Dell™ Vostro™ 410 Service Manual

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 potential for property damage, personal injury, or death.

If you purchased a DELL™ n Series computer, any references in this document to Microsoft® Windows® operating systems are not applicable.

Bezel

Dell™ Vostro™ 410 Service Manual

- Removing the Bezel
- Replacing the Bezel

⚠ **CAUTION: Before working inside your computer, 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.**

Removing the Bezel

1. Follow the procedures in Before Working on Your Computer.

2. Remove the computer cover (see Removing the Computer Cover).

3. With the computer set upright, find the four cover bezel grips inside the chassis along the left edge of the cover. Gently bend the bezel grips outward to release the left side of the cover from the chassis.

4. Rotate the left edge of the cover outward until the bezel clamps on the right side of the cover are free of the clamp slots.
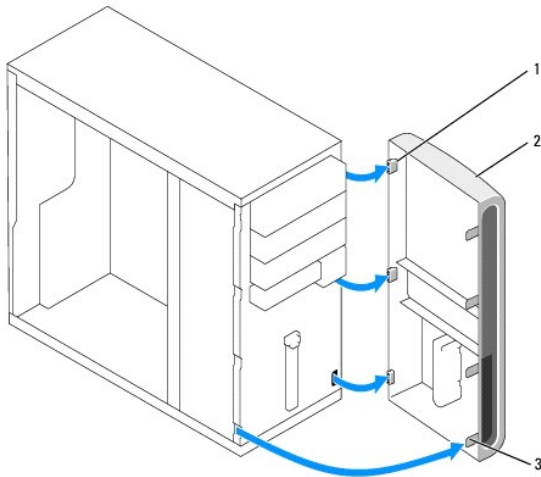
1	bezel clamp (3)	2	bezel
3	bezel grip (4)		

5. Set aside the bezel in a secure location.

Replacing the Bezel

1. With the computer set upright, align and insert the bezel clamps into the bezel clamp slots along the right edge of the front panel.
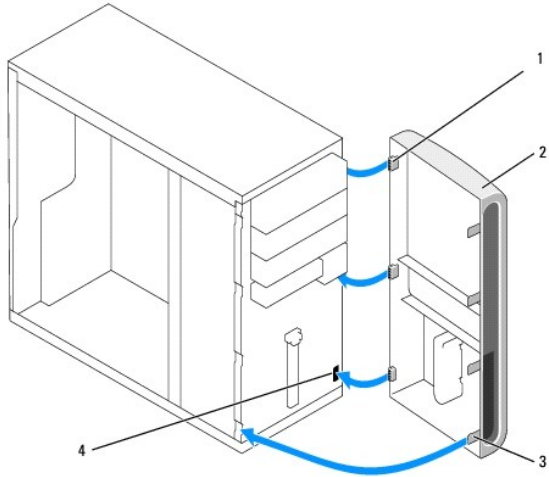
| 1 | bezel clamp (3) | 2 | bezel |
| 3 | bezel grip (4) | 4 | bezel clamp slots (3) |

2. Rotate the front cover toward the computer until it bezel grips on the left edge of the cover snap into place.

3. Perform the steps in the procedure After Working on Your Computer.

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PCI and PCI Express Cards
Dell™ Vostro™ 410 Service Manual

- Removing a PCI or PCI Express Card
- Installing a PCI or PCI Express Card
- Configuring Your Computer After Removing or Installing a PCI or PCI Express Card

⚠ **CAUTION: Before working inside your computer, 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.**

⚠ **CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before removing the cover.**

Your computer provides the following slots for PCI and PCI Express cards:

- ⌐ One PCI Express x16 card slot (SLOT1)

- ⌐ Two PCI Express x1 card slots (SLOT2, SLOT3)

- ⌐ Three PCI card slots (SLOT4, SLOT5, SLOT6)

See System Board Components for card slot location.

Removing a PCI or PCI Express Card

1. Follow the procedures in Before Working on Your Computer.

2. Uninstall the card's driver and software from the operating system. For more information, see your *Setup and Quick Reference Guide*.

3. Remove the computer cover. See Removing the Computer Cover.

4. Remove the bracket screw securing the card to the chassis.
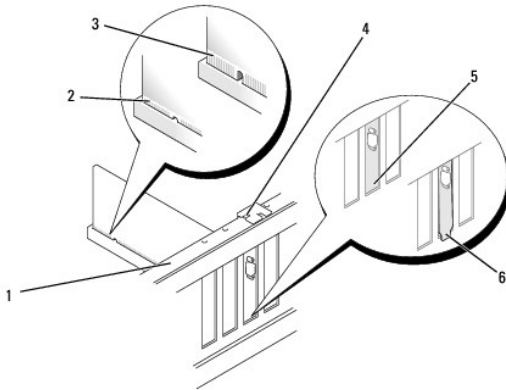
1	alignment bar	2	fully-seated card
3	not fully-seated card	4	bracket screw
5	bracket within slot	6	bracket caught outside of slot

5. If necessary, disconnect any cables connected to the card.

6. Remove the card:

   - ⌐ For a PCI card, grasp the card by its top corners, and ease it out of its connector.

   - ⌐ For a PCI Express card, pull the securing tab, grasp the card by its top corners, and then ease it out of its connector.

7. If you are removing the card permanently, install a filler bracket in the empty card-slot opening.

   ✐ **NOTE:** Installing filler brackets over empty card-slot openings is necessary to maintain FCC certification of the computer. The brackets also keep dust and dirt out of your computer.

8. Perform the steps in the procedure After Working on Your Computer.

9. To complete the removal procedure, see Configuring Your Computer After Removing or Installing a PCI or PCI Express Card.
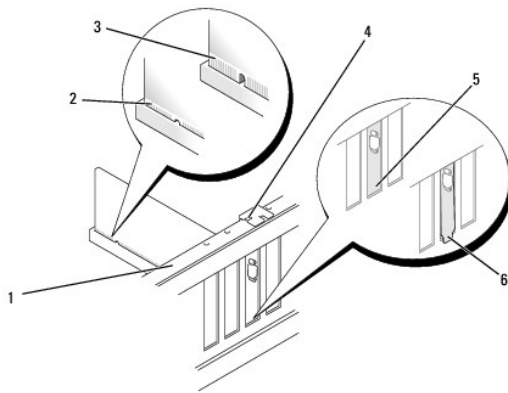
Installing a PCI or PCI Express Card

1. Follow the procedures in Before Working on Your Computer.

2. Remove the computer cover. See Removing the Computer Cover.

3. If you are installing a new card, remove the screw holding the expansion card filler bracket.

4. If you are replacing a card that is already installed in the computer, remove the card (see Removing a PCI or PCI Express Card).

📝 **NOTE:** The position of the card shown in the illustration is indicative and may vary from the original.

5. Prepare the card for installation.

   See the documentation that came with the card for information on configuring the card, making internal connections, or otherwise customizing it for your computer.

⚠️ **CAUTION: Some network adapters automatically start the computer when they are connected to a network. To guard against electrical shock, be sure to unplug your computer from its electrical outlet before installing any cards.**

1	alignment bar	2	fully-seated card
3	not fully-seated card	4	bracket screw
5	bracket within slot	6	bracket caught outside of slot

6. If you are installing the PCI Express card into the x16 card connector, position the card so the securing slot is aligned with the securing tab.
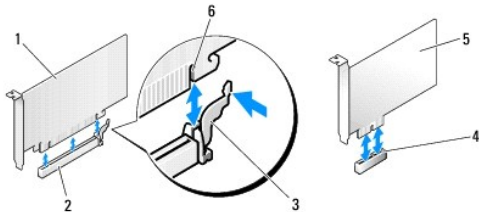
1	PCI Express x16 card	2	PCI Express x16 card slot
3	securing tab	4	PCI Express x1 card slot
5	PCI Express x1 card	6	securing slot

7. Place the card in the connector and press down firmly. Ensure that the card is fully seated in the slot.

8. Replace and tighten the screw to secure the card in the slot.

9. Connect any cables that should be attached to the card.

10. See the documentation for the card for information about the card's cable connections.

⊖ **NOTICE:** Do not route card cables over or behind the cards. Cables routed over the cards can prevent the computer cover from closing properly or cause damage to the equipment.

11. Perform the steps in the procedure After Working on Your Computer.

12. Install any drivers required for the card as described in the card documentation.

Configuring Your Computer After Removing or Installing a PCI or PCI Express Card

NOTE: For information on location of connectors, see the *Setup and Quick Reference Guide.* For information on installing drivers and software for your card, see the documentation that shipped with the card.

	Installed	Removed
Sound Card	1. Enter system setup (see Entering System Setup) 2. Go to **Integrated Peripherals** and select **Onboard Audio Controller**, and then change the setting to **Disabled**. 3. Connect the external audio devices to the sound card's connectors.	1. Enter system setup (see Entering System Setup) 2. Go to **Integrated Peripherals** and select **Onboard Audio Controller**, and then change the setting to **Enabled**. 3. Connect the external audio devices to the computer's back panel connectors.
Network Card	1. Enter system setup (see Entering System Setup) 2. Go to **Integrated Peripherals** and select **Onboard LAN Controller**, and then change the setting to **Disabled, if you prefer not to use both interfaces.** 3. Connect the network cable to the network card's connector.	1. Enter system setup (see Entering System Setup) 2. Go to **Integrated Peripherals** and select **Onboard LAN Controller**, and then change the setting to **Enabled**. 3. Connect the network cable to the integrated network connector.

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Battery

Dell™ Vostro™ 410 Service Manual

- Removing the Battery
- Replacing the Battery

⚠️ **CAUTION: Before working inside your computer, 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.**

⚠️ **CAUTION: A new battery can explode if it is incorrectly installed. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.**

A coin-cell battery maintains computer configuration, date, and time information. The battery can last several years. If you have to repeatedly reset time and date information after turning on the computer, replace the battery.

Removing the Battery

1. Record all the screens in system setup so that you can restore the correct settings in step 9 (see System Setup).

2. Follow the procedures in Before Working on Your Computer.

3. Remove the computer cover (see Removing the Computer Cover).

4. Locate the battery socket (see System Board Components).

⊘ **NOTICE:** If you pry the battery out of its socket with a blunt object, be careful not to touch the system board with the object. Ensure that the object is inserted between the battery and the socket before you attempt to pry out the battery. Otherwise, you may damage the system board by prying off the socket or by breaking circuit traces on the system board.
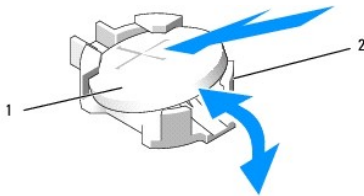
| 1 | battery (positive side) | 2 | battery retention tabs (4) |

5. Carefully press two of the battery retention tabs away from the battery to release the battery from the socket.

6. Remove the battery from the system and properly dispose of the battery.

Replacing the Battery

1. Insert the new battery into the socket with the side labeled "+" facing up, then snap the battery into place. Ensure that it is secured by each of the retention tabs.

2. Perform the steps in the procedure After Working on Your Computer.

3. Enter system setup (see Entering System Setup) and restore the settings you recorded in step 1. Also, enter the correct date and time.

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Contacting Dell
Dell™ Vostro™ 410 Service Manual

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

1. Visit **support.dell.com**.

2. Verify your country or region in the Choose a Country/Region drop-down menu at the bottom of the page.

3. Click **Contact Us** on the left side of the page.

4. Select the appropriate service or support link based on your need.

5. Choose the method of contacting Dell that is convenient for you.

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Computer Cover
Dell™ Vostro™ 410 Service Manual

● Removing the Computer Cover
● Replacing the Computer Cover

⚠ **CAUTION: Before working inside your computer, 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.**

⚠ **CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before removing the cover.**

⚠ **CAUTION: Do not operate your equipment with any cover(s) (including computer covers, bezels, filler brackets, front-panel inserts, etc.) removed.**

⊖ **NOTICE:** Ensure that sufficient space exists to support the system with the cover removed—at least 1 ft. (30 cm) of desktop space.

Removing the Computer Cover

1. Follow the procedures in Before Working on Your Computer.

2. Lay your computer on its right side with the computer cover facing up.

3. Remove the two screws securing the cover.
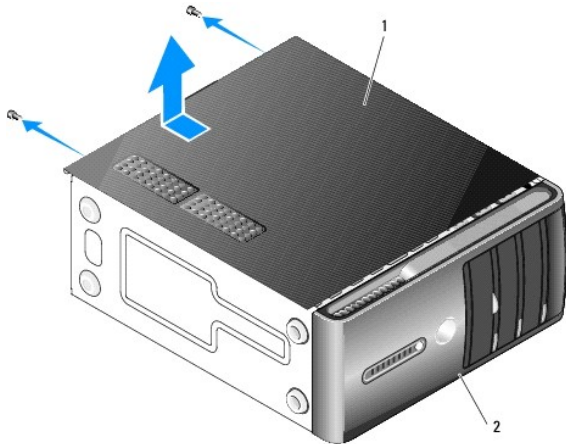
1	computer cover	2	bezel

4. Release the computer cover by pulling it away from the front of the computer and lifting it up.

5. Set the cover aside in a secure location.

Replacing the Computer Cover

1. Ensure that all cables are connected and folded out of the way.

2. Ensure that no tools or extra parts are left inside the computer.

3. Align the tabs at the bottom of the computer cover with the slots located along the edge of the computer.

4. Press the computer cover down and slide it towards the front of the computer until you feel a click or feel the computer cover securely installed.

5. Ensure that the cover is seated correctly.

6. Replace and tighten the two screws that secure the computer cover.

7. Follow the procedures in <u>After Working on Your Computer</u>.

Processor
Dell™ Vostro™ 410 Service Manual

● Removing the Processor
● Replacing the Processor

⚠ **CAUTION: Before working inside your computer, 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.**

⊘ **NOTICE:** Do not perform the following steps unless you are familiar with hardware removal and replacement. Performing these steps incorrectly could damage your system board. For technical service, see the *Setup and Quick Reference Guide*.
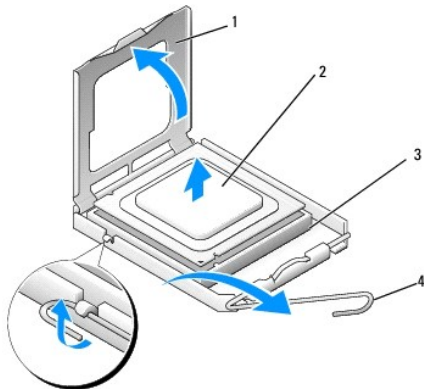
Removing the Processor

1. Follow the procedures in Before Working on Your Computer.

2. Remove the computer cover (see Removing the Computer Cover).

⚠ **CAUTION: Despite having a plastic shield, the heat sink assembly may be very hot during normal operation. Be sure that it has had sufficient time to cool before you touch it.**

3. Disconnect the power cables from the ATX_POWER and ATX_CPU connectors (see System Board Components) on the system board.

4. Remove the processor fan and heat sink assembly from the computer (see Remove the Processor Heat Sink Assembly).

   📝 **NOTE:** Unless a new heat sink is required for the new processor, reuse the original heat sink assembly when you replace the processor.

5. Press and push the release lever down and out to release it from the tab that secures it.

6. Open the processor cover, if applicable.

1	processor cover	2	processor
3	socket	4	release lever

⊘ **NOTICE:** When replacing the processor, do not touch any of the pins inside the socket or allow any objects to fall on the pins in the socket.

7. Lift up the processor to remove it from the socket and place it into static-protective packaging.

   Leave the release lever extended in the release position so that the socket is ready for the new processor.

Replacing the Processor

⊘ **NOTICE:** Ground yourself by touching an unpainted metal surface on the back of the computer.

NOTICE: You must position the processor correctly in the socket to avoid permanent damage to the processor and the computer when you turn on the computer.

1. Follow the procedures in <u>Before Working on Your Computer</u>.

2. **Unpack the new processor, being careful not to touch the underside of the processor.**

NOTICE: Socket pins are delicate. To avoid damage, ensure that the processor is aligned properly with the socket, and do not use excessive force when you install the processor. Be careful not to touch or bend the pins on the system board.
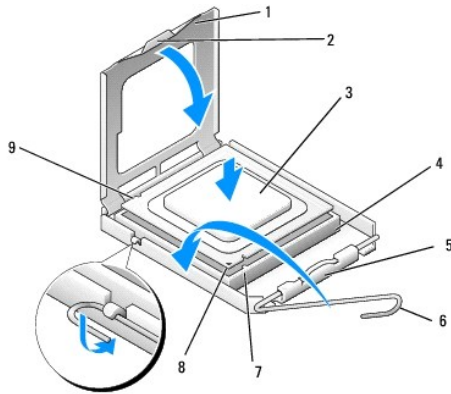
1	processor cover	2	tab
3	processor	4	processor socket
5	center cover latch	6	release lever
7	front alignment-notch	8	processor pin-1 indicator
9	rear alignment notch		

3. Pivot the release lever until the processor cover can be opened.

4. Orient the front and rear alignment-notches on the processor with the front and rear alignment-notches on the socket.

5. Align the pin-1 corners of the processor and socket.

NOTICE: To avoid damage, ensure that the processor aligns properly with the socket, and do not use excessive force when you install the processor.

6. Set the processor lightly in the socket and ensure that the processor is positioned correctly.

7. When the processor is fully seated in the socket, close the processor cover.

   Ensure that the tab on the processor cover is positioned underneath the center cover latch on the socket.

8. Pivot the socket release lever back towards the socket, and snap it into place to secure the processor.

9. Clean the thermal grease from the bottom of the heat sink.

NOTICE: Ensure that you apply new thermal grease. New thermal grease is critical for ensuring adequate thermal bonding, which is a requirement for optimal processor operation.

10. Apply new thermal solution to the top of the processor.

11. Replace the processor fan and heat sink assembly (see <u>Replacing the Processor Heat Sink Assembly</u>).

NOTICE: Ensure that the processor fan and heat sink assembly is correctly seated and secure.

12. Perform the steps in the procedure <u>After Working on Your Computer</u>.

13. Verify that your computer works correctly by running the Dell Diagnostics. See your *Setup and Quick Reference Guide* for help with Dell Diagnostics.

Drives

Dell™ Vostro™ 410 Service Manual

- About the Drives in Your Computer
- Hard Drives
- Floppy Drive
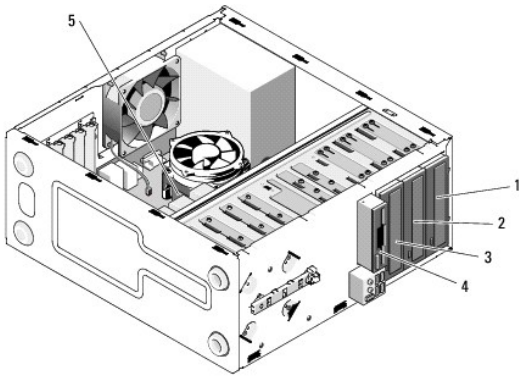- Media Card Reader
- Optical Drive

⚠ **CAUTION: Before working inside your computer, 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.**

⚠ **CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before removing the cover.**

About the Drives in Your Computer

Your computer supports a combination of these devices:

- Up to four 3.5-inch SATA hard drives
- Up to three SATA 5.25-inch optical drives (with a maximum of two 3.5-inch SATA hard drives installed at the same time)
- One optional Floppy Drive or optional Media Card Reader (FlexBay)

1	drive bay	2	optional optical drive
3	optional drive	4	optional FlexBay (Floppy Drive or Media Card Reader)
5	3.5-inch SATA drive bays (4)		

Recommended Drive Cable Connections

- Connect serial ATA hard drives to connectors labeled "SATA0," "SATA1," "SATA2," or "SATA3" on the system board.
- Connect serial ATA CD or DVD drives to connectors labeled "SATA4" or "SATA5" on the system board.
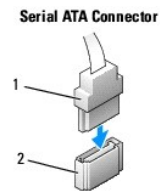
Connecting Drive Cables

When you install a drive, you connect two cables—a DC power cable and a data cable—to the back of the drive.
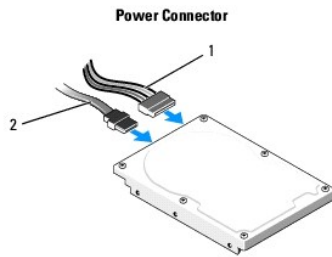
Power Connector

| 1 | power cable | 2 | data connector |

Drive Interface Connectors

The drive cable connectors are keyed for correct insertion. Properly align the cable connector key on the cable and the drive before connecting.

Serial ATA Connector

| 1 | interface cable | 2 | interface connector |

Connecting and Disconnecting Drive Cables

When connecting and disconnecting a serial ATA data cable, disconnect the cable using the pull-tab.

The serial ATA interface connectors are keyed for correct insertion; that is, a notch or a missing pin on one connector matches a tab or a filled-in hole on the other connector.

Hard Drives

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⚠ **CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before removing the cover.**

🚫 **NOTICE:** To avoid damage to the drive, do not set it on a hard surface. Instead, set the drive on a surface, such as a foam pad, that will sufficiently cushion it.

🚫 **NOTICE:** If you are replacing a hard drive that contains data you want to keep, back up your files before you begin this procedure.

Check the documentation for the drive to verify that it is configured for your computer.

Removing a Hard Drive

1. Follow the procedures in Before Working on Your Computer.

2. Remove the computer cover (see Removing the Computer Cover).

3. Disconnect the power and data cables from the drive.
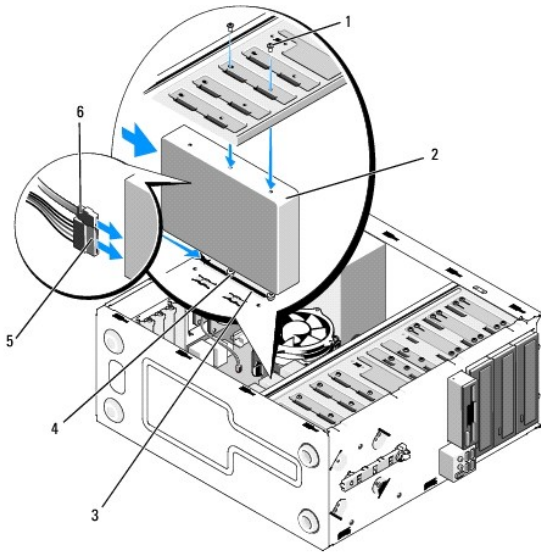
4. Disconnect the data cable from the system board.
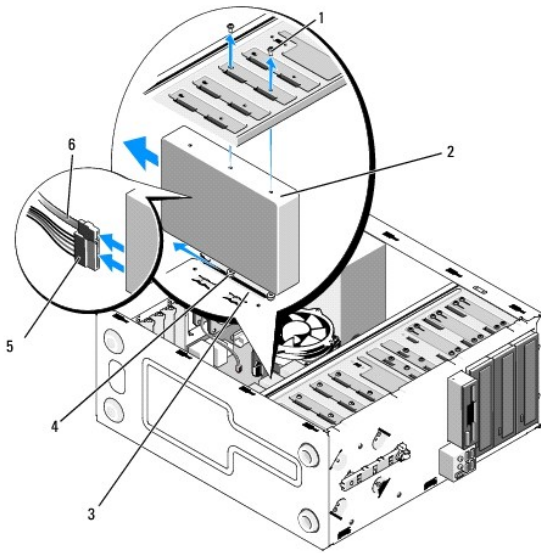
1	screws (2)	2	hard drive
3	slot	4	screws (2)
5	power cable	6	serial ATA data cable

5. Remove the two screws securing the hard drive to the left side of the drive cage.

6. Slide the drive out of the slot away from the front of the computer.

7. If removing this drive changes the drive configuration, then make changes to the system setup accordingly. When you restart your computer, enter system setup (see Entering System Setup), then go to the "Drives" section of the system setup and under **Drive 0 through 3**, set the Drive to the correct configuration.

8. Perform the steps in the procedure After Working on Your Computer.

Replacing or Adding a Hard Drive

1. Follow the procedures in Before Working on Your Computer.

2. Remove the computer cover (see Removing the Computer Cover).

3. Check the documentation for the drive to verify that it is configured for your computer.

4. Install and tighten two screws into the front-most and middle screw holes on the right side of the hard drive.

5. Slide the hard drive into the hard drive bay, aligning the screws in the right side of the hard drive with the slot in the bay.

6. Align the holes on the left side of the hard drive with the holes in the drive bay cage and install two screws to secure the hard drive in the bay.

1	screws (2)	2	hard drive
3	slot	4	screws (2), partially inserted
5	power cable	6	data cable

7. Connect the power and data cables to the drive.

8. Connect the data cable to the system board.

9. Check all cables to be certain that they are properly connected and firmly seated.

10. Replace the computer cover (see Replacing the Computer Cover).

⬤ **NOTICE:** To connect a network cable, first plug the cable into the network port or device and then plug it into the computer.

11. Connect your computer and devices to electrical outlets, and then turn them on.

12. See the documentation that came with the drive for instructions on installing any software required for drive operation.

13. Check the system setup for drive configuration changes (see Entering System Setup).

Floppy Drive

⚠ **CAUTION: Before working inside your computer, 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.**

⚠ **CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before removing the cover.**

Removing a Floppy Drive

1. Follow the procedures in Before Working on Your Computer.

2. Remove the computer cover (see Removing the Computer Cover).

3. Remove the bezel (see Replacing the Bezel).

*Not present on all computers.
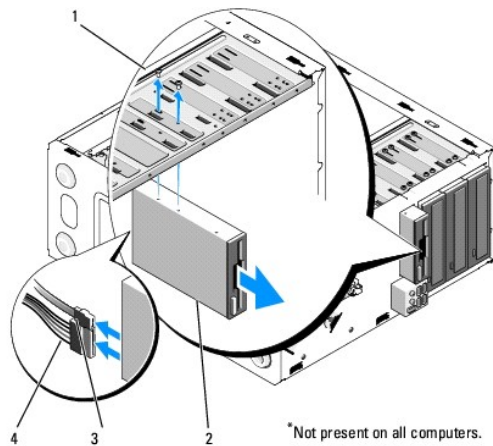
1	screws (2)	2	floppy drive
3	data cable	4	power cable

4. Disconnect the power and data cables from the back of the floppy drive.

5. Disconnect the data cable from the system board.

6. Remove the two screws securing the floppy drive.

7. Slide the floppy drive out through the front of the computer.

8. **If you are not replacing the drive, reinstall the drive panel insert (see Media Card Reader).**

9. Replace the bezel (see Replacing the Computer Cover).

10. Perform the steps in the procedure After Working on Your Computer.

11. Check the system setup for the appropriate diskette Drive Option changes (see Entering System Setup).

Replacing or Adding a Floppy Drive

1. Follow the procedures in Before Working on Your Computer.

2. Remove the computer cover (see Removing the Computer Cover).

3. Remove the bezel (see Removing the Bezel).

4. If you are installing a new floppy drive rather than replacing a drive, remove the break-away metal plate from the FlexBay (see Removing the FlexBay Break-Away Metal Plate).

5. Gently slide the floppy drive into place in the FlexBay from the front of the computer.

6. Align the screw holes in the floppy drive with the screw slots on the left side of the FlexBay slot.

7. Tighten the two screws to secure the floppy drive.

8. Attach the power and data cables to the floppy drive.

9. Connect the other end of the data cable to the connector labeled "FLOPPY" on the system board (see System Board Components).
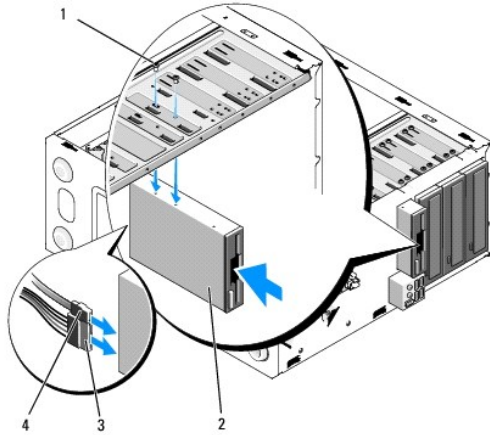
1	screws (2)	2	optional floppy drive
3	power cable	4	data cable

10. Check all cable connections, and fold cables out of the way to avoid blocking airflow between the fan and cooling vents.

11. Replace the bezel (see Replacing the Bezel).

12. Perform the steps in the procedure After Working on Your Computer.

13. See the documentation that came with the drive for instructions on installing any software required for drive operation.

14. Enter system setup and select the appropriate **Diskette Drive** option (see Entering System Setup).

15. Verify that your computer works correctly by running the Dell Diagnostics. See your *Setup and Quick Reference Guide* for help with Dell Diagnostics.

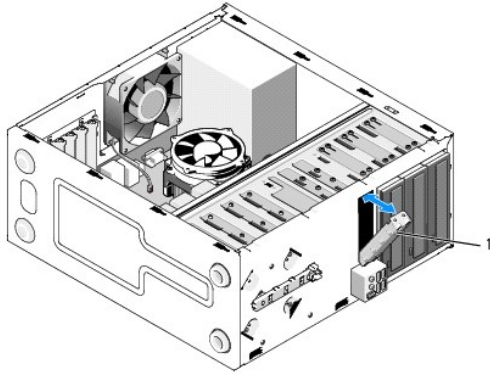## Removing the FlexBay Break-Away Metal Plate
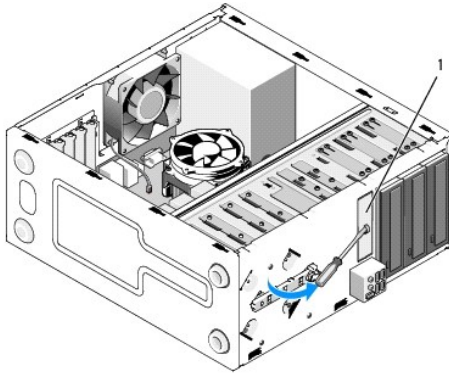
1	break-away metal plate		

Align the tip of a Phillips screwdriver with the slot on the break-away metal plate and rotate the screwdriver outwards to break and remove the metal plate.

Removing the Drive Panel Insert

Release the drive panel insert by pushing out the left side of the insert from the chassis.

| 1 | drive panel insert (optional) | | |

Replacing the Drive Panel Insert

1. Align the drive panel insert along the edges drive bay slot.

2. Push in on the drive panel insert until it locks into place.

📝 **NOTE:** To comply with FCC regulations, it is recommended that you replace the drive panel insert whenever the floppy drive is removed from the computer.
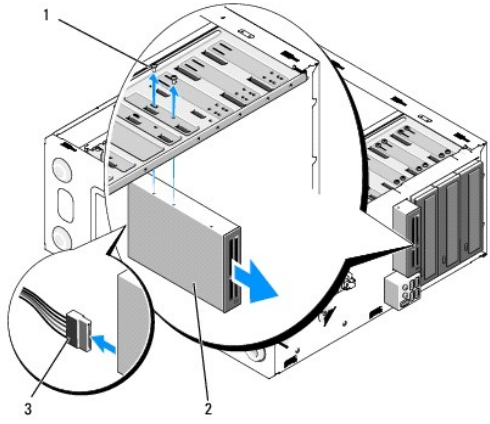
Media Card Reader

⚠ **CAUTION: Before working inside your computer, 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.**

⚠ **CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before removing the cover.**

Removing a Media Card Reader

1. Follow the procedures in Before Working on Your Computer.

2. Remove the computer cover (see Removing the Computer Cover).

3. Remove the bezel (see Removing the Bezel).

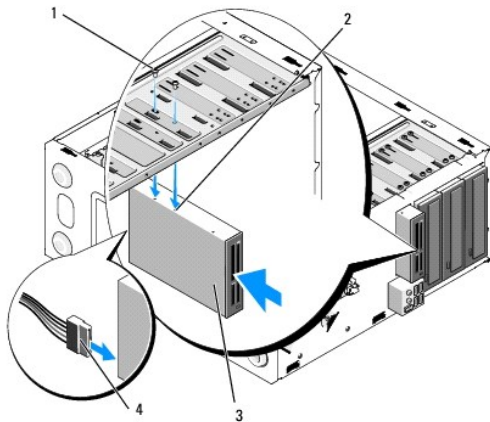| 1 | screws (2) | 2 | Media Card Reader |
| 3 | USB interface cable | | |

4. Disconnect the FlexBay USB cable from the back of the Media Card Reader and from the internal USB connector on the system board (see System Board Components).

5. Remove the two screws securing the Media Card Reader.

6. Slide the Media Card Reader out through the front of the computer.

7. If you are not reinstalling the Media Card Reader, replace the drive panel insert (see Replacing the Drive Panel Insert).

8. Replace the bezel (see Replacing the Bezel).

9. Perform the steps in the procedure After Working on Your Computer.

Replacing or Adding a Media Card Reader

1. Follow the procedures in Before Working on Your Computer.

2. Remove the computer cover (see Removing the Computer Cover).

3. Remove the bezel (see Removing the Bezel).

4. If you are installing a new Media Card Reader rather than replacing a Media Card Reader, remove the break-away metal plate from the FlexBay (see Removing the FlexBay Break-Away Metal Plate).

5. Remove the Media Card Reader from its packaging.

6. Gently slide the Media Card Reader into the FlexBay slot through the front of the computer.

7. Align the screw holes in the Media Card Reader with the screw slots in the FlexBay.

8. Install the two screws to secure the Media Card Reader.

NOTE: Ensure that the Media Card Reader is installed before the FlexBay cable is connected.

9. Connect the FlexBay USB cable to the back of the Media Card Reader and to the internal USB connector on the system board (see System Board Components).

1	screws (2)	2	screw slots (2)
3	Media Card Reader	4	USB interface cable

10. Replace the bezel (see Replacing the Bezel).

11. Perform the steps in the procedure After Working on Your Computer.
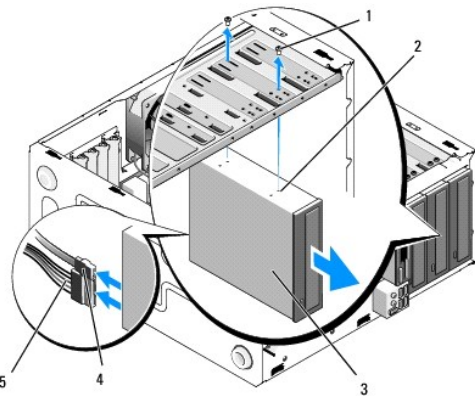
Optical Drive

⚠ **CAUTION: Before working inside your computer, 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.**

⚠ **CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before removing the cover.**

Removing an Optical Drive

1. Follow the procedures in Before Working on Your Computer.

2. Remove the computer cover (see Removing the Computer Cover).

3. Remove the bezel (see Replacing the Bezel).

4. Disconnect the optical drive data cable from the system board connector.

5. Disconnect the power cable and the optical drive data cable from the back of the drive

.

1	screws (2)	2	screw holes (4)
3	optical drive	4	data cable
5	power cable		

6. Remove the two screws securing the optical drive.

7. Slide the optical drive out through the front of the computer.

8. If you are not replacing the drive, replace the drive panel insert (see Replacing the Drive Panel Insert).

9. Replace the bezel (see Replacing the Bezel).

10. Replace the computer cover (see Replacing the Computer Cover).

⬤ **NOTICE:** To connect a network cable, first plug the cable into the network port or device and then plug it into the computer.

11. Connect your computer and devices to electrical outlets, and then turn them on.

12. Configure the drives in system setup (see Entering System Setup).

Replacing or Adding an Optical Drive

1. Follow the procedures in Before Working on Your Computer.

2. Remove the computer cover (see Removing the Computer Cover).

3. Remove the bezel (see Removing the Bezel).

4. Gently slide the optical drive into place.

5. Align the screw slots in the optical drive with the screw slots in the optical drive bay.

6. Replace and tighten the two screws securing the optical drive.

7. Connect the power and data cables to the drive.

8. Connect the data cable to the system board connector on the system board.

.
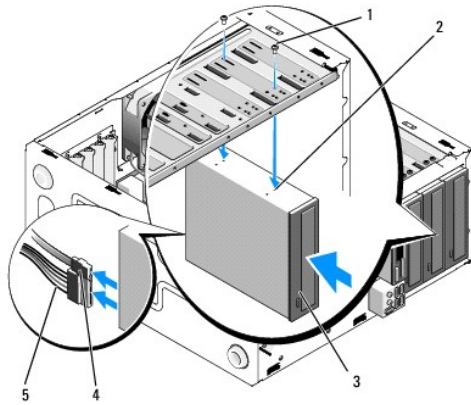
1	screws (2)	2	screw holes
3	optical drive	4	data cable
5	power cable		

9. Replace the bezel (see Replacing the Bezel).

10. Perform the steps in the procedure After Working on Your Computer.

11. See the documentation that came with the drive for instructions on installing any software required for drive operation.

12. Enter system setup and select the appropriate **Drive** option (see Entering System Setup).

13. Verify that your computer works correctly by running the Dell Diagnostics. See your *Setup and Quick Reference Guide* for help running Dell Diagnostics.

Removing the Optical Panel Insert

Release the optical panel insert by pushing it out of the chassis.
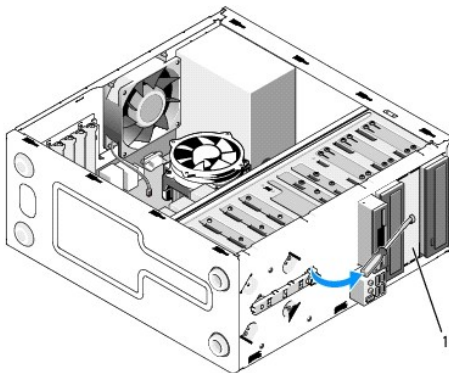
1	optical panel insert (optional)		

Replacing the Optical Panel Insert

1. Align the optical panel insert with the empty bay opening.

2. Install two screws to secure the optical panel insert in place.

⚠ **CAUTION: To comply with FCC regulations, it is recommended that you replace the optical panel insert whenever the optical disc is removed from the computer.**

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Fans
Dell™ Vostro™ 410 Service Manual

- Remove the Processor Heat Sink Assembly
- Replacing the Processor Heat Sink Assembly
- Remove the Chassis Fan
- Replacing the Chassis Fan

⚠ **CAUTION: Before working inside your computer, 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.**

⚠ **CAUTION: To guard against likelihood of electric shock, laceration by moving fan blades or other unexpected injuries, always unplug your computer from the electrical outlet before removing the cover.**

Remove the Processor Heat Sink Assembly

1. Follow the procedures in Before Working on Your Computer.

2. Remove the computer cover (see Removing the Computer Cover).

3. Disconnect the heat sink fan cable from the system board.

4. Loosen the four captive screws holding the heat sink assembly to the system board.

⚠ **CAUTION: Despite having a plastic shield, the heat sink assembly may become very hot during normal operation. Be sure that it has had sufficient time to cool before you touch it.**

⊘ **NOTICE:** A strong thermal solution bond may exist between the processor and heat sink. Do not use excessive force to separate the heat sink assembly from the processor to avoid damaging the processor.

5. Lift the heat sink assembly upward gently, and remove it from the computer. Lay the heat sink assembly down on its top, with the thermal grease facing upward.
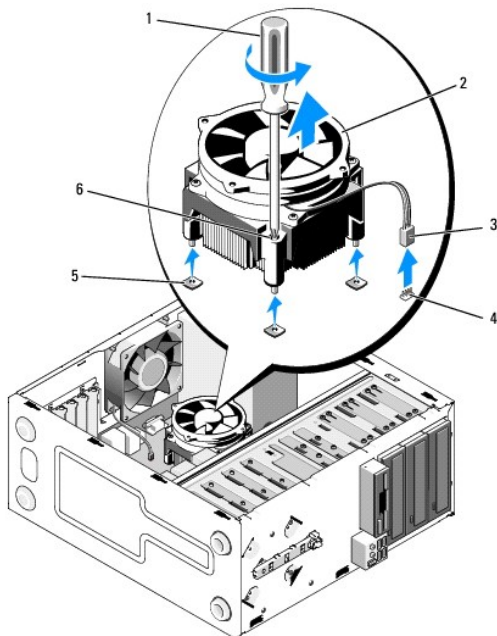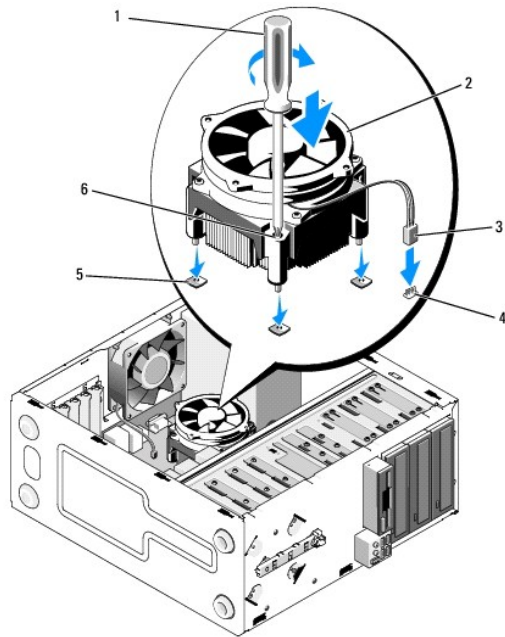

1	Phillips screwdriver	2	heat sink assembly
3	heat sink fan cable	4	fan system board connector
5	screw holes with rubber bushings (4)	6	screws (4)

⊘ **NOTICE:** Unless a new heat sink is required for the new processor, reuse the original heat sink assembly when you replace the processor.

Replacing the Processor Heat Sink Assembly

1. If not already done, remove the computer cover (see Removing the Computer Cover).

2. Apply thermal solution to the heat sink as needed.

3. Align the four captive screws on the heat sink assembly with the holes and rubber bushings on the system board.

1	Phillips screwdriver	2	heat sink assembly
3	heat sink fan cable	4	system board fan connector
5	screw holes with rubber bushings	6	screws (4)

4. Tighten the screws evenly to secure the heat sink assembly to the system board.

NOTICE: Ensure that the heat sink assembly is correctly seated and secure.

5. Attach the fan cable to the system board (see System Board Components).

6. Perform the steps in the procedure After Working on Your Computer.

Remove the Chassis Fan

1. Follow the procedures in Before Working on Your Computer.

2. Remove the computer cover (see Removing the Computer Cover).

3. Disconnect the chassis fan cable from the system board.

4. While holding the chassis fan in place, remove the four screws that secure the fan to the chassis.

5. Lift the fan out of the chassis.
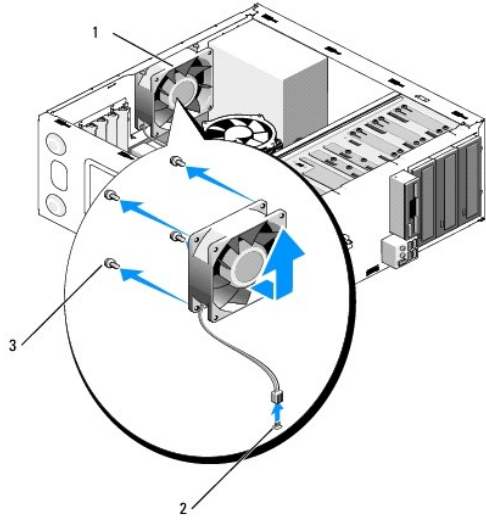
1	chassis fan	2	system board power connector
3	screw (4)		

Replacing the Chassis Fan

1. If not already done, remove the computer cover (see Removing the Computer Cover).

2. While holding the chassis fan in place, install the four screws that secure the fan to the chassis.
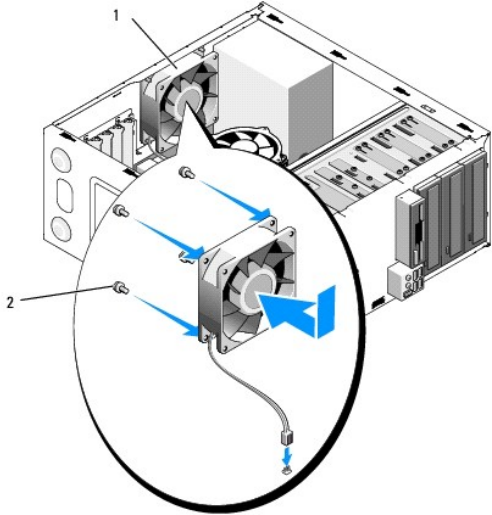
1	chassis fan	2	screw (4)

3. Attach the fan cable to the system board (see System Board Components).

4. Perform the steps in the procedure After Working on Your Computer.

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I/O Panel
Dell™ Vostro™ 410 Service Manual

● Removing the I/O Panel
● Replacing the I/O Panel

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

⚠ **CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before removing the cover.**

Removing the I/O Panel

📝 **NOTE:** Note the routing of all cables as you remove them so that you can reroute them correctly when installing the new I/O panel.

1. Follow the procedures in Before Working on Your Computer.

2. Remove the computer cover (see Removing the Computer Cover).

3. Remove the bezel (see Removing the Bezel).

⊘ **NOTICE:** When sliding the I/O panel out of the computer, be extremely careful to prevent damage to the cable connectors and the cable routing clips.

4. Disconnect the I/O panel cables from the system board.

5. Remove the screw that secures the I/O panel.

6. Slide the I/O panel down to release the I/O panel clamp from the I/O panel clamp slot.

7. Carefully remove the I/O panel and cables from the chassis.
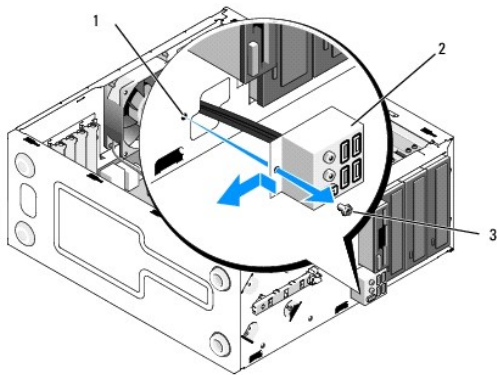
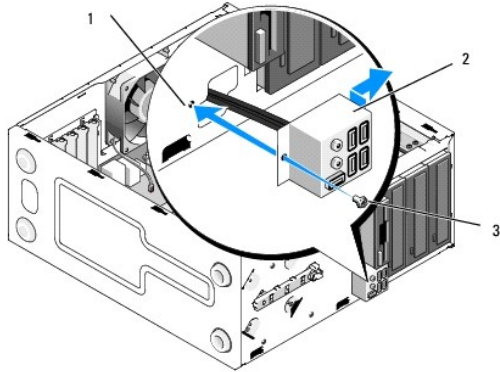| 1	I/O panel screw hole	2	I/O panel
3	screw (1)		

Replacing the I/O Panel

1. Route the I/O panel cables into the chassis through the I/O panel slot. Align and slide the I/O panel clamp up into the I/O panel clamp slot.

⊘ **NOTICE:** Take care not to damage the cable connectors and the cable routing clips when sliding the I/O panel into the computer.

2. Replace and tighten the screw that secures the I/O panel.

3. Reconnect the cables to the system board.

4. Replace the bezel (see Replacing the Bezel).

5. Perform the steps in the procedure After Working on Your Computer.

6. Verify that the computer works correctly by running the Dell Diagnostics. See your *Setup and Quick Reference Guide* for help running the Dell Diagnostics.

1	I/O panel screw hole	2	I/O panel
3	screw		

Memory
Dell™ Vostro™ 410 Service Manual

● Removing Memory Modules
● Replacing or Adding a Memory Module

⚠ **CAUTION: Before working inside your computer, 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.**

Removing Memory Modules

1. Follow the procedures in Before Working on Your Computer.

2. Remove the computer cover (see Removing the Computer Cover).

3. Locate the memory modules on the system board (see System Board Components).

4. Press out the securing clip at each end of the memory module connector.
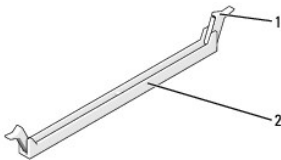
1	securing clip	2	memory module connector

5. Grasp the module and pull it upwards.

   If the module is difficult to remove, gently ease the module back and forth to remove it from the connector.

Replacing or Adding a Memory Module

⊘ **NOTICE:** Do not install ECC memory modules.

⊘ **NOTICE:** If you remove your original memory modules from the computer during a memory upgrade, keep them separate from any new modules that you may have, even if you purchased the new modules from Dell™. If possible, do not pair an original memory module with a new memory module. Otherwise, your computer may not start properly. The recommended memory configurations are:
A pair of matched memory modules installed in DIMM connectors 1 and 2 or
A pair of matched memory modules installed in DIMM connectors 1 and 2 and another matched pair installed in DIMM connectors 3 and 4.

✎ **NOTE:** If you install mixed pairs of PC2-5300 (DDR2 667-MHz) and PC2-6400 (DDR2 800-MHz) memory, the modules function at the speed of the slowest module installed.

1. Ensure that you install a single memory module in DIMM connector 1, the connector closest to the processor, before you install modules in any other connector.
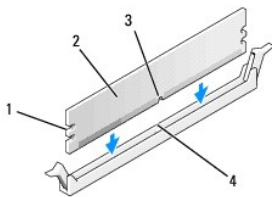

1	Pair A: matched pair of memory modules in connectors DIMM_1 and DIMM_2	2	Pair B: matched pair of memory modules in connectors DIMM_3 and DIMM_4
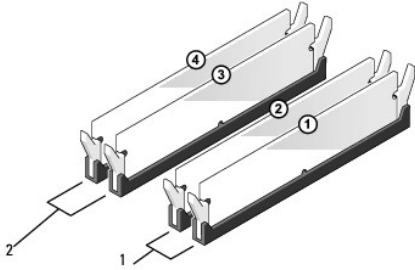
1	Pair A: matched pair of memory modules in connectors DIMM_1 and DIMM_2	2	Pair B: matched pair of memory modules in connectors DIMM_3 and DIMM_4

Align the notch on the bottom of the module with the crossbar in the connector.

.

1	cutouts (2)	2	memory module
3	notch	4	crossbar

⊘ **NOTICE:** To avoid damage to the memory module, press the module straight down into the connector while you apply equal force to each end of the module.

2. Insert the module into the connector until the module snaps into position.

   If you insert the module correctly, the securing clips snap into the cutouts at each end of the module.
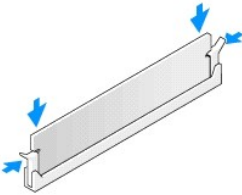
3. Perform the steps in the procedure After Working on Your Computer.

4. Log on to your computer.

5. Right-click the **My Computer** icon on your Windows desktop and click **Properties**.

6. Click the **General** tab.

7. To verify that the memory is installed correctly, check the amount of memory (RAM) listed.

Power Supply
Dell™ Vostro™ 410 Service Manual
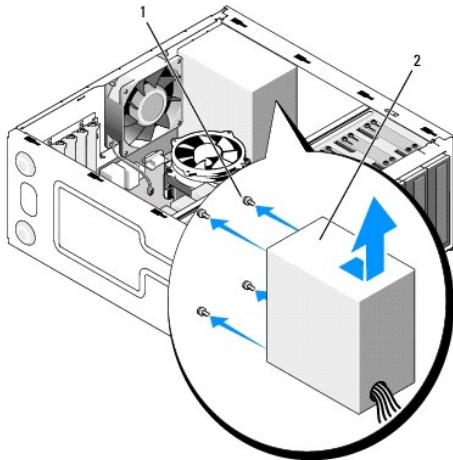
- Removing the Power Supply
- Replacing the Power Supply
- Power Supply DC Connector Pin Assignments

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

⚠ **CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before removing the cover.**

Removing the Power Supply

1. Follow the procedures in Before Working on Your Computer.

2. Remove the computer cover (see Removing the Computer Cover).

3. Disconnect the DC power cables from the system board and the drives.

4. Note the routing of the DC power cables underneath the tabs in the computer chassis as you remove them from the system board and drives. You must route these cables properly when you replace them to prevent them from being pinched or crimped.

5. Remove the hard drive cable, CD or DVD drive data cable, front panel ribbon cable, and any other cables from the securing clip on the side of the power supply.

6. Remove the four screws that attach the power supply to the back of the computer chassis.

1	screws (4)	2	power supply

7. Slide the power supply towards the front of the computer and lift it out.

Replacing the Power Supply
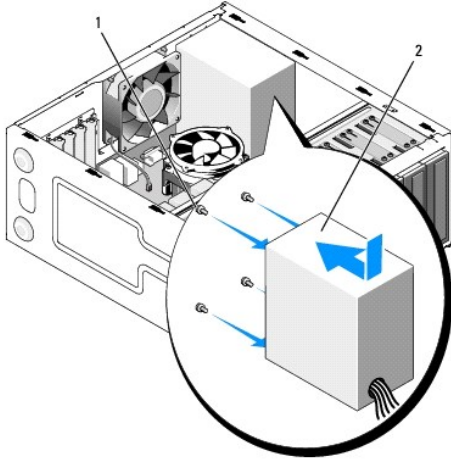
1. Set the replacement power supply into place.

2. Replace and tighten all screws that secure the power supply to the back of the computer chassis.

⚠ **CAUTION: Failure to replace and tighten all screws may cause electrical shock as these screws are a key part of the system grounding.**

⬤ **NOTICE:** Route the DC power cables under the chassis tabs. The cables must be properly routed to prevent the cables from being damaged.

3. Reconnect the DC power cables to the system board and drives.

4. Secure the hard drive cable, CD or DVD drive data cable, and the front panel cables to the securing clips inside the chassis where available.

   📝 **NOTE:** Double-check all cable connections to make sure they are secure.

5. Perform the steps in the procedure After Working on Your Computer.

6. Verify that the computer works correctly by running the Dell Diagnostics. See your *Setup and Quick Reference Guide* for help running Dell Diagnostics.

⚠ **CAUTION: Failure to replace and tighten all screws may cause electrical shock as these screws are a key part of the system grounding.**

Power Supply DC Connector Pin Assignments
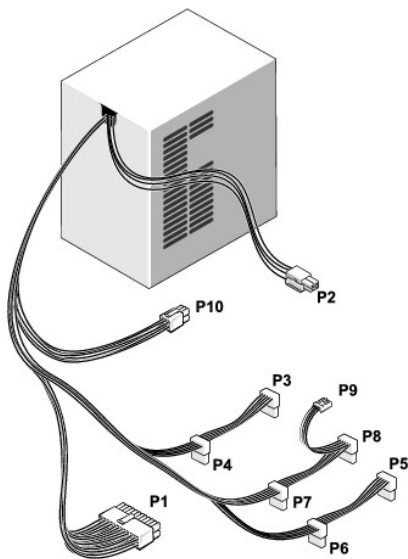
DC Power Connector P1

Pin Number	Signal name	Wire Color	Wire Size
1	3.3 V	Orange	20 AWG
2	3.3 V	Orange	20 AWG
3	RTN	Black	20 AWG
4	5 V	Red	20 AWG
5	RTN	Black	20 AWG
6	5 V	Red	20 AWG
7	RTN	Black	20 AWG
8	POK	Gray	22 AWG
9	5 V AUX	Purple	20 AWG
10	+12 V	Yellow	20 AWG
11	+12 V	Yellow	20 AWG
12	3.3 V	Orange	20 AWG
13	3.3 V	Orange	20 AWG
14	-12 V	Blue	22 AWG
15	RTN	Black	20 AWG
16	PS_ON	Green	22 AWG
17	RTN	Black	20 AWG
18	RTN	Black	20 AWG
19	RTN	Black	20 AWG
20	OPEN		
21	5 V	Red	20 AWG
22	5 V	Red	20 AWG
23	5 V	Red	20 AWG
24	RTN	Black	20 AWG

DC Power Connector P2

Pin Number	Signal Name	18-AWG Wire
1	GND	Black
2	GND	Black
3	+12 VADC	Yellow
4	+12 VADC	Yellow

DC Power Connectors P3, P4, P5, P6, P7, and P8

Pin Number	Signal name	18-AWG Wire

1	+3.3 VDC	Orange
2	GND	Black
3	+5 VDC	Red
4	GND	Black
5	+12 VBDC	White

DC Power Connector P9
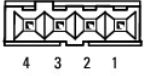
Pin Number	Signal Name	22-AWG Wire
1	+5 VDC	Red
2	GND	Black
3	GND	Black
4	+12 VADC	Yellow

DC Power Connector P10

Pin Number	Signal Name	22-AWG Wire
1	+12 VDC	Yellow
2	+12 VDC	Yellow
3	+12 VDC	Yellow
4	GND	Black
5	GND	Black
6	GND	Black

System Board
Dell™ Vostro™ 410 Service Manual

- Remove the System Board
- Replacing a System Board

⚠ **CAUTION: Before working inside your computer, 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.**

⚠ **CAUTION: To guard against likelihood of electric shock, laceration by moving fan blades or other unexpected injuries, always unplug your computer from the electrical outlet before removing the cover.**

Remove the System Board

1. Follow the procedures in Before Working on Your Computer.

2. Set the computer on its right side on a clean and flat surface.

3. Remove the computer cover (see Removing the Computer Cover).

4. Remove all PC cards from the computer slots. Insert them individually into static protective packaging.

5. Disconnect all the data cables from the CD/DVD/floppy/hard drives where they attach to the system board.

6. Disconnect all front panel and FlexBay module cables where they attach to the system board.

7. Disconnect the 12V and 24-pin DC power cables from the system board.

8. If the system board is being replaced with another system board:

   a. Remove the processor heat sink assembly (see Remove the Processor Heat Sink Assembly).

   b. Remove the memory modules from the system board (see Replacing or Adding a Memory Module) and place them individually into static protective packaging.

   c. Remove the processor from the system board (see Removing the Processor) and place it into static protective packaging.

9. Disconnect the chassis fan cable from the system board.

10. Disconnect any additional cables from the system board.

11. Remove all screws that secure the system board to the computer chassis.

⚠ **CAUTION: The system board is extremely fragile. Exercise great care when handling the system board.**

12. Carefully lift the system board out of the computer chassis and place it into static protective packaging.
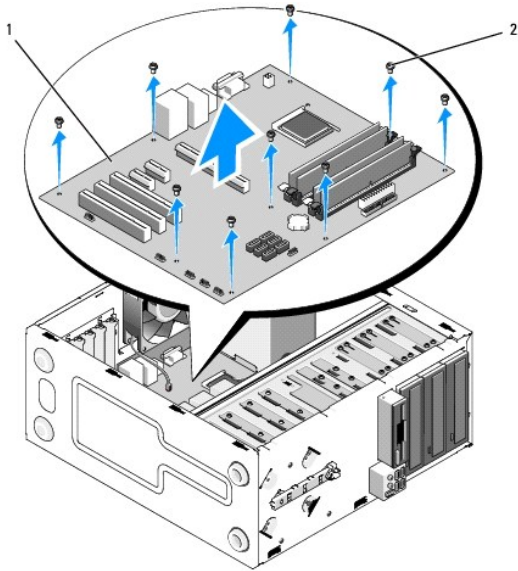
| 1 | system board | 2 | screw (9) |

Replacing a System Board

1. Follow the procedures in Before Working on Your Computer.

2. Set the computer on its right side on a clean and flat surface.

3. Remove the computer cover if necessary (see Removing the Computer Cover).

4. Remove the system board from its packaging and carefully place it in position inside the computer chassis. Align the holes of the system board with the screw holes in chassis, ensuring that the back panel connectors are properly aligned in the openings on the back of the chassis.
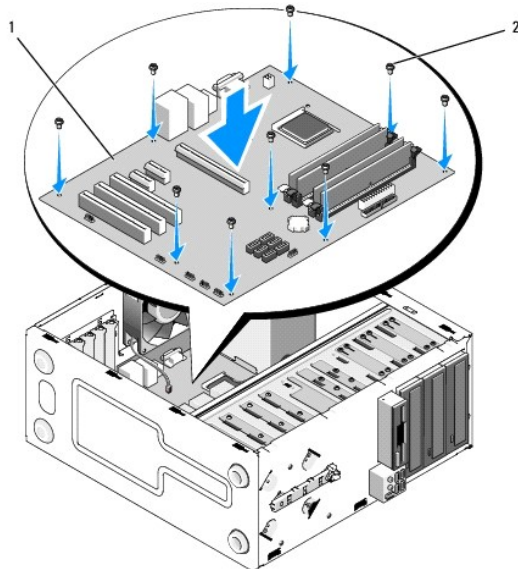
5. Secure the system board to the chassis using the screws from the system board removal. Avoid over-tightening the screws.

⚠ **CAUTION: Failure to replace and tighten all screws properly may not provide adequate grounding of the system board and result in operating system failures.**

6. Connect the 12V DC power cable to the system board.

7. Connect the chassis fan cable to the system board.

8. Connect all front panel and FlexBay device cables to the system board.

9. Connect all the data cables from the CD/DVD/hard drives to the system board.

10. If the system board is being replaced with a system board different from the one removed:

    a. Install the memory modules onto the system board (see Replacing or Adding a Memory Module).

    b. Install the processor onto the system board (see Replacing the Processor).

    a. Install the processor heat sink assembly (see Replacing the Processor Heat Sink Assembly).

11. Connect additional cables to the system board as required.

12. Connect the 24-pin DC power cable to the system board.

13. Install all PC cards into the computer slots.

14. Check all cable connections throughout the computer chassis to ensure that they are secure.

15. Perform the steps in the procedure After Working on Your Computer.

16. Verify that your computer works correctly by running the Dell Diagnostics. See your *Setup and Quick Reference Guide* for help with Dell Diagnostics.

System Setup

Dell™ Vostro™ 410 Service Manual

Overview

Use system setup as follows:

- To change the system configuration information after you add, change, or remove any hardware in your computer

- To set or change a user-selectable option such as the user password

- To read the current amount of memory or set the type of hard drive installed

Before you use system setup, it is recommended that you write down the system setup screen information for future reference.

NOTICE: Unless you are an expert computer user, do not change the settings for this program. Certain changes can make your computer work incorrectly.

Entering System Setup

1. Turn on (or restart) your computer.

2. **When the blue DELL™ logo is displayed, you must watch for the F2 prompt to appear.**

3. Once this F2 prompt appears, press <F2> immediately.

NOTE: The F2 prompt indicates that the keyboard has initialized. This prompt can appear very quickly, so you must watch for it to display, and then press <F2>. If you press <F2> before you are prompted, this keystroke will be lost.

4. 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 (see Turning Off Your Computer) and try again.

System Setup Screens

The system setup screen displays current or changeable configuration information for your computer. Information on the screen is divided into three areas: the options list, active options field, and key functions.

Options List — This field appears on the left side of the system setup window. The field is a scrollable list containing features that define the configuration of your computer, including installed hardware, power conservation, and security features.	**Option Field** — This field contains information about each option. In this field you can view your current settings and make changes to your settings.
Scroll up and down the list with the up- and down-arrow keys. As an option is highlighted, the **Option Field** displays more information about that option and the option's current and available settings.	Use the right and left arrow keys to highlight an option. Press <Enter> to make that selection active.

	Key Functions — This field appears below the **Option Field** and lists keys and their functions within the active system setup field.

System Setup Options

📝 **NOTE:** Depending on your computer and installed devices, the items listed in this section may not appear, or may not appear exactly as listed.

System Info	
BIOS Info	Shows the BIOS version number and date information.
System Info	Lists system information such as the computer name, and other system-specific information.
CPU Info	Identifies whether the computer's processor supports Hyper-Threading and lists the processor bus speed, processor ID, clock speed, and L2 cache.
Memory Info	Indicates amount of installed memory, memory speed, channel mode (dual or single), and type of memory installed.
Standard CMOS Features	
Date/Time	Displays current date and time settings. Date (mm:dd:yy)
SATA Info	Displays the SATA drives integrated in the system (SATA -0; SATA-1; SATA-2; SATA-3; SATA-4; SATA-5).
SATA HDD Auto-Detection	Auto detects the SATA connector to which the hard drive is attached.
Capacity	The combined installed capacity of all the SATA devices.
Drive A	None; 1.44M; 3.5 in. 1.44M (3.5 in by default).
Halt On	All Error; All; But Keyboard. (All, But Keyboard by default).
Advanced BIOS Features	
CPU Feature	l Limit CPUID Value—Enabled; Disabled (Disabled by default) l Execute Disable Bit—Enabled; Disabled (Enabled by default) l Virtualization Technology—Enabled; Disabled (Enabled by default) l Core Multi-Processing—Enabled; Disabled (Enabled by default)
Boot Up NumLock Status	Off; On (On by default)
Boot Device Configuration	
Removable Device Priority	Used to set the device priority of removable devices like USB floppy drives. The items displayed are dynamically updated according to the removable devices connected.
Hard Disk Boot Priority	Used to set the device priority of hard drives. The items displayed are dynamically updated according to the hard drives detected.
First Boot Device	Removable; Hard Disk; CDROM; USB-CDROM; Legacy LAN; Disabled (Removable by default)
Second Boot Device	Removable; Hard Disk; CDROM; USB-CDROM; Legacy LAN; Disabled (Hard disk by default)
Third Boot Device	Removable; Hard Disk; CDROM; USB-CDROM; Legacy LAN; Disabled (CD-ROM by default)
Boot Other Device	Enabled; Disabled (Disabled by default)
Advanced Chipset Features	
Init Display First	PCI Slot, Onboard, PCIEx (PCI Slot by default)
Video Memory Size	1 MB, 8 MB (8 MB by default)
DVMT Mode	FIXED, DVMT (DVMT by default)
DVMT/FIXED Memory Size	128 MB, 256 MB, MAX (128 MB by default)
Integrated Peripherals	
USB Device Setting	l USB Controller—Enabled or Disabled (Enabled by default) l USB Operation Mode—High Speed; Full/Low Speed (High Speed by default)
Onboard FDC Controller	Enabled or Disabled (Enabled by default)
Onboard Audio Connector	Enabled or Disabled (Enabled by default)
Onboard LAN Connector	Enabled or Disabled (Enabled by default)
Onboard LAN Boot ROM	Enabled or Disabled (Disabled by default)
SATA Mode	IDE; RAID; AHCI (IDE by default)
Power Management Setup	
ACPI Suspend Type	S1(POS); S3(STR) (S3(STR) by default)
Quick Resume	Disabled; Enabled (Disabled by default)
Remote Wake Up	On; Off (On by default)

USB KB Wake-Up From S3	Enabled; Disabled (Disabled by default)
Auto Power On	Enabled; Disabled (Disabled by default)
Auto Power On Date	0
Auto Power On Time	0:00:00
AC Recovery	Off; On; Former-Sts (Off by default)

Boot Sequence

This feature allows you to change the boot sequence for devices.

Option Settings

- **Diskette Drive** — The computer attempts to boot from the floppy drive. If the floppy disk in the drive is not bootable, if no floppy disk is in the drive, or if there is no floppy drive installed in the computer, the computer generates an error message.

- **Hard Drive** — The computer attempts to boot from the primary hard drive. If no operating system is on the drive, the computer generates an error message.

- **CD Drive** — The computer attempts to boot from the CD drive. If no CD is in the drive, or if the CD has no operating system, the computer generates an error message.

- **USB Flash Device** — Insert the memory device into a USB port and restart the computer. When F12 = Boot Menu appears in the upper-right corner of the screen, press <F12>. The BIOS detects the device and adds the USB flash option to the boot menu.

NOTE: To boot to a USB device, the device must be bootable. To make sure that your device is bootable, check the device documentation.

Changing Boot Sequence for the Current Boot

You can use this feature, for example, to tell the computer to boot from the CD drive so that you can run the Dell Diagnostics on the *Dell Drivers and Utilities* media, but you want the computer to boot from the hard drive when the diagnostic tests are complete. You can also use this feature to restart your computer to a USB device such as a floppy drive, memory key, or CD-RW drive.

1. If you are booting to a USB device, connect the USB device to a USB connector.

2. Turn on (or restart) your computer.

3. When F2 = Setup, F12 = Boot Menu appears in the upper-right corner of the screen, press <F12>.

   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.

   The **Boot Device Menu** appears, listing all available boot devices. Each device has a number next to it.

4. At the bottom of the menu, enter the number of the device that is to be used for the current boot only.

   For example, if you are booting to a USB memory key, highlight **USB Flash Device** and press <Enter>.

NOTE: To boot to a USB device, the device must be bootable. To make sure your device is bootable, check the device documentation.

Changing Boot Sequence for Future Boots

1. Enter system setup (see Entering System Setup).

2. Use the arrow keys to highlight the **Boot Sequence** menu option and press <Enter> to access the menu.

NOTE: Write down your current boot sequence in case you want to restore it.

3. Press the up- and down-arrow keys to move through the list of devices.

4. Press the spacebar to enable or disable a device (enabled devices have a checkmark).

5. Press plus (+) or minus (–) to move a selected device up or down the list.

Clearing Forgotten Passwords

⚠️ **CAUTION: Before working inside your computer, 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.**

1. Follow the procedures in Before Working on Your Computer.
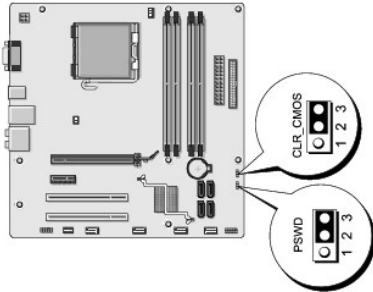
2. Remove the computer cover (see Removing the Computer Cover).

3. Locate the 3-pin password connector (PSWD) on the system board.

4. Remove the 2-pin jumper plug from pins 2 and 3 and fix it on pins 1 and 2.

5. Wait for approximately five seconds to clear the password.

6. Remove the 2-pin jumper plug from pins 1 and 2 and replace it on pins 2 and 3 to enable the password feature.

7. Replace the computer cover (see Replacing the Computer Cover).

🚫 **NOTICE:** To connect a network cable, first plug the cable into the network device and then plug it into the computer.

8. **Connect your computer and devices to electrical outlets, and turn them on.**

Clearing CMOS Settings

⚠️ **CAUTION: Before working inside your computer, 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.**

1. Follow the procedures in Before Working on Your Computer.

   📝 **NOTE:** The computer must be disconnected from the electrical outlet to clear the CMOS setting.

2. Remove the computer cover (see Removing the Computer Cover).

3. Reset the current CMOS settings:

   a. Locate the 3-pin CMOS jumper (CLEAR CMOS) on the system board (see System Board Components).

   b. Remove the jumper plug from the CMOS jumper (CLEAR CMOS) pins 2 and 3.

   c. Place the jumper plug on the CMOS jumper (CLEAR CMOS) pins 1 and 2 and wait approximately five seconds.

   d. Remove the jumper plug and replace it on the CMOS jumper (CLEAR CMOS) pins 2 and 3.

4. Replace the computer cover (see Replacing the Computer Cover).

🚫 **NOTICE:** To connect a network cable, first plug the cable into the network port or device and then plug it into the computer.

5. **Connect your computer and devices to electrical outlets, and turn them on.**

Flashing the BIOS

The BIOS may require flashing when an update is available or when replacing the system board.

1. Turn on the computer.

2. Locate the BIOS update file for your computer at the Dell Support website at **support.dell.com**.

3. Click **Download Now** to download the file.

4. If the **Export Compliance Disclaimer** window appears, click **Yes, I Accept this Agreement**.

   The **File Download** window appears.

5. Click **Save this program to disk**, and then click **OK**.

   The **Save In** window appears.

6. Click the down arrow to view the **Save In** menu, select **Desktop**, and then click **Save**.

   The file downloads to your desktop.

7. Click Close when the **Download Complete** window appears.

   The file icon appears on your desktop and is titled the same as the download BIOS update file.

8. Double-click the file icon on the desktop and follow the on-screen instructions.

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Dell™ Vostro™ 410 Service Manual

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 potential for property damage, personal injury, or death.

If you purchased a DELL™ n Series computer, any references in this document to Microsoft® Windows® operating systems are not applicable.

August 2008   Rev. A00

Troubleshooting
Dell™ Vostro™ 410 Service Manual

Tools

Power Lights

⚠ **CAUTION: Before working inside your computer, 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.**

The power button light located on the front of the computer illuminates and blinks or remains solid to indicate different states:

- l If the power light is blue and the computer is not responding, see Beep Codes.

- l If the power light is blinking blue, the computer is in standby mode. Press a key on the keyboard, move the mouse, or press the power button to resume normal operation.

- l If the power light is off, the computer is either turned off or is not receiving power.

   - o Reseat the power cable into both the power connector on the back of the computer and the electrical outlet.

   - o 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.

   - o Bypass power protection devices, power strips, and power extension cables to verify that the computer turns on properly.

   - o Ensure that the electrical outlet is working by testing it with another device, such as a lamp.

   - o Ensure that the main power cable and front panel cable are securely connected to the system board (see System Board Components).

- l If the power light is blinking amber, the computer is receiving electrical power, but an internal power problem may exist.

   - o Ensure that the voltage selection switch is set to match the AC power at your location, if applicable.

   - o Ensure that the processor power cable is securely connected to the system board (see System Board Components).

- l If the power light is steady amber, a device may be malfunctioning or incorrectly installed.

   - o Remove and then reinstall the memory modules (see Replacing or Adding a Memory Module).

   - o Remove and then reinstall any cards (see PCI and PCI Express Cards).

- l Eliminate interference. Some possible causes of interference are:

   - o Power, keyboard, and mouse extension cables

   - o Too many devices on a power strip

   - o Multiple power strips connected to the same electrical outlet

Beep Codes

Your computer may emit a series of beeps during start-up if the monitor cannot display errors or problems. For example, one possible beep code may consist of three short, repeated beeps indicating that the computer has encountered a possible system board failure.

If your computer emits a series of beeps during start-up:

1. Write down the beep code.

2. Run the Dell Diagnostics to further identify the problem. (see Dell Diagnostics).

Code (repetitive short beeps)	Description	Suggested Resolution
1	BIOS checksum failure. Possible system board failure.	Contact Dell (see "Contacting Dell" in your *Setup and Quick Reference Guide*).

2	No memory modules are detected.	l If two or more memory modules are installed, remove the modules (see Replacing or Adding a Memory Module), then reinstall one module and restart the computer. If the computer starts normally, continue to install additional memory modules (one at a time) until you have identified a faulty module or reinstalled all modules without error. l If available, install working memory of the same type into your computer (see Replacing or Adding a Memory Module). l If the problem persists, contact Dell (see Contacting Dell).
3	Possible system board failure.	Contact Dell (see Contacting Dell).
4	RAM Read/Write failure.	l Ensure that no special requirements for memory module/connector placement exist (see Replacing or Adding a Memory Module). l Ensure that the memory you are using is supported by your computer. l If the problem persists, contact Dell (see Contacting Dell).
5	Real time clock failure. Possible battery or system board failure.	l Replace the battery (see Replacing the Battery). l If the problem persists, contact Dell (see Contacting Dell).
6	Video BIOS Test Failure.	Contact Dell (see Contacting Dell).

System Messages

NOTE: If the message you received is not listed in the table, see the documentation for either the operating system or the program that was running when the message appeared.

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 (see Contacting Dell).

CMOS checksum error — Possible motherboard failure or RTC battery low. Replace the battery (see Replacing the Battery).

CPU fan failure — CPU fan failure. Replace the CPU fan (see Fans).

Floppy diskette seek failure — A cable may be loose, or the computer configuration information may not match the hardware configuration. Check cable connections (see Contacting Dell).

Diskette read failure — The floppy disk may be defective or a cable may be loose. Replace the floppy disk/check for a loose cable connection.

Hard-disk read failure — Possible HDD failure during HDD boot test (see Contacting Dell).

Keyboard failure — Keyboard failure or keyboard cable loose (see Keyboard Problems).

No boot device available — The system cannot detect a bootable device or partition.

  o If the floppy drive is your boot device, ensure that the cables are connected and that a bootable floppy disk is in the drive.
  o 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.
  o Enter System Setup and ensure that the boot sequence information is correct (see Entering System Setup).

No timer tick interrupt — A chip on the system board might be malfunctioning or motherboard failure (see Contacting Dell).

Non-system disk or disk error — Replace the floppy disk with one that has a bootable operating system or remove the floppy disk and restart the computer.

Not a boot diskette — Insert a bootable floppy disk and restart your computer.

NOTICE – 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 HDD failure. This feature can be enabled or disabled in BIOS setup.

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.

Windows XP:

1. Click **Start**→ **Help and Support**.

2. Type `hardware troubleshooter` in the search field and press <Enter> to start the search.

3. In the **Fix a Problem** section, click **Hardware Troubleshooter**.

4. In the **Hardware Troubleshooter** list, select the option that best describes the problem and click **Next** to follow the remaining troubleshooting steps.

Windows Vista:

1. Click the Windows Vista start button , and click **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

⚠️ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located that shipped with your computer.**

When to Use the Dell Diagnostics

If you experience a problem with your computer, perform the checks in this section, and then run the Dell Diagnostics before contacting Dell for assistance.

Start the Dell Diagnostics from your hard drive or from the *Drivers and Utilities* media provided with your computer.

📝 **NOTE:** The *Drivers and Utilities* media is optional and may not ship with your computer.

📝 **NOTE:** The Dell Diagnostics only operate on Dell computers.

Starting the Dell Diagnostics From Your Hard Drive

Before running the Dell Diagnostics, enter System Setup (see Entering System Setup) to review your computer's configuration information, and ensure that the device you want to test is displayed in System Setup and is active.

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

📝 **NOTE:** If your computer does not display a screen image, contact Dell (see Contacting Dell).

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.

📝 **NOTE:** Keyboard failure may result when a key is held down for extended periods of time. To avoid possible keyboard failure, press and release <F12> in even intervals to open the Boot Device Menu.

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. Use the up- and down-arrow keys to select **Diagnostics** from the boot menu and then press <Enter>.

📝 **NOTE:** If you see a message stating that no diagnostics utility partition has been found, run the Dell Diagnostics from your *Drivers and Utilities* media (see Starting the Dell Diagnostics From the Drivers and Utilities Media).

5. Press any key to start the Dell Diagnostics from the diagnostics utility partition on your hard drive.

6. Press <Tab> to select **Test System** and then press <Enter>.

   📝 **NOTE:** It is recommended that you select **Test System** to run a complete test on your computer. Selecting **Test Memory** initiates the extended memory test, which can take up to thirty minutes or more to complete. When the test completes, record the test results and then press any key to return to the previous menu.

7. At the Dell Diagnostics Main Menu, left-click with the mouse, or press <Tab> and then <Enter>, to select the test you want to run (see Dell Diagnostics Main Menu).

📝 **NOTE:** Write down any error codes and problem descriptions exactly as they appear and follow the instructions on the screen.

8. After all tests have completed, close the test window to return to the Dell Diagnostics Main Menu.

9. Close the Main Menu window to exit the Dell Diagnostics and restart the computer.

Starting the Dell Diagnostics From the Drivers and Utilities Media

Before running the Dell Diagnostics, enter System Setup (see Entering System Setup) to review your computer's configuration information, and ensure that the device you want to test is displayed in System Setup and is active.

1. Insert the *Drivers and Utilities* media into the optical drive.

2. Restart your computer.

3. When the DELL logo appears, press <F12> immediately.

📝 **NOTE:** Keyboard failure may result when a key is held down for extended periods of time. To avoid possible keyboard failure, press and release <F12> in even intervals to open the Boot Device Menu.

   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. When the boot device list appears, use the up- or down- arrow keys to highlight **CD/DVD/CD-RW Drive** then press <Enter>.

   📝 **NOTE:** Using the one-time boot menu changes the boot sequence for the current boot only. Upon restart, the computer boots according to the boot sequence specified in System Setup.

5. Press any key to confirm that you want to start from the CD/DVD.

   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.

6. Type 1 to **Run the 32 Bit Dell Diagnostics**.

7. At the **Dell Diagnostics Menu**, type 1 to select **Dell 32-bit Diagnostics for Resource CD (graphical user interface)**.

8. Press <Tab> to select **Test System** and then press <Enter>.

   📝 **NOTE:** It is recommended that you select **Test System** to run a complete test on your computer. Selecting **Test Memory** initiates the extended memory test, which can take up to thirty minutes or more to complete. When the test completes, record the test results and then press any key to return to the previous menu.

9. At the Dell Diagnostics Main Menu, left-click with the mouse, or press <Tab> and then <Enter>, to select the test you want to run (see Dell Diagnostics Main Menu).

📝 **NOTE:** Write down any error codes and problem descriptions exactly as they appear and follow the instructions on the screen.

10. After all tests have completed, close the test window to return to the Dell Diagnostics Main Menu.

11. Close the Main Menu window to exit the Dell Diagnostics and restart the computer.

12. Remove the *Drivers and Utilities* media from the optical drive.

Dell Diagnostics Main Menu

After the Dell Diagnostics loads the following menu appears:

Option	Function
Test Memory	Run the stand-alone memory test
Test System	Run system diagnostics
Exit	Exit the diagnostics

Press <Tab> to select the test you want to run and then press <Enter>.

NOTE: It is recommended that you select **Test System** to run a complete test on your computer. Selecting **Test Memory** initiates the extended memory test, which can take up to thirty minutes or more to complete. When the test completes, record the test results and then press any key to return to this menu.

After **Test System** is selected, the following menu appears:

Option	Function
Express Test	Performs a quick test of devices in the system. This typically can take 10 to 20 minutes. **NOTE:** The Express Test requires no interaction on your part. Run Express Test first to increase the possibility of tracing a problem quickly.
Extended Test	Performs a thorough check of devices in the system. This typically can take an hour or more. **NOTE:** The Extended Test periodically requires your input to answer specific questions.
Custom Test	Use to test a specific device or customize the tests to be run.
Symptom Tree	This option allows you to select tests based on a symptom of the problem you are having. This option lists the most common symptoms.

NOTE: It is recommended that you select **Extended Test** to perform a more thorough check of devices in the computer.

For any problem 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 exactly as it appears and follow the instructions on the screen. If you cannot resolve the problem, contact Dell (see Contacting Dell).

NOTE: When contacting Dell support, have your Service Tag ready. The Service Tag for your computer is located at the top of each test screen.

The following tabs provide additional information for tests run from the Custom Test or Symptom Tree option:

Tab	Function
Results	Displays the results of the test and any error conditions encountered.
Errors	Displays error conditions encountered, error codes, and the problem description.
Help	Describes the test and any requirements for running the test.
Configuration	Displays the hardware configuration for the selected device. The Dell Diagnostics obtains configuration information for all devices from System Setup, memory, and various internal tests, and displays the information in the device list in the left pane of the screen. **NOTE:** The device list may not display the names of all components installed on your computer or all devices attached to your computer.
Parameters	Allows you to customize the test, if applicable, by changing the test settings.

Solving Problems

Follow these tips when troubleshooting your computer:

- l If you added or removed a part before the problem started, review the installation procedures and ensure that the part is correctly installed.

- l If a peripheral device does not work, ensure that the device is properly connected.

- l If an error message appears on the screen, write down the exact message. This message may help support personnel diagnose and fix the problem(s).

- l If an error message occurs in a program, see the program's documentation.

NOTE: The procedures in this document were written for the Windows default view, so they may not apply if you set your Dell™ computer to the Windows Classic view.

Battery Problems

⚠ **CAUTION: There is a danger of a new battery exploding if it is incorrectly installed. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.**

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.**

Replace the battery —

If you have to repeatedly reset time and date information after turning on the computer, or if an incorrect time or date displays during start-up, replace the battery (see Replacing the Battery). If the battery still does not work properly, contact Dell (see Contacting Dell).

Drive Problems

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.**

Ensure that Microsoft® Windows® Recognizes the drive —

Windows XP:

　l　Click **Start and click My Computer**.

Windows Vista™:

　l　Click the Windows Vista Start button 🔵 and click **Computer**.

If the drive is not listed, perform a full scan with your antivirus software to check for and remove viruses. Viruses can sometimes prevent Windows from recognizing the drive.

Test the drive —

　l　Insert another disc to eliminate the possibility that the original drive is defective.
　l　Insert a bootable floppy disk and restart the computer.

Clean the drive or disk — See the *Dell Technology Guide* for further information.

Check the cable connections

Run the Hardware Troubleshooter — See Hardware Troubleshooter.

Run the Dell Diagnostics — See Dell Diagnostics.

Optical drive problems

📝 **NOTE:** High-speed optical drive vibration is normal and may cause noise, which does not indicate a defect in the drive or the media.

📝 **NOTE:** Because of different regions worldwide and different disc formats, not all DVD titles work in all DVD drives.

Adjust the Windows volume control —

　l　Click the speaker icon in the lower-right corner of your screen.
　l　Ensure that the volume is turned up by clicking the slidebar and dragging it up.
　l　Ensure that the sound is not muted by clicking any boxes that are checked.

Check the speakers and subwoofer — See Sound and Speaker Problems.

Problems writing to an optical drive

Close other programs — The optical drive must receive a steady stream of data during the writing process. If the stream is interrupted, an error occurs. Try closing all programs before you write to the optical.

Turn off standby mode in Windows before writing to a disc — See the *Dell Technology Guide*, or search for the keyword *standby* in Windows Help and Support for information on power management modes.

Hard drive problems

Run Check Disk —

Windows XP:

1. Click **Start and click My Computer**.
2. Right-click **Local Disk C:**.
3. Click **Properties**→ **Tools**→ **Check Now**.
4. Click **Scan for and attempt recovery of bad sectors and click Start**.

Windows Vista:

1. Click **Start** and click **Computer**.
2. Right-click **Local Disk C:**.
3. Click **Properties**→ **Tools**→ **Check Now**.

   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.

4. Follow the instructions on the screen.

Error Messages

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.**

If the error message is not listed, see the documentation for the operating system or the program that was running when the message appeared.

A filename cannot contain any of the following characters: \ / : * ? " < > | — Do not use these characters in filenames.

A required .DLL file was not found — The program that you are trying to open is missing an essential file. To remove and then reinstall the program:

Windows XP:

1. Click **Start**→ **Control Panel**→ **Add or Remove Programs**→ **Programs and Features**.
2. Select the program you want to remove.
3. Click **Uninstall**.
4. See the program documentation for installation instructions.

Windows Vista:

1. Click **Start** → **Control Panel**→ **Programs**→ **Programs and Features**.
2. Select the program you want to remove.
3. Click **Uninstall**.
4. See the program documentation for installation instructions.

drive letter **:\ is not accessible. The device is not ready —** The drive cannot read the disk. Insert a disk into the drive and try again.

Insert bootable media — Insert a bootable floppy disk, CD, or DVD.

Non-system disk error — Remove the floppy disk from the floppy drive and restart your computer.

Not enough memory or resources. Close some programs and try again — Close all windows and open the program that you want to use. In some cases, you may have to restart your computer to restore computer resources. If so, run the program that you want to use first.

Operating system not found — Contact Dell (see Contacting Dell).

IEEE 1394 Device Problems

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.**

✍ **NOTE:** Your computer supports only IEEE 1394a standard.

Ensure that the cable for the IEEE 1394 device is properly inserted into the device and into the connector on the computer

Ensure that the IEEE 1394 device is enabled in system setup — See Entering System Setup.

Ensure that the IEEE 1394 device is recognized by Windows —

Windows XP:

1. Click **Start and click Control Panel**.
2. Under **Pick a Category**, click **Performance and Maintenance**→ **System**→ **System Properties** → **Hardware**→ **Device Manager**.

Windows Vista:

1. Click **Start** → **Control Panel**→ **Hardware and Sound**.
2. Click **Device Manager.**

If your IEEE 1394 device is listed, Windows recognizes the device.

If you have problems with a Dell IEEE 1394 device —

Contact Dell (see Contacting Dell)**.**

If you have problems with an IEEE 1394 device not provided by Dell — Contact the IEEE 1394 device manufacturer**.**

Keyboard Problems

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.**

Check the keyboard cable —

- Ensure that the keyboard cable is firmly connected to the computer.
- Shut down the computer (see Before Working on Your Computer), reconnect the keyboard cable as shown on the setup diagram for your computer, and then restart the computer.
- Ensure that the cable is not damaged or frayed and check cable connectors for bent or broken pins. Straighten any bent pins.
- Remove any keyboard extension cables and connect the keyboard directly to the computer.

Test the keyboard — Connect a properly working keyboard to the computer, then try using the keyboard.

Run the Hardware Troubleshooter — See Hardware Troubleshooter.

Lockups and Software Problems

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.**

The computer does not start up

Check the diagnostic lights — See Power Lights.

Ensure that the power cable is firmly connected to the computer and to the electrical outlet

The computer stops responding

⊘ **NOTICE:** You may lose data if you are unable to perform an operating system shutdown.

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

A program stops responding

End the program —

1.
   1. Press <Ctrl><Shift><Esc> simultaneously to access the Task Manager.
   2. Click the **Applications** tab.
   3. Click to select the program that is no longer responding.
   4. Click **End Task**.

A program crashes repeatedly

📝 **NOTE:** Most software includes installation instructions in its documentation or on a floppy disk, CD, or DVD.

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

A program is designed for an earlier Windows operating system

Run the Program Compatibility Wizard —

Windows XP:

The Program Compatibility Wizard configures a program so that it runs in an environment similar to non-XP operating system environments.

1. Click **Start→ All Programs→ Accessories→ Program Compatibility Wizard→ Next**.
2. Follow the instructions on the screen.

Windows Vista:

The Program Compatibility Wizard configures a program so that it runs in an environment similar to non-Windows Vista operating system environments.

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.

A solid blue screen appears

Turn the computer off —

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

Other software problems

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.

Back up your files immediately

Use a virus-scanning program to check the hard drive, floppy disks, CDs, or DVDs

Save and close any open files or programs and shut down your computer through the Start menu

Memory Problems

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.**

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 Replacing or Adding a Memory Module).
- Reseat the memory modules to ensure that your computer is successfully communicating with the memory.
- Run the Dell Diagnostics (see Dell Diagnostics).

If you experience other memory problems —

- Reseat the memory modules (see Replacing or Adding a Memory Module) to ensure that your computer is successfully communicating with the memory.
- Ensure that you are following the memory installation guidelines.
- Ensure that the memory you are using is supported by your computer. For more information about the type of memory supported by your computer, see Memory.
- Run the Dell Diagnostics (see Dell Diagnostics).

Mouse Problems

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.**

Check the mouse cable —

- Ensure that the cable is not damaged or frayed and check cable connectors for bent or broken pins. Straighten any bent pins.
- Remove any mouse extension cables, and connect the mouse directly to the computer.
- Verify that the mouse cable is connected as shown on the setup diagram for your computer.

Restart the computer —

1. Simultaneously press <Ctrl><Esc> to display the **Start** menu.
2. Press <u>, press the up- and down-arrow keys to highlight **Shut down** or **Turn Off**, and then press <Enter>.
3. After the computer turns off, reconnect the mouse cable as shown on the setup diagram.
4. Turn on the computer.

Test the mouse — Connect a properly working mouse to the computer, then try using the mouse.

Check the mouse settings —

Windows XP

1. Click **Start**→ **Control Panel**→ **Mouse**.
2. Adjust the settings as needed.

Windows Vista:

1. Click **Start** → **Control Panel**→ **Hardware and Sound**→ **Mouse**.
2. Adjust the settings as needed.

Reinstall the mouse driver — See "Drivers for Media Drives" in the Dell™ Technology Guide.

Run the Hardware Troubleshooter — See Hardware Troubleshooter.

Network Problems

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.**

Check the network cable connector — Ensure that the network cable is firmly inserted into the network connector on the back of the computer and the network jack.

Check the network lights on the back of the computer — If the link integrity light (see "About Your Computer" in your *Setup and Quick Reference Guide*) is off, no network communication is occurring. Replace the network cable.

Restart the computer and log on to the network again

Check your network settings — Contact your network administrator or the person who set up your network to verify that your network settings are correct and that the network is functioning.

Run the Hardware Troubleshooter — See Hardware Troubleshooter.

Power Problems

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.**

If the power light is blue and the computer is not responding — See Power Lights.

If the power light is blinking blue — The computer is in standby mode. Press a key on the keyboard, move the mouse, or press the power button to resume normal operation.

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

- Reseat the power cable in the power connector on the back of the computer and the electrical outlet.
- Bypass power strips, power extension cables, and other power protection devices to verify that the computer turns on properly.
- Ensure that any power strips being used are plugged into an electrical outlet and are turned on.
- Ensure that the electrical outlet is working by testing it with another device, such as a lamp.
- Ensure that the main power cable and front panel cable are securely connected to the system board (see System Board Components).

If the power light is blinking amber, beep code 3 — The computer is receiving electrical power, but a system board failure may exist.

- Ensure that the voltage selection switch is set to match the AC power at your location (if applicable).
- Ensure that all components and cables are properly installed and securely connected to the system board (see System Board Components).

If the power light is steady amber — A device may be malfunctioning or incorrectly installed.

- Ensure that the processor power cable is securely connected to the system board power connector (POWER2) (see System Board Components).
- Remove and then reinstall all memory modules (see Replacing or Adding a Memory Module).
- Remove and then reinstall any expansion cards, including graphics cards (see PCI and PCI Express Cards).

Eliminate interference — Some possible causes of interference are:

- Power, keyboard, and mouse extension cables
- Too many devices connected to the same power strip
- Multiple power strips connected to the same electrical outlet

Printer Problems

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.**

📝 **NOTE:** If you need technical assistance for your printer, contact the printer's manufacturer.

Check the printer documentation — See the printer documentation for setup and troubleshooting information.

Ensure that the printer is turned on

Check the printer cable connections —

- See the printer documentation for cable connection information.
- Ensure that the printer cables are securely connected to the printer and the computer.

Test the electrical outlet — Ensure that the electrical outlet is working by testing it with another device, such as a lamp.

Verify that the printer is recognized by Windows —

Windows XP:

1. Click **Start→ Control Panel→ Printers and Other Hardware→ View installed printers or fax printers**.
2. If the printer is listed, right-click the printer icon.
3. Click **Properties→ Ports**. For a parallel printer, ensure that the **Print to the following port(s):** setting is **LPT1 (Printer Port)**. For a USB printer, ensure that the **Print to the following port(s):** setting is **USB**.

Windows Vista:

1. Click **Start** → **Control Panel→ Hardware and Sound→ Printer**.
2. If the printer is listed, right-click the printer icon.
3. Click **Properties and click Ports**.
4. Adjust the settings, as needed.

Reinstall the printer driver — See the printer documentation for information on reinstalling the printer driver.

Scanner Problems

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.**

📝 **NOTE:** If you need technical assistance for your scanner, contact the scanner's manufacturer.

Check the scanner documentation — See the scanner documentation for setup and troubleshooting information.

Unlock the scanner — Ensure that your scanner is unlocked (if the scanner has a locking tab or button).

Restart the computer and try the scanner again

Check the cable connections —

- See the scanner documentation for information on cable connections.
- Ensure that the scanner cables are securely connected to the scanner and the computer.

Verify that the scanner is recognized by Microsoft Windows —

Windows XP:

1. Click **Start→ Control Panel→ Printers and Other Hardware→ Scanners and Cameras**.
2. If your scanner is listed, Windows recognizes the scanner.

Windows Vista:

1. Click **Start** → **Control Panel→ Hardware and Sound→ Scanners and Cameras**.
2. If the scanner is listed, Windows recognizes the scanner.

Reinstall the scanner driver — See the scanner documentation for instructions.

Sound and Speaker Problems

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.**

No sound from speakers

📝 **NOTE:** The volume control in MP3 and other media players may override the Windows volume setting. Always check to ensure that the volume on the media player(s) has not been turned down or off.

Check the speaker cable connections — Ensure that the speakers are connected as shown on the setup diagram supplied with the speakers. If you purchased a sound card, ensure that the speakers are connected to the card.

Ensure that the subwoofer and the speakers are turned on — See the setup diagram supplied with the speakers. If your speakers have volume controls, adjust the volume, bass, or treble to eliminate distortion.

Adjust the Windows volume control — Click or double-click the speaker icon in the lower-right corner of your screen. Ensure that the volume is turned up and that the sound is not muted.

Disconnect headphones from the headphone connector — Sound from the speakers is automatically disabled when headphones are connected to the computer's front-panel headphone connector.

Test the electrical outlet — Ensure that the electrical outlet is working by testing it with another device, such as a lamp.

Eliminate possible interference — Turn off nearby fans, fluorescent lights, or halogen lamps to check for interference.

Run the speaker diagnostics

Reinstall the sound driver — See "Drivers for Media Drives" in the Dell™ Technology Guide.

Run the Hardware Troubleshooter — See Hardware Troubleshooter.

No sound from headphones

Check the headphone cable connection — Ensure that the headphone cable is securely inserted into the headphone connector (see Inside View of Your Computer).

Adjust the Windows volume control — Click or double-click the speaker icon in the lower-right corner of your screen. Ensure that the volume is turned up and that the sound is not muted.

Video and Monitor Problems

⚠️ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.**

🚫 **NOTICE:** If your computer came with a PCI graphics card installed, removal of the card is not necessary when installing additional graphics cards; however, the card is required for troubleshooting purposes. If you remove the card, store it in a safe and secure location. For information about your graphics card, go to **support.dell.com.**

The screen is blank

📝 **NOTE:** For troubleshooting procedures, see the monitor's documentation.

The screen is difficult to read

Check the monitor cable connection —

- l Ensure that the monitor cable is connected to the correct graphics card (for dual graphics card configurations).
- l If you are using the optional DVI-to-VGA adapter, ensure that the adapter is correctly attached to the graphics card and monitor.
- l Ensure that the monitor cable is connected as shown on the setup diagram for your computer.
- l Remove any video extension cables and connect the monitor directly to the computer.
- l Swap the computer and monitor power cables to determine if the monitor's power cable is defective.
- l Check the connectors for bent or broken pins (it is normal for monitor cable connectors to have missing pins).

Check the monitor power light —

- If the power light is lit or blinking, the monitor has power.
- If the power light is off, firmly press the button to ensure that the monitor is turned on.
- If the power light is blinking, press a key on the keyboard or move the mouse to resume normal operation.

Test the electrical outlet — Ensure that the electrical outlet is working by testing it with another device, such as a lamp.

Check the diagnostic lights — See Power Lights.

Check the monitor settings — See the monitor documentation for instructions on adjusting the contrast and brightness, demagnetizing (degaussing) the monitor, and running the monitor self-test.

Move the subwoofer away from the monitor — If your speaker system includes a subwoofer, ensure that the subwoofer is positioned at least 60 centimeters (2 feet) away from the monitor.

Move the monitor away from external power sources — Fans, fluorescent lights, halogen lamps, and other electrical devices can cause the screen image to appear *shaky*. Turn off nearby devices to check for interference.

Rotate the monitor to eliminate sunlight glare and possible interference

Adjust the Windows display settings —

Windows XP:

1. Click **Start→ Control Panel→ Appearance and Themes**.
2. Click the area you want to change or click the **Display** icon.
3. Try different settings for **Color quality** and **Screen resolution**.

Windows Vista:

1. Click **Start** → **Control Panel→ Hardware and Sound→ Personalization→ Display Settings**.
2. Adjust **Resolution** and **Colors settings,** as needed.

3D image quality is poor

Check the graphics card power cable connection — Ensure that the power cable for the graphics card(s) is correctly attached to the card.

Check the monitor settings — See the monitor documentation for instructions on adjusting the contrast and brightness, demagnetizing (degaussing) the monitor, and running the monitor self-test.

Only part of the display is readable

Connect an external monitor —

1. Shut down your computer and connect an external monitor to the computer.

2. Turn on the computer and the monitor and adjust the monitor brightness and contrast controls.

If the external monitor works, the computer display or video controller may be defective. Contact Dell (see Contacting Dell).

Dell Technical Update Service

The Dell Technical Update service provides proactive e-mail notification of software and hardware updates for your computer. The service is free and can be customized for content, format, and how frequently you receive notifications.

To enroll for the Dell Technical Update service, go to **support.dell.com/technicalupdate**.

Dell Support Utility

The Dell Support Utility is installed on your computer and available from the Dell Support, ![icon], icon on the taskbar or from the **Start** button. Use this support utility for self-support information, software updates, and health scans of your computing environment.

Accessing the Dell Support Utility

Access the Dell Support Utility from the ![icon] icon on the taskbar or from the **Start** menu.

If the Dell Support icon does not appear in your taskbar:

1. Click **Start**→ **All Programs**→ **Dell Support**→ **Dell Support Settings**.

2. Ensure that the **Show icon on the taskbar** option is checked.

NOTE: If the Dell Support Utility is not available from the **Start** menu, go to **support.dell.com** and download the software.

The Dell Support Utility is customized for your computing environment.

The ![icon] icon in the taskbar functions differently when you click, double-click, or right-click the icon.

Clicking the Dell Support Icon

Click or right-click the ![icon] icon to perform the following tasks:

- Check your computing environment.
- View the Dell Support Utility settings.
- Access the help file for the Dell Support Utility.
- View frequently asked questions.
- Learn more about the Dell Support Utility.
- Turn the Dell Support Utility off.

Double-Clicking the Dell Support Icon

Double-click the ![icon] icon to manually check your computing environment, view frequently asked questions, access the help file for the Dell Support Utility, and view Dell Support settings.

For more information about the Dell Support Utility, click the question mark (**?**) at the top of the **Dell™ Support** screen.

Working on Your Computer

Dell™ Vostro™ 410 Service Manual

- Recommended Tools
- Before Working on Your Computer
- Inside View of Your Computer
- System Board Components
- After Working on Your Computer

This document provides procedures for removing and installing the components in your computer. Unless otherwise noted, each procedure assumes that:

- l   You have performed the steps in Working on Your Computer.
- l   You have read the safety information that shipped with your computer.
- l   When replacing a component, you have already removed the original, if installed.

NOTE: The color of your system and certain system components may appear differently than shown in this document.

Recommended Tools

The procedures in this document may require the following tools:

- l   Small flat-blade screwdriver
- l   Phillips screwdriver
- l   Small plastic scribe
- l   Flash BIOS update (see the Dell Support website at **support.dell.com**)

Before Working on Your Computer

Use the following safety guidelines to help protect your computer from potential damage and to help to ensure your own personal safety.

CAUTION: Before working inside your computer, 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.

NOTICE: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

NOTICE: When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.

NOTICE: To avoid damaging the computer, perform the following steps before you begin working inside the computer.

1. Ensure that the work surface is flat and clean to prevent the computer cover from being scratched.

2. Turn off your computer (see Turning Off Your Computer).

NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.

3. Disconnect all telephone or network cables from the computer.

4. Disconnect your computer and all attached devices from their electrical outlets.

5. Press and hold the power button while the system is unplugged to ground the system board.

NOTICE: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.

Turning Off Your Computer

NOTICE: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.

1. Shut down the operating system.

2. Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 4 seconds to turn them off.

Inside View of Your Computer
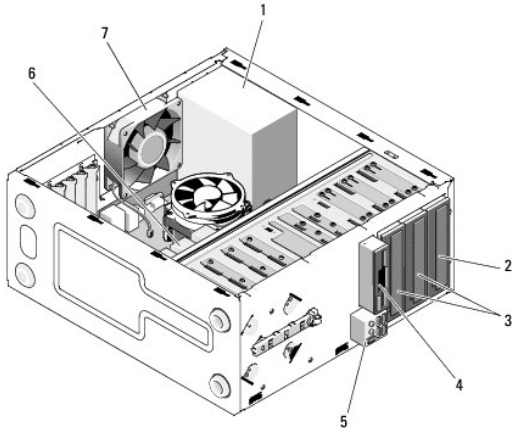
1	power supply	2	optical drive bay
3	optional optical drive bays	4	floppy drive or Media Reader (optional)
5	USB, audio, 1394 (optional) connectors	6	3.5-inch drive bays (4)
7	chassis fan		

System Board Components
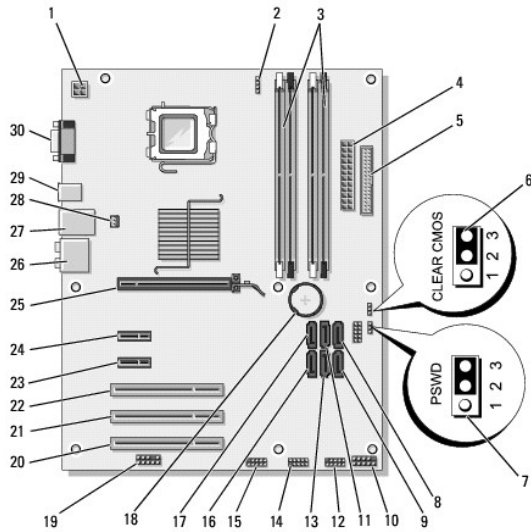
1	power connector (PWR2)	2	CPU fan power	3	memory module connectors (4)
4	main power connector (PWR1)	5	floppy drive connector (FLOPPY)	6	CMOS jumper (CLEAR CMOS)
7	password jumper (CLEAR_PW)	8	serial ATA drive connector (SATA2)	9	serial ATA drive connector (SATA3)
10	front panel connector	11	serial ATA drive connector (SATA1)	12	USB1 system board connector
13	serial ATA drive connector	14	USB2 system board	15	USB3 system board

	(SATA4)		connector		connector
16	serial ATA drive connector (SATA5)	17	serial ATA drive connector (SATA0)	18	battery socket
19	audio connector (F_AUDIO)	20	PCI connector (PCI3)	21	PCI connector (PCI2)
22	PCI connector (PCI1)	23	PCI Express x1 connector (PCIE_X1 2)	24	PCI Express x1 connector (PCIE_X1 1)
25	PCI Express x16 connector (PCIE_x16)	26	audio connectors	27	one LAN and two USB ports
28	CPU fan power	29	USB ports (2)	30	video connector (VGA)

After Working on Your Computer

After you have completed any replacement procedures, ensure you connect any external devices, cards, cables, etc. before turning on your computer.

1. Replace the computer cover. See Replacing the Computer Cover.

2. Connect any telephone or network cables to your computer.

🔘 **NOTICE:** To connect a network cable, first plug the cable into the network device and then plug it into the computer.

3. If necessary, set the computer upright.

4. Connect your computer and all attached devices to their electrical outlets.

🔘 **NOTICE:** Ensure that none of the air vents of the system are blocked.

5. Turn on your computer.