



ISO 9001:2008
ISO 13485:2003 Certified

Galaxy Quick Install Guide >

MODELS:

- » Galaxy FC/ SAS/iSCSI-
HDX4 RAID Subsystems
Single & Dual Controller

HDX4 Quick Install Guide

7th Generation RAID

With over 10,000 Galaxy units in the field, Rorke Data's award winning RAID products provide the performance, protection, and expansion capabilities for diverse customer environments.

PLEASE READ BEFORE INSTALLATION

This document will step you through an easy and quick way to get your Galaxy RAID installed and ready for operation. Other documents in the CD document library can help with setup, configuration, and troubleshooting.

Note: Your Galaxy RAID has been preconfigured to your specific requested RAID configuration ie RAID 5 with hot spare; RAID 6 with cold spare, IP address , etc, and should be ready to use in your system environment right out of the box.

We have made this guide to adhere to most of the products we sell. Various text and images are different based on your particular product, based on the host interface and controller connections. Apply the settings for your product based on Fibre Channel, SAS, or iSCSI notes in each step.

Step 1. Unpack: Unpack the subsystem and confirm that all the RAID, Disk Drives, Cables, Rack Mount kit and accessories have been included.

Step 2. Rack/Cabinet installation: If the subsystem is going to be installed in a rack or cabinet, it should be installed prior to installing the hard drives. Installing the subsystem into a rack or cabinet requires at least two (2) people.

Step 3. Install hard drives: Your purchased SAS / SATA-II/SATA-I hard drives have been pre-installed into the drive trays. You will install them into the empty RAID chassis.

Step 4. Cable connection: Use the power cords that came with the subsystem to connect the subsystem to the main power source. Use RJ-45 cables [not included] to connect host ports to the network. Connect any host cables to switches, servers, workstations.

Step 5. Power up: Once the components have been properly installed and all cables are properly connected, you can power up the subsystem and configure the RAID array.

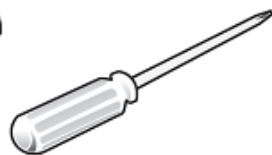
Step 6. Bezel Installation: Use the hardware provided to put the chassis bezel in place

Step 7. RAID Management settings: Use the setup procedures to change your RAID settings.

Tools Required:



Flat blade
screwdriver



Phillips
screwdriver



Small-size flat
blade screwdriver



Anti-static
wrist strap

Step 1 Unpack the Subsystem

Static-free Installation

Static electricity can damage the system's electronic components. To prevent ESD damage to any of the components, follow these precautions before touching or handling them:

- Discharge the static electricity accumulated in your body by wearing an anti-static wristband.
- Use antistatic strap during handling. Connect the equipment end of the strap to an unfinished chassis surface.
- Avoid carpets, plastic, vinyl, and styrofoam in your work area.
- If the need should arise for carrying subsystem modules from one place to another, carry them in a static shielding container.
- Avoid the contact between circuit boards and clothing.
- Handle all components by holding their edges or metal frames. Avoid touching the exposed circuitry on PCB boards and connector pins.

Unpack the Subsystem

Carefully unpack the containers and check the items contained in each box for shipping damage before proceeding with installation..

One of the received boxed will contain the drive trays with drives installed

Another box will contain the Galaxy RAID chassis [identified by having the distinctive front LCD operator panel] and an accessory box containing power cords, JBOD cables, documentation CD, mounting hardware and accessory items.

Additional boxes will contain other Galaxy JBODs, identified by having no front LCD operator panel.

Preinstalled Components

The Galaxy RAID is ready to use except for the disk drives.

Components to be Installed

You must install the following components:

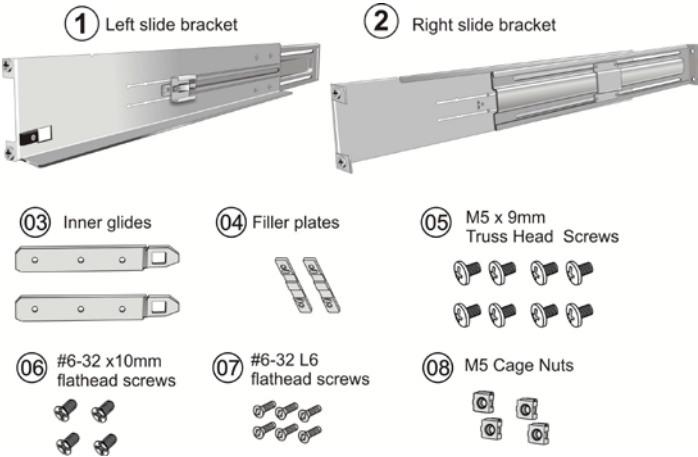
- Rackmount rails if applicable
- Drive trays [with drives pre installed] install into the RAID chassis
- Chassis bezel

Step 2 Rack Installation

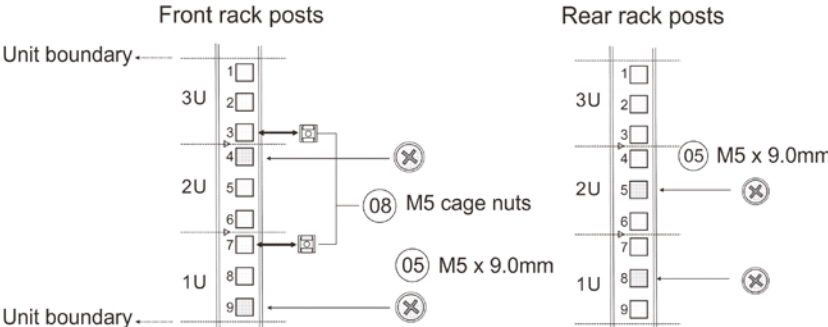
Remove the rack rail hardware and follow the pictorial guide below:

1 Identify the components:

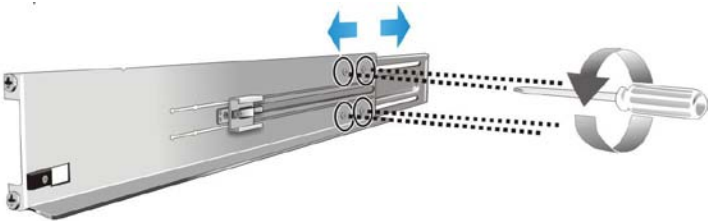
Item	Description	Quantity
01	Mounting bracket assembly, L-shape, left-side	1
02	Mounting bracket assembly, L-shape, right-side	1
03	Inner glide	2
04	Flange filler plate (fixed behind chassis ears)	2
05	Cross recess truss head screws M5 x 9.0mm	8
06	#6-32 x10mm flathead screws	4
07	#6-32 L6 flathead screws	6
08	M5 cage nuts	4



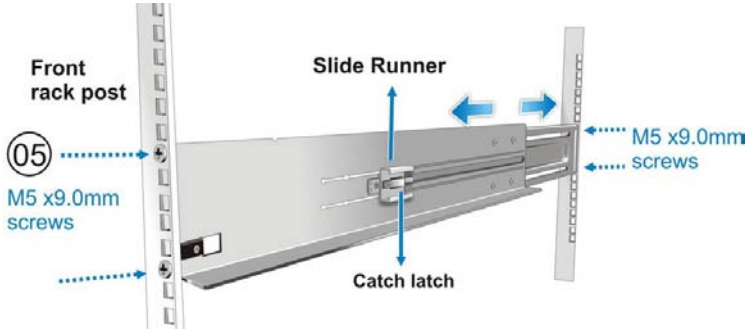
2 Measure Rail Locations in Rack: The mounting positions must be carefully measured so that rails can be mounted parallel to each other. Move the rack clip nuts into the positions shown for the front and rear posts. Note that the front cage nuts in position 3 and 7 will be used to hold the chassis in place



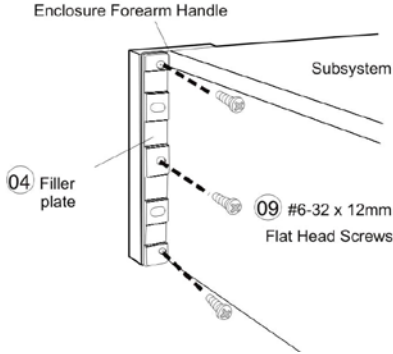
3 Adjust Rail Length: Verify the rails are adjusted to the correct length by loosening the 4 screws and sliding the rear sections to meet the rear rack post. Tighten the screws when done.



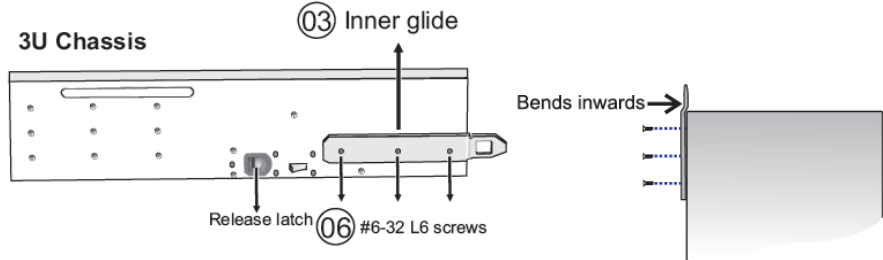
4 Attach Rail to Posts: Secure the rail to the front and rear rack posts each using two position screws. (See figure below) Do not insert the screws into the cage nuts as cage nuts will be used to secure the enclosure later.



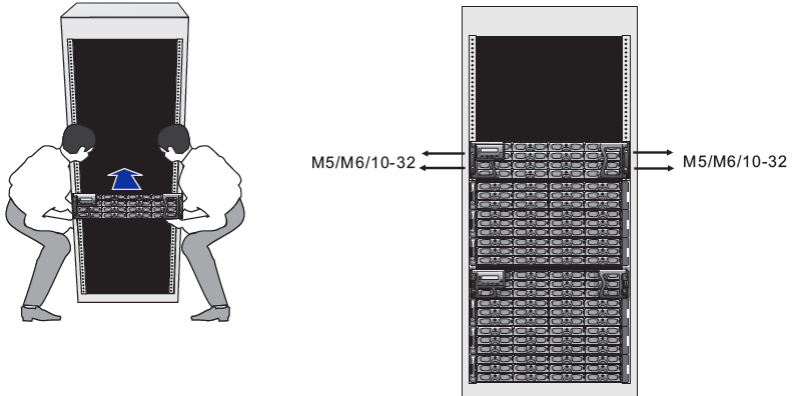
5 Attach Bezel Filler Plate: Attach the bezel filler plates (#04) behind the enclosure ears using the three #6-32 x 12mm flat head screws (#09) on each side.



6 Attach Inner Glides to Chassis: Secure the inner glides (# 03) to the sides of the chassis using the (#06) screws shown. Orient the glides so they inwards as seen from the top of the chassis.



7 Install Chassis into Rack: Two people should be used to lift and mount the chassis. Match up the rack clip nuts and use the M5, M6 or #10-32 screws to secure the chassis in place.

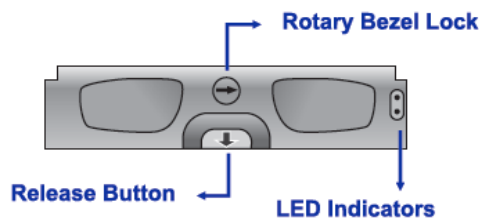


Step 3 Drive Installation

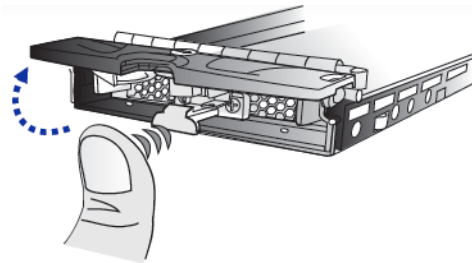
Carefully install the disk drives into the chassis. The drives can go into any empty location and all locations must have a drive tray installed.

Note: If a “Cold Spare” was shipped, do not install this drive. Leave it in its protective anti-static bag and put it in a secure place. Use it as a defective drive replacement only.

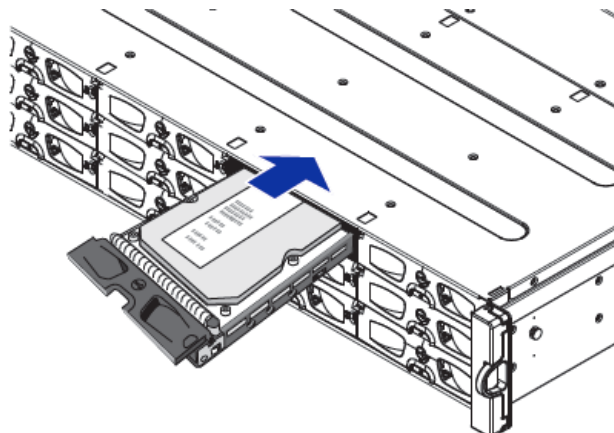
1 Prepare drive tray for installation: Use a small flatblade screwdriver to turn the drive tray bezel lock to a horizontal position.



2 Unlock the drive tray: Open the front bezel of the drive tray by pushing the release button.



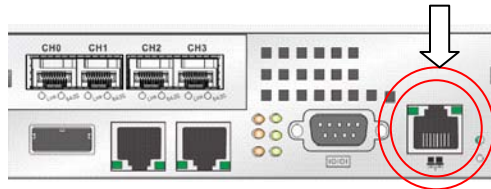
3 Slide drive trays into place: Install the drives trays into the tray slots. Once installed close the bezel until the release button secures the bezel in place. Rotate the bezel lock to the vertical position to secure the drive tray into the slot.



Step 4 Cable Installation for Fibre Channel Hosts or SANs

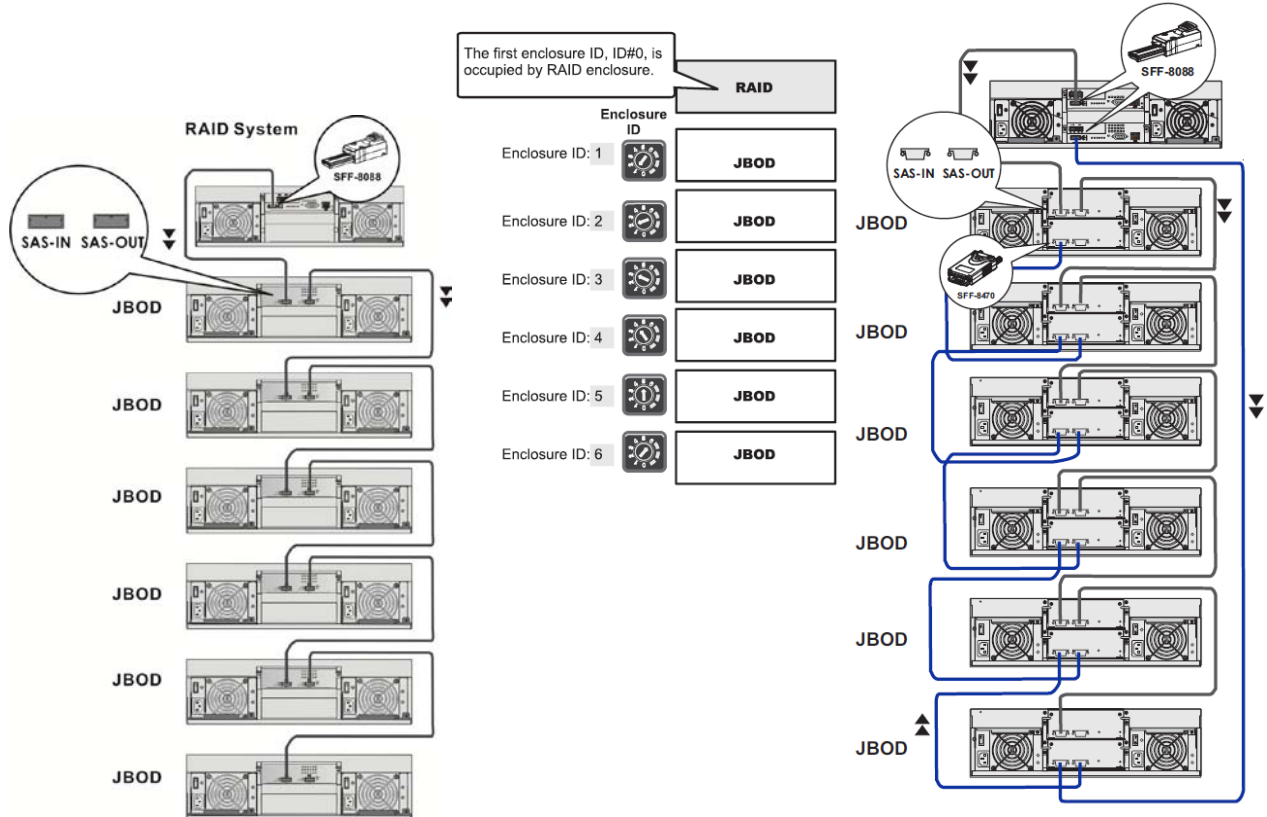
Follow these steps to connect your management ethernet port, expansion connections to add on RAID JBODs, power, and hosts to the Galaxy RAID.

1 Management Interfacing: Use your CAT5E 100/1000 LAN cable to connect to the management ethernet port on the rear of the Galaxy [to the right of the DB9 connection] . This port is used to manage and change the RAID configurations.



NOTE: THE MANAGEMENT PORT ADDRESS HAS BEEN PRESET TO 192. 168.1.129. IF THIS CONFLICTS WITH YOUR SYSTEM CONTACT RORKE TECH SUPPORT OR SEE THE TECH BULLETIN LOCATED ON THIS CD THAT SHOWS YOU HOW TO CHANGE YOUR IP ADDRESS THROUGH THE FRONT OPERATOR PANEL.

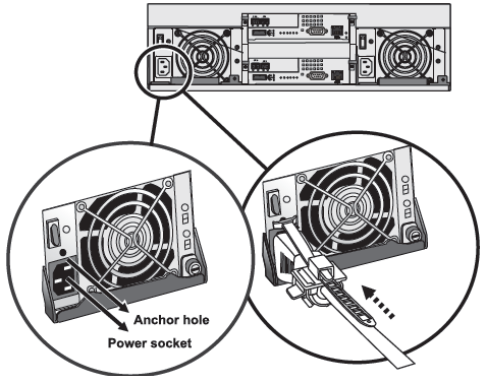
2 JBOD Interfacing: If your systems includes JBOD add-on chassis, you will need to install SAS inter-chassis cables [provided] as shown below. Refer to the detailed image of the cable connection in Step 4-1 and install SAS cables according to the diagrams below based on single or dual controllers. Set the ID setting of each JBOD to a different ID using the rotary ID switch located under the JBOD's front handle covers.



Note: 12 bay RAIDs require 12 Bay JBODs, 16 bay and 24 bay RAIDs require 16 bay JBODs. Refer the RAID hardware manual for specific information regarding your specific JBOD configuration.

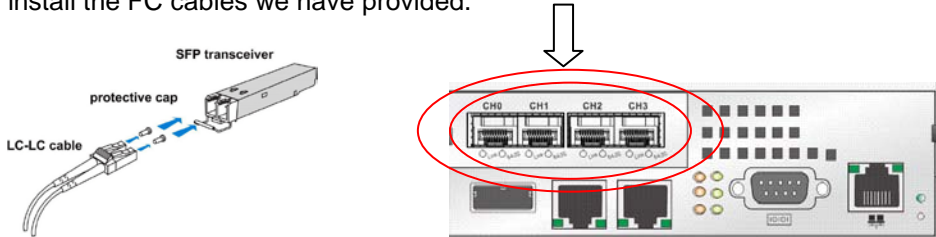
Also note that since 24bay RAIDs take address 0 and 1, the JBODs addresses need to start with 2.

3 AC Mains Cabling: Two AC cables are included and should be plugged into each of the Galaxy Power Supply Units.



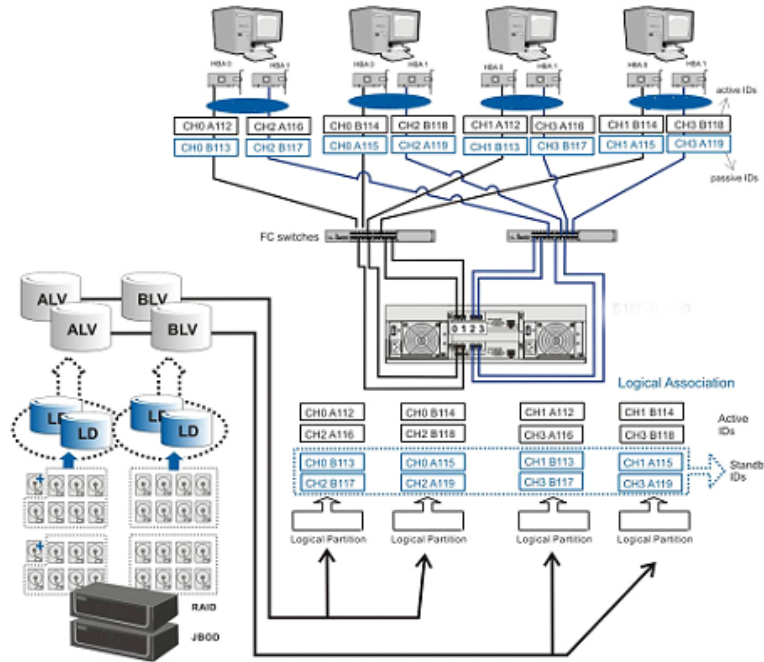
4 Host Cabling:

Install the SFP's into each of the controllers FC ports. Remove the protective caps and install the FC cables we have provided.



Although we can't predict the exact way you will want to cable the Galaxy RAID into a FC SAN, we have come up with a worse case diagram to show you how that would be

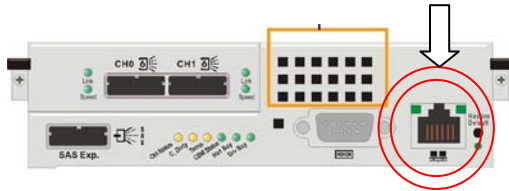
done in a dual controller configuration, below.



Step 4 Cable Installation for SAS Hosts

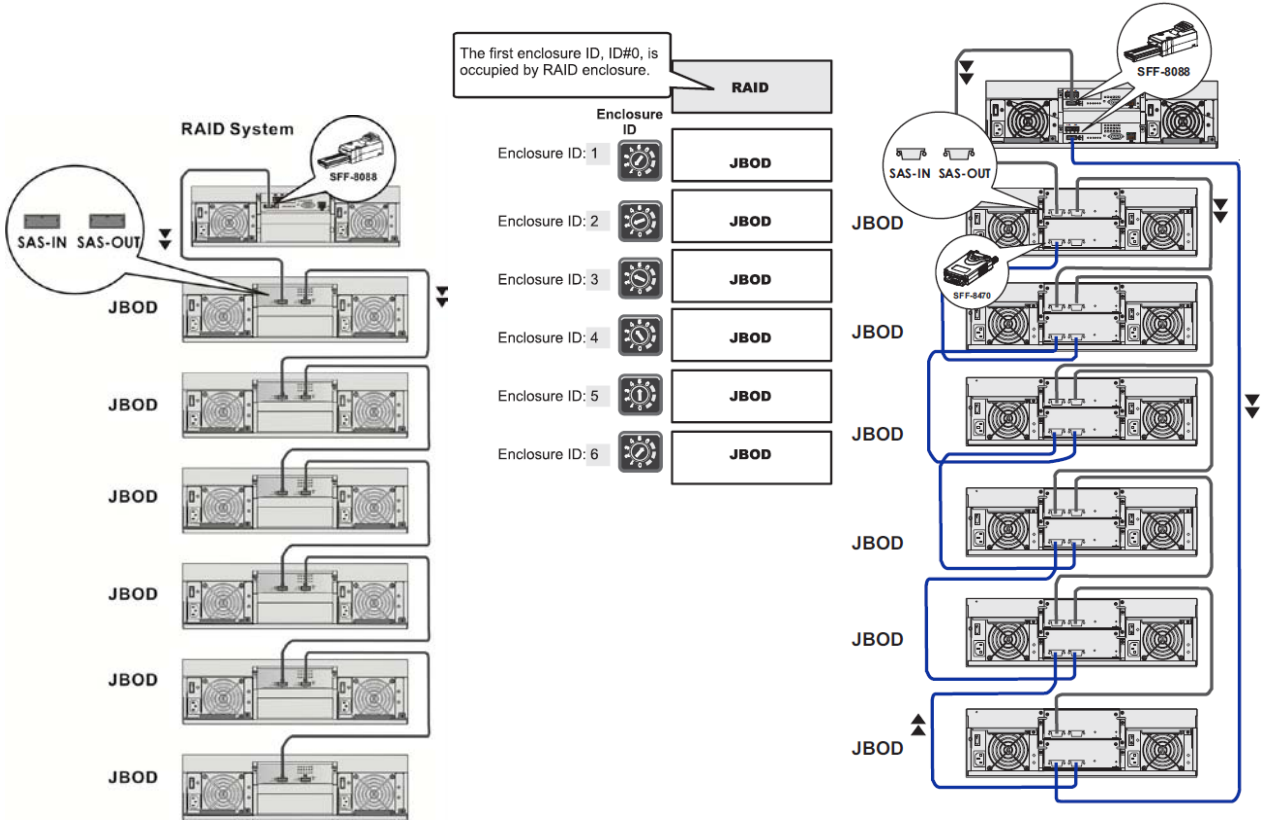
Follow these steps to connect your management ethernet port, expansion connections to add on RAID JBODs, power, and hosts to the Galaxy RAID.

1 Management Interfacing: Use your CAT5E 100/1000 LAN cable to connect to the management ethernet port on the rear of the Galaxy [to the right of the DB9 connection] . This port is used to manage and change the RAID configurations.



NOTE: THE MANAGEMENT PORT ADDRESS HAS BEEN PRESET TO 192. 168.1.129. IF THIS CONFLICTS WITH YOUR SYSTEM CONTACT RORKE TECH SUPPORT OR SEE THE TECH BULLETIN LOCATED ON THIS CD THAT SHOWS YOU HOW TO CHANGE YOUR IP ADDRESS THROUGH THE FRONT OPERATOR PANEL.

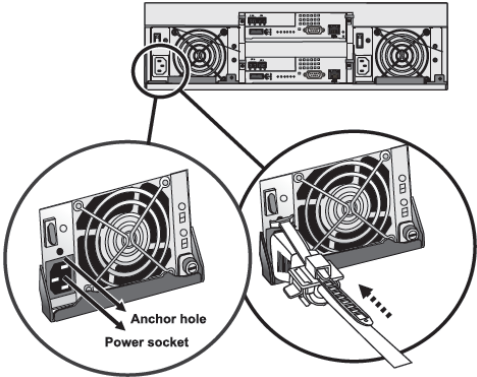
2 JBOD Interfacing: If your systems includes JBOD add-on chassis, you will need to install SAS inter-chassis cables [provided] as shown below. Refer to the detailed image of the cable connection in Step 4-1 and install SAS cables according to the diagram below. Set the ID setting of each JBOD to a different ID using the rotary ID switch located under the JBOD's front handle covers.



Note: 12 bay RAIDs require 12 Bay JBODs, 16 bay and 24 bay RAIDs require 16 bay JBODs. Refer the RAID hardware manual for specific information regarding your specific JBOD configuration.

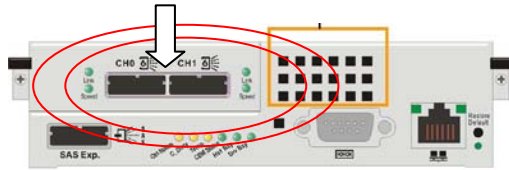
Also note that since 24bay RAIDs take address 0 and 1, the JBODs addresses need to start with 2.

3 AC Mains Cabling: Two AC cables are included and should be plugged into each of the Galaxy Power Supply Units.

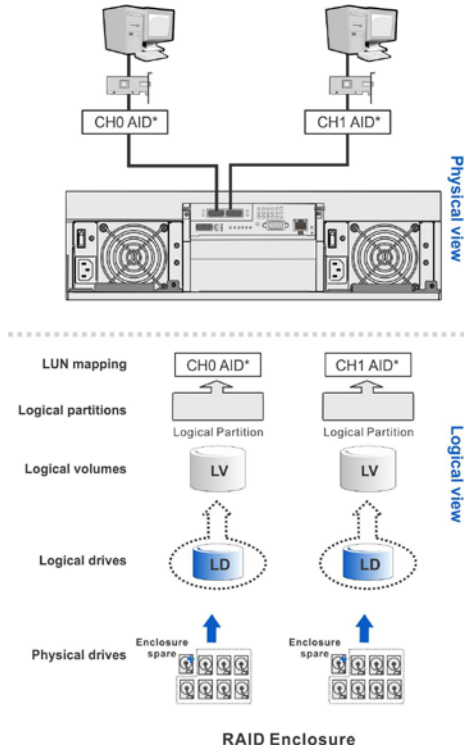


4 Host Cabling:

Install the provided SAS cables into each of the controllers SAS ports.



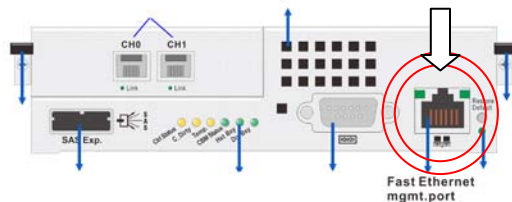
Although we can't predict the exact way you will want to cable the Galaxy RAID into a SAS environment, we have come up with a worse case diagram to show you how that would be done in a dual server configuration, below.



Step 4 Cable Installation for 10GbE iSCSI SANs

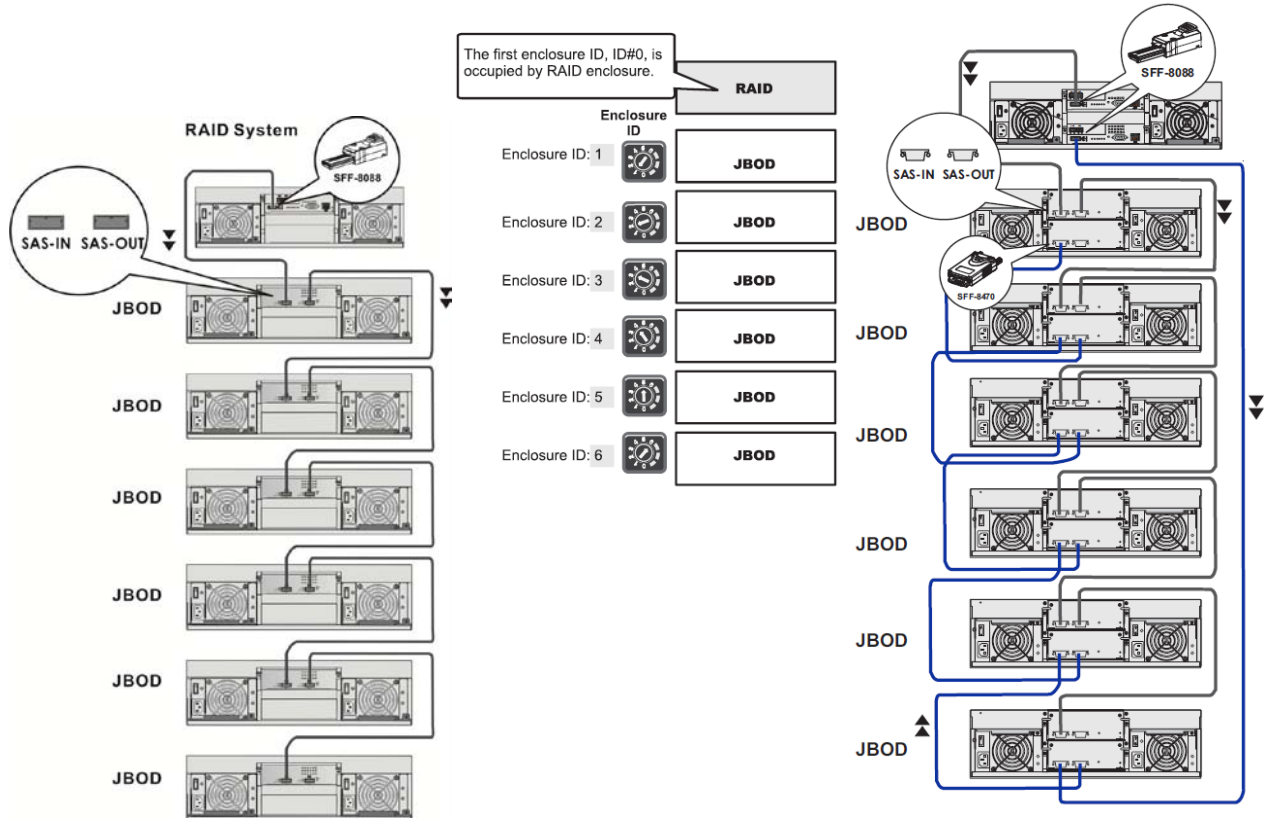
Follow these steps to connect your management ethernet port, expansion connections to add on RAID JBODs, power, and hosts to the Galaxy RAID.

1 Management Interfacing: Use your CAT5E 100/1000 LAN cable to connect to the management ethernet port on the rear of the Galaxy [to the right of the DB9 connection] . This port is used to manage and change the RAID configurations.



NOTE: THE MANAGEMENT PORT ADDRESS HAS BEEN PRESET TO 192. 168.1.129. IF THIS CONFLICTS WITH YOUR SYSTEM CONTACT RORKE TECH SUPPORT OR SEE THE TECH BULLETIN LOCATED ON THIS CD THAT SHOWS YOU HOW TO CHANGE YOUR IP ADDRESS THROUGH THE FRONT OPERATOR PANEL.

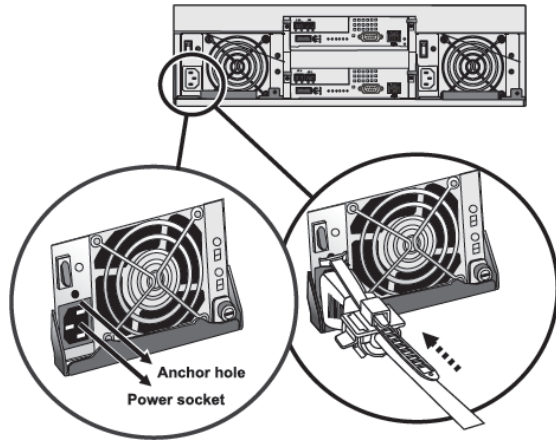
2 JBOD Interfacing: If your systems includes JBOD add-on chassis, you will need to install SAS inter-chassis cables [provided] as shown below. Refer to the detailed image of the cable connection in Step 4-1 and install SAS cables according to the diagram below. Set the ID setting of each JBOD to a different ID using the rotary ID switch located under the JBOD's front handle covers.



Note: 12 bay RAIDs require 12 Bay JBODs, 16 bay and 24 bay RAIDs require 16 bay JBODs. Refer the RAID hardware manual for specific information regarding your specific JBOD configuration.

Also note that since 24bay RAIDs take address 0 and 1, the JBODs addresses need to start with 2.

3 AC Mains Cabling: Two AC cables are included and should be plugged into each of the Galaxy Power Supply Units.

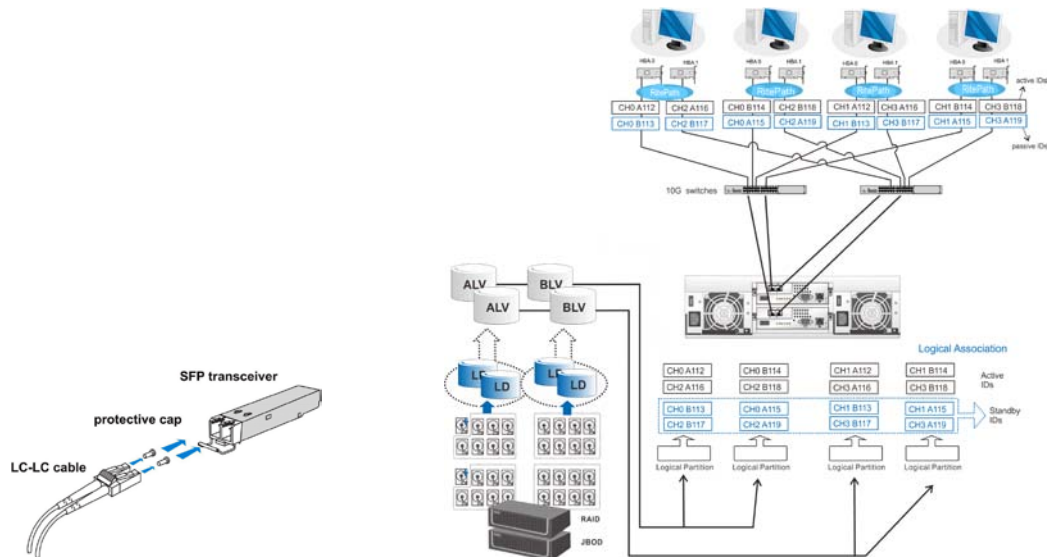


4 Host Cabling:

NOTE: THE STANDARD IP ADDRESSES OF THE iSCSI PORTS ARE SET TO 'DHCP' TO MAKE THEM MOST ACCEPTABLE BY MOST NETWORKS. iSCSI DRIVERS WILL NEED TO BE INSTALLED ON ANY SYSTEM CONNECTING TO THE RAID AND SAN SHARING SOFTWARE WILL NEED TO BE USED SO THE RAID DATA IS NOT CORRUPTED BY HAVING MULTIPLE CLIENTS USING THE RAID. CONTACT RORKE TECH SUPPORT FOR DETAILS.

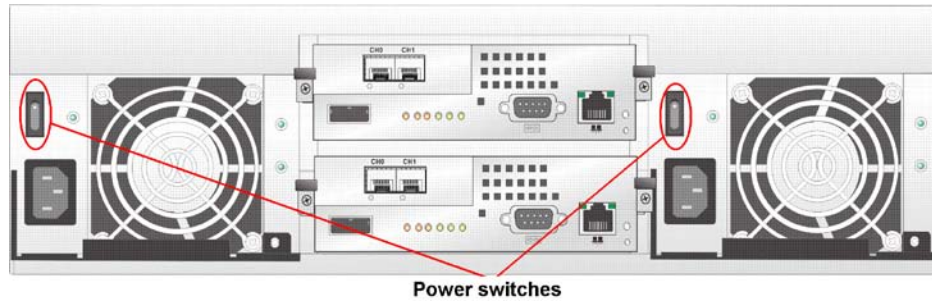
Although we can't predict the exact way you will want to cable the Galaxy RAID into an IP SAN, we have come up with a worse case diagram to show you how that would be done in a dual controller configuration, below.

The first thing needed to be done is to install the optical SFP+s into the 10GbE ports on the controllers. The user or Rorke will provide optical 10GbE cables that connect into the SFP+s and will eventually connect through 10GbE switches to hosts. We strongly suggest that if dedicated IP addresses are assigned, the same subnet be used by all.



Step 5 Power On

Follow these steps to power up and check the status of the Galaxy RAID.



Power on procedure.

- Make sure all the hardware components are properly installed.
- Power on all switches and networking devices.
- Power on all Galaxy JBOD enclosures by turning on the PSU power switches.
- Power on the Galaxy RAID enclosures by turning on the PSU power switches
- Power on the hosts servers or application stations.
- Check all the component LEDs. No drive, power, or fault LEDs, red or amber, should be lit. The front panel of the Galaxy RAID should not have the ATTN LED on, and will display the product number, ie GX4 –xxxxx along with a message that says “Ready”.

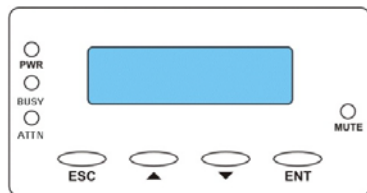
Power off procedure.

Before you power off the Galaxy, The reverse of the steps to power on should be used to power off the Galaxy RAID.

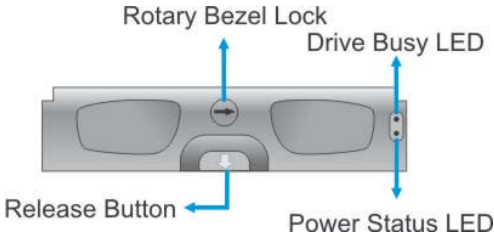
NOTE: ALL JBODS MUST STAY POWERED ' O N ' WHILE YOU POWER OFF THE GALAXY RAID. ONCE THE RAID IS POWERED OFF, THEN POWER OFF THE JBODS! FAILURE TO DO THIS MAY RESULT IN CORRUPT OR LOST DATA!

Status Indicators: Front of Enclosure

Observe the front of the Galaxy and verify the indicators below. If they are different or if you hear an audible alarm, contact Rorke Tech Support at 800 328 8147.



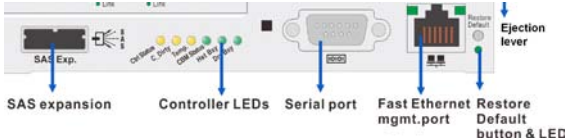
LCD PANEL	
LCD PANEL	ON [BLUE]
PWR LED	OFF



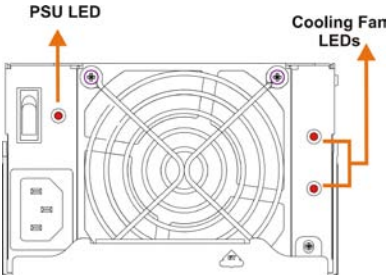
All Drive Trays	
Power Status LED	On [Blue]
Drive Busy LED	Blink [Activity]

Status Indicators: Rear of Enclosure

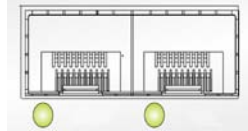
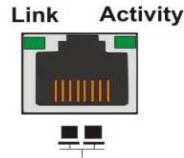
Observe the rear of the Galaxy and verify the indicators below. If they are different or if you hear an audible alarm, contact Rorke Tech Support at 800 328 8147.



Controller LEDs	
CTRL STATUS	On [Green]
C_DIRTY LED	On or Off
TEMP LED	Off
CBM STATUS LED	On or Off

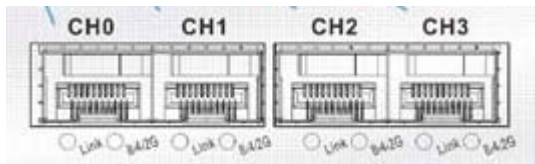


Power Supply Unit LEDs	
PSU LED	On [Green]
COOLING FAN LED	Off



1GbE Administrator LEDs	
LINK LED	On [Connected]
ACTIVITY LED	Blinking [Activity]

10GbE LEDs	
ACTIVITY LED	On [Connected] Blinking [Activity]



Fibre Channel LEDs	
LINK LED 8/4/2G	On [Connected] Blinking [Activity]

Front Panel Power on Status check procedure: [Refer to the Firmware Operations manual for details on how to use the front LCD screen]

- Press the ENT key for 2 seconds to enter the Main Menu
- Use the arrow keys to move to the last menu, "View and Edit Events Logs"
- Press ENT to enter the menu
- Use the arrow keys to select an event
- Press ENT key for longer than 1 second on an event message, and use the arrow keys to browse through the message lines
- Press ESC to return to the previous menu level, and press multiple times to exit the menu.

Step 6 Installing the RAID Bezel

The Galaxy comes with a bezel that protects the front of the RAID. Simple use the thumbscrews on each side of the bezel and screw them to the rack mounted brackets that were installed with the chassis.



Step 7 Opening Management Consoles

As we have stated, your Galaxy RAID has been configured and prepared for you, RAID sets and LUNs already are prepared. All this is done in our effort to minimize the need for any use of the management console during the installation. However, we know there is going to be the need for you to use the management of the Galaxy so we have included some basic information. Refer to the Web GUI and Galaxy Array Manager manual for more details.

To use Web GUI through the management ethernet port, verify that the ethernet port on the rear of the Galaxy RAID has a LAN connection cabled to it. Open a browser and key in "http://192.168.1.129/index.html" . This will open the embedded Galaxy Web GUI and you can view the statuses of the RAID, manage the RAID sets, partition the RAID, see the status of the RAID and drives, etc.

To use Telnet through the management ethernet port, verify that the ethernet port on the rear of the Galaxy RAID has a LAN connection cabled to it. Open a DOS prompt or command shell and key in "telnet192.168.1.129" . This will open the embedded basic Telnet session menus where you can view the statuses of the RAID, manage the RAID sets, partition the RAID, see the status of the RAID and drives, etc.

To use any of the latest HDX4 advanced features such as replication, snapshots, and thin provision, the java based Galaxy Array Manager [GAM] must be used. Refer to the GAM manual for more details.



» www.rorke.com

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