

Dell™ External USB NTSC/ATSC TV Tuner User's Guide

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Notes, Notices, and Cautions



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



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



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

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Initial release: February 2007

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Introduction: Dell™ External USB NTSC/ATSC TV Tuner User's Guide

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Overview

The Dell External USB NTSC/ATSC TV Tuner is an external USB 2.0 bus-powered tuner that works with Microsoft® Media Center Edition (MCE) 2005 and Windows Vista™.

Features

The Dell External USB NTSC/ATSC TV Tuner provides the following features:

1. View or record (to disk) video from a Composite, S-Video, analog TV, or digital TV (ATSC) source
 2. View or record (to disk) analog audio. Source may be an external source (DVD or VCR player, and so on) or analog or digital TV
 3. High quality video processing to provide a clean, low noise picture
 4. Lead-free and RoHS (Restriction of Hazardous Substances) compliant design
-

Input and Output Connectors

The USB device consists of:

- 1 Two "F" Connectors
 - connect to DigitalTV antenna [ANT-IN];
 - connect to TV cable [CATV];
- 1 One 4-pin mini-DIN (S-Video) connector [S-Video]
- 1 One RCA-type (yellow, composite video) connector [Video]
- 1 Two RCA-type (white and red) audio connectors [Audio Left and Audio Right]
- 1 One USB type B connector

 Note: The [ANT-IN] input is for Digital TV (DTV) coming from the antenna.

Front View



Rear View



Software

The Dell External USB NTSC/ATSC TV Tuner hardware ships with the following software:


- 1 Driver setup utility (**DrvSetup.exe**)
- 1 WDM driver (**WaveATSC.sys, WaveATSC.inf, EzRating.dll**)
- 1 Diagnostic utility (**WaveDiag.exe, WaveDiag.cfg, WaveATSC.dev**)


The Dell External USB NTSC/ATSC Tuner is supported by *Microsoft Windows XP Media Center Edition (MCE) – 2005 and Windows Vista release.*

Drivers use standard Microsoft DirectShow® property sets. The drivers can be found on the *Dell Resource CD*. An Install Shield is provided to make installation simple. Store the Resource CD that comes with your system in a safe place in case you need to *reinstall* the software.

Platform Requirements

- 1 Microsoft Windows XP Media Center Edition 2005
- 1 Minimum 256 MB RAM, 512 MB Recommended
- 1 1.8 GHz Processor, 400 MHz Front Side Bus
- 1 DirectX® 9.1 or higher
- 1 Minimum three available USB type A ports:
 - two for the Dell External USB NTSC/ATSC TV Tuner (must be USB 2.0);
 - one for the Media Center remote control receiver;
- 1 5400 RPM or faster disk drive

 Note: Disk DMA must be enabled for proper operation.

 Note: Connect the 2 USB A connectors into 2 adjacent (vertically stacked) connectors on the PC.

Getting Help

If you need additional help or require information that is not included in this guide, visit the Dell Support website support.dell.com or call 1-800-BUY-DELL

Warranty Information

See your Dell system warranty information for service and repair options available for your Dell External USB NTSC/ATSC TV Tuner product.

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Operation: Dell™ External USB NTSC/ATSC TV Tuner User's Guide

Media Center Operation

The Dell External USB NTSC/ATSC TV Tuner card working under *Microsoft® Media Center Edition (MCE) 2005 and Windows Vista™* operating system allows the user to watch or record a TV program. For more information on how to use the Dell External USB NTSC/ATSC TV Tuner card under MCE, see the documentation provided with the operating system.

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Regulatory: Dell™ External USB NTSC/ATSC TV Tuner User's Guide

[FCC Notice](#)

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FCC Notice

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause interference with radio and television reception. This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to **Part 15 of the FCC Rules**.

This device complies with **Part 15 of the FCC Rules**. Operation is subject to the following two conditions:

- 1 This device may not cause harmful interference.
- 1 This device must accept any interference received, including interference that may cause undesired operation.



Note: The FCC regulations provide that changes or modifications not expressly approved by Dell Inc. could void your authority to operate this equipment.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one of more of the following measures:

- 1 Reorient the receiving antenna.
- 1 Relocate the system with respect to the receiver.
- 1 Move the system away from the receiver.
- 1 Plug the system into a different outlet so that the system equipment and the receiver are on different branch circuits.

If necessary, consult a representative of Dell Inc. or an experienced radio/television technician for additional suggestions.

The following information is provided on the device or devices covered in this document in compliance with FCC regulations:

Model Name Dell External USB NSTC/ATSC TV Tuner
Model Number 00-0507-01
Company Name Lumanate
Company Address 46798 Lakeview Boulevard
Fremont, California 94538 USA
510-770-8500

Dell™ products are designed, tested, and classified for their intended electromagnetic environment. These electromagnetic environment classifications generally refer to the following harmonized definitions:

- 1 **Class A** is typically for business environments. Class B products may also be utilized in a Class A environment.
- 1 **Class B** is typically for residential environments. Class A products should not be utilized in a Class B environment.

Information Technology Equipment (ITE), including peripherals, expansion cards, printers, input/output (I/O) devices, monitors, and so on, that are integrated into or connected to the system should match the electromagnetic environment classification of the computer system.



A Notice about Shielded Signal Cables: Use only shielded cables for connecting peripherals to any Dell™ device to reduce the possibility of interference with radio communications services. Using shielded cables ensures that you maintain the appropriate EMC classification for the intended environment. If you prefer, you can order a cable from Dell™ on the World Wide Web at www.dell.com.

Dell has determined that this product is a Class B harmonized product.

MacroVision Notice

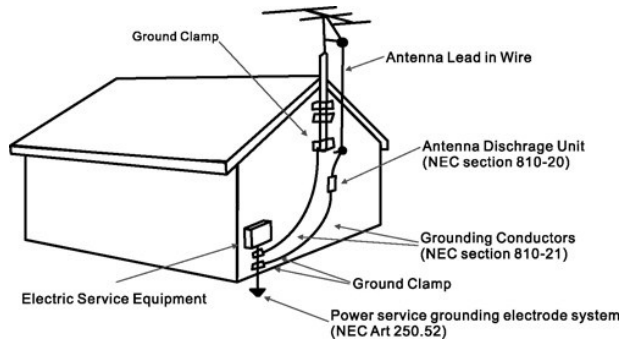
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Safety Instructions: Dell™ External USB NTSC/ATSC TV Tuner User's Guide

Caution: Important Safety Instructions

- 1 **Read Instructions** — Read all the safety and operating instructions before connecting and operating your TV Tuner to help ensure your own personal safety and to protect your product from potential damage.
- 1 **Retain Instructions**— Retain all the safety and operating instructions for future reference.
- 1 **Heed Warnings** — Adhere to all warnings on the product and the operating instructions.
- 1 **Grounding** — For continued protection against risk of electric shock and fire, this accessory should be installed/connected only to the products, such as a computer, equipped with a three-wire grounding plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace the obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.
- 1 **Lightning** — For added protection and to prevent damage due to lightning and power-line surges, unplug the host system, such as a computer, from the wall power outlet and disconnect the antenna or cable system. Unplug the host system from the wall power outlet when left unattended or unused for long periods of time.
- 1 Never insert anything metallic into the TV Tuner openings. Doing so may create the danger of electric shock.
- 1 Openings in the TV Tuner cabinet are provided for ventilation. To prevent overheating, these openings should not be blocked or covered. Avoid using the TV Tuner on a bed, sofa, rug, or other soft surface, as doing so may block the ventilation openings in the cabinet. If you place the TV Tuner in a bookcase or an enclosed space, be sure to provide adequate ventilation and air flow.
- 1 **Power Lines** — An outside antenna system should not be located in the vicinity of overhead power lines or other light or power circuits, or where it can fall into such power lines or circuits.
- 1 **Antenna Installation** — When installing an outside antenna system, extreme care should be taken to prevent it from touching such power lines or circuits, as contact with them may be fatal.
- 1 **Outdoor Antenna Grounding** — If an outside antenna is connected to the product, ensure that the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. Article 810.21 of the National Electric Code, ANSI/NFPA No.70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to the antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection of grounding electrodes, and requirements for the grounding electrode.
- 1 **Caution for users/installers in Norway** — In Norway, there exists a possibility of a hazardous situation due to voltage difference between the screen of the coaxial cable of the cable distribution system and the local equipment earth (typically, earthed chassis of the PC system). To avoid any hazards, antenna/cable input connection from the TV tuner card to a Cable Distribution System must be provided through a galvanic isolator (not included).
- 1 **NOTE: (for CATV System Installer)** — This reminder is provided to call the CATV systems installer's attention to Section 820.93 of the National Electric Code, ANSI/NFPA 70:2005 (for US/Canada) and/or EN60728-11:2005 standard (for Europe), which provide guidelines for proper grounding and, in particular, specify that the coaxial cable shield shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Example of Antenna Grounding



Environmental Notices

Waste Electrical and Electronic Equipment (WEEE) Directive





In the European Union, this label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling. For information on how to recycle this product responsibly in your country, please visit: www.euro.dell.com/recycling

Setup: Dell™ External USB NTSC/ATSC TV Tuner User's Guide


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Hardware Installation


 Note: Follow the hardware installation steps before installing the driver.

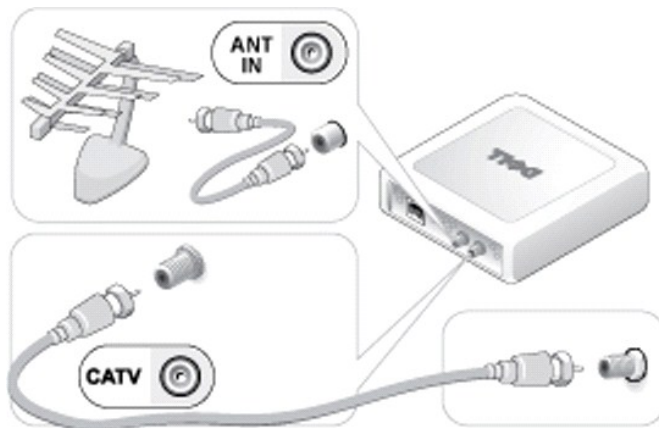
 **CAUTION:** Shut down your computer and unplug the power cord to prevent any personal or equipment damage.

1. Connecting a TV/Antenna cable

 Note: If you only want to use your cable box or satellite receiver (set-top box), you may skip this step.


1. **For Analog TV:** Connect a TV cable (not included) from the wall or antenna to the CATV connector on the rear panel of the Dell External USB NTSC/ATSC TV Tuner.
2. **For Digital TV:** Connect a TV cable (not included) from an antenna to the ANT-IN connector on the rear panel of the Dell External USB NTSC/ATSC TV Tuner.


 Note: For Digital TV reception, you must also connect a TV cable from the wall or antenna to the CATV input on the rear of the Dell External USB NTSC/ATSC TV Tuner.



2. Connecting the Dell External USB NTSC/ATSC TV Tuner device

1. Identify 2 available USB 2.0 ports on the computer.

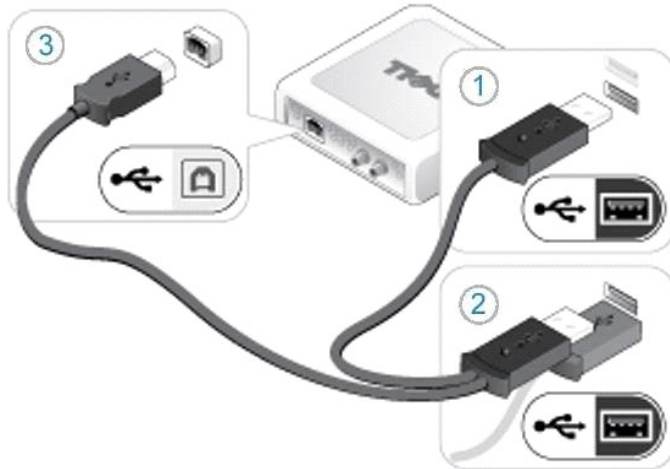
 Note: Use 2 adjacent USB connectors on the PC.

 Note: Connect the USB cable from the TV tuner directly to a USB 2.0 connector on the computer. Do not connect the USB cable to a hub, a USB 1.0/1.1 connector, or any other USB connector that is not located on your computer. All cables must be plugged in to ensure proper operation of the TV tuner.

2. Remove the Dell External USB NTSC/ATSC TV Tuner from its packaging.
3. Connect the supplied USB cable from the Dell External USB NTSC/ATSC TV Tuner to the USB computer ports as shown.
 - a. Plug the flat ends of the USB cable (1) and (2) into the same USB connector on the computer.

 Note: Connectors are above or below each other with the exception of the Dell XPS M2010 where the connectors are side-by-side.

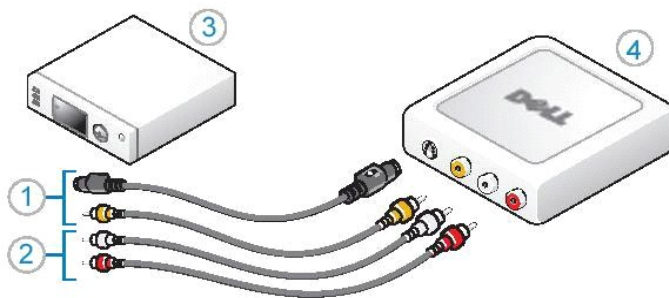
- b. Plug the square end of the USB cable (3) into the TV tuner.



3. Connecting a cable box or satellite receiver (set-top box)

- Connect either a composite video cable or an S-video cable (1 - cables not included) from the cable TV box or satellite receiver (3) to the Video or S-Video connector on the front panel of the Dell External USB NTSC/ATSC TV Tuner (4).
- Connect the audio cables (2 - cables not included) from the cable TV box or satellite receiver (3) to the Audio Left and Audio Right connectors on the front panel of the Dell External USB NTSC/ATSC TV Tuner (4).

If you have a second TV signal input source and a second Dell External USB NTSC/ATSC TV Tuner, repeat the hardware installation steps using the connectors on the second Dell External USB NTSC/ATSC TV Tuner.



Driver Installation

If the driver and the hardware are not installed or if you need to reinstall them, perform the following steps:

- With Windows® running on your computer, insert the *Dell Resource* CD into your CD/DVD drive.
- If the *Dell Resource* CD window does not open automatically, double click on My Computer on your desktop and then double click on the CD/DVD drive containing the *Dell Resource* CD.
- Follow the instructions provided by the *Dell Resource* CD to locate the video driver package for your Dell External USB NTSC/ATSC TV Tuner card.
- Once you have located the package, select the Lumanate **setup.exe** to unzip the drivers on to the hard drive and install the drivers.
- At the **Setup Complete** screen, select **Yes** and click **Finish** to restart your system.

LED Status Indicator Light

 Note: Observe the green indicator light (LED) on the front panel of the Dell External USB NTSC/ATSC TV Tuner. The LED will aid in determining the current status of the device.

LED is on and does not blink:

- The hardware driver is installed.
- The Dell External USB NTSC/ATSC TV Tuner is powered, and is ready to use.

LED is on and is blinking:

- The hardware driver might not be installed.
- The hardware driver may be corrupted.
- The Dell External USB NTSC/ATSC TV Tuner is powered, but the computer is in standby mode.
- The Dell External USB NTSC/ATSC TV Tuner, but is connected to a USB 1.0 or 1.1 port.

LED is off:

1. The Dell External USB NTSC/ATSC TV Tuner may not be connected to a USB port.
 2. The computer is in hibernate mode.
 3. The USB cable may be damaged.
 4. The USB port may not be functioning properly.
 5. The Dell External USB NTSC/ATSC TV Tuner may not be functioning properly.
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 - [Mechanical Specifications](#)
 - [USB Cable Specifications](#)
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General

Manufacturer	Lumanate, Inc.
Model	Dell External USB NTSC/ATSC TV Tuner
Connection type	Analog and RF
Computer interface type	USB 2.0

RF (TV) Specifications

Format	NTSC/ATSC
Channel Support	Ch. 2 through 125 (31.25 kHz steps)
Sensitivity	50dBuV

Video Specifications

Video Format	Mpeg-2 (4:2:0)
Capture Resolution	NTSC: 720x480
Frame Rate	30 fps-NTSC
Inputs	NTSC: Composite and S-Video RF (for Analog and Digital TV)
Playback Resolution	Monitor: up to Full Screen
SNR	48 dB (up to 5 MHz with Modulated Ramp)
Chroma Gain	+/- 2 degrees (75% Color Bars)
Luma Gain	+/- 2.5 degrees (10 step staircase)
Sub-Carrier Deviation	< 100 Hz
Frequency Response (-3dB)	3.25 MHz (compressed)

Audio Specifications

Audio Format	Mpeg 1 Layer 2
Sampling Frequency	48 kHz
Modes	Mono, Stereo
Line Input	2 VRMS into 20K ohms; Stereo mini-jacks
SNR	> 85 dB (1 KHz tone)
THD+N	< -70 dB (1 KHz tone)
Frequency Response (-3dB)	100 Hz to 18 KHz
Volume Control	70 dB

Mechanical Specifications

Cable Crosstalk	< -35 dB
ESD	> 8KV (recoverable)
Operating Temperature	0° to 35°C
Operating Humidity	5 to 80% non-condensing
Storage Temperature	-20 to 70°C
Storage Humidity	5 to 85% non-condensing

USB Cable Specifications

Length	1 meter (Dual A connectors)
Signal Wires	28 AWG
Power/Ground Wires	20 AWG
Dell Part Number	UW120 (1-800-WWW-Dell)

Power

Input Voltage (Current)	+5V (1.0A)
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Note: These voltages are supplied from the USB Bus Connector.

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Troubleshooting: Dell™ External USB NTSC/ATSC TV Tuner User's Guide


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Reinstalling the Hardware Driver

To reinstall the Dell External USB NTSC/ATSC TV Tuner driver, follow these steps:

1. Ensure that the Dell External USB NTSC/ATSC TV Tuner is connected to the computer and that the green LED indicator on the front panel is blinking.
2. With Windows® running on your computer, insert the *Dell Resource* CD into your CD/DVD-ROM drive.
3. If the *Dell Resource* CD window does not open automatically, double click on My Computer on your desktop and then double click on the CD/DVD drive containing the *Dell Resource* CD.
4. Follow the instructions provided by the *Dell Resource* CD to locate the video driver package for your Dell External USB NTSC/ATSC TV Tuner card.
5. Once you have located the package, select the Lumanate **setup.exe** to unzip the drivers on to the hard drive and install the drivers.
6. At the **Setup Complete** screen, select **Yes** and click **Finish** to restart your system.

Common Problems and Solutions

 **Note:** It is very important that the USB cable provided with this device is used. For information on the specifications of the USB cable see [USB Cable Specifications](#)

Hardware Detection		
Problem	Cause	Solution
Hardware not detected by Windows operating system.	USB device is not connected properly.	Remove and reinsert the USB cable into the computer.
	The USB port on the computer is defective.	Insert the USB cable into another USB port on the computer.
	Drivers are not installed or are damaged.	Drivers are not properly loaded. Run setup.exe from the <i>Dell Resource</i> CD.
	The USB device may be defective.	Contact Dell Tech Support at 1-800-624-9896.
Green LED on the Dell External USB NTSC/ATSC TV Tuner is not lit.	Computer is in hibernate mode.	See your system manual for instructions on bringing your computer back on.
	USB device is not connected properly.	Remove and reinsert the USB cable into the computer.
	USB cable is damaged.	Check the USB cable. Note: It is very important that the USB cable provided with this device is used. For information on the specifications of the USB cable see USB Cable Specifications . Dell Part Number UW120 (1-800-WWW-Dell)
	The USB port on the computer is defective.	Insert the USB cable into another USB port on the computer.
	USB ports do not have sufficient power.	Too many USB devices may be connected to the system. Try removing any USB device other than the Dell External USB NTSC/ATSC TV Tuner and Media Center remote control and reboot the computer.
	The USB device may be defective.	Contact Dell Tech Support at 1-800-624-9896.
Green LED on the Dell External USB NTSC/ATSC TV Tuner is blinking.	Computer is in standby mode.	Wake the computer by moving the mouse or pressing any key on the keyboard.
	The USB device may be connected to a USB 1.0 or 1.1 port.	Insert the USB cable into a USB 2.0 port on the computer.
	Drivers are not installed or are damaged.	Drivers are not properly loaded. Run setup.exe from the <i>Dell Resource</i> CD .
	The USB device may be defective.	Contact Dell Tech Support at 1-800-624-9896.
The following message displays "Power Surge on Hub Port".	Incorrect USB cable.	Use the USB cable supplied with the device.
	Unit is plugged into a USB hub that is not powered.	Plug the USB cable directly into a USB port on the computer or a powered USB hub.
Video Source		
Problem	Cause	Solution

Video source not detected.	Cables are damaged or connected incorrectly.	Verify that the cables are correctly installed and are in good condition.
	The video format is not set correctly.	Check that correct video source is selected in the software application. (Tuner, Composite, or S-Video). Close the application and reboot the computer.
	The USB device may be defective.	Remove and re-insert the USB cable into the computer. If the problem remains, contact Dell Tech Support at 1-800-624-9896.
Audio & Video		
Problem	Cause	Solution
No video.	Inlay or video source may be incorrectly set.	Choose the proper video source: Tuner or S-video or Composite. Ensure that the video source is powered and connected to the USB device.
Poor performance (video jerky, audio noisy, etc.).	System may not be optimized for performance.	Ensure that DMA is enabled for the hard disk. If you have multiple programs open, close applications that are not critical.
	Incorrect USB cable.	It is very important that the USB cable provided with the tuner is used with this device.
TV picture is bad.	RF signal strength too low, noisy signal	Verify that other channels work correctly by changing channels. If all channels are bad, check the antenna or install an RF amplifier.
No video capture.	Application software may have stopped.	Verify that video is present in the overlay window on the Computer's monitor. If video is present on the Computer's display, then restart the computer and then the software application.
	Cables or video source may be non-functional.	If no video is present on the computer's display, check that the cables are connected securely and the video source is on and operational.
	Hard disk is full.	Make room on your hard drive (delete some files) or use a different hard drive.
No audio capture.	Application software may have stopped.	Verify that video is present in the overlay window on the computer's monitor. If video is present on the computer's display, then restart the computer and then the software application.
	Speakers are not connected.	Verify that speakers are connected to the sound card in the computer.
	Audio MUTE is on.	Check that Mute is disabled and Volume is up.
	Hard disk is full.	Make room on your hard drive (delete some files) or use a different hard drive.

Getting Help

If the troubleshooting procedures in this document do not resolve the problem, please contact Dell Inc. for technical assistance by visiting the Dell Support Website at support.dell.com or calling 1-800-BUY-DELL.

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