Cohesity 5270 Appliance Hardware Installation Guide

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Last updated: 2026-03-16

Legal Notice

Cohesity Support

21 September 2025

Reach Cohesity Support

There are several ways to create a Cohesity support case.

- Go to Cohesity Support, to search in our knowledge base; or contact us by phone - United States and Canada: 1-855-9CO-HESI (926-4374), option 2.
- Log in to the Cohesity Support Portal to create a new case.
- Click the (**?**) icon on the Cohesity UI and select Support Portal.

Support/Service Assistance

First, contact the Service Provider that you have contracted for service and support. If you work directly with Cohesity and have a product warranty/entitlement, repair pricing, or technical support-related question, see your options below:

- To find solutions to your product issues or for suggestions or best practices, visit the Cohesity Knowledge Base.
- Log in to the Cohesity Support Portal to create a new case.
- To monitor your open cases, log in to the portal and click the **Cases** tab on the home page. This page should have all the case statuses and updates. You can also view individual case status.

Cohesity Software Running on Partner Hardware

For Cohesity software running on qualified third-party hardware, the following support workflow applies:

1. The customer may contact Cohesity Support first if the issue cannot be determined as a hardware issue.

   Cohesity cannot process hardware replacement requests for partner hardware.

2. Cohesity Support triages the issue. If it is a software issue, Cohesity Support continues to work on it.
3. If it is a hardware/firmware issue or is suspected to be a hardware/firmware issue, Cohesity provides information about the issue to the customer and requests that the customer open a support ticket with the appropriate partner.
4. If needed, Cohesity Support can join a three-way call with the partner and the customer.
5. The customer informs Cohesity Support on the progress of the partner's case.

Documentation

Make sure that you have the current version of the documentation. Each document displays the date of the last update on page 2. The latest documentation is available on the Cohesity website:

https://sort.veritas.com/documents

Documentation feedback

Your feedback is important to us. Suggest improvements or report errors or omissions to the documentation. Include the document title, document version, chapter title, and section title of the text on which you are reporting. Send feedback to:

NB.docs@veritas.com

You can also see documentation information or ask a question on the Cohesity community site:

http://www.veritas.com/community/

Cohesity Services and Operations Readiness Tools (SORT)

Cohesity Services and Operations Readiness Tools (SORT) is a website that provides information and tools to automate and simplify certain time-consuming administrative tasks. Depending on the product, SORT helps you prepare for installations and upgrades, identify risks in your datacenters, and improve operational efficiency. To see what services and tools SORT provides for your product, see the data sheet:

https://sort.veritas.com/data/support/SORT_Data_Sheet.pdf

Contents

Chapter 1

Hardware overview

This chapter includes the following topics:

About the 5270 Appliance and the storage shelves

The Cohesity 5270 Appliance is a hardware and software storage system that can scale to 991 TiB of available backup capacity. It consists of a Cohesity 5270 Appliance and up to six optional 2U12 storage shelves.

Figure 1-1 5270 Appliance

The 5270 appliance and storage shelves provide storage capacity in several configurations.

Base Appliance Configurations

The 5270 Appliance is available in two base capacity options:

- 9.1 TiB usable capacity
- 36.4 TiB usable capacity

Expandable Storage Configurations (8TB Drives)

For deployments requiring additional capacity, the 5270 Appliance supports expansion with storage shelves using 8TB drives:

- Scalable configuration: 1 to 6 storage shelves
- Maximum capacity: Up to 429.4 TiB (with 6 storage shelves)

This configuration allows you to start with your current capacity needs and expand incrementally as your data protection requirements grow.

High-Density Storage Configuration (20TB Drives)

For large-scale, long-term retention deployments, the 5270 Appliance offers a high-density configuration:

- Fixed configuration: 6 storage shelves with 20TB drives
- Total capacity: 991 TiB

This configuration is optimized for cost-effective, high-capacity storage requirements such as long-term retention (LTR) workloads.

Refer to the *Cohesity 5270 Appliance Product Description Guide* on SORT for details about usable storage options.

Appliance drives

The front panel of the appliance contains 12 drives.

Figure 1-2 5270 Front panel

Slot designations are as follows. Do not rearrange the drives from the factory configuration.

Table 1-1 5270 Appliance disk drive slots

Slot	RAID configuration	Drive size	Appliance storage capacity	Drive role
D0-D1	RAID 1	1.92 TB	N/A	OS and log files
D2	RAID 1	1.92 TB	N/A	Hot spare for OS and log drives
D3	N/A	N/A	N/A	Empty Carrier
D4-D10	RAID 6	2TB, 8TB	9.1TiB, 36.4 TiB	User storage data
D11	RAID 6	2TB, 8TB	N/A	Hot spare for user storage data

About the 5270 Appliance control panel

The front control panel provides push button system controls and LED indicators for several system features.

Figure 1-3 5270 Control panel

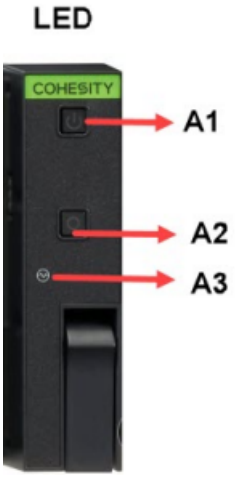


Table 1-2 Control panel system LED descriptions

Item	LED	System information
A1	Power button with integrated LED (Blue)	The Power button toggles the system on and off. This button also functions as a sleep button if enabled by an ACPI compliant operating system. Pressing this button sends a signal to the integrated BMC that either powers on or powers off the system. Holding the power button for 10 seconds or more leads to a hard shutdown. The integrated LED is a single color (blue) and supports different indicator states as defined in the following table.
A2	System ID button with integrated LED (Blue)	■ ON: ■ If the IPMI **Chassis Identify** command is received. It will automatically tuen off after 15 seconds (by default). ■ If the **Chassis ID** button on the front panel is pressed. Press the button again to turn off the LEDs. ■ Blinking: Unit selected for identification. ■ OFF: No identification request.

Table 1-2 Control panel system LED descriptions *(continued)*

Item	LED	System information
A3	Status LED (Red)	■ ON: ■ Critical failure: Critical fan, voltage, temperature state. ■ Non-critical failure: Non-critical fan, voltage, temperature state, CPU thermal trip, DC off. ■ Detected case intrusion alert. ■ OFF: ■ SEL cleared. ■ Last pending warning or error has been de-asserted.

About the System Status LED states

The following table provides a description of each LED state.

Table 1-3 System Status LED states

Color	State	Criticality	Description
No color	Off - The system is not operating.	Not ready	System power is off (AC and/or DC)
Red	Solid on (SO)	Critical	■ ON: ■ Critical failure: Critical fan, voltage, temperature state. ■ Non-critical failure: Non-critical fan, voltage, temperature state, CPU thermal trip, DC off. ■ Detected case intrusion alert. ■ OFF: ■ SEL cleared. ■ Last pending warning or error has been de-asserted.

About the Power button LED states

The following table provides a description of each power state.

Table 1-4 Power button LED states

State	Power Mode	LED	Description
Power - off	Non-ACPI	Off	The system power is off, and the BIOS has not initialized the chipset.
Power - on	Non-ACPI	On	The system power is on and the blue Power button LED is active.

About the integrated BMC beep codes

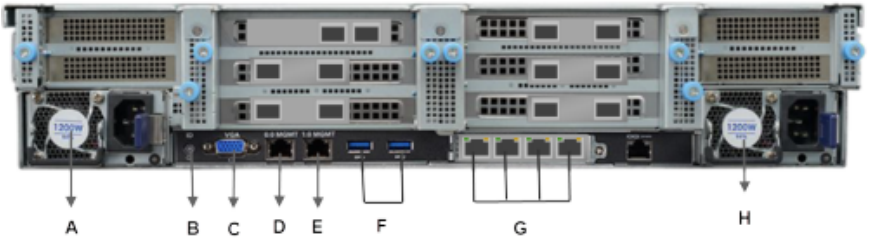
The integrated BMC does not generate any beep codes upon detection of failure conditions. Any failure conditions are in the System Event (SEL) log.

Appliance rear panel

The rear panel of the appliance contains several components and default ports that are embedded. Three PCIe riser assemblies support various configurations.

The three PCIe riser assemblies are numbered, 1, 2, and 3 from right to left. Slots 1 through 8 are shown in the risers. PCIe riser card assemblies 1 and 2 each support three standard PCIe cards, while PCIe riser card assembly 3 supports two low profile PCIe cards.

Figure 1-4 5270 Rear panel



The following ports and connectors are available on the rear panel:

- **A**, **H**: Power Supply Units
- **B**: ID Button
- **C**: VGA port
- **D**: IPMI remote management port
- **E**: Unused serial port

- **F**: Two USB 3.2 Gen1 ports
- **G**: OCP 3.0 slot with four copper, RJ45, 10 Gb Ethernet ports, host1, host0, NIC0, and NIC1, left to right

Note: The embedded Ethernet ports are copper. PCIe Ethernet ports are optical. You cannot bond the copper ports and the optical ports to each other.

- The riser assembly 2, Slot 3 is reserved for the RAID PCIe card

The appliance does not include grounding studs in case your lab environment has such a requirement.

Refer to the*Cohesity 5270 Appliance Product Description Guide* on SORT site for optional port configurations.

Storage shelf disk drives

The 5270 Storage Shelf is a 2U enclosure that contains 12 disk drives.

Disk drive carriers in the storage shelf are locked by default. If you need to replace a locked disk drive use a screwdriver with a T10 bit to unlock each carrier.

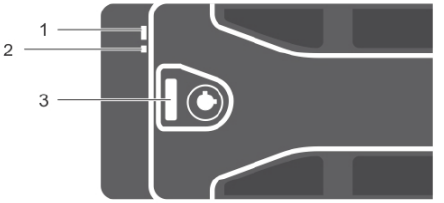
The lock is located on the left side of each carrier.

Storage shelf control panel

The left, front, of the storage shelf contains the system control panel.

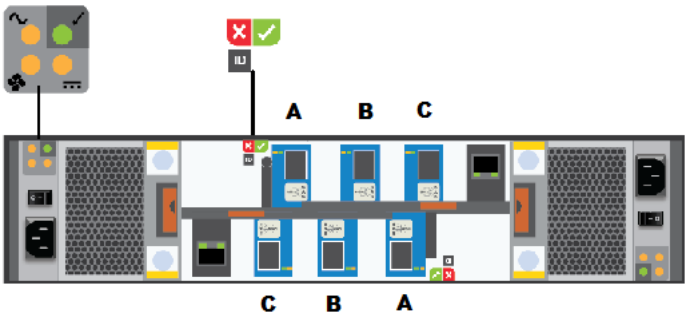
Components of the control panel include the following.

1. The Input switch enables you to set the Unit Identification display.
2. The Power On/Standby LED is amber when only standby power is available. The LED is green when system power is available.
3. The Module Fault LED is on when there is a system hardware fault. A Power Cooling Module (PCM) or an I/O module may be at fault.
4. The Logical Status LED shows a change of status or a fault, typically associated with the shelf's disk drives. This LED also indicates an issue with an internal RAID controller or external RAID controller, or with a host bus adapter.
5. The Unit Identification Display provides information to assist in the configuration of multiple storage shelves.



Components of the control panel include the following.

Storage shelf rear panel



The PCMs, located on the left and the right sides of the storage shelf, contain fans.

The I/O module canisters are located in the center of the rear panel, one on top of the other. Each I/O module contains three mini-SAS HD ports; A, B, and C. The mini-SAS HD ports connect the I/O modules to the appliance and to other storage shelves. Note that the port labels are reversed on the bottom canister. Port C is not used at this time.

The PCMs and the I/O modules include LEDs.

Cables

Two power cables are shipped with each appliance and each storage shelf.

Use the top down, bottom up method to connect storage shelves to the appliance. The general scheme follows.

- The appliance is connected to the first storage shelf with one SAS-3 cable.
- One cable connects the first storage shelf to the next shelf.
- Subsequent storage shelves are connected until the last storage shelf is connected.
- The last storage shelf is connected to the appliance with one cable.
- The last storage shelf is also connected to the next, highest, storage shelf.

- The storage shelves are connected until the shelf closest to the appliance is connected.

See “Connecting the network cables” on page 39.

About IPMI configuration

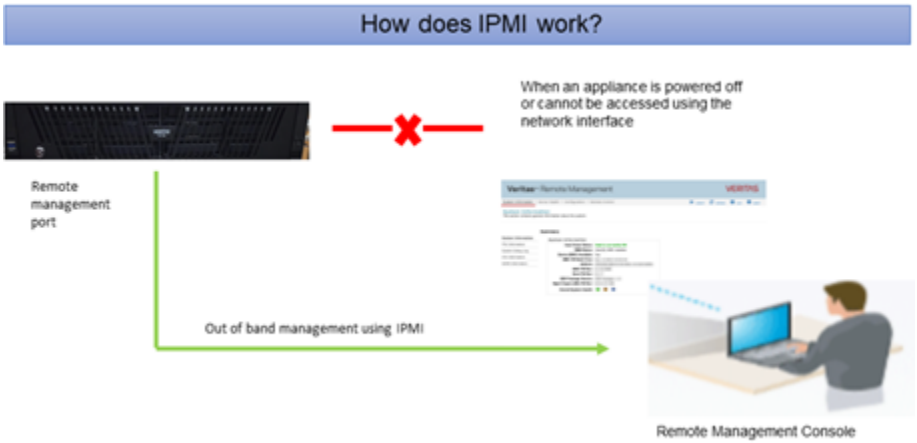
The Intelligent Platform Management Interface (or IPMI) provides management and monitoring capabilities independently of the host system's CPU, firmware, and operating system. You can configure the IPMI sub-system for your appliances. You can use the remote management port, located on the rear panel of the appliance, to connect to the IPMI sub-system.

The following figure shows the remote management port (or the IPMI port) on the rear panel of a 5270 Appliance:

Figure 1-5 5270 IPMI port

The IPMI is beneficial after an unexpected power outage shuts down the connected system. In case the appliance is not accessible after the power is restored, you can use a laptop or desktop computer to access the appliance remotely by using a network connection to the hardware rather than to an operating system or login shell. This enables you to control and monitor the appliance even if it is powered down, unresponsive, or without any operating system.

The following diagram illustrates how IPMI works:



The following are some of the main uses of IPMI:

- Manage an appliance that is powered off or unresponsive. Using the IPMI, you can power on, power off, or restart the appliance from a remote location.
- Provide out-of-band management and help manage situations where local physical access to the appliance is not possible or preferred like branch offices and remote data centers.
- Access the Appliance Shell Menu remotely using IPMI if regular network interface is not possible.
- Reimage the appliance from the IPMI interface by using ISO redirection.
- Monitor hardware health of the appliance from a remote location.
- Avoid messy cabling and hardware like keyboard, monitor, and mouse (KVM) solutions to access the appliance.
- Required to elevate to an unrestricted shell for support when in lockdown mode.

Product documentation

Additional documentation is available at the following site:

Appliance Documentation

Appliance Hardware Get Started Documents

Chapter 2

Preinstallation requirements

This chapter includes the following topics:

Customer-provided environment and supplies

For best ventilation, the rack cabinet:

- Should be at least 100 cm (4 feet) from walls
- Should have at least 100 cm (4 feet) from other cabinets on the front and back of the appliance and the storage shelves

Data centers with two-foot spaces in the front and in the back of the appliances are acceptable with proper cooling and ventilation.

Refer to the following section for more details.

See “Heat dissipation” on page 23.

The following describes the necessary personnel and equipment that are needed at the installation site:

- At least three people or a mechanical lift to move the appliance and the storage shelves.
- Cables to connect the appliance to your corporate network.
- Cables to connect the appliance to external storage.
- A USB-keyboard and a monitor to connect to the appliance.
- A 19-inch rack with dual Power Distribution Units (PDUs) with 120VAC or 220VAC power supplies for the compute node.
- A magnetic Philips-head screw driver to install the storage shelf rails into the rack.
- A screwdriver with a 2mm Hex bit to secure the bezels to the front of each storage shelf drawer.
- A 19-inch rack with dual Power Distribution Units (PDUs) with 220VAC power input for the storage shelves.

See “Best practices for rack installation” on page 20.

Appliance shipping container contents

The appliance and each storage shelf are shipped in separate containers. Each container includes other boxes and contents. The disk drives are installed into the appliance and the storage shelf at the factory.

The following items ship within the appliance box.

- Envelope containing the following:
  - Warranty and license information
- Accessory box containing rack rails
- Two power cables
- Bezel

Storage shelf shipping container contents

The appliance and each storage shelf are shipped in separate containers. Each container includes other boxes and contents.

The following items ship within the storage shelf box.

- Rack rails
- Two SAS-3 cables
- Two power cords

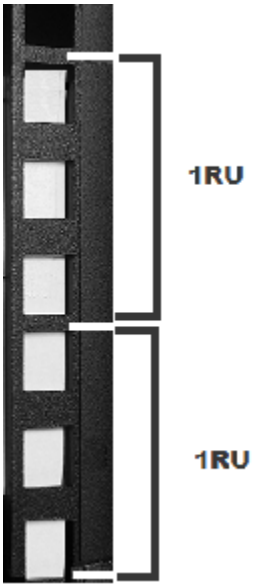
Best practices for rack installation

Prepare for the hardware installation by following these recommendations.

- The appliance requires two RUs of space. Install the appliance in the space that is directly above the storage shelves.
- Two people should install the rails; one person at the back of the rack and one at the front.
- Two people should lift and place the appliance into the mounted rails.
- The storage shelves are heavier than the appliance and should be installed as close to the bottom of the rack as possible.
- Always install the heavier storage shelves at the bottom of the rack. Best practices recommend that you install hardware at the bottom of a rack first. Then work your way up the rack.
- Determine device order and cabling limits.
- Be aware of the depth of the guide rails and the devices. Ensure that the distance between cabinet posts accommodates the rails, devices, cables, and extending ears.
- Physically hold a SAS-3 cable between the intended locations for the appliance and the last storage shelf. Visually confirm that the cable is long enough.

Determining rack locations

The appliance and the storage shelves are both two rack units (2RU) high. To help you identify RU spacing, many rack manufacturers typically use a system of lines and sequential numbers starting at the bottom of the rack. The front and the rear of the rack are marked the same to ensure that the rails are installed straight and level. One RU has three holes. The holes for one RU are typically marked with a line below the bottom hole and another line above the top hole.



Next, use the rack templates that ship with the storage shelves to determine the mounting locations.

See "Best practices for rack installation" on page 20.

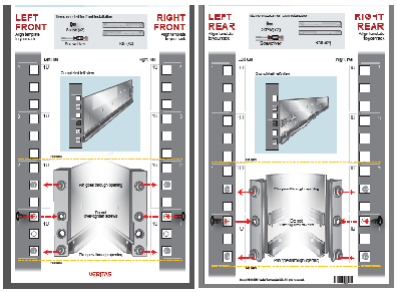
To determine rack locations for the storage shelves

1. A storage shelf is 2RU high. Multiply the number 2 by the number of shelves that you plan to install.

   An appliance and six storage shelves require a total of 14 RUs.

2. Use the rack templates that are provided with the hardware to determine RU locations. The templates show the front and rear of a storage shelf in a rack.

3. Fold the template along the yellow dotted lines to match the rack holes exactly.



4. Record the rack positions to help you locate them easily when mounting the hardware.
5. Next, assess the SAS-3 cables to be sure that you have the correct lengths for your installation.

The following procedure provides information to help you verify that you have the correct lengths of SAS-3 cable.

To determine SAS-3 cable requirements

- Note that each rack unit (RU) is 44.50 mm (1.752 inches) in height. The 5270 Appliance and the 5270 Storage Shelf are both 2RU high.

Storage shelf rack requirements

For best ventilation, the rack cabinet:

- Should be at least 100 cm (4 feet) from walls.
- Should have at least 100 cm (4 feet) from other cabinets on the front and back of the appliance and the storage shelves.
- Data centers with two-foot spaces in the front and in the back of the appliances are acceptable with proper cooling and ventilation
- There must be a minimum depth of 76 cm (30 in.) between the front of the rack and the rear of the rack.
- Storage shelves should be installed lower in the rack than the appliance.

The following list describes the necessary personnel and equipment that customers must supply at the installation site:

- At least two people or a mechanical lift to move the appliance and the storage shelves.
- Two people to install the rails; one person at the back of the rack and one at the front
- Two people to lift and place the storage shelf into the mounted rails
- Cables to connect the appliance to your corporate network.
- A USB-keyboard and a monitor to connect to the appliance.
- A 19-inch rack with dual Power Distribution Units (PDUs) with 220VAC power supplies.

Heat dissipation

Air flows from the front of each unit and exits from the rear of each unit. You can install the optional bezel without disruption to the airflow.

For best ventilation, the rack cabinet should:

- Be at least 100 cm (4 feet) from walls.
- Be at least 100 cm (4 feet) from other cabinets on the front and back of the appliance and the storage shelves.

Note: Data centers with two-foot spaces in the front and in the back of the appliances are acceptable with proper cooling and ventilation.

Cohesity provides the following requirements to ensure sufficient cooling.

- Cohesity requires that you install the system in a National Engineering Manufacturer's Association (NEMA)-certified or equivalent rack.
- A minimum of 3 inches (7.6 cm) of space must be between the front of an appliance and the cabinet door or other air block.
- A minimum of 6 inches (15.2 cm) of space must be between the rear of an appliance and the cabinet rear or other air block.
- A minimum of 1 inch (2.5 cm) of space must be between the front of a storage shelf and the cabinet door or other air block.
- A minimum of 2 inches (5.0 cm) of space must be between the rear of a storage shelf and the cabinet rear or other air block.

Refer to the *Cohesity 5270 Appliance Product Description Guide* for specifications about temperature and cooling.

Appliance documentation

Verifying SAS-3 cable length

Before you install and connect the hardware, be sure to verify that you have the correct length of the SAS-3 cables for your setup.

Each rack unit (RU) is 44.50 mm (1.752 inches) in height. The 5270 Appliance and the 5270 Storage Shelf are both 2RU high.

Each SAS-3 cable is 1 meter (3.28 feet) long. The 1-meter cable is long enough to connect an appliance to the fourth storage shelf when the recommended configuration is used.

Prerequisites for IPMI configuration

Verify the following configuration prerequisites:

- The remote management port auto-negotiates its link speed to 10 Gbps.

  Note: If the IPMI port is connected to a managed switch port, it is recommended that you configure the switch port to auto-negotiation

- If a firewall exists between the appliance and the remote devices that manage an appliance (like a laptop computer), open the following ports:

66	SOL SSH
80	HTTP
162	SNMP
443	HTTPS
623	Floppy/USB media
627	Secured Floppy/USB media
5120	CD
5124	Secured CD
5900	KVM
5902	Secured KVM

  Note: If you have a private internal network, remember to configure the settings accordingly in your network address translation (NAT).

- The remote management port must be configured as a DHCP or static address.

Chapter 3

Installation procedures

This chapter includes the following topics:

Installing the storage shelf rack rails

Use the following procedure to install the storage shelf rack rails. Ensure that the best practises for installing the rack rails are followed.

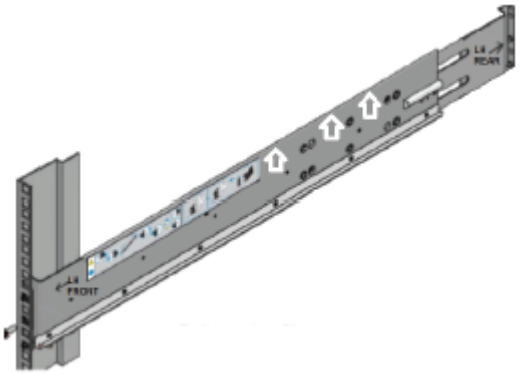
See “Storage shelf rack requirements” on page 22.

To install storage shelf rails

1 Identify the front and the rear of each rail. The following illustration shows the front of the left-hand and the right-hand rails. Red arrows show the pins that fit into the rack.

2 Use the rack templates to align the rails with the rack holes. Be sure to use the same holes on each side of the rack. Fold the template at the dotted yellow lines to get accurate rail and rack matching.

3 Place the left rail inside the rack. The rail holes should match the template. Extend the rail front and back to fit into the rack.



4 Insert the screw in the front and in the back of the rail, as shown in the template. Do not over-tighten the screws.

5 Repeat for the right rail.

Installing the storage shelf into a rack

The storage shelf should be installed from the front of the rack with the control panel on the left side of the shelf.

Warning: The hardware must be powered on in the expected order. Else, all the storage may not be seen by the appliance.

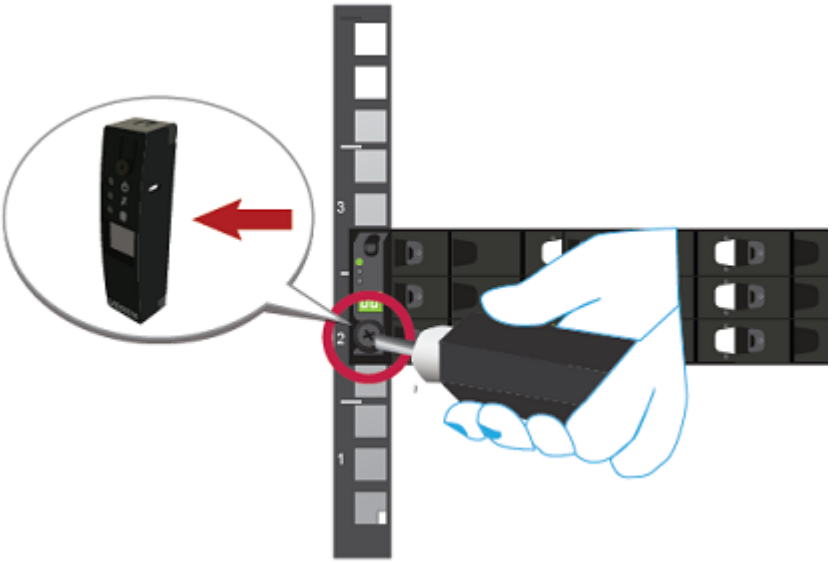
To install a storage shelf

1 Use two people to lift the storage shelf.

2 Slide the rear of the shelf into the front of the rails. Be sure that the shelf is straight and even inside the rack. Do not force the shelf to fit.

3 Carefully push the shelf towards the rear of the rails.

4 Remove the cap from the left and the right sides of the front of the shelf, if they are attached.



5 Insert one screw into the front of the rack, on both sides of the shelf.

6 Replace the end caps or attach the bezel to the front of the shelf.

Installing the appliance into the rack

Use the following procedure to install the rack rails and mount the appliance into the racks. Ensure that the best practices for installing the rack rails are followed.

Warning: The left and right rails differ from each other. Do not exchange their inner rails. Keep the ball bearing shuttle locked at the front of the middle rail during installation.

Caution: DO NOT add any weight upon the system when chassis slide rail is installed.

See “Best practices for rack installation” on page 20.

To install the rack rails

1. Release the inner rail from the outer rail.
   - Extend the inner rail until it stops.
   - Press the release lever on the inner rail to remove it.
2. Attach the inner rail to the chassis.
   - Press the release rail against the chassis.
   - Lift the clip (A) and slide the inner rail toward the chassis rear (B).
3. Attach the outer rail to the rack
   - Lift lever, aim the rack mount pin to the rack post and push forward.
   - Lift lever, aim the rack mount pin to the rack post and push back.
   - Install bolt and U bracket in round /screw rack.

To install the appliance into the rack

1. Mount the appliance into the rack.
2. Be sure the ball bearing retainer is locked forward.
3. Pull the middle rail out of the outer rail until locked.
4. Push the appliance into the rack.

To remove the appliance from the rack

1. Remove the slide rail.
2. Press release button to detach outer rail to detach the outer rails from the rack.
3. Pull the rail forward and press the release button to detach rail.
4. Lift the appliance out.

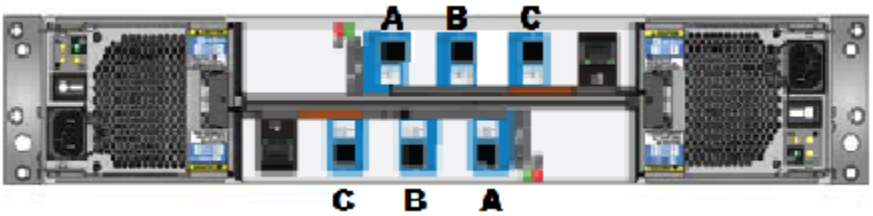
Understanding appliance and storage shelf connections

You cannot use SAS-2 cables with the storage shelf. You must use the SAS-3 cables that are provided with each storage shelf.

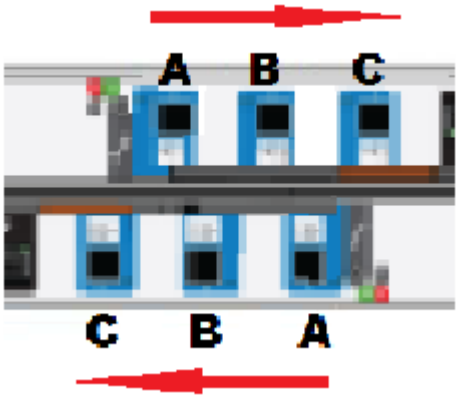
Note: The cables in the illustrations in the following sections are shown in different colors for demonstration purposes only. The actual cables are black.

The External RAID PCIe ports on the rear panel of the appliance are in Slot 3 of Riser 2.

There are two I/O module canisters in the middle of the rear panel of the storage shelf. Each I/O module includes three mini-SAS HD ports.



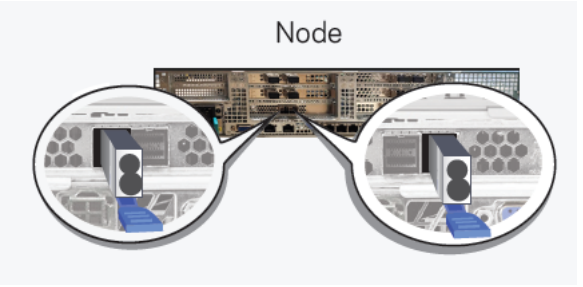
The mini-SAS HD ports on the top I/O module canister are labeled A, B, and C from left to right.



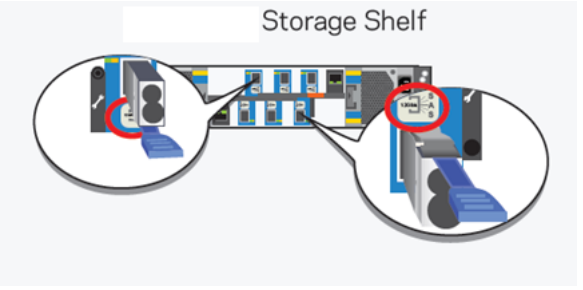
The mini-SAS HD ports on the bottom I/O module canister are labeled in reverse order; C, B, and A from left to right.

The orientation of the blue tab that is attached to the SAS-3 cable connector is very important.

In the appliance, the blue tabs on each SAS-3 connector must face down.



In the storage shelves, the blue tabs in the SAS-3 connectors should point to the 12 Gb/s SAS label near each port. The blue tabs on the SAS-3 connectors inserted into the top row must face down. The blue tabs of the connectors inserted into the bottom row must face up.



The steps in the following sections assume that the appliance and one or more storage shelves are shipped together and installed at the same time.

Refer to the following sections as needed.

See “Connecting an appliance to one storage shelf” on page 31.

See “Connecting an appliance to more than one storage shelf” on page 33.

Connecting an appliance to one storage shelf

The steps in this section assume that the appliance and the storage shelf are shipped together and installed at the same time.

Note: Cables in the following diagrams are shown in different colors for demonstration purposes only. The actual cables are black.

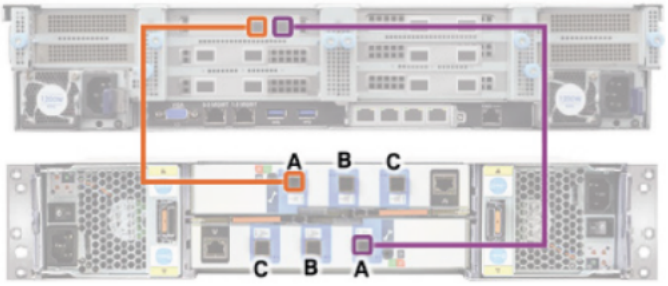
Note: Be sure that you orient the blue tabs on each SAS-3 connector correctly. Refer to the following section for details.

See "Understanding appliance and storage shelf connections" on page 29.

Warning: The hardware must be powered on in the expected order. Else, all the storage may not be seen by the appliance.

To connect an appliance to one storage shelf

1. Connect one end of the SAS-3 cable to the left-hand port in the External RAID PCIe card on the appliance. The blue tab on the SAS-3 connector should be facing down.
2. Connect the other end of the cable to port A in the top canister of the storage shelf.
3. Connect one end of the other SAS-3 cable to port A in the bottom canister of the storage shelf. Be sure that you orient the SAS-3 connector in the storage shelf port A so the blue tab faces up, or is on the same side of the cable as the SAS-3 label.
4. Connect the other end of this cable to the right-hand port in the External RAID PCIe card on the appliance. The blue tab on the SAS-3 connector should be facing down.



See "Connecting the network cables" on page 39.

See "Connecting the power cords" on page 40.

Connecting an appliance to more than one storage shelf

The steps in this section assume that the appliance and the storage shelves are shipped together and installed at the same time. You can install up to six storage shelves with a 5270 appliance.

You can add storage shelves to an operational appliance. Refer to one of the following appendices for instructions.

- Appendix A - Adding one or more storage shelves to an operating appliance that does not have any storage shelves
- Appendix B - Adding storage shelves to an operating appliance that has at least one storage shelf attached
  See “Overview” on page 81.

Note: Be sure that you orient the blue tabs on each SAS-3 connector correctly. Refer to the following section for details.

See “Understanding appliance and storage shelf connections” on page 29.

Warning: The hardware must be powered on in the expected order. Else, all the storage may not be seen by the appliance.

To connect an appliance to storage shelves

Note: This section provides detailed instructions to connect four storage shelves to an appliance. Instructions for connecting six shelves are provided where necessary.

---

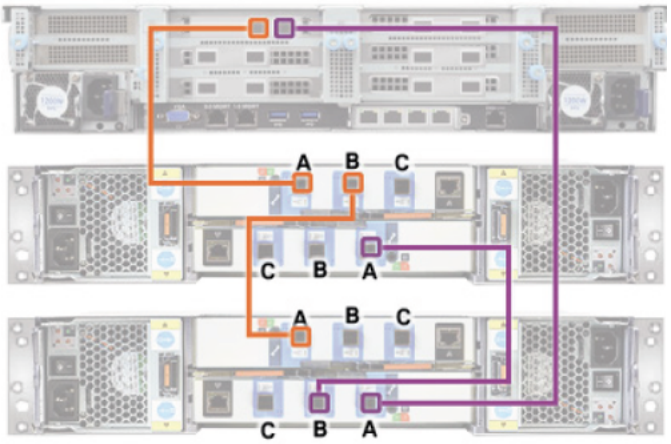
1 Connect the cables as follows:

- Connect the appliance external RAID controller left port to port A on the top canister of the storage shelf.
- Connect each storage shelf top canister port B to next storage shelf top canister port A.
- Connect the appliance external RAID card right port to the last storage shelf bottom canister port A.

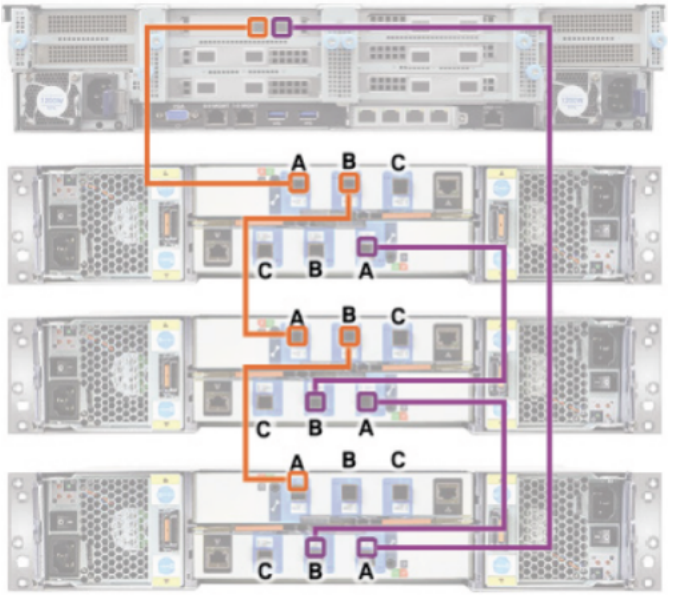
Note: In a six-shelf configuration you must connect the appliance RAID card right port to port A in the bottom canister of the sixth storage shelf.

- Starting with the last storage shelf, connect the storage shelf bottom canister port B to the next storage shelf bottom canister port A.
- Connect another cable to the shelf that is second from the bottom. Use port B on the lower canister of that shelf.
- Connect the other end of the cable to the shelf that is third from the bottom. Use port A on the lower canister of that shelf.
- Continue until the all storage shelf bottom canisters are connected.

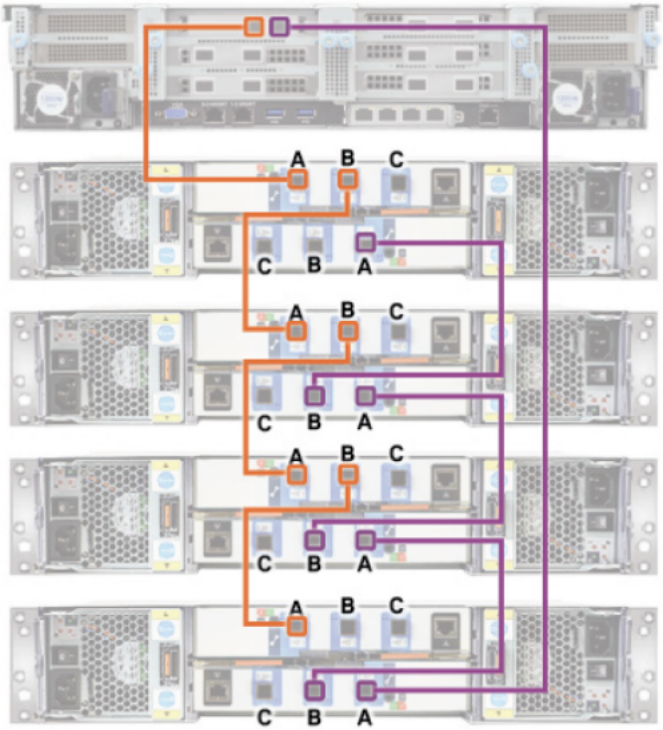
2 In a two-shelf configuration, verify that all cables are installed as shown.



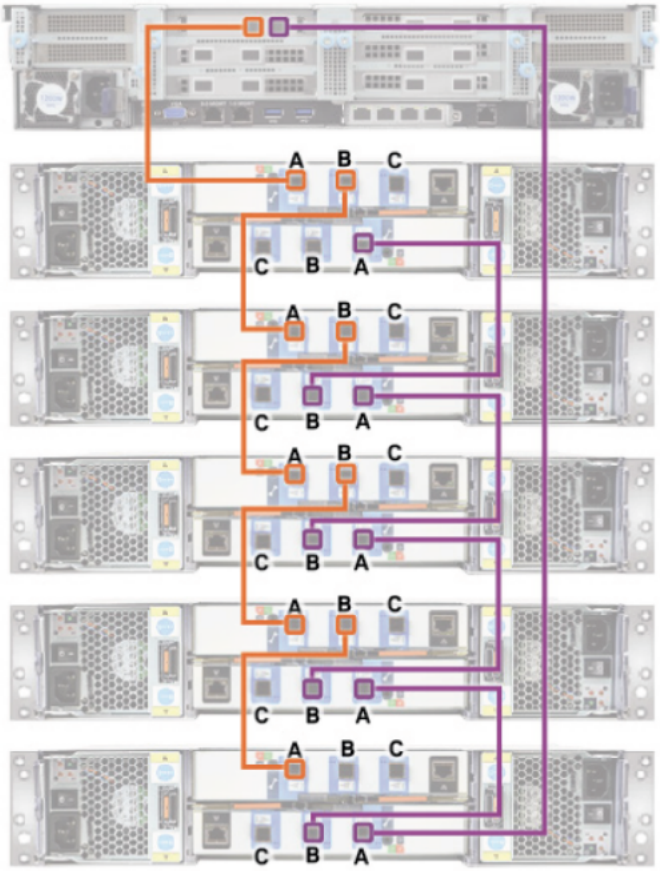
3 In a three-shelf configuration, verify that all cables are installed as shown.



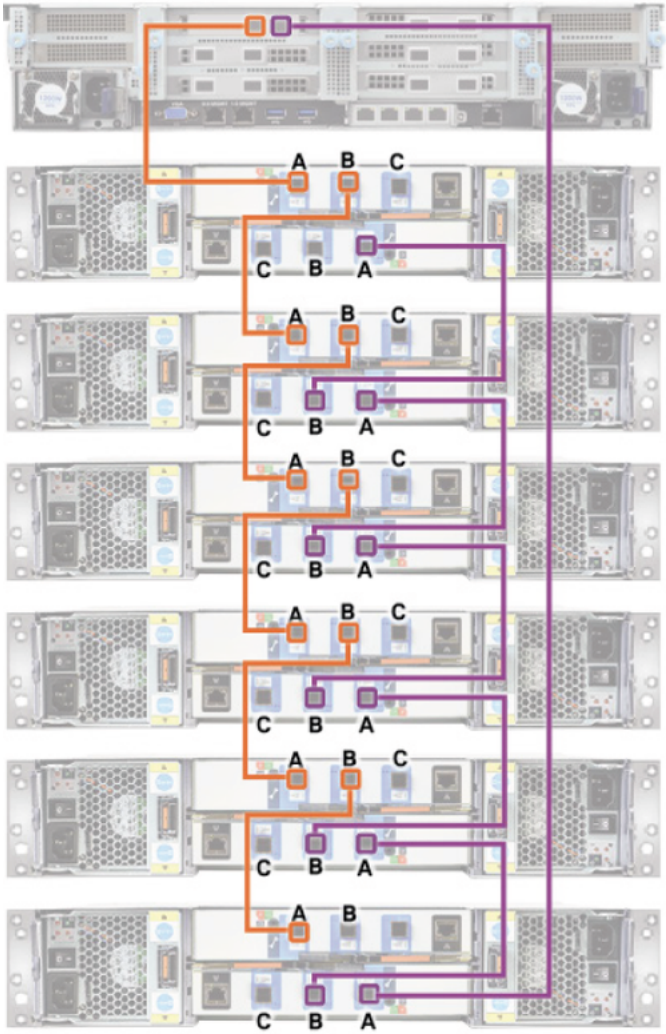
4 In a four-shelf configuration, verify that all cables are installed as shown.



5 In a five-shelf configuration, verify that all cables are installed as shown.



6 In a six-shelf configuration verify that all cables are installed as shown.



See “Connecting the network cables” on page 39.

See “Connecting the power cords” on page 40.

Chapter 4

Next steps after installation

This chapter includes the following topics:

Connecting the network cables

The networking ports are accessed on the rear panel of the device. The remote management port is for use by the Technical Support staff or by approved field service technicians.

The following picture shows the layout of the network ports. It includes the four 10 Gb Ethernet ports on the right.

The remote management (IPMI) port is located to the left of the 10 Gb Ethernet ports.

In a Flex appliance, by default, host0 is used to perform all the network management after the configuration is complete.

Once the initial configuration has been completed, you can connect host0 to an administrative network that does not provide any backup data transfer.

Note: You cannot bond the copper 10 GbE ports that are installed in the appliance chassis with optical ports on PCIe 10/25 GbE cards.

See "Connecting the power cords" on page 40.

Connecting the power cords

Note: Do **NOT** connect the compute node to the Power Distribution Unit in the rack. There are no external power switches for the compute node.

Each appliance and each storage shelf contains two AC power supplies. To ensure power redundancy, connect the power supplies on each component to separate AC power sources.

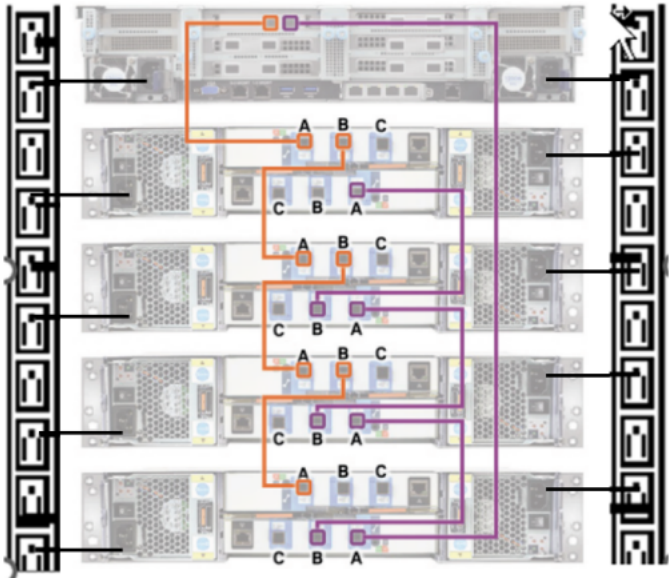
Caution: Do not turn on the power to any components while connecting the power cords. The components must be turned on in a specific sequence to ensure correct communication.

To connect the power cables

1. Verify that the AC power supply input for the appliance and for the storage shelf is within one of these ranges.
   - 100 - 127 VAC at 50/60 Hz
   - 200 - 240 VAC at 50/60 Hz
2. For each device, obtain two power cords that are appropriate for your region and equipment.

3 Connect one cable to one PDU strip.

4 Connect the other cable to the other PDU strip.



Turning on the hardware and verifying operation

The appliance and the storage shelves must be turned on in a specified order. If the hardware is not turned on correctly the appliance RAID controller may not recognize some storage units.

You must turn on the hardware in the following order:

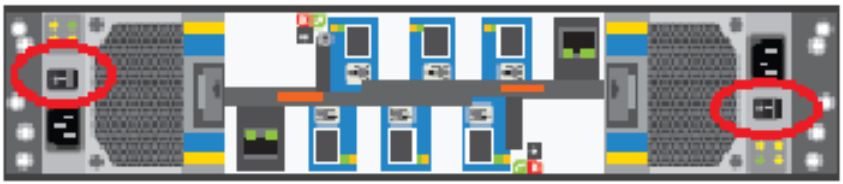
- Storage Shelf

  Note: If there are multiple Storage shelves, you are required to power on the last shelf in the chain first and work back toward the head unit.

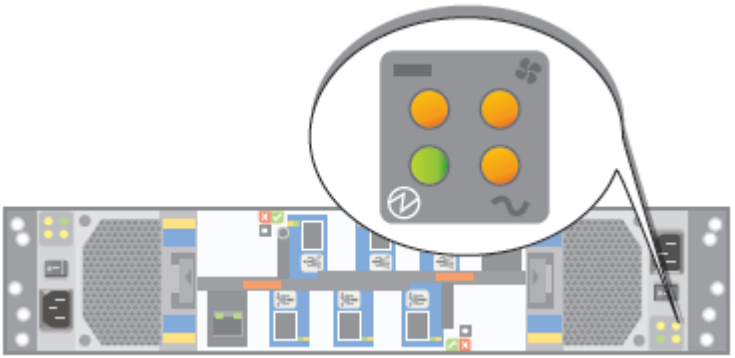
- Appliance

To turn on the storage shelves and the appliance

1. Start with the storage shelf that is farthest from the appliance.
2. Flip on the power switches on each power supply on the rear of the shelf.



3 Verify that the power LED on each power module is green.



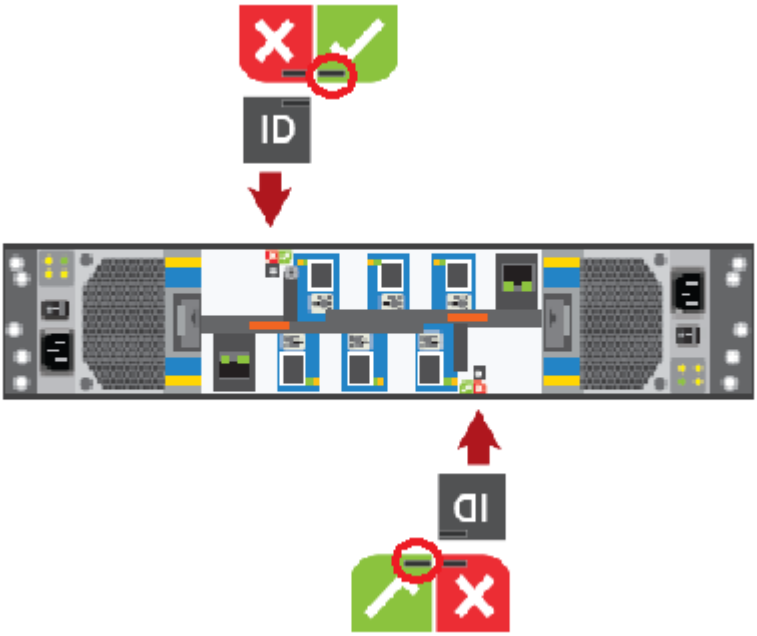
The LEDs are explained in the following table.

LED	Description
	Green = power module ok
	Amber = AC power fault
	Amber = Fan fault
	Amber = DC fault

The following table provides LED status details about the fans, AC and DC power, and the power cooling modules (PCMs).

Status	PCM Ok (Green)	Fan fault (Amber)	AC power fault (Amber)	DC power fault (Amber)
No AC power in either PCM	Off	Off	Off	Off
No AC power in a specific PCM	Off	Off	On	On
AC power present in a PCM	On	Off	Off	Off
PCM fan out of tolerance	On	Off	Off	On
PCM fault (over temp., over voltage, over current)	Off	On	On	On
PCM fan has failed	Off	On	On	On
Standby mode	Flashing	Off	Off	Off
PCM firmware download	Off	Flashing	Flashing	Flashing

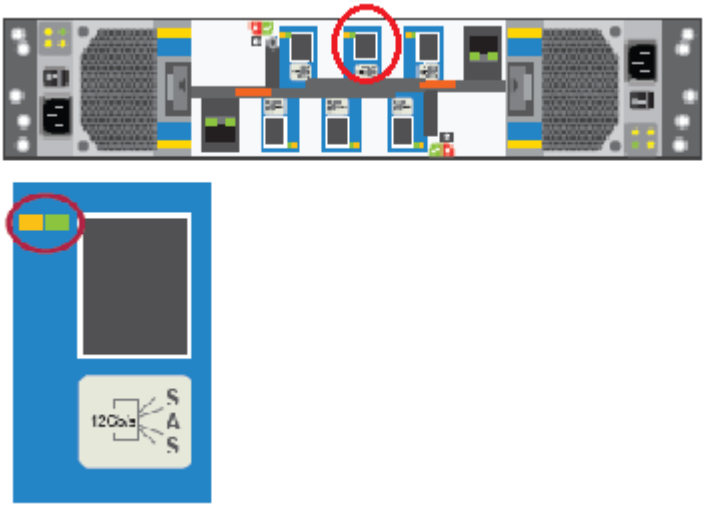
4 Locate the LEDs on each I/O module canister.



LED indications are as follows.

- The LED in the red area with the white X-mark indicates an I/O module canister fault when the LED is amber.
- The LED in the ID area is blue when each module is identified.
- The LED in the green area with a white checkmark is green when functions are normal.

5 Locate the SAS port LEDs.



Note: The illustration shows the LEDs for port B in the top I/O module. The LEDs for all six ports are the same.

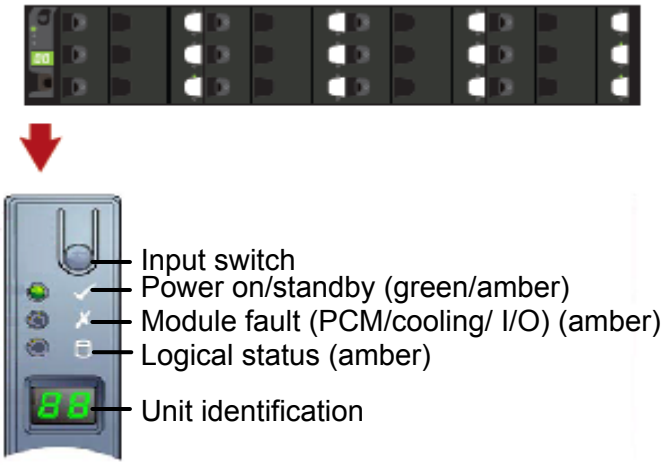
The Fault LED is farthest from each SAS port.

The Activity LED is closest to each SAS port.

The following table describes the SAS port LEDs. The combination of both LEDs provides the status.

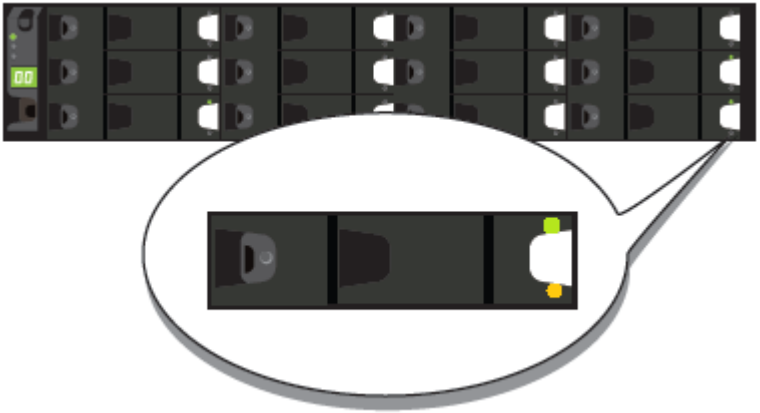
Status	Activity (green) LED	Fault (amber) LED
No cable present	Off	Off
Cable present, no activity	On	Off
Cable present, all links active	Blinking if one or more disk drives are active.	Off
Critical fault	Off	On
Non-critical fault	Blinking if one or more disk drives are active.	Blinking at a rate of one second on, and one second off.

6 Move to the front of the storage shelf.



- Verify that the Power on/standby LED is green.
- If the Power LED or the other two LEDs are amber, escalate the issue.
- The input switch is used to set the Unit identification (ID). The display is a seven-segment display. You can reset the ID number. The values “01” to “99” are valid. The value “00” is reserved.
  “00” is also the default value.
  - Press the input switch and hold it down for five seconds.
    The switch enters a programming mode. The digit on the left side of the display begins to flash first. The flashes appear on for 0.5 seconds and off for 0.5 seconds.
  - Press the input switch once to increment the number by one digit.
  - When your first required number is reached press the switch for five seconds.
    The first number is now locked.
  - Set the second number in the same manner that you set the first number.
    If you do not want to set a second number press and hold the input switch for five seconds.
    The number “0” displays.

7 Locate the LEDs on each disk drive carrier.



The following table describes the disk drive carrier LEDs. The combination of both LEDs provides the status.

Status	Activity (green) LED	Fault (amber) LED
No disk drive installed.	Off	Off
Drives are installed, turned on, and operational.	Blinks during I/O activity and during startup.	Off
Device identity.	On	Blinks at a rate of one second on and one second off.
Drive slot fault.	Off	On
Drive fault. Power control circuit fault.	On	On
Possible drive fault.	On	Blinks at a rate of one second on and one second off.

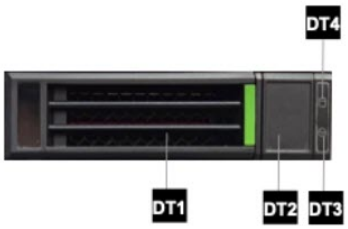
8 Repeat these steps for each storage shelf. Let each shelf initialize before you turn on the next shelf. Initialization should take 2 minutes to 3 minutes.

9 Verify that all connected storage shelves function correctly. Use the LED information in the procedure that explains how to turn on the storage shelves.

10 Connect the appliance to the Power Distribution Unit in the rack. The appliance will automatically turn on when the cables are connected to the PDU.

Note: Before you turn on the appliance, ensure that you have connected a standard video cable and keyboard to the appliance so that you can configure the remote management interface after the appliance is turned on.

11 Verify that the bottom LED in all 12 disk drive slots are green.



The following table provides details of the appliance disk drive LEDs.

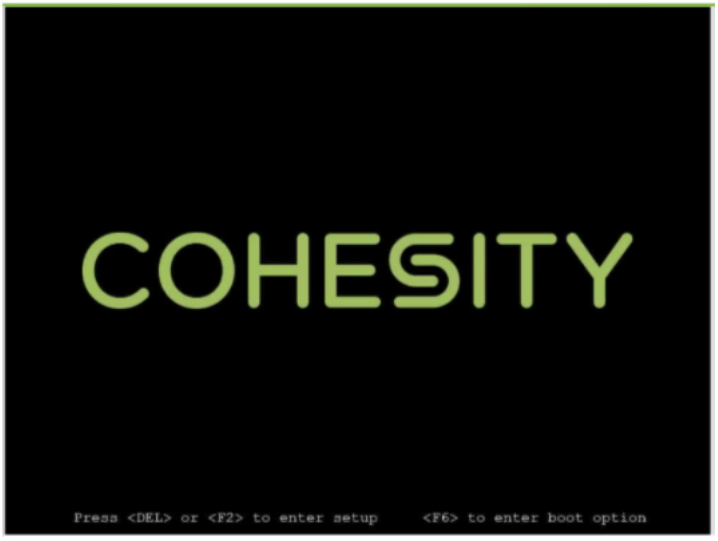
Item	Element	Description
DT1	Handle	Tray Handle
DT2	Lock	Pushing the button will allow the tray handle to open
DT3	LED	Status LED (Amber)
DT4	LED	Activity LED (Blue)

Configuring the Cohesity Node Explorer from a Flex Appliance

NetBackup Flex Appliance release does not support configuring the IPMI port through the Flex Appliance Shell.

To configure the dedicated Cohesity Node Explorer (IPMI) LAN settings in the BIOS

1. Connect a standard video cable between the VGA (Video Graphics Array) port and the computer monitor
2. Connect a keyboard to a USB port at the rear of the Flex 5270 appliance.
3. Ensure that the power cords are connected.
4. The prompt about accessing the BIOS at the beginning of the startup cycle appears. Wait until the Cohesity logo shows up and press **F2** to enter the initial BIOS setup screen. The initial setup dialog box appears and prompts you.

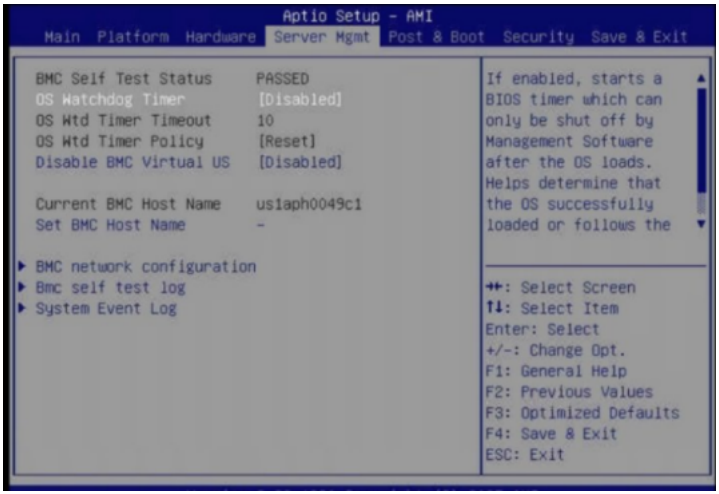


Warning: When you are in the BIOS, do not perform any other steps other than the ones mentioned in this section.

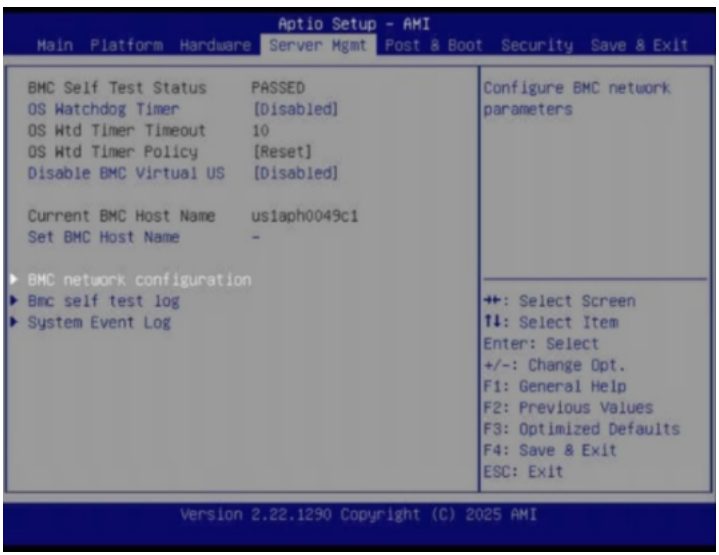
Note: If you miss the initial setup dialog box prompt in step 4, the appliance shell appears. Shut down and restart the appliance and try accessing the BIOS menu again.

The **Setup Menu** page appears and the **Main** menu option should be highlighted.

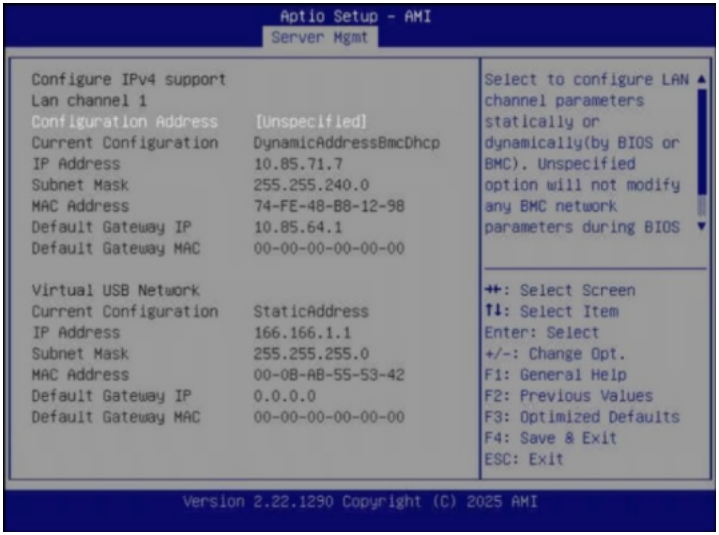
5 Use the right arrow key on the keyboard and navigate to the **Server Management** menu option.



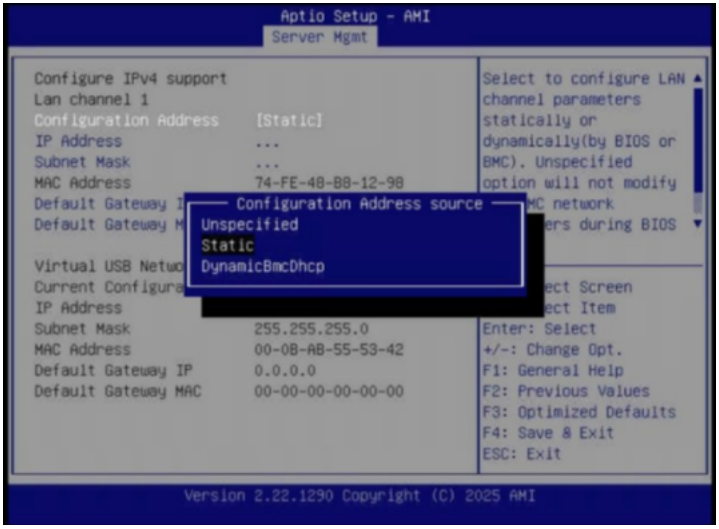
6 Press the down arrow key on the keyboard to navigate to **BMC network configuration**. Press **Enter**.



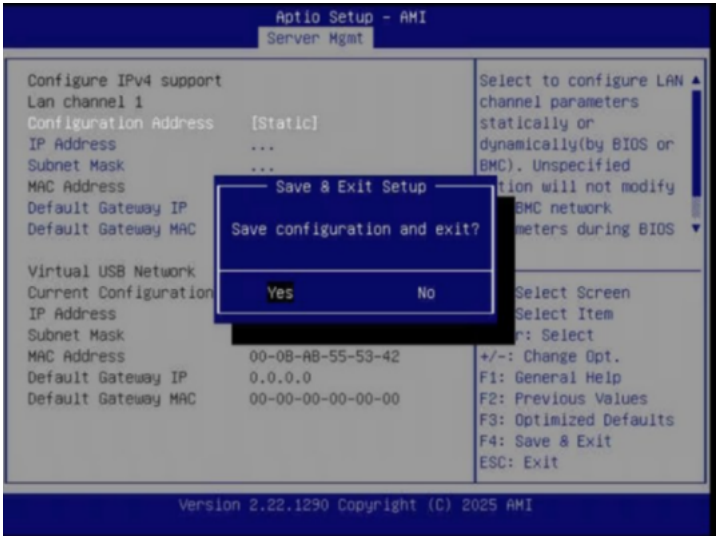
7 The **BMC network configuration** options screen appears.



8 Press the enter key on the keyboard to select the **LAN channel 1 configuration address**. Select your requirement. Static allows the information supplied by the customer to fill in the following fields: IP address, Subnet mask, Gateway IP.



9 To save your BIOS changes, press **F4**.



10 Select **Yes** and press **Enter** to save and exit. The appliance restarts itself.

Configuring the Cohesity Node Explorer using laptop

You can configure the dedicated Cohesity Node Explorer (IPMI) LAN settings using a laptop.

To configure the dedicated Cohesity Node Explorer (IPMI) LAN settings using a laptop

1 The IPMI interface of the appliance is pre-configured with the IP address 192.168.0.10 and netmask 255.255.255.0 in the factory.

2 To gain access to the Cohesity Node Explorer for initial configuration, directly connect a RJ45 ethernet cable between the IPMI port and the ethernet port of a laptop computer.

3 Configure the network interface of the laptop computer with a static IP address in the default network segment used by IPMI.

For example, use IP address 192.168.0.1 and netmask 255.255.255.0.

4 Ensure that the power cords to the appliance are connected.

5 Use the following steps to access the Cohesity Node Explorer:

- Open a supported web browser on a system that has a network connection to the appliance. The following browsers are supported:
  - Google Chrome version 94 or later recommended (minimum version 80 or later)
  - Mozilla Firefox version 93 or later recommended (minimum version 80 or later)
- Enter the address https://192.168.0.10 and confirm the certificate warning displayed.
- Log in to the Cohesity Node Explorer with the following default credentials:
  - Username: sysadmin
  - Password: P@ssw0rd
- Change the default IPv4 and/or IPv6 configuration as follows:
  - Navigate to **Network > LAN Channels > General Settings**.
  - On **LAN Channel**, select **Channel-1**.
  - In **IPv4 Configuration of Channel-1** area, select your desired IP source as **Static** or **Dynamic**.
  - If you selected **Static**, provide your IP Address, Subnet Mask, and Default Gateway.
  - Click **Save** to apply the new network configuration.
- In **General Settings** area, provide your DNS primary and secondary name server. Click **Save** to apply the new network configuration.

6 Connect the IPMI port of the appliance to the network switch and re-establish access to the Cohesity Node Explorer using the static IP configured or dynamic IP obtained from DHCP.

Accessing and using the Cohesity Node Explorer

The IPMI web interface is known as Cohesity Node Explorer. You can use Cohesity Node Explorer to log on to the appliance shell.

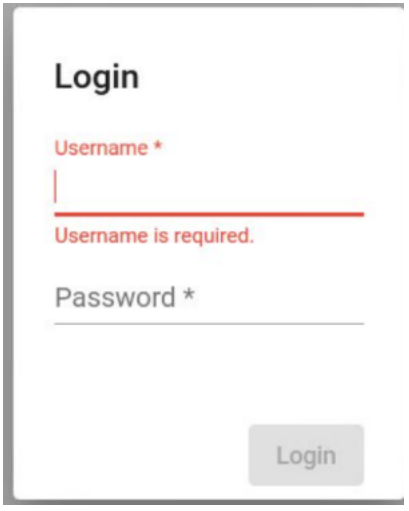
Before you use the Cohesity Node Explorer, the following prerequisites must be met:

- The remote management IPMI port must first be configured.
- At least one power cable must be connected to a functioning power source.
- At least one user must be enabled to use the LAN channel(s).

Note: A default user is configured in the system. The default user name is **sysadmin**. The default password is **P@ssw0rd**, where 0 is the number zero.

To access and use the Cohesity Node Explorer from a remote computer

1. Log on to a remote computer in the network and open a supported Windows browser.
2. Enter the remote management (IPMI) port IP address (https://) that is assigned to the remote management port. The following page appears:



3. Enter your login credentials. The default user name is **sysadmin**. The default password is **P@ssw0rd**, where **0** is the number zero.

   Click **Login**.

4 The **Remote Control** section located at the left of the page provides selections to remotely monitor and control the server.

To launch the Flex Appliance Shell, click **Launch iKVM** to launch the Appliance shell. A new window opens that enables you to remotely monitor and control the appliance.

Note: Warnings and notices appear the first time the connection is made. Follow the directions to complete the connection. If warnings and notices do not resolve, try clearing cookies and site data to refresh the web information.

---

5 You can now access and log on to the Flex Appliance Shell.

By default, the user name `hostadmin` has the password, `P@ssw0rd` where 0 is the number zero.

Type "?" and then enter the "system" command to actually see the list of available commands.

Appendix A

Adding one or more storage shelves to an operating appliance that does not have any storage shelves

This appendix includes the following topics:

Overview

Several procedures are involved in the process of adding one or more storage shelves to an existing appliance that does not have any storage shelves. New components inside the chassis are required as described in this appendix.

An appliance that does not have storage shelves needs additional components to support the external storage shelves.

The hardware must be turned off before you add any storage shelves.

The 5270 Expansion Storage Kit contains the following required hardware components:

- Four, 64GB, Dual in-line memory modules (DIMMs)

The procedures in this appendix explains the tasks which are required to be performed to add one or more storage shelve.

These tasks must be performed in the order that is provided.

- Preparing the appliance
  See “Preparing the appliance” on page 58.
- Removing the appliance cover
- Installing the Expansion Storage Kit components into the appliance
  See “Installing the Expansion Storage Kit components” on page 60.
- Replacing the appliance cover
- Installing the storage shelves rack rails
  See “Installing the storage shelf rack rails” on page 25.
- Installing one or more storage shelves into a rack
  See “Installing the storage shelf into a rack” on page 27.
- Installing the appliance into the rack
  See “Installing the appliance into the rack” on page 28.
- Understanding appliance and storage shelf connections
  See “Understanding appliance and storage shelf connections” on page 29.
- Connecting the appliance to the storage shelves
  See “Connecting the storage shelves to the appliance” on page 65.
- Connecting the network cables
  See “Connecting the network cables” on page 39.
- Connecting the power cords
  See “Connecting the power cords” on page 40.
- Turning on the appliance and verifying operation
  See “Turning on the hardware and verifying operation” on page 41.

Preparing the appliance

Best practices recommend removing the appliance from the rack to access the inside of the chassis. Alternatively you can either pull out the appliance on its rails. Be sure that the appliance and rack are stable.

Turn off the appliance properly and disconnect it from AC power sources. A soft shutdown informs the appliance operating system to stop and close all active processes. After the operating system stops all of the processes, the appliance turns itself off.

Warning: Never turn off the appliance by using the power button on the control panel. Using the power button to turn off the appliance can cause data loss or corruption.

To perform a soft shutdown of the appliance

1. Log on to the Flex Appliance Shell Menu.
2. Enter `system shutdown`.
3. Verify that the appliance is completely turned off. All LEDs are off. Fans are not running.
4. Remove the power cords that connect the appliance to the rack Power Distribution Units (PDUs).

The following procedure explains the process of removing the appliance from the rack.

To remove the appliance from the rack

1. Verify that the appliance is off and that the power cords have been disconnected from the power sources.
2. Remove the front bezel of the appliance.
3. Locate and unscrew the two screws behind the flap on the front panel that secure the appliance to the rack.
4. Slide the chassis fully forward out of the rack until the rail guides lock.
5. With the rails fully extended and locked, locate the blue tabs at the front of the rail assemblies.
6. With a person on each side, place a hand underneath the unit.
7. Pull the silver tabs back to release the front studs in the chassis rails.
8. Lift the front end to release the front studs from the cutouts in the guide rails.
9. Place your free hands under the back of the chassis for support.
10. Pull the appliance straight out of the rack.
11. Lift the appliance and place it on a secure surface.

Installing the Expansion Storage Kit components

This section explains the process of installing the components of the Expansion Storage Kit into the appliance.

The expansion storage kit contains eight, 32Gb, Dual in-line memory modules (DIMMs)

Caution: Cohesity service personnel must perform all tasks that involve the inside of the appliance chassis.

To replace the DIMMs

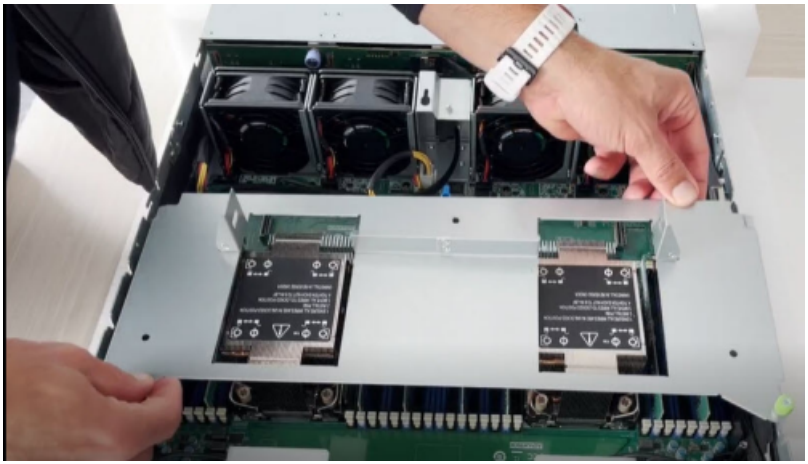
1. Put on a grounded ESD-compliant wrist strap or take other ESD-preventive measures.

   Note: The static discharged by human bodies can damage static-sensitive components on the boards. When installing and maintaining the equipment, you must observe appropriate electrostatic safety precautions to prevent personnel injuries or device damage.

   ---

2. Remove the plastic air duct connecting the fans to the metal air shroud covering the DIMM slots:
   - Disengage the plastic tabs on either side of the plastic air duct.
   - Gently lift the 2 piece plastic air duct straight up and remove it from the system.

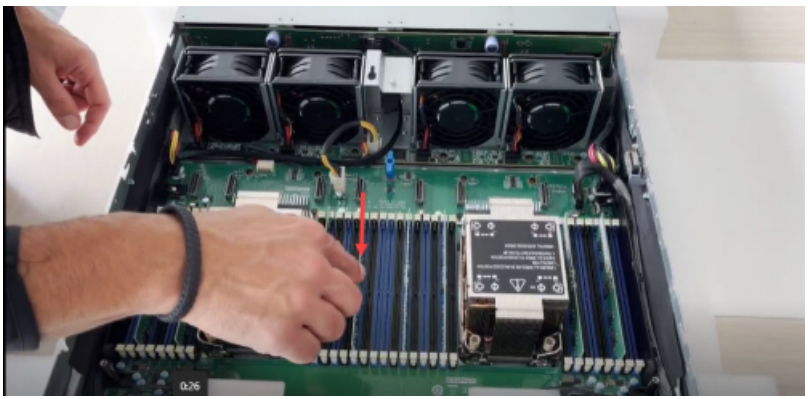
3 Remove the metal air shroud covering the DIMM slots by unscrewing the two screws and gently lift it straight up from the system.



4 Locate the DIMM slots next to the CPUs on the server board. The DIMMs on the appliance server board are located near the CPUs.

Each DIMM slot has a silkscreen identifier on the board that consists of a two-digit alphanumeric number. The number indicates the channel and slot for which the DIMM provides support. Slot identifiers have the format A1, A2, B1, B2, C1, C2, etc., where the letter indicates the channel and the number indicates the slot. Look for the identifier on the mainboard near the socket.

The following diagram shows the configuration of the DIMM sockets as viewed from the front of the appliance. The fans are located between the DIMMs and the front of the appliance.

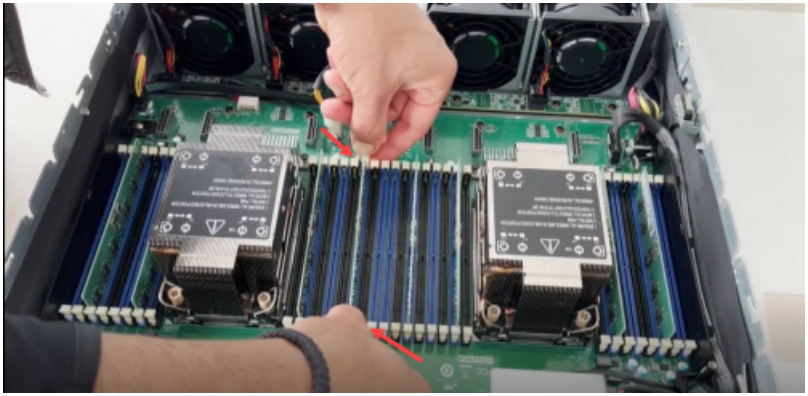


The following table shows the configuration of the DIMMs.

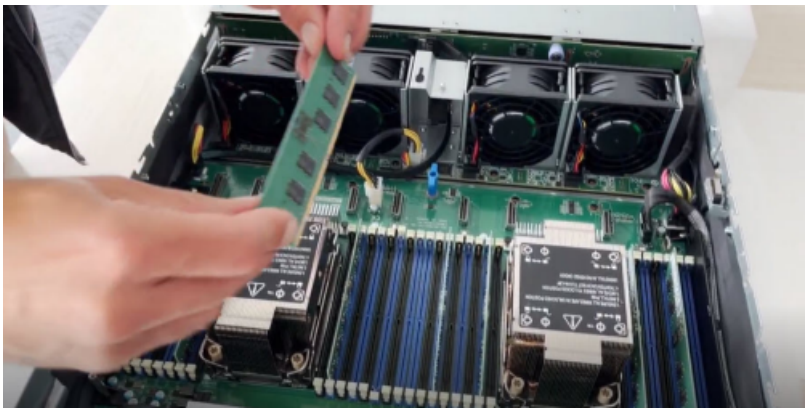
	CPU0																CPU1																
	DIMM Capacity (GB) Per DIMM																DIMM Capacity (GB) Per DIMM																
DIMM slots as viewed from front of appliance	H1	H2	G1	G2	F1	F2	E1	E2	CPU 0	A2	A1	B2	B1	C2	C1	D2	D1	P1	P2	o1	o2	N1	N2	M1	M2	CPU 1	I2	I1	J2	J1	K2	K1	L2	L1	Total Memory (GB)
5270 server only			16							16										16							16								64
5270 + storage shelf			32				32			32					32					32			32				32				32				256
5270 ≥ 5 shelves	32		32		32		32			32		32		32		32		32		32		32		32			32		32		32		32		512
5270 + 6, 20TB			64		64		64			64				64		64				64		64		64			64				64		64		768

5 Locate the DIMM chip or DIMM chips that you want to remove.

6 Open the retaining clips at each end of the socket.



7 Hold the DIMM by the edges and lift it from the socket.



Caution: Always hold the edges of the DIMM. Do not touch the front or the back of the DIMMs.

8 Place the DIMM in an ESD-protective bag.

Caution: If you must place more than one DIMM in an ESD-protective bag, be sure that the edge connectors do not touch.

9 Repeat these steps for each DIMM that you need to remove.

10 Install the replacement DIMM as follows:

- Make sure that the retaining clips on the socket in which you want to install the DIMM are open.
- Locate the gap in the connector edge of the DIMM as shown in the image below.
- Locate the key in the DIMM socket, and orient the DIMM over the socket so that the notch in the bottom edge of the card and the key in the socket align.

Caution: Always hold the edges of the DIMM. Do not touch the front or the back of the DIMM chips. Do not touch the front or the back of the DIMM chips.

- Align the edges of the DIMM memory module with the grooves in the posts at both ends of the socket.
- Insert the DIMM memory module in the socket grooves and push down evenly and firmly until the retaining clips snap into place. Make sure that the memory module is firmly in place.

11 Repeat step for each DIMM that you need to replace.

12 Check each DIMM to make sure that it is seated in the slot properly.

13 Replace the metal air shroud and plastic air duct as follows:

- Ensure that all cables are clear of the air shroud and air duct keep out area on the base of the chassis.
- Align the two retaining screws on the metal air shroud.
- Lower the air metal air shroud into the chassis and screw in retaining screws.
- Align the plastic air duct.
- Lower the plastic air duct into the chassis ensuring the plastic retaining tabs are re-engaged.

Turning off the existing hardware

You must turn off the existing system before you turn on any new Storage shelves. Be sure to perform these steps in the order that they are presented.

To turn off the existing hardware

1. Perform a soft shutdown of the appliance.
   - From the Flex Appliance Shell, enter `system shutdown`.
   - Verify that the appliance is completely turned off. All LEDs are off and fans are not running.
2. After the appliance is turned off you must manually turn off the storage shelves.
   - Locate the on/off switches on the two power supplies on the rear of the storage shelves.
   - Switch off the storage shelves one by one, starting with the one that is closest to the appliance.

Connecting the storage shelves to the appliance

Select one of the following sections that describe the complete connection of one, two, three, four, five or six shelves.

See “Connecting one storage shelf to an appliance” on page 66.

See “Connecting two storage shelves to an appliance” on page 68.

See “Connecting three storage shelves to an appliance” on page 70.

See “Connecting four storage shelves to an appliance” on page 72.

See “Connecting the fifth storage shelf to an appliance” on page 75.

See “Connecting the sixth storage shelf to an appliance” on page 77.

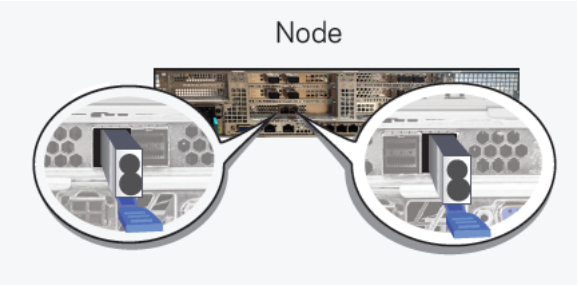
Note: The appliance server needs to be powered off when adding any storage shelves to an existing appliance installation.

Connecting one storage shelf to an appliance

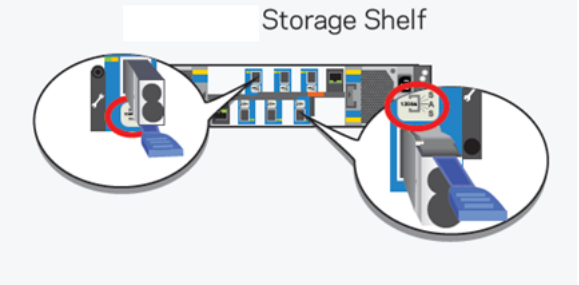
Note: The cables in the following diagrams are shown in different colors for demonstration purposes only. The actual cables are black.

Note: The orientation of the blue tabs on the ends of the SAS-3 cables is important.

In the appliance, the blue tabs on each SAS-3 connector must face down.

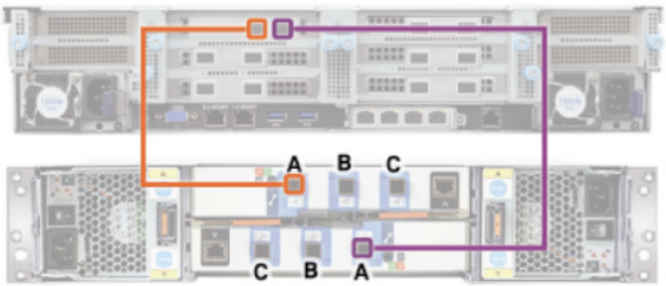


In the storage shelves, the blue tabs in the SAS-3 connectors should point to the 12 Gb/s SAS label near each port. The blue tabs on the SAS-3 connectors inserted into the top row must face down. The blue tabs of the connectors inserted into the bottom row must face up.



To connect one storage shelf to the appliance

1. Connect a SAS-3 cable to the left RAID port in the appliance.
2. Connect the other end of the cable to port A in the top I/O module of the storage shelf.
3. Attach another SAS-3 cable between port A on the bottom I/O module and the right port on the appliance RAID card.



Next, connect network and power cables. Turn on the storage shelves and the appliance per the required sequence. Verify that all units function correctly.

See “Connecting the network cables” on page 39.

See “Connecting the power cords” on page 40.

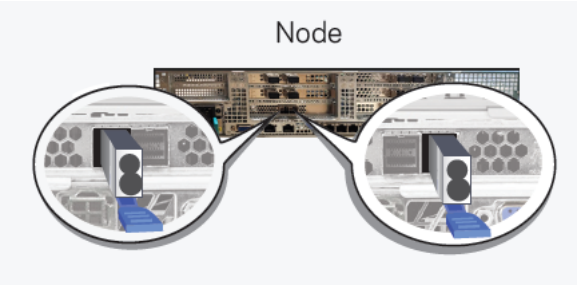
See “Turning on the hardware and verifying operation” on page 41.

Connecting two storage shelves to an appliance

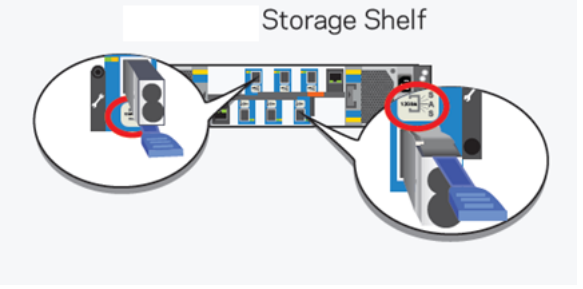
Note: The cables in the following diagrams are shown in different colors for demonstration purposes only. The actual cables are black.

Note: The orientation of the blue tabs on the ends of the SAS-3 cables is important.

In the appliance, the blue tabs on each SAS-3 connector must face down.



In the storage shelves, the blue tabs in the SAS-3 connectors should point to the 12 Gb/s SAS label near each port. The blue tabs on the SAS-3 connectors inserted into the top row must face down. The blue tabs of the connectors inserted into the bottom row must face up.

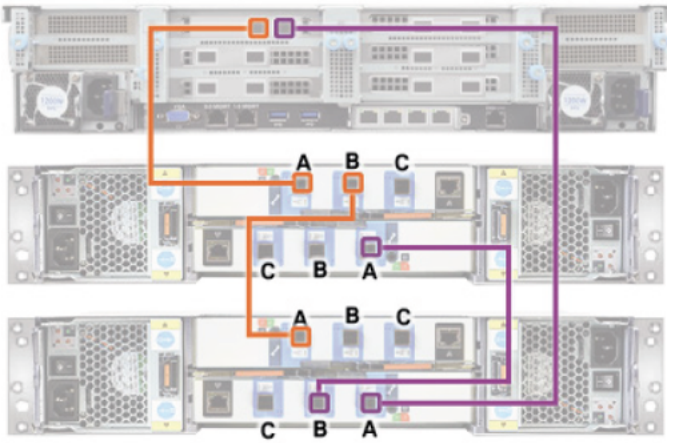


To connect two storage shelves to the appliance

1. Connect a SAS-3 cable to the left RAID port in the appliance.
2. Connect the other end of this cable to port A in the top I/O module of the storage shelf.
3. Connect another SAS-3 cable to port B in the top I/O module of the first storage shelf. Connect the other end of this cable to port A in the top I/O module in the second storage shelf.
4. In the bottom I/O module in the second shelf, connect a SAS-3 cable to port B.
5. In the bottom I/O module of the first shelf, connect the other end of the cable to port A.

6 In the bottom I/O module of the second shelf, connect another SAS-3 cable to port A.

7 Connect the other end of this cable to the right port in the RAID card in the appliance.



Next, connect network and power cables. Turn on the storage shelves and the appliance per the required sequence. Verify that all units function correctly.

See “Connecting the network cables” on page 39.

See “Connecting the power cords” on page 40.

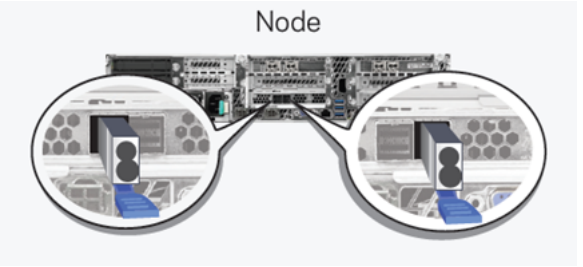
See “Turning on the hardware and verifying operation” on page 41.

Connecting three storage shelves to an appliance

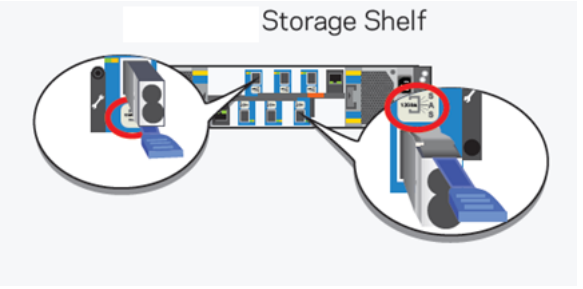
Note: The cables in the following diagrams are shown in different colors for demonstration purposes only. The actual cables are black.

Note: The orientation of the blue tabs on the ends of the SAS-3 cables is important.

In the appliance, the blue tabs on each SAS-3 connector must face down.



In the storage shelves, the blue tabs in the SAS-3 connectors should point to the 12 Gb/s SAS label near each port. The blue tabs on the SAS-3 connectors inserted into the top row must face down. The blue tabs of the connectors inserted into the bottom row must face up.



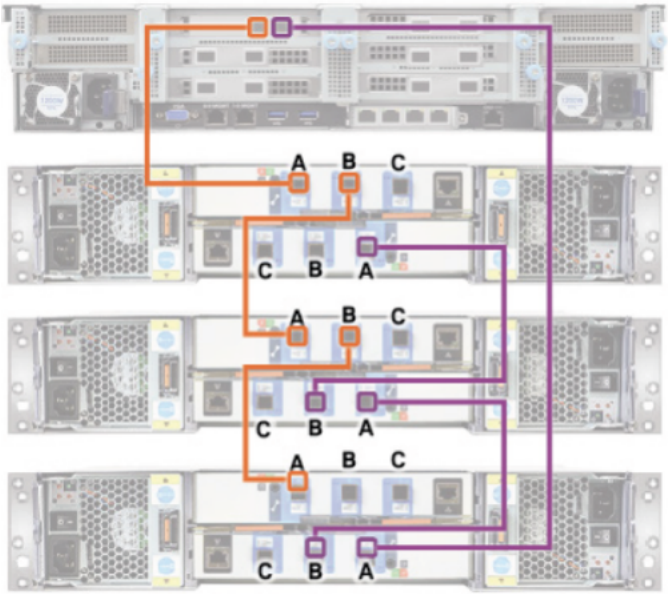
To connect three storage shelves to an appliance

1. Connect a SAS-3 cable to the left RAID port in the appliance.
2. Connect the other end of this cable to port A in the top I/O module of the storage shelf.
3. Connect another SAS-3 cable to port B in the top I/O module of the first storage shelf. Connect the other end of the cable to port A in the top I/O module in the second storage shelf.
4. Connect a SAS-3 cable to port B of the top I/O module in the second shelf. Connect the other end of the cable to port A in the top I/O module in the third shelf.
5. Connect a SAS-3 cable to port A of the bottom I/O module in the third shelf.

6 Connect the other end of the cable to the right port in the appliance RAID PCIe card.

7 Connect a SAS-3 cable from port B of the bottom I/O module in the third shelf to port A in the bottom I/O module in the second shelf.

8 Connect a SAS-3 cable to port B of the bottom I/O module in the second shelf. Connect the other end of the cable to port A on the bottom I/O module in the first shelf.



Next, connect network and power cables. Turn on the storage shelves and the appliance per the required sequence. Verify that all units function correctly.

See "Connecting the network cables" on page 39.

See "Connecting the power cords" on page 40.

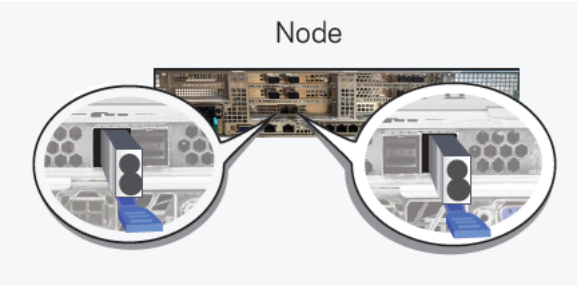
See "Turning on the hardware and verifying operation" on page 41.

Connecting four storage shelves to an appliance

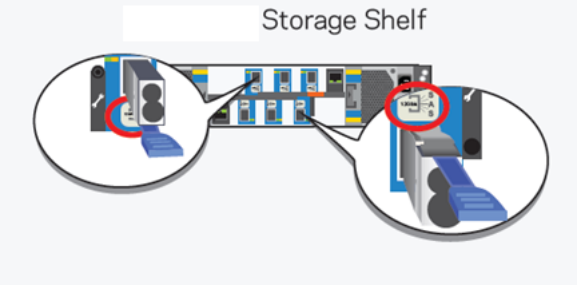
Note: The cables in the following diagrams are shown in different colors for demonstration purposes only. The actual cables are black.

Note: The orientation of the blue tabs on the ends of the SAS-3 cables is important.

In the appliance, the blue tabs on each SAS-3 connector must face down.



In the storage shelves, the blue tabs in the SAS-3 connectors should point to the 12 Gb/s SAS label near each port. The blue tabs on the SAS-3 connectors inserted into the top row must face down. The blue tabs of the connectors inserted into the bottom row must face up.



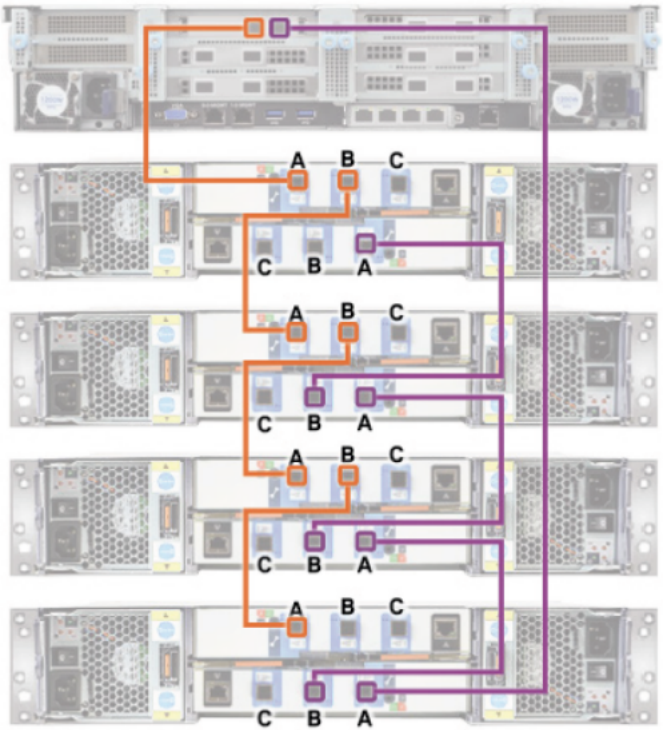
To connect four storage shelves to an appliance

1. Connect a SAS-3 cable to the left port in the appliance RAID PCIe card.
2. Connect the other end of the SAS-3 cable to port A in the top I/O module of the first storage shelf.
3. Connect SAS-3 cables between the remaining four storage shelves.
4. Connect a SAS-3 connector to port A in the bottom of the I/O module in the fourth shelf.
5. Connect the other end of the cable to the right port in the appliance RAID PCIe card.

6 Connect a SAS-3 cable to port B in the bottom I/O module of the fourth shelf. Connect the other end of the cable to port A in the bottom I/O module of the third shelf.

7 Connect port B in the bottom I/O module of the third shelf to port A in the bottom I/O module in the second shelf.

8 Connect port B in the bottom I/O module of the second shelf to port A in the bottom I/O module in the first shelf.



Next, connect network and power cables. Turn on the storage shelves and the appliance per the required sequence. Verify that all units function correctly.

See “Connecting the network cables” on page 39.

See “Connecting the power cords” on page 40.

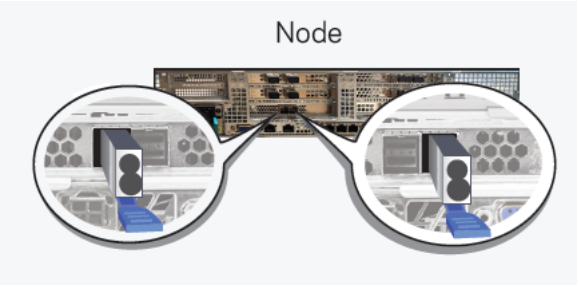
See “Turning on the hardware and verifying operation” on page 41.

Connecting the fifth storage shelf to an appliance

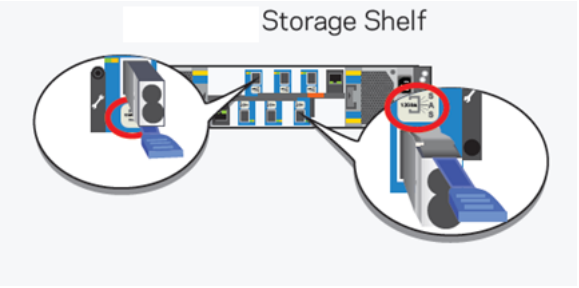
Note: The cables in the following diagrams are shown in different colors for demonstration purposes only. The actual cables are black.

Note: The orientation of the blue tabs on the ends of the SAS-3 cables is important.

In the appliance, the blue tabs on each SAS-3 connector must face down.

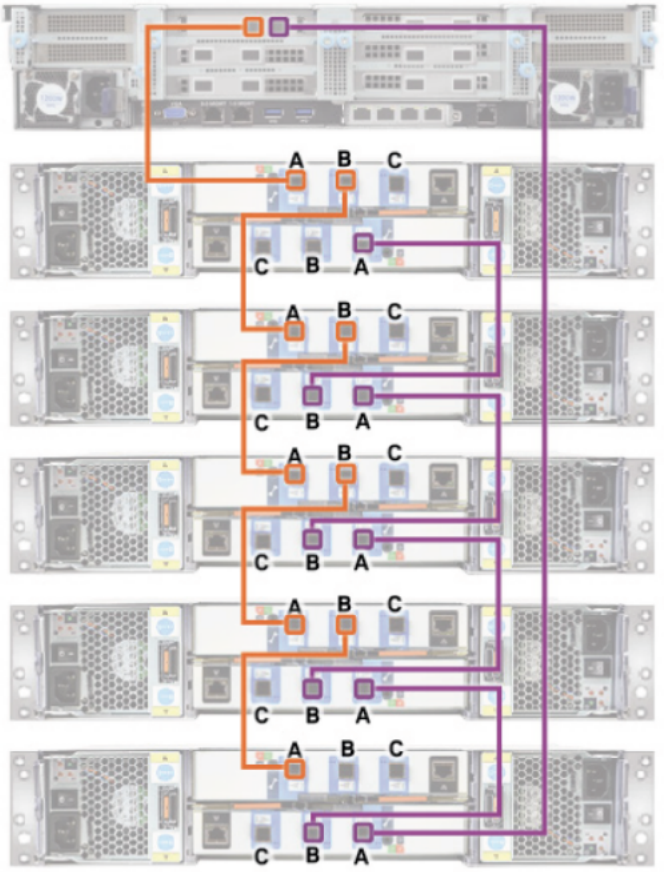


In the storage shelves, the blue tabs in the SAS-3 connectors should point to the 12 Gb/s SAS label near each port. The blue tabs on the SAS-3 connectors inserted into the top row must face down. The blue tabs of the connectors inserted into the bottom row must face up.



To connect the fifth storage shelves to an appliance

1. Disconnect the SAS-3 cable from port A on the bottom I/O module on the fourth storage shelf and connect the cable to port A on the bottom I/O module of the fifth shelf.
2. Connect one SAS-3 cable to port B in the top I/O module of the fourth storage shelf. Connect the other end of this cable to port A in the top I/O module in the fifth storage shelf.
3. Connect one SAS-3 cable to port A in the bottom I/O module of the fourth storage shelf. Connect the other end of this cable to port B in the bottom I/O module in the fifth storage shelf.



Next, connect network and power cables. Turn on the storage shelves and the appliance per the required sequence. Verify that all units function correctly.

See “Connecting the network cables” on page 39.

See “Connecting the power cords” on page 40.

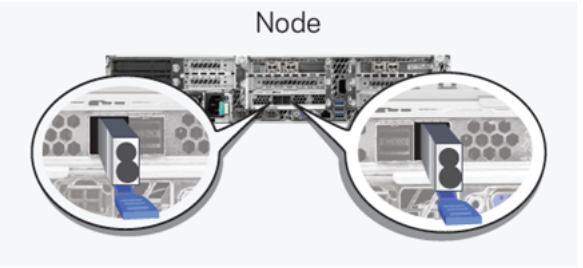
See “Turning on the hardware and verifying operation” on page 41.

Connecting the sixth storage shelf to an appliance

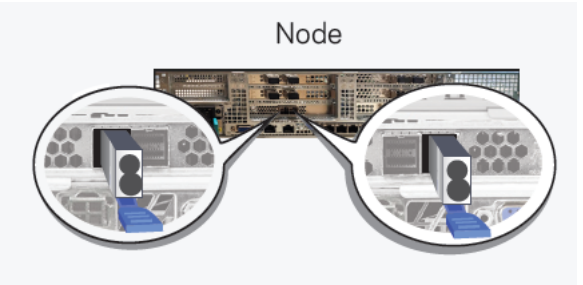
Note: The cables in the following diagrams are shown in different colors for demonstration purposes only. The actual cables are black.

Note: The orientation of the blue tabs on the ends of the SAS-3 cables is important.

In the appliance, the blue tabs on each SAS-3 connector must face down.



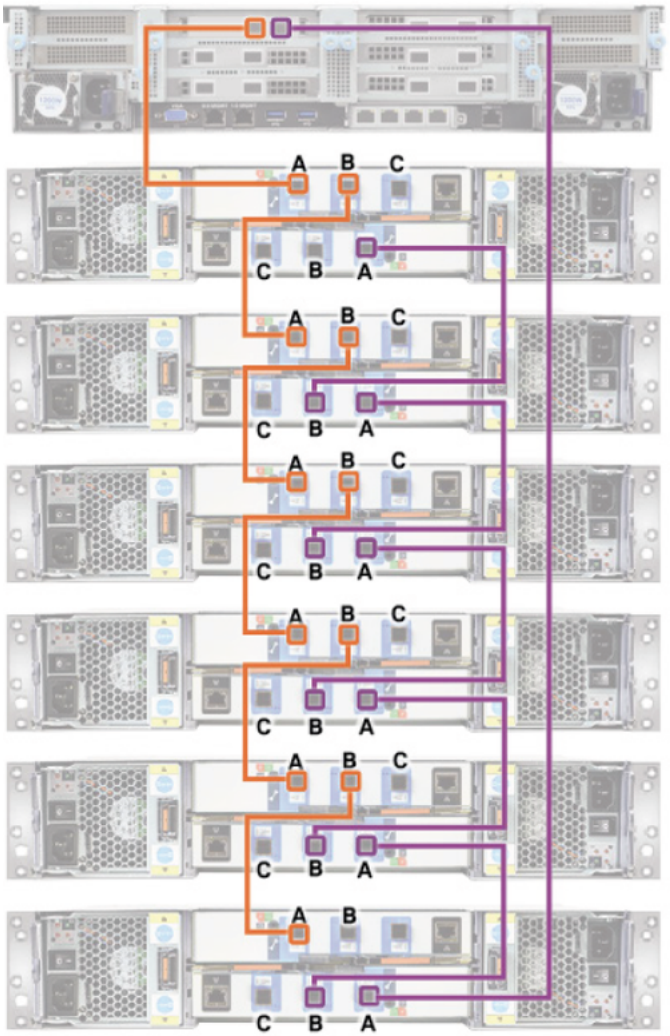
In the storage shelves, the blue tabs in the SAS-3 connectors should point to the 12 Gb/s SAS label near each port. The blue tabs on the SAS-3 connectors inserted into the top row must face down. The blue tabs of the connectors inserted into the bottom row must face up.



To connect the sixth storage shelves to an appliance

1. Disconnect the SAS-3 cable from port A on the bottom I/O module on the fifth storage shelf and connect the cable to port A on the bottom I/O module of the sixth shelf.
2. Connect one SAS-3 cable to port B in the top I/O module of the fifth storage shelf. Connect the other end of this cable to port A in the top I/O module in the sixth storage shelf.

3 Connect one SAS-3 cable to port A in the bottom I/O module of the fifth storage shelf. Connect the other end of this cable to port B in the bottom I/O module in the sixth storage shelf.



Next, connect network and power cables. Turn on the storage shelves and the appliance per the required sequence. Verify that all units function correctly.

See “Connecting the network cables” on page 39.

See “Connecting the power cords” on page 40.

See “Turning on the hardware and verifying operation” on page 41.

Appendix B

Adding storage shelves to an operating appliance that has at least one storage shelf attached

This appendix includes the following topics:

Overview

The 5270 Appliance operates with up to six external storage shelves. If your appliance has at least one storage shelf that is connected and running properly you can add more shelves for a total of six shelves.

The hardware must be turned off before you add any storage shelves.

Existing 5270 Appliances with internal storage capacities of 9.1TiB and 36.4TiB support up to six Cohesity 2U12 Storage Shelves.

Additional storage shelf scenarios

You can have up to six storage shelves with the 5270 Appliance. You may already have storage shelves connected to your appliance. The following options are available.

Note: When adding a fifth or sixth storage shelf, an additional storage expansion kit is required. This adds up to a total of 512GB memory.

- If you already have one storage shelf you can add one to five shelves.
- If you already have two storage shelves you can add one to four shelves.
- If you already have three storage shelves you can add one to three shelves.
- If you already have four storage shelves you can add one or two shelves.
- If you already have five storage shelves you can add one shelf.

If you already have six storage shelves you cannot add any more shelves at this time.

Note: The appliance server needs to be powered off when adding any storage shelves to an existing appliance installation.

Turning off the existing hardware

You must turn off the existing system before you turn on any new Storage shelves. Be sure to perform these steps in the order that they are presented.

To turn off the existing hardware

1. Perform a soft shutdown of the appliance.
   - From the Flex Appliance Shell, enter `system shutdown`.
   - Verify that the appliance is completely turned off. All LEDs are off and fans are not running.
2. After the appliance is turned off you must manually turn off the storage shelves.
   - Locate the on/off switches on the two power supplies on the rear of the storage shelves.
   - Switch off the storage shelves one by one, starting with the one that is closest to the appliance.

Recabling to connect additional storage shelves

When storage shelves are added to an appliance that already has at least one storage shelf you need to reroute one existing cable connection. You also need to install the new cables that ship with the additional storage shelf or shelves. Each storage shelf ships with two 2-meter SAS-3 cables.

The following sections provide cable instructions for an appliance and a total of four storage shelves. The instructions are the same for five or six storage shelves.

Note: The cables in the following diagrams are shown in different colors for demonstration purposes only. The actual cables are black.

A green box outlines the storage shelves that are added to the existing devices.

See "Connecting additional shelves to an appliance that already has one operating shelf" on page 83.

See "Connecting additional shelves to an appliance that already has two operating shelf" on page 85.

See "Connecting additional shelves to an appliance that already has three operating shelf" on page 86.

Refer to the following section to add the additional disk space.

See "Adding the disk space of an Expansion Storage Shelf from the Flex Appliance Console" on page 88.

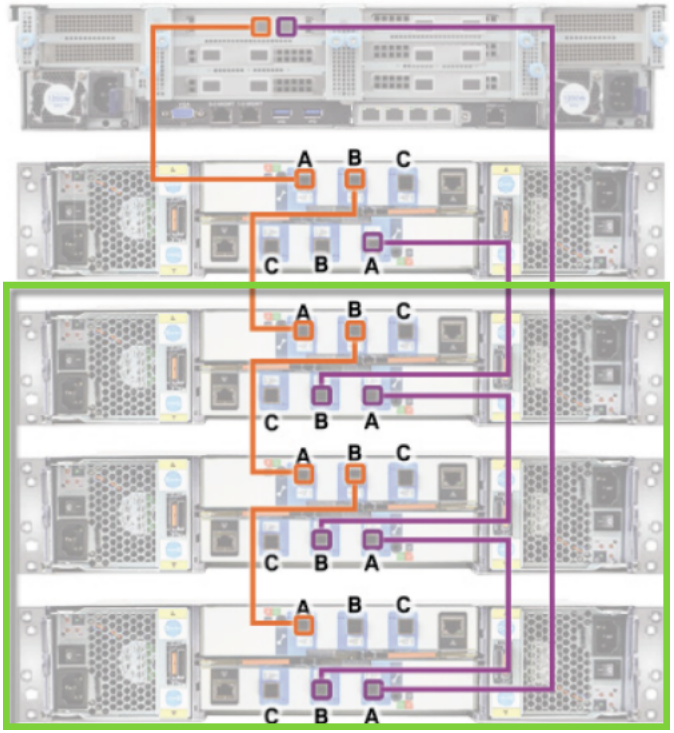
Connecting additional shelves to an appliance that already has one operating shelf

Before connecting additional shelves, ensure that orientation of the blue tabs are correct.

See "Understanding appliance and storage shelf connections" on page 29.

To connect additional shelves to an appliance that already has one operating shelf

1. Remove and reconnect the SAS-3 cables to the correct I/O module ports as shown in the figure. Use the two new SAS-3 cables that ship with each storage shelf.



2. Connect power cords between the new storage shelves and separate Power Distribution Units (PDUs) in the rack.
3. Turn on the storage shelf that is farthest from the appliance. Let the shelf initialize for a few minutes.
4. Turn on the other storage shelves, in sequence. Do not turn on all of the shelves at once.
5. Verify that the new shelves function correctly.

   Refer to the following section for details.

   See "Turning on the hardware and verifying operation" on page 41.

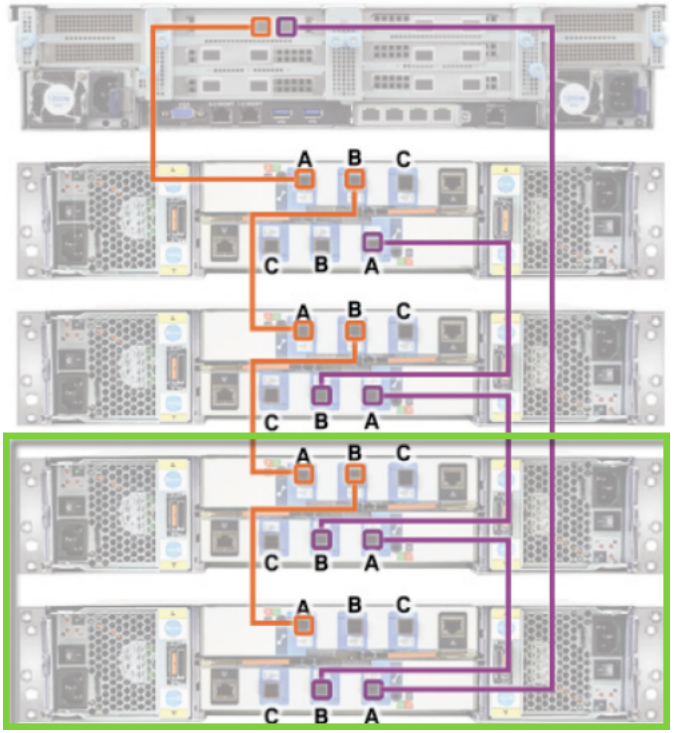
Connecting additional shelves to an appliance that already has two operating shelf

Before connecting additional shelves, ensure that orientation of the blue tabs are correct.

See "Understanding appliance and storage shelf connections" on page 29.

To connect additional shelves to an appliance that already has two operating shelf

1. Remove and reconnect the SAS-3 cables to the correct I/O module ports as shown in the figure. Use the two new SAS-3 cables that ship with each storage shelf.



2. Connect power cords between the new storage shelves and separate Power Distribution Units (PDUs) in the rack.
3. Turn on the storage shelf that is farthest from the appliance. Let the shelf initialize for a few minutes.

4. Turn on the other storage shelves, in sequence. Do not turn on all of the shelves at once.
5. Verify that the new shelves function correctly.

   Refer to the following section for details.

   See "Turning on the hardware and verifying operation" on page 41.

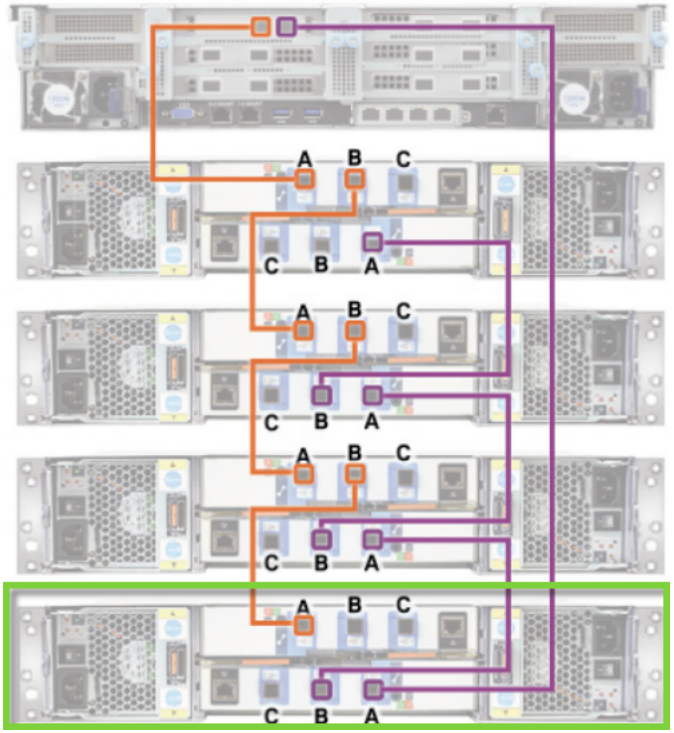
Connecting additional shelves to an appliance that already has three operating shelf

Before connecting additional shelves, ensure that orientation of the blue tabs are correct.

See "Understanding appliance and storage shelf connections" on page 29.

To connect additional shelves to an appliance that already has three operating shelf

1 Remove and reconnect the SAS-3 cables to the correct I/O module ports as shown in the figure. Use the two new SAS-3 cables that ship with each storage shelf.



2 Connect power cords between the new storage shelves and separate Power Distribution Units (PDUs) in the rack.

3 Turn on the storage shelf that is farthest from the appliance. Let the shelf initialize for a few minutes.

4 Turn on the other storage shelves, in sequence. Do not turn on all of the shelves at once.

5 Verify that the new shelves function correctly.

Refer to the following section for details.

See "Turning on the hardware and verifying operation" on page 41.

Appendix C

Configuring the disk space for new Flex Expansion Storage Shelves

This appendix includes the following topics:

Adding the disk space of an Expansion Storage Shelf from the Flex Appliance Console

Follow the steps in this section to add storage disk space to an appliance after physically adding one or more Expansion Shelves.

Note: When you configure additional disk space, any current backup operations are stopped until the process is complete. Cohesity recommends that you do not start any backup operations before starting this procedure.

To configure additional disk space

1. Turn on the new shelf or shelves.

   Wait approximately five minutes for the shelves to completely turn on.
2. Turn on the appliance node.
3. Sign in to the Flex Appliance Console.
4. Go to the **System topology** page.

5 Click on **Add storage**.

6 A confirmation window appears. Click **Yes**.

You can monitor the progress from the Activity Monitor.

Note: In a multi-node appliance, two tasks are shown in the Activity Monitor.

A task to add new storage displays for the first node, and a task to scan new storage displays for the second node. The task for the second node runs after the first node's tasks are complete.

If you want to resize instances, refer to the *Resizing instance storage* section in the *Flex Appliance Getting Started and Administration Guide*.