic configuration that does not cause a resource conflict. You can also use Computer Setup to reconfigure or disable devices to resolve the resource conflict.
USB ports on the computer are disabled in Computer Setup.	Enter Computer Setup (F10) and enable the USB ports.

Computer will not start.

Cause	Solution
Wrong memory modules were used in the upgrade or memory modules were installed in the wrong location.	1. Review the documentation that came with the system to determine if you are using the correct memory modules and to verify the proper installation. **NOTE:** DIMM 1 must always be installed. 2. Observe the beeps and LED lights on the front of the computer. Beeps and flashing LEDs are codes for specific problems. 3. If you still cannot resolve the issue, contact Customer Support.

Table 2 Solving Hardware Installation Problems (continued)

Power LED flashes Red five times, once every second, followed by a two second pause, and the computer beeps five times. (Beeps stop after fifth iteration but LEDs continue flashing.)

Cause	Solution
Memory is installed incorrectly or is bad.	**CAUTION:** To avoid damage to the DIMMs or the system board, you must unplug the computer power cord before attempting to reseat, install, or remove a DIMM module. 1. Reseat DIMMs. Power on the system. 2. Replace DIMMs one at a time to isolate the faulty module. **NOTE:** DIMM 1 must always be installed. 3. Replace third-party memory with HP memory. 4. Replace the system board.

Power LED flashes Red six times, once every second, followed by a two second pause, and the computer beeps six times. (Beeps stop after fifth iteration but LEDs continue flashing.)

Cause	Solution
Graphics card is not seated properly or is bad, or system board is bad.	For systems with a graphics card: 1. Reseat the graphics card. Power on the system. 2. Replace the graphics card. 3. Replace the system board. For systems with integrated graphics, replace the system board.

Power LED flashes Red ten times, once every second, followed by a two second pause, and the computer beeps ten times. (Beeps stop after fifth iteration but LEDs continue flashing.)

Cause	Solution
Bad option card.	1. Check each option card by removing the cards one at time (if multiple cards), then power on the system to see if fault goes away. 2. Once bad card is identified, remove and replace bad option card. 3. Replace the system board.

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 *Troubleshooting Guide* for interpretation and recommended action.