



Maintaining and Troubleshooting the Dell PowerEdge R630 Server

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Contents

Chapter 1: Maintaining and Troubleshooting the Dell PowerEdge R630 Server	6
Dell server overview.....	6
How to use this document.....	7
Dell R630 documentation set.....	8
Downloading Dell documentation.....	8
Front view of Dell™ PowerEdge™ R630 Server.....	9
Back view of Dell™ PowerEdge™ R630 Server.....	11
Front LCD panel.....	12
LCD home screen.....	13
External Maintenance Field Replacement Units.....	14
Hard disk drive problems.....	14
Power supply problems.....	19
Internal Field Replacement Units.....	23
Cooling problems.....	24
System memory.....	26
DIMM problems.....	29
NIC problems.....	35
DVD-RW problems.....	42
Removing the PERC 9 (H730) mini monolithic controller.....	46
Installing the PERC 9 (H730) mini monolithic controller.....	47
RAID battery problems.....	48
Troubleshooting RAID batteries.....	48
Replacing RAID batteries.....	50
RAID Battery ordering information.....	53
Server Field Replaceable Unit.....	53
Global asset recovery policy.....	54
Contacting Avaya Services.....	54

Chapter 1: Maintaining and Troubleshooting the Dell PowerEdge R630 Server

Dell server overview

The Avaya Common Servers category includes Dell servers that support several Avaya software solutions, some requiring additional hardware and memory requirements beyond the standard configuration. This document covers the standard configuration only—consult specific Avaya product documentation for application-specific or solution-specific server configurations.

- Avaya Common Servers are supplied under an OEM relationship and Avaya servers are treated differently than other commercially available servers from the vendors.
- Avaya Common Servers are turnkey appliances. No server designed for a particular application can be repurposed for use with another application. The only exception to this is when an application has provided an upgrade or migration path from an existing server state to a different server state with the appropriate kits, tools, documentation, and training materials. For example, System Platform is providing a kit plus documentation for migrating a server running System Platform to Appliance Virtualization Platform.
- Neither customers, business partners, distributors, nor Avaya Associates interacting with customers and business partners, should get BIOS or other firmware updates for any third party OEM servers that are part of Avaya's turnkey appliance offers. Only consult Avaya-provided downloads, information and support. All BIOS or firmware updates are provided through Avaya. Go to the Avaya Support website at <http://support.avaya.com> for additional information.
- Remote access and use of Dell iDRAC hardware management tools for the Dell servers is employed by a limited number of Avaya applications. If iDRAC is supported, that application's documentation will define its configuration and use. Please check with the Avaya application product manager or appropriate documentation to confirm support.
- Do not contact Dell for service. If the server is purchased from Avaya, customer first point of contact is Avaya. All support, warranty, repair, and maintenance must be scheduled through Avaya. Avaya will contact Dell to assist as required.

Service and repair of consumable accessories and cables are not covered under maintenance. Customers must purchase these items.

- Avaya strongly recommends that all servers are protected with an Uninterruptable Power Supply for power surge and interruption protection. Avaya is not responsible for servers damaged by power surges, brown outs, or black outs.
- Substitution of a DC power supply in a server must be approved by the Application Product Manager before any substitution is made. If there is a significant demand for a turnkey solution with a DC power supply, an Avaya GRIP (Global Requirements Integration Process) request must be submitted. Partners registered to use this process can submit a GRIP request at <https://portal.avaya.com/apps/grip/partner.asp>. Avaya Associates may assist and can find information about this process at <http://spark4.avaya.com/grip>. Note, a GRIP request must be made for the Avaya application product, not the server model. The decision on whether to include a turnkey offer with a DC power supply is the responsibility of each Avaya application Product Manager. The name of the Product Managers for each application is at the bottom of the application page on the Avaya Global Sales portal.
- Dell's RAID battery is a consumable item that can be purchased as a part without a Service ticket. Customers are responsible for installing them, the procedure for which is in the maintaining and troubleshooting document or in appropriate OEM vendor documentation. The Avaya Service Notice about the RAID battery as consumable is Service Bulletin SB000130.
- Low-end capacity servers do not have RAID batteries.
- Product labels on the servers themselves have the 9-digit base server codes and a base server description for Avaya Services to service and support. These 9-digit codes differ from the 6-digit orderable codes under which servers are ordered. On every server package, there is a Packing Label and a Hierarchy Label. The Hierarchy Label itemizes the stock list in the box of the 6-digit orderable code and Avaya recommends retaining them for reference.
- Quality assurance - product integrity testing and environmental international restrictions were completed by Dell and verified with Avaya using Design for Environmental Checklists. The list includes: batteries, printed wiring boards, plastic parts, product packaging, RoHS, green requirements, and energy efficiency.

How to use this document

This guide contains information for installing the Dell™ PowerEdge™ Servers as part of an Avaya deployment and provides:

- Instructions for how to find the appropriate online server documentation from Dell
- References to specific topics in standard Dell documentation
- Suggested changes, details, and notes to assist the user in interpreting the manufacturer's documentation and to clarify Avaya's recommended implementation of the equipment
- Additional topics not covered in standard Dell documentation but which are necessary for successful installation and maintenance of Avaya products
- To diagnose server problems, the user might require a Monitor, USB keyboard, and mouse to connect to the server.

Dell R630 documentation set

Refer to the documents listed below for Dell R630 server installation information and procedures.

 Note:

Download the documents listed in the *Documents to download* section below. Printed copies of the documents listed in the *Documents included in the shipping container* section below ship with the server.

Documents to download

Title
Dell PowerEdge R630 Getting Started With Your System
Dell PowerEdge R630 Owner's Manual

Documents included in the shipping container

Title
Product Information Guide
Rack Installation Instructions

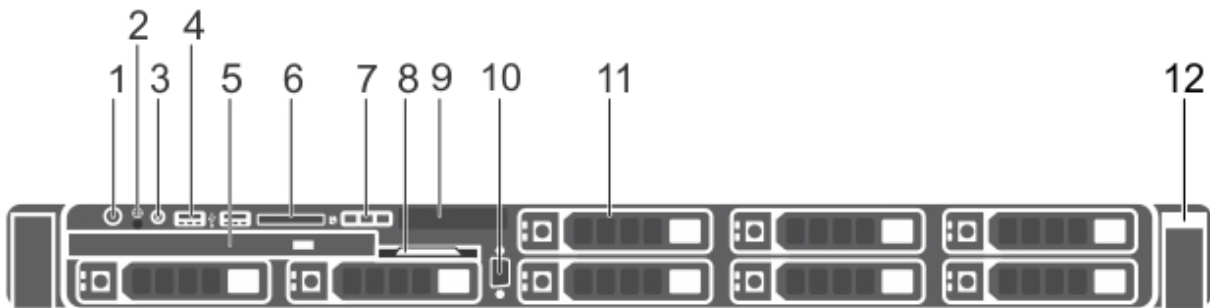
Downloading Dell documentation

Use this procedure to find and download the Dell™ PowerEdge™ R630 documentation from Dell.

Procedure

1. Open a browser and to go <http://www.support.dell.com>.
2. On the Support page, scroll to the **Product support** section and click **View products** under Browse for a product.
3. Click *Servers, Storage, & Networking* in the “select a product” section.
4. Click *PowerEdge*.
5. Click *PowerEdge R630*.
6. Click **Manuals**.
7. Click the link that corresponds to the document that you want to download.
8. Download the documents in the *Dell R630 document set > Documents to download* section below.

Front view of Dell™ PowerEdge™ R630 Server



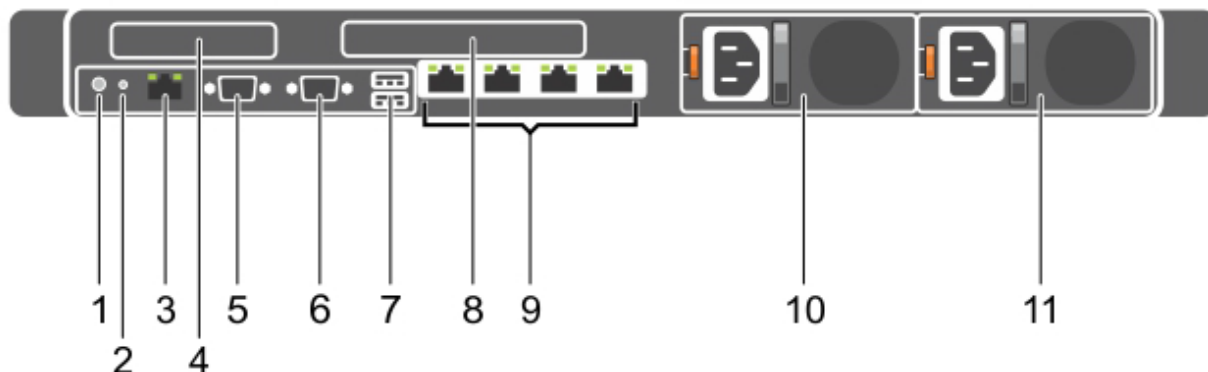
No.	Item	Icon	Description
1	Power-On Indicator, Power Button		The power-on indicator lights when the system power is on. The power button controls the power supply output to the system. * Note: On ACPI-compliant operating systems, turning off the system using the power button causes the system to perform a graceful shutdown before power to the system is turned off.
2	NMI Button		Used to troubleshoot software and device driver errors when running certain operating systems. This button can be pressed using the end of a paper clip. Use this button only if directed to do so by qualified support personnel or by the operating system documentation.
3	System Identification Button		The identification buttons on the front and back panels can be used to locate a particular system within a rack. When one of these buttons is pressed, the LCD panel on the front and the system status indicator on the back flashes blue until one of the buttons are pressed again. Press to toggle the system ID on and off. If the system stops responding during POST, press and hold the system ID button for more than five seconds to enter BIOS progress mode. To reset the iDRAC (if not disabled in F2 iDRAC setup) press and hold the button for more than 15 seconds.
4	USB Connectors (2)		Allows you to insert USB devices to the system. The ports are USB 2.0-compliant.
5	Optical Drive		One DVD+/-RW drive.

Table continues...

No.	Item	Icon	Description
			 Note: DVD devices are data only.
6	vFlash Media Card Slot		Not used in Avaya configurations.
7	LCD Menu Buttons		Allows you to navigate the control panel LCD menu.
8	Information Tag		A slide-out label panel, which allows you to record system information, such as Service Tag, NIC, MAC address.
9	LCD Panel		Displays system ID, status information, and system error messages. The LCD lights blue during normal system operation. When the system needs attention, the LCD lights amber and the LCD panel displays an error code followed by descriptive text.  Note: If the system is connected to AC power and an error is detected, the LCD lights amber regardless of whether the system is turned on or off.
10	Video Connector		Allows you to connect a VGA display to the system.
11	Hard Drives		Support for up to eight 2.5 inch hot-swappable hard drives.* * The first 2 HDDs are placed in the slots under the DVD Drive and read left to right, the remaining HDDs read top to bottom, left to right.
12	Quick Sync		Not used in Avaya configurations.

More information can be found in the *Front-panel features and indicators* section of the Dell Owner's Manual.

Back view of Dell™ PowerEdge™ R630 Server



No.	Item	Icon	Description
1	System Identification Button		The identification buttons on the front and back panels can be used to locate a particular system within a rack. When one of these buttons is pressed, the LCD panel on the front and the system status indicator on the back blink until one of the buttons are pressed again. Press to toggle the system ID on and off. If the system stops responding during POST, press and hold the system ID button for more than five seconds to enter BIOS progress mode. If you are directed by services to reset the iDRAC port, press and hold the button for more than 15 seconds.
2	System Identification Connector		Allows you to connect the optional system status indicator assembly through the optional cable management arm.
3	iDRAC8 Enterprise Port		Dedicated management port. * Note: The port is available for iDRAC8 Express features only. Avaya systems do not come with an Enterprise license. (Not normally used in Avaya systems.)
4	PCIe Expansion Card Slot 1 (riser 2)		Allows you to connect a low profile PCIe expansion card. * Note: If your server is equipped with 6 or 8 NIC ports this slot can contain two port 10/100/1000 Mbps NIC connectors or two 100 Mbps/1 Gbps/10 Gbps SFP + connectors, 2 CPUs must be installed for this slot to be available for use.

Table continues...

No.	Item	Icon	Description
5	Serial Connector		Allows you to connect a serial device to the system.
6	Video Connector		Allows you to connect a VGA display to the system.
7	USB Connectors (2)		Allows you to connect USB devices to the system. The ports are USB 3.0-compliant.
8	PCIe Expansion Card Slot 2 (riser 3)		Allows you to connect a full-height half-length PCIe expansion card. * Note: If your server is equipped with 6 or 8 NIC ports this slot can contain two port 10/100/1000 Mbps NIC connectors or two 100 Mbps/1Gbps/10 Gbps SFP + connectors.
9	Ethernet Connectors (4)		Four integrated 10/100/1000 Mbps NIC connectors (Avaya Standard). * Note: NIC port numbers are read from left to right, starting with Port 1, then continuing to Ports 2, 3, and 4.
10	Power Supply (PSU1)		Wattage and voltage type depends on configuration.
11	Power Supply (PSU2)		Wattage and voltage type depends on configuration.

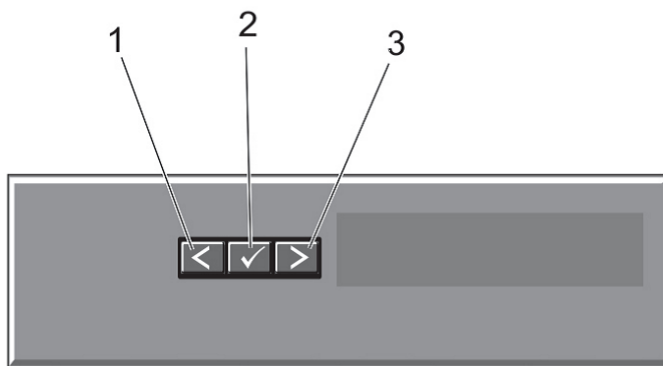
More information can be found in the *Back-panel features and indicators* section of the Dell Owner's Manual.

Front LCD panel

Use this display to identify hardware status and problems with the server.

The system's LCD panel provides system information and status and error messages to indicate when the system is operating correctly or when the system needs attention.

- The LCD backlight lights blue during normal operating conditions and lights amber to indicate an error condition. (Error codes are listed in the System Messages section of the Dell Owner's Manual.)
- The LCD backlight is off when the system is in standby mode and can be turned on by pressing either the Select, Left, or Right button on the LCD panel.
- The LCD backlight remains off if LCD messaging is turned off through the iDRAC utility, the LCD panel, or other tools.



Item	Button	Description
1	Left	Moves the cursor back in one-step increments
2	Select	Selects the menu item highlighted by the cursor
3	Right	Moves the cursor forward in one-step increments. During message scrolling: • Press once to increase scrolling speed • Press again to stop • Press again to return to default scrolling speed • Press again to repeat the cycle

Dell Documentation Reference(s)

Owner's Manual: LCD Panel Features

Owner's Manual: System Messages

Related links

[LCD home screen](#) on page 13

LCD home screen

The display can be used to view system hardware configuration.

The LCD Screen is mainly used to display hardware system errors and alarms. The home screen displays user-configurable information about the system. This screen is displayed during normal system operation when there are no status messages or errors. Servers that are configured by Avaya's integrator display Avaya on the home screen. When the system is in standby mode, the LCD backlight turns off after five minutes of inactivity if there are no error messages. Press one of the three navigation buttons (Select, Left, or Right) to view the Home screen.

To navigate to the Home screen from another menu, continue to select the up arrow until the Home icon is displayed, and then select the Home icon.

From the Home screen, press the Select button to enter the main menu.

Option	Description
MAC	Displays the MAC addresses for iDRAC, iSCSI, or Network devices
Name	Displays the name of the Host, Model, or User String for the system
Number	Displays the Asset tag or the Service tag for the system
Power	Displays the power output of the system in BTU/hr or Watts. The display format can be configured in the Set home submenu of the Setup menu
Temperature	Displays the temperature of the system in Celsius or Fahrenheit The display format can be configured in the Set home submenu of the Setup menu.
iDRAC IP	Most Avaya Applications do not administer or use the iDRAC interface

Dell documentation reference — Owner's Manual: LCD View Menu

Related links

[Front LCD panel](#) on page 12

External Maintenance Field Replacement Units

* Note:

HDD Field Replaceable Units (FRUs) are Hot Swappable assuming you have RAID 1 configuration with 2 HDDs, and 1 of the HDDs is in working order. A RAID 5 Configuration is hot-swappable only if you are swapping 1 HDD, and the other 2 through 7 HDDs are in working order.

Description	Hot-swappable?
R630 300GB 10K SAS 2.5" HDD	Y
R630 300GB 15K SAS 2.5" HDD	Y
R630 600GB 10K SAS 2.5" HDD	Y
R630 1.2TB 10K SAS 2.5" HDD	Y
R630 200GB SATA 2.5" SSD	Y, if redundant
R630 495 WAC PWR SUP	Y, if redundant
R630 750 WAC PWR SUP	Y, if redundant

Hard disk drive problems

Symptoms

Some possible symptoms indicating hard drive problems are:

- Drives have failed as indicated by hard drive LED indicator patterns or alarmed by Avaya application.
- There is an active disk drive failure alarm from an Avaya application

- Drives are not recognized by an Avaya application
- Data is inaccessible
- Server response time is slower than usual

Dell documentation reference(s)

Owner's Manual: Troubleshooting a Hard Drive

Owner's Manual: Hard Drives

Helpful guidelines

When adding drives to the server, observe the following general guidelines:

- Drives must be the same capacity to provide the greatest storage space efficiency when drives are grouped together into the same drive array. Larger drives can be used, but size will be limited to the smallest capacity drives.
- Drives in the same logical volume must be of the same type. Avaya does not support mixing SAS, SATA, and SSD drives in the same logical volume.
- Only use hard drives that have been tested and approved by Avaya for use with the hard-drive backplane.
- When installing a hard drive, ensure that the adjacent drives are fully installed. Inserting a hard-drive carrier and attempting to lock its handle next to a partially installed carrier can damage the partially installed carrier's shield spring and make it unusable.
- All hard drives connect to the system board through the hard-drive backplane. Hard drives are supplied in hot-swappable hard-drive carriers that fit in the hard-drive slots.
- When you hot install a hard drive, allow enough time for the array to rebuild. Be aware that high-capacity hard drives can take a number of hours to rebuild. Check Avaya application documentation for viewing rebuild status. Hard drive LED indicators can also be used.



Caution:

When a replacement hot-swappable hard drive is installed and the system is powered on, the hard drive automatically begins to rebuild. Make absolutely sure that the replacement hard drive is blank or contains data that you wish to have over-written. Any data on the replacement hard drive is immediately lost after the hard drive is installed.



Caution:

Do not turn off or reboot your system while the hard drive is being rebuilt. Doing so can cause a hard drive failure.

Hard drive indicator patterns

Use these indicators to identify status and problems with a hard drive.



*** Note:**

If the hard drive is in Advanced Host Controller Interface (AHCI) mode, the status indicator (on the right side) does not function and remains off.

Item	LED Pattern	Condition	Avaya recommendations and information
1	hard-drive activity indicator (green)	Indicates that the drive is being read or written to	Do not remove drive when active..
2	hard-drive status indicator (green and amber)		Use this indicator for hard drive status and error conditions.
2	Blinks green two times per second	Identifying drive or preparing for removal	
2	Off	Drive ready for insertion or removal	Preparing for removal is not necessary when using this controller. All drives and controller support hot-swap * Note: The drive status indicator remains off until all hard drives are initialized after the system is turned on. Drives are not ready for insertion or removal during this time.
2	Blinks green, amber, and off	Predicted drive failure	Indicates future failure and drive should be replaced as soon as possible
2	Blinks amber four times per second	Drive failed	Drive must be replaced immediately.

Table continues...

Item	LED Pattern	Condition	Avaya recommendations and information
2	Blinks green slowly	Drive rebuilding	A newly inserted replacement drive should start this LED pattern within 10-15 seconds of insertion to indicate a rebuild of the logical drive. If action does not start, unplugging and reinserting new drive can be performed.
2	Steady green	Drive online	Normal operation. Drive is currently operating as part of RAID array.
2	Blinks green three seconds, amber three seconds, and off six seconds	Rebuild aborted	Remove drive hot and reinsert. If problems persist try another drive or call in an Avaya ticket.

Troubleshooting a hard disk drive

About this task

Follow the steps below to troubleshoot hard drive problems on one of these drives:

- R630 SRVR 300 GB 10K SAS 2.5" HDD
- R630 SRVR 300 GB 15K SAS 2.5" HDD
- R630 SRVR 600 GB 10K SAS 2.5" HDD
- R630 SRVR 1.2 TB 10K SAS 2.5" HDD
- R630 SRVR 200 GB SATA 2.5" SSD



Caution:

Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Avaya is not covered by your warranty. Read and follow the safety instructions that came with the product.



Caution:

This troubleshooting procedure can erase data stored on the hard drive. Before you proceed, back up all files from the hard drives.

Procedure

1. Ensure there are no loose connections, and all drives are fully seated.
2. Check hard drive indicator patterns for description of possible problems. See [Hard drive indicator patterns](#) on page 15. View LCD display for any HDDs error messages.
3. Ensure drive blanks are installed properly when the server is operating. Drives may overheat and cause sluggish response or drive failure.
4. Ensure the replacement drives within an array are the same size or larger.

5. Ensure the replacement drives within an array are the same drive type, such as, SAS, SATA, or SSD.
6. Power cycle the server. Shutdown server according to Avaya application procedures.
7. Connect a monitor, USB keyboard, and mouse to Dell R630 Server, and do the following:
 - a. Reboot server. From the Dell splash screen, press **F10** to go to **Lifecycle controller**, and run the diagnostics from the console.
 - b. Select **Hardware Diagnostics > Run Diagnostics** and navigate to applicable tests for diagnosis.
8. Check the Avaya Support website: <http://support.avaya.com> to see if a firmware update is available from Avaya for this model of server. View notes to see if firmware update is applicable to the observed problem before applying the update.

Next steps

If the part is defective, continue with the removal and replacement procedures.

Replacing a hard disk drive

Before you begin

Back up all server data from the drive prior to replacing it.

About this task

Follow the steps below to replace one of these drives:

- R630 SRVR 300 GB 10K SAS 2.5" HDD
- R630 SRVR 300 GB 15K SAS 2.5" HDD
- R630 SRVR 600 GB 10K SAS 2.5" HDD
- R630 SRVR 1.2 TB 10K SAS 2.5" HDD
- R630 SRVR 200 GB SATA 2.5" SSD

Note:

Drives are hot-swappable so power down of server is not recommended. However, only one drive must be replaced at a time allowing for full rebuild between replacements.

Procedure

1. Remove failed or failing hard drive as indicated by HDD LEDs or application alarms.

A Hard drive can be removed and replaced from RAID 1 and RAID 5 configurations in Dell R630. The Avaya application will continue to run in a degraded mode until a replacement HDD is installed and rebuilt.

- a. Press the release button on the front of the hard-drive carrier and open the hard-drive carrier handle.
- b. Remove the hard-drive carrier from the hard-drive slot.

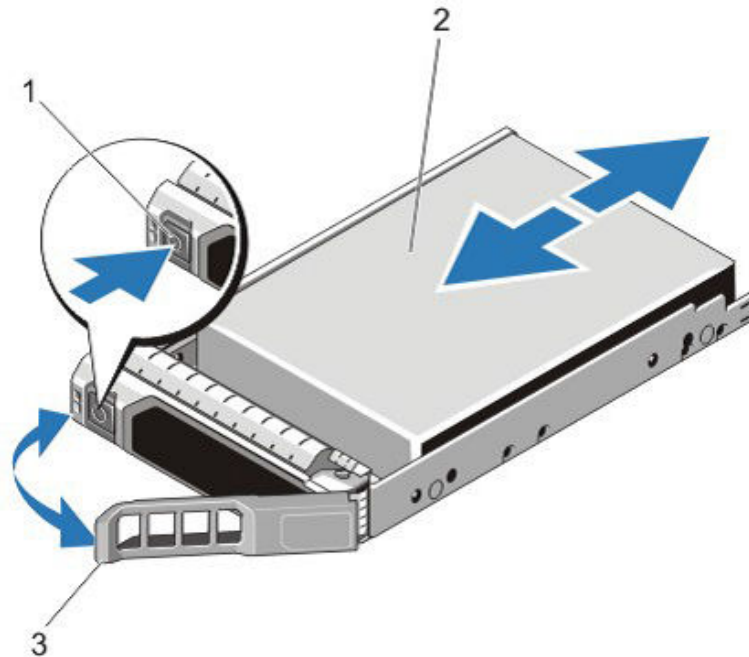


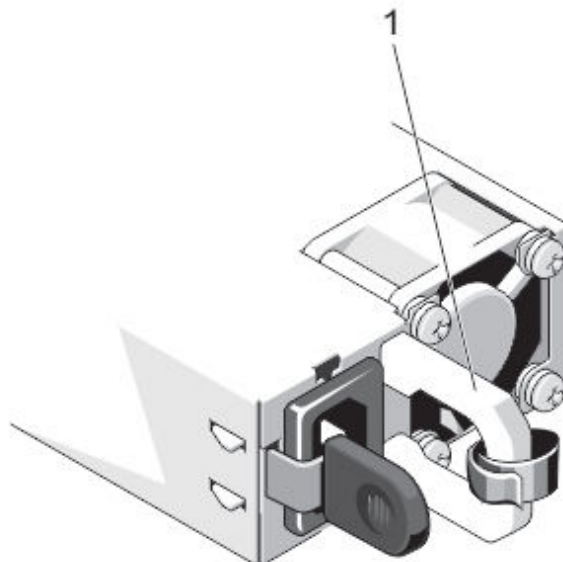
Figure 1: Replacing hard disk drive

2. Replace the drive.
 - a. Press the release button on the front of the hard-drive carrier and open the hard-drive carrier handle.
 - b. Insert the hard-drive carrier into the hard-drive slot until the carrier connects with the backplane.
 - c. Close the hard-drive carrier handle to lock the hard drive in place.
 - d. Drive should start to rebuild as indicated by appropriate LEDs, see [Hard drive indicator patterns](#) on page 15.

Power supply problems

Power Supply Status Indicator

Each AC power supply has an illuminated translucent handle (indicated in the figure below) that serves as an indicator to show whether power is present or whether a power fault has occurred.

**Figure 2: AC Power Supply Status Indicator**

Power Indicator Pattern	Condition
Not Lit	Power is not connected
Green	A valid power source is connected to the power supply and the power supply is operational
Flashing Green	When hot-adding a power supply, this indicates that the power supply is mismatched with the other power supply (in terms of efficiency, feature set, health status, and supported voltage). Replace the power supply that has the flashing indicator with a power supply that matches the capacity of the other installed power supply.

⚠ Caution:

- When correcting a power supply mismatch, replace only the power supply with the flashing indicator. Swapping the opposite power supply to make a matched pair can result in an error condition and unexpected system shutdown. To change from a High Output configuration to a Low Output configuration or vice versa, you must power down the system.
- AC power supplies support both 220 V and 110 V input voltages. When two identical power supplies receive different input voltages, they can output different wattages, and trigger a mismatch.
- If two power supplies are used, they must be of the same type and have the same maximum output power.
- Combining AC and DC power supplies is not supported and triggers a mismatch.

Symptoms

Some possible symptoms indicating power supply problems are:

- The server does not power on.

- The system power LED is off or solid amber.
- The health LED is solid red, flashing red, solid amber, or flashing amber.

Dell documentation reference(s)

Owner's Manual: Troubleshooting Power Supplies

Owner's Manual: Power Supplies

Possible Causes

List of possible causes for the above symptoms:

- Improperly seated or faulty power supply
- Loose or faulty power cord
- Power source problem
- Improperly seated component or interlock problem

If the power supply LED is off, it could mean any of the following:

- AC power unavailable
- Power supply failed
- Power supply in standby mode
- Power supply exceeded current limit

Troubleshooting a power supply

About this task

Follow the steps below to troubleshoot one of these power supplies:

- R630 495 W AC PWR SUP
- R630 750 W AC PWR SUP

Caution:

Many repairs might only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Avaya and is not covered by your warranty.

Procedure

1. To troubleshoot possible power source problems:
 - a. Plug another device into the grounded power outlet to be sure the outlet works. Also, be sure the power source meets applicable standards.
 - b. Replace the power cord with a known functional power cord to be sure it is not faulty.
 - c. Replace the power strip with a known functional power strip to be sure it is not faulty.
 - d. Have a qualified electrician check the line voltage to be sure it meets the required specifications.
 - e. Ensure the proper circuit breaker is in the On position.

If power source is not the problem, continue with steps below to troubleshoot power supplies.

2. Check LCD display for any power supply related messages.
3. Reseat the power supply by removing and reinstalling it.

 Note:

After installing a power supply, allow several seconds for the system to recognize the power supply and to determine if it is working properly.

4. Ensure no loose connections exist.
5. If server is powered off, press the Power On/Standby button to be sure it is on. If the server has a Power On/Standby button that returns to its original position after being pressed, be sure you press the switch firmly. For more information consult the system power LED status.
6. Check the back panel LEDs.
7. Check the power supply LEDs, ensure they indicate that each power supply is working properly. If the LEDs indicate a problem with a power supply (red, amber, or off), then check the power source. If the power source is working properly, then replace the power supply.
8. If running a redundant configuration, ensure that all of the power supplies in the system have the same spare part number and are supported by the server.
9. Power down the server according to Avaya's application instructions.
10. Connect a monitor, USB keyboard, and mouse to Dell R630 Server, and do the following:
 - a. Reboot server. From the Dell splash screen, press **F10** to go to **Lifecycle controller**, and run the diagnostics from the console.
 - b. Select **Hardware Diagnostics > Run Diagnostics** and navigate to applicable tests for diagnosis.

Next steps

If the part is defective, continue with the removal and replacement procedures.

Replacing a power supply

About this task

Follow the steps below to replace one of these power supplies:

- R630 495 W AC PWR SUP
- R630 750 W AC PWR SUP

Procedure

1. If system does not have redundant power, shut down server according to Avaya application procedures. The system may already be down if power supply has failed to provide power to system board.
 - If server does not power down according to normal shutdown procedures, press and release the Power On/Standby button. This method initiates a controlled shutdown of applications and the OS before the server enters standby mode.
 - Press and hold the Power On/Standby button for more than 4 seconds to force the server to enter standby mode. This method forces the server to enter standby mode without properly exiting applications and the OS. If an application stops responding, you can use this method to force a shutdown, but be aware that file corruption could occur using this method.
2. Disconnect the power cable from the power source and the power supply you intend to remove and remove the cables from the strap. If server has redundant power system should remain running on single working supply.
3. Press the release latch and slide the power supply out of the chassis.
4. Verify that both the power supplies are the same type and have the same maximum output power. The maximum output power (shown in Watts) is listed on the power supply label.
5. Slide the new power supply into the chassis until the power supply is fully seated and the release latch snaps into place.
6. Connect the power cable to the power supply and plug the cable into a power outlet. If redundant, supplies will load share.
7. Power up the server (if powered down)

Internal Field Replacement Units

Note:

Internal Field Replaceable Units (FRUs) require the server to be shutdown and the cover removed to access and replace the FRU.

Description
R630 4GB RDIMM
R630 1Gb QUAD PT NIC DAUGR CRD
R630 H830 RAID CNTRLR
R630 INSTL 1Gb PCIE DUAL PT NIC
R630 ADDN 1Gb PCIE DUAL PT NIC
R630 DVD-RW DRIVE W/BRKT
R630 CHASSIS FAN

Cooling problems

Symptoms

- Server powers up but quickly shuts down
- LCD panel indicates a fan failure
- Avaya application alarms fan failure

Dell documentation reference(s)

Owner's Manual: Troubleshooting Cooling Problems

Owner's Manual: Troubleshooting Cooling Fans

Owner's Manual: Cooling Shroud

Troubleshooting cooling problems

About this task

Follow the steps below to troubleshoot a cooling fan problem.

Procedure

1. Ensure that none of the following conditions exist:

- System cover, cooling shroud, EMI filler panel, memory-module blank or back-filler bracket is removed.
- Ambient temperature is too high.
- External airflow is obstructed.
- A cooling fan is removed or has failed.
- The expansion card installation guidelines have not been followed.

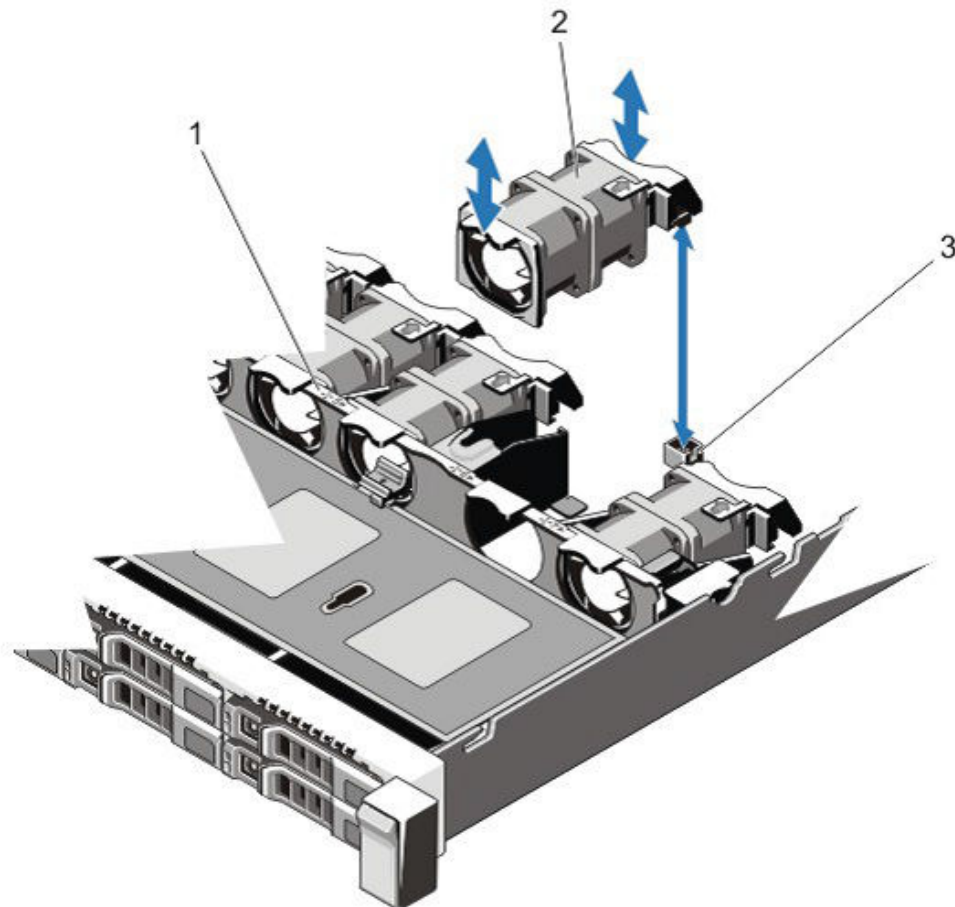
2. Check the server LCD display.

In the event of a problem with a particular fan, the fan number is referenced by the LCD display, allowing you to easily identify and replace the proper fan by noting the fan numbers on the cooling fan assembly. Most Avaya applications will alarm fan failures.

If you identify that a fan has failed, go to step 4, else go to step 3. If failing fan cannot be identified reboot server according to application documentation.

3. Connect a monitor, USB keyboard, and mouse to Dell R630 Server, and do the following:
 - a. Reboot server. From the Dell splash screen, press **F10** to go to **Lifecycle controller**, and run the diagnostics from the console.
 - b. Select **Hardware Diagnostics > Run Diagnostics** and navigate to applicable tests for diagnosis.
4. Open the system and reseal the identified failing fan.

The cooling fans are hot-swappable. To maintain proper cooling while the system is on, replace only one fan at a time.



Item	Description
1	Cooling Fan Assembly
2	Cooling Fans
3	Cooling Fan Connectors

Figure 3: Cooling Fan Assembly

5. If the fan functions properly, close the system.

Next steps

If the part is defective, continue with the removal and replacement procedures.

Replacing cooling fans

About this task

Follow the steps below to replace a cooling fan module.

Procedure

1. Replace any non - functioning fans and restart the server if necessary. Fans are hot-swappable.
2. To remove the component:
 - a. Extend the server from the rack. If the server is to remain on with application up, ensure power cord does not disconnect when extending server from rack.
 - b. Remove the access panel
 - c. Remove the fan module.

Caution:

To avoid server shutdown, a fan must be replaced within 60 seconds of being removed.

3. To replace the component:
 - a. Install the Fan Module
 - b. Install the access panel
 - c. Slide the server into the rack.

System memory

Memory overview

Avaya systems ship with DDR4 registered DIMMs (RDIMMs).

Note:

MT/s indicates DIMM speed in Mega Transfers per second.

Memory bus operating frequency can be 2133 MT/s, 1866 MT/s, 1600 MT/s, or 1333 MT/s depending on:

- DIMM configuration (number of ranks)
- Maximum frequency of the DIMMs
- Number of DIMMs populated per channel
- DIMM operating voltage
- System profile selected (for example, Performance Optimized, Custom, or Dense Configuration Optimized). Avaya systems are configured for Optimized mode.
- Maximum supported DIMM frequency of the processors

The system contains 24 memory sockets split into two sets of 12 sockets, one set per processor. Each 12-socket set is organized into four channels. In each channel, the release levers of the first socket are marked white, the second socket black, and the third socket green.

*** Note:**

DIMMs in sockets A1 to A12 are assigned to processor 1 and DIMMs in sockets B1 to B12 are assigned to processor 2.

General memory module guidelines

This system supports Flexible Memory Configuration, enabling the system to be configured and run in any valid chipset architectural configuration. The following are the recommended guidelines for best performance:

- UDIMMs, RDIMMs, must not be mixed.
- x4 and x8 DRAM based DIMMs can be mixed. For more information, see Mode-Specific Guidelines (below).
- Populate DIMM sockets only if a processor is installed. For single-processor systems, sockets A1 to A12 are available. For dual-processor systems, sockets A1 to A12 and sockets B1 to B12 are available. Avaya server system memory comes pre populated and is configured according to the Avaya application.
- Populate all sockets with white release tabs first, then black, and then green.
- Populate the sockets by highest rank count in the following order — first in sockets with white release levers, then black, and then green. For example, if you want to mix quad-rank and dual-rank DIMMs, populate quad-rank DIMMs in the sockets with white release tabs and dual-rank DIMMs in the sockets with black release tabs.
- In a dual-processor configuration, the memory configuration for each processor should be identical. For example, if you populate socket A1 for processor 1, then populate socket B1 for processor 2, and so on.
- Memory modules of different sizes can be mixed provided that other memory population rules are followed (for example, 2 GB and 4 GB memory modules can be mixed).
- Populate four DIMMs per processor (one DIMM per channel) at a time to maximize performance.
- If memory modules with different speeds are installed, they will operate at the speed of the slowest installed memory module(s) or slower depending on system DIMM configuration.

Memory socket logistics

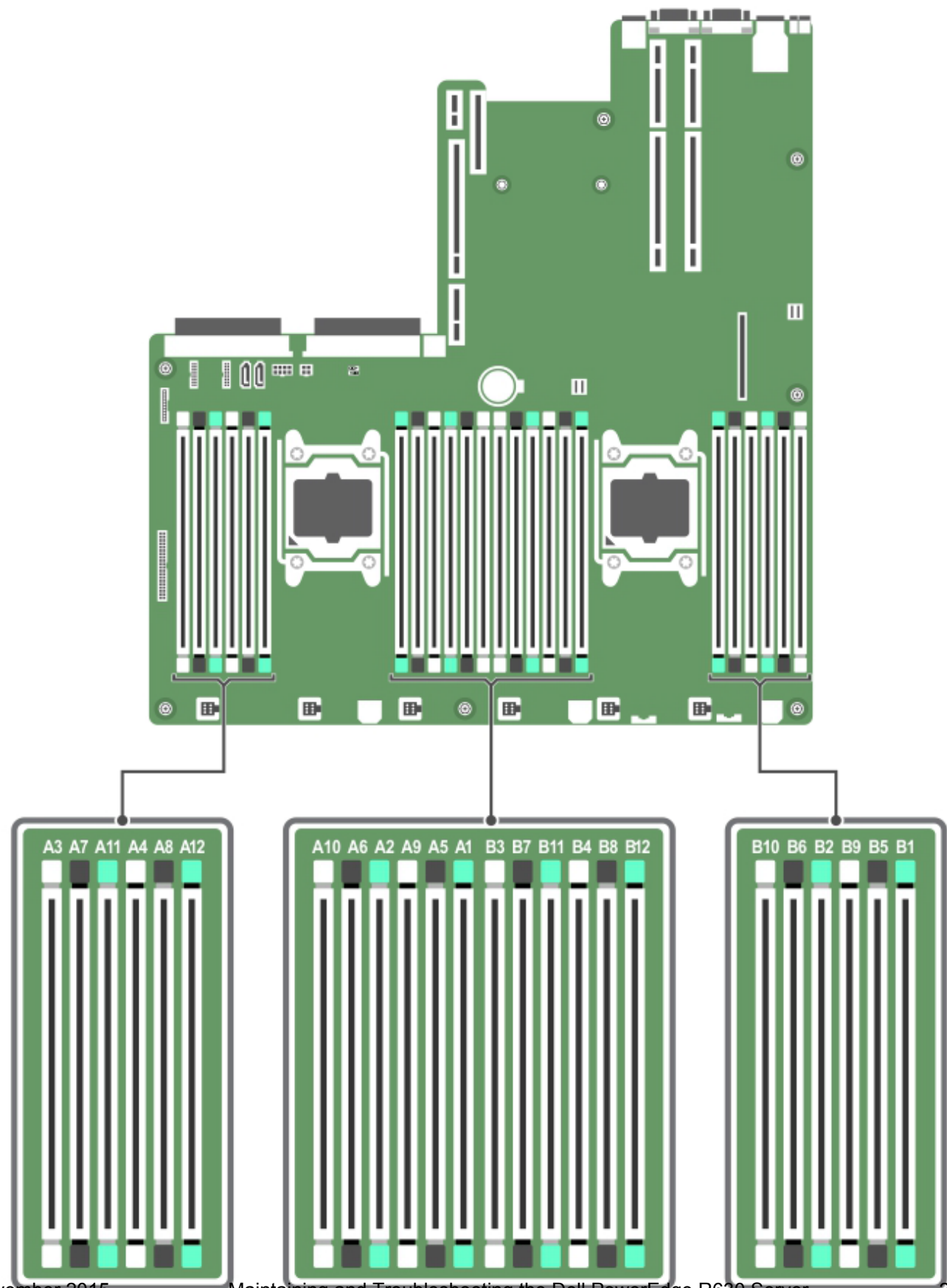


Figure 4: Memory socket locations

Processor	Channel and slots
Processor 1	Channel 0: slots A1, A5, and A9
	Channel 1: slots A2, A6, and A10
	Channel 2: slots A3, A7, and A11
	Channel 3: slots A4, A8, and A12
Processor 2	Channel 0: slots B1, B5, and B9
	Channel 1: slots B2, B6, and B10
	Channel 2: slots B3, B7, and B11
	Channel 3: slots B4, B8, and B12

Sample memory configurations

The following tables show sample memory configurations for one and two processor configurations that follow the appropriate memory guidelines stated in this section. These are the current Avaya server memory configurations.

Table 1: Sample memory configurations — single processor

System Capacity (in GB)	DIMM Size (in GB)	Number of DIMMs	DIMM Slot Population
16	4	4	A1, A2, A3, A4
32	4	8	A1, A2, A3, A4, A5, A6, A7, A8

Table 2: Memory configuration — two processors

System Capacity (in GB)	DIMM Size (in GB)	Number of DIMMs	DIMM Slot Population
32	4	8	A1, A2, A3, A4 B1, B2, B3, B4
64	4	16	A1, A2, A3, A4, A5, A6, A7, A8 B1, B2, B3, B4, B5, B6, B7, B8

DIMM problems

Symptoms

- General memory problems are occurring as indicated by Avaya alarming software. Error codes on LCD that display error type that indicates memory error. See Dell Owner's Manual: Troubleshooting System Memory.
- Server is out of memory
- Memory count error exists
- The server fails to recognize existing memory and causes Avaya applications to fail or report memory errors in logs and alarms.

- Server fails to recognize new memory

Dell documentation reference(s)

Owner's Manual: Troubleshooting System Memory

Owner's Manual: System Memory

Owner's Manual: General Memory Module Installation Guidelines

Owner's Manual: Mode-Specific Guidelines

Owner's Manual: Sample Memory Configurations

Owner's Manual: Removing Memory Modules

Owner's Manual: Installing Memory Modules

Removing the cooling shroud to gain access for system memory replacement

Before you begin

Turn off the system, including any attached peripherals, and disconnect the system from the electrical outlet and peripherals. Shut down according to the Avaya application instructions.

About this task

The cooling shroud needs to be removed when servicing memory DIMMs.

Caution:

Never operate your system with the cooling shroud removed. The system may get overheated quickly, resulting in shutdown of the system and loss of data.

Procedure

1. Open the system.
2. Hold the touch points and lift the shroud away from the system.

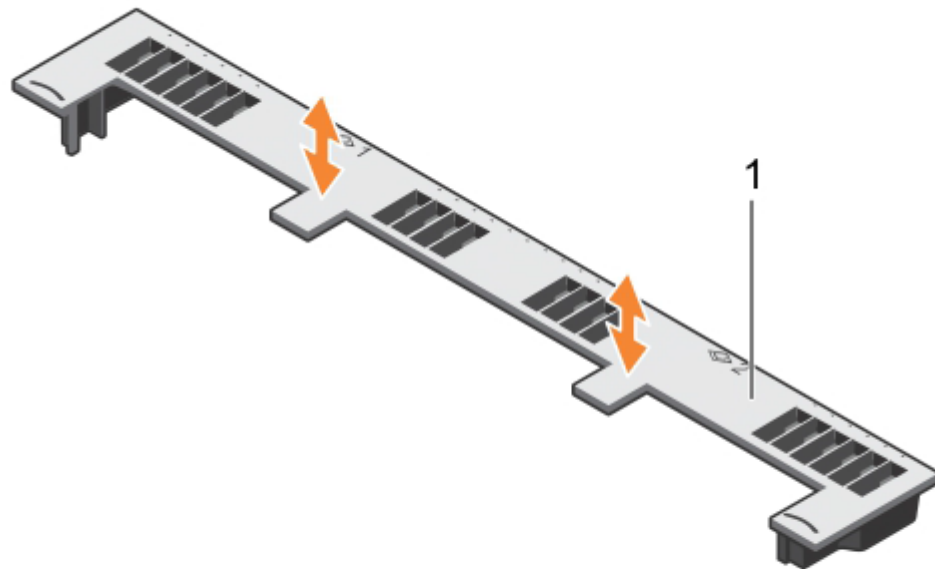


Figure 5: Cooling Shroud

3. To install, align the tabs on the cooling shroud with the securing slots on the chassis and lower the cooling shroud into the chassis until it is firmly seated.
4. Close the system before reconnecting the disconnected peripherals and power.

Troubleshooting memory DIMMs

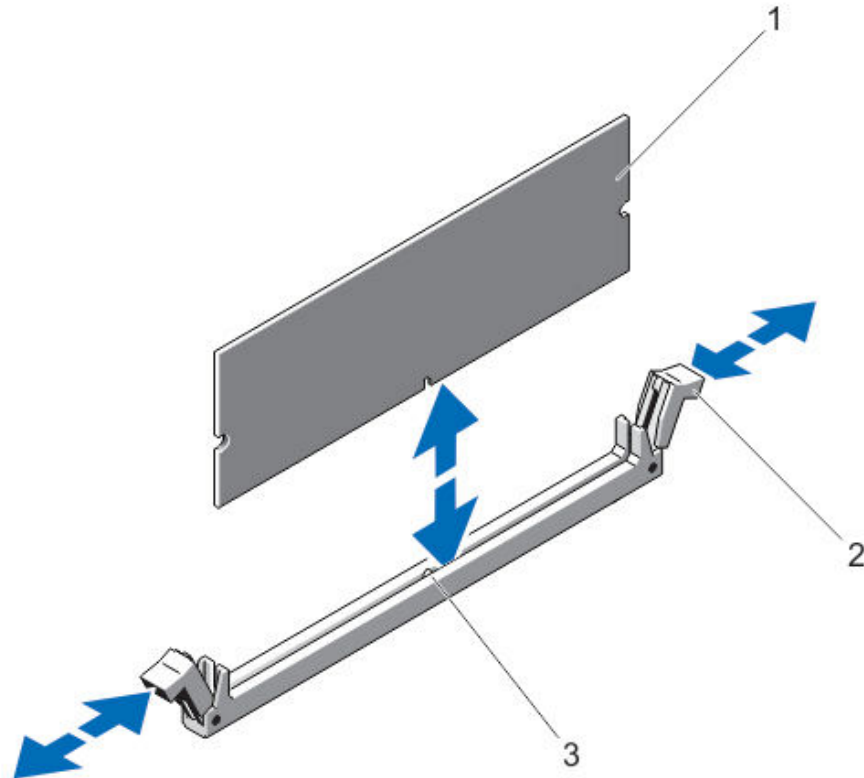
About this task

Follow the steps below to troubleshoot 4 GB RDIMMs.

Procedure

1. If the system is not operational, turn off the system, and unplug the system from the power source. Wait at least 10 seconds and then reconnect the system to power.
2. Turn on the system and attached peripherals and note the messages on the console screen. If an error message is displayed indicating a fault with a specific memory module, go to step 10.
3. Turn off the system and disconnect the system from the electrical outlet.
4. Open the system.

5. Check the memory channels and ensure that they are populated correctly. Avaya only ships servers with 4 GB RDIMMS.
 - Memory modules must be identical in size, speed, and technology.
 - DIMMs installed in memory sockets with white release tabs must be identical and similar rule applies for sockets with black and green release tabs. This ensures that identical DIMMs are installed in matched pairs - for example, A1, A2, A3, and A4 must match, A5, A6, A7, and A8 must match and so on.
6. Reseat the memory modules in their sockets.



Item	Description
1	Memory Module
2	Memory-Module Socket Ejectors (2)
3	Alignment key

7. Close the system.
8. From the console, enter **System Setup**, and check the system memory setting. If the problem is not resolved, proceed with the next step.

9. Connect a monitor, USB keyboard, and mouse to Dell R630 Server, and do the following:
 - a. Reboot server. From the Dell splash screen, press **F10** to go to **Lifecycle controller**, and run the diagnostics from the console.
 - b. Select **Hardware Diagnostics > Run Diagnostics** and navigate to applicable tests for diagnosis.
10. Identify the failing RDIMM.
11. Power down system according to Avaya procedures if applicable and remove power cords. Open server by removing server lid.
12. If a diagnostic test or error message indicates a specific memory module as faulty, swap or replace the module with a known good memory module.
13. To troubleshoot an unspecified faulty memory module, replace the memory module in the first DIMM socket with a module of the same type and capacity. If the system displays an error message on the screen, this might indicate a problem with the installed DIMM types, incorrect DIMM installation, or defective DIMMs. Follow the on-screen instructions to resolve the problem.
14. Close the system.
15. As the system boots, observe any error message that is displayed and the diagnostic indicators on the front of the system.
16. If the memory problem is still indicated, repeat step 9 through step 15 for each memory module installed.

Next steps

If the part is defective, continue with the removal and replacement procedures.

Replacing memory DIMMs

About this task

Follow the steps below to replace a defective 4 GB RDIMM.



Note:

Always follow safe electro static discharge practices.



Warning:

The memory modules are hot to the touch for some time after the system has been powered down. Allow time for the memory modules to cool before handling them. Handle the memory modules by the card edges and avoid touching the components on the memory module.



Caution:

To ensure proper system cooling, memory-module blanks must be installed in any memory socket that is not occupied. Remove memory-module blanks only if you intend to install memory in those sockets.

Procedure

1. Turn off the system according to Avaya application procedures, including any attached peripherals, and disconnect the system from the electrical outlet and peripherals.
2. Open the system.
3. Remove the cooling shroud.
4. Locate the appropriate memory module socket(s).
5. Press down and out on the ejectors on each end of the socket until the memory module or memory module blank pops out of the socket.

 Caution:

Handle each memory module only on either card edge, making sure not to touch the middle of the memory module.

6. Install the memory module socket.
 - a. Press the ejectors on the memory module socket down and out to allow the memory module to be inserted into the socket. If a memory module blank is installed in the socket, remove it.
 - b. Align the memory module's edge connector with the alignment key of the memory module socket, and insert the memory module in the socket.

The memory module socket has an alignment key that allows you to install the memory module in the socket in only one way.
 - c. Press down on the memory module with your thumbs until the socket levers latch into a locked position. When the memory module is properly seated in the socket, the levers on the memory module socket align with the levers on the other sockets that have memory modules installed.
7. Install memory-module blanks in vacant memory-module socket(s) to ensure proper system cooling.
8. Install the cooling shroud.
9. Close the system.
10. Reconnect the system to its electrical outlet and turn the system on, including any attached peripherals.
11. Check the system memory capacity. On the console screen, press **F2** to go to the **System Setup** menu, and then use the arrow keys to select **BIOS/Memory Settings** and click **Enter**. The system should have already changed the value to reflect the newly installed memory. Press **Escape** to exit.
12. If the value is incorrect, one or more of the memory modules might not be installed properly. Repeat step 4 through step 6 of this procedure, checking to ensure that the memory modules are firmly seated in the sockets.

NIC problems

Symptoms

- Network controller is installed but not working.
- Network controller has stopped working.

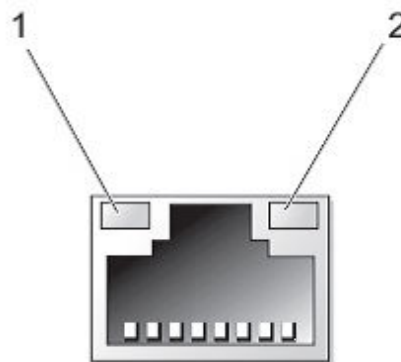
Dell documentation reference(s)

Owner's Manual: Troubleshooting a NIC

Owner's Manual: Network Daughter Card

Owner's Manual: Expansion Cards and Expansion-Card Risers

NIC Indicator Codes



Item	Description
1	Link indicator
2	Activity indicator

Link / Activity LEDs	Indicator Code
Link and activity indicators are off	The NIC is not connected to the network
Link indicator is green	The NIC is connected to a valid network at its maximum port speed (1Gbps)
Link indicator is amber	The NIC is connected to a valid network at less than its maximum port speed
Activity indicator is blinking green	Network data is being sent or received

Troubleshooting a NIC

About this task

Follow the steps below to troubleshoot the 2 Port PCIe NIC card or 4 Port PCIe NIC daughter card.

Procedure

1. If available, try using built in Avaya application NIC tests to diagnose NIC problem. If not possible, reboot system according to Avaya application and check for any system messages displayed on the console or LCD display pertaining to the NIC controller.
2. Check the appropriate indicator on the NIC connector:
 - a. If the link indicator does not light, check all cable connections.
 - b. If the activity indicator does not light, the network driver files might be damaged or missing.
 - c. Use another connector on the switch or hub.
3. Ensure that the appropriate drivers are installed and the protocols are bound. See Avaya's application documentation. Ping appropriate gateway if possible according to Avaya's application documentation.
4. Ensure that the NICs, hubs, and switches on the network are all set to the same data transmission speed and duplex. See the Avaya application documentation for testing each network device.
5. Ensure that all network cables are of the proper type and do not exceed the maximum length.
6. Connect a monitor, USB keyboard, and mouse to Dell R630 Server, and do the following:
 - a. Reboot server. From the Dell splash screen, press **F10** to go to **Lifecycle controller**, and run the diagnostics from the console.
 - b. Select **Hardware Diagnostics > Run Diagnostics** and navigate to applicable tests for diagnosis.
7. From the Dell splash screen, press **F2** to go to **System Setup** and confirm that the NIC ports are enabled on the Integrated Devices screen.

Next steps

If the part is defective, continue with the removal and replacement procedures.

Replacing a network daughter card

About this task

Use this procedure to remove and install a network daughter card.

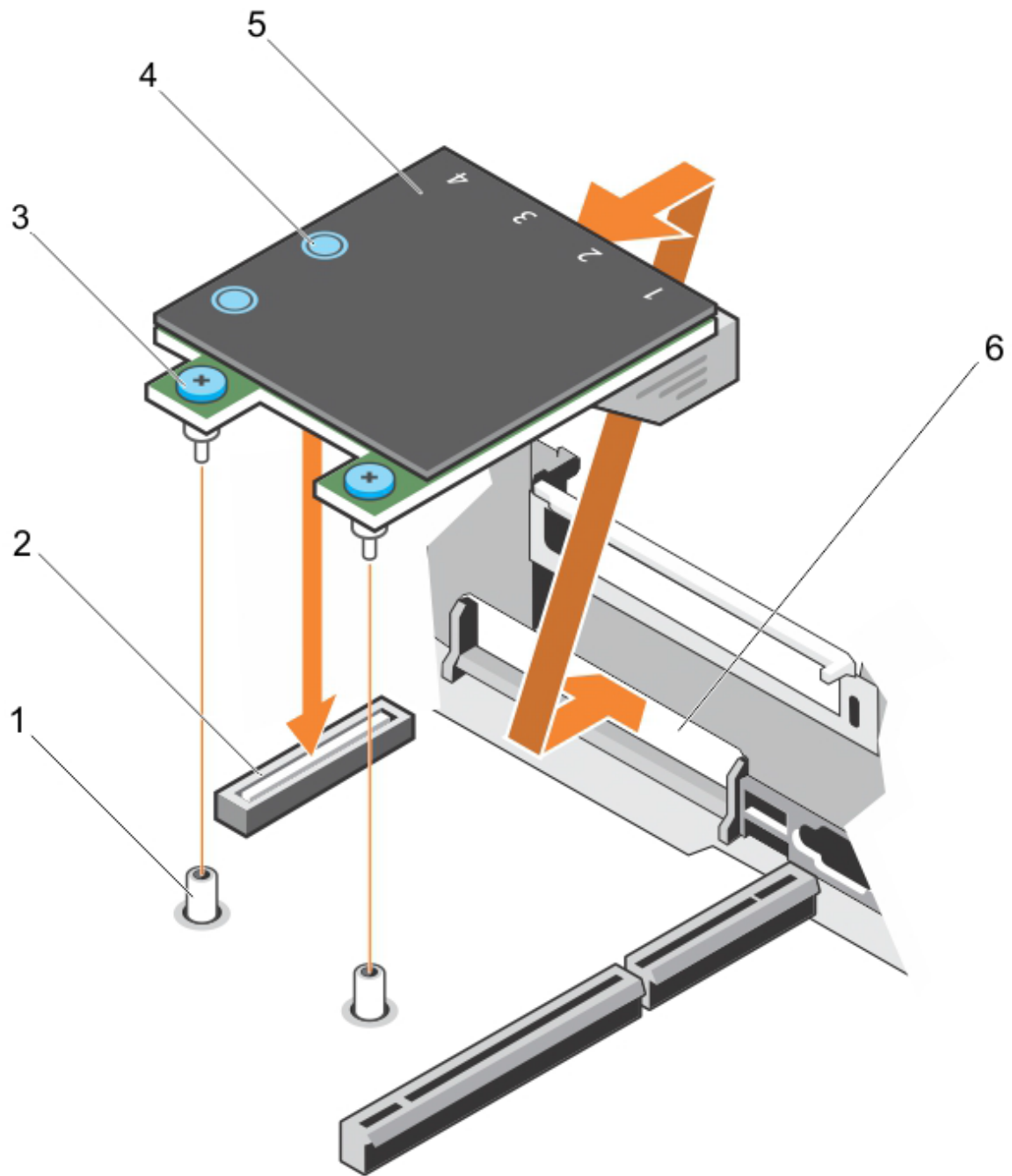


Figure 6: Network daughter card assembly

Item	Description
1	Captive Screw Sockets (2)
2	Connector on the System Board
3	Captive Screws (2)
4	Touch Point
5	Network Daughter Card
6	Back Panel Slots for Ethernet connectors

*** Note:**

Always practice safe electro static discharge procedures.

Procedure

1. Power down the server according to Avaya's application instructions, and disconnect the system from the electrical outlet.
2. Open the system.
3. Remove the expansion-card riser 3.
4. Using a #2 Phillips screwdriver, loosen the two captive screws that secure the network daughter card to the system board.
5. Hold the network daughter card by the edges on either side of the touch point and lift to remove it from the connector on the system board.
6. Slide the network daughter card away from the back of the system until the RJ-45 connectors are clear of the slot in the back panel.
7. Lift the network daughter card out of the system.
8. To reinstall the card, angle the card so that the RJ-45 connectors fit through the slot in the back panel.
9. Align the captive screws at back-end of the card with the screw holes on the system board.
10. Press the touch point on the card to ensure that connector on the card is in contact with the connector on the system board.
11. Using a #2 Phillips screwdriver, tighten the two captive screws to secure the network daughter card to the system board.
12. Install the expansion-card riser 3.

*** Note:**

If you are installing the 10 Gb network daughter card, ensure that you install the network daughter card cooling shroud in your system.

13. Close the system.
14. Reconnect the system to its electrical outlet and turn the system on, including any attached peripherals.

Expansion cards and expansion card risers

General

*** Note:**

Some Avaya products could contain 2 port NIC card(s) required for their application. The following guidelines on Expansion Cards should only pertain to NIC Cards. Most Avaya configurations will install the 2 port PCI Express NIC card in Slot 2.

Expansion Card Installation Guidelines

Your system supports PCI Express Generation 3 expansion cards.

*** Note:**

A missing or an unsupported riser logs an SEL event. It does not prevent your system from powering on and no BIOS POST message or F1/F2 pause is displayed.

⚠ Caution:

If the 10 GbE network daughter card is installed, you cannot install the GPU card.

Table 3: Systems Supporting Two PCIe Expansion Cards

*** Note:**

To use the PCIe slot 1, you must install Processor 2.

PCIe Slot	Processor Connection	Height	Length	Link Width
1	Processor 2	Low profile	Half	x16
2	Processor 1	Full	Half	x16

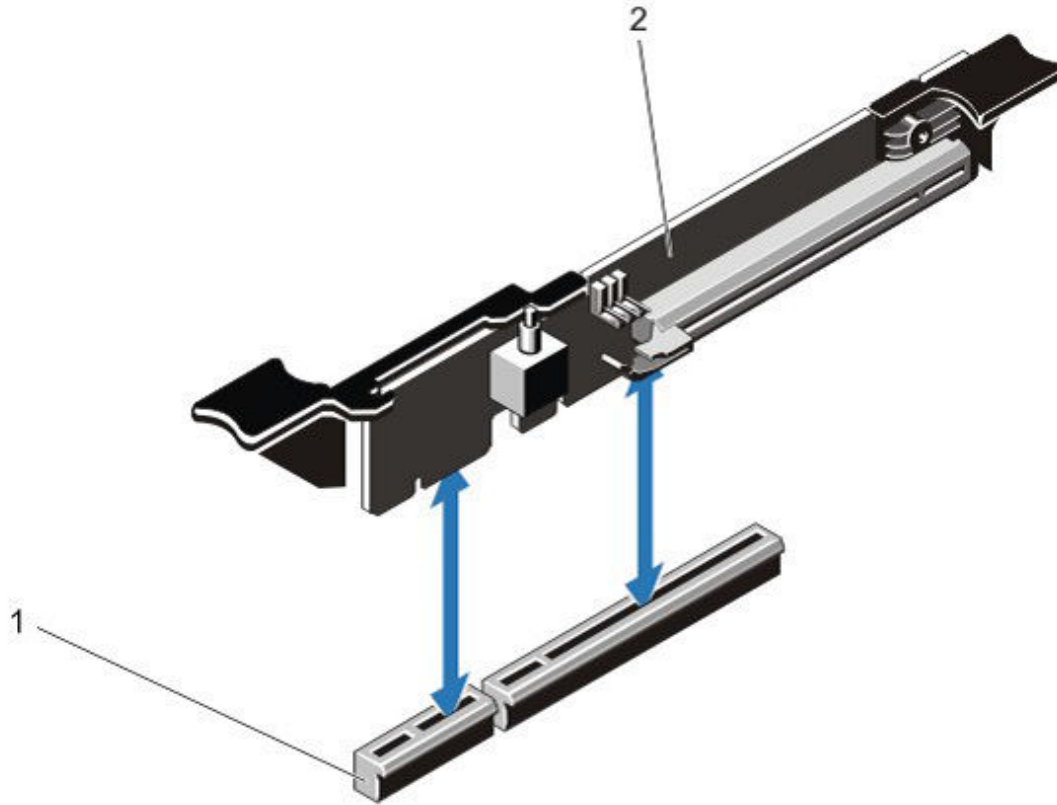
Replacing expansion card risers

About this task

Use this procedure to remove and replace an expansion card riser.

*** Note:**

The x16 link on the riser 2 slot 1 can only be used when both of the processors are installed.



Item	Description
1	Connector
2	Expansion card riser 3

Figure 7: Expansion Card Riser 3

*** Note:**

Always follow safe electrostatic discharge practices.

Procedure

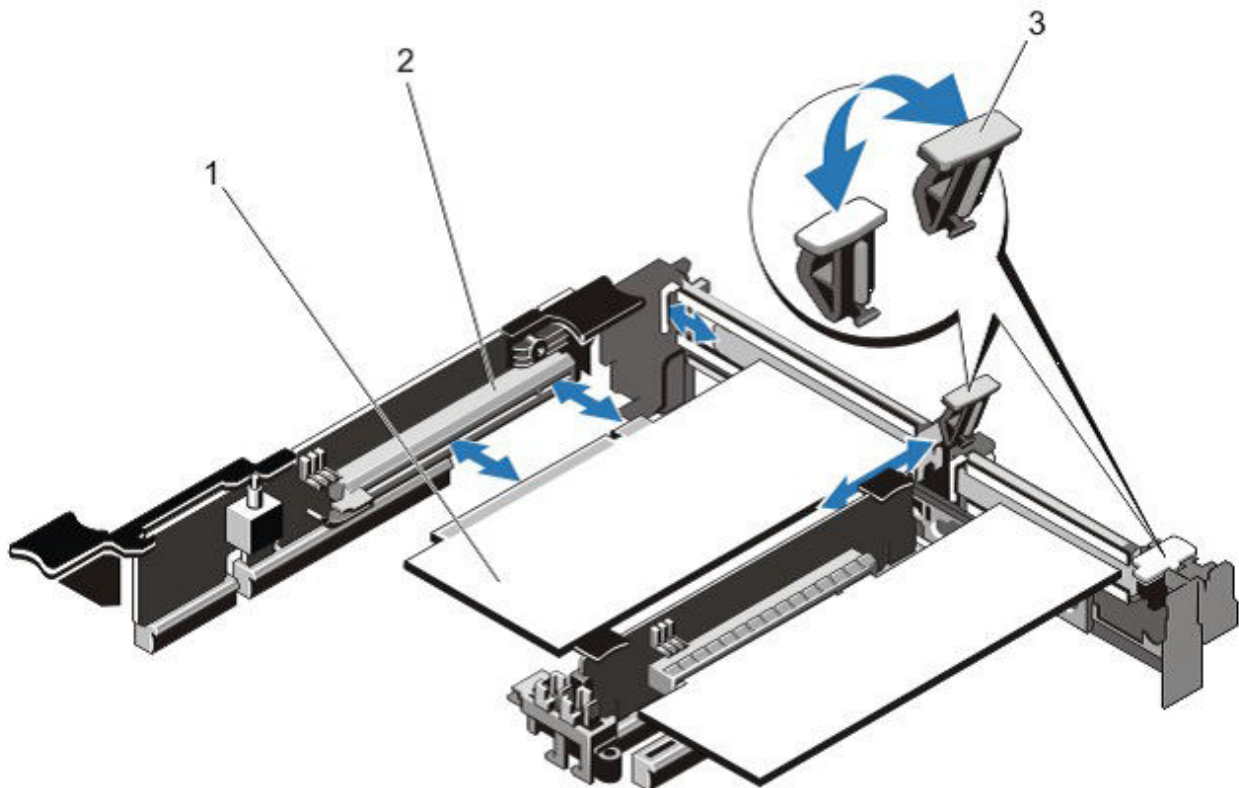
1. Power down the server according to Avaya's application instructions and disconnect the system from the electrical outlet and peripherals.
2. Open the system.
3. Holding the touch points, lift the expansion-card riser from the riser connector on the system board. When removing riser 2, the latch on one end needs to be moved to the unlocked position.
4. If applicable, reinstall the expansion card(s) into the expansion card riser.
5. Align the expansion-card riser with the connector and the riser guide pin on the system board.

6. Lower the expansion-card riser into place until the expansion-card riser connector is fully seated in the connector. If installing riser 2, the latch needs to be switched back to the locked position.
7. Close the system.
8. Reconnect the system to its electrical outlet and turn the system on, including any attached peripherals.

Replacing expansion cards

About this task

Use this procedure when adding or removing expansion cards.



Item	Description
1	Expansion card
2	Expansion card connector
3	Expansion card latches

Figure 8: Expansion Card

*** Note:**

Always follow safe electrostatic discharge practices.

Procedure

1. Power down the server according to Avaya's application instructions and disconnect the system from the electrical outlet and peripherals.
2. Open the system.
3. Disconnect any cables connected to the expansion card or expansion card riser.
4. To remove the expansion card, lift the expansion-card latch.
5. Grasp the expansion card by its edges and remove it from the expansion-card connector on the riser.
6. If you are removing the card permanently, install a metal filler bracket over the empty expansion slot opening and close the expansion-card latch.

Note:

You must install a filler bracket over an empty expansion slot to maintain Federal Communications Commission (FCC) certification of the system. The brackets also keep dust and dirt out of the system and aid in proper cooling and airflow inside the system.

7. Unpack the replacement expansion card and prepare it for installation. For instructions, see the documentation accompanying the card.
8. Locate the expansion-card connector on the system board/riser.
9. Open the expansion-card latch and remove the filler bracket if applicable.
10. Holding the card by its edges, position the card so that the card-edge connector aligns with the expansion-card connector.
11. Insert the card-edge connector firmly into the expansion-card connector until the card is fully seated.
12. Slide the expansion-card latch into position.
13. Close the system.
14. Reconnect the system to its electrical outlet and turn the system on, including any attached peripherals.

DVD-RW problems

Symptoms

- System does not boot from media
- Data read from the drive is inconsistent, or drive cannot read data
- Drive or media is not detected

Dell documentation reference(s)

Owner's Manual: Troubleshooting an Optical Drive

Owner's Manual: Optical Drive

Troubleshooting a DVD-R/W drive

About this task

Follow the steps below to troubleshoot a Dell R630 DVD-R/W Drive



Warning:

Eliminate the risk of electric shock by removing all AC power from the system before installing or replacing any non hot-plug hardware option. Disconnect all power cords to completely remove power from the server. Always follow Avaya's application procedures when shutting down the server.

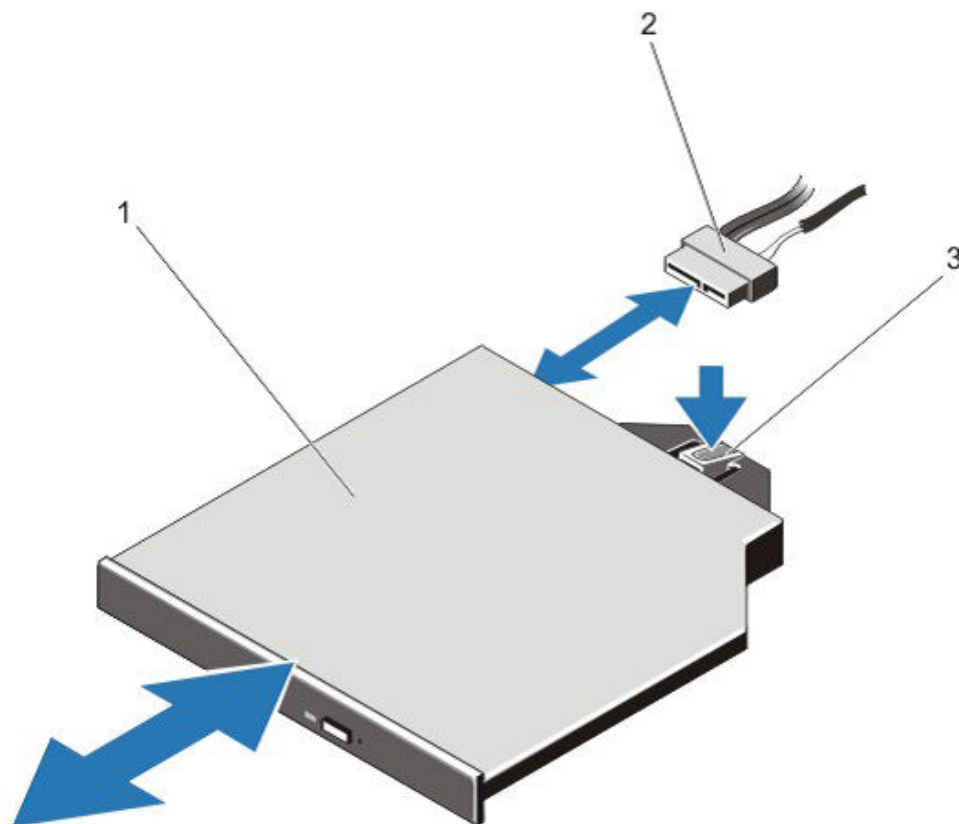


Warning:

To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

Procedure

1. Try using a different CD or DVD. Be sure the inserted CD or DVD format is valid for the drive.
2. Ensure the drive boot order in BIOS is set so that the server boots from the DVD-R/W drive first. Avaya servers should be set to boot from DVD-R/W drive first.
3. Turn off the system and attached peripherals, and disconnect the system from the electrical outlet. Shutdown application according to Avaya's procedure.
4. Open the system.



Item	Description
1	Optical Drive
2	Power and Data Cable
3	Release Tab

Figure 9: DVD RW Drive

5. Ensure that the interface cable is securely connected to the optical drive and to the controller.
6. Ensure that a power cable is properly connected to the drive.
7. Close the system.
8. Power up system and try to boot from known good bootable media.
9. Connect a monitor, USB keyboard, and mouse to Dell R630 Server, and do the following:
 - a. Reboot server. From the Dell splash screen, press **F10** to go to **Lifecycle controller**, and run the diagnostics from the console.
 - b. Select **Hardware Diagnostics > Run Diagnostics** and navigate to applicable tests for diagnosis.

Next steps

If the part is defective, continue with the removal and replacement procedures.

Replacing a DVD-R/W drive**About this task**

Follow the steps below to replace a Dell R630 DVD-RW Drive.

**Warning:**

Eliminate the risk of electric shock by removing all AC power from the system before installing or replacing any non hot-plug hardware option. Disconnect all power cords to completely remove power from the server. Always follow Avaya's application procedures when shutting down the server.

**Warning:**

To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

Procedure

1. If installed, remove the front bezel.
2. Turn off the system, including any attached peripherals, and disconnect the system from the electrical outlet and peripherals. Shutdown the application according to Avaya's application documentation.
3. Open the system. (See figure in Troubleshooting a DVD-R/W drive section for details)
4. Disconnect the power/data cable from the back of the drive.

The routing of the power/data cable on the side of the system as you remove them from the system board and drive. You must route these cables properly when you replace them to prevent them from being pinched or crimped.

5. To release the drive, press down and push the blue release tab toward the front of the system.
6. Slide the optical drive out of the system until it is free of the drive bay.
7. When installing replacement drive align the optical drive with the optical drive slot on the front of chassis.
8. Slide in the optical drive until the latch snaps into place.
9. Connect the power/data cable to the optical drive and system board.
You must route the cable properly on the side of the system to prevent it from being pinched or crimped.
10. Close the system.
11. Reconnect the system to its electrical outlet and turn the system on, including any attached peripherals.
12. If applicable, install the front bezel.

13. Power up the server.

Removing the PERC 9 (H730) mini monolithic controller

Before you begin

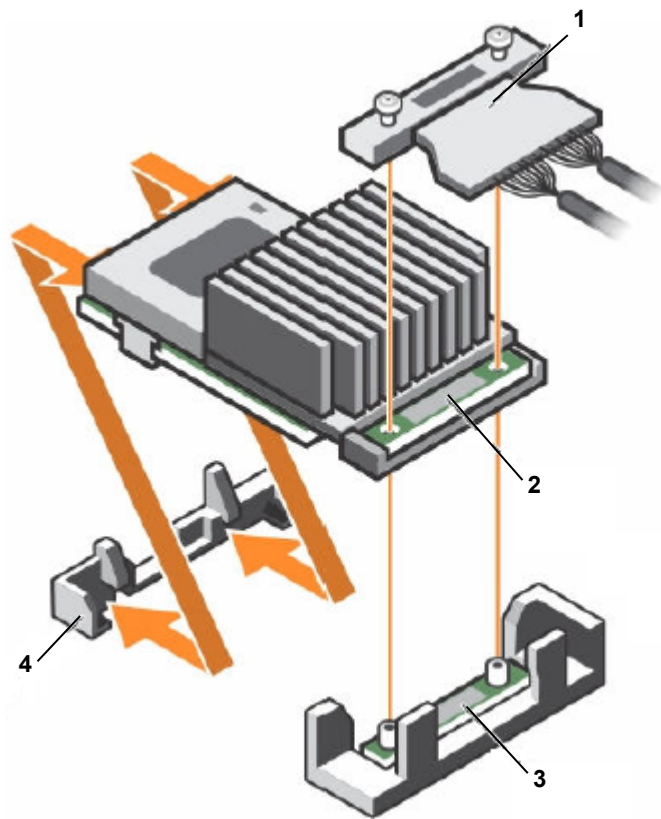
Turn off the system, including any attached peripherals, and disconnect the system from the electrical outlet and peripherals. Shut down according to the Avaya application instructions.

*** Note:**

Always follow safe electrostatic discharge practices.

Procedure

1. Open the system.
2. Locate the PERC card on the system board.
3. Remove the screws that secure the storage controller cable to the card.



Item	Description
1	Storage controller cable

Table continues...

Item	Description
2	Storage controller card
3	Storage-controller card holder
4	Storage controller retention hook

Figure 10: PERC 9 (H730) mini monolithic card removal

4. Hold both sides of the cable connector, and pull the cable away from the PERC card.
5. Move the card to remove one end of the card from the storage-controller card holder on the system board.
6. Close the system.
7. Reconnect the system to its electrical outlet and turn the system on, including any attached peripherals.
8. To replace the component, reverse the removal procedure.

Installing the PERC 9 (H730) mini monolithic controller

Before you begin

Turn off the system, including any attached peripherals, and disconnect the system from the electrical outlet and peripherals. Shut down according to the Avaya application instructions.

*** Note:**

Always follow safe electrostatic discharge practices.

Procedure

1. Open the system.
2. Locate the PERC card on the system board.
3. Align one end of the card with the card holder on the system board.

⚠ Caution:

To prevent damage to the card, hold the card only by its edges.

4. Lower the other end of the card into the card holder on the system board.
5. Grasp the storage controller cable on both sides of the cable connector and connect to the PERC card.
6. Secure the cable to the card by using screws.
7. Connect the SAS data cable connector to the card.

Ensure that you connect the cable according to the connector labels on the cable. The cable does not function properly if reversed.

8. Route the SAS data cable through the clip on the card and through the channel on the inner side of the chassis.
9. Attach the connector labeled SAS A to connector SAS A on the backplane. Similarly, attach the connector labeled SAS B to connector SAS B on the backplane
10. Close the system.
11. Reconnect the system to its electrical outlet and turn the system on, including any attached peripherals.

RAID battery problems

Symptoms

- RAID array cannot be created.
- Slow server write performance.
- Slow or failed upgrades.
- Error displayed on power up screen or LCD panel when server is powered on.
- Avaya's application alarming has indicated a RAID battery failure.

Dell documentation reference(s)

Owner's Manual: Troubleshooting a Storage Controller

Troubleshooting RAID batteries

About this task

Follow the steps below to troubleshoot a RAID controller battery for platforms that use RAID controllers.

Note:

Always follow safe electrostatic discharge practices.

Procedure

1. Use the following command to check the status of the battery at the Linux prompt:

```
/opt/MegaRAID/MegaCli/MegaCli64 -AdpBbuCmd -GetBbuStatus -a0
```

When the RAID battery's remaining capacity is below 100mAh or if you get an alarm about the battery, replace the battery. Expected battery life is 3-5 years.

The following is an example of the outputs of the RAID battery status commands:

```
/opt/MegaRAID/MegaCli/MegaCli64 -AdpBbuCmd -GetBbuStatus -a0  
BBU status for Adapter: 0  
Battery Type: BBU
```

```

Voltage: 3917 mV
Current: 0 mA
Temperature: 45 C

BBU Firmware Status:

Charging Status          : None
Voltage                  : OK
Temperature               : OK
  Learn Cycle Requested   : No
  Learn Cycle Active       : No
  Learn Cycle Status      : OK
Learn Cycle Timeout       : No
I2c Errors Detected      : No
Battery Pack Missing      : No
Battery Replacement required: No
Remaining Capacity Low    : No
Periodic Learn Required   : No

Battery State

GasGuageStatus:
Fully Discharged          : Yes
  Discharging              : No
  Initialized              : No
Remaining Time Alarm      : No
Remaining Capacity Alarm: Yes
  Discharge Terminated    : No
  Over Temperature         : No
Charging Terminated     : No
Over Charged              : No

Relative State of Charge: 99 %
Charger Status: Complete
Remaining Capacity: 500 mAh
Full Charge Capacity: 510 mAh

isSOHGood: Yes

Exit Code: 0x00

```

The fields in the above output that indicate the status of a good/failing battery is the Remaining Capacity and Full Charge Capacity. Verification of the output depends on the current charging status. If the charging status is none, then the values in the fields are valid. If the charging status is anything but none (charging, discharging) then this indicates that the battery is in a learn cycle and the capacity numbers cannot be used at the present time. Charging status must read none before battery health can be evaluated.

Good Battery Status – Remaining Capacity is above 100mAh

2. To troubleshoot an Avaya application that does not have RAID battery status reporting, do the following procedure. The Avaya application will need to be taken out of service for this process. Reboot server according to Avaya application documentation.
 - a. Reboot the system from console.

Avaya customer must provide a keyboard, mouse, and monitor for the system when an Avaya or Business Partner tech must do work on-site.
 - b. When prompted, press **F2** to enter system setup.
 - c. Under System Setup, select **Device Settings**.

- d. Under Device Settings, select **Integrated RAID Controller 1: Dell PERC <PERC H730 Mini> Configuration Utility**.
- e. Go to **Hardware Components > Advanced > Battery Management > Advanced**.

The output of this procedure is as follows:

```
Integrated RAID controller 1: Dell Perc <Perc H730 Mini> Configuration Utility
Configuration Options - Controller Management - Battery management
Battery State -----Optimal
Learn Mode -----Transparent
Remaining Capacity ----- should be over 100 mAh
```

Replacing RAID batteries

Before you begin

Turn off the system, including any attached peripherals, and disconnect the system from the electrical outlet and peripherals. Shut down according to the Avaya application instructions.

 Note:

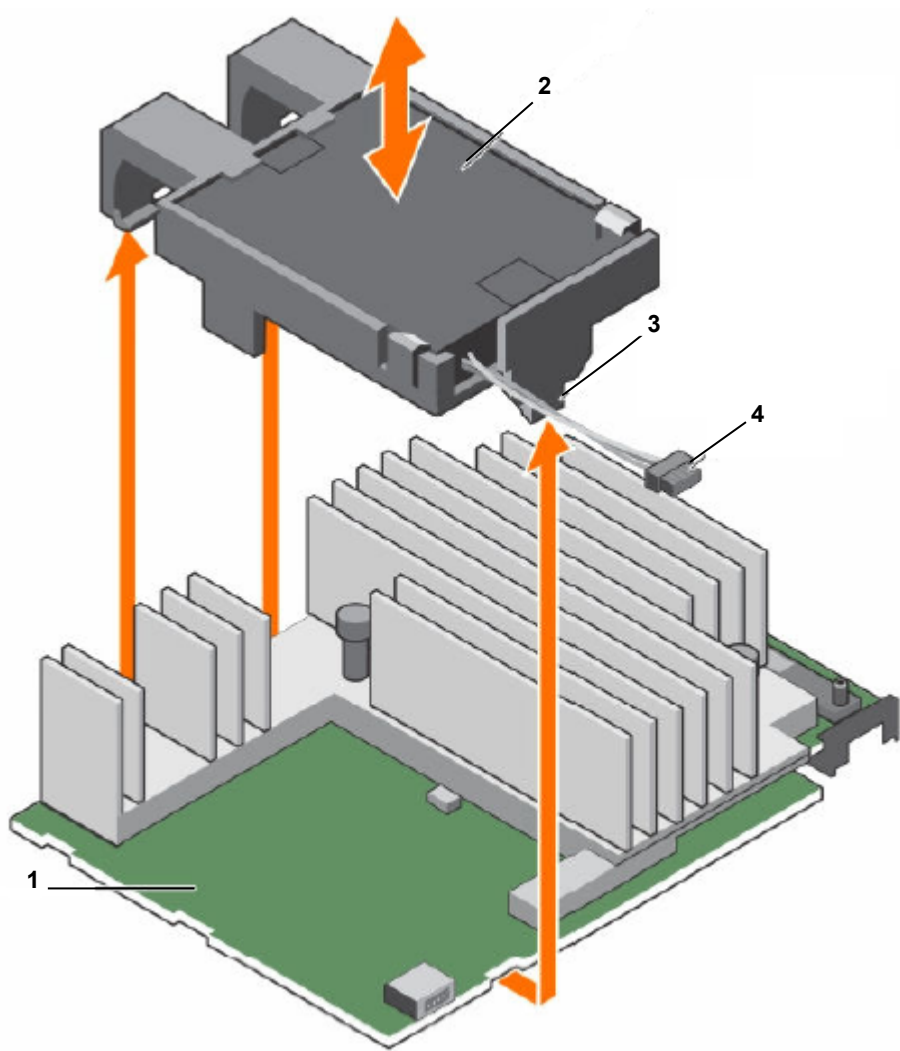
Always follow safe electrostatic discharge practices.

Procedure

1. Open the system.
2. Locate the PERC card on the system board.
3. Remove the PERC card.

For more information, see the Removing the PERC 9 (H730) Mini monolithic controller section.

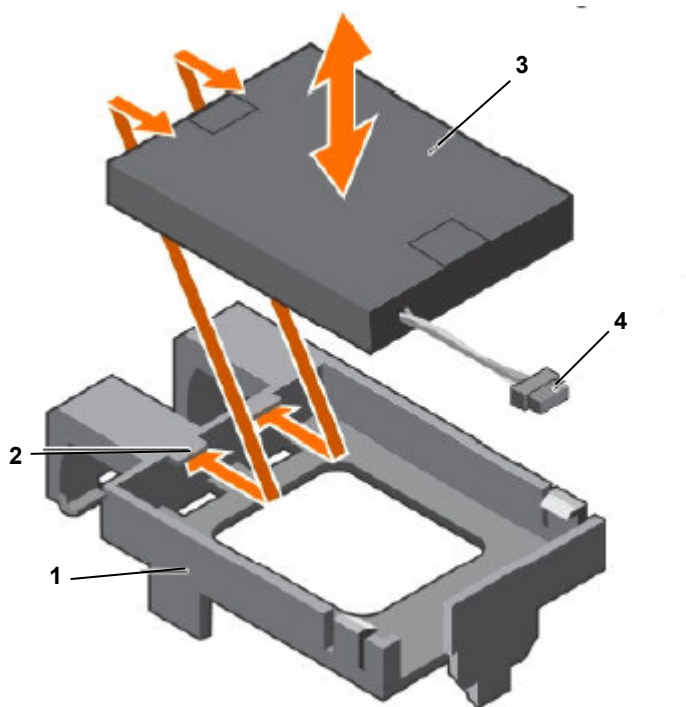
4. Disconnect the battery cable from the PERC card.
5. Pull the battery carrier till the tabs on the battery carrier are removed from the PERC card.



Item	Description
1	PERC H730P mini monolithic card
2	Battery
3	Tab on the battery carrier
4	Battery cable

Figure 11: Removing battery carrier

6. Pull the battery out of the battery carrier.



Item	Description
1	Battery carrier
2	Guide on the battery carrier
3	Battery
4	Battery cable

Figure 12: Removing the battery

7. Place the replacement battery such that it aligns with the guides on the battery carrier.
8. Lower the battery into the carrier until the battery is firmly seated.
9. Align the tabs on the battery carrier with slots on the PERC 9 (H730) mini monolithic controller and lower the battery carrier until the carrier is firmly seated.
10. Connect the battery cable to the PERC card.
11. Reinstall the PERC card and close the system.

For more information, see the Installing the PERC 9 (H730) Mini monolithic controller section.

12. Reconnect the system to its electrical outlet and turn the system on, including any attached peripherals.

RAID Battery ordering information

The RAID battery is customer replaceable unit (CRU). The RAID battery is not covered under the maintenance agreement. The customer must order the RAID Battery by calling the appropriate Order Entry Fulfillment Collections (OEFC) center as listed in the following table.

Table 4: Order Entry Fulfillment Collections (OEFC) center

Country	Phone number
Avaya Order Entry Fulfillment Collections (Avaya OEFC)	
USA	+1 800 852 2436
EMEA	+91 20 30412500
APAC	+65 6872 8599
Canada	+1 905 474 6589
CALA	
Argentina	+5255 5278 7640
Brazil	+5511 5185 6610
Colombia	+571 616 6077
Mexico	+5255 5278 7720
	+65 6872 8599

Table 5: Dell R630 RAID Battery part number

Part number	Description
700511611	R630 RAID BATTERY

*** Note:**

If the server needs to be replaced, the customer must move the RAID battery from the current server to the replacement server.

For information about Dell™ PowerEdge™ R630 RAID configuration, see *Dell™ PowerEdge™ R630 RAID Configuration* on the Avaya Support website at <http://support.avaya.com>.

Server Field Replaceable Unit

A Server FRU is based on the Server core components. A server FRU will have the correct number (1 or 2) and type of CPUs (High or Low), it will have 4 DIMMs and the 4 embedded NIC ports. The following components will need to be sourced from the existing server: HDDs, Power Supply Unit (PSU), PCIe Cards, and any additional DIMMs over 4.

 Note:

S8800, Common Server Release 1, and Common Server Release 2 used the same FRU policy with these minor differences. They shipped setup for RAID 1 with 2 HDDs, and a single PSU. Also, these servers are shipped with 2 DIMMs, if you had a single CPU and 4 DIMMs, if you had 2 CPUs.

Global asset recovery policy

To return any failed part or component, check the Return merchandise authorization (RMA) policy on the Avaya Support website <http://support.avaya.com> under **Help & Policies > Policies & Legal > Global Asset Recovery Policy**.

Contacting Avaya Services

Avaya provides a telephone number to report problems or to ask questions about your product:

- The support telephone number is 1–800–242–2121 in the United States.
- For additional support telephone numbers, see the Avaya Website: <http://www.avaya.com/support>.

Index

A

Avaya server policies	6
Avaya Services	54

B

back view	
R630	11

C

cooling	24
cooling shroud	30

D

Dell R630	
external field replacement units	
HDD	14
power supply	14
FRUs	23
internal field replacement units	23
DIMMs	29
documentation	
document set	8
downloading	8
how to use this document	7
DVD-RW	42

E

expansion card	
installation	39
expansion card riser	39
expansion card risers	39

F

fan	25
fans	24
front view	
Dell R630	9

G

GRIP	6
------------	-------------------

H

hard disk drive	17 , 18
-----------------------	---

hard drive LEDs	15
HDD	14

I

installing	
PERC 9 (H730) mini monolithic controller	47

L

labels	6
LCD home screen	13
LEDs	12

M

memory sockets	26
----------------------	--------------------

N

NIC	35
-----------	--------------------

P

PERC 9 (H730) mini monolithic controller	
installing	47
power supply	6 , 19 , 21 , 22

R

RAID	6 , 48
RAID batteries	
replacing	50
RAID Battery	53
RDIMM	31 , 33
removing	
PERC 9 (H730) mini monolithic controller	46
replacing	
DVD R/W drive	45
fans	25
hard disk drive	18
power supply	22
RAID batteries	50
RDIMM	33
return policy	
failed part	54

S

Server	
FRU	53

Index

server overview	6
-----------------------	-------------------

T

troubleshooting	
DVD R/W drive	43
fans	24
hard disk drive	17
NIC	35
power supply	21
RAID battery	48
RDIMM	31