



Message Server 7700 (M7700) Hardware Guide

Release 4.2.2-FCS
August 2010
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This manual supports Messaging Operating System (MOS) release 4.2.2 and later MOS releases until replaced by a newer edition.

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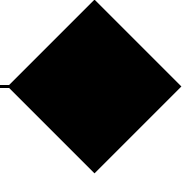
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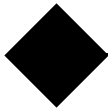
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Preface



This guide documents hardware installation and maintenance issues for Mirapoint Message Server 7700 (M7700) appliances.

For a complete list and description of the Mirapoint product line, contact your local reseller, or visit Mirapoint online at:

<http://www.mirapoint.com>

This book contains the following chapters:

- ◆ [Chapter 1, About Your Appliance](#)—describes the various parts, features, indicators, codes and messages of the appliance.
- ◆ [Chapter 2, Installing Appliance Components](#)—describes how to remove and install the various field-supported components.
- ◆ [Appendix A, Troubleshooting Your System](#)—describes the various potential component failures and solutions.

About Mirapoint Documentation

Documentation for all Mirapoint products is available through the Information Library on the Mirapoint Support website:

<https://support.mirapoint.com/>

The Information Library provides the hardware and software documentation for all supported Mirapoint releases and appliances, and the Support Knowledge Base. The Support site is accessible to all customers with a valid Support Contract. If your company has a valid contract but you need a Support login ID, email support@mirapoint.com.

Getting Technical Support

If you experience problems with your appliance, contact the company from which you purchased your Mirapoint appliance.

If you purchased your appliance directly from Mirapoint, contact Mirapoint Technical Support by email, telephone, or via the Mirapoint Support website:

Email: support@mirapoint.com
(China) support@mirapoint.com.cn

Telephone:

- (USA) 1-877-MIRAPOINT (1-877-647-2764)
- (UK) +44 (or 0) 1628-535699
- (China) 400 707 1086
- (Australia) 1 800 633 784
- (Elsewhere) +1 408-720-3800

Website: <https://support.mirapoint.com/>

When contacting Technical Support, be prepared with the following information about your appliance:

Table 1 Appliance Information for Technical Support

Information	MOS CLI command (Message Server, RazorGate)	AOS UI Location (RazorSafe)
Software release	Version	In the Status tab, select System Info .
Host ID	License Hostid	In the Status tab, select System Info .
Serial number	Model Get Serial	In the Status tab, select System Info .
Hardware model	Model Get Chassis	In the Status tab, select System Info .

Typographic Conventions

Table 2 describes what the different fonts and typefaces indicate in this manual.

Table 2 Typographic Conventions in This Manual






Typeface	Use	Example
Bold	User interface elements	From the File menu, select Save As...
<i>Italic</i>	Definitions, emphasis, or titles	<i>A folder</i> is a container that stores email messages. Specify <i>at least two</i> DNS servers. For more information, see the <i>Mirapoint Message Server Administrator's Guide</i> .
Courier	Screen display text, command names, or text to type *	Enter your IP address: Use the License Hostid command. At the prompt, type Version .
<i>Courier Italic</i>	Variables for which you substitute when you type	<i>your_IP_address</i>

* Command-line interface (CLI) commands are case-insensitive. For readability, commands in this manual are shown in mixed case (for example, License Hostid).

Iconic Conventions

Table 3 describes what the different icons in this manual indicate.

Table 3 Iconic Conventions in This Manual

Icon	Use
	Best practices information (Mirapoint recommendations)
	Note information that <i>should</i> be read
	Critical information
	License information
	Potential of causing bodily harm (hardware only)



About Your Appliance

This chapter provides a high-level introduction of the Mirapoint Message Server 7700 (M7700) appliance, including the following topics:

- ◆ [Accessing System Features During Startup](#) on page 12
- ◆ [Front-Panel Features and Indicators](#) on page 13
- ◆ [Hard-Drive Indicator Patterns for RAID](#) on page 14
- ◆ [Back Panel Features and Indicators](#) on page 15
- ◆ [Power Indicator Codes](#) on page 16
- ◆ [NIC Indicator Codes](#) on page 18
- ◆ [System Messages](#) on page 19
- ◆ [Warning Messages](#) on page 19
- ◆ [Diagnostics Messages](#) on page 19
- ◆ [Alert Messages](#) on page 19
- ◆ [Other Information You May Need](#) on page 20

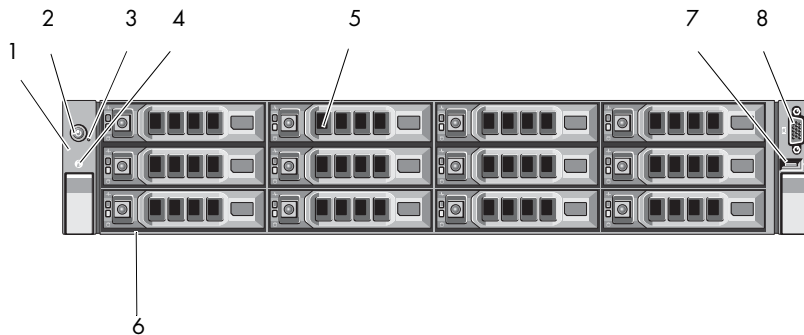
Accessing System Features During Startup




The following keystrokes provide access to system features during startup.



Keystroke	Description
<F2>	Enters the System BIOS.
<F10>	Enters System Services, which opens the Unified Server Configurator from which you can access utilities such as system diagnostics. For usage, contact your Mirapoint representative. Some Unified Server Configurator processing, such as software updates, can cause virtual devices to be created that at times may appear as USB devices attached to your appliance. These connections are both secure and temporary, and can be disregarded.
<Ctrl><E>	Enters the iRAC Configuration Utility, which allows access to the system event log (SEL) and configuration of remote access to the appliance. For usage, contact your Mirapoint representative.
<Ctrl><R>	Enters the RAID configuration utility. For usage, contact your Mirapoint representative.

Front-Panel Features and Indicators

Figure 1 Front-Panel Features and Indicators

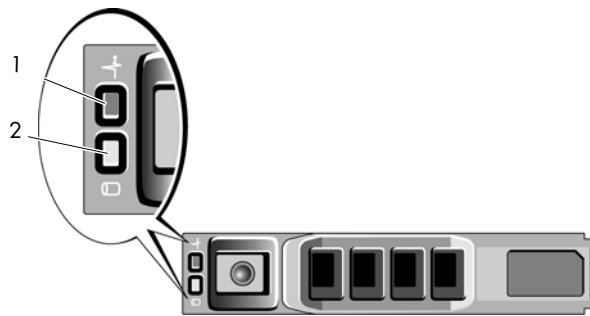


Item	Indicator, Button, or Connector	Icon	Description
1	LED panel		The LED panel has four diagnostic indicator lights that display error codes during appliance startup.
2	Power-on indicator/ power button		The power-on indicator lights when the appliance power is on. The power button controls the DC power supply output to the appliance. When the optional appliance bezel is installed, the power button is not accessible. When powering on the appliance, the video monitor can take from several seconds to over 2 minutes to display an image, depending on the amount of memory installed in the appliance. CAUTION: Never use the power button to power off the appliance
3	NMI button		Used to troubleshoot software and device driver errors. This button can be pressed using the end of a paper clip. CAUTION: Use this button only if directed to do so by Mirapoint support representative.
4	System identification button		Used to locate a particular appliance within a rack. When the identification button on the front or back is pushed, the blue status lights on both sides blink until one of the buttons is pushed again.
5	Hard drives		Twelve 3.5-inch, hot-swappable SAS drives.

Item	Indicator, Button, or Connector	Icon	Description
6	System identification panel		A slide-out panel for appliance information including the Express Service tag (EST), embedded NIC MAC address, and iRAC6 Enterprise card MAC address.
7	USB connector		Connect USB devices to the appliance. The ports are USB 2.0-compliant.
8	Video connector		Connects a monitor to the appliance.

Hard-Drive Indicator Patterns for RAID

Figure 2 Hard-Drive Indicators

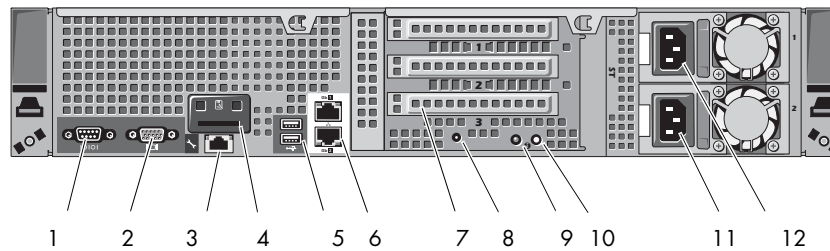








1	drive-status indicator (green and amber)	2	drive-activity indicator (green)
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Drive-Status Indicator Pattern (RAID Only)	Condition
Blinks green two times per second	Identify drive/preparing for removal
Off	Drive ready for insertion or removal NOTE: The drive status indicator remains off until all hard drives are initialized after appliance power is applied. Drives are not ready for insertion or removal during this time.
Blinks green, amber, and off	Drive predicted failure
Blinks amber four times per second	Drive failed
Blinks green slowly	Drive rebuilding
Steady green	Drive online

Back Panel Features and Indicators

Figure 3 Back Panel Features



Item	Indicator, Button, or Connector	Icon	Description
1	Serial connector		Connects a serial device to the appliance.
2	Video connector		Connects a VGA display to the appliance.
3	iRAC6 Enterprise port		Dedicated management port for the iRAC6 Enterprise card.
4	VFlash media slot (optional)		Connects an external SD memory card for the iRAC6 Enterprise card.
5	USB connectors (2)		Connect USB devices to the appliance. The ports are USB 2.0-compliant.
6	Ethernet connectors (2)		Embedded 10/100/1000 NIC connectors.
7	PCIe expansion card slots using riser card Riser 1 OR Riser 2		Depending on the configuration, your appliance may have either riser 1 or riser 2. NOTE: for more information, refer to the <i>Mirapoint 7-Series Hardware Getting Started Guide</i> that ships with your appliance. Connects four PCI Express Generation 2 expansion cards. NOTE: All four slots are x8 connectors. Connects two PCI Express Generation 2 expansion cards. NOTE: A General Purpose Computation on Graphics Processing Units (GPGPU) optimized configuration is available on Riser 2.
8	System identification connector		Connects the system status indicator assembly through the optional cable management arm.

Item	Indicator, Button, or Connector	Icon	Description
9	System status indicator		Lights blue during normal appliance operation. The systems management software and both the identification buttons located on the front and back of the appliance can cause the indicator to flash blue to identify a particular appliance. Lights amber when the appliance needs attention.
10	System identification button		Turns the system ID modes on and off. The identification buttons on the front and back panels can be used to locate a particular appliance within a rack. When one of these buttons is pushed, the system status indicator on the chassis back panel light blue until one of the buttons is pushed again.
11	Power supply 2 (PS2)		750 W redundant power supply
12	Power supply 1 (PS1)		750 W redundant power supply

Power Indicator Codes

An LED indicator on the power button indicates when power is supplied to the appliance and the appliance is operational ([Figure 1](#) on page 13).

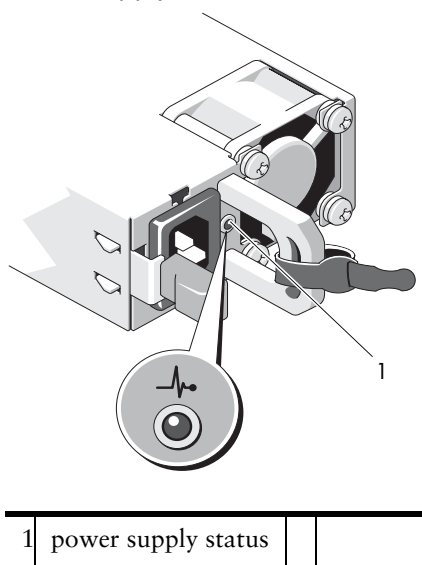
Redundant power supplies have indicators that show whether power is present or whether a power fault has occurred ([Figure 4](#) on page 17).

- ◆ **Not lit**—AC power is not connected.
- ◆ **Green**—In standby mode, indicates that a valid AC source is connected to the power supply and that the power supply is operational. When the appliance is on, also indicates that the power supply is providing DC power to the appliance.
- ◆ **Amber**—Indicates a problem with the power supply.
- ◆ **Alternating green and amber**—When hot-adding a power supply, indicates that the power supply is mismatched with the other power supply (a High Output 870-W power supply and an Energy Smart 570-W power supply are installed in the same appliance). Replace the power supply that has the flashing indicator with a power supply that matches the capacity of the other installed power supply.



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 appliance shutdown. To change from a High Output configuration to an Energy Smart configuration or vice versa, you must power off the appliance.

Figure 4 Power Supply Status Indicator



Diagnostic Lights

The four diagnostic indicator lights on the appliance front panel display error codes during appliance startup. [Table 4](#) on page 17 lists the causes and possible corrective actions associated with these codes. A highlighted circle indicates the light is on; a non-highlighted circle indicates the light is off.

Table 4 Diagnostic Indicator Codes

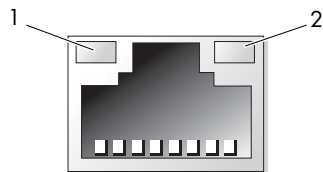
Code	Causes	Corrective Action
① ② ③ ④	The appliance is in a normal off condition or a possible pre-BIOS failure has occurred. The diagnostic lights are not lit after the appliance successfully boots to the operating appliance.	Plug the appliance into a working electrical outlet and press the power button.
	The appliance is in a normal operating condition after POST.	Information only.
① ② ③ ④	BIOS checksum failure detected; appliance is in recovery mode.	See Getting Technical Support on page 7.
① ② ③ ④	Possible processor failure.	See Troubleshooting the Processor(s) on page 69.
① ② ③ ④	Memory failure.	See Troubleshooting System Memory on page 65.
① ② ③ ④	Possible expansion card failure.	See Troubleshooting Expansion Cards on page 68.

Table 4 Diagnostic Indicator Codes (Continued)

Code	Causes	Corrective Action
① ② ③ ④	Possible video failure.	See Getting Technical Support on page 7.
① ② ③ ④	Hard drive failure.	Ensure that the diskette drive and hard drive are properly connected. See Hard Drives on page 26 for information on the drives installed in your appliance.
① ② ③ ④	Possible USB failure.	See Troubleshooting a USB Device on page 60.
① ② ③ ④	No memory modules detected.	See Troubleshooting System Memory on page 65.
① ② ③ ④	System board failure.	See Getting Technical Support on page 7.
① ② ③ ④	Memory configuration error.	See Troubleshooting System Memory on page 65.
① ② ③ ④	Possible system-board resource and/or system-board hardware failure.	See Getting Technical Support on page 7.
① ② ③ ④	Possible system resource configuration error.	See Getting Technical Support on page 7.
① ② ③ ④	Other failure.	Ensure that the optical drive, and hard drives are properly connected. For details about the appropriate drive installed in your appliance, see Appendix A, Troubleshooting Your System . If the problem persists, see Getting Technical Support on page 7.

NIC Indicator Codes

Figure 5 NIC Indicators



1	link indicator	2	activity indicator
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Indicator	Description
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 link at 1000 Mbps.
Link indicator is amber	The NIC is connected to a valid network link at 10/100 Mbps.
Activity indicator is green blinking	Network data is being sent or received.

System Messages

System messages appear on an external monitor screen, if connected, to notify you of a possible problem with the appliance.



If you receive a system message that you do not understand, check the documentation for the application that is running when the message appears, or the MOS release's documentation for an explanation of the message and recommended action.

Warning Messages

A warning message alerts you to a possible problem and prompts you to respond before the appliance continues a task. For example, before you format a drive, a message will warn you that you may lose all data on the drive. Warning messages usually interrupt the task and require you to respond by typing **y** (yes) or **n** (no).



Warning messages are generated by either the application or the MOS release. For more information, see the documentation that accompanied the MOS release.

Diagnostics Messages

The system diagnostic utilities may issue messages if you run diagnostic tests on your appliance.

Alert Messages

Systems management software generates alert messages for your appliance. Alert messages include information, status, warning, and failure messages for drive, temperature, fan, and power conditions. For more information, see the systems management software documentation.

Other Information You May Need



See the safety and regulatory information that shipped with your appliance. Warranty information is provided.

- ◆ The rack documentation included with your rack solution describes how to install your appliance into a rack.
- ◆ The *Mirapoint 7-Series Hardware Getting Started Guide* provides an overview of appliance features, setting up your appliance, and technical specifications.
- ◆ Any media that ships with your appliance that provides documentation and tools for configuring and managing your appliance, including those pertaining to the MOS release, system management software, MOS release updates, and appliance components that you purchased with your appliance.



Always check for updates on support.mirapoint.com and read the updates first because they often supersede information in other documents.

Installing Appliance Components

This chapter describes the component configurations, recommends servicing tools, and servicing procedures for removing and installing the various field-supported appliance components.

Refer to the following sections for details:

- ◆ [Recommended Tools](#)
- ◆ [Inside the Appliance](#) on page 22
- ◆ [Front Bezel](#) on page 23
- ◆ [Opening and Closing the Appliance](#) on page 24
- ◆ [Cooling Shroud](#) on page 25
- ◆ [Hard Drives](#) on page 26
- ◆ [Optical Drive](#) on page 28
- ◆ [Cooling Fans](#) on page 28
- ◆ [Power Supplies](#) on page 31
- ◆ [System Memory](#) on page 32
- ◆ [Expansion Cards and Expansion-Card Risers](#) on page 35
- ◆ [Integrated Storage Controller Card](#) on page 40
- ◆ [Integrated Remote Access Controller 6 \(iRAC\) Enterprise Card](#) on page 42
- ◆ [Processors](#) on page 44
- ◆ [System Battery](#) on page 47
- ◆ [RAID Battery](#) on page 49
- ◆ [Control Panel Assembly—LED](#) on page 50
- ◆ [SAS Backplane](#) on page 52
- ◆ [Power Distribution Board](#) on page 54
- ◆ [System Board \(Service-Only Procedure\)](#) on page 56

Recommended Tools

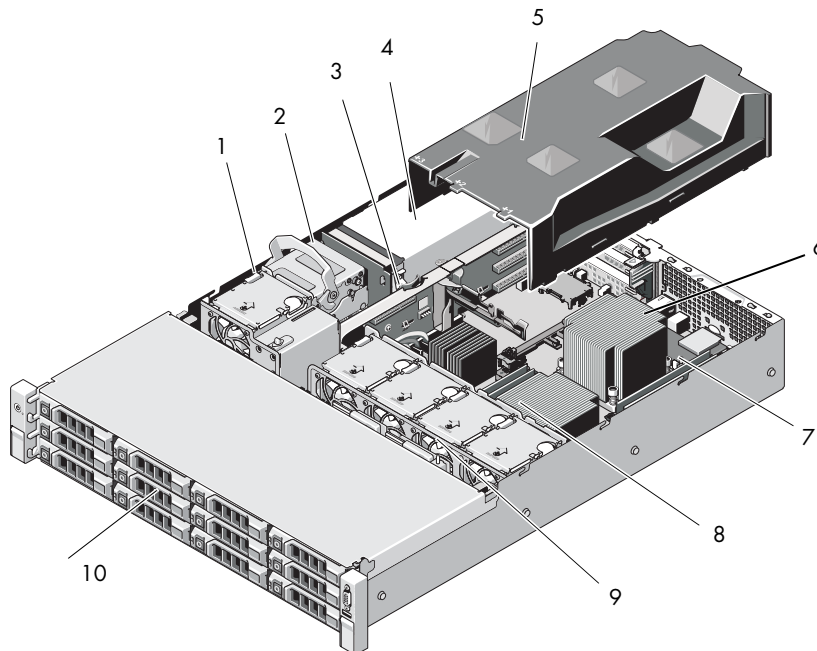
- ◆ Key to the appliance keylock
- ◆ #1 and #2 Phillips screwdrivers
- ◆ Wrist grounding strap
- ◆ T10 Torx drivers

Inside the Appliance



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 Mirapoint is not covered by your warranty. Read and follow the safety instructions that came with the product.

Figure 6 Inside the Appliance



1	cooling fan	2	internal hard drives (2)
3	expansion-card riser	4	power supply bays (2)
5	cooling shroud	6	heat sink/processor (2)
7	memory modules (8)	8	cooling fans (4)
9	SAS backplane	10	hard drives (12)

Front Bezel

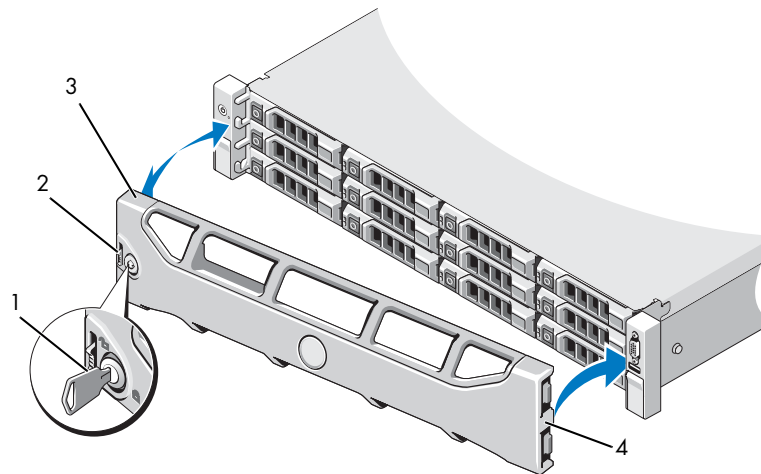
A lock on the bezel restricts access to the power button, and hard drives ([Figure 7](#)).

Removing the Front Bezel

To remove the front bezel:

1. Using the appliance key, unlock the bezel.
2. Lift the release latch next to the key lock.
3. Rotate the left end of the bezel away from the front panel.
4. Unhook the right end of the bezel and pull the bezel away from the appliance ([Figure 7](#)).

Figure 7 Removing and Replacing the Front Bezel



1	release latch	2	key lock
3	bezel	4	hinge tabs

Installing the Front Bezel

To install the front bezel:

1. Hook the right end of the bezel onto the chassis.
2. Fit the free end of the bezel onto the appliance.
3. Secure the bezel with the keylock ([Figure 7](#)).

Opening and Closing the Appliance



Whenever you need to lift the appliance, get others to assist you. To avoid injury, do not attempt to lift the appliance by yourself.



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 Mirapoint is not covered by your warranty. Read and follow the safety instructions that came with the product.

Opening the Appliance

To open the appliance:

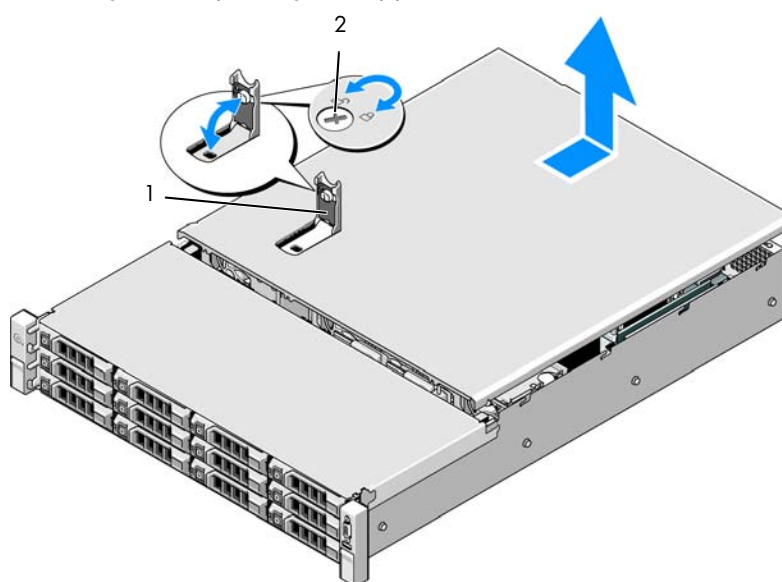
1. Power off the appliance, and attached peripherals, and disconnect the appliance from the electrical outlet and peripherals.
2. If installed, remove the front bezel ([Removing the Front Bezel](#) on page 23).
3. Rotate the latch release lock on the appliance cover counter clockwise to the unlocked position ([Figure 8](#) on page 25).
4. Lift up on the latch on top of the appliance and slide the cover back ([Figure 8](#) on page 25).
5. Grasp the cover on both sides and lift the cover away from the appliance.

Closing the Appliance

To close the appliance:

1. Lift up the latch on the cover.
2. Place the cover onto the chassis and offset the cover slightly back so that it clears the chassis hooks and lays flush on the appliance chassis ([Figure 8](#) on page 25).
3. Push down the latch to lever the cover into the closed position.
4. Rotate the latch release lock in a clockwise direction to secure the cover.

Figure 8 Removing and Replacing the Appliance Cover



1	cover latch	2	latch release lock
---	-------------	---	--------------------

Cooling Shroud

A cooling shroud directs airflow from the cooling fans over the appliance processors) and memory modules.



Only trained service technicians are authorized to remove the appliance cover and access any of the components inside the appliance. Before you begin this procedure, review the safety instructions that came with the appliance.



The memory modules are hot to the touch for some time after the appliance has been powered off. Allow the memory modules to cool before handling them.



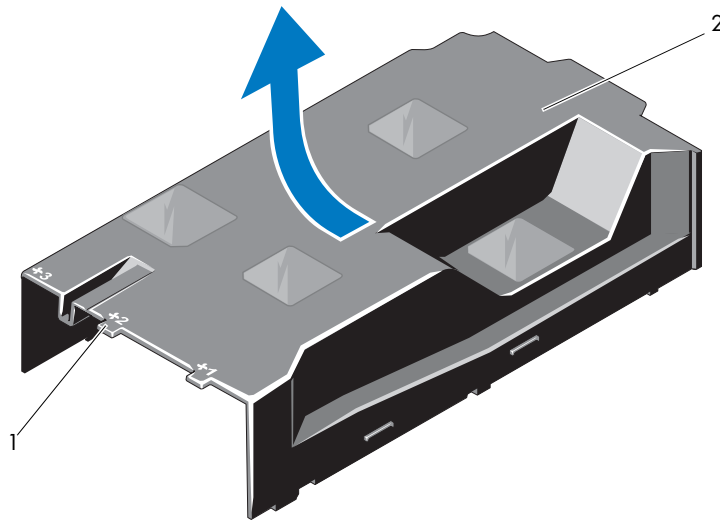
Never operate your appliance with the cooling shroud removed. Overheating of the appliance can develop quickly resulting in a shutdown of the appliance and the loss of data.

Removing the Cooling Shroud

To remove the cooling shroud:

1. Power off the appliance, including any attached peripherals, and disconnect the appliance from the electrical outlet.
2. Open the appliance ([Opening the Appliance](#) on page 24).
3. Use the lift handles on the cooling shroud to lift the shroud out of the appliance ([Figure 9](#) on page 26).

Figure 9 Removing and Installing the Cooling Shroud



1	numbered fan bays	2	cooling shroud
---	-------------------	---	----------------

Installing the Cooling Shroud

To install the cooling shroud:

1. Align the tabs on the right side of the cooling shroud with the cutouts in the right chassis wall.
2. Lower the right end of the shroud into the chassis cutouts and rotate the left end down inside the left chassis wall.
3. Close the appliance ([Closing the Appliance](#) on page 24).
4. Reconnect the appliance to the electrical outlet and power on the appliance, and attached peripherals.

Hard Drives

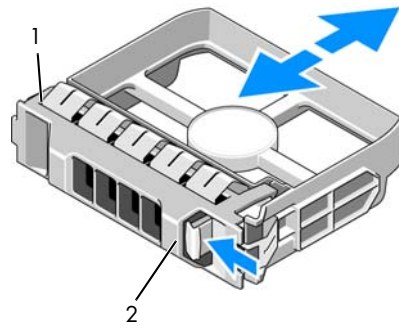
Your appliance configuration consists of twelve, 3.5-inch drive bays.

All drives are installed at the front of the appliance and connect to the appliance board through the SAS backplane. Hard drives are supplied in special hot-swappable hard-drive carriers that fit in the hard-drive bays.



Do not power off or reboot your appliance while the drive is being formatted. Doing so can cause a drive failure.

Figure 10 Installing a Hot-Swap Hard Drive



1 hard drive blank	2 release lever
--------------------	-----------------

Installing a Hard-Drive Blank

Align the hard-drive blank with the drive bay and insert the blank into the drive bay until the release lever clicks into place.

Removing a Hot-Swap Hard Drive

1. If present, remove the front bezel ([Removing the Front Bezel](#) on page 23).
2. Wait until the hard-drive indicators on the drive carrier signal that the drive can be removed safely.

If the drive has been online, the green activity/fault indicator will flash as the drive is powered off. When the drive indicators are off, the drive is ready for removal.

3. Press the button on the front of the drive carrier and open the drive carrier release handle to release the drive ([Figure 11](#) on page 28).
4. Slide the hard drive out until it is free of the drive bay.



To maintain proper appliance cooling, all empty hard-drive bays must have drive blanks installed.

5. Insert a drive blank in the vacated drive bay ([Installing a Hard-Drive Blank](#) on page 27).
6. If applicable, install the bezel ([Installing the Front Bezel](#) on page 23)

Installing a Hot-Swap Hard Drive

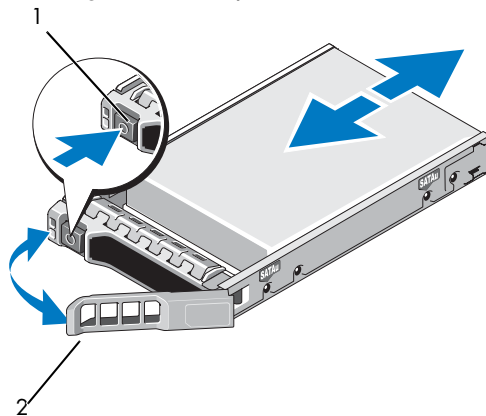


When installing a hard drive, ensure that the adjacent drives are fully installed. Inserting a hard-drive carrier and attempting to lock its handle next to a partially installed carrier can damage the partially installed carrier's shield spring and make it unusable.

To install a hot-swap hard drive:

1. If present, remove the front bezel ([Removing the Front Bezel](#) on page 23).

Figure 11 Installing a Hot-Swap Hard Drive



1	release button	2	hard drive carrier handle
---	----------------	---	---------------------------

2. Install the hot-swap hard drive.
 - a. Press the button on the front of the drive carrier and open the handle.
 - b. Insert the hard-drive module into the drive bay until the module contacts the backplane.
 - c. Close the handle to lock the drive in place.
3. If applicable, install the bezel ([Installing the Front Bezel](#) on page 23).

Optical Drive

An external slimline USB DVD-ROM optical drive is provided in the packing box with your appliance. In the event of a system recovery, this drive is required.



Do not lose the external DVD drive. Mirapoint recommends keeping this drive stored on top of your appliance.

Cooling Fans

Your appliance contains four dual-motor cooling fans. These provide cooling for the processor, PCI cards, and memory modules. Redundant power supplies also contain one single-motor fan to provide cooling for the power supplies.



Hot-swap removal or installation of the cooling fans is not supported



In the event of a problem with a particular fan, the fan's number is referenced by the Appliance's management software, allowing you to easily identify and replace the proper fan.

Removing a Cooling Fan



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 Mirapoint is not covered by your warranty. Read and follow the safety instructions that came with the product.



Do not attempt to operate the appliance without the cooling fans.

To remove a cooling fan:

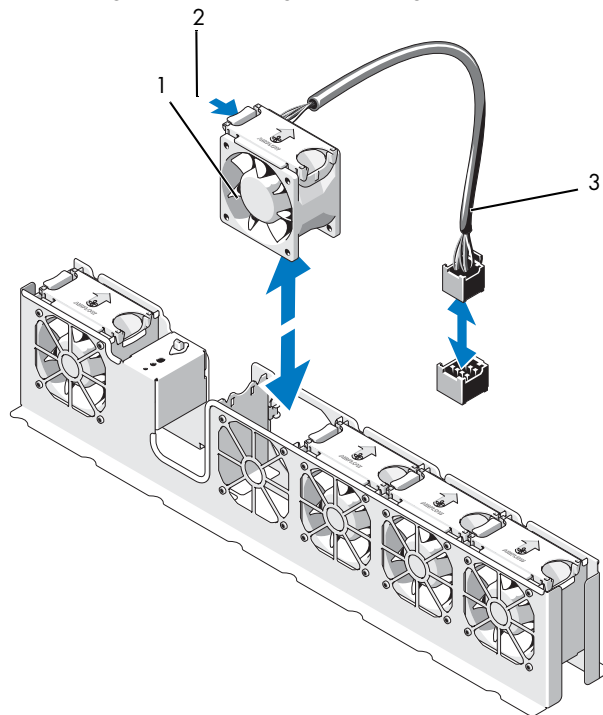
1. Power off the appliance, including any attached peripherals, and disconnect the appliance from its electrical outlet.
2. Open the appliance ([Opening the Appliance](#) on page 24).



The cooling fan can continue to spin for some time after the appliance has been powered off. Allow time for the fan to stop spinning before removing it from the appliance.

3. Disconnect the fan's power cable from the system-board ([Figure 12](#) on page 30). To remove fans 3 and 4, remove the storage controller card first ([Removing the Integrated Storage Controller Card](#) on page 40).
4. Press the release tab while grasping the ends the fan and lift the fan straight up from the fan bracket ([Figure 12](#) on page 30).

Figure 12 Removing and Installing a Cooling Fan



1	fans (5)	2	fan release tab
3	fan cable		

Installing a Cooling Fan

To install a cooling fan:

1. Align the fan plug with the connector at the base of the fan bracket and lower the fan into the bracket until the fan is fully seated ([Figure 12](#)).
2. Connect the fan's power cable to the power connector on the system-board.
3. Route the power cable through the guides on the chassis.
4. Close the appliance ([Closing the Appliance](#) on page 24).
5. Reconnect the appliance to the electrical outlet and power the appliance on, including any attached peripherals.

Power Supplies

Your appliance supports two redundant 750 W power supply modules.



The power supply label specifies the maximum power output.

When two power supplies are installed, the second power supply provides hot-swappable, power redundancy. In redundant mode, the appliance distributes the power load across both power supplies to maximize efficiency. When a power supply is removed with the appliance powered on, the full power load is picked up by the remaining power supply.



If only one power supply is installed, it must be installed in the PS1 power supply bay.

Removing a Power Supply

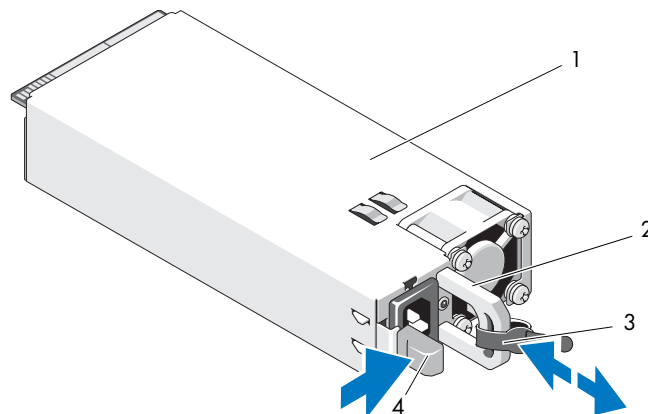


If troubleshooting a power supply mismatch error, replace *only* the power supply with the flashing indicator. Swapping the opposite power supply to make a matched pair can result in an error condition and unexpected appliance shutdown. To change from a High Output configuration to an Energy Smart configuration or vice versa, you must power off the appliance.

To remove a power supply:

1. Disconnect the power cable from the power source and the power supply you intend to remove and remove the cables from the Velcro strap.
2. Press the lever release latch and slide the power supply out of the chassis (Figure 13).

Figure 13 Removing and Installing a Power Supply



1	power supply	2	power supply handle
3	Velcro strap	4	release latch

Installing a Power Supply

To install a power supply:

1. On an appliance with redundant power supplies, verify that both 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.

2. Slide the new power supply into the chassis until the power supply is fully seated and the release latch snaps into place ([Figure 13](#) on page 31).
3. Connect the power cable to the power supply and plug the cable into a power outlet.



When connecting the power cable, secure the cable with the Velcro strap.



When installing, hot-swapping, or hot-adding a new power supply, allow several seconds for the appliance to recognize the power supply and determine its status. The power-supply status indicator turns green to signify that the power supply is functioning properly ([Figure 14](#) on page 34).

System Memory

Your appliance supports DDR3 ECC unbuffered DIMMs (UDIMMs).

The appliance contains eight memory sockets split into two sets of four sockets, one set per processor. Each four-socket set is organized into three channels. Two DIMMs for channel 0 and a single DIMM for channel 1 and 2. The first socket of each channel is marked with white release levers.

The maximum memory that is supported on your appliance varies according to the types and sizes of memory modules being used.

Removing Memory Modules



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 Mirapoint is not covered by your warranty. Read and follow the safety instructions that came with the product.



The memory modules are hot to the touch for some time after the appliance has been powered off. 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.

To remove memory modules:

1. Power off the appliance, including any attached peripherals, and disconnect the appliance from the electrical outlet.
2. Open the appliance ([Opening the Appliance](#) on page 24).
3. Remove the cooling shroud ([Removing the Cooling Shroud](#) on page 25).
4. Locate the memory module sockets ([Figure 27](#) on page 72).
5. Press down and out on the ejectors on each end of the socket until the memory module pops out of the socket ([Figure 14](#) on page 34).



Handle each memory module only by the card edges, ensuring not to touch the components on the module.

6. Reinstall the cooling shroud ([Installing the Cooling Shroud](#) on page 26).
7. Close the appliance ([Closing the Appliance](#) on page 24).
8. Reconnect your appliance and peripherals to their electrical outlets, and power on the appliance.

Installing Memory Modules



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 Mirapoint is not covered by your warranty. Read and follow the safety instructions that came with the product.

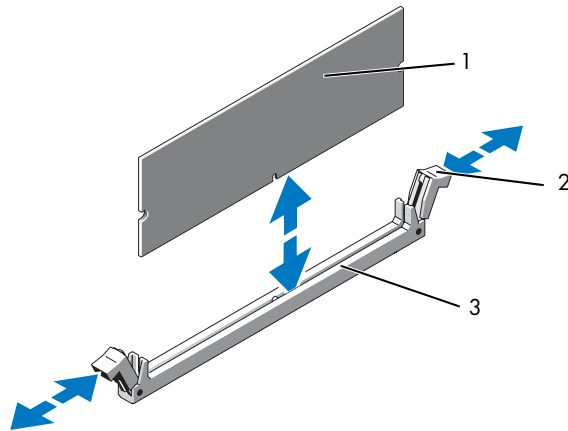


The memory modules are hot to the touch for some time after the appliance has been powered off. Allow time for the memory modules to cool before handling them. Handle the memory modules by the card edges and avoid touching the components on the memory module.

To install memory modules:

1. Power off the appliance, including any attached peripherals, and disconnect the appliance from the electrical outlet.
2. Open the appliance ([Opening the Appliance](#) on page 24).
3. Remove the cooling shroud ([Removing the Cooling Shroud](#) on page 25).
4. Locate the memory module sockets ([Figure 27](#) on page 72).
5. Press outward on the memory module ejectors to allow the memory module to be inserted into the socket ([Figure 14](#) on page 34).

Figure 14 Removing and Installing a Memory Module



1	memory module	2	memory module socket ejectors (2)
3	alignment key		



Handle each memory module only by the card edges, ensuring not to touch the components on the module.

- 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.

- Press down on the memory module with your thumbs until the ejectors lock into position (Figure 14).
When the memory module is properly seated in the socket, the ejectors on the memory module socket align with the ejectors on the other sockets that have memory modules installed.
- Repeat Steps 5 through 7 of this procedure to install the remaining memory modules (Table 5 on page 35 or Table 6 on page 36).
- Replace the cooling shroud. See [Installing the Cooling Shroud](#) on page 26.
- Close the appliance ([Closing the Appliance](#) on page 24).
- Reconnect your appliance and peripherals to their electrical outlets, and power on the appliance.

Expansion Cards and Expansion-Card Risers

The appliance supports up to four PCI Express (PCIe) expansion cards on two expansion-card risers.



Not all expansion cards are approved, nor supported. Contact your Mirapoint representative before installing any new expansion cards.

- ◆ Expansion-card riser 1 provides two PCIe x4-link Gen 2 expansion slots.
- ◆ Expansion-card riser 2 provides two PCIe x8-link Gen 2 expansion slots.



Expansion cards can only be plugged into the slots on the expansion-card risers. Do not plug any expansion cards into the riser connectors on the system-board.

To identify expansion slots, see [System Board Connectors](#) on page 72.

Expansion Card Installation Guidelines

Observe the following notes and guidelines regarding the expansion-card slots:

- ◆ The expansion-card slots support full-height, half-length cards.
- ◆ The expansion-card slots are hot-swappable.
- ◆ PCI Express Generation 2 expansion cards are supported in all the slots.
- ◆ All the slots are x8 connectors.



To ensure proper cooling, only one of the two expansion cards can have a power consumption of greater than 15 W (up to 25 W maximum), not including the integrated storage controller.

- ◆ [Table 5](#) provides a guide for installing expansion cards to ensure proper cooling and mechanical fit. The expansion cards with the highest priority should be installed first using the slot priority indicated. All other expansion cards should be installed in card priority and slot priority order.

Table 5 Expansion-Card Installation Priority for Riser 1

Card Priority	Card Type	Slot Priority	Max Allowed	25-W Card
1	PERC S300/S100	1, 2	2	Y
2	PERC H800	3, 2	2	Y
3	PERC 6/E controller	3, 2	2	Y
4	SAS 5/E	3, 2	2	Y
5	SCSI controllers	3, 2	2	Y
6	HPCC	2, 1	2	Y

Table 5 Expansion-Card Installation Priority for Riser 1

Card Priority	Card Type	Slot Priority	Max Allowed	25-W Card
7	Fibre Channel	2, 1	2	Y
8	10 Gb NIC	2, 1	2	Y
9	All other NICs	1, 2	2	N
10	All other Dell internal storage cards	4	1	Y
11	Non-Dell storage cards	1, 2	2	N*

*When available

Removing an Expansion Card

Table 6 Expansion-Card Installation Priority for Riser 2

Card Priority	Card Type	Slot Priority	Max Allowed	Greater Than 15W?
1	SA 6/iR	2	1	Y
2	PERC 6/i	2	1	Y
3	PERC H700*	2	1	Y
4	PERC H200*	2	1	Y
5	All other NICs	1	1	N*
6	Non-Dell storage cards	1	1	N*

*When available



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 Mirapoint is not covered by your warranty. Read and follow the safety instructions that came with the product.

To remove an expansion card:

1. Power off the appliance, including any attached peripherals, and disconnect the appliance from the electrical outlet.
2. Open the appliance ([Opening the Appliance](#) on page 24).
3. Remove the cooling shroud ([Removing the Cooling Shroud](#) on page 25).
4. Disconnect all cables connected to the card.
5. Open the expansion-card latch ([Figure 15](#) on page 37).

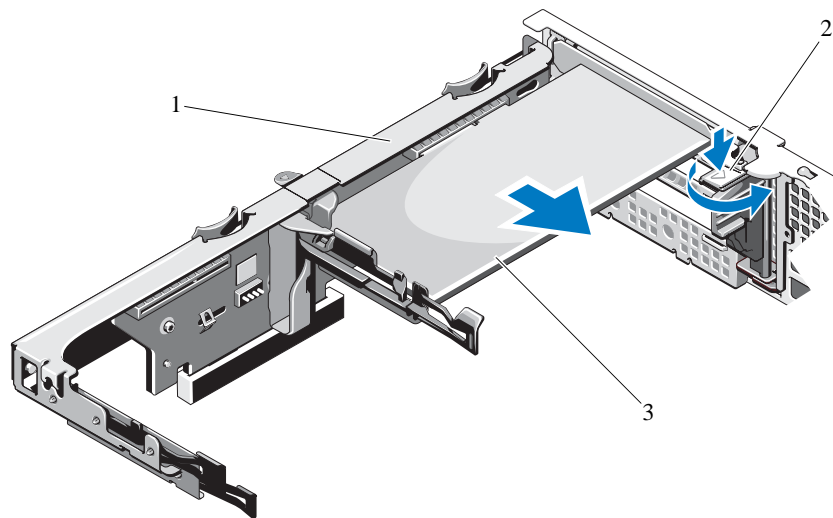
6. Grasp the expansion card by its edges, and carefully remove it from the expansion-card connector.
7. If you are removing the card permanently, install a metal filler bracket over the empty expansion slot opening and close the expansion-card latch.



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

8. Close the appliance ([Closing the Appliance](#) on page 24).
9. Reconnect your appliance and peripherals to the electrical outlets, and power on the appliance.

Figure 15 Removing or Installing an Expansion Card



1	expansion-card riser	2	expansion-card latch
3	expansion-card		

Installing an Expansion Card



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 Mirapoint is not covered by your warranty. Read and follow the safety instructions that came with the product.



Before installing any expansion cards, see [Expansion Card Installation Guidelines](#) on page 35.



The procedure for installing expansion cards into risers 1 and 2 is the same except that slots 3 and 4 on riser 2 have card-edge guides for installing 24.13-cm (9.5-in) expansion cards.

To install an expansion card:

1. Unpack the expansion card and prepare it for installation.
For instructions, see the documentation accompanying the card.
2. Power off the appliance, including any attached peripherals, and disconnect the appliance from the electrical outlet.
3. Open the appliance ([Opening the Appliance](#) on page 24).
4. Remove the cooling shroud ([Removing the Cooling Shroud](#) on page 25).
5. Open the expansion-card latch and remove the filler bracket ([Figure 15](#)).



Keep this bracket in case you need to remove the expansion card. Filler brackets must be installed over empty expansion-card slots to maintain FCC certification of the appliance. The brackets also keep dust and dirt out of the appliance and aid in proper cooling and airflow inside the appliance.

6. Holding the card by the edges, position the expansion card so that the card-edge connector aligns with the expansion-card connector on the expansion-card riser.
7. Insert the card-edge connector firmly into the PCIe card connector until the card is fully seated.
8. Close the expansion-card latch ([Figure 15](#) on page 37).
9. Connect any expansion-card cables for the new card.
For information about cable connections, refer to the documentation that came with the card.
10. Close the appliance ([Closing the Appliance](#) on page 24).
11. Reconnect your appliance and peripherals to the electrical outlets, and power on the appliance.

Removing an Expansion-Card Riser



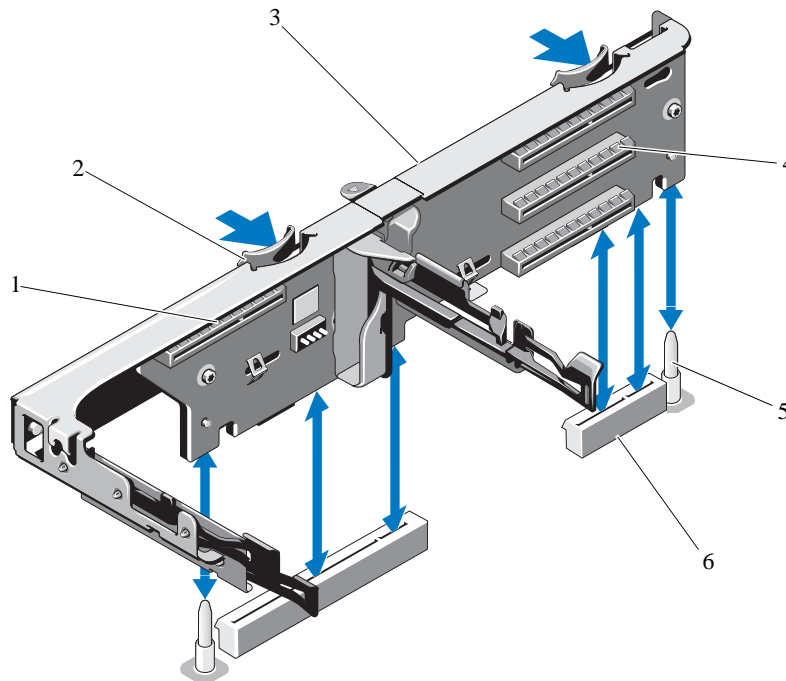
Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Mirapoint is not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

To remove an expansion-card riser:

1. Power off the appliance, including any attached peripherals, and disconnect the appliance from the electrical outlet.
2. Open the appliance ([Opening the Appliance](#) on page 24).

3. Remove the cooling shroud ([Removing the Cooling Shroud](#) on page 25).
4. If installed, remove the expansion card from the expansion-card slot ([Removing an Expansion Card](#) on page 36).
5. If installed, remove the storage controller card ([Removing the Integrated Storage Controller Card](#) on page 40).
6. Disconnect the cables connected to the riser card.
7. To remove the expansion-card riser, simultaneously press both the blue tabs on the expansion-card riser and lift it from the chassis ([Figure 16](#) on page 39).

Figure 16 Installing or Removing an Expansion-Card Riser



1	integrated storage controller slot	2	riser guides (2)
3	expansion-card riser	4	expansion card slot
5	riser guide posts (2)	6	expansion-card riser slots (2)

Installing an Expansion-Card Riser

To install an expansion-card riser:

1. To install an expansion-card riser, align the riser guides with the riser guide posts on the system-board ([Figure 16](#)).
2. Lower the expansion-card riser into place until the expansion-card riser connector is fully seated.
3. If applicable, reinstall the expansion card ([Installing an Expansion Card](#) on page 37).

4. Reinstall the storage controller card ([Installing the Integrated Storage Controller Card](#) on page 41).
5. Reconnect all cables.
6. Close the appliance ([Closing the Appliance](#) on page 24).
7. Reconnect the appliance and peripherals to the power sources.

Integrated Storage Controller Card

Your appliance includes a dedicated expansion-card slot on riser 1 for an integrated storage controller card that provides the storage subsystem for your appliance's internal hard drives. The controller supports SAS and SATA hard drives and also enables you to set up the hard drives in RAID configurations as supported by the version of the storage controller included with your appliance.

Removing the Integrated Storage Controller Card

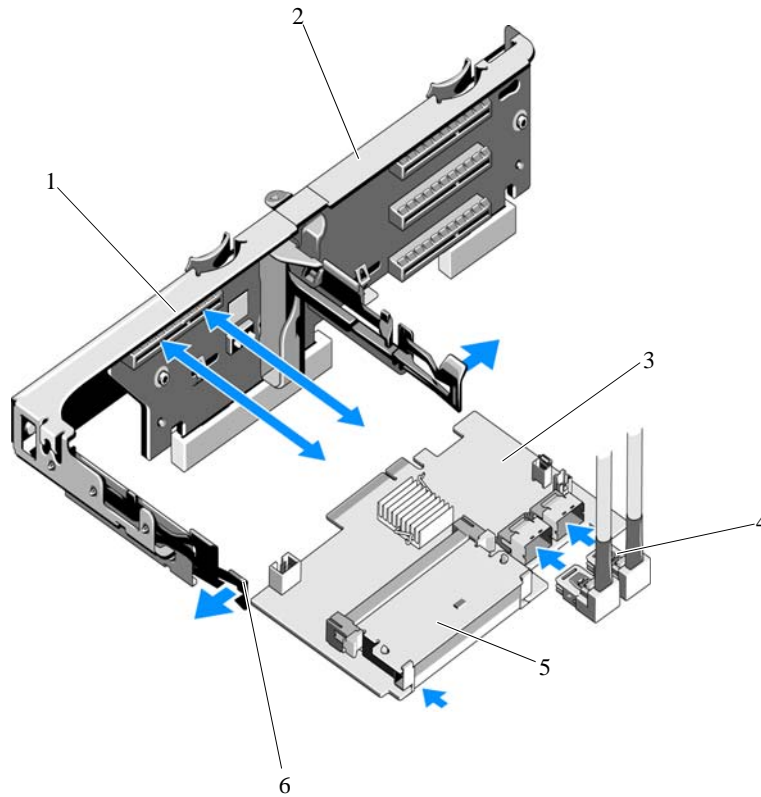


Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Mirapoint is not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

To remove the integrated storage controller card:

1. Power off the appliance, including any attached peripherals, and disconnect the appliance from the electrical outlet.
2. Open the appliance ([Opening the Appliance](#) on page 24).
3. If installed, remove the expansion card ([Removing an Expansion Card](#) on page 36).
4. Disconnect the SAS cables connected to the card.
5. Disconnect the cable connecting the card to the expansion-card riser.
6. For a battery-cached RAID controller, disconnect the cable connecting the card to the RAID battery.
7. Bend both the card-edge guides outward and pull the storage controller card out of the connector.

Figure 17 Installing a Storage Controller Card



1	storage connector	2	expansion-card riser
3	storage controller card	4	storage controller card cables
5	battery	6	release lever

Installing the Integrated Storage Controller Card

To install the integrated storage controller card:

1. Power off the appliance, including any attached peripherals, and disconnect the appliance from the electrical outlet.
2. Open the appliance ([Opening the Appliance](#) on page 24).
3. If installed, remove the expansion card ([Removing an Expansion Card](#) on page 36).
4. Route the cables in the cable path under the storage controller card slot on the expansion card riser.
5. With the storage controller card edge facing the riser, insert one side of the card into the black card-edge guide.



For expansion-card riser 1, the installation sequence must be slot 3, 2, 1, and 4. The storage controller card must be installed in Slot 4 after the other expansion cards have been installed.

6. Bend outward on the blue card-edge guide, lower the card onto the blue card-edge guide, and release the guide. See Figure 3-22.
7. Slide the storage controller's card edge connector into the card slot on the riser until the card is fully seated.
8. Connect the two SAS data cable connectors, CNTRL 0 and CNTRL 1, to the storage controller card ([Figure 17](#) on page 41).



Be sure to connect the cable according to the connector labels on the cable. The cables are not operational if reversed.

9. For a battery-cached RAID controller, connect the RAID battery cable to the controller card.
10. Replace the expansion card ([Installing an Expansion Card](#) on page 37).
11. Close the appliance ([Closing the Appliance](#) on page 24).
12. Reconnect the appliance to its electrical outlet and power the appliance on, including any attached peripherals.
13. If applicable, replace the front bezel ([Installing the Front Bezel](#) on page 23).

Integrated Remote Access Controller 6 (iRAC) Enterprise Card

The iRAC6 Enterprise card provides a set of advanced features for managing the server remotely.

Removing an iRAC6 Enterprise Card



Only trained service technicians are authorized to remove the appliance cover and access any of the components inside the appliance. Before you begin this procedure, review the safety instructions that came with the appliance.

To remove an iRAC6 Enterprise Card:

1. Power off the appliance, including any attached peripherals, and disconnect the appliance from the electrical outlet.
2. Open the appliance ([Opening the Appliance](#) on page 24).
3. If installed, remove all expansion cards from expansion-card riser 1 ([Removing an Expansion Card](#) on page 36).
4. If present, disconnect the Ethernet cable from the iRAC6 Enterprise card.
5. Remove the iRAC6 Enterprise card:

- a. Pull back slightly on the two tabs at the front edge of the card and gently lift the front edge of the card off of the retention standoffs.
 - b. As the card releases from the standoffs, the connector under the card disengages from the system-board connector.
 - c. Slide the card away from the back of the appliance until the RJ-45 connector is clear of the back panel, then lift the card out of the appliance.
6. Install the plastic filler plug for the vacated RJ-45 Ethernet port in the appliance back panel.
 7. Reinstall the expansion card(s) in expansion-card riser 1 ([Installing an Expansion Card](#) on page 37).
 8. Close the appliance ([Closing the Appliance](#) on page 24).
 9. Reconnect the appliance and peripherals to their power sources, and power them on.

Installing an iRAC6 Enterprise Card

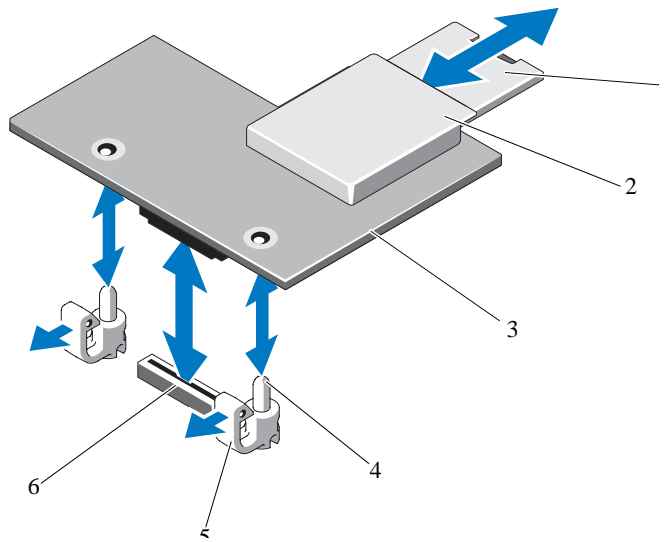


Only trained service technicians are authorized to remove the appliance cover and access any of the components inside the appliance. Before you begin this procedure, review the safety instructions that came with the appliance.

To install an iRAC6 Enterprise Card:

1. Power off the appliance, including any attached peripherals, and disconnect the appliance from the electrical outlet.
2. Open the appliance ([Opening the Appliance](#) on page 24).
3. Remove the plastic filler plug for the iRAC6 Enterprise port from the appliance back panel. For the port location, see [Back Panel Features and Indicators](#) on page 15.
4. If installed, remove all expansion cards from expansion-card riser 1 ([Removing an Expansion Card](#) on page 36).
5. Install the iRAC6 Enterprise card:
 - a. Angle the card so that the RJ-45 connector fits through the back-panel opening ([Figure 18](#) on page 44).
 - b. Align the front edge of the card with the two front plastic retention standoffs next to the iRAC6 connector on the system-board ([Figure 27](#) on page 72) for the location of the connector.
 - c. Press the card down until it is fully seated ([Figure 18](#) on page 44).
When the front of the card is fully seated, the plastic standoffs snap over the edge of the card.
6. Reinstall all expansion cards in expansion-card riser 1 ([Installing an Expansion Card](#) on page 37).
7. Close the appliance ([Closing the Appliance](#) on page 24).
8. Reconnect the appliance and peripherals to their power sources, and power them on.

Figure 18 Removing and Installing the iRAC6 Enterprise Card



1	VFlash SD card	2	VFlash media slot
3	iRAC6 Enterprise card	4	retention standoff posts (2)
5	retention standoff tabs (2)	6	iRAC6 Enterprise card connector

Processors

Removing a Processor



Only trained service technicians are authorized to remove the appliance cover and access any of the components inside the appliance. Before you begin this procedure, review the safety instructions that came with the appliance.

To remove a processor:

1. Prior to upgrading your appliance, download the latest system BIOS version (contact your Mirapoint representative), and follow the instructions included in the compressed download file to install the update on your appliance.
2. Power off the appliance, including any attached peripherals, and disconnect the appliance from the electrical outlet.
3. Open the appliance ([Opening the Appliance](#) on page 24).
4. Remove the cooling shroud ([Removing the Cooling Shroud](#) on page 25).



The heat sink and processor are hot to the touch for some time after the appliance has been powered off. Allow the heat sink and processor to cool before handling them.



Never remove the heat sink from a processor unless you intend to remove the processor. The heat sink is necessary to maintain proper thermal conditions.

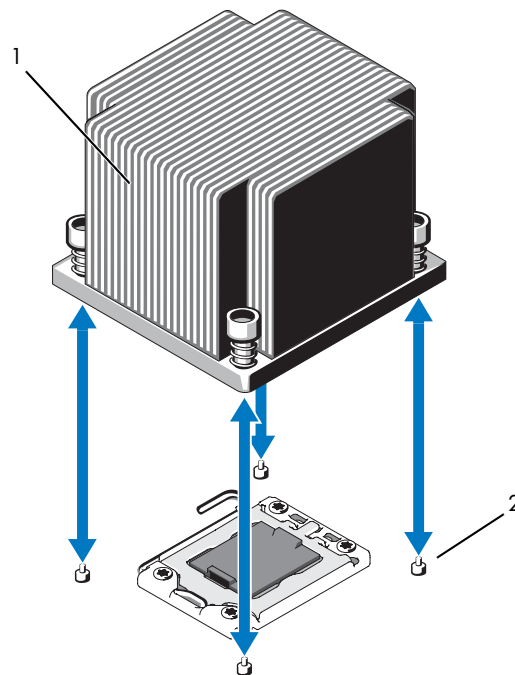
5. Release one of the heat-sink release levers (Figure 19).
6. Wait 30 seconds for the heat sink to loosen from the processor.
7. Release the other heat-sink release lever.
8. Gently lift the heat sink off of the processor and set the heat sink aside upside down (thermal grease side facing up).



The processor is held in its socket under strong pressure. Be aware that the release lever can spring up suddenly if not firmly grasped.

9. Position your thumb firmly over the processor socket-release lever and release the lever from the locked position. Rotate the lever 90 degrees upward until the processor is released from the socket (Figure 20 on page 46).

Figure 19 Removing and Installing the Heat Sink



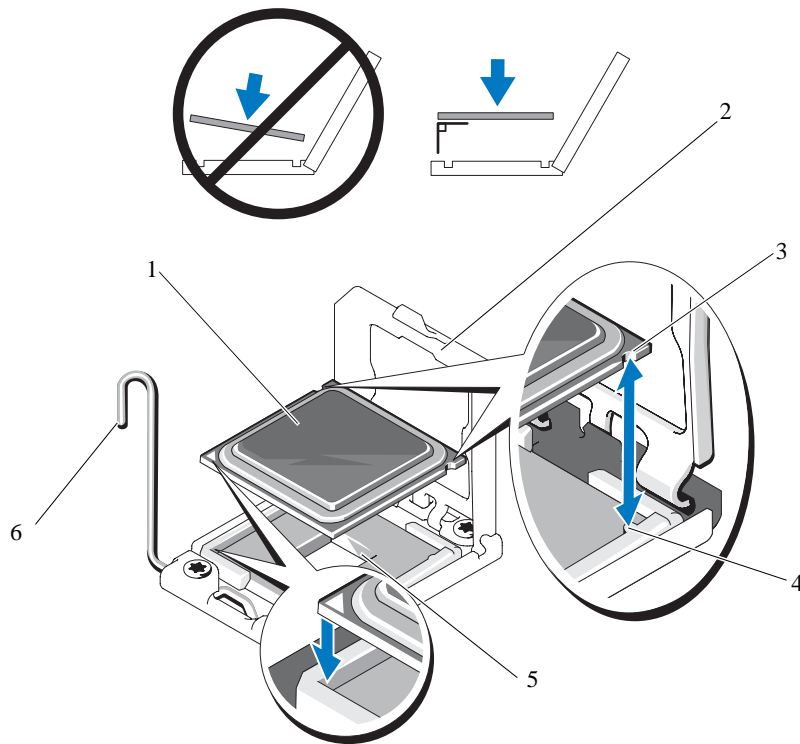
1	heat sink	2	retention screws (4)
---	-----------	---	----------------------

10. Rotate the processor shield upward and out of the way (Figure 20 on page 46).
11. Lift the processor out of the socket and leave the release lever up so that the socket is ready for the new processor.



Be careful not to bend any of the pins on the ZIF socket when removing the processor. Bending the pins can permanently damage the system-board.

Figure 20 Installing and Removing a Processor



1	processor	2	processor shield
3	notch in processor	4	socket key
5	ZIF socket	6	socket-release lever

Installing a Processor



Only trained service technicians are authorized to remove the appliance cover and access any of the components inside the appliance. Before you begin this procedure, review the safety instructions that came with the appliance.

To install a processor:

1. If you are upgrading your processors, prior to upgrading your appliance, download and install the latest system BIOS version (contact your Mirapoint representative). Follow the instructions included in the file download to install the update on your appliance.
2. Unpack the new processor.
3. Align the processor with the socket keys on the ZIF socket (Figure 20).



Positioning the processor incorrectly can permanently damage the system-board or the processor. Be careful not to bend the pins in the ZIF socket.

4. With the release lever on the processor socket in the open position, align the processor with the socket keys and set the processor lightly in the socket.



Positioning the processor incorrectly can permanently damage the system-board or the processor. Be careful not to bend the pins in the ZIF socket.

5. Close the processor shield.
6. Rotate the socket release lever down until it snaps into place.
7. Using a clean lint-free cloth, remove the thermal grease from the heat sink.
8. Open the grease packet included with your processor kit and apply thermal grease evenly to the center of the top of the new processor.



Applying too much thermal grease can result in excess grease coming in contact with and contaminating the processor socket.

9. Place the heat sink on the processor ([Figure 19](#) on page 45).
10. Using a #2 Phillips screwdriver, tighten the heat-sink retention screws ([Figure 19](#) on page 45).
11. Replace the cooling shroud ([Installing the Cooling Shroud](#) on page 26).
12. Close the appliance ([Closing the Appliance](#) on page 24).
13. Reconnect your appliance and peripherals to the electrical outlets, and power on the appliance.
14. Run system diagnostics to verify that the new processor operates correctly.

System Battery

Replacing the System Battery



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. See your safety information for additional info.

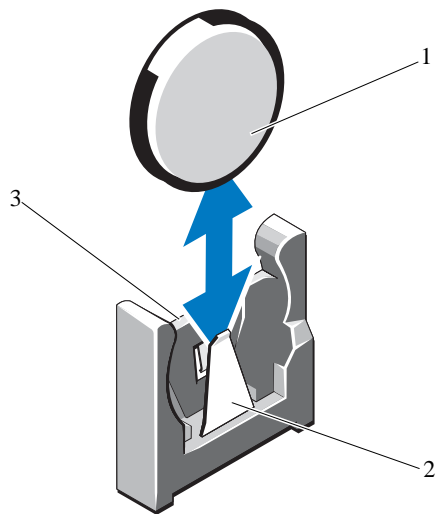


Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Mirapoint is not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

To replace the system battery:

1. Power off the appliance, including any attached peripherals, and disconnect the appliance from the electrical outlet.
2. Open the appliance ([Opening the Appliance](#) on page 24).
3. Remove the cooling shroud ([Removing the Cooling Shroud](#) on page 25).

Figure 21 Replacing the System Battery



1	system battery	2	negative side of battery connector
3	positive side of battery connector		

4. Remove the expansion card from the expansion-card slot ([Removing an Expansion Card](#) on page 36).
5. Remove the storage controller card ([Removing the Integrated Storage Controller Card](#) on page 40).
6. Remove the expansion-card riser by pressing the blue tabs on the expansion-card riser and lift it from the chassis ([Removing an Expansion-Card Riser](#) on page 38).
7. Locate the battery socket ([System Board Connectors](#) on page 72).



Avoid damage to the battery connector by firmly supporting the connector while installing or removing a battery.

8. Support the battery connector by firmly holding the positive side of the connector.
9. Press the battery toward the negative side of the connector and lift it up out of the securing tab at the negative side of the connector.
10. Support the battery connector by pressing down firmly on the positive side of the connector.
11. Hold the new battery with the "+" facing the plastic connector on the system-board and slide it under the securing tabs.
12. Press the battery straight down into the connector until it snaps into place.
13. Replace the expansion-card riser ([Installing an Expansion-Card Riser](#) on page 39).
14. Replace the storage controller card ([Installing the Integrated Storage Controller Card](#) on page 41).

15. Replace the expansion card from the expansion-card slot, now ([Installing an Expansion Card](#) on page 37).
16. Replace the cooling shroud ([Installing the Cooling Shroud](#) on page 26).
17. Close the appliance ([Closing the Appliance](#) on page 24).
18. Reconnect the appliance to the electrical outlet and power the appliance on, including any attached peripherals.
19. Run system diagnostics to verify that the new battery is operating correctly.

RAID Battery

Removing a RAID Battery

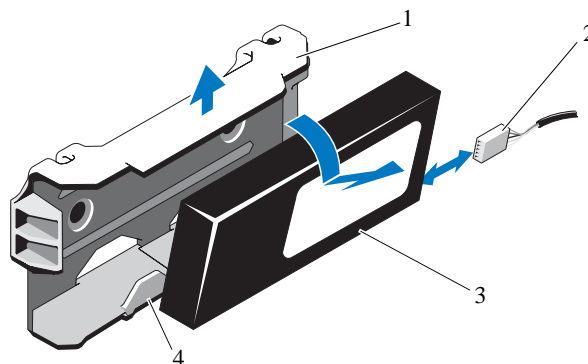


Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Mirapoint is not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

To remove a RAID battery:

1. Power off the appliance, including any attached peripherals, and disconnect the appliance from the electrical outlet.
2. Open the appliance ([Opening the Appliance](#) on page 24).
3. To disconnect the RAID battery cable by gently pulling the cable connector out of the connector ([Figure 22](#) on page 50).
4. Pull back gently on the two tabs holding the RAID battery and lift the RAID battery from the battery carrier ([Figure 22](#)).

Figure 22 Removing or Installing a RAID Battery



1	battery carrier	2	battery cable connector
3	RAID battery	4	battery carrier tabs (2)

Installing the RAID Battery

To install the RAID battery:

1. Insert the RAID battery into the battery carrier until it locks into place ([Figure 22](#) on page 49).
2. Connect the cable to the battery ([Figure 27](#) on page 72).
3. Close the appliance ([Closing the Appliance](#) on page 24).
4. Power on the appliance and attached peripherals.

Control Panel Assembly—LED

Removing the Control-Panel Module—LED



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 Mirapoint is not covered by your warranty. Read and follow the safety instructions that came with the product.

To remove the control-panel module—LED:

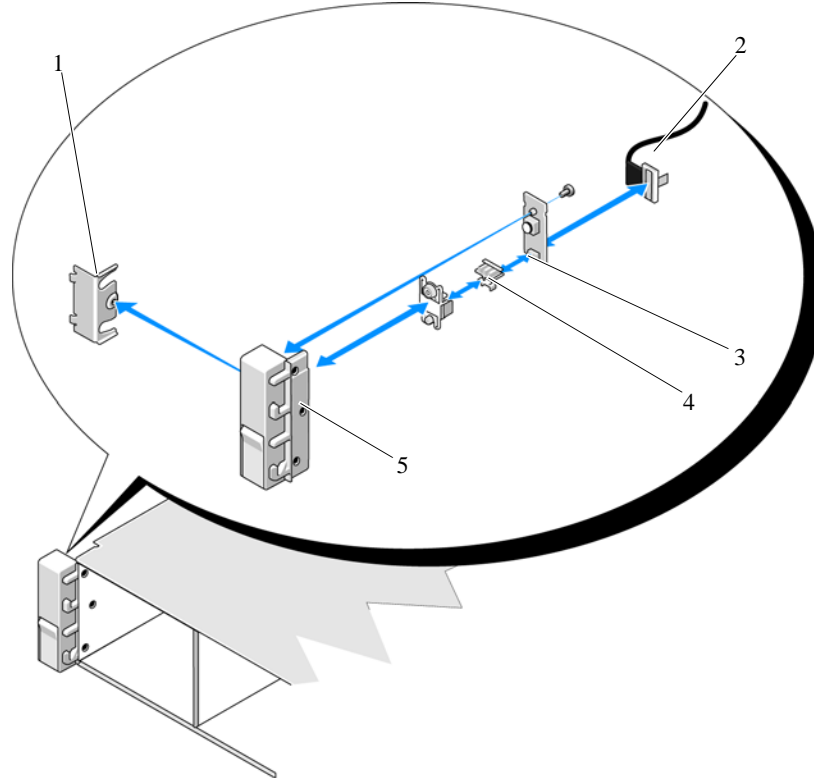
1. If installed, remove the front bezel ([Removing the Front Bezel](#) on page 23).
2. Power off the appliance and attached peripherals, and disconnect the appliance from the electrical outlet and peripherals.
3. Remove the single screw securing the bracket to the module and remove the bracket.
4. Disconnect the control-panel cable at back of the module by using the pull tab ([Figure 23](#) on page 51).



Do not pull on the cable to unseat the connector. Doing so can damage the cable.

5. Remove the screw securing the power button board to the control-panel module ([Figure 23](#) on page 51).
6. Remove the power button board and power button from the control-panel module.

Figure 23 Removing and Installing the Control Panel—LED



1	bracket	2	control-panel cable
3	power button board	4	power button
5	control-panel module		

Installing the Control-Panel Module—LED

To install the control-panel module—LED:

1. Assemble the power button and power button board in the control-panel module.
2. Tighten the screw to secure the power button board to the control-panel module ([Figure 23](#)).
3. Connect the control-panel cable to the control-panel module.
4. Replace the bracket and tighten the single screw to secure the bracket to the back of the control-panel module.
5. Close the appliance ([Closing the Appliance](#) on page 24).
6. Reconnect the appliance to the power source and power on the appliance and attached peripherals.
7. If applicable, replace the front bezel ([Installing the Front Bezel](#) on page 23).

SAS Backplane

Removing the SAS Backplane



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 Mirapoint is not covered by your warranty. Read and follow the safety instructions that came with the product.

To remove the SAS backplane:

1. If applicable, remove the optional bezel ([Removing the Front Bezel](#) on page 23).
2. Power off the appliance and attached peripherals, and disconnect the appliance from the electrical outlet.
3. Open the appliance ([Opening the Appliance](#) on page 24).



To prevent damage to the drives and backplane, you must remove the hard drives from the appliance before removing the backplane.



You must note the number of each hard drive and temporarily label them before removal so that you can replace them in the same locations.

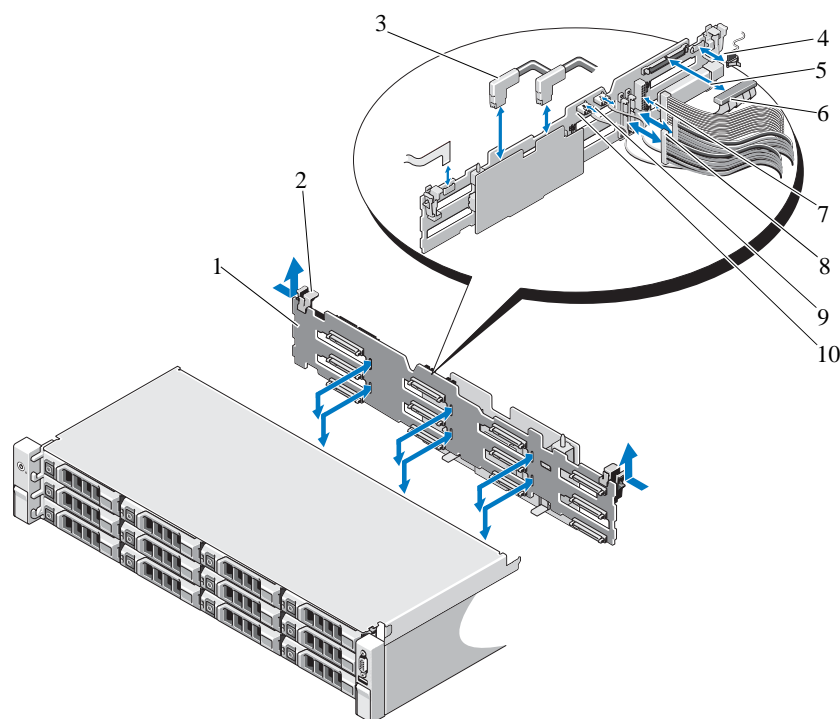
4. Remove all hard drives ([Removing a Hot-Swap Hard Drive](#) on page 27).
5. Disconnect the power cable from the end of the SAS backplane.
6. Disconnect the SAS data cables from the backplane.



Handle the cables gently to prevent damage.

7. While pressing the two blue latches toward each other, lift the backplane upward ([Figure 24](#) on page 53).
8. When the backplane cannot slide upward any farther, pull the backplane toward the back of the appliance to remove it from the retention hooks.
9. Lift the board out of the appliance, being careful to avoid damaging components on the face of the board.
10. Place the SAS backplane face down on a work surface.

Figure 24 Removing and Installing a SAS Backplane



1	SAS backplane	2	backplane retention latches (2)
3	SAS cables	4	control panel module cable
5	USB memory key connector	6	SAS backplane power cable
7	control panel cable	8	internal hard drive cables (2)
9	USB cable	10	SAS backplane cable

Installing the SAS Backplane

To install the SAS backplane:

1. Lower the backplane into the appliance, being careful to avoid damaging components on the face of the board.
2. Align the slots in the backplane with the retention hooks on the back of the drive bays, then move the backplane forward until the retention hooks fit through the slots in the backplane (Figure 24).
3. Slide the backplane downward until the two blue retention latches snap into place.
4. Connect the SAS data and power cables to the SAS backplane.
5. Install the hard drives in their original locations.



Handle the cables gently to prevent damage.

6. Connect the internal hard drive cables.

7. Close the appliance ([Closing the Appliance](#) on page 24).
8. Reconnect the appliance to its electrical outlet and power the appliance on, including any attached peripherals.

Power Distribution Board

The power distribution board is located on your appliance directly behind the power supply fan module ([Figure 25](#) on page 55).

Removing the Power Distribution Board



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 Mirapoint is not covered by your warranty. Read and follow the safety instructions that came with the product.

To remove the power distribution board:

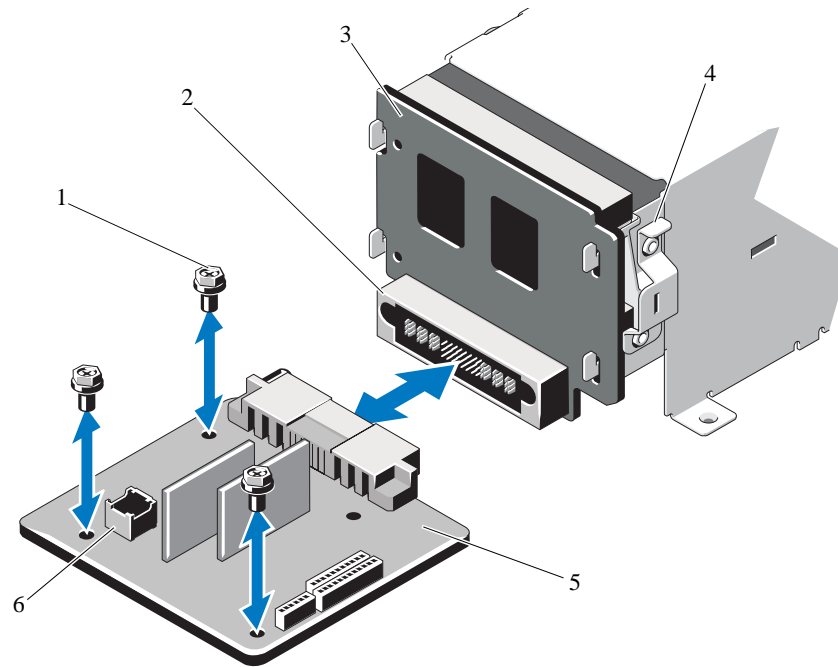
1. Remove the power supplies from the appliance ([Removing a Power Supply](#) on page 31).
2. Remove the expansion cards ([Removing an Expansion Card](#) on page 36).
3. Remove the expansion card riser ([Removing an Expansion-Card Riser](#) on page 38).
4. Disconnect power distribution cables from the system-board ([System Board Connectors](#) on page 72).
5. Disconnect the fan cable.
6. Remove the screws securing the power distribution board to the chassis ([Figure 25](#) on page 55).



The twelve hard drive systems have three screws securing the power distribution board to the chassis.

7. Pull the blue tab, lift the power distribution board, and move it toward the front of the appliance to disengage from the tabs on the power supply bay ([Figure 25](#) on page 55).

Figure 25 Removing and Installing the Power Distribution Board



1	screws (3)	2	power supply connector
3	power-interposer board	4	blue tab
5	power-distribution board	6	fan module cable connector

Installing the Power Distribution Board



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To install the power distribution board:

1. Unpack the new power distribution board assembly.
2. Align the power distribution board with the tabs on the chassis and slide it in place until the blue tab snaps over the edge of the board (Figure 25).
3. Install the screws that secure the power distribution board to the chassis (Figure 25).



The twelve hard drive systems have three screws securing the power distribution board to the chassis.

4. Connect the power distribution cables to the system-board ([System Board Connectors](#) on page 72) and fan cable to the power distribution board as shown in [Figure 25](#) on page 55.
5. If applicable, align the support bracket over the Power Distribution board and secure in place with the screw.
6. Install the power supplies in the appliance ([Installing a Power Supply](#) on page 32).
7. Replace the expansion-card riser ([Installing an Expansion-Card Riser](#) on page 39).
8. Replace the expansion cards ([Installing an Expansion Card](#) on page 37).
9. Close the appliance ([Closing the Appliance](#) on page 24).
10. Reconnect the appliance to its electrical outlet and power the appliance on, including any attached peripherals.

System Board (Service-Only Procedure)

Removing the System Board



Only trained service technicians are authorized to remove the appliance cover and access any of the components inside the appliance. Before you begin this procedure, review the safety instructions that came with the appliance.



After replacing the system-board, you are required to update the Unified Server Configurator repository to the latest software to restore full functionality ([Getting Technical Support](#) on page 7).

To remove the system-board:

1. Power off the appliance and attached peripherals, and disconnect the appliance from the electrical outlet.
2. Open the appliance ([Opening the Appliance](#) on page 24).
3. Remove the power supplies ([Removing a Power Supply](#) on page 31).
4. Remove the cooling shroud ([Removing the Cooling Shroud](#) on page 25).
5. Remove all expansion cards and the integrated storage controller card ([Removing an Expansion Card](#) on page 36 and [Removing the Integrated Storage Controller Card](#) on page 40).
6. Remove the expansion-card riser ([Removing an Expansion-Card Riser](#) on page 38).
7. Remove the heat sinks, processors and any heat-sink blanks ([Removing a Processor](#) on page 44).
8. Remove the iRAC6 Enterprise card ([Removing an iRAC6 Enterprise Card](#) on page 42).
9. Disconnect all cables from the system-board.

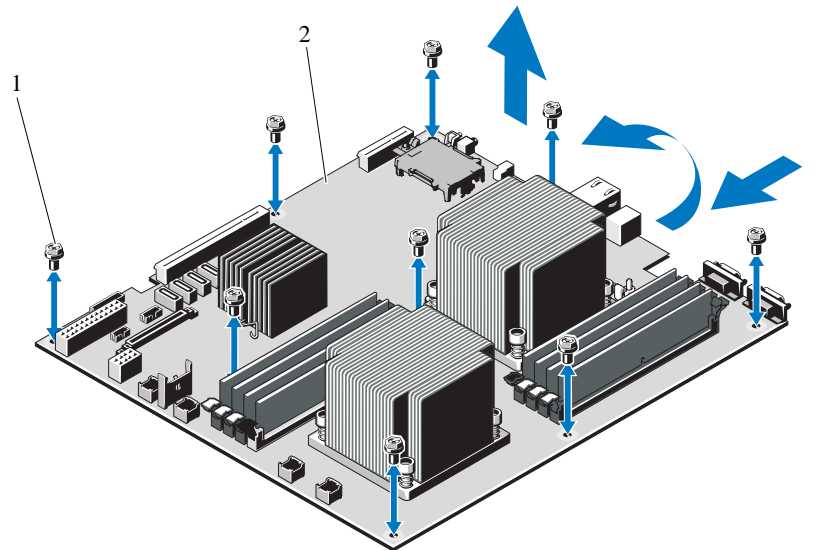
10. Remove the nine screws securing the system-board to the chassis and then slide the system-board assembly toward the front end of the chassis.



Do not lift the system-board by the memory modules, heatsink, or any component on the system-board.

11. Grasp the system-board assembly by the edges of the system-board tray, and lift the assembly from the chassis ([Figure 26](#)).

Figure 26 System Board Removal



1	screws (9)	2	system-board assembly
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Installing the System-Board

To install the system-board:

1. Unpack the new system-board.
2. Remove the labels from the placard and affix them to the information tag on the front of the appliance ([Figure 1](#) on page 13).
3. Transfer the processors and heat sinks to the new system-board ([Installing a Processor](#) on page 46).
4. Remove the memory modules and transfer them to the same locations on the new board ([System Memory](#) on page 32).
5. Install the new system-board:
 - a. Angle the system-board as you lower it into the chassis and set the board flat inside the chassis.
 - b. Maneuver the system-board so that all of the retention hooks on the chassis are inserted into the retention slots on the system-board.
 - c. Push the system-board toward the back of the chassis until the blue retention pin locks into place.

6. Replace the expansion-card riser ([Installing an Expansion-Card Riser](#) on page 39).
7. Reinstall the integrated storage controller card ([Installing the Integrated Storage Controller Card](#) on page 41).
8. Install all expansion cards ([Installing an Expansion Card](#) on page 37).
9. Transfer the iRAC6 Enterprise card to the new system-board ([Installing an iRAC6 Enterprise Card](#) on page 43).
10. Replace the cooling shroud ([Installing the Cooling Shroud](#) on page 26).
11. Close the appliance ([Closing the Appliance](#) on page 24).
12. Reconnect the appliance and any attached peripherals to the electrical outlet and power the appliance on.

Troubleshooting Your System

This chapter describes potential component failures and provides replacement procedures. Topics include:

- ◆ [Safety First—For You and Your Appliance](#)
- ◆ [Troubleshooting System Startup Failure](#) on page 60
- ◆ [Troubleshooting External Connections](#) on page 60
- ◆ [Troubleshooting the Video Subsystem](#) on page 60
- ◆ [Troubleshooting a USB Device](#) on page 60
- ◆ [Troubleshooting a Serial I/O Device](#) on page 61
- ◆ [Troubleshooting a NIC](#) on page 61
- ◆ [Troubleshooting a Wet Appliance](#) on page 62
- ◆ [Troubleshooting a Damaged System](#) on page 63
- ◆ [Troubleshooting the System Battery](#) on page 63
- ◆ [Troubleshooting Power Supplies](#) on page 64
- ◆ [Troubleshooting System Cooling Problems](#) on page 64
- ◆ [Troubleshooting a Fan](#) on page 65
- ◆ [Troubleshooting System Memory](#) on page 65
- ◆ [Troubleshooting a Hard Drive](#) on page 67
- ◆ [Troubleshooting a Storage Controller](#) on page 67
- ◆ [Troubleshooting Expansion Cards](#) on page 68
- ◆ [Troubleshooting the Processor\(s\)](#) on page 69

Safety First—For You and Your Appliance



Only trained service technicians are authorized to remove the appliance cover and access any of the components inside the appliance. Before you begin this procedure, review the safety instructions that came with the appliance.

Troubleshooting System Startup Failure

If your appliance halts during startup prior to video imaging, especially after installing a MOS release or reconfiguring your appliance's hardware, check for invalid memory configurations, which can cause the appliance to halt at startup without any video output ([System Messages](#) on page 19).

Troubleshooting External Connections

Ensure that all external cables are securely attached to the external connectors on your appliance before troubleshooting any external devices for the front- and back-panel connectors on your appliance ([Figure 1](#) on page 13 and [Figure 3](#) on page 15).

Troubleshooting the Video Subsystem

To troubleshoot the video subsystem:

1. Check the appliance and power connections to the monitor.
2. Check the video interface cabling from the appliance to the monitor.
3. If two monitors are attached to the appliance, disconnect one monitor. The appliance supports only one monitor attached to either the front or back video connector.
4. Try using a monitor that is known to be working.
5. Run the appropriate online diagnostic test.

If the tests run successfully, the problem is not related to video hardware.

If the tests fail, see [Getting Technical Support](#) on page 7.

Troubleshooting a USB Device

To troubleshoot a USB device:

1. Use the following steps to troubleshoot a USB keyboard. For other USB devices, go to [Step 2](#).
 - a. Disconnect the keyboard cable from the appliance briefly and reconnect it.
 - b. Connect the keyboard to the USB port(s) on the opposite side of the appliance.

If the problem is resolved, restart the appliance, enter the System BIOS, and check if the nonfunctioning USB ports are enabled.
 - c. Replace the keyboard with another working keyboard.

If the problem is resolved, replace the faulty keyboard.

If the problem is not resolved, proceed to the next step to begin troubleshooting the other USB devices attached to the appliance.
2. Power off all attached USB devices and disconnect them from the appliance.

3. Restart the appliance and, if your keyboard is functioning, enter the System BIOS. Verify that all USB ports are enabled.

If your keyboard is not functioning, you can also use remote access.

4. Reconnect and power on each USB device one at a time.
5. If a device causes the same problem, power off the device, replace the USB cable, and power up the device.

If the problem persists, replace the device.

If all troubleshooting fails, see [Getting Technical Support](#) on page 7.

Troubleshooting a Serial I/O Device

To troubleshoot a serial I/O device:

1. Power off the appliance, including any attached peripherals, and disconnect the appliance from the electrical outlet.
2. Swap the serial interface cable with another working cable, and power on the appliance and the serial device.

If the problem is resolved, replace the interface cable.

3. Power off the appliance and the serial device, and swap the device with a comparable device.
4. Power on the appliance and the serial device.

If the problem is resolved, replace the serial device.

If the problem persists, see [Getting Technical Support](#) on page 7.

Troubleshooting a NIC

To troubleshoot a NIC:

1. Run the appropriate online diagnostic test.
2. Restart the appliance and check for any system messages pertaining to the NIC controller.
3. Check the appropriate indicator on the NIC connector ([NIC Indicator Codes](#) on page 18).
 - If the link indicator does not light, check all cable connections.
 - If the activity indicator does not light, the network driver files might be damaged or missing.
 - Use another connector on the switch or hub.

If you are using a NIC card instead of an embedded NIC, see the documentation for the NIC card.

4. Ensure that the appropriate drivers are installed and the protocols are bound. See the NIC's documentation.
5. Enter the System BIOS and confirm that the NIC ports are enabled.

6. Ensure that the NICs, hubs, and switches on the network are all set to the same data transmission speed and duplex. See the documentation for each network device.
7. Ensure that all network cables are of the proper type and do not exceed the maximum length.

If all troubleshooting fails, see [Getting Technical Support](#) on page 7.

Troubleshooting a Wet Appliance



Only trained service technicians are authorized to remove the appliance cover and access any of the components inside the appliance. Before you begin this procedure, review the safety instructions that came with the appliance.

To troubleshoot a wet appliance:

1. Power off the appliance and attached peripherals, and disconnect the appliance from the electrical outlet.
2. Open the appliance ([Opening the Appliance](#) on page 24).
3. Disassemble components from the appliance ([Chapter 2, Installing Appliance Components](#)).
 - Cooling shroud
 - Hard drives
 - SD cards
 - NIC hardware key
 - Internal SD Module
 - Expansion cards and both expansion-card risers
 - Integrated storage controller
 - iRAC6 Enterprise card
 - Power supplies
 - Processors and heat sinks
 - Memory modules
 - Fan bracket
4. Let the appliance dry thoroughly for at least 24 hours.
5. Reinstall the processors and heat sinks, memory modules, power supplies, cooling shroud, and fan bracket.
6. Close the appliance ([Closing the Appliance](#) on page 24).
7. Reconnect the appliance to the electrical outlet, and power on the appliance.

If the appliance does not start properly, see [Getting Technical Support](#) on page 7.

8. If the appliance starts properly, power off the appliance and reinstall the rest of the components that you removed in [Step 3 \(Installing an Expansion Card](#) on page 37).
9. Run the appropriate online diagnostic test.
If the tests fail, see [Getting Technical Support](#) on page 7.

Troubleshooting a Damaged System



Only trained service technicians are authorized to remove the appliance cover and access any of the components inside the appliance. Before you begin this procedure, review the safety instructions that came with the appliance.

To troubleshoot a damaged appliance:

1. Power off the appliance and attached peripherals, and disconnect the appliance from the electrical outlet.
2. Open the appliance ([Opening the Appliance](#) on page 24).
3. Ensure that the following components are properly installed:
 - Expansion cards and both expansion-card risers
 - Power supplies
 - Fans and cooling shroud
 - Processors and heat sinks
 - Memory modules
 - Hard-drive carriers
4. Ensure that all cables are properly connected.
5. Close the appliance ([Closing the Appliance](#) on page 24).
6. Run the system-board tests in the system diagnostics.
If the tests fail, see [Getting Technical Support](#) on page 7.

Troubleshooting the System Battery



Only trained service technicians are authorized to remove the appliance cover and access any of the components inside the appliance. Before you begin this procedure, review the safety instructions that came with the appliance.

To troubleshoot the system battery:

1. Re-enter the time and date through the System BIOS.
2. Power off the appliance and disconnect it from the electrical outlet for at least one hour.
3. Reconnect the appliance to the electrical outlet and power on the appliance.
4. Enter the System BIOS.

If the date and time are not correct in the System BIOS, replace the battery ([System Battery](#) on page 47).

If the problem is not resolved by replacing the battery, see [Getting Technical Support](#) on page 7.

Troubleshooting Power Supplies



At least one power supply must be installed for the appliance to operate. Operating the appliance with only one power supply installed for extended periods of time without a power-supply blank installed in the PS2 power-supply bay can cause the appliance to overheat.

To troubleshoot power supplies:

1. Identify the faulty power supply by the power supply's status indicator ([Power Indicator Codes](#) on page 16).



If troubleshooting a power supply mismatch error, 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 appliance shutdown. To change from a High Output configuration to an Energy Smart configuration or vice versa, you must power off the appliance.

2. Reseat the power supply by removing and reinstalling it ([Power Supplies](#) on page 31).



After installing a power supply, allow several seconds for the appliance to recognize the power supply and to determine if it is working properly. The status indicator turns green to signify that the power supply is functioning properly.

3. If the problem persists, replace the faulty power supply with the same type of power supply.

If the problem persists, see [Getting Technical Support](#) on page 7.

Troubleshooting System Cooling Problems



Only trained service technicians are authorized to remove the appliance cover and access any of the components inside the appliance. Before you begin this procedure, review the safety instructions that came with the appliance.

Ensure that none of the following conditions exist:

- ◆ System cover, cooling shroud, drive blank, power supply blank, or front or back filler panel is removed.

- ◆ Ambient temperature is too high. For the appliance's operating temperature requirements, refer to the *Mirapoint 7-Series Getting Started Guide*.
- ◆ External airflow is obstructed.
- ◆ Cables inside the appliance obstruct airflow.
- ◆ An individual cooling fan is removed or has failed ([Troubleshooting a Fan](#)).

Troubleshooting a Fan



Only trained service technicians are authorized to remove the appliance cover and access any of the components inside the appliance. Before you begin this procedure, review the safety instructions that came with the appliance.

To troubleshoot a fan:

1. Open the appliance ([Opening the Appliance](#) on page 240).

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

2. Locate the faulty fan indicated by the diagnostic software.
3. Reseat the fan ([Cooling Fans](#) on page 28).



Wait at least 30 seconds for the appliance to recognize the fan and determine whether it is working properly.

4. If the problem is not resolved, install a new fan.

If the replacement fan does not operate, see [Getting Technical Support](#) on page 7.

Troubleshooting System Memory



Only trained service technicians are authorized to remove the appliance cover and access any of the components inside the appliance. Before you begin this procedure, review the safety instructions that came with the appliance.



Invalid memory configurations can cause your appliance to halt at startup without video output.

To troubleshoot system memory:

1. If the appliance is operational, run the appropriate online diagnostic test.

If diagnostics indicates a fault, follow the corrective actions provided by the diagnostic program.

2. If the appliance is not operational, power off the appliance and attached peripherals, and unplug the appliance from the power source. Wait at least 10 seconds and then reconnect the appliance to power.
3. Power on the appliance and attached peripherals and note the messages on the screen.
Go to [Step 12](#) if an error message appears indicating a fault with a specific memory module.
4. Power off the appliance and attached peripherals, and disconnect the appliance from the electrical outlet.
5. Open the appliance ([Opening the Appliance](#) on page 24).
6. Remove the cooling shroud ([Removing the Cooling Shroud](#) on page 25).
7. Check the memory channels and ensure that they are populated correctly.
8. Reseat the memory modules in their sockets ([Installing Memory Modules](#) on page 33).
9. Replace the cooling shroud ([Installing the Cooling Shroud](#) on page 26).
10. Close the appliance ([Closing the Appliance](#) on page 24).
11. Reconnect the appliance to its electrical outlet, and power on the appliance and attached peripherals.
If the problem is not resolved, proceed with the next step.
12. Power off the appliance and attached peripherals, and disconnect the appliance from the power source.
13. Open the appliance ([Opening the Appliance](#) on page 24).
14. Remove the cooling shroud ([Removing the Cooling Shroud](#) on page 25).
15. If a diagnostic test or error message indicates a specific memory module as faulty, swap or replace the module.
16. 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. ([Installing Memory Modules](#) on page 33).
17. Replace the cooling shroud ([Installing the Cooling Shroud](#) on page 26).
18. Close the appliance ([Closing the Appliance](#) on page 24).
19. Reconnect the appliance to its electrical outlet, and power on the appliance and attached peripherals.
20. If the memory problem is still indicated, repeat [Step 12](#) through [Step 20](#) for each memory module installed.

If the problem persists after all memory modules have been checked, see [Getting Technical Support](#) on page 7.

Troubleshooting a Hard Drive



Only trained service technicians are authorized to remove the appliance cover and access any of the components inside the appliance. Before you begin this procedure, review the safety instructions that came with the appliance.



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

To troubleshoot a hard drive:

1. Run the appropriate online diagnostics test.
Depending on the results of the diagnostics test, proceed as needed through the following steps.
2. Remove the bezel ([Removing the Front Bezel](#) on page 23).
3. If your hard drives are configured in a RAID array, perform the following steps.
 - a. Restart the appliance and enter the host adapter configuration utility program by pressing <Ctrl><R> for a RAID controller.
See the documentation supplied with the host adapter for information about the configuration utility.
 - b. Ensure that the hard drive(s) have been configured correctly for the RAID array.
 - c. Take the hard drive offline and then reseal the hard drive ([Removing a Hot-Swap Hard Drive](#) on page 27).
 - d. Exit the configuration utility and allow the appliance to boot to the operating system.
4. Ensure that the required device drivers for your controller card are installed and are configured correctly. See the MOS release documentation for more information.
5. Restart the appliance, enter the System BIOS, and verify that the controller is enabled and the drives appear in the System BIOS.

If the problem persists, see [Troubleshooting a Storage Controller](#).

Troubleshooting a Storage Controller



Only trained service technicians are authorized to remove the appliance cover and access any of the components inside the appliance. Before you begin this procedure, review the safety instructions that came with the appliance.



When troubleshooting a RAID controller, also see the documentation for your MOS release and the controller.

To troubleshoot a storage controller:

1. Run the appropriate online diagnostic test.
2. Enter the System BIOS and ensure that the controller is enabled.
3. Restart the appliance and press <Ctrl><R> for the RAID card controller to enter the configuration utility program:
See the controller's documentation for information about configuration settings.
4. Check the configuration settings, make any necessary corrections, and restart the appliance.
5. Power off the appliance and attached peripherals, and disconnect the appliance from its electrical outlet.
6. Open the appliance ([Opening the Appliance](#) on page 24).
7. Ensure that the controller card is firmly seated into the expansion-card connector ([Installing the Integrated Storage Controller Card](#) on page 41).
8. With the battery-cached RAID controller, ensure that the RAID battery is properly connected, and the memory module on the RAID card is properly seated.
9. Verify that the cable connections between the SAS backplane and the integrated storage controller are correct ([Installing the Integrated Storage Controller Card](#) on page 41).
10. Ensure that the cables are firmly connected to the storage controller and the SAS backplane board.
11. Close the appliance ([Closing the Appliance](#) on page 24).
12. Reconnect the appliance to its electrical outlet, and power on the appliance and attached peripherals.

If the problem persists, see [Getting Technical Support](#) on page 7.

Troubleshooting Expansion Cards



Only trained service technicians are authorized to remove the appliance cover and access any of the components inside the appliance. Before you begin this procedure, review the safety instructions that came with the appliance.



When troubleshooting an expansion card, see the documentation for your MOS release.

To troubleshoot expansion cards:

1. Run the appropriate online diagnostic test.
2. Power off the appliance and attached peripherals, and disconnect the appliance from the electrical outlet.
3. Open the appliance ([Opening the Appliance](#) on page 24).

4. Verify that the installed expansion cards are compliant with the expansion-card installation guidelines ([Expansion Cards and Expansion-Card Risers](#) on page 35).
5. Reseat any expansion card that is not firmly seated in its connector ([Installing an Expansion Card](#) on page 37).
6. Close the appliance ([Closing the Appliance](#) on page 24).
7. Reconnect the appliance to the electrical outlet, and power on the appliance and attached peripherals.
8. If the problem is not resolved, proceed to [Step 9](#).
9. Power off the appliance and attached peripherals, and disconnect the appliance from the electrical outlet.
10. Open the appliance ([Opening the Appliance](#) on page 24).
11. Remove all expansion cards installed in the appliance ([Removing an Expansion Card](#) on page 36).
12. Reseat the expansion-card risers to the system-board ([Expansion Cards and Expansion-Card Risers](#) on page 35).
13. Close the appliance ([Closing the Appliance](#) on page 24).
14. Reconnect the appliance to the electrical outlet, and power on the appliance and attached peripherals.
15. Run the appropriate online diagnostic test.
If the tests fail, see [Getting Technical Support](#) on page 7.
16. For each expansion card you removed in [Step 11](#), perform the following steps:
 - a. Power off the appliance and attached peripherals, and disconnect the appliance from the electrical outlet.
 - b. Open the appliance ([Opening the Appliance](#) on page 24).
 - c. Reinstall one of the expansion cards.
 - d. Close the appliance ([Closing the Appliance](#) on page 24).
 - e. Run the appropriate diagnostic test.
If the tests fail, see [Getting Technical Support](#) on page 7.

Troubleshooting the Processor(s)



Only trained service technicians are authorized to remove the appliance cover and access any of the components inside the appliance. Before you begin this procedure, review the safety instructions that came with the appliance.

To troubleshoot the processor(s):

1. Run the appropriate online diagnostics test.
2. Power off the appliance and attached peripherals, and disconnect the appliance from the electrical outlet.
3. Open the appliance ([Opening the Appliance](#) on page 24).

4. Remove the cooling shroud ([Removing the Cooling Shroud](#) on page 25).
5. Ensure that each processor and heat sink are properly installed ([Installing a Processor](#) on page 46).
6. Replace the cooling shroud ([Installing the Cooling Shroud](#) on page 26).
7. Close the appliance ([Closing the Appliance](#) on page 24).
8. Reconnect the appliance to the electrical outlet, and power on the appliance and attached peripherals.
9. Run the appropriate online diagnostic test.
10. Power off the appliance and attached peripherals, and disconnect the appliance from the electrical outlet.
11. Open the appliance ([Opening the Appliance](#) on page 24).
12. Remove the cooling shroud ([Removing the Cooling Shroud](#) on page 25).



Be careful not to bend any of the pins on the ZIF socket when removing the processor. Bending the pins can permanently damage the system-board.

13. Remove processor 2 ([Removing a Processor](#) on page 44).
14. Replace the cooling shroud ([Installing the Cooling Shroud](#) on page 26).
15. Close the appliance ([Closing the Appliance](#) on page 24).
16. Reconnect the appliance to the electrical outlet, and power on the appliance and attached peripherals.
17. Run the appropriate online diagnostic test.
If the test fails, the processor is faulty ([Getting Technical Support](#) on page 7).
18. Power off the appliance and attached peripherals, and disconnect the appliance from the electrical outlet.
19. Open the appliance ([Opening the Appliance](#) on page 24).
20. Remove the cooling shroud ([Removing the Cooling Shroud](#) on page 25).
21. Replace the processor with the processor you removed in [Step 13](#) ([Installing a Processor](#) on page 46).
22. Replace the cooling shroud ([Installing the Cooling Shroud](#) on page 26).
23. Repeat [Step 15](#) through [Step 17](#).

If the problem persists, the system-board is faulty ([Getting Technical Support](#) on page 7).





Jumpers and Connectors

This section provides specific information about the appliance jumpers. It also provides some basic information on jumpers and switches and describes the connectors on the various boards in the appliance.

System Board Jumpers

[Figure 27](#) on page 72 shows the location of the configuration jumpers on the system-board. [Table 7](#) lists the jumper settings.

Table 7 System Board Jumper Settings

Jumper	Setting	Description
PWRD_EN	 (default)	The password feature is enabled (pins 2-4)
		The password feature is disabled, and iRAC6 local access is unlocked at the next AC power cycle (pins 4-6)
NVRAM_CLR	 (default)	The configuration settings are retained at system boot (pins 3-5)
		The configuration settings are cleared at the next system boot (pins 1-3)

System Board Connectors

Figure 27 and Table 8 illustrate the location and description of the system-board connectors.

Figure 27 System Board Connectors

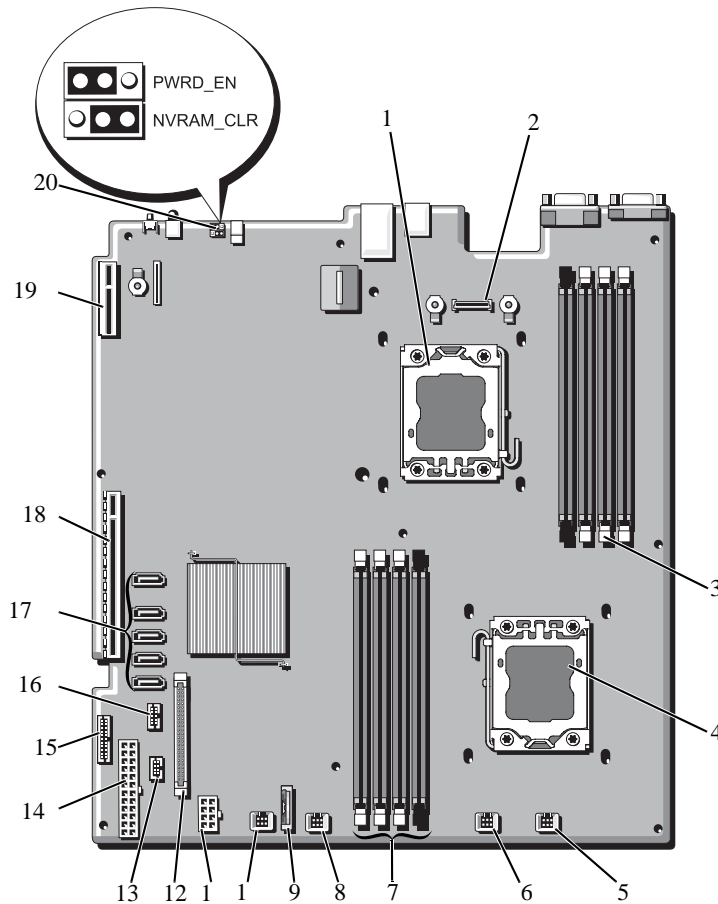


Table 8 System Board Connectors

Item	Connector	Description
1	CPU2	Processor 2
2	iRAC6 Enterprise	iRAC6 Enterprise card connector
3	B4 B1 B2 B3	Memory module slot B4 Memory module slot B1 (white release lever) Memory module slot B2 (white release lever) Memory module slot B3 (white release lever)
4	CPU1	Processor 1
5	FAN1	Cooling fan 1 connector
6	FAN2	Cooling fan 2 connector

Table 8 System Board Connectors (Continued)

Item	Connector	Description
7	A3 A2 A1 A4	Memory module slot A3 (white release lever) Memory module slot A2 (white release lever) Memory module slot A1 (white release lever) Memory module slot A4
8	FAN3	Cooling fan 3 connector
9	BATTERY	System battery
10	FAN4	Cooling fan 4 connector
11	12V	8-pin power connector
12	FP_CONN	control panel connector
13	BP_CONN	Backplane power connector
14	PWR_CONN	24-pin power connector
15	PDB_I2C	Power distribution board connector
16	FP_USB_CONN	Backplane USB connector
17	SATA_A SATA_B SATA_C SATA_D SATA_E	SATA connector A SATA connector B SATA connector C SATA connector D SATA connector E
18	RISER	Expansion-card riser connector
19	RISER	Expansion-card riser connector
20	PSWD_EN NVRM_CLR	Password enable jumper NVRAM clear jumper

Disabling a Forgotten Password

The appliance's software security features include a system password and a setup password. The password jumper enables these password features or disables them and clears any password(s) currently in use.



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 Mirapoint is not covered by your warranty. Read and follow the safety instructions that came with the product.

To disable a forgotten password:

1. Power off the appliance, including any attached peripherals, and disconnect the appliance from the electrical outlet.

2. Open the appliance ([Opening the Appliance](#) on page 24).
3. Move the password jumper to the "disabled" position to clear the password ([Table 7](#) on page 71).
See [Figure 27](#) on page 72 to locate the password jumper on the system-board.
4. Close the appliance ([Closing the System](#) on page 87).
5. Reconnect your appliance and peripherals to their electrical outlets, and power on the appliance.

The existing passwords are not disabled (erased) until the system boots with the password jumper plug in the "disabled" position. However, before you assign a new system and/or setup password, you must return the jumper plug to the enabled position.



If you assign a new system and/or setup password with the jumper plug still in the "disabled" position, the system disables the new password(s) the next time it boots.

6. Power off the appliance, including any attached peripherals, and disconnect the appliance from the electrical outlet.
7. Open the appliance ([Opening the Appliance](#) on page 24).
8. Move the password jumper back to the enabled position to restore the password function ([Table 7](#) on page 71).
9. Close the appliance ([Closing the Appliance](#) on page 24).
10. Reconnect your appliance and peripherals to their electrical outlets, and power on the appliance.
11. Assign a new appliance and/or setup password.

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