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SGI® InfiniteStorage NEXIS 2000
Quick Start Guide

Contents

SGI InfiniteStorage NEXIS 2000 Quick Start

This document guides a knowledgeable user through the basic setup of an SGI InfiniteStorage NEXIS 2000 system. If you received your NAS system already racked and cabled you probably will use only the information in the first three sub-sections of this guide. Professional assistance with the setup of your new NAS solution is available through SGI Managed Services. If you ordered such service, please contact the SGI Customer Support Center to schedule the on-site visit. If you are performing your own setup of the SGI InfiniteStorage Appliance Manager software, see "Software Configuration" on page 6. End-users or administrators who are rack-mounting and cabling systems on site should review the information in "SGI InfiniteStorage NEXIS 2000 System Hardware Setup" on page 12. Keep this document for future reference.

For more information on hardware/software used with the SGI InfiniteStorage NEXIS 2000, see:

- *SGI Altix XE240 System User's Guide* (P/N 007-4873-00*x*)

- *SGI InfiniteStorage 220 Initial Setup Guide* (P/N 007-4938-00*x*)

- *SGI InfiniteStorage Appliance Manager User's Guide* (P/N 007-4699-005 or later)

These documents can be accessed and downloaded from the SGI publications library at:

http://docs.sgi.com

Various formats are available. This library contains the most recent and most comprehensive set of online books, release notes, man pages, and other information related to SGI products.

This document contains the following major topics:

- "NAS Hardware Overview" on page 2

- "Powering On an SGI InfiniteStorage NEXIS 2000 System" on page 5

- "Software Configuration" on page 6

- "System Indicators" on page 9

- "SGI InfiniteStorage NEXIS 2000 System Hardware Setup" on page 12

- "Contacting SGI" on page 32

NAS Hardware Overview

Depending on your NAS configuration, the system may come with Serial ATA (SATA) or Serial Attached SCSI (SAS) drives. The NAS data manager is a 2U compute and I/O enclosure that cables directly to the RAID controller or controllers in the primary RAID enclosure.

Data Manager Front Controls and Indicators
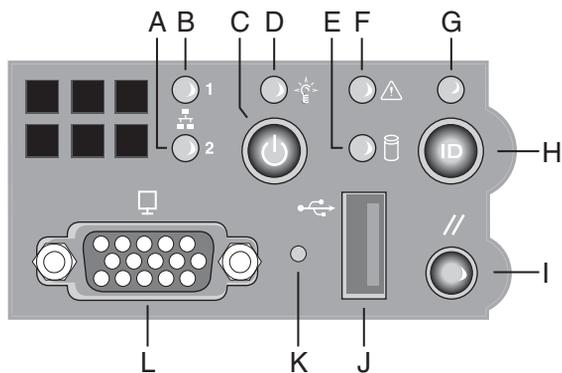
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Figure 1-1   Data Manager Front Controls and Indicators

Table 1-1   Data Manager Front Controls and Indicators Descriptions

Callout	Feature	Description
A	NIC 2 Activity LED	Continuous green light indicates a link between the system and the network interface card to which it is connected.
B	NIC 1 Activity LED	Blinking green light indicates network interface card 1 activity
C	Power/Sleep button	Powers the system On/Off. Puts the system in an ACPI sleep state.
D	Power/Sleep LED	Constant green light indicates the system has power applied to it. Blinking green indicates the system is in S1 sleep state. No light indicates the power is off or is in ACPI S4 or S5 state.
E	Hard disk drive activity LED	Blinking green light indicates hard disk activity (SAS or SATA). Unlighted LED indicates no hard disk drive activity.

Table 1-1 (continued)   Data Manager Front Controls and Indicators Descriptions

Callout	Feature	Description
F	System status LED	Solid green indicates normal operation. Blinking amber indicates degraded performance. Solid amber indicates a critical or non-recoverable condition. No light indicates the system POST is running or the system is off.
G	System Identification LED	Solid blue indicates system identification is active. No light indicates system identification is not active.
H	System Identification Button/LED	Press this button once to activate the System Identification LED. Press the button again to de-activate the System Identification LED. Solid blue indicates system identification is active. No light indicates system identification is not active.
I	Reset Button	Reboots and initializes the data manager.
J	USB 2.0 port	Allows attachment of a USB component to the front of the unit.
K	NMI button	Puts the data manager in a halt-state for diagnostic purposes.
L	Video Port	Allows attachment of a video monitor to the front of the chassis. Note the front and rear video ports **cannot** be used at the same time.

NAS Data Manager Rear Components

Figure 1-2 shows the ports and indicators on the rear of a data manager module (Altix XE240). Table 1-2 calls out the component specifics on the back of the unit.

Table 1-2   Data manager rear panel components

Callout	Description	Callout	Description
A	Low-profile PCI option slots	I	USB connector
B	Full-height PCI option slots	J	USB connector
C	Upper power supply module	K	Video port
D	Top power connection	L	DB-9 serial connector
E	Bottom power connection	M	NIC 2
F	Lower power supply module	N	NIC 1
G	Optional server management NIC	O	RJ45 serial connector
H	Optional I/O module	P	PS2 keyboard/mouse connectors
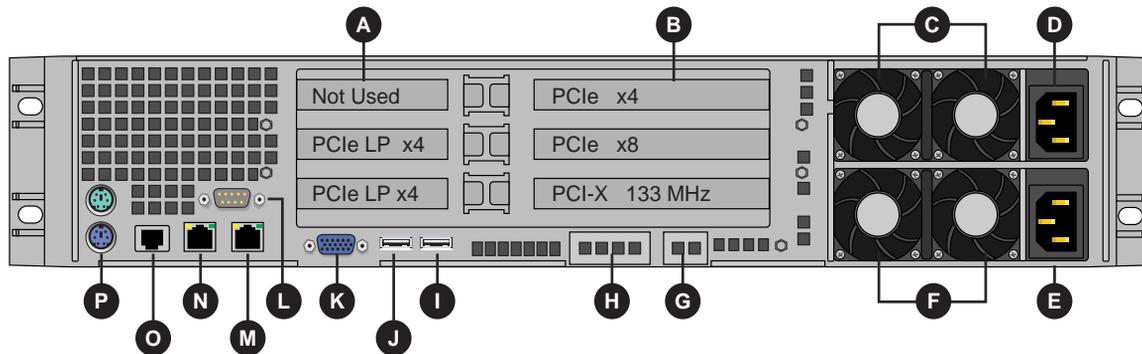
Figure 1-2   Data Manager Rear Panel Components

RAID Controller/Drive Enclosure Rear Panel

Note that controller A (left side of enclosure) contains drive channel 1, while controller B (right side of enclosure) contains drive channel 2. Figure 1-3 shows the controller's input/output ports.

1. Connector not used in this configuration

2. Fibre channel data manager host ports

3. Expansion ports
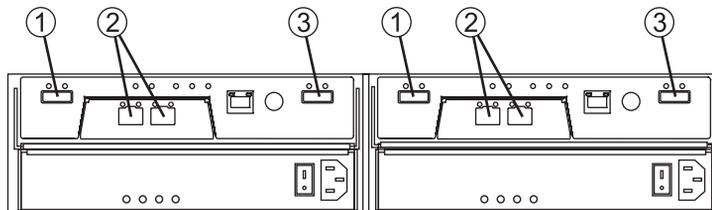
Figure 1-3   RAID Drive Enclosure Rear Panel (SAS Dual-Controller Shown)

Drive Expansion Enclosure Rear Panel

The drive expansion enclosure connects to the RAID expansion enclosure(s) using serial-attached SCSI (SAS) cables (rather than fibre channel). Each RAID controller has one drive expansion connector (located on the far right of the controller). You can connect up to three optional drive

expansion enclosures to your RAID controller/drive enclosure. Drive expansion modules (see Figure 1-4) use the following SAS connectors:

1. SAS in connector

2. SAS out connector
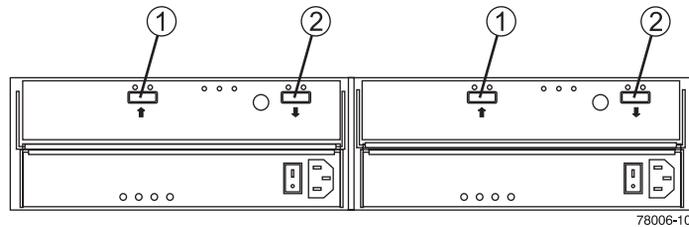
Figure 1-4   Drive Expansion Enclosure Rear Panel

Powering On an SGI InfiniteStorage NEXIS 2000 System

Plug your NAS system into a suitable power outlet(s), as in the example shown in Figure 1-5 (for racked chassis). Refer to the *SGI InfiniteStorage 220 Initial Setup Guide* for a more detailed power-up description.

Turn on the power to all connected drive enclosures before you turn on the RAID controller enclosure, turn on the data manager last. This action ensures that the controllers recognize each attached drive enclosure.
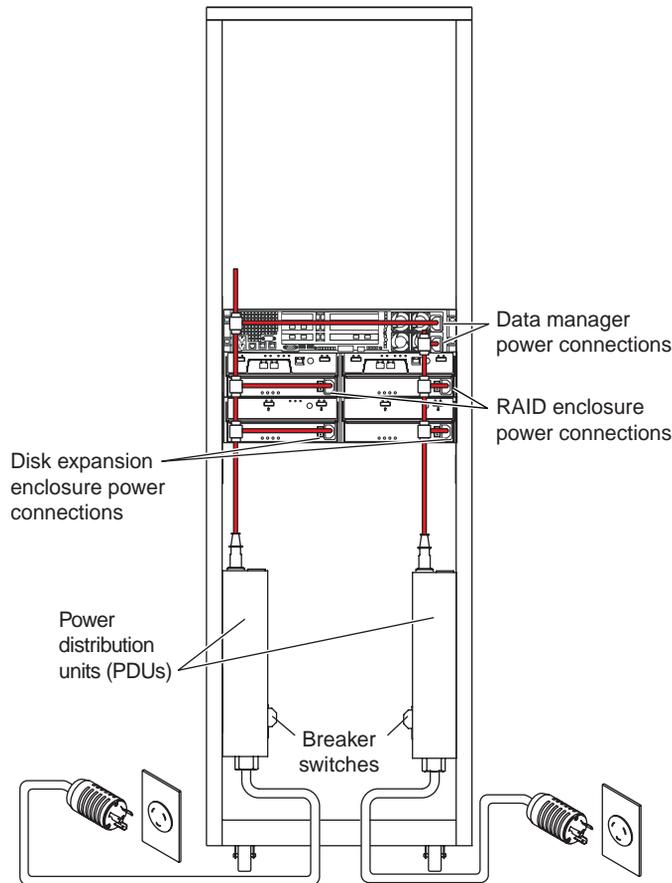
Figure 1-5   Connection Example of a Racked System to Power

Software Configuration

If your NAS system's hardware is configured and powered on, use the SGI InfiniteStorage Appliance Manager Setup Wizard to set up the initial software configuration of your SGI Data Manager appliance. Web browser Internet Explorer 6.0 or Mozilla Firefox 2.0 or later are required.

It should only be run after the hardware setup instructions have been completed and verified and the machine has been powered up. To run the wizard, connect a cross-over ethernet cable from a

laptop or PC to the primary ethernet port on the 2U NAS Data Manager appliance. The cable plugs into the left-hand NIC port (NIC1) when looking at the rear of the unit, see Figure 1-6.

NAS Ethernet connection
to data manager
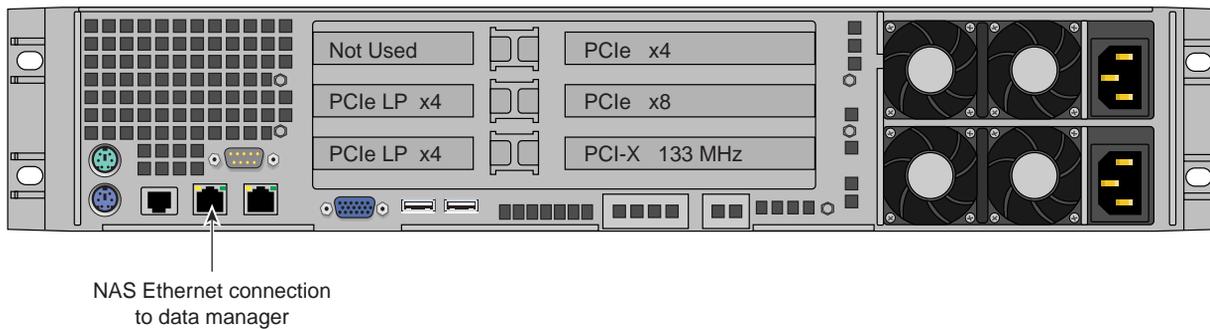
Figure 1-6   Ethernet Connection to Data Manager

Then launch a web browser to the following URL:

https://192.168.9.9:1178

Note: You may need to temporarily reset the IP address of the laptop or PC to 192.168.9.1 for this to work correctly.

The setup wizard is intended to be easy to use and leads you through the initial system configuration steps. Figure 1-7 shows an example start screen. For more details, see the *SGI InfiniteStorage Appliance Manager User's Guide*, (P/N 007-4699-005 or later). Note that only revision five or later will have the applicable information for this NAS product. Once the software setup phase has completed, you must restart the SGI NAS system. Afterwards, you should remove the cross-over cable and plug the system into the local area network. Note that once the system has been restarted, you can monitor its performance, or change the software configuration by going to https://your.server:1178/.
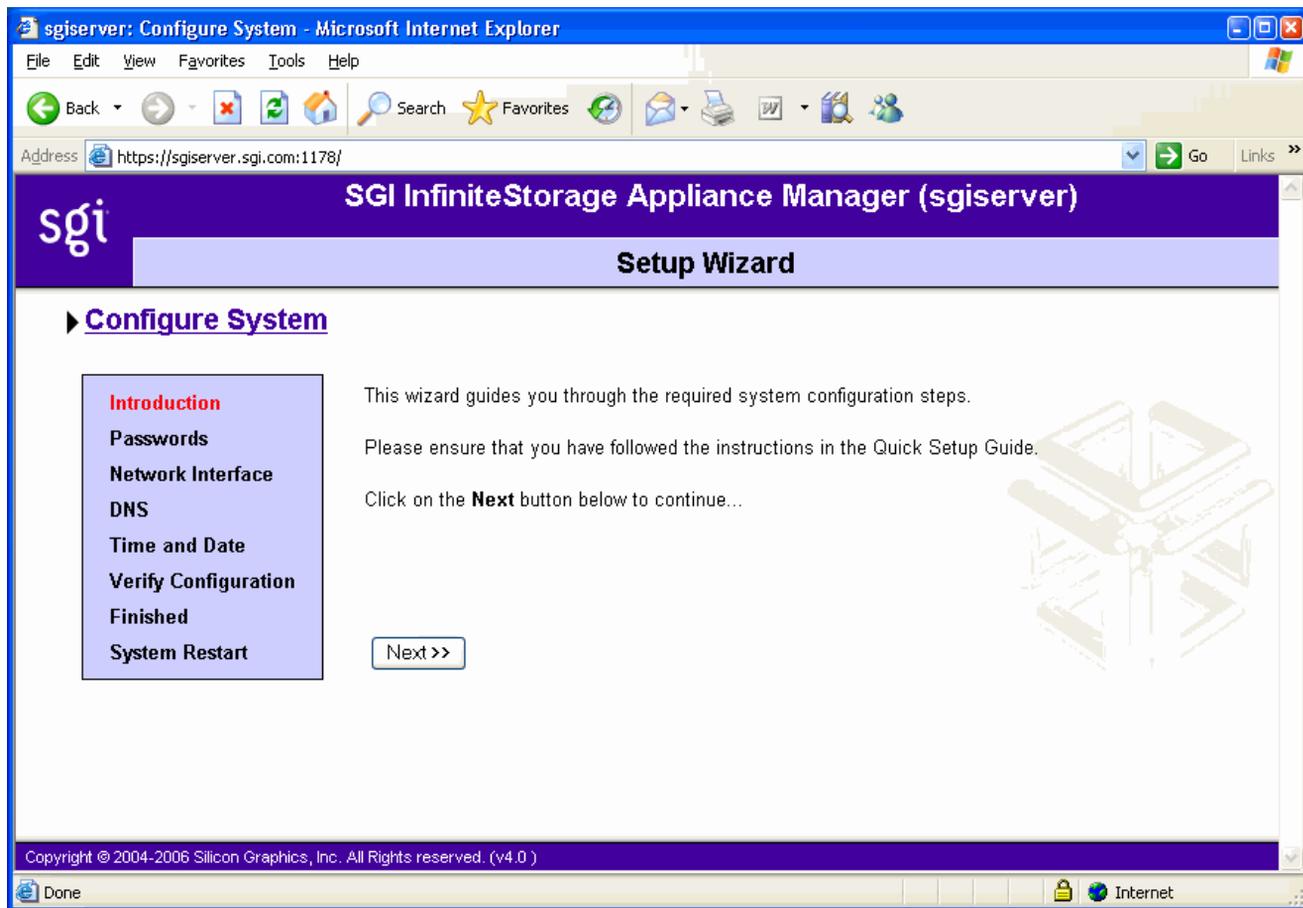
Figure 1-7   SGI InfiniteStorage Appliance Manager Start Screen Example

System Indicators

Expansion drive enclosures cable to the primary disk enclosure. The RAID controller/drive enclosure has a set of indicators on the front-left side that help you determine the operational status of the unit, see Figure 1-8.

1. Module locate LED

2. Service required LED

3. Module over temperature LED

4. Power good LED

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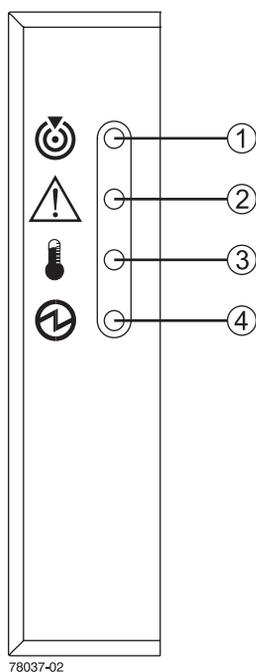
Left

Figure 1-8   NAS Drive Module Status LEDs

The RAID Controller Module

Figure 1-9 identifies the indicators on the rear of a RAID controller module.

1. Link service action required (fault)

2. Link up

3. Battery service action required (fault)

4. Cache active

5. Service action allowed

6. Service action required

7. Controller power

8. Ethernet activity

9. Ethernet speed

10. Host channel speed

11. Host channel speed

12. Not used in this configuration
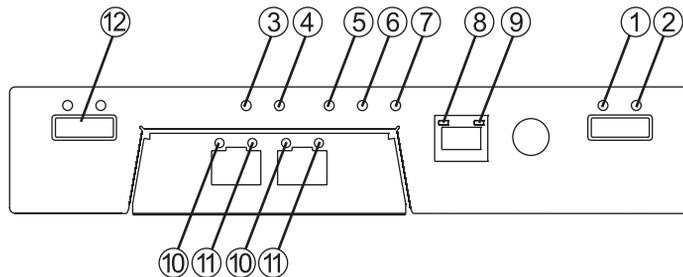
Figure 1-9   RAID Controller Rear Panel Indicators

Drive Locations and Indicators

Each RAID enclosure or drive expansion enclosure holds up to 12 sled-mounted removable hard drives. At least two drives must be installed in the enclosure for it to operate.
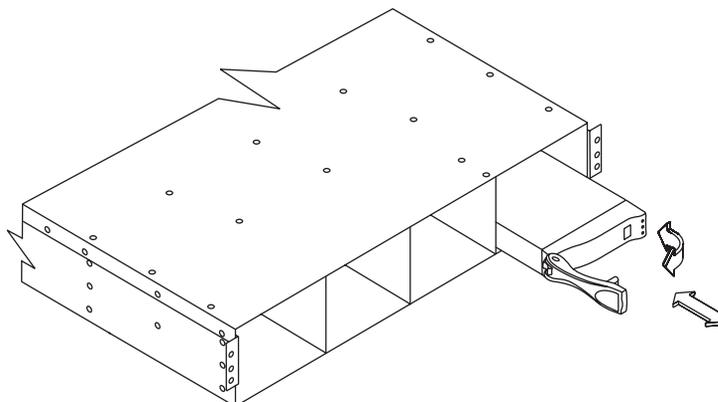
Figure 1-10   Drive Extraction (Front) From the Enclosure

The disk drive indicator LEDs have the following meanings:

1.   Service action allowed (blue)

2.   Service action required (yellow)

3.   Disk drive active (green)
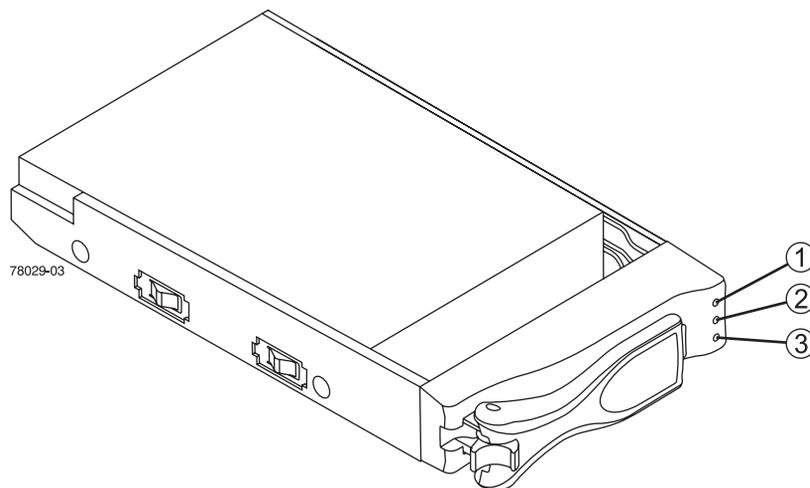
Figure 1-11   Disk Drive Indicator LEDs

SGI InfiniteStorage NEXIS 2000 System Hardware Setup

Depending on the system ordered, your SGI NAS solution has a 2U compute/data manager, a RAID controller/drive enclosure (housing one or two RAID controllers), and optional drive expansion enclosures.

Systems with serial attached SCSI (SAS) drives come pre-mounted in a rack from SGI and in most cases only require booting and configuration of the NAS management software (see "Software Configuration" on page 6). You may need to refer to the rack installation manual accompanying your system for guidelines on unpacking, moving, and placing a rack.

The written steps and illustrations in "Cabling Examples" on page 13 describe the positioning and cabling of SGI InfiniteStorage NEXIS 2000 systems with serial ATA (SATA) drives. This configuration can be ordered with no rack and would need to be cabled at the operation site.

Important: Enclosures within a rack should always be placed in locations that keep the RAID enclosure and any expansion drive enclosures distributed below the rack's center of gravity. In all cases it is safest to keep the majority of the weight in the bottom half of the rack.

Cabling Examples

To cable the RAID enclosure into an appropriate loop, use the descriptions and illustrations in the following subsections. Note that only SATA disk systems are offered with a single RAID controller.

Data Manager and One SATA Controller Enclosure

Use the following steps and Figure 1-12 to cable a data manager to a single-controller SATA RAID enclosure.

1. Connect the Data Manager's Fibre Channel PCI card port A to the RAID controller's host 1 port in the controller enclosure, see Figure 1-12.

2. Connect the Data Manager's Fibre Channel PCI card port B to the RAID controller's host 2 port.
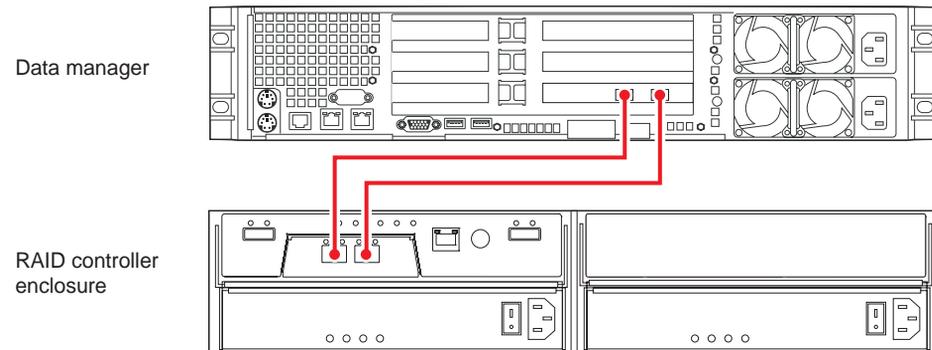
Figure 1-12   One Data Manager One Controller Enclosure (Single SATA RAID Controller)

Data Manager, One SATA Controller, and One Disk Expansion Enclosure

Use the following steps and Figure 1-13 to cable a data manager to a single-controller SATA RAID enclosure with one disk expansion enclosure.

1. Connect the Data Manager's Fibre Channel PCI card port A to the RAID controller's host 1 port in the controller enclosure, see Figure 1-13.

2. Connect the Data Manager's Fibre Channel PCI card port B to the RAID controller's host 2 port.

3. Connect the RAID controller's expansion connector (far right) to the disk expansion enclosure's input connector (left side).
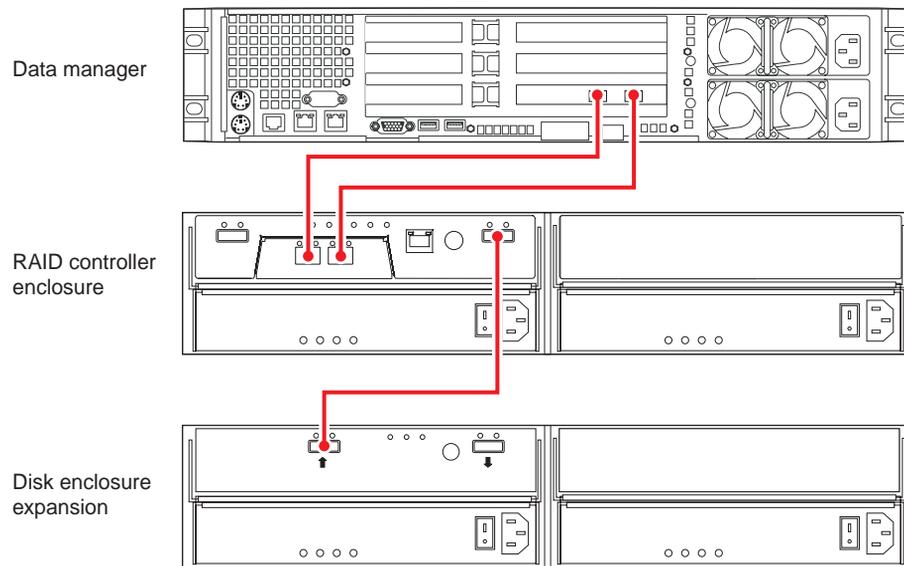
Figure 1-13   Data Manager, Single-Controller RAID Enclosure and One Disk Expansion

Data Manager, One SATA Controller, and Two Disk Expansion Enclosures

Use the following steps and Figure 1-14 to cable a data manager to a single-controller SATA RAID enclosure and two disk expansion enclosures.

1. Connect the Data Manager's Fibre Channel PCI card port A to the RAID controller's host 1 port in the controller enclosure, see Figure 1-14.

2. Connect the Data Manager's Fibre Channel PCI card port B to the RAID controller's host 2 port.

3. Connect the RAID controller's expansion connector (far right) to the first disk expansion enclosure's input connector (left side).

4. Connect the first disk expansion output connector (far right) to the input connector on the second disk expansion enclosure (far left).
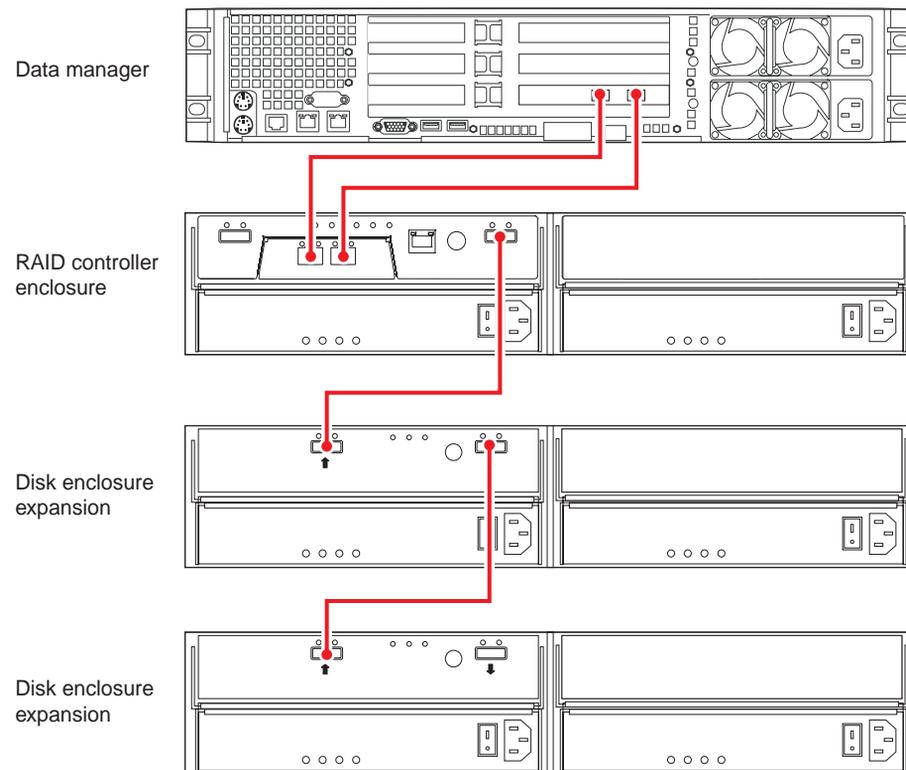
Figure 1-14   Data Manager, Single-Controller RAID Enclosure and Two Disk Expansion Units

Data Manager, One SATA Controller, and Three Disk Expansion Enclosures

Use the following steps and Figure 1-15 to cable a data manager to a single-controller SATA RAID enclosure and three disk expansion enclosures.

1. Connect the Data Manager's Fibre Channel PCI card port A to the RAID controller's host 1 port in the controller enclosure, see Figure 1-15.

2. Connect the Data Manager's Fibre Channel PCI card port B to the RAID controller's host 2 port.

3. Connect the RAID controller's expansion connector (far right) to the first disk expansion enclosure's input connector (left side).

4. Connect the first disk expansion output connector (far right) to the input connector on the second disk expansion enclosure (far left).

5. Connect the second disk expansion enclosure's output connector (far right) to the input connector (far left) on the third disk expansion enclosure.
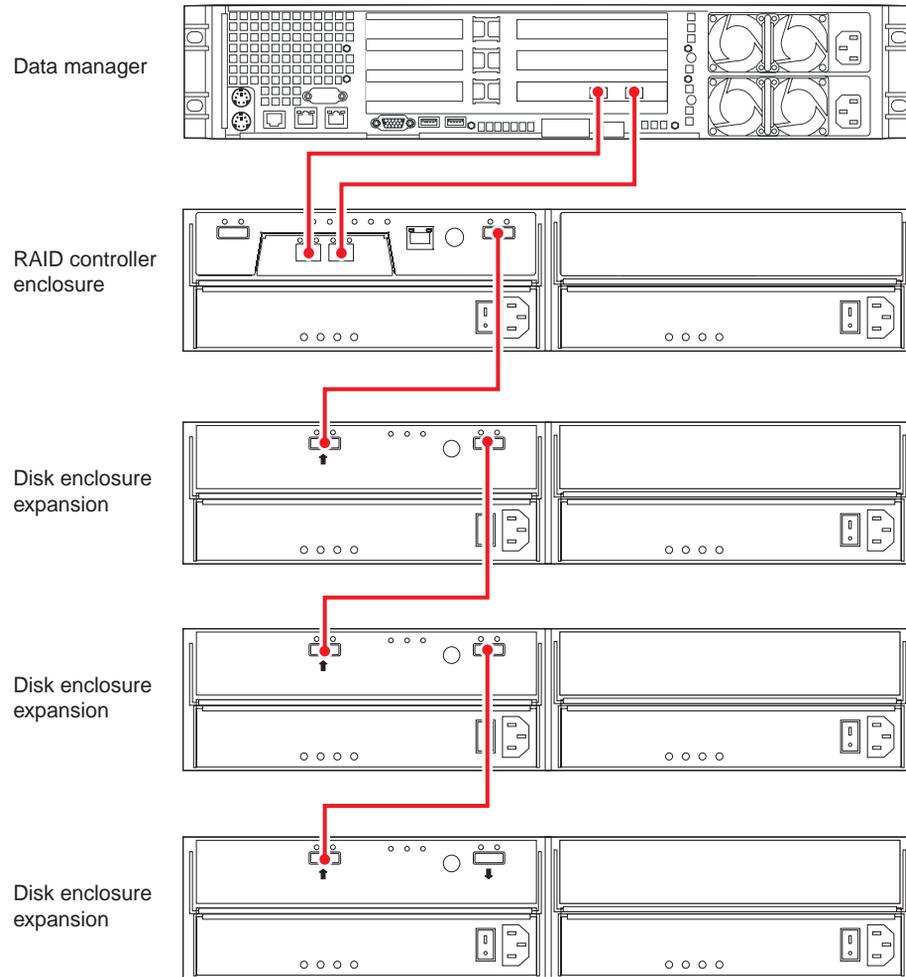
Figure 1-15   Data Manager, Single-Controller RAID Enclosure and Three Disk Expansion Units

Data Manager, Dual RAID Controller, and One Disk Expansion Enclosure

Use the following steps and Figure 1-16 to cable a data manager to a dual-controller RAID enclosure with one disk expansion enclosure.

1. Connect the Data Manager's Fibre Channel PCI card port A to the left-side RAID controller's host 1 port in the controller enclosure, see Figure 1-16.

2. Connect the Data Manager's Fibre Channel PCI card port B to the right-side RAID controller's host 1 port.

3. Connect the left-side RAID controller's expansion connector (far right side of controller) to the disk expansion enclosure's input connector (left side).

4. Connect the right-side RAID controller's expansion connector to the input connector on the right side of the disk expansion enclosure.
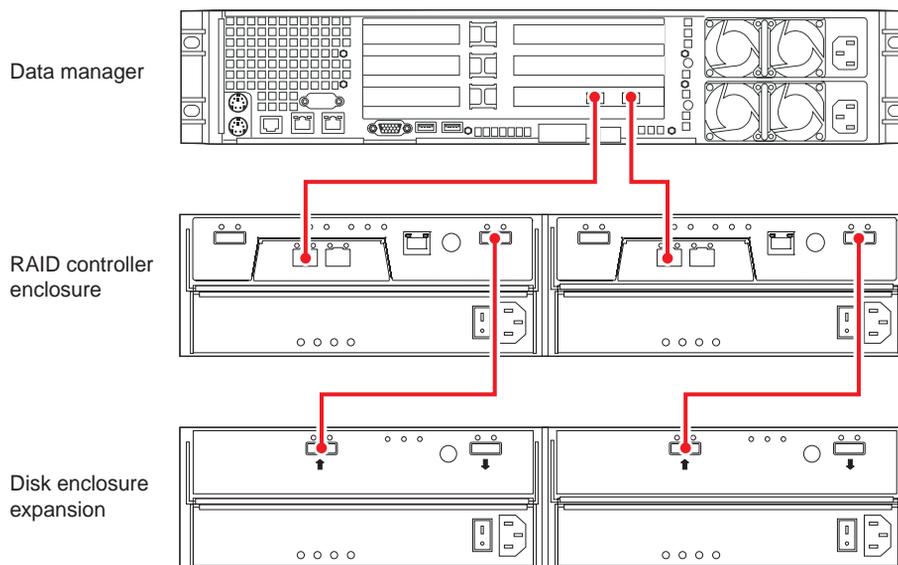
Figure 1-16   Data Manager, Dual-Controller RAID Enclosure and One Disk Expansion Unit

Data Manager, Dual RAID Controller, and Three Disk Expansion Enclosures

Use the following steps and Figure 1-17 to cable a data manager to a dual-controller RAID enclosure and three disk expansion enclosures. This procedure is applicable to both SATA and SAS based InfiniteStorage NEXIS 2000 products.

1. Connect the Data Manager's Fibre Channel PCI card port A to the left-side RAID controller's host 1 port in the controller enclosure, see Figure 1-17.

2. Connect the Data Manager's Fibre Channel PCI card port B to the right-side RAID controller's host 1 port.

3. Connect the left-side RAID controller's expansion connector (far right) to the third disk expansion enclosure's input connector (left side).

4. Connect the third disk expansion's left-side output connector to the input connector on the left side of the second disk expansion enclosure.

5. Connect the left-side second disk expansion enclosure's output connector to the input connector on the left side of the first disk expansion enclosure.

6. Connect the right-side RAID controller's expansion connector (far right) to the first disk expansion enclosure's right-side input connector, see Figure 1-17.

7. Connect the first disk expansion output connector (far right) to the input connector on the second disk expansion enclosure.

8. Connect the second disk expansion enclosure's output connector (far right) to the input connector on the third disk expansion enclosure.

Data manager

RAID controller
enclosure

Disk enclosure
expansion

Disk enclosure
expansion

Disk enclosure
expansion
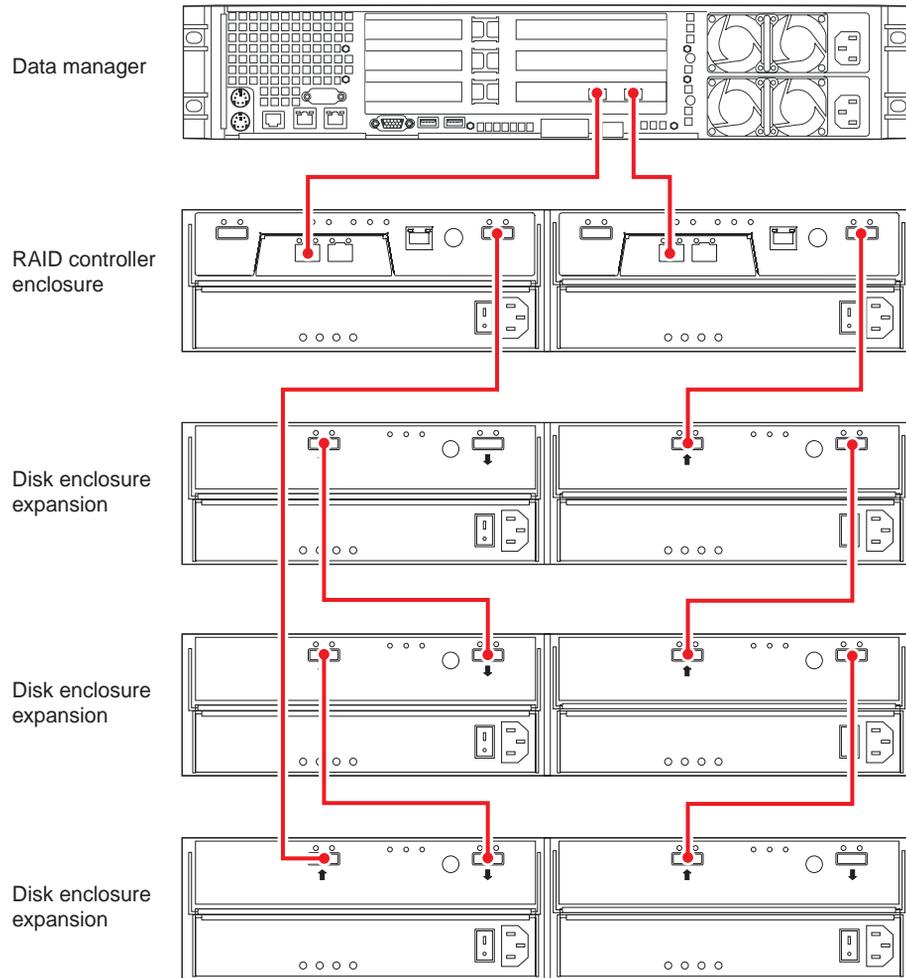
Figure 1-17   Data Manager, Dual-Controller RAID Enclosure and Three Disk Expansion Units

Rack Mounting Instructions

If you have purchased a NAS system that has not been pre-mounted in a rack prior to delivery, use the generic instructions in this section. Note that while this information is applicable to many industry-standard racks, the mounting rails cannot be guaranteed to fit all makes. Check with your SGI sales or service representative if you need to order additional rails. Always install the enclosures in the lowest part of the rack possible (allowing for available space). Remember the:

*   Data manager is installed in the upper position

*   RAID controller enclosure installs directly below the data manager

*   Disk expansion enclosure(s) are installed below the RAID controller enclosure

Mounting the Data Manager Enclosure

Support rails used with the data manager enclosure in an industry-standard rack are not the same as those used in SGI NAS racks. The mounting rails are designed for use with most industry-standard racks, but may not fit all models. Multi-pin adapters at either end of each rail allow for mounting in racks with square or round mounting holes. Note that the rack rails ship with the adapters set for mounting in square rail holes, go on to the section "Preparing the Rack and Data Manager" on page 22 if your rack has this type of rail.

Resetting the Rail Pin Adapters to Use Round Mounting Holes

Use the following instructions if you need to reset the rails for use with round mounting holes:

1. Remove the multi-pin adapter by first rotating the swivel lock into the "up" position.

2. Squeeze the adapter's pins together and extract it from the end of the rail, see Figure 1-18 on page 22.

3. Reinsert the adapter with the round pins facing out and rotate the swivel lock back down.

    Important: When resetting the rail pin adapters do not reverse the top and bottom of the adapter, otherwise the "swivel lock" will not have enough room to rotate back into place. This is because the bottom part of the rail pin adapter is larger (not the same thickness).

4. Repeat for all additional rail ends that need to be used with round mounting holes.
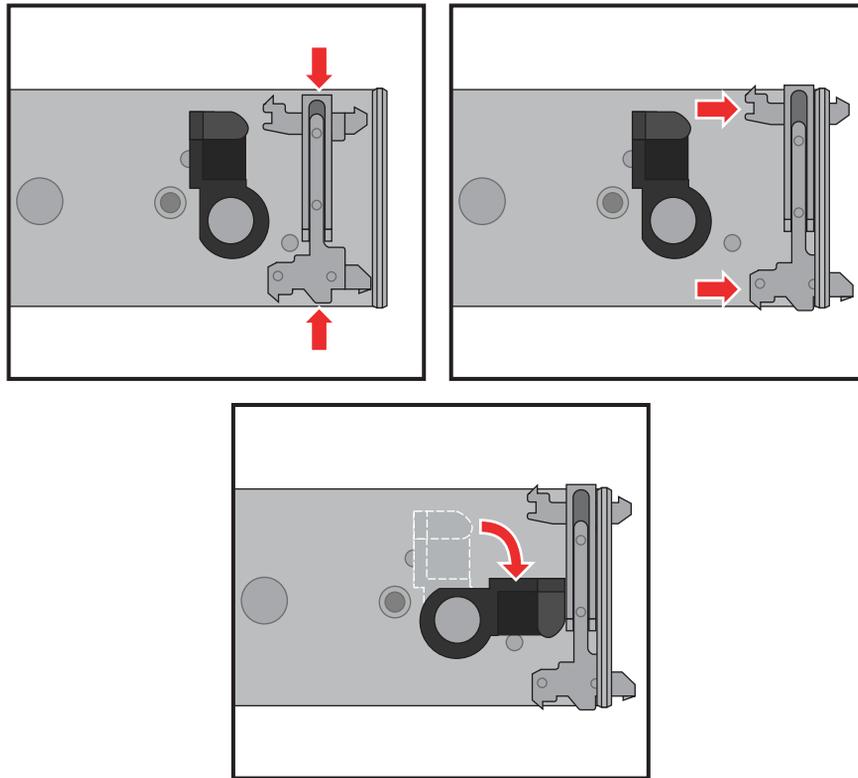
Figure 1-18   Reversing the Rail Pin Adapter

Preparing the Rack and Data Manager

The following procedures and figures explain how to install the data manager support rails into an industry-standard rack:

1. Make sure that the rack is in the final (operating) location and that it meets the following clearance requirements:

   – 76-cm (30 in) clearance in front of the cabinet

   – 61-cm (24 in) clearance behind the cabinet

2. Lower the stabilization feet on the rack so it does not move. Use any anti-tip extensions or other stabilization hardware available with the rack.

3. Remove the 2U data manager enclosure and all contents from the shipping carton.

Mounting the Slide Rails

Position and secure the support rails in the rack using the information in the following steps and Figure 1-20 on page 25.

1. Determine the vertical position within the rack where the rails will be mounted taking into consideration the data manager uses 2U of vertical space on the rack rail. The top-most mounting hole for each 1U of space is often marked by a small hole or other mark on the rail.

   Important: If the rails are not mounted in holes that are vertically aligned from front to back, the rail may be damaged and the mounting will not be secure.

2. Noting the proper hole positions, squeeze the multi-pin adapter mounting pins together at one end of the slide rail and insert them into the holes in the rack's mounting rail.

   Tip: When installing the rail mount into the rack, it is much easier to first insert the lower pin of the rail pin adapter in the selected hole. Then squeeze the adapter pin by pushing it down from the top to insert it in the upper selected rack rail hole.

3. Ensure that the slide rail is level and repeat the procedure at the opposite end.

4. Fully extend the rail assembly until the extension lock is revealed.

5. Press the slide extension release levers and move the slide rail in and out to check for proper functionality; if any binding is noted recheck the mounting positions of the rail.

6. Repeat these steps for the slide rail on the opposite side of the rack while ensuring that it is aligned exactly with the existing slide rail.

Installing the Data Manager on the Slide Rails

Use the following instructions to mount the data manager on the slide rails and install it in the rack:

1. Extend both slide rails into the fully extended (locked) position.

2. The rail system is now ready to receive the data manager chassis.

   Important: Lifting and placing the data manager chassis onto the rails is a two-person job. If needed, use an appropriate lifting device.

3. Using two people, align and insert the data manager's mounting studs into the component mounting channels on the two slide rails, see Figure 1-19 for an example.
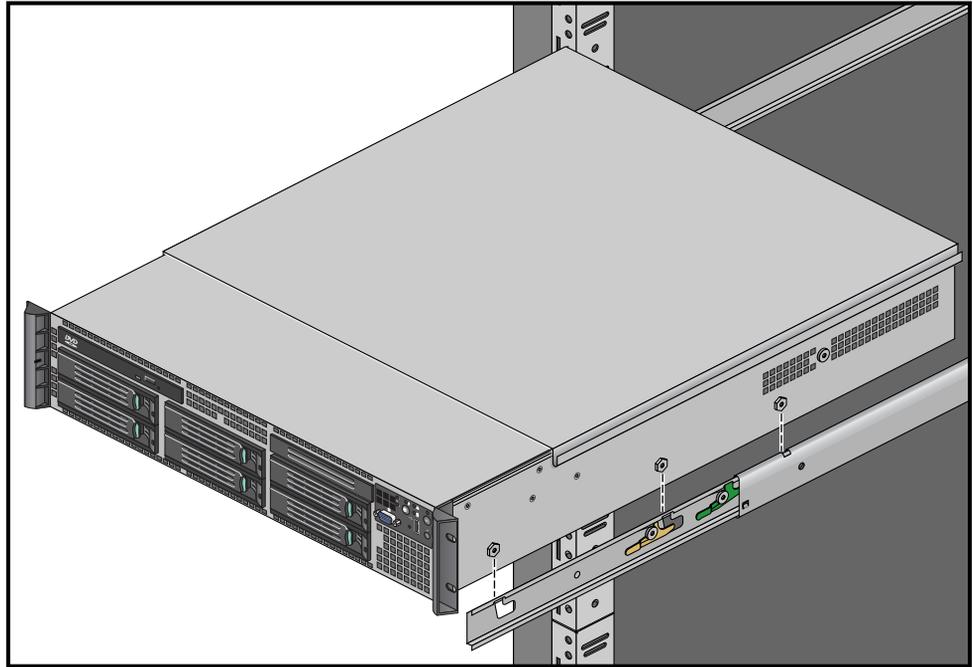
Figure 1-19   Data Manager Slide Rail Mounting Stud Positions

4. Place the data manager's mounting studs in the mounting channels of both rails until they are fully seated.

Note: The release levers on each slide rail should pivot out of the way and then snap back into place when the mounting studs are fully seated.

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5. Confirm that all the data manager's mounting studs are correctly in place on the slide rails (see Figure 1-20 on page 25 for an example), before sliding the unit into the rack.

6. Press in both the left and right slide extension release levers and slowly push the data manager inward until the unit is fully locked in place and the chassis handles are against the front posts.
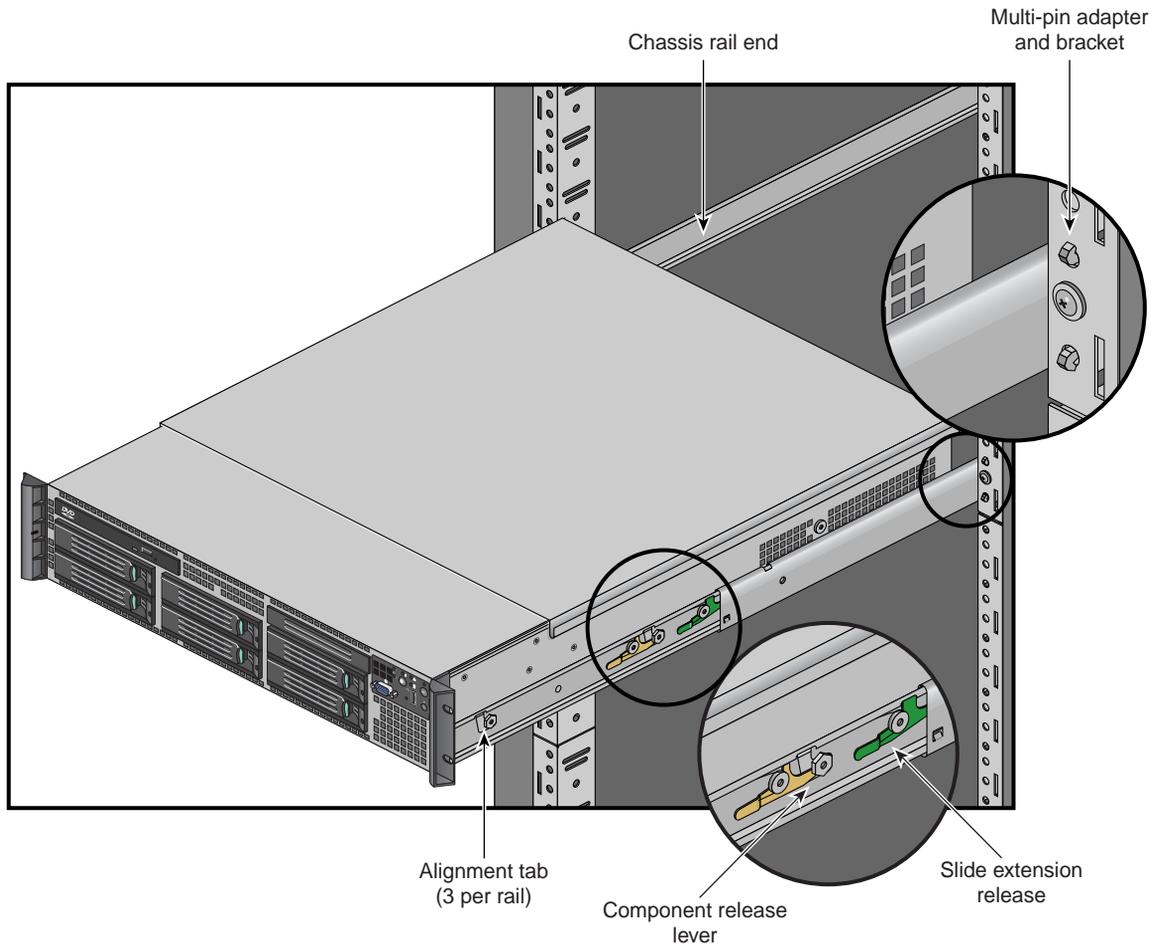
Figure 1-20   Data Manager Slide Rails

Mounting the RAID and Disk Expansion Enclosures

The support rails used with an industry-standard rack are not the same as those used in the SGI NAS racks. The support rails available with the RAID/disk expansion enclosures are designed for use in an industry-standard rack but may not fit all models. RAID/disk expansion enclosures are always installed below the data manager in the rack.

The following procedures and figures explain how to install the RAID/disk expansion support rails into an industry-standard rack.

1. Make sure that the rack is in the final (operating) location and that it meets the following clearance requirements:

    – 76-cm (30-in) clearance in front of the cabinet

    – 61-cm (24-in) clearance behind the cabinet

2. Lower the stabilization feet on the rack so it does not move. Use any anti-tip extensions or other stabilization hardware available with the rack.

3. Remove the RAID/disk expansion enclosure and all contents from the shipping carton.

4. Position and secure the support rails in the rack using the information in Figure 1-21 on page 27.

Note: If you are installing the rails below an existing disk enclosure or the data manager, allow 8.8-cm (3.5-in.) vertical clearance for the new RAID/ disk expansion enclosure.
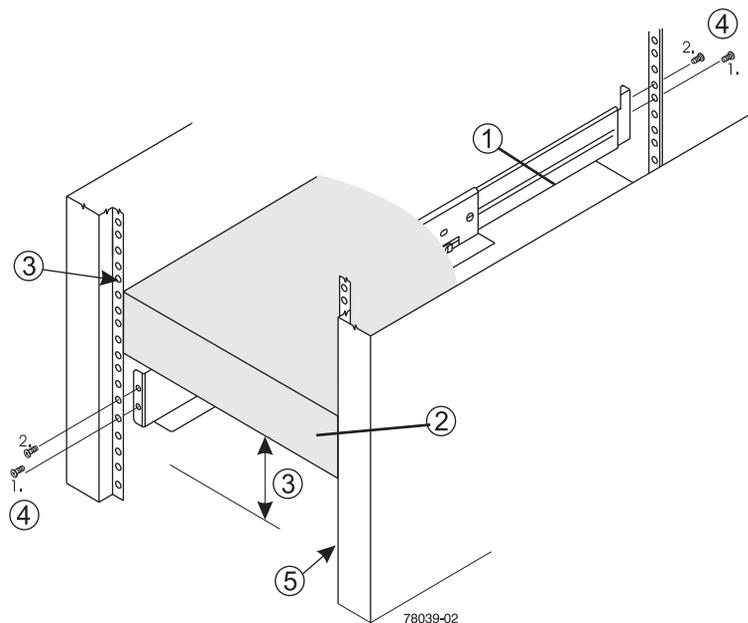
Figure 1-21   Rail Mounting Overview Example

Use the following reference numbers to identify the components and steps used to mount the RAID/disk expansion enclosure in a rack.

1. Support rail

2. Existing data manager or RAID controller enclosure

3. Clearance above and below an already installed unit

4. Screws for securing the support rail to the rack (front and rear)

5. industry-standard rack

Note: If installing the rails above an existing unit, position the support rails directly above it.

Fully attach the support rails to the rack using the following steps and Figure 1-22 on page 28.

1. Make sure that the adjustment screws on the support rail are loose so that the support rail can extend or contract as needed.

2. Place the support rail inside the rack and extend the support rail until the flanges on the support rail touch the inside of the rack mounting rail.

3. Make sure that the alignment spacers on the front flange fit into the mounting holes in the rack, see Figure 1-23 on page 29.

Note: The front flange of each support rail has two alignment spacers.
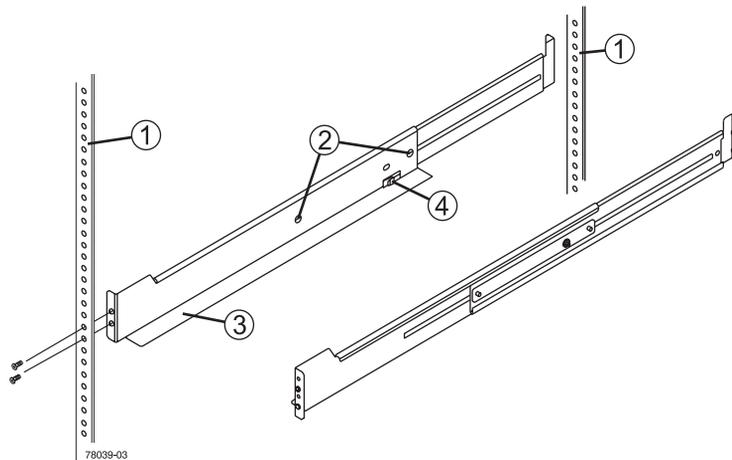

Figure 1-22   Support Rail Attachment to Rack Example

Use the following numbers to identify the rail mounting points (shown in Figure 1-22) and components needed to complete the rail mounting process:

1. Rack rail mounting holes

2. Adjustment screws for locking the support rail length

3. NAS disk expansion enclosure support rails

4. Clip for securing the back of the RAID/disk expansion unit

The alignment spacers are designed to fit into the mounting holes in the rack. The alignment spacers help position and hold the support rails. Item 1 in Figure 1-22 on page 28 shows the location of the alignment spacers.
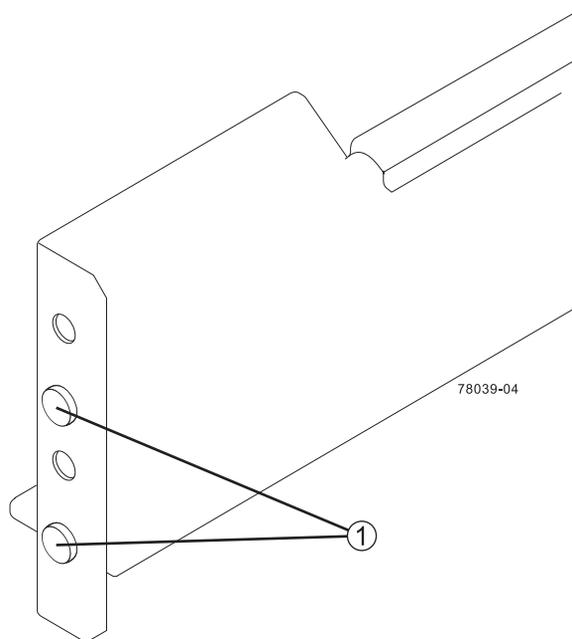
Figure 1-23   Support Rail Alignment Spacers Example

Finish the installation of the rails and install the RAID/disk enclosure using the following steps and Figure 1-24 on page 30.

1. Insert one M5 screw through the front of the cabinet and screw into the top captured nut in the support rail.

2. Insert two M5 screws through the rear of the disk enclosure and screw them into the captured nuts in the rear flange in the support rail.

3. Tighten the adjustment screws on the support rail as appropriate.

4. Repeat these steps for the second support rail.

5. With the help of one other person, slide the rear of the disk enclosure onto the support rails from the front of the rack. Make sure the enclosure is correctly aligned on the support rails by confirming that:

    –   The mounting holes on the front flanges of the disk enclosure align with the mounting holes on the front of the support rails.

    –   The rear edge of the disk enclosure sheet metal fits into the clip on the support rail.

Note: The holes in the disk enclosure sheet metal for the rear hold-down screws should align with the captured nuts in the side of the support rails as in item 4 of Figure 1-24.


78039-01
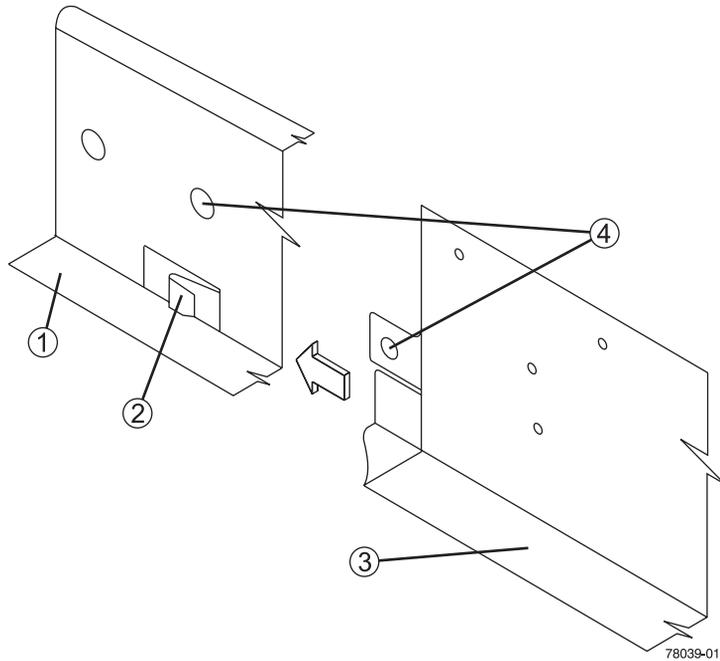
Figure 1-24   Sliding the RAID/Disk Enclosure into the Rail's Rear Clip

Use the following numbered items to identify key parts of the rail and disk enclosure rear connection points:

1. Support rail

2. Clip

3. Partial view of the disk enclosure rear sheet metal

4. Alignment hole in the disk enclosure rear sheet metal for captured nut in the support rail.

Use Figure 1-25 on page 31 and the steps that follow to properly secure the disk enclosure in the rack with screws (see item 1).

78014-05
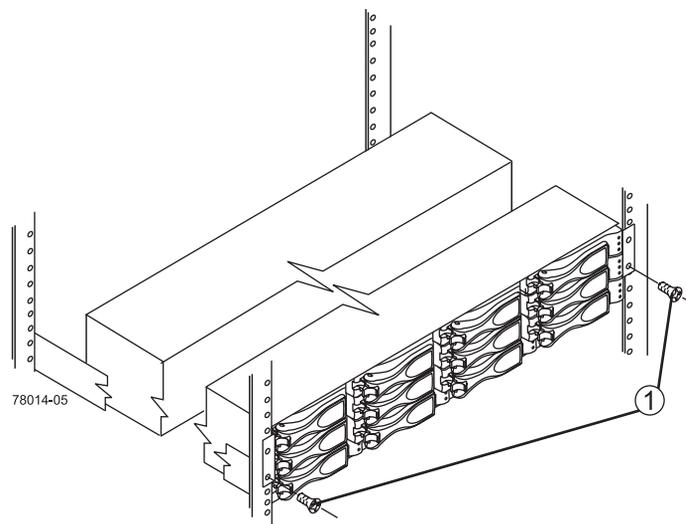
Figure 1-25   Securing the Front Screws on the Disk Enclosure

1. Insert one M5 screw through the bottom hole of a flange on the disk enclosure so that the screw goes through the rack rail and engages the bottom captured nut in the support rail.

2. Tighten the screw.

3. Repeat for the second flange.

4. Secure the rear of the disk enclosure to the support rail by inserting one M4 screw through the side sheet metal of the disk enclosure into the captured nut on the side of the support rail.

5. Tighten the screw.

6. Repeat for the other side.

7. Attach the plastic end caps onto the front of the disk enclosure by:

    –   Placing the top of an end cap on the hinge tab that is part of the disk enclosure's front mounting flange.

    –   Gently pressing on the bottom of the end cap until it snaps into place over the retainer on the bottom of the disk enclosure's front mounting flange.

Contacting SGI

To contact the SGI Customer Service Center, call 1-800-800-4SGI, or visit http://www.sgi.com/support/customerservice.html.

From outside the United States contact your local SGI sales office.

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