Regulatory model: P02E series
Regulatory type: P02E001; P02E002
Notes, Cautions, and Warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

Information in this document is subject to change without notice.

© 2010 Dell Inc. All rights reserved.

Reproduction of these materials in any manner whatsoever without the written permission of Dell Inc. is strictly forbidden.

Trademarks used in this text: Dell, the DELL logo, YOURS IS HERE, Solution Station, and DellConnect are trademarks of Dell Inc.; Intel, Pentium, and Celeron are registered trademarks and Core is a trademark of Intel Corporation in the U.S. and other countries; Microsoft, Windows, Windows Vista, and the Windows Vista start button logo are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries; Blu-ray Disc is a trademark of the Blu-ray Disc Association; Bluetooth is a registered trademark owned by Bluetooth SIG, Inc. and is used by Dell under license.

Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Dell Inc. disclaims any proprietary interest in trademarks and trade names other than its own.

March 2010 P/N GYVXH Rev. A00
## Contents

### Setting Up Your Studio Laptop .............................. 5
   Before Setting Up Your Computer .......................... 5
   Connect the AC Adapter .................................... 6
   Connect the Network Cable (Optional) ................. 7
   Press the Power Button .................................... 8
   Set Up Microsoft Windows .................................. 9
   Create System Recovery Media  
     (Recommended) ........................................... 10
   Install the SIM Card (Optional) .......................... 12
   Enable or Disable Wireless (Optional) ................. 14
   Connect to the Internet (Optional) ...................... 16

### Using Your Studio Laptop ................................. 20
   Right Side Features ......................................... 20
   Left Side Features .......................................... 24
   Computer Base and Keyboard Features ................. 28
   Touch Pad Gestures ......................................... 30

   Multimedia Controls ........................................ 32
   Display Features ............................................ 34
   Using the Touch Screen (Optional) ...................... 36
   Removing and Replacing the Battery ................... 40
   Software Features .......................................... 42
   Dell DataSafe Online Backup ............................. 43
   Dell Dock ...................................................... 44
   Free Fall Sensor ............................................. 45

### Solving Problems ........................................... 46
   Touch Screen Problems ................................. 46
   Touch Screen Calibration ................................ 47
   Beep Codes .................................................. 48
   Network Problems ........................................... 49
   Power Problems ............................................. 50
   Memory Problems .......................................... 52
   Lockups and Software Problems ................. 52
## Contents

### Using Support Tools
- Dell Support Center.................. 55
- My Dell Downloads..................... 56
- System Messages....................... 56
- Hardware Troubleshooter............... 58
- Dell Diagnostics....................... 59

### Restoring Your Operating System.... 63
- System Restore........................... 64
- Dell DataSafe Local Backup............ 65
- System Recovery Media.................. 67
- Dell Factory Image Restore............. 68

### Getting Help.......................... 71
- Technical Support and Customer Service........... 72
- DellConnect............................. 72
- Online Services.......................... 73
- Automated Order-Status Service.......... 74
- Product Information..................... 74

- Returning Items for Repair Under Warranty or for Credit.............. 75
- Before You Call.......................... 76
- Contacting Dell.......................... 77

### Finding More Information and Resources.................. 78

### Specifications.......................... 80

### Appendix................................. 93
- Macrovision Product Notice.................. 93
- Information for NOM, or Official Mexican Standard (Only for Mexico).. 94

### Index........................................ 95
Setting Up Your Studio Laptop

This section provides information about setting up your Studio 1745/1747/1749 laptop.

Before Setting Up Your Computer

When positioning your computer, ensure that you allow easy access to a power source, adequate ventilation, and a level surface to place your computer.

Restricting airflow around your laptop may cause it to overheat. To prevent overheating ensure that you leave at least 10.2 cm (4 inches) at the back of the computer and a minimum of 5.1 cm (2 inches) on all other sides. You should never place your computer in an enclosed space, such as a cabinet or drawer when it is powered on.

⚠️ WARNING: Do not block, push objects into, or allow dust to accumulate in the air vents. Do not place your Dell™ computer in a low-airflow environment, such as a closed briefcase, or on fabric surfaces, such as carpets or rugs, while it is powered on. Restricting the airflow can damage the computer, deteriorate the computer performance, or cause a fire. The computer turns on the fan when the computer gets hot. Fan noise is normal and does not indicate a problem with the fan or the computer.

⚠️ CAUTION: Placing or stacking heavy or sharp objects on the computer may result in permanent damage to the computer.
Setting Up Your Studio Laptop

Connect the AC Adapter

Connect the AC adapter to the computer and then plug it into a wall outlet or surge protector.

⚠️ **WARNING:** The AC adapter works with electrical outlets worldwide. However, power connectors and power strips vary among countries. Using an incompatible cable or improperly connecting the cable to a power strip or electrical outlet may cause fire or permanent damage to your computer.

 владельцем: Connect the power cord to the adapter firmly and ensure that the light on the adapter is on when you turn on power.
Connect the Network Cable (Optional)

To use a wired network connection, connect the network cable.
Press the Power Button
Set Up Microsoft Windows

Your Dell computer is preconfigured with the Microsoft® Windows® operating system. To set up Microsoft Windows for the first time, follow the instructions on the screen. These steps are mandatory and may take some time to complete. The Windows setup screens will take you through several procedures including accepting license agreements, setting preferences, and setting up an Internet connection.

⚠️ CAUTION: Do not interrupt the operating system’s setup process. Doing so may render your computer unusable and you will need to reinstall the operating system.

📝 NOTE: For optimal performance of your computer, it is recommended that you download and install the latest BIOS and drivers for your computer available at support.dell.com.

📝 NOTE: For more information on the operating system and features, see support.dell.com/MyNewDell.
Create System Recovery Media (Recommended)

**NOTE:** It is recommended that you create a system recovery media as soon as you set up Microsoft Windows.

The system recovery media can be used to restore your computer to the operating state it was in when you purchased the computer, while preserving data files (without the need of the *Operating System* disc). You can use the system recovery media if changes to the hardware, software, drivers, or other system settings have left the computer in an undesirable operating state.

You will require the following to create the system recovery media:

- Dell DataSafe Local Backup
- USB key with a minimum capacity of 8 GB or DVD-R/DVD+R/Blu-ray Disc™

**NOTE:** Dell DataSafe Local Backup does not support rewritable discs.
To create a system recovery media:

1. Ensure that the AC adapter is connected (see “Connect the AC Adapter” on page 6).
2. Insert the disc or USB key in the computer.
3. Click **Start** → **Programs** → **Dell DataSafe Local Backup**.
4. Click **Create Recovery Media**.
5. Follow the instructions on the screen.

**NOTE:** For information on using the system recovery media, see “System Recovery Media” on page 67.
Install the SIM Card (Optional)

**NOTE:** Installing a SIM card is not required if you are using an EVDO card to access the Internet.

Installing a Subscriber Identity Module (SIM) card on your computer allows you to connect to the Internet. To access the Internet you must be within the network of your cellular service provider.

To install the SIM card:

1. Turn off your computer.
2. Remove the battery (see “Removing and Replacing the Battery” on page 40).
3. In the battery bay, slide the SIM card into the SIM card slot.
4. Replace the battery (see “Removing and Replacing the Battery” on page 40).
5. Turn on your computer.

To remove the SIM card, press and eject the SIM card.
### Setting Up Your Studio Laptop

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SIM card</td>
</tr>
<tr>
<td>2</td>
<td>SIM card slot</td>
</tr>
<tr>
<td>3</td>
<td>battery bay</td>
</tr>
</tbody>
</table>
Setting Up Your Studio Laptop

Enable or Disable Wireless (Optional)
Press the “A” key or press the <Fn><F2> keys on the keyboard to enable or disable wireless. The wireless on or off icons appear on the screen to indicate the status.

Wireless on:

![Wireless on icon](image)

Wireless off:

![Wireless off icon](image)

For information on changing the behavior of the Fn key, see “Multimedia Controls” on page 32.
Connect to the Internet (Optional)

To connect to the Internet, you need an external modem or network connection and an Internet Service Provider (ISP).

If an external USB modem or WLAN adapter is not a part of your original order, you can purchase one at www.dell.com.

Setting Up a Wired Connection

• If you are using a dial-up connection, connect the telephone line to the optional external USB modem and to the telephone wall connector before you set up your Internet connection.

• If you are using a DSL or cable/satellite modem connection, contact your ISP or cellular telephone service for setup instructions.

To complete setting up your wired Internet connection, follow the instructions in “Setting Up Your Internet Connection” on page 18.
Setting Up a Wireless Connection

**NOTE:** To set up your wireless router, see the documentation that shipped with your router.

Before you can use your wireless Internet connection, you need to connect to your wireless router.

To setup your connection to a wireless router:

**Windows® 7**

1. Ensure that wireless is enabled on your computer (see “Enable or Disable Wireless” on page 14).
2. Save and close any open files, and exit any open programs.
3. Click **Start** → **Control Panel**.
4. In the search box, type **network**, and then click **Network and Sharing Center** → **Connect to a network**.
5. Follow the instructions on the screen to complete the setup.

**Windows Vista®**

1. Ensure that wireless is enabled on your computer (see “Enable or Disable Wireless” on page 14).
2. Save and close any open files, and exit any open programs.
3. Click **Start** → **Connect To**.
4. Follow the instructions on the screen to complete the setup.
Setting Up Your Internet Connection

ISPs and ISP offerings vary by country. Contact your ISP for offerings available in your country.

If you cannot connect to the Internet but have successfully connected in the past, the Internet Service Provider (ISP) might have a service outage. Contact your ISP to check the service status, or try connecting again later.

Have your ISP information ready. If you do not have an ISP, the Connect to the Internet wizard can help you get one.

To set up your Internet connection:

Windows 7

1. Save and close any open files, and exit any open programs.

2. Click Start → Control Panel.

3. In the search box, type network, and then click Network and Sharing Center → Set up a new connection or network → Connect to the Internet.

The Connect to the Internet window appears.

To set up your Internet connection:

Windows 7

1. Save and close any open files, and exit any open programs.

2. Click Start → Control Panel.

3. In the search box, type network, and then click Network and Sharing Center → Set up a new connection or network → Connect to the Internet.

The Connect to the Internet window appears.

NOTE: If you do not know which type of connection to select, click Help me choose or contact your ISP.

4. Follow the instructions on the screen and use the setup information provided by your ISP to complete the setup.
Windows Vista

1. Save and close any open files, and exit any open programs.

2. Click **Start → Control Panel**.

3. In the search box, type *network*, and then click **Network and Sharing Center → Set up a connection or network → Connect to the Internet**.
   The **Connect to the Internet** window appears.

   **NOTE:** If you do not know which type of connection to select, click **Help me choose** or contact your ISP.

4. Follow the instructions on the screen and use the setup information provided by your ISP to complete the setup.
Using Your Studio Laptop

This section provides information about the features available on your Studio 1745/1747/1749 laptop.

Right Side Features
Using Your Studio Laptop

1 IEEE 1394a connector — Connects to high-speed serial multimedia devices, such as digital video cameras.

2 8-in-1 Media Card Reader — Provides a fast and convenient way to view and share digital photos, music, videos, and documents stored on the following digital memory cards:
   • Secure Digital (SD) memory card
   • Secure Digital Input/Output (SDIO) card
   • Secure Digital High Capacity (SDHC)
   • Secure Digital High Density (SDHD)
   • Memory Stick
   • Memory Stick PRO
   • MultiMedia Card (MMC)
   • xD-Picture Card

NOTE: Your computer ships with a plastic blank installed in the media card slot. Blanks protect unused slots from dust and other particles. Save the blank for use when no media card is installed in the slot; blanks from other computers may not fit your computer.

3 USB 2.0 connectors (2) — Connect to USB devices, such as a mouse, keyboard, printer, external drive, or MP3 player.
Using Your Studio Laptop

4 **Optical drive** — Plays or records CDs, DVDs, and Blu-ray Discs (optional). Ensure that you insert the disc with the printed side facing upwards.

⚠️ **CAUTION:** Do not use non-standard size or shape discs (including mini-CDs and mini-DVDs) or you will damage the drive.

Place the disc in the center of the disc slot, with the label facing upwards and gently push the disc into the slot. The drive will automatically pull the disc in and begin reading its content.

5 **Battery status light** — Turns on steadily or blinks to indicate the battery charge status. The light indicates the following states when the computer is powered by the AC adapter:

- Off — the battery is adequately charged or the computer is turned off.
- Solid white — the battery is charging.
- Solid amber — the battery charge is low and the battery is charging.

The battery:

- Off — the battery is not charging.
- Solid amber — the battery charge is low and you should either plug in the AC adapter or save and close your open documents and applications.
6 **AC adapter connector** — Connects to the AC adapter to power the computer and charge the battery.

7 **Power button and light** — Turns the computer on or off when pressed. The light in the button indicates the following power states:

- Solid white — The computer is on.
- Blinking white — The computer is in standby mode.
- Off — The computer is off or in hibernate state.
Using Your Studio Laptop

Left Side Features

1  2  3  4  5  6  7  8  9  10
1 **Security cable slot** — Attaches a commercially available security cable to the computer.  
**NOTE:** Before you buy a security cable, ensure that it fits into the security cable slot on your computer.

2 ![Network connector](Image) **Network connector** — Connects your computer to a network or a broadband device if you are using a wired network. The two lights next to the connector indicate the status and activity for a wired network connection.

3 ![VGA connector](Image) **VGA connector** — Connects to video devices, such as a monitor or a projector.

4 ![DisplayPort connector](Image) **DisplayPort connector** — Digital interface standard connector that supports external DisplayPort monitors and projectors.

5 ![HDMI connector](Image) **HDMI connector** — Connects to a TV for both 5.1 audio and video signals.  
**NOTE:** When used with a monitor, only the video signal is read.
6 eSATA/USB combo connector with USB PowerShare — Connects to eSATA compatible storage devices (such as external hard drives or optical drives) or USB devices (such as a mouse, keyboard, printer, external drive, or MP3 player). The USB PowerShare feature allows you to charge USB devices when the computer is powered on/off or in sleep state.

**NOTE:** Certain USB devices may not charge when the computer is powered off or in sleep state. In such cases, turn on the computer to charge the device.

**NOTE:** If you turn off your computer while charging a USB device, the device will stop charging. To continue charging, disconnect the USB device and connect it again.

**NOTE:** The USB PowerShare is automatically shut off when only 10% of the total battery life remains.

7 Antenna in connector (on supported models) — Connects to an external antenna to view programs using the TV tuner card (optional).
8 **ExpressCard slot** — Provides support for additional memory, wired and wireless communications, multimedia, and security features. The slot supports 34 mm ExpressCards.

**NOTE:** The ExpressCard slot is designed only for ExpressCards. It does NOT support PC cards.

**NOTE:** Your computer ships with a plastic blank installed in the ExpressCard slot. Blanks protect unused slots from dust and other particles. Save the blank for use when no ExpressCard is installed in the slot; blanks from other computers may not fit your computer.

9 **Audio in/Microphone connector** — Connects to a microphone or inputs signal for use with audio programs.

10 **Audio out/Headphone connectors (2)** — Connect one or two pairs of headphones, or sends audio to a powered speaker or sound system. The audio signal is the same for both connectors.
Using Your Studio Laptop

Computer Base and Keyboard Features
1  **Keyboard/Backlit Keyboard (optional)** — If you have purchased the optional backlit keyboard, the F6 key has the backlit keyboard icon 🌃 on it. The optional backlit keyboard provides visibility in dark environments by illuminating all symbols on the keys.

The multimedia control keys are also located on the keyboard. These keys control CD, DVD, Blu-ray Disc™ (optional), and media playback.

- **Backlit keyboard brightness settings** — Press the <F6> key to toggle the three lighting states (in the given order):
  a. half keyboard brightness
  b. full keyboard brightness
  c. no lighting

For more information about the keyboard, see the *Dell Technology Guide*.

2  **Touch pad buttons** — Provide left-click and right-click functions like those on a mouse.

3  **Touch pad** — Provides the functionality of a mouse to move the cursor, drag or move selected items, and left-click by tapping the surface.

The touch pad supports the Scroll, Flick, Zoom, and Rotate features. To change the touch pad settings, double-click the **Synaptics Pointing Device** icon in the notification area of the desktop.
Using Your Studio Laptop

Touch Pad Gestures

NOTE: Some of the touch pad gestures may be disabled by default. To change the touch pad gestures settings, double-click the Synaptics Pointing Device icon in the notification area of your desktop.

Two-Finger Gestures

Scroll — Allows you to scroll through content. The scroll feature includes:

Auto Scroll Vertical — Allows you to scroll up or down on the active window.

Move two fingers up or down at a fast pace to activate vertical auto scrolling.

Tap on the touch pad to stop auto scrolling.

Auto Scroll Horizontal — Allows you to scroll left or right on the active window.

Move two fingers to your left or right at a fast pace to activate horizontal auto scrolling.

Tap on the touch pad to stop auto scrolling.

Zoom — Allows you to increase or decrease the magnification of the screen content. The zoom feature includes:

Pinch — Allows you to zoom-in or zoom-out by moving two fingers apart or bringing them closer together on the touch pad.

To zoom in:

Move two fingers apart to enlarge the view of the active window.
To zoom out:

Move two fingers close together to reduce the view of the active window.

**Rotate** — Allows you to rotate the active content on the screen. The rotate feature includes:

**Twist** — Allows you to rotate active content using two fingers where one finger is anchored and the other rotates.

Keeping the thumb in place, move the index finger in an arced direction right or left to rotate the selected item clockwise or counterclockwise.

**Three-Finger Gesture**

**Flick** — Allows you to flip content forward or backward based on the direction of the flick.

Move three fingers quickly in the desired direction to flip content in the active window.
Using Your Studio Laptop

Multimedia Controls

The multimedia controls can be accessed using the multimedia control keys on the keyboard or the touch-sensitive multimedia controls located above the keyboard.

Multimedia Control Keys

You can configure the multimedia control keys on the keyboard using the System Setup (BIOS) Utility or the Windows Mobility Center.

System Setup (BIOS) Utility

To access the Function Key Behavior:

1. Press <F2> during POST (Power On Self Test) to enter the System Setup (BIOS) utility.
2. In the Function Key Behavior, select Multimedia Key First or Function Key First.

Multimedia Key First — This is the default option. Press any multimedia key to perform the associated action. For function key, press <Fn> + the required function key.

Function Key First — Press any function key to perform the associated action. For multimedia key, press <Fn> + the required multimedia key.

NOTE: The Multimedia Key First option is active only in the operating system.

Windows Mobility Center

1. Press the < Win > <X> keys on the keyboard or touch the icon on the touch-sensitive multimedia controls to launch the Windows Mobility Center.
2. In the Function Key Row, select Function Key or Multimedia Key.

Touch-Sensitive Multimedia Controls

Touching the multimedia control performs the associated multimedia action.
Multimedia Control Keys

Touch-Sensitive Multimedia Controls

- ![Icon](Icon) F7: Launch Windows Mobility Center
- ![Icon](Icon) F8: Mute the sound
- ![Icon](Icon) F9: Decrease the volume level
- ![Icon](Icon) F10: Increase the volume level
- ![Icon](Icon) F11: Play or pause
- ![Icon](Icon) F12: Play the previous track or chapter
- ![Icon](Icon) Eject the disc
Display Features

The display panel holds a camera and accompanying dual microphones.
### Using Your Studio Laptop

<table>
<thead>
<tr>
<th></th>
<th>Left digital array microphone — Combines with the right digital array microphone to provide high-quality sound for video chatting and voice recording.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td><strong>Camera activity indicator</strong> — Indicates if the camera is on or off.</td>
</tr>
<tr>
<td>3</td>
<td><strong>Camera</strong> — Built-in camera for video capture, conferencing, and chat.</td>
</tr>
<tr>
<td>4</td>
<td><strong>Right digital array microphone</strong> — Combines with the left digital array microphone to provide high-quality sound for video chatting and voice recording.</td>
</tr>
<tr>
<td>5</td>
<td><strong>Display</strong> — Your display can vary based on selections you made when purchasing your computer. For more information about displays, see the <em>Dell Technology Guide</em> on your hard drive or at <a href="http://support.dell.com/manuals">support.dell.com/manuals</a>.</td>
</tr>
</tbody>
</table>
Using Your Studio Laptop

Using the Touch Screen (Optional)

The touch screen feature on your laptop converts your computer into an interactive display.

Dell Touch Zone

To launch the Dell Touch Zone software click Start → All Programs → Dell → Dell Touch Zone.

You can access the following features in the Dell Touch Zone software:

- Picture Viewer — View, organize, and edit pictures.
- Dell Touch Cam — Capture home videos with the built-in camera. You can upload videos to YouTube when connected to the Internet.
- Notes Creator — Create typed or handwritten reminders. These notes will appear on the bulletin board the next time you access Dell Touch Zone.
- Drum Zone — Play a game to the music on your computer or play synthesized percussion instruments.
- You Paint — Draw, paint images, and edit photographs using this software.
- Games — Play select Windows games using touch.
- Music — Play music, create playlists, and browse through your music files by album, artist, or song title.
Using Your Studio Laptop

• Internet Explorer — Browse the Internet using multi-touch technology. Touch a link you want to follow or download.

• Help — Use the Help feature for more information on how to use the touch screen.

A video highlighting the features of the touch screen launches the first time your computer starts up.
Touch Screen Gestures (Optional)

**NOTE:** Some of these gestures may not work outside the Dell Touch Zone software.

**Zoom**
Allows you to increase or decrease the magnification of the screen content.

**Pinch** — Allows you to zoom-in or zoom-out by moving two fingers apart or bringing them closer together on the screen.

*To zoom in:* Move two fingers apart to enlarge the view of the active window.

*To zoom out:* Move two fingers close together to reduce the view of the active window.

**Dwell**
Allows you to access additional information by simulating a right-click.

Press and hold a finger on the touch screen, to open context-sensitive menus.

**Flick**
Allows you to flip content forward or backward based on the direction of the flick.

Move a finger quickly in the desired direction to flip through content in the active window like pages in a book. Flick also works vertically when navigating content such as images or songs in a playlist.
**Scroll**

Allows you to scroll through content. The scroll features include:

**Pan** — Allows you to move the focus on the selected object when the entire object is not visible.

Move two fingers in the desired direction to pan scroll the selected object.

**Scroll Vertical** — Allows you to scroll up or scroll down on the active window.

Move a finger up or down to activate vertical scrolling.

**Scroll Horizontal** — Allows you to scroll left or right on the active window.

Move a finger to the left or right to activate horizontal scrolling.

**Rotate**

Allows you to rotate the active content on the screen.

**Twist** — Allows you to rotate the active content using two fingers.

Keeping a finger or thumb in place, move the other finger in an arced direction right or left. You can also rotate the active content by moving both the fingers in a circular motion.
Removing and Replacing the Battery

1. Battery
2. Battery bay
3. Battery release latch
**WARNING:** Using an incompatible battery may increase the risk of fire or explosion. This computer should only use a battery purchased from Dell. Do not use batteries from other computers.

**WARNING:** Before removing the battery, shut down the computer, and remove external cables (including the AC adapter).

To remove the battery:
1. Shut down the computer and turn it over.
2. Slide the battery release latch to the side.
3. Slide the battery away from the battery bay.

To replace the battery:
Slide the battery into the battery bay, until it clicks into place.
Software Features

NOTE: For more information about the features described in this section, see the Dell Technology Guide on your hard drive or at support.dell.com/manuals.

FastAccess Facial Recognition

Your computer may have the FastAccess facial recognition feature. This feature helps keep your Dell computer secure by using the unique appearance of your face to verify your identity and automatically supply login information that you would normally enter manually, such as a user ID and password for a Windows account or a secure web site. For more information, click Start → Programs → FastAccess.

Productivity and Communication

You can use your computer to create presentations, brochures, greeting cards, fliers, and spreadsheets. You can also edit and view digital photographs and images. Check your purchase order for software installed on your computer.

After connecting to the Internet, you can access websites, setup an e-mail account, upload or download files, and so on.
Entertainment and Multimedia

You can use your computer to watch videos, play games, create your own CDs/DVDs, listen to music and internet radio stations. Your optical drive may support multiple disc media formats including CDs, DVDs, and Blu-ray Discs (optional).

You can download or copy pictures and video files from portable devices, such as digital cameras and cell phones. Optional software applications enable you to organize and create music and video files that can be recorded to disc, saved on portable products such as MP3 players and handheld entertainment devices, or played and viewed directly on connected TVs, projectors, and home theater equipment.

Dell DataSafe Online Backup

NOTE: Dell DataSafe Online may not be available in all regions.

NOTE: A broadband connection is recommended for fast upload/download speeds.

Dell DataSafe Online is an automated backup and recovery service that helps protect your data and other important files from catastrophic incidents like theft, fire, or natural disasters. You can access the service on your computer using a password-protected account.

For more information, go to delldatasafe.com.

To schedule backups:

1. Double-click the Dell DataSafe Online icon on the taskbar.
2. Follow the instructions that appear on the screen.
Dell Dock

The Dell Dock is a group of icons that provides easy access to frequently-used applications, files, and folders. You can personalize the Dock by:

- Adding or removing icons
- Grouping related icons into categories
- Changing the color and location of the Dock
- Changing the behavior of the icons

Add a Category

1. Right-click the Dock, click Add → Category. The Add/Edit Category window appears.
2. Enter a title for the category in the Title field.
3. Select an icon for the category from the Select an image: box.
4. Click Save.

Add an Icon

Drag and drop the icon to the Dock or a category.

Remove a Category or Icon

1. Right-click the category or icon on the Dock and click Delete shortcut or Delete category.
2. Follow the instructions on the screen.

Personalize the Dock

1. Right-click the Dock and click Advanced Setting....
2. Choose the desired option to personalize the Dock.
Free Fall Sensor

Free fall sensor protects your computer hard drive from possible damage, by detecting a free fall state caused by accidentally dropping the computer. When a free fall state is detected, the hard drive is placed in a *safe state* to protect against damage to the read/write head and possible data loss. Your hard drive returns to normal operation, when the free fall state is no longer detected.
Solving Problems

This section provides troubleshooting information for your computer. If you cannot solve your problem using the following guidelines, see “Using Support Tools” on page 55 or “Contacting Dell” on page 77.

⚠️ **WARNING:** Only trained service personnel should remove the computer cover. See the *Service Manual* at support.dell.com/manuals for advanced service and troubleshooting instructions.

⚠️ **WARNING:** Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practice information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

---

**Touch Screen Problems**

Some or all multi-touch features are not working —

- Certain touch screen features may be disabled. To enable the touch screen features, click **Start** → **Control Panel** → **Hardware and Sound** → **Pen and Input Devices**.
- The multi-touch feature may not be supported by the application.
If the touch screen starts losing its sensitivity —

- Calibrate the touch screen (see “Touch Screen Calibration” on page 47)
- The touch screen may have foreign particles (such as sticky notes) that are blocking the touch sensors. To remove these particles:
  a. Turn off the computer.
  b. Disconnect the power cord from the wall outlet.

⚠️ CAUTION: Do not use water or a cleaning liquid to wipe the touch screen.
  c. Use a clean, lint-free cloth (can spray mild water on cloth if needed, but not on the screen) and wipe the surface and sides of the touch screen to remove any dirt or fingerprints.

---

**Touch Screen Calibration**

⚠️ **NOTE:** It is recommended that you calibrate the touch screen if you have touch screen problems or if you change the screen resolution.

To calibrate the touch screen:

1. Click **Start** → **Control Panel** → **Hardware and Sound** → **N-trig DuoSense™ Digitizer Settings**.
2. Click **Start**.

⚠️ **NOTE:** Do not touch the screen until the calibration is complete.

3. Follow the instructions on the screen.
Solving Problems

Beep Codes

Your computer might emit a series of beeps during start-up if there are errors or problems. This series of beeps, called a beep code, identifies a problem. If this occurs, write down the beep code and contact Dell (see “Contacting Dell” on page 77).

NOTE: To replace parts, see the Service Manual at support.dell.com/manuals.

<table>
<thead>
<tr>
<th>Beep Code</th>
<th>Possible Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>Possible system board failure — BIOS ROM checksum failure</td>
</tr>
<tr>
<td>Two</td>
<td>No RAM detected</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE:</strong> If you installed or replaced the memory module, ensure that the memory module is seated properly.</td>
</tr>
<tr>
<td>Three</td>
<td>Possible system board failure — Chipset error</td>
</tr>
<tr>
<td>Four</td>
<td>RAM read/write failure</td>
</tr>
<tr>
<td>Five</td>
<td>Real Time Clock failure</td>
</tr>
<tr>
<td>Six</td>
<td>Video card or chip failure</td>
</tr>
<tr>
<td>Seven</td>
<td>Processor failure</td>
</tr>
<tr>
<td>Eight</td>
<td>Display failure</td>
</tr>
</tbody>
</table>
Network Problems

Wireless Connections

If the wireless network connection is lost —
The wireless router is offline or wireless has been disabled on the computer.

• Check your wireless router to ensure it is powered on and connected to your data source (cable modem or network hub).

• Ensure that wireless is enabled on your computer (see “Enable or Disable Wireless” on page 14).

• Re-establish your connection to the wireless router (see “Setting Up a Wireless Connection” on page 17).

• Interference may be blocking or interrupting your wireless connection. Try moving the computer closer to your wireless router.

Wired Connections

If the wired network connection is lost —
The cable is loose or damaged.

• Check the cable to ensure it is plugged in and not damaged.

• The link integrity light on the integrated network connector lets you verify that your connection is working and provides information on the status:
  – Green (right) — A good connection exists between a 10-Mbps network and the computer.
  – Yellow (right) — A good connection exists between a 100-Mbps network and the computer.
Solving Problems

- Orange (right) — A good connection exists between a 1000-Mbps network and the computer.
- Blinking yellow (left) — A network traffic exists.
- Off — The computer is not detecting a physical connection to the network.

**NOTE:** The link integrity light on the network connector is only for the wired network connection. The link integrity light does not provide status for wireless connections.

Power Problems

**If the power light is off** — The computer is either turned off or is not receiving power.

- Press the power button. The computer resumes normal operation if it is off or in hibernate mode.
- Reseat the AC adapter cable into the power connector on the computer and the electrical outlet.
- If the computer is plugged into a power strip, ensure that the power strip is plugged into an electrical outlet and that the power strip is turned on.
- Temporarily bypass power protection devices, power strips, and power extension cables to verify that the computer turns on properly.
- Ensure that the electrical outlet is working by testing it with another device, such as a lamp.
• Check the AC adapter cable connections. If the AC adapter has a light, ensure that the light on the AC adapter is on.

**If the power light is solid white and the computer is not responding** — The display may not be responding.
• Press the power button until the computer turns off and then turn it back on.
• If the problem persists, contact Dell (see “Contacting Dell” on page 77).

**If the power light is blinking white** — The computer is in standby state or the display may not be responding.
• Press a key on the keyboard, move the connected mouse or a finger on the touchpad, or press the power button to resume normal operation.
• If the display is not responding, press the power button until the computer turns off and then turn it back on.

• If the problem persists, contact Dell (see “Contacting Dell” on page 77).

**If you encounter interference that hinders reception on your computer** — An unwanted signal is creating interference by interrupting or blocking other signals. Some possible causes of interference are:
• Power, keyboard, and mouse extension cables.
• Too many devices connected to a power strip.
• Multiple power strips connected to the same electrical outlet.
Solving Problems

Memory Problems
If you receive an insufficient memory message —

- Save and close any open files and exit any open programs you are not using to see if that resolves the problem.
- See the software documentation for minimum memory requirements. If necessary, install additional memory (see the Service Manual at support.dell.com/manuals).
- Reseat the memory module(s) into the connector(s) (see the Service Manual at support.dell.com/manuals for instructions).
- If the problem persists, contact Dell (see “Contacting Dell” on page 77).

If you experience other memory problems —
- Run the Dell Diagnostics (see “Dell Diagnostics” on page 59).
- If the problem persists, contact Dell (see “Contacting Dell” on page 77).

Lockups and Software Problems
If the computer does not start up — Ensure that the power cable is firmly connected to the computer and to the electrical outlet.

If a program stops responding —
End the program:
1. Press <Ctrl><Shift><Esc> simultaneously.
2. Click Applications.
3. Click the program that is no longer responding
4. Click End Task.

If a program crashes repeatedly — Check the software documentation. If necessary, uninstall and then reinstall the program.

NOTE: Software usually includes installation instructions in its documentation or on the CD.
If the computer stops responding or a solid blue screen appears —

⚠️ **CAUTION:** You might lose data if you are unable to perform an operating system shutdown.

If you are unable to get a response by pressing a key on your keyboard or moving your mouse, press the power button for at least 8 to 10 seconds until the computer turns off and then restart your computer.

If a program is designed for an earlier Microsoft® Windows® operating system —

Run the Program Compatibility Wizard. The Program Compatibility Wizard configures a program so that it runs in an environment similar to an earlier version of Microsoft Windows operating system environments.

To run the Program Compatibility Wizard:

**Windows 7**

1. Click **Start** ➔ **Control Panel** ➔ **Programs** ➔ **Run programs made for previous versions of Windows**.
2. In the welcome screen, click **Next**.
3. Follow the instructions on the screen.

**Windows Vista**

1. Click **Start** ➔ **Control Panel** ➔ **Programs** ➔ **Use an older program with this version of Windows**.
2. In the welcome screen, click **Next**.
3. Follow the instructions on the screen.
Solving Problems

If you have other software problems —
• Back up your files immediately.
• Use a virus-scanning program to check the hard drive or CDs.
• Save and close any open files or programs and shut down your computer through the Start menu.
• Check the software documentation or contact the software manufacturer for troubleshooting information:
  – Ensure that the program is compatible with the operating system installed on your computer.
  – Ensure that your computer meets the minimum hardware requirements needed to run the software. See the software documentation for information.
  – Ensure that the program is installed and configured properly.
  – Verify that the device drivers do not conflict with the program.
  – If necessary, uninstall and then reinstall the program.
Using Support Tools

Dell Support Center

The Dell Support Center helps you find the service, support, and system-specific information you need.

To launch the application, click the icon in the taskbar.

The Dell Support Center home page displays your computer’s model number, service tag, express service code, and service contact information.

The home page also provides links to access:

- **Self Help** (Troubleshooting, Security, System Performance, Network/Internet, Backup/Recovery, and Windows operating system)
- **Alerts** (technical support alerts relevant to your computer)
- **Assistance from Dell** (Technical Support with DellConnect™, Customer Service, Training and Tutorials, How-To Help with Solution Station™, and Online Scan with PC CheckUp)
- **About Your System** (System Documentation, Warranty Information, System Information, Upgrades & Accessories)

For more information about Dell Support Center and available support tools, click the Services tab at support.dell.com.
My Dell Downloads

NOTE: My Dell Downloads may not be available in all regions.

Some of the software pre-installed on your new computer do not include a backup CD or DVD. This software is available at My Dell Downloads. From this website you can download available software for reinstallation or create your own backup media.

To register and use My Dell Downloads:

1. Go to downloadstore.dell.com/media.
2. Follow the instructions on the screen to register and download the software.
3. Reinstall or create backup media of the software for future use.

System Messages

If your computer has an issue or error, it may display a System Message that will help you identify the cause and action needed to resolve the issue.

NOTE: If the message you received is not listed in the following examples, see the documentation for either the operating system or the program that was running when the message appeared. Alternatively you could see the Dell Technology Guide on your hard drive or at support.dell.com/manuals or contact Dell (see “Contacting Dell” on page 77).

Alert! Previous attempts at booting this system have failed at checkpoint [nnnn]. For help in resolving this problem, please note this checkpoint and contact Dell Technical Support — The computer failed to complete the boot routine three consecutive times for the same error. Contact Dell (see “Contacting Dell” on page 77).
**CMOS checksum error** — Possible system board failure or RTC battery low. Replace the battery (see the *Service Manual* at support.dell.com/manuals) or contact Dell (see “Contacting Dell” on page 77).

**CPU fan failure** — CPU fan has failed. Replace the CPU fan (see the *Service Manual* at support.dell.com/manuals).

**Hard-disk drive failure** — Possible hard-disk drive failure during POST. Contact Dell (see “Contacting Dell” on page 77).

**Hard-disk drive read failure** — Possible hard-disk drive failure during HDD boot test. Contact Dell (see “Contacting Dell” on page 77).

**Keyboard failure** — Keyboard failure or loose cable.

To replace the keyboard, see the *Service Manual* at support.dell.com/manuals.

**No boot device available** — No bootable partition on hard drive, the hard drive cable is loose, or no bootable device exists.

  - If the hard drive is your boot device, ensure that the cables are connected and that the drive is installed properly and partitioned as a boot device.

  - Enter system setup and ensure that the boot sequence information is correct (see the *Dell Technology Guide* at support.dell.com/manuals).

**No timer tick interrupt** — A chip on the system board might be malfunctioning or system board failure. Contact Dell (see “Contacting Dell” on page 77).
Using Support Tools

**USB over current error** — Disconnect the USB device. Your USB device needs more power for it to function properly. Use an external power source to connect the USB device, or if your device has two USB cables, connect both of them.

**CAUTION - Hard Drive SELF MONITORING SYSTEM** has reported that a parameter has exceeded its normal operating range. Dell recommends that you back up your data regularly. A parameter out of range may or may not indicate a potential hard drive problem — S.M.A.R.T error, possible hard drive failure. Contact Dell (see “Contacting Dell” on page 77).

**Hardware Troubleshooter**

If a device is either not detected during the operating system setup or is detected but incorrectly configured, you can use the **Hardware Troubleshooter** to resolve the incompatibility.

To start the Hardware Troubleshooter:

1. Click **Start** → **Help and Support**.
2. Type `hardware troubleshooter` in the search field and press <Enter> to start the search.
3. In the search results, select the option that best describes the problem and follow the remaining troubleshooting steps.
Dell Diagnostics

If you experience a problem with your computer, perform the checks in “Lockups and Software Problems” on page 52 and run the Dell Diagnostics before you contact Dell for technical assistance. It is recommended that you print these procedures before you begin.

**NOTE:** Dell Diagnostics works only on Dell computers.

**NOTE:** The *Drivers and Utilities* disc may not ship with your computer.

See the *Specifications* on page 80 to review your computer’s configuration information, and ensure that the device that you want to test appears in the system setup program and is active.

Start the Dell Diagnostics from your hard drive or from the *Drivers and Utilities* disc.

Starting Dell Diagnostics From Your Hard Drive

The Dell Diagnostics is located on a hidden diagnostic utility partition on your hard drive.

**NOTE:** If your computer cannot display a screen image, contact Dell (see “Contacting Dell” on page 77).

1. Ensure that the computer is connected to an electrical outlet that is known to be working properly.
2. Turn on (or restart) your computer.
3. When the DELL™ logo appears, press <F12> immediately. Select *Diagnostics* from the boot menu and press <Enter>. This may invoke the Pre-Boot System Assessment (PSA) on your computer.
Using Support Tools

**NOTE:** If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft® Windows® desktop; then, shut down your computer and try again.

**NOTE:** If you see a message stating that no diagnostic utility partition has been found, run the Dell Diagnostics from the *Drivers and Utilities* disc.

If PSA is invoked:

a. The PSA will start running the tests.

b. If the PSA completes successfully, the following message is displayed: “No problems have been found with this system so far. Do you want to run the remaining memory tests? This will take about 30 minutes or more. Do you want to continue? (Recommended).”

c. If you are experiencing memory issues press <y>, otherwise press <n>. The following message is displayed: “Booting Dell Diagnostic Utility Partition. Press any key to continue.”

d. Press any key to go to the Choose An Option window.

If PSA is not invoked:

Press any key to start the Dell Diagnostics from the diagnostics utility partition on your hard drive and to go to the Choose An Option window.

4. Select the test you want to run.

5. If a problem is encountered during a test, a message appears with an error code and a description of the problem. Write down the error code and problem description and contact Dell (see “Contacting Dell” on page 77).
NOTE: The Service Tag for your computer is displayed at the top of each test screen. The Service Tag helps you identify your computer when you contact Dell.

6. When the tests are complete, close the test screen to return to the Choose An Option window.

7. To exit the Dell Diagnostics and to restart the computer, click Exit.

Starting Dell Diagnostics From the Drivers and Utilities Disc

NOTE: The Drivers and Utilities disc may not ship with your computer.

1. Insert the Drivers and Utilities disc.

2. Shut down and restart the computer. When the DELL logo appears, press <F12> immediately.

NOTE: If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft® Windows® desktop; then, shut down your computer and try again.

NOTE: The next steps change the boot sequence for one time only. On the next start-up, the computer boots according to the devices specified in the system setup program.

3. When the boot device list appears, highlight CD/DVD/CD-RW and press <Enter>.
Using Support Tools

4. Select the **Boot from CD-ROM** option from the menu that appears and press <Enter>.

5. Type 1 to start the CD menu and press <Enter> to proceed.

6. Select **Run the 32 Bit Dell Diagnostics** from the numbered list. If multiple versions are listed, select the version appropriate for your computer.

7. Select the test you want to run.

8. If a problem is encountered during a test, a message appears with an error code and a description of the problem. Write down the error code and problem description and contact Dell (see “Contacting Dell” on page 77).

   **NOTE:** The Service Tag for your computer is displayed at the top of each test screen. The Service Tag helps you identify your computer when you contact Dell.

9. When the tests are complete, close the test screen to return to the **Choose An Option** window.

10. To exit the Dell Diagnostics and restart the computer, click **Exit**.

11. Remove the *Drivers and Utilities* disc.
Restoring Your Operating System

You can restore the operating system on your computer using any of the following options:

⚠️ **CAUTION:** Using Dell Factory Image Restore or the *Operating System* disc permanently deletes all data files on your computer. If possible, backup your data files before using these options.

<table>
<thead>
<tr>
<th>Option</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Restore</td>
<td>as the first solution</td>
</tr>
<tr>
<td>Dell DataSafe Local Backup</td>
<td>when System Restore does not resolve your problem</td>
</tr>
<tr>
<td>System recovery media</td>
<td>when operating system failure prevents the use of System Restore and DataSafe Local Backup</td>
</tr>
<tr>
<td></td>
<td>when installing the factory image on a newly installed hard drive</td>
</tr>
<tr>
<td>Dell Factory Image Restore</td>
<td>to restore your computer to the operating state it was in when you received your computer</td>
</tr>
<tr>
<td><em>Operating System</em> disc</td>
<td>to reinstall only the operating system on your computer</td>
</tr>
</tbody>
</table>

⚠️ **NOTE:** The *Operating System* disc may not ship with your computer.
System Restore

The Windows operating systems provide a System Restore option which allows you to return your computer to an earlier operating state (without affecting data files) if changes to the hardware, software, or other system settings have left the computer in an undesirable operating state. Any changes that System Restore makes to your computer are completely reversible.

⚠️ CAUTION: Make regular backups of your data files. System Restore does not monitor your data files or recover them.

Starting System Restore

1. Click Start 📱.
2. In the search box, type System Restore and press <Enter>.

⚠️ NOTE: The User Account Control window may appear. If you are an administrator on the computer, click Continue; otherwise, contact your administrator to continue the desired action.

3. Click Next and follow the instructions on the screen.

In the event that System Restore did not resolve the issue, you may undo the last system restore.
Undoing the Last System Restore

NOTE: Before you undo the last system restore, save and close all open files and exit any open programs. Do not alter, open, or delete any files or programs until the system restoration is complete.

1. Click Start.
2. In the search box, type System Restore and press <Enter>.
3. Click Undo my last restoration, click Next and follow the instructions on the screen.

Dell DataSafe Local Backup

CAUTION: Using Dell DataSafe Local Backup permanently removes any programs or drivers installed after you received your computer. Prepare backup media of applications you need to install on your computer before using Dell DataSafe Local Backup. Use Dell DataSafe Local Backup only if System Restore did not resolve your operating system problem.

CAUTION: Although Dell DataSafe Local Backup is designed to preserve the data files on your computer, it is recommended that you backup your data files before using Dell DataSafe Local Backup.

NOTE: Dell DataSafe Local Backup may not be available in all regions.

NOTE: If Dell DataSafe Local Backup is not available on your computer, use Dell Factory Image Restore (see “Dell Factory Image Restore” on page 68) to restore your operating system.
You can use Dell DataSafe Local Backup to restore your hard drive to the operating state it was in when you purchased your computer, while preserving the data files.

Dell DataSafe Local Backup allows you to:

- Backup and restore your computer to an earlier operating state
- Create system recovery media

**Dell DataSafe Local Backup Basic**

To restore the factory image while preserving the data files:

1. Turn off your computer.
2. Disconnect all the devices (USB drive, printer, etc.) connected to the computer and remove any newly added internal hardware.

   **NOTE:** Do not disconnect the AC adapter.

3. Turn on your computer.
4. When the DELL™ logo appears, press <F8> several times to access the **Advanced Boot Options** window.

   **NOTE:** If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft® Windows® desktop; then, shut down your computer and try again.

5. Select **Repair Your Computer**.
6. Select **Dell DataSafe Restore and Emergency Backup** from the **System Recovery Options** menu and follow the instructions on the screen.

   **NOTE:** The restoration process may take an hour or more depending on the size of the data to be restored.

   **NOTE:** For more information, see the knowledge base article 353560 at support.dell.com.
Upgrading to Dell DataSafe Local Backup Professional

* NOTE: * Dell DataSafe Local Backup Professional may be installed on your computer, if you ordered it at the time of purchase.

Dell DataSafe Local Backup Professional provides additional features that allow you to:

- Backup and restore your computer based on file types
- Backup files to a local storage device
- Schedule automated backups

To upgrade to Dell DataSafe Local Backup Professional:

1. Double-click the Dell DataSafe Local Backup icon on the taskbar.
2. Click **UPGRADE NOW!**
3. Follow the instructions on the screen to complete the upgrade.

System Recovery Media

⚠️ **CAUTION:** Although the system recovery media is designed to preserve the data files on your computer, it is recommended that you backup your data files before using the system recovery media.

You can use the system recovery media, created using Dell DataSafe Local Backup, to return your hard drive to the operating state it was in when you purchased the computer while preserving the data files on your computer.

Use the system recovery media in case of:

- Operating system failure that prevents the use of recovery options that are installed on your computer.
- Hard drive failure that prevents data from being recovered.
To restore the factory image of your computer using the system recovery media:

1. Insert the system recovery disc or USB key and restart the computer.
2. When the DELL™ logo appears, press <F12> immediately.

   **NOTE:** If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft® Windows® desktop; then, shut down your computer and try again.

3. Select the appropriate boot device from the list and press <Enter>.
4. Follow the instructions on the screen to complete the recovery process.

**Dell Factory Image Restore**

- **CAUTION:** Using Dell Factory Image Restore permanently deletes all data on the hard drive and removes any programs or drivers installed after you received your computer. If possible, back up the data before using this option. Use Dell Factory Image Restore only if System Restore did not resolve your operating system problem.

- **NOTE:** Dell Factory Image Restore may not be available in certain countries or on certain computers.

- **NOTE:** If Dell Factory Image Restore is not available on your computer, use Dell DataSafe Local Backup (see “Dell DataSafe Local Backup” on page 65) to restore your operating system.
You can use Dell Factory Image Restore only as the last method to restore your operating system. This option restores your hard drive to the operating state it was in when you purchased the computer. Any programs or files added since you received your computer—including data files—are permanently deleted from the hard drive. Data files include documents, spreadsheets, e-mail messages, digital photos, music files, and so on. If possible, back up all data before using Dell Factory Image Restore.

Starting Dell Factory Image Restore

1. Turn on the computer.
2. When the DELL™ logo appears, press <F8> several times to access the Advanced Boot Options window.

   **NOTE:** If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft® Windows® desktop; then, shut down your computer and try again.

4. Select a keyboard layout and click Next.
Restoring Your Operating System

5. To access the recovery options, log on as a local user. To access the command prompt, type administrator in the User name field, then click OK.

6. Click Dell Factory Image Restore. The Dell Factory Image Restore welcome screen appears.

⚠️ NOTE: Depending upon your configuration, you may need to select Dell Factory Tools, then Dell Factory Image Restore.

7. Click Next. The Confirm Data Deletion screen appears.

⚠️ NOTE: If you do not want to proceed with Dell Factory Image Restore, click Cancel.

8. Select the check box to confirm that you want to continue reformatting the hard drive and restoring the system software to the factory condition, then click Next. The restore process begins and may take five or more minutes to complete. A message appears when the operating system and factory-installed applications have been restored to factory condition.

9. Click Finish to restart the computer.
Getting Help

If you experience a problem with your computer, you can complete the following steps to diagnose and troubleshoot the problem:

1. See “Solving Problems” on page 46 for information and procedures that pertain to the problem your computer is experiencing.

2. See the Dell Technology Guide available on your hard drive or at support.dell.com/manuals for more troubleshooting information.

3. See “Dell Diagnostics” on page 59 for procedures on how to run Dell Diagnostics.

4. Fill out the “Diagnostic Checklist” on page 76.

5. Use Dell’s extensive suite of online services available at Dell Support (support.dell.com) for help with installation and troubleshooting procedures. See “Online Services” on page 73 for a more extensive list of Dell Support online.

6. If the preceding steps have not resolved the problem, see “Before You Call” on page 76.

   **NOTE:** Call Dell Support from a telephone near or at the computer so that the support staff can assist you with any necessary procedures.

   **NOTE:** Dell’s Express Service Code system may not be available in all countries.

When prompted by Dell’s automated telephone system, enter your Express Service Code to route the call directly to the proper support personnel. If you do not have an Express Service Code, open the Dell Accessories folder, double-click the Express Service Code icon, and follow the directions.

   **NOTE:** Some of the services are not always available in all locations outside the continental U.S. Call your local Dell representative for information on availability.
Technical Support and Customer Service

Dell’s support service is available to answer your questions about Dell hardware. Our support staff use computer-based diagnostics to provide fast, accurate answers.

To contact Dell’s support service, see “Before You Call” on page 76 and then see the contact information for your region or go to support.dell.com.

DellConnect

DellConnect™ is a simple online access tool that allows a Dell service and support associate to access your computer through a broadband connection, diagnose your problem, and repair it all under your supervision. For more information, go to www.dell.com/dellconnect.
Online Services
You can learn about Dell products and services on the following websites:

- www.dell.com
- www.dell.com/ap (Asian/Pacific countries only)
- www.dell.com/jp (Japan only)
- www.euro.dell.com (Europe only)
- www.dell.com/la (Latin American and Caribbean countries)
- www.dell.ca (Canada only)

You can access Dell Support through the following websites and e-mail addresses:

Dell Support websites

- support.dell.com
- support.jp.dell.com (Japan only)
- support.euro.dell.com (Europe only)
- supportapj.dell.com (Asia Pacific only)

Dell Support e-mail addresses

- mobile_support@us.dell.com
- support@us.dell.com
- la-techsupport@dell.com (Latin America and Caribbean countries only)
- apsupport@dell.com (Asian/Pacific countries only)

Dell Marketing and Sales e-mail addresses

- apmarketing@dell.com (Asian/Pacific countries only)
- sales_canada@dell.com (Canada only)

Anonymous file transfer protocol (FTP)

- ftp.dell.com
  
  Log in as user: anonymous, and use your e-mail address as your password.
Automated Order-Status Service
To check on the status of any Dell products that you have ordered, you can go to support.dell.com, or you can call the automated order-status service. A recording prompts you for the information needed to locate and report on your order.

If you have a problem with your order, such as missing parts, wrong parts, or incorrect billing, contact Dell for customer assistance. Have your invoice or packing slip handy when you call.

For the telephone number to call for your region, see “Contacting Dell” on page 77.

Product Information
If you need information about additional products available from Dell, or if you would like to place an order, visit www.dell.com. For the telephone number to call for your region or to speak to a sales specialist, see “Contacting Dell” on page 77.
Returning Items for Repair Under Warranty or for Credit

Prepare all items being returned, whether for repair or credit, as follows:

- **NOTE:** Before you return the product to Dell, make sure to back up any data on the hard drive and on any other storage device in the product. Remove any and all confidential, proprietary and personal information, as well as removable media, such as CDs and ExpressCards. Dell is not responsible for any of your confidential, proprietary or personal information; lost or corrupted data; or damaged or lost removable media that may be included with your return.

1. Call Dell to obtain a Return Material Authorization Number, and write it clearly and prominently on the outside of the box. For the telephone number to call for your region, see “Contacting Dell” on page 77.

2. Include a copy of the invoice and a letter describing the reason for the return.

3. Include a copy of the Diagnostics Checklist (see “Diagnostic Checklist” on page 76), indicating the tests that you have run and any error messages reported by the Dell Diagnostics (see “Dell Diagnostics” on page 59).

4. Include any accessories that belong with the item(s) being returned (power cables, software, guides, and so on) if the return is for credit.

5. Pack the equipment to be returned in the original (or equivalent) packing materials.

- **NOTE:** You are responsible for paying shipping expenses. You are also responsible for insuring any product returned, and you assume the risk of loss during shipment to Dell. Collect On Delivery (C.O.D.) packages are not accepted.

- **NOTE:** Returns that are missing any of the preceding requirements will be refused at Dell’s receiving dock and returned to you.
Getting Help

Before You Call

NOTE: Have your Express Service Code ready when you call. The code helps Dell’s automated-support telephone system direct your call more efficiently. You may also be asked for your Service Tag (located on the bottom of your computer).

Remember to fill out the following Diagnostics Checklist. If possible, turn on your computer before you call Dell for assistance and call from a telephone at or near the computer. You may be asked to type some commands at the keyboard, relay detailed information during operations, or try other troubleshooting steps possible only at the computer itself. Ensure that the computer documentation is available.

Diagnostic Checklist

- Name:
- Date:
- Address:
- Phone number:
- Service Tag (bar code on the back or bottom of the computer):
- Express Service Code:
- Return Material Authorization Number (if provided by Dell support technician):
- Operating system and version:
- Devices:
- Expansion cards:
- Are you connected to a network? Yes/No
- Network, version, and network adapter:
- Programs and versions:
See your operating system documentation to determine the contents of the computer’s start-up files. If the computer is connected to a printer, print each file. Otherwise, record the contents of each file before calling Dell.

- Error message, beep code, or diagnostic code:
- Description of problem and troubleshooting procedures you performed:

## Contacting Dell

For customers in the United States, call 800-WWW-DELL (800-999-3355).

⚠ **NOTE:** If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area.

To contact Dell for sales, technical support, or customer service issues:

1. Visit [support.dell.com/contactdell](http://support.dell.com/contactdell).
2. Select your country or region.
3. Select the appropriate service or support link based on your requirement.
4. Choose the method of contacting Dell that is convenient for you.
## Finding More Information and Resources

<table>
<thead>
<tr>
<th>If you need to:</th>
<th>See:</th>
</tr>
</thead>
<tbody>
<tr>
<td>reinstall your operating system</td>
<td>“System Recovery Media” on page 67</td>
</tr>
<tr>
<td>run a diagnostic program for your computer</td>
<td>“Dell Diagnostics” on page 59</td>
</tr>
<tr>
<td>reinstall system software</td>
<td>“My Dell Downloads” on page 56</td>
</tr>
<tr>
<td>find more information about the Microsoft® Windows® operating system and features</td>
<td>support.dell.com</td>
</tr>
<tr>
<td>upgrade your computer with new or additional memory, or a new hard drive</td>
<td>the <em>Service Manual</em> at support.dell.com/manuals</td>
</tr>
<tr>
<td>reinstall or replace a worn or defective part</td>
<td><strong>NOTE:</strong> In some countries, opening and replacing parts of your computer may void your warranty. Check your warranty and return policies before working inside your computer.</td>
</tr>
<tr>
<td><strong>If you need to:</strong></td>
<td><strong>See:</strong></td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>find safety best practices information for your computer</td>
<td>the safety and regulatory documents that shipped with your computer and also see the Regulatory Compliance Homepage at <a href="http://www.dell.com/regulatory_compliance">www.dell.com/regulatory_compliance</a></td>
</tr>
<tr>
<td>review Warranty information, Terms and Conditions (U.S. only), Safety instructions, Regulatory information, Ergonomics information, and End User License Agreement</td>
<td></td>
</tr>
<tr>
<td>find your Service tag/Express Service Code — You must use the service tag to identify your computer on <a href="http://support.dell.com">support.dell.com</a> or to contact technical support</td>
<td>the bottom of your computer the <a href="http://support.dell.com">Dell Support Center</a>. To launch the <a href="http://support.dell.com">Dell Support Center</a>, click the icon in the taskbar</td>
</tr>
<tr>
<td>find drivers and downloads; readme files access technical support and product help check on your order status for new purchases find solutions and answers to common questions locate information for last-minute updates about technical changes to your computer or advanced technical-reference material for technicians or experienced users</td>
<td><a href="http://support.dell.com">support.dell.com</a></td>
</tr>
</tbody>
</table>
Specifications

This section provides information that you may need when setting up, updating drivers for, and upgrading your computer.

⚠️ NOTE: Offerings may vary by region. For more information regarding the configuration of your computer, click Start → Help and Support and select the option to view information about your computer.

<table>
<thead>
<tr>
<th>Computer Model</th>
<th>Computer Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell Studio 1745/1747/1749</td>
<td></td>
</tr>
<tr>
<td><strong>System chipset</strong></td>
<td><strong>Data bus width</strong> 64 bits</td>
</tr>
<tr>
<td>Mobile Intel Express GM45 (Studio 1745)</td>
<td>DRAM bus width dual-channel (2) 64-bit buses</td>
</tr>
<tr>
<td>Mobile Intel 5 Series Discrete GFX (Studio 1745)</td>
<td>Processor address bus width 32 bits</td>
</tr>
<tr>
<td>Mobile Intel 5 Series Express chipset PM55 (Studio 1747)</td>
<td>Flash EPROM 2 MB (Studio 1745 and 1747)</td>
</tr>
<tr>
<td>Mobile Intel 5 Series Express chipset HM55 (Studio 1749)</td>
<td>4 MB (Studio 1749)</td>
</tr>
<tr>
<td>Graphics bus PCI-E x16</td>
<td></td>
</tr>
<tr>
<td>Computer Model</td>
<td>Studio 1745</td>
</tr>
<tr>
<td>----------------</td>
<td>------------</td>
</tr>
<tr>
<td>Processor</td>
<td></td>
</tr>
<tr>
<td>Processor type</td>
<td>Intel® Celeron®</td>
</tr>
<tr>
<td></td>
<td>Intel Pentium® Dual-Core</td>
</tr>
<tr>
<td></td>
<td>Intel Core™2 Duo</td>
</tr>
<tr>
<td>L1 cache</td>
<td>64 KB (32 KB for each core)</td>
</tr>
<tr>
<td>L2 cache</td>
<td>2 MB or 3 MB or 6 MB (Intel Core2 Duo)</td>
</tr>
<tr>
<td></td>
<td>1 MB (Intel Celeron and Intel Pentium Dual-Core)</td>
</tr>
<tr>
<td>L3 cache</td>
<td>up to 8 MB of shared data</td>
</tr>
</tbody>
</table>
## Specifications

<table>
<thead>
<tr>
<th>Computer Model</th>
<th>Studio 1745</th>
<th>Studio 1747</th>
<th>Studio 1749</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Video</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCD interface</td>
<td>Low Voltage</td>
<td>LVDS</td>
<td>LVDS</td>
</tr>
<tr>
<td></td>
<td>Differential Signaling (LVDS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV support</td>
<td>HDMI 1.3</td>
<td>HDMI 1.3</td>
<td>HDMI 1.3</td>
</tr>
<tr>
<td><strong>Discrete</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video type</td>
<td>integrated on system board</td>
<td>integrated on system board</td>
<td>integrated on system board</td>
</tr>
<tr>
<td>Video controller</td>
<td>ATI Mobility Radeon HD 4570/4650</td>
<td>ATI Mobility Radeon HD 4650</td>
<td>ATI Mobility Radeon HD 5650</td>
</tr>
<tr>
<td>Video memory</td>
<td>DDR3 512 MB/1 GB</td>
<td>DDR3 1 GB</td>
<td>DDR3 1 GB</td>
</tr>
<tr>
<td>Computer Model</td>
<td>Studio 1745</td>
<td>Studio 1747</td>
<td>Studio 1749</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>UMA</td>
<td>Video type: integrated on system board</td>
<td>Video type: integrated on system board</td>
<td>Video type: integrated on system board</td>
</tr>
<tr>
<td></td>
<td>Video controller: Mobile Intel GMA 4500MHD</td>
<td>Video controller: Intel GMA HD</td>
<td>Video controller: Intel GMA HD</td>
</tr>
<tr>
<td></td>
<td>Video memory: up to 358 MB of shared memory</td>
<td>Video memory: up to 1.7 GB of shared memory</td>
<td>Video memory: up to 1.7 GB of shared memory</td>
</tr>
</tbody>
</table>
## Specifications

### Memory

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory module connector</td>
<td>two user-accessible SODIMM connectors</td>
</tr>
<tr>
<td>Memory module capacities</td>
<td>1 GB, 2 GB, 3 GB, 4 GB, 5 GB, 6 GB, and 8 GB</td>
</tr>
<tr>
<td>Memory type</td>
<td>1066 MHz SODIMM DDR3 (Studio 1745/1747/1749)</td>
</tr>
<tr>
<td></td>
<td>1333 MHz SODIMM DDR3 (Studio 1747)</td>
</tr>
<tr>
<td>Minimum memory configuration</td>
<td>1 GB</td>
</tr>
<tr>
<td>Maximum memory configuration</td>
<td>8 GB</td>
</tr>
</tbody>
</table>

**NOTE:** For instructions on upgrading memory, see the *Service Manual* at support.dell.com/manuals.

### ExpressCard

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>ExpressCard controller</td>
<td>Intel ICH9M (Studio 1745)</td>
</tr>
<tr>
<td></td>
<td>Mobile Intel 5 Series Express chipset PM55 (Studio 1747)</td>
</tr>
<tr>
<td>Cards supported</td>
<td>ExpressCard/34 (34 mm)</td>
</tr>
<tr>
<td></td>
<td>1.5 V and 3.3 V</td>
</tr>
<tr>
<td>ExpressCard connector size</td>
<td>26 pins</td>
</tr>
</tbody>
</table>
### Connectors

<table>
<thead>
<tr>
<th>Audio</th>
<th>one microphone-in connector, two stereo headphones/speakers connectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEEE 1394a</td>
<td>one 4-pin mini, non-powered connector</td>
</tr>
<tr>
<td>Mini-Card</td>
<td>one Type IIIA full Mini-Card slot, two half-size Mini-Card slots</td>
</tr>
<tr>
<td>HDMI connector</td>
<td>one 19-pin connector</td>
</tr>
<tr>
<td>Network adapter</td>
<td>one RJ45 connector</td>
</tr>
<tr>
<td>USB</td>
<td>two four-pin USB 2.0-compliant connectors</td>
</tr>
</tbody>
</table>

### Connectors

| Video       | one 15-hole connector                                                  |
| DisplayPort | one 20-pin connector                                                  |
| eSATA       | one seven-pin/four-pin eSATA/USB combo connector                        |

### Communications

| Modem (optional) | external V.92 56K USB modem                                               |
| Controller       | hardware modem                                                            |
| Interface        | USB                                                                      |
| Network adapter  | 10/100/1000 Ethernet LAN on system board                                  |
| Wireless         | WLAN, WWAN, WiMax/ Wi-Fi abgn, and WPAN with Bluetooth® wireless technology |
## Specifications

<table>
<thead>
<tr>
<th>Audio</th>
<th>Camera</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Audio type</strong></td>
<td><strong>Pixel</strong></td>
<td><strong>Type</strong></td>
</tr>
<tr>
<td>JBL 2.1 channel with SRS</td>
<td>2.0 megapixel</td>
<td>17.3” HD+ WLED backlight, TrueLife</td>
</tr>
<tr>
<td>enhanced audio</td>
<td></td>
<td>17.3” FHD B+RG LED backlight, TrueLife</td>
</tr>
<tr>
<td><strong>Audio controller</strong></td>
<td><strong>Video resolution</strong></td>
<td></td>
</tr>
<tr>
<td>IDT 92HD73C</td>
<td>160 x 120 ~1600 x 1200</td>
<td></td>
</tr>
<tr>
<td><strong>Stereo conversion</strong></td>
<td>(160 x 120 ~ 1280 x 720 at 30 fps)</td>
<td></td>
</tr>
<tr>
<td>24-bit (analog-to-digital</td>
<td><strong>Diagonal viewing angle</strong></td>
<td></td>
</tr>
<tr>
<td>and digital-to-analog)</td>
<td>60°</td>
<td></td>
</tr>
<tr>
<td><strong>Internal Interface</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intel High Definition audio</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Speaker</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>two 1.5 watt main speakers and one 3.0 watt subwoofer, for a total system power of 6.0 watt</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Volume controls</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>program menus and media controls</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Display

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Height</strong></td>
<td>214.81 mm (8.46 inches)</td>
</tr>
<tr>
<td><strong>Width</strong></td>
<td>381.89 mm (15.04 inches)</td>
</tr>
<tr>
<td><strong>Diagonal</strong></td>
<td>439.42 mm (17.30 inches)</td>
</tr>
<tr>
<td><strong>Maximum resolution</strong></td>
<td>HD+: 1600 x 900</td>
</tr>
<tr>
<td></td>
<td>FHD: 1920 x 1080</td>
</tr>
<tr>
<td><strong>Refresh rate</strong></td>
<td>60 Hz</td>
</tr>
<tr>
<td><strong>Operating angle</strong></td>
<td>0° (closed) to 140°</td>
</tr>
<tr>
<td><strong>Luminance</strong></td>
<td>HD+: 220 nits (60% CG)</td>
</tr>
<tr>
<td></td>
<td>FHD: 300 nits (92% CG)</td>
</tr>
</tbody>
</table>

### Display

<table>
<thead>
<tr>
<th>Viewing Angles</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Horizontal</strong></td>
<td>HD+: 40/40</td>
</tr>
<tr>
<td></td>
<td>FHD: 60/60 (both 72% and 90% CG)</td>
</tr>
<tr>
<td><strong>Vertical</strong></td>
<td>HD+: 15/30 (H/L)</td>
</tr>
<tr>
<td></td>
<td>FHD: 50/50 (both 72% and 90% CG)</td>
</tr>
<tr>
<td><strong>Pixel pitch</strong></td>
<td>HD+: 0.24 x 0.24 mm</td>
</tr>
<tr>
<td></td>
<td>FHD: 0.20 x 0.20 mm</td>
</tr>
<tr>
<td><strong>Controls</strong></td>
<td>brightness can be controlled through</td>
</tr>
<tr>
<td></td>
<td>keyboard shortcuts (see the <em>Dell Technology</em></td>
</tr>
<tr>
<td></td>
<td><em>Guide</em> for more information).</td>
</tr>
</tbody>
</table>
### Specifications

**Keyboard (Backlit)**

<table>
<thead>
<tr>
<th>Number of keys</th>
<th>102 (U.S. and Canada); 103 (Europe); 106 (Japan); 105 (Brazil)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layout</td>
<td>QWERTY/AZERTY/Kanji</td>
</tr>
</tbody>
</table>

**Touch Pad**

<table>
<thead>
<tr>
<th>X/Y position resolution (graphics table mode)</th>
<th>240 cpi</th>
</tr>
</thead>
</table>

| Size:                                         |
|------|-----------------------------------|
| Width| 100 mm (3.9 inches) sensor active area |
| Height| 56 mm (2.2 inches) rectangle |

**Battery**

Types and dimensions:

<table>
<thead>
<tr>
<th>9-cell “smart” lithium ion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Depth</td>
</tr>
<tr>
<td>Weight</td>
</tr>
</tbody>
</table>
### Battery

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery type</td>
<td>6-cell “smart” lithium ion</td>
</tr>
<tr>
<td>Height</td>
<td>22.2 mm (0.87 inches)</td>
</tr>
<tr>
<td>Width</td>
<td>206.0 mm (8.11 inches)</td>
</tr>
<tr>
<td>Depth</td>
<td>56.7 mm (2.23 inches)</td>
</tr>
<tr>
<td>Weight</td>
<td>0.35 kg (0.77 lb)</td>
</tr>
<tr>
<td>Voltage</td>
<td>11.1 VDC (6/9 cell)</td>
</tr>
<tr>
<td>Charge time (approximate):</td>
<td>4 hours (when the computer is turned off)</td>
</tr>
</tbody>
</table>

### Battery

- **Operating time**: varies depending on operating conditions and can be significantly reduced under certain power-intensive conditions.
  - See the *Dell Technology Guide* for more information.
- **Life span (approximate)**: 300 discharge/charge cycles
- **Temperature range**:  
  - Operating: 0° to 35°C (32° to 95°F)  
  - Storage: –40° to 65°C (–40° to 149°F)
- **Coin-cell battery**: CR-2032
## Specifications

### AC Adapter

<table>
<thead>
<tr>
<th>NOTE: Use only AC adapters specified for use with your computer. See the safety information that shipped with your computer.</th>
</tr>
</thead>
</table>

| Input voltage | 100–240 VAC |
| Input current (maximum) | 2.50 A |
| Input frequency | 50–60 Hz |
| Output power | 65 W, 90 W, or 130 W |

**Output current**

| 65 W | 3.34 A (continuous) |
| 90 W | 4.62 A (continuous) |
| 130 W | 6.70 A (continuous) |

| Rated output voltage | 19.5 ± 1 VDC |

### AC Adapter

**Dimensions:**

<table>
<thead>
<tr>
<th>130 W (E-Series)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Depth</td>
</tr>
<tr>
<td>Weight (with cables)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>90 W (E-Series)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Depth</td>
</tr>
<tr>
<td>Weight (with cables)</td>
</tr>
</tbody>
</table>
## Specifications

### AC Adapter

<table>
<thead>
<tr>
<th>90 W (D-Series)</th>
<th>65 W (Auto Air Adapter)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Height</strong></td>
<td><strong>Height</strong></td>
</tr>
<tr>
<td>34.2 mm (1.3 inches)</td>
<td>15 mm (0.5 inches)</td>
</tr>
<tr>
<td><strong>Width</strong></td>
<td><strong>Width</strong></td>
</tr>
<tr>
<td>60.8 mm (2.3 inches)</td>
<td>66 mm (2.6 inches)</td>
</tr>
<tr>
<td><strong>Depth</strong></td>
<td><strong>Depth</strong></td>
</tr>
<tr>
<td>153.4 mm (6.0 inches)</td>
<td>127 mm (5.0 inches)</td>
</tr>
<tr>
<td><strong>Weight (with cables)</strong></td>
<td><strong>Weight (with cables)</strong></td>
</tr>
<tr>
<td>up to 0.70 kg (1.54 lb)</td>
<td>up to 0.53 kg (1.17 lb)</td>
</tr>
</tbody>
</table>

### Temperature range:

- **Operating**: 0° to 40°C (32° to 104°F)
- **Storage**: –40° to 70°C (–40° to 158°F)

### Physical

<table>
<thead>
<tr>
<th><strong>Height</strong></th>
<th>28 mm to 40 mm (1.10 inches to 1.57 inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Width</strong></td>
<td>413.0 mm (16.26 inches)</td>
</tr>
<tr>
<td><strong>Depth</strong></td>
<td>280.5 mm (11.04 inches)</td>
</tr>
<tr>
<td><strong>Weight (with 6-cell battery)</strong></td>
<td>configurable to less than 3.3 kg (7.27 lbs)</td>
</tr>
</tbody>
</table>
### Specifications

#### Computer Environment

**Temperature range:**
- **Operating**: 0° to 35°C (32° to 95°F)
- **Storage**: −40° to 65°C (−40° to 149°F)

**Relative humidity (maximum):**
- **Operating**: 10% to 90% (noncondensing)
- **Storage**: 5% to 95% (noncondensing)

**Maximum vibration (using a random vibration spectrum that simulates user environment):**
- **Operating**: 0.66 GRMS
- **Non-Operating**: 1.30 GRMS

#### Computer Environment

**Maximum shock** (for operating — measured with Dell Diagnostics running on the hard drive and a 2-ms half-sine pulse; for non-operating — measured with the hard drive in head-parked position and a 2-ms half-sine pulse):
- **Operating**: 110 G
- **Non-Operating**: 160 G

**Altitude (maximum):**
- **Operating**: −15.2 to 3048 m (−50 to 10,000 ft)
- **Storage**: −15.2 to 10,668 m (−50 to 35,000 ft)

**Airborne contaminant level**: G2 or lower as defined by ISA-S71.04-1985
Appendix

Macrovision Product Notice

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.
### Information for NOM, or Official Mexican Standard (Only for Mexico)

The following information is provided in the device(s) described in this document in accordance with the requirements of the Official Mexican Standard (NOM):

**Importer:**

Dell México S.A. de C.V.

Paseo de la Reforma 2620 - 11º

Col. Lomas Altas

11950 México, D.F.

<table>
<thead>
<tr>
<th>Regulatory model number</th>
<th>Voltage</th>
<th>Frequency</th>
<th>Electricity consumption</th>
<th>Output voltage</th>
<th>Output intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>P02E</td>
<td>100–240 VAC</td>
<td>50–60 Hz</td>
<td>1.50/1.60/1.70/2.30/2.50 A</td>
<td>19.5 VDC</td>
<td>3.34/4.62/6.70 A</td>
</tr>
</tbody>
</table>

For details, read the safety information that shipped with your computer.

For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.
Index

A
airflow, allowing 5

C
calling Dell 76
computer capabilities 42
computer, setting up 5
connect(ing)
    to the Internet 16
Contacting Dell online 77
customer service 72

D
damage, avoiding 5
DellConnect 72
Dell Diagnostics 59
Dell Factory Image Restore 68
Dell Support Center 55
Dell Touch Zone 36
Diagnostic Checklist 76
DisplayPort connector 25
drivers and downloads 79
DVDs, playing and creating 43

E
e-mail addresses
    for technical support 73

F
finding more information 78
FTP login, anonymous 73
Index

G

gestures
  touch pad 30
  touch screen 38

H

hardware problems
  diagnosing 58
Hardware Troubleshooter 58
help
  getting assistance and support 71

I

Internet connection 16
ISP
  Internet Service Provider 16

M

memory problems
  solving 52

N

network connection
  fixing 49

P

power problems, solving 50
power strips, using 6
problems, solving 46
products
  information and purchasing 74

R

resources, finding more 78
restoring factory image 68
S
setup, before you begin 5
shipping products
   for return or repair 75
SIM 12
software features 42
software problems 52
solving problems 46
specifications 80
support email addresses 73
support sites
   worldwide 73
System Messages 56
system reinstall options 63

U
USB PowerShare 26

V
ventilation, ensuring 5

W
warranty returns 75
Windows 9
   Program Compatibility Wizard 53
   reinstall 63
wired network
   network cable, connecting 7
wireless network connection 49