

FlashBlade//S Multi-Chassis Installation Guide

50-0040-05

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Chapter 1

Overview of System Installation

The following sections provide information about FlashBlade//S specifications and describe how to install the system. Read all the preparation and safety guidelines before you begin.

Conventions and Guidelines

Conventions

The following symbols appear in Pure Storage documentation.

Table 1.1 Documentation Symbols

Symbol	Meaning
	Additional information
	Supplementary instruction
	Potential for injury, physical damage, data loss, or array configuration loss
	Important information
	Indicates a need for login access to a FlashBlade//S or involvement from Pure Storage Technical Services.

Safety and Handling Guidelines

 If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment might be impaired.

 Equipment is intended for installation in a restricted access area.

- ⚠ Verify that all electrical connections are grounded before powering on.
- ⚠ Avoid contact with back-plane components and connectors.
- ⚠ Disconnect power cords before moving chassis and shelves.
- ⚠ Install replacement components within two minutes of removing a faulty component to ensure the maximum blade temperatures do not exceed temperature limits.
- ⚠ Use only CDRH approved Class 1 fiber optic transceiver modules.
- ⚠ Verify all rack electrical distribution systems meet all safety requirements of UL 62368-1, IEC 62368-1, or EN 62368-1 when fully populated, and they provide adequate 200-240V 50-60Hz AC power and over-current protection.
- ⚠ Do not use bifurcated ("Y") power cords.
- ⚠ Do not open chassis, shelf enclosures, or other components unless you are a qualified service representative performing a procedure approved by Pure Storage.
- ⚠ Do not use component handles to lift the chassis. Use the chassis lift handles to lift a chassis.
- ⚠ When servicing rack-mounted equipment, remove only one chassis at a time.
- ⚠ Use a mechanical lift or 4 or more people to lift the FlashBlade//S chassis.
- ⚠ Do not replace batteries due to the risk of exploding if mishandled.
- ⚠ Do not insert anything into any FlashBlade//S or XFM-8400/EFM-3200e connectors except as specified in installation or repair instructions.

⚠ Rack mounting:

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature specified by the Technical Specifications.

B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of the air flow required for safe operation of the equipment is not compromised.

C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment electrical ratings should be used when addressing this concern.

E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit.

 Ensure all components, including power supply modules (PSM), power supply units (PSU), and blank panels are installed before powering on or operating a FlashBlade//S or XFM-8400/EFM-3200e.

 Do not remove faulty components until replacements are available.

Instructional Safeguard Symbols

The following table provides descriptions for the symbols on our safety labels.

Table 1.2 Safeguard Symbols

Symbol	Description
	Not to be serviced by users, ISO 7010, P069 (2019-07) Contact service technician when servicing is required
	Caution, ISO 7000, 0434B (2004-01)
	Warning: Laser beam, ISO 7010, W004 (2011-05)
	Electrostatic sensitive devices, IEC 60417, 5134 (2003-04)
	Dangerous voltage, IEC 60417, 5036 (2002-10)
	Disconnection, all power plugs, IEC 60417, 6172 (2012-09) Caution, risk of electric shock.

Table 1.2 Safeguard Symbols (continued)

Symbol	Description
	Rack-mounted devices are not to be used as shelves or workspaces. Do not place any object on top of rack-mounted devices.
	Warning; Hot surface, ISO 7010, W017 (2011-05)

Contacting Customer Support

Support is available 24 hours a day, 7 days a week. For assistance, contact Pure Storage Technical Services.

- Visit <https://www.purestorage.com/support>
- Email support@purestorage.com
- Call (800) 379-7873 (USA). For international support, visit <https://www.purestorage.com/support>.

FlashBlade//S System Configurations

FlashBlade//S is the next-generation Unified Fast-File and Object (UFFO) platform available in multi-chassis configurations.

A *multi-chassis* system configuration consists of the following components:

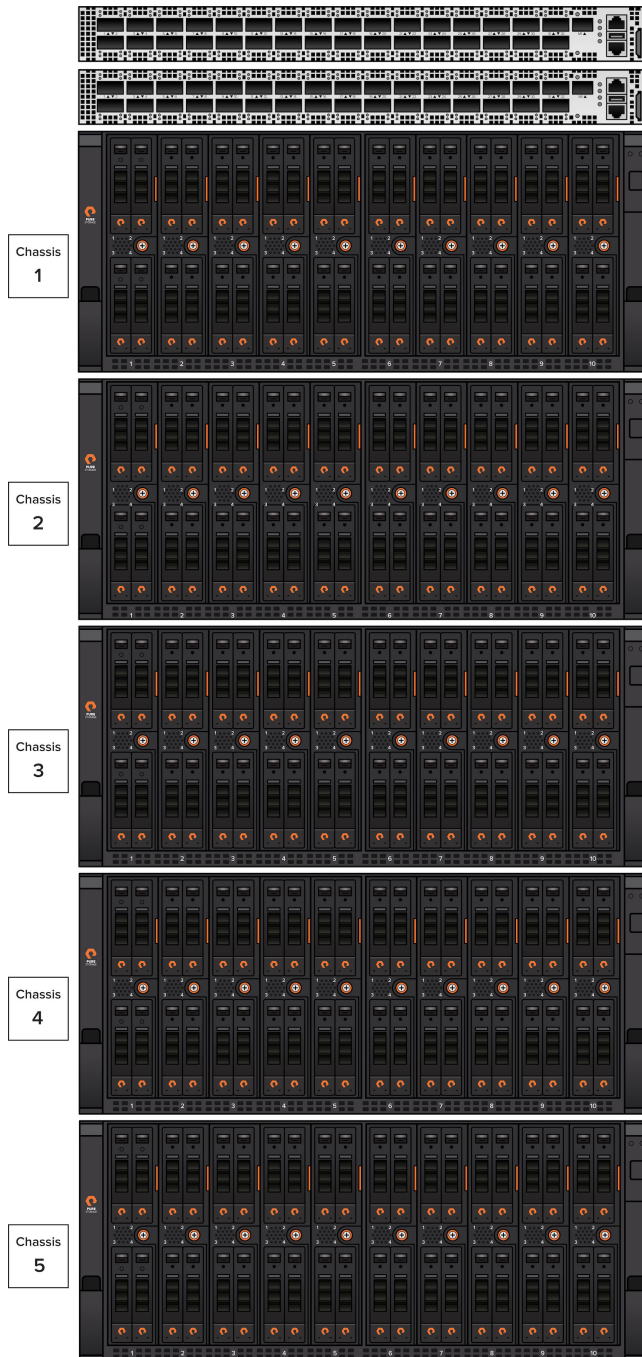
- 2 x XFM-8400 or EFM-3200e modules (includes two IEC C13/C14 power cords per module)

⚠ Important! This guide uses the term XFM to refer to the eXternal Fabric Modules which are known as XFM-8400 and EFM-3200e modules. The XFMs are only used in multi-chassis configurations.

- Minimum of 1 or maximum of 10 FlashBlade//S chassis with minimum of 7 or maximum of 10 blades per chassis (total of minimum 7 or maximum of 100 blades)
- Minimum of 2 or maximum of 20 FIOMs

- Minimum of 7 or maximum of 400 DirectFlash Modules (DFM)
- Each FlashBlade//S chassis includes four power cords.

Figure 1.1 Multi-Chassis Configuration (5 Chassis Shown with XFM-8400 Modules)



Planning and Considerations

Preparation

Pure Storage prioritizes safety for field engineers and customers when handling heavy equipment. Always adhere to the safety cautions to avoid serious injuries.

- Plan arrangements for the safe lifting of equipment. A shipping configuration (includes 7 blades) weighs approximately 80 kg (176 lb).

The in-rack weight of a fully loaded FlashBlade//S chassis (includes 10 blades and 40 DirectFlash Modules) is approximately 100 kg (220 lb).

An empty blade weighs approximately 4.6 kg (10.2 lb).

- Use a mechanical lift or 4 or more people to lift the FlashBlade//S chassis.
- Verify the rack can support the weight of all installed equipment, including cables and rails for a fully loaded FlashBlade//S chassis—approximately 100 kg (220 lb)—and the weight is within the floor loading limit.

Physical Environment

Ensure the physical location adheres to the following recommendations before installing a FlashBlade//S system:

- Complies with the spatial, environmental, and electrical power requirements. Each FlashBlade//S chassis requires four C20, 20A/250V power outlets.

Confirm the electrical outlets in the building provides protective earth connection for connecting the FlashBlade//S system and preventing electrical shock. If a protective earth connection is unavailable, arrange for one to be installed.

- Place the FlashBlade//S system in a restricted access location.
- Provide a minimum of 81.5 cm (32 in.) of clearance space for the front (cold aisle). The recommended clearance is 91.5 cm (36 in.).
- Provide a minimum of 81.5 cm (32 in.) of clearance for the rear (hot aisle). The recommended clearance is 91.5 cm (36 in.).
- Verify the front and rear of the rack mounting posts are between 61.0 cm (24 in.) and 91.5 cm (36 in.) with 5 RU of contiguous vertical space available for each FlashBlade//S chassis. Multi-chassis

configurations require an additional 2 RU of contiguous vertical space for a pair of XFM-8400 or EFM-3200e modules above the first chassis.

 **Note:** Special clearance is not required for the top, bottom, or sides of the rack.

- Recommend installing the FlashBlade//S system within 3 m (9.85 ft) of the network switches or patch panels.
- Ensure the operating temperature of the physical environment is within range of 5° to 35°C when the rack is fully populated.
- Verify airflow ducts are not aiming directly at the FlashBlade//S chassis.

Network Considerations

Review all network requirements and guidelines before installing the FlashBlade//S system.

- Cross-connect the FlashBlade//S system to two network switches for maximum availability.
- Configure all the links that are part of the same LAG group in a single link aggregation group on the upstream switches connected to the XFM Ethernet ports
- Configure Multi-Chassis Link Aggregation between the upstream switches that are connected to the XFMs.
- Install FlashBlade//S chassis with ports and power supplies facing in the direction of the hot aisle.
- Install XFMs with ETH ports facing in the direction of the hot aisle.
- Use a USB-to-serial cable for system software setup.

Chapter 2

Installation

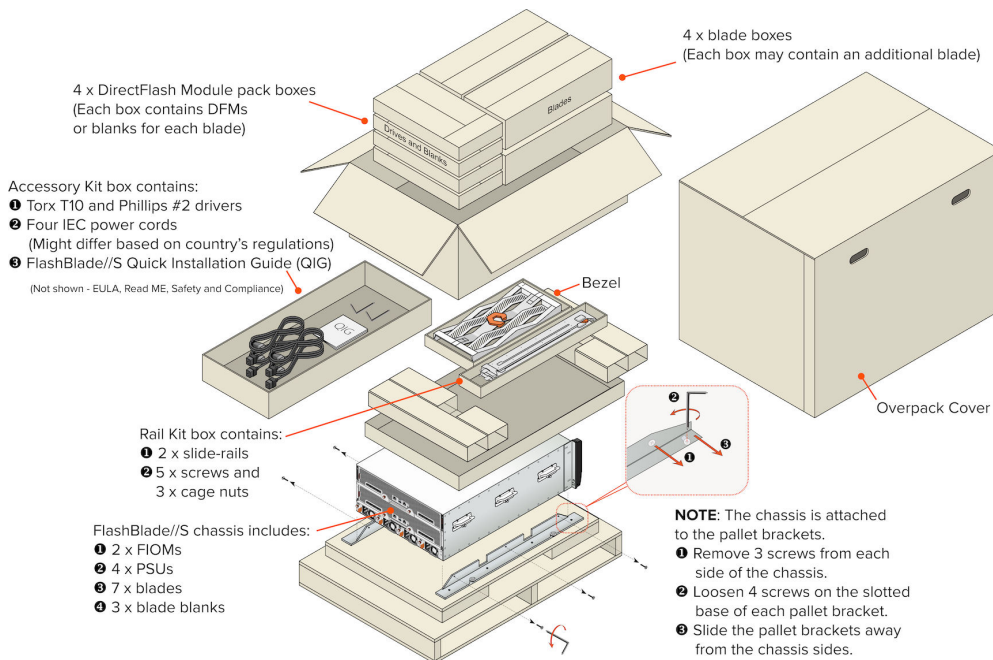
The following sections provide installation instructions for the FlashBlade//S system. Complete the following best practices before you begin installing the system:

- Inspect all the shipped packages for damage. Photograph any damaged packages and contact Pure Storage Technical Services for assistance with findings.
- Save all cartons and packaging materials for storing or returning any defective components to Pure Storage Technical Services. If applicable, retain all tools included with the kit.

Unpacking FlashBlade//S

Remove all protective packaging and covers from the components. Verify the package contains all the listed items in the shipping invoice and photograph any damages incurred during transit. If there are missing items or damages, contact Pure Storage Technical Services for assistance with findings.

Figure 2.1 FlashBlade//S Components and Accessory Kit



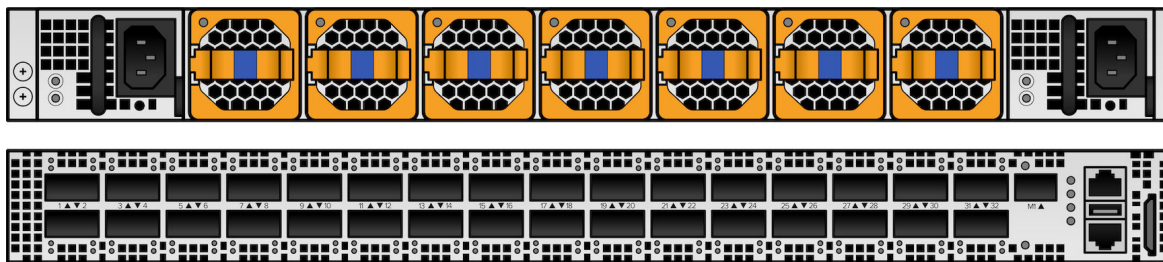
Unpacking XFM-8400 Modules and Cable Accessory Kit

XFM-8400 Modules

Unpack and verify the package contains the following items:

- 2 x XFM-8400 modules

Figure 2.2 Front and Back View of XFM-8400 Module



- 2 x XFM-8400 bezels

Figure 2.3 XFM-8400 Bezel



- 4 x power cords, 8 x keyhole fasteners, ISL cables, adapters, labels, and documents (not shown)
- 2 x rack rail kits (includes 4 x flathead locking screws per kit)

Cable Accessory Kit

For more information about uplink and downlink cables, go to <http://www.support.purestorage.com>.

The XFM-8400 modules connect to FlashBlade//S FIOMs via Direct-Attach cables. The following cable accessory kits for multi-chassis configurations are available.

Table 2.1 Accessory Kit with 100G 1M Cables (Part No. 80-1832-01)

Part	Quantity
1-meter QSFP28 to QSFP28 cable	8
Cable identifier label sheet	1
Cable chassis identifier label sheet	2
Chassis identifier label sheet	1

Table 2.2 Accessory Kit with 100G 2M Cables (Part No. 80-1833-01)

Part	Quantity
2-meter QSFP28 to QSFP28 cable	8
Cable identifier label sheet	1
Cable chassis identifier label sheet	2
Chassis identifier label sheet	1

Table 2.3 Accessory Kit with 100G 3M Cables (Part No. 80-1834-01)

Part	Quantity
3-meter QSFP28 to QSFP28 cable	8
Cable identifier label sheet	1
Cable chassis identifier label sheet	2
Chassis identifier label sheet	1

Mounting XFM-8400 Modules

⚠ Important! Pure Storage recommends installing XFM-8400 modules at the top of the rack for unobstructed access during installation or maintenance activities. Make sure to save two RU of contiguous space for a pair of XFM-8400 modules above FlashBlade//S chassis 1.

Mount the XFM-8400 modules in ascending order by installing the second XFM-8400 (XFM #2) module first directly above FlashBlade//S 1 and then mounting XFM-8400 #1 directly above XFM #2.

Preparing the XFM-8400 Rails

- 1 Collect the assembled rails from the XFM-8400 packaging.

Figure 2.4 XFM-8400 Rail Parts

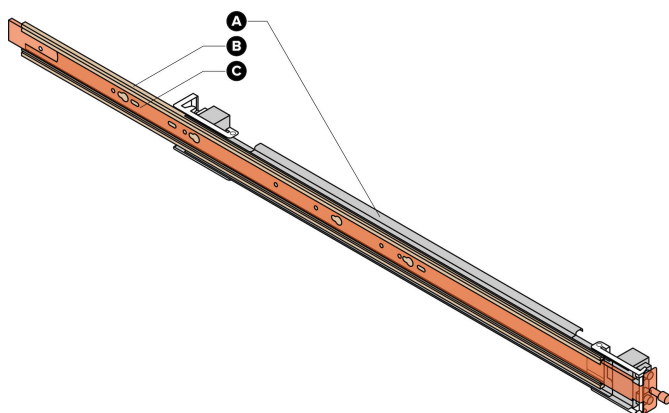
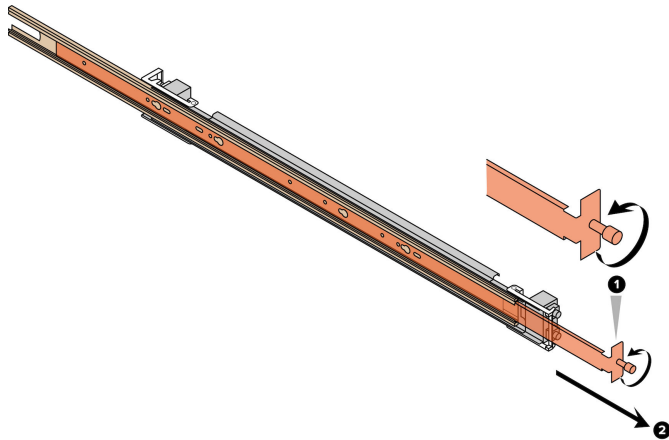


Table 2.4 XFM-8400 Rail Parts

Callout	Description
A	Outer rail
B	Middle rail
C	Inner rail

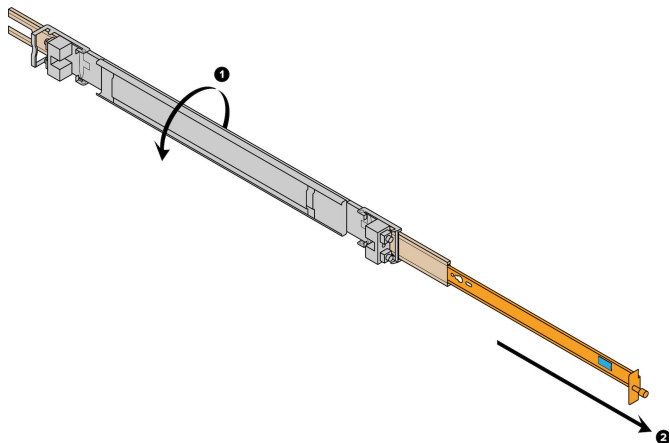
- 2 Prepare the rail by (1) loosening the captive screw and (2) pull out the inner rail.

Figure 2.5 Extending the Inner Rail



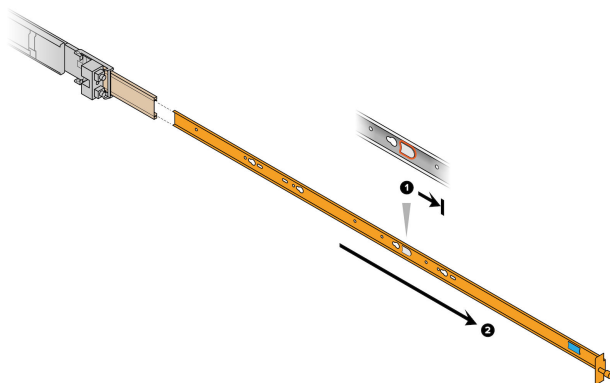
- 3** Carefully (1) turn over the rail assembly and (2) continue to extend inner rail outwards until it stops.

Figure 2.6 Preparing to Remove the Inner Rail



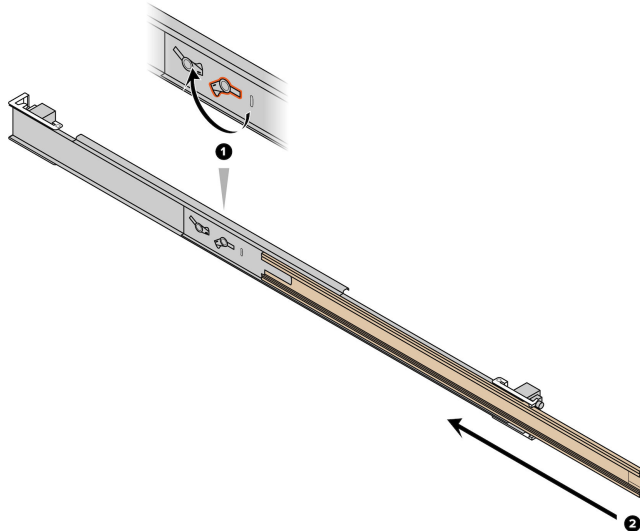
- 4** Holding the rail, (1) use your thumb to pull on the white release tab and (2) remove the entire inner rail from the middle rail.

Figure 2.7 Pulling the White Release Tab



- 5 Turn over the rail to access the outer rail latch, (1) press downward on the latch, and then (2) retract the middle rail into the outer rail.

Figure 2.8 Retracting the Middle Rail



- 6 Repeat the steps for the second rail.

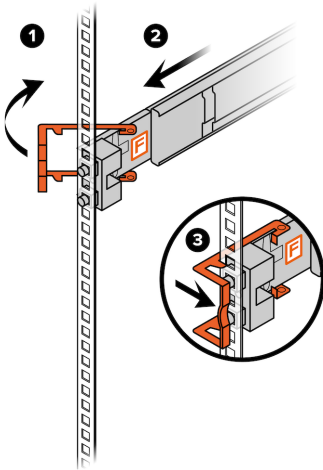
Mounting the XFM-8400 Rails

Tip: Install the XFM-8400 rails so that the grooves on the middle rail are accessible from the rear of the rack.

Important! The rails include "F" (front) and "R" (rear) labels to help ensure the rails are mounted in the proper direction. Make sure to mount the "F" side towards the cold aisle.

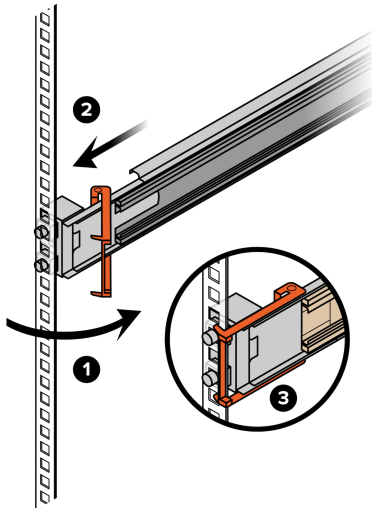
- 1 Align the rail with desired rack post holes, (1) open the rear latch on the end of the XFM-8400 rail, (2) insert the pins into the space, and (3) close the latch.

Figure 2.9 Mounting Rail onto Rack Post



- 2 Repeat the previous step to mount the rail on the opposite rack post.

Figure 2.10 Mounting Rail (Opposite Rack Post)



- 3 Repeat the steps for the second rail.

Attaching the Inner Rails to XFM-8400 Modules

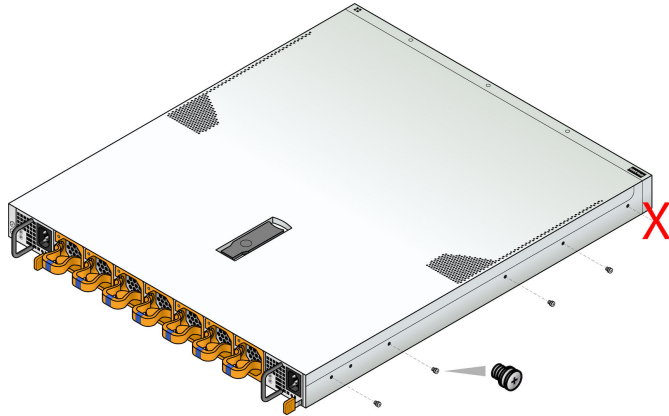
- 1 Install four keyhole fastener screws on each side of the XFM-8400 module.

Figure 2.11 Keyhole Fastner Screws



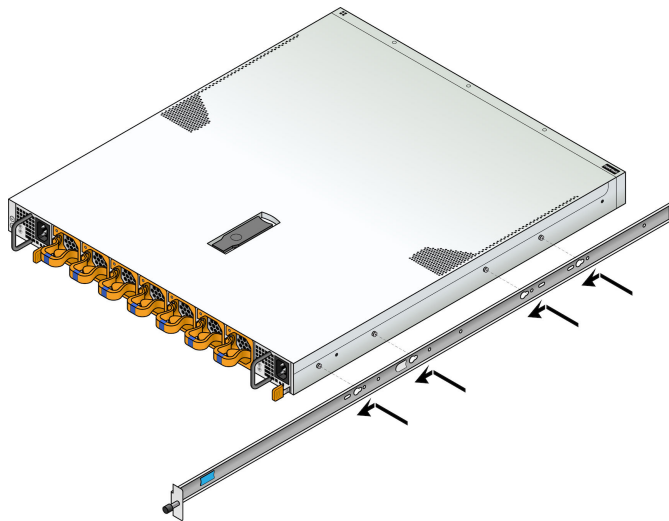
⚠ Important! Ensure the screws are installed in the specified recessed holes. Do not install screws into the holes marked with an "X" as shown in the illustration.

Figure 2.12 Installing the Keyhole Fastener Screws



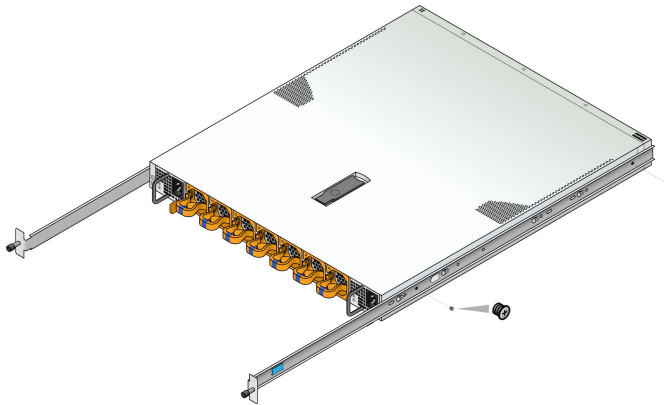
- 2 Attach the inner rails to the XFM-8400 module by aligning the rails with the fastener screws on the sides of the module and sliding the rails on to the screws to secure in place.

Figure 2.13 Installing the Inner Rails



- 3 Attach the locking screws to the rails.

Figure 2.14 Installing the Locking Screws



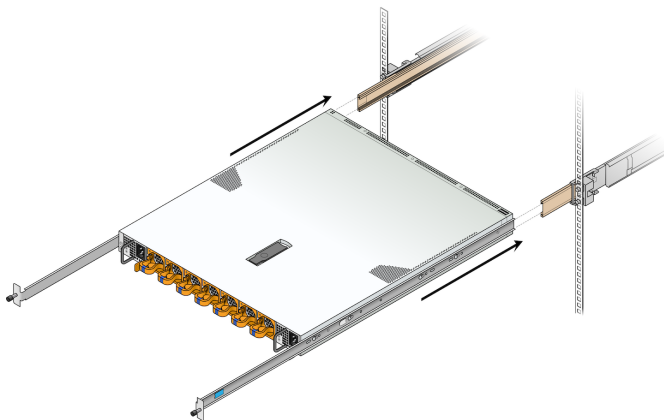
- 4 Repeat the steps for the second module.

Installing the Modules into the Rack

CAUTION: To avoid damaging the XFM-8400 module, do not put any objects on top of an installed module.

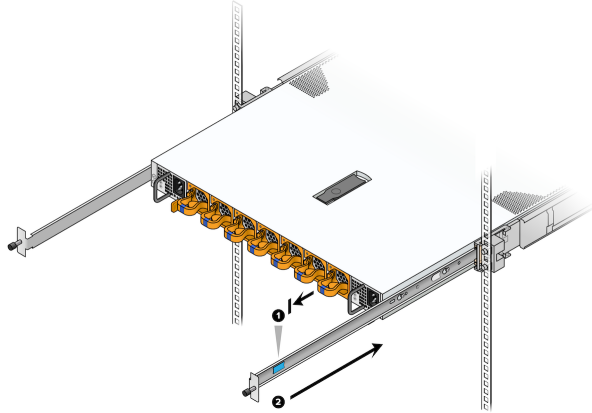
- 1 Slide the middle rails out of the rack (approximately 10-15 cm) and align the inner rails on the XFM-8400 module with the grooves in the middle rails. Keep the module leveled with the rails to avoid bending the inner rails.

Figure 2.15 Inserting the XFM-8400 Module



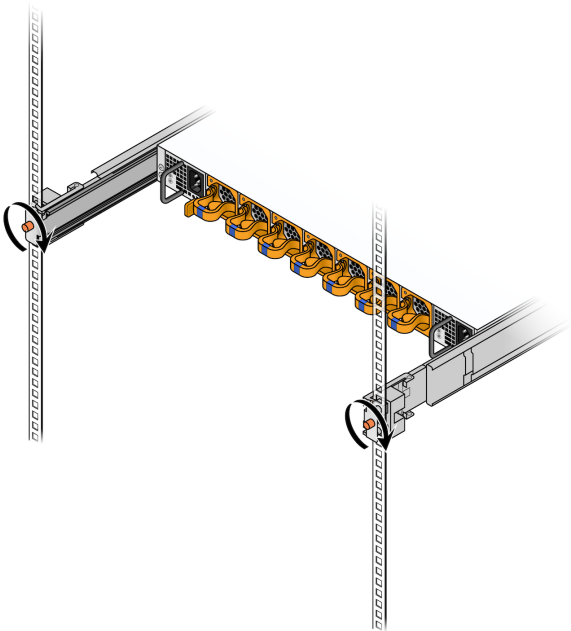
- 2 Slide the XFM-8400 module onto the middle rails until it meets resistance, then pull the blue levers on each inner rail and push the entire module into the rack.

Figure 2.16 Pressing Blue Lever to Insert Module



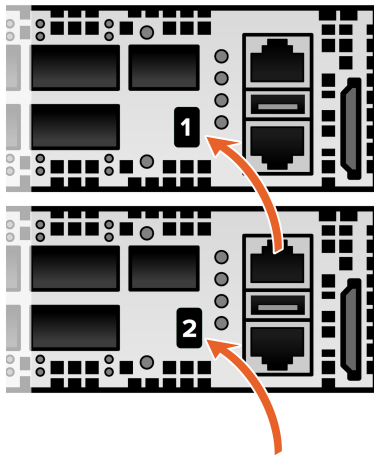
- 3** Tighten the captive screw on each side of the module to secure it in the rack.

Figure 2.17 Securing the XFM-8400 Module



- 4** Repeat the steps for the second module.
- 5** Apply the XFM-8400 identifier labels to the panel surface at the specified location.

Figure 2.18 Applying XFM-8400 Identifier Labels



Installing FlashBlade//S Rails

The FlashBlade//S chassis packaging includes two rails which are labeled **Right** and **Left**. The rails have locating pins (for square- and round-hole racks) or positioning studs (visible if you unscrew and remove the locating pins for threaded-hole racks) for aligning with the holes in the rack.

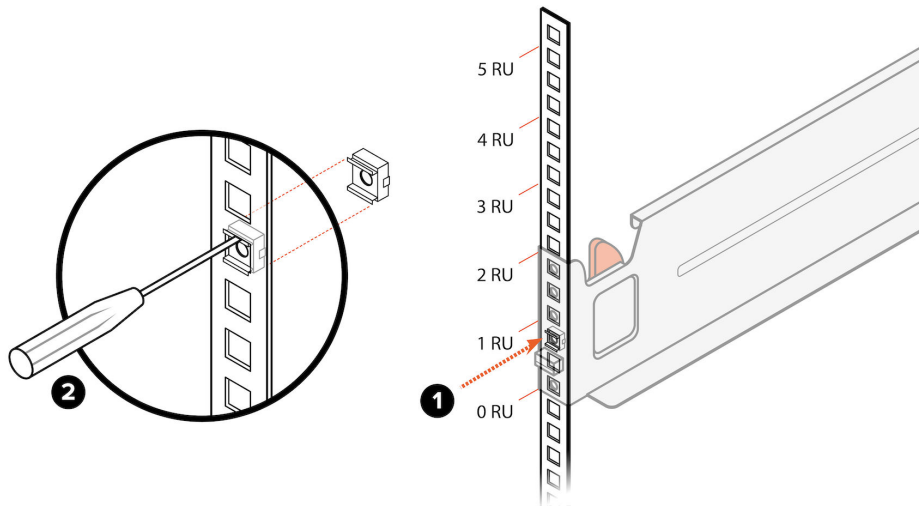
Note: Begin installing the rails for chassis 1, then proceed downward in the rack to chassis 2, etc. Leave 5 RU of space for additional FlashBlade//S chassis.

- 1** Determine the location of the rail holes for installing the #10-32 cage nuts.
- 2** (For square-hole racks only) Install the #10-32 cage nuts (included with the rail kit) onto the back side of the front rack post. Cage insertion tool is not provided.

Note: Optionally, use a cage nut insertion tool to wedge the nut into position.

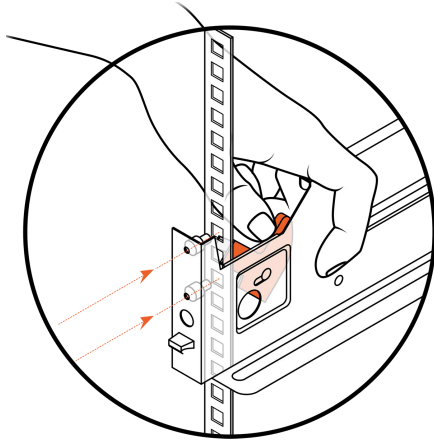
Tip: For round-hole racks, use clip nuts (not provided) instead of cage nuts.

Figure 2.19 Installing Cage Nuts



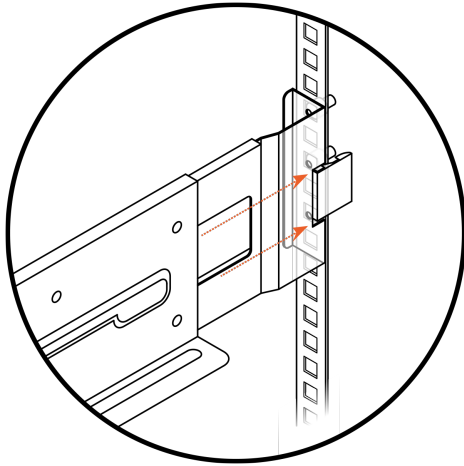
- 3 Install one of the two rails (the installation order does not matter) by pulling the spring-loaded lever back and inserting the locating pins or positioning studs in the front mounting post at the desired height. Release the lever once the rail is in place.

Figure 2.20 Installing a Rail (Front Post)



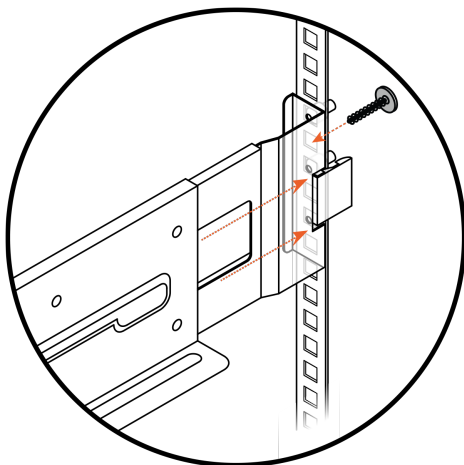
- 4 Extend the rear of the rail until the locating pins or positioning studs reach the rear mounting post, and press the rail into the rear post until the latch engages.

Figure 2.21 Installing a Rail (Rear Post)



- 5** (All rack types) Secure the rear of each rail to the rack with the screws provided in the Rail Kit. One screw is provided for the rear of each rail. Use the second or fifth hole up from the bottom of each rail (shown going into the fifth hole).

Figure 2.22 Installing a Rail (Rear Post)



- 6** Repeat the steps for the second rail.

⚠ CAUTION: Make sure to install the rear of each rail into the post holes that are at the same height as the holes being used on the front post. Otherwise, the chassis might slide off the rails causing personal injury and damage to the chassis.

Mounting FlashBlade//S Chassis

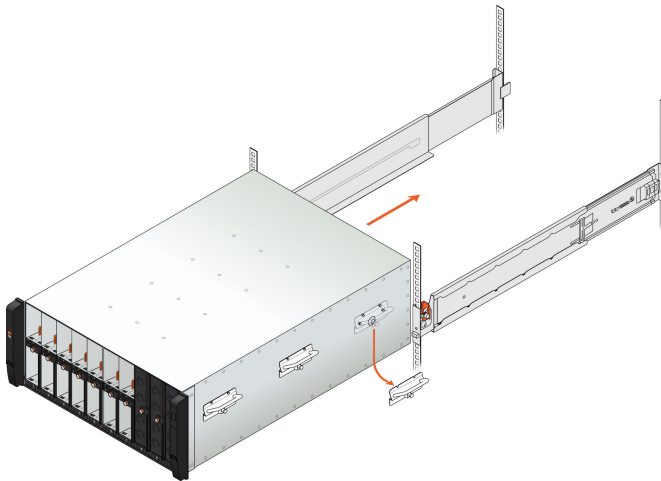
After installing all FlashBlade//S rails, mount each chassis in the array in ascending order as described in the following procedure. For example, if there are five chassis in the array, install chassis 05 first (the lowest racked-positioned chassis in the array), then proceed to mount chassis 04 above chassis 05, etc.

⚠ CAUTION: Make sure the rack can support the weight of all installed equipment, including cables, bezel, and rails—approximately 100 kg (220 lb) for each FlashBlade//S chassis—and the weight is within the floor loading limit. Plan arrangements for safe lifting during installation. Pure Storage recommends using four people or a mechanical lift for this procedure.

- 1 Use a mechanical lift to raise the FlashBlade//S chassis to the desired height in the rack.
- 2 Set the rear of the FlashBlade//S chassis onto the rails and remove the rear handles while using the mechanical lift to support the front of the chassis.

📄 Note: To remove the handle, pull the plunger and slide it in a downward motion.

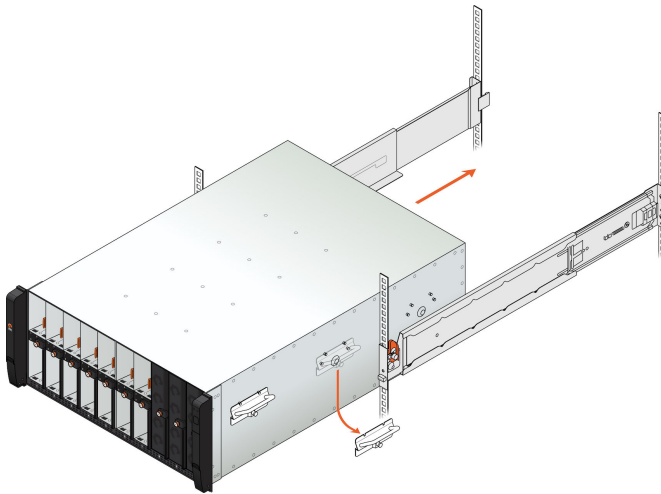
Figure 2.23 Mounting on Rack, Part 1



- 3 Continue to slide the FlashBlade//S chassis into the rack until you have a two-inch gap between the middle handles and the rack.

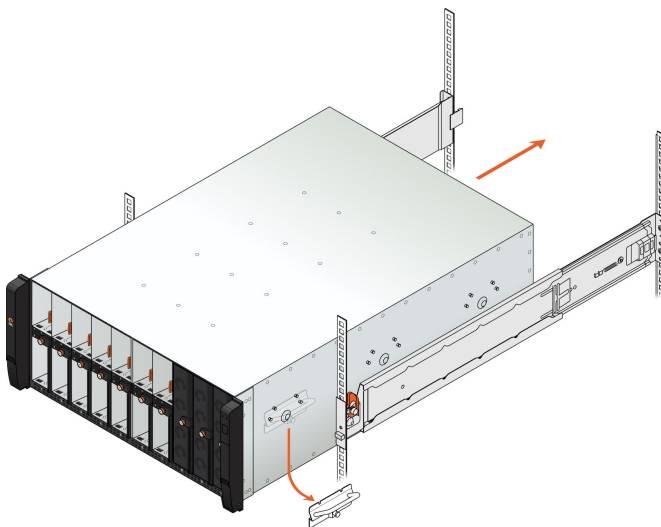
Remove the middle handles while using the mechanical lift to support the front of the chassis.

Figure 2.24 Mounting on Rack, Part 2



- 4 Continue to slide the FlashBlade//S chassis into the rack until there is a two-inch gap between the front handles and the rack. Remove the front handles while using the mechanical lift to support the front of the chassis.

Figure 2.25 Mounting on Rack, Part 3

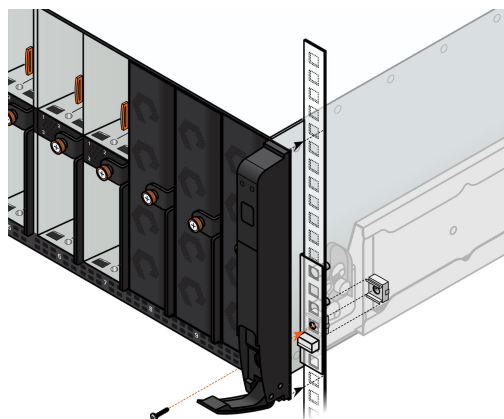


- 5 Slide the FlashBlade//S chassis completely into the rack. Ensure the chassis ears are flush with the front of the rack.

Note: Retain the lift handles in case the chassis needs to be moved or replaced.

- 6 Secure the chassis ears to the front of the rack posts.

Open the slam latches on the chassis front panel and thread the screw through each slam-latch hole and the attached cage nuts in the rack posts. Use the supplied Phillips screwdriver to tighten the screws.

Figure 2.26 Mounting on Rack, Part 3

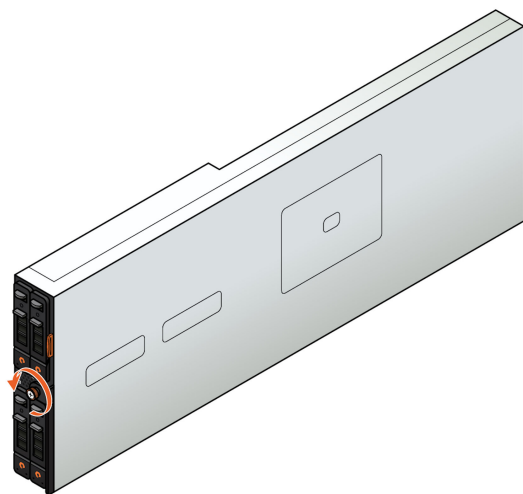
- 7** Close the slam-latches.
- 8** Repeat the mounting procedure for the next FlashBlade//S chassis in ascending order. Proceed to the next section after all chassis are mounted.

Installing Blades

 **Note:** Remember to keep all packaging materials in case for return.

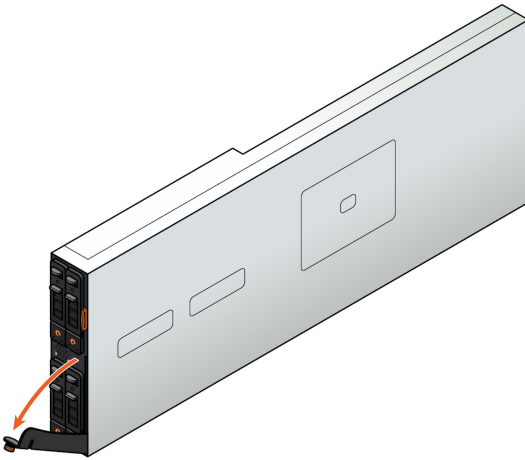
To install the blade:

- 1** Remove all blade blanks from the chassis.
- 2** Loosen the thumbscrew on the ejector handle.

Figure 2.27 Unscrewing the Thumbscrew

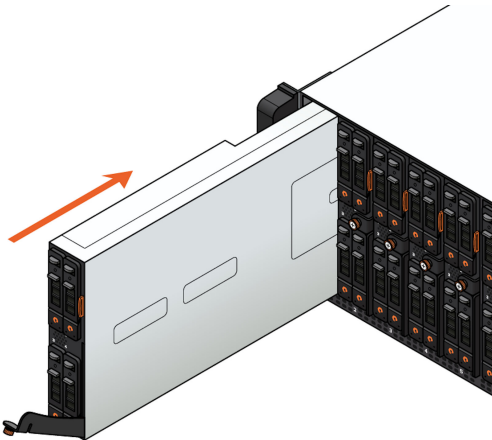
- 3 Pull the ejector handle out fully and down to disengage the lock.

Figure 2.28 Opening the Ejector Handle



- 4 Align the blade with the appropriate chassis slot key and insert the blade into the chassis.

Figure 2.29 Inserting the Blade



- 5 Push the ejector handle upwards to fully engage the blade into chassis.

Figure 2.30 Closing the Ejector Handle



- 6** Tighten the thumbscrew to secure the ejector handle.

Figure 2.31 Securing the Ejector Handle

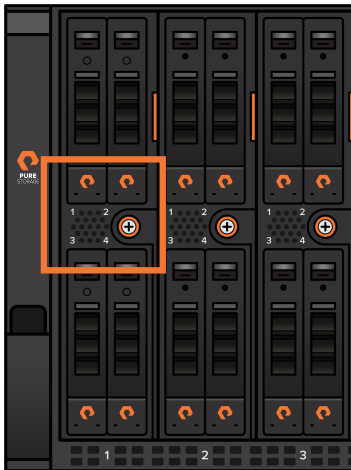


- 7** Repeat the steps for additional blades.
- 8** (Optional) Use the Phillips screwdriver included in the packaging to lock each blade into place.
- 9** Reinstall blade blanks into any remaining empty slots.

Installing DirectFlash Modules

⚠ Important! The DirectFlash Modules (DFM) must be installed in sequential order according to the position of the slot numbers (1-2-3-4). All blades must operate with the same number of installed DFMs and in the identical slots.

Figure 2.32 DFM Slot Numbers



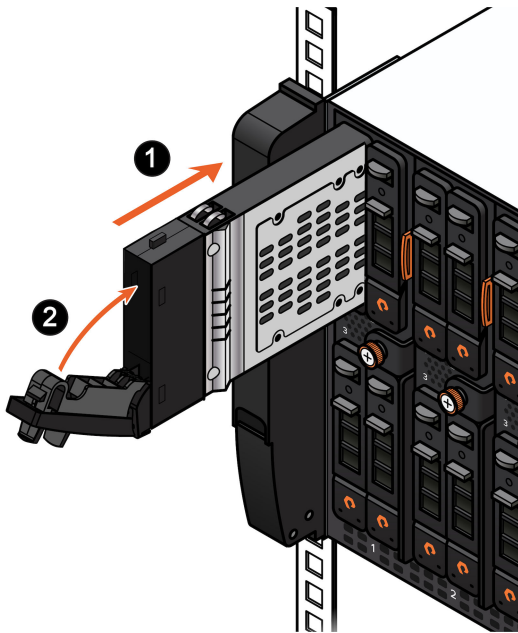
i Tip: Locate the boxes with DFM and prepare for installation.

📄 Note: Make sure all unused slots are filled with blank covers.

Working with one DFM box at a time:

- 1** Open the front latch of the drive carrier fully.
 - a** Slide the DFM into the slot.
 - b** Close the latch as you seat the module.

Figure 2.33 Inserting the DFM Carrier



- 2 Continue populating the remaining DirectFlash Modules in the box, 1 per blade.

⚠ Important! The DFMs must be installed in sequential order according to the position of the slot numbers (1-2-3-4). All blades must operate with the same number of DFMs populated and in the identical slots.

- 3 Make sure the drive module front panels are flush with the chassis front panel. Check the latch on each module is engaged by pulling gently on it until you feel resistance.
- 4 Repeat the steps for the remaining DFM boxes.
- 5 Install drive blanks in all unused drive slots to ensure adequate airflow. The drive blanks do not have a latching mechanism.
- 6 (Optional) Use the Torx T10 screwdriver included in the Accessory Kit box to lock each DFM into its blade slot.

Installing Bezels

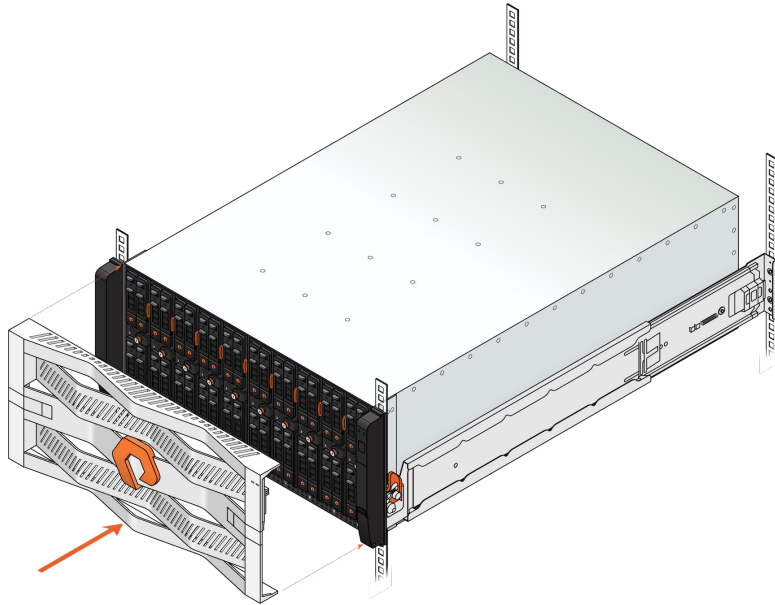
After completing the installation process, always install the bezels on the FlashBlade//S chassis and XFM-8400/EFM-3200e modules.

Installing Bezel on FlashBlade//S Chassis

To install the bezel :

- 1 Remove the bezel from the protective package. Ensure to remove any protective film from the bezel.
- 2 Align the bezel with the associated features on the chassis ears and press into place.

Figure 2.34 Installing the Bezel



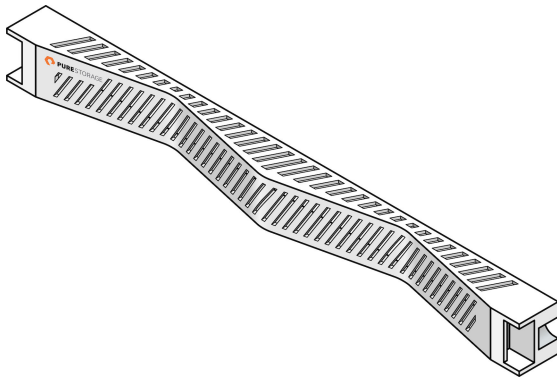
- 3 Repeat steps 1 and 2 for each remaining chassis.

Installing the Bezels on XFM-8400 Modules

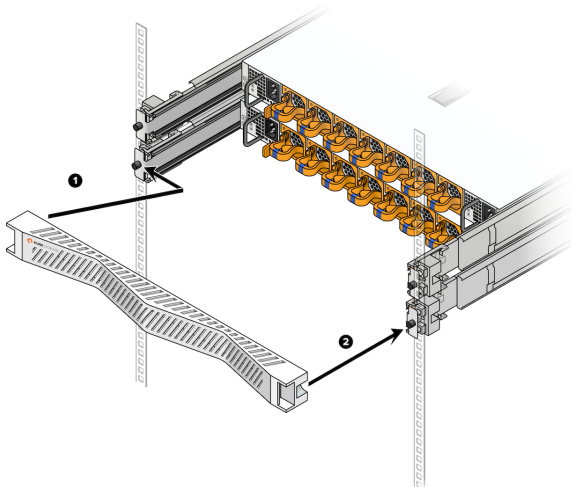
The XFM-8400 module does not occupy the full depth of the rack. Install bezels on the front of the rack to cover the gap between the front of the rack and the back of the XFM-8400 modules.

To install the XFM bezels:

- 1 Remove the bezel from the packaging.

Figure 2.35 XFM-8400 Bezel

- 2 Align the bezel interior cutout with the first rail captive screw, and then align the other side and press into place to secure the bezel to the rail captive screws.

Figure 2.36 Installing the Bezel

- 3 Repeat the steps for the second bezel.

Chapter 3

Powering On the System

After installing the system components, complete the following tasks:

- Do not connect any network (uplink and downlink) and EV cables to the chassis and XFM-8400/EFM-3200e modules until the Purity//FB software is upgraded.
- Verify the installation site meets the electrical power requirements established by Pure Storage.
- Check all electrical configurations are correct before connecting the power cables to the appropriate AC electrical outlets.
- Secure all the power cables to the chassis and XFM-8400/EFM-3200e modules.

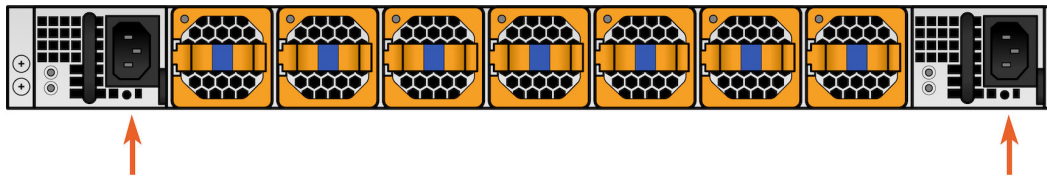
Powering on XFM-8400 Modules

 **Note:** A storage system configuration may be equipped with a pair of XFM-8400 or EFM-3200e modules. For more information about powering on EFM-3200e modules, see [Powering on EFM-3200e Modules](#).

 Do not connect the network and data cables to the FlashBlade//S Fabric I/O modules and XFM-8400 ports before turning on the power.

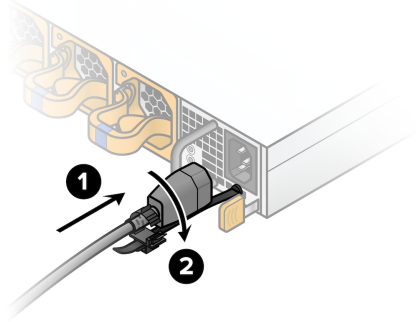
- 1 Connect the power cords to the XFM-8400 module and two AC power sources.

Figure 3.1 Location of Power Connectors on XFM-8400 Module



- 2 Repeat the previous steps for the other module. Connect the power cord to an alternate AC power sources for redundancy.
- 3 Attach the power cords to the cord retainers.

Figure 3.2 Attaching Power Cord to Cord Retainer

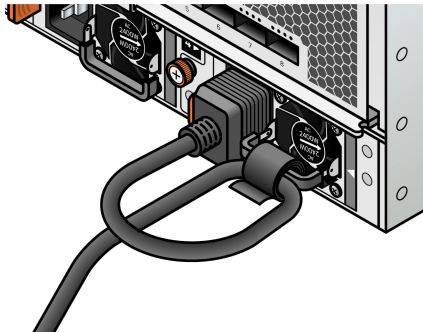


Powering on FlashBlade//S Chassis

Note: Start with Chassis 1 and proceed with each chassis in the array in ascending order.

- 1 Power on FlashBlade//S chassis PSU1 - PSU4 as follows:
 - a Lift the power supply handle, make a loop in the power cord nearest to the plug, wrap the captive strap around the loop and secure the cord to the handle.
 - b Insert the power plug into the power supply socket.

Figure 3.3 Securing the Power Cord



- 2 Connect the PSU1 and PSU2 power cords to an AC power distribution unit. After connecting the power, the Fabric I/O Module (FIOM) LEDs illuminate, and the fans begin to spin up.
- 3 Connect the PSU3 and PSU4 power cords to a separate AC power distribution unit for redundancy.
- 4 Repeat the power-on procedure for the next chassis in the system until all the chassis are powered on.

Chapter 4

Setting Up FlashBlade//S System

Before you proceed, review the [FlashBlade Field Team Installation Runbook](#) for any caveats that may be encountered during the setup process. The following sections describe how to initialize the storage system after completing the hardware installation.

 **Important!** You must first upgrade the Purity//FB software to the appropriate version for all the hardware components before connecting the network (uplink) and EV cables to the XFM-8400/EFM-3200e modules and FlashBlade//S chassis.

Connecting Serial Console Cable to XFM-8400 Console Port

 **Note:** A storage system configuration may be equipped with a pair of XFM-8400 or EFM-3200e modules. For more information about connecting to the console port for EFM-3200e modules, see [Connecting Serial Console Cable to EFM-3200e Console Port](#).

Connect a laptop to the console port on each XFM-8400 module via USB-to-Serial cable for initial multi-chassis setup. Begin configuring the XFM-8400 modules and then continue with the FlashBlade//S chassis.

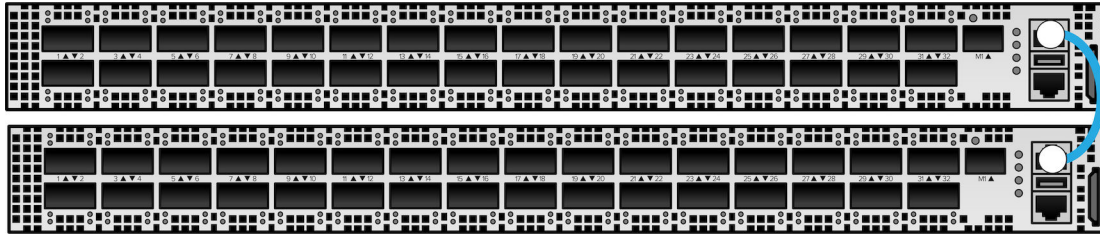
The terminal settings for the console port:

- 8-N-1 (8 data bits, no parity, 1 stop bit)
- Xon/Xoff flow control
- 115200 baud

To connect to the XFM-8400 console port:

- 1 Locate XFM-8400 and identify XFM 1.
- 2 Connect a USB-to-Serial cable to the CONSOLE port on XFM 1.

Figure 4.1 Console Ports on XFM-8400



- 3 Proceed to the [Upgrading Purity//FB Software](#) to configure each XFM-8400 module.

Upgrading Purity//FB Software

After completing the installation of the storage system components, the Fabric I/O Modules (FIOM) and XFM-8400/ EFM-3200e modules must be upgraded to the latest version of Purity//FB before you can begin configuring the system.

⚠ Important! Configure to order (CTO) units shipped from the factory do not have the most current target code version and are not appropriate or recommended for use in a testing or production environment. As a result, the units must be upgraded to the latest supported version of Purity//FB software to ensure proper system functionality and stability.

Preparing for Purity//FB Software Upgrade

⚠ Important! Verify all the blades and DirectFlash Modules are properly installed into the chassis and secured before upgrading Purity//FB.

Before you begin, make sure you have the `elasticity[latest-Purity//FB-OS-version].run` file on a 32 GB or larger capacity USB device and download the latest *fbtools*. NTFS and ext4 are supported file system formats for USB storage devices. However, with FAT32, the maximum file size is limited to 4 GB whereas the image file size for Purity//FB OS is greater than 4 GB. For FAT32 file systems, refer to this [KB](#). This limitation does not apply to USB storage with NTFS or ext4 file system. For information about how to create a USB key, see [Creating a USB Key](#).

⚠ Important! The EFM-3200e modules are equipped with a base CTO code and requires bridging multiple versions of Purity//FB before upgrading to Purity//FB 4.3.x. The valid software upgrade path for EFM-3200e setup requires the following Purity//FB versions: **2.4.13.xfmcto1 > 3.3.x > 4.1.x > 4.3.x**.

For XFM-8400, setup requires the following Purity//FB software upgrade path: **4.1.x > 4.3.x**.

 **Note:** Except for `puremastership list` command, the `pure*` commands are not expected to function or behave properly before bootstrap. Do not use `pure*` commands to verify the health or settings until after you have upgraded to the latest Purity//FB version and bootstrapped.

To prepare Purity//FB software for upgrade:

- 1 Plug the USB device in XFM1.
- 2 Locate the device.

```
ir@irsled:~$ lsblk -l
NAME MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda   8:0    0 119.2G  0 disk
sda1  8:1    0    2M  0 part
sda2  8:2    0   128M  0 part
sda3  8:3    0    16G  0 part /sysimg
sda4  8:4    0 103.1G  0 part /ssd
sdb   8:16   1    7.5G  0 disk
sdb1  8:17   1    7.5G  0 part
loop0 7:0    0 746.9M  1 loop /rofs
```

- 3 Mount the USB storage device containing the latest version of Purity//FB.

```
ir@irsled:~$ sudo mkdir /mnt/
ir@irsled:~$ sudo mount /dev/sdb1 /mnt/
```

- 4 Create a new directory on the XFM1.

```
ir@irsled:~$ sudo mkdir /ssd/releases; sudo chown ir:ir /ssd/releases
```

- 5 Copy the files to the directory of the XFM1.

```
ir@irsled:~$ sudo cp /mnt/usb/elasticity* /ssd/releases/
```

- 6 Change the permissions for the `elasticity*` file.

```
ir@irsled:/ssd/releases$ sudo chmod u+x elasticity*
```

- 7 Repeat steps 1 through 6 for XFM2.

After the preparation, continue to the next section to upgrade and manually configure the slot on each XFM-8400/EFM-3200e module.

Upgrading and Configuring XFM-8400/EFM-3200e

The XFM-8400/EFM-3200e modules (also known as XFM) must be upgraded and configured with the appropriate Purity//FB software version and network slot information.

⚠ Important! The EFM-3200e modules are equipped with a base CTO code and requires bridging multiple versions of Purity//FB before upgrading to Purity//FB 4.3.x. The valid software upgrade path for EFM-3200e setup requires the following Purity//FB versions: **2.4.13.xfmcto1 > 3.3.x > 4.1.x > 4.3.x**.

For XFM-8400, setup requires the following Purity//FB software upgrade path: **4.1.x > 4.3.x**.

- 1 Establish a console connection to XFM1.
- 2 Verify the version of Purity//FB is correct. For example:

```
$ ir_version | grep build
```

- 3 Enter the following command to initiate the upgrade:

```
$ sudo /ssd/releases/elasticity*.run upgrade --not-bootstrapped --disruptive --skip-upgrade-validity-check --skip-fbhealth-check
```

⚠ Important! For EFM-3200e only, repeat this step for the next version on the Purity//FB upgrade path: **3.3.x > 4.1.x** before continuing to the next step.

- 4 Enter the **fbadmin config-slot-id 1** command to define the role (slot) of XFM1.

```
$ fbadmin config-slot-id 1
Configured current XFM slot id as 1
```

- 5 Enter the **sync; sync; sync && sudo reboot** command to reboot XFM1.
- 6 Repeat steps 1 through 5 for XFM2.

📝 Note: When configuring XFM2, make sure to define the "slot_id" as **2**.

After successfully completing the upgrade and configuring the XFM-8400/EFM-3200e modules, continue to the next section.

Connecting Cables

i Tip: Use the following instructions to connect the cables and ensure the cluster meets compliance requirements.

Verify all cables are included in the packaging before connecting the console cables to the XFM-8400/EFM-3200e modules and chassis to upgrade Purity//FB software.

⚠ Important! Do not connect any hosts directly to the uplink ports on the XFM-8400/EFM-3200e modules and Fabric I/O Modules.

See the following figures for port assignments and proceed to the following section for procedures on how to connect the management cables.

Figure 4.2 XFM-8400 Port Assignments

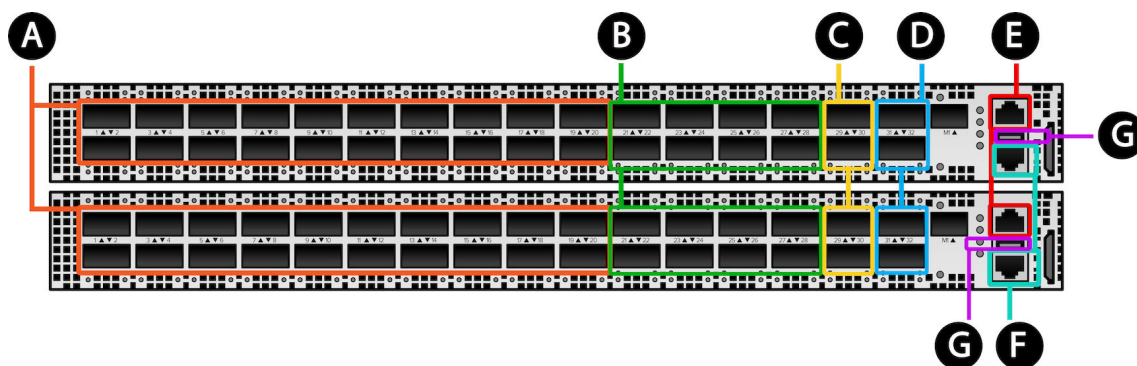


Figure 4.3 EFM-3200e Port Assignments

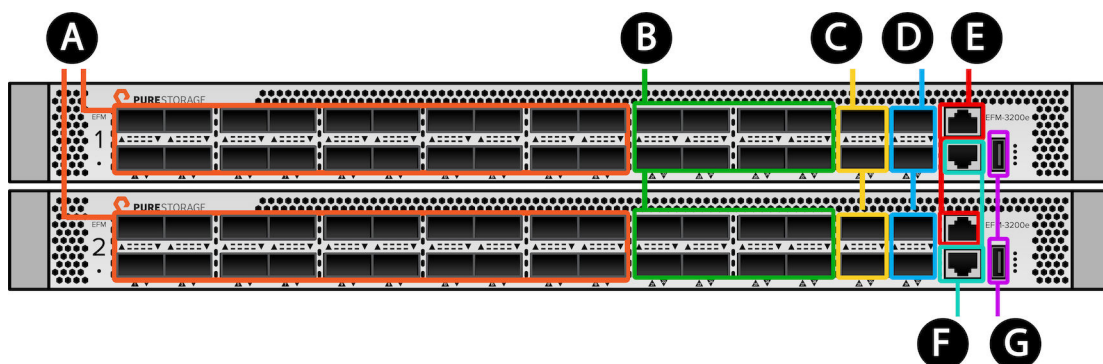


Table 4.1 XFM-8400/EFM-3200e Port Assignments

Callout	Description
A	Ports 1 - 20 (downlink) are reserved for connecting to chassis.
B	Ports 21 - 28 (uplink) are reserved for connections to upstream switch.
C	Ports 29 - 30 are reserved for future use.
D	Ports 31 - 32 are reserved for XFM ISL interconnections.
E	Console port

Table 4.1 XFM-8400/EFM-3200e Port Assignments (continued)

Callout	Description
F	Management port
G	USB-A port

CAUTION: The XFM-8400/EFM-3200e USB-A ports are designated for portable flash drives only. Do not connect hubs or unsupported devices to the ports.

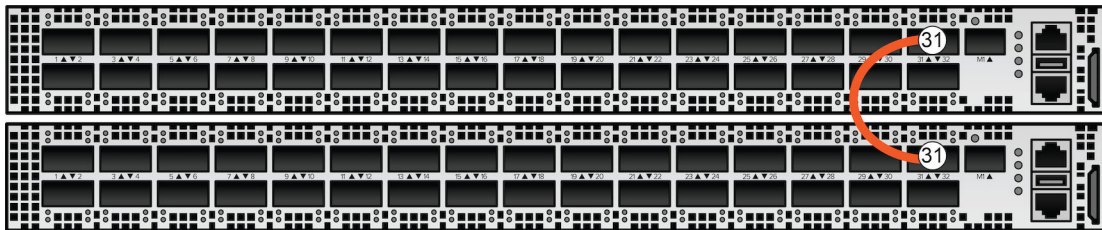
Interconnecting XFM-8400 Modules

Note: A storage system configuration may be equipped with a pair of XFM-8400 or EFM-3200e modules. For more information about interconnecting EFM-3200e, see [Interconnecting EFM-3200e Modules](#).

Establish the interconnections between the two XFM-8400 modules before connecting the modules to the FlashBlade//S chassis.

- 1 Retrieve two cables labeled **EV**.
- 2 Connect one cable labeled **EV** from XFM 1 port 31 to XFM 2 port 31.

Figure 4.4 Connect EV Cable to Port 31 on XFM-8400 Modules



- 3 Connect the other cable labeled **EV** from XFM 1 port 32 to XFM 2 port 32.

Figure 4.5 Connect EV Cable to Port 32 on XFM-8400 Modules

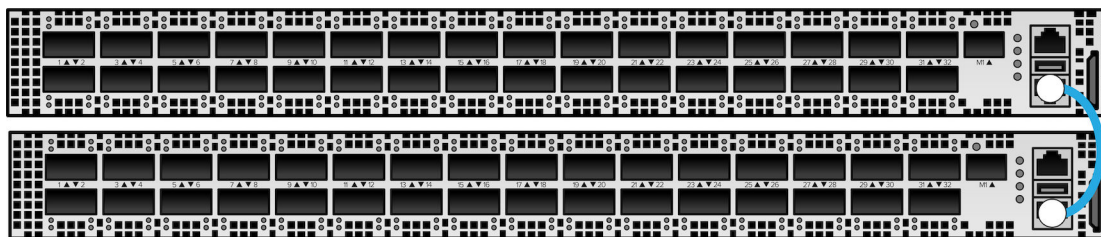


Connecting Out-of-Band Management (XFM-8400)

Connect an RJ-45 cable to the XFM-8400 management ports and management network.

 **Note:** A storage system configuration may be equipped with a pair of XFM-8400 or EFM-3200e modules. For more information about connecting the out-of-band management for EFM-3200e, see [Connecting Out-of-Band Management \(EFM-3200e\)](#).

Figure 4.6 Location of Management Ports on XFM-8400 Modules



 **Note:** If the Out-of-Band 1G port on the XFM-8400 modules with multi-chassis configurations are used as a management interface, turn on the flow control for the connected port on the external switch.

Configuring XFM-8400/EFM-3200e Interface

The XFM-8400/EFM-3200e modules must be configured to communicate with the FlashBlade//S chassis.

To configure the XFM-8400/EFM-3200e modules:

- 1 Enter the **puremastership list** command to identify the master XFM-8400/EFM-3200e module.

```
$ puremastership list
Name  Mode
XFM1  master
XFM2  standby
```

- 2 Establish a console connection to the master XFM-8400/EFM-3200e module.
- 3 Enter the **sudo fbadmin mc-config** command on the master XFM, and choose the appropriate configuration option.

 **Important!** Only XFM-8400 modules are supported with chassis configurations using 2 x 100 splitter cables.

```
ir@irsled:~$ sudo fbadmin mc-config
Checking if running on entry point: OK (MC, on XFM)
Checking peer XFM: OK
Choose chassis configuration
  1) Flashblade with 5 chassis or less
  2) Flashblade with 6 chassis or more
  3) Flashblade //S using 100G cable
  4) Flashblade //E using 100G cable
  5) Flashblade //S using 2x100G splitter cable
  6) Flashblade //E using 2x100G splitter cable
  7) Flashblade Pre First Gen to S mode
Choose chassis configuration? 5
```

 **Note:** Steps 4 through 6 needs to be performed on the chassis FIOM before connecting the XFM-8400 modules to the chassis.

- 4 Establish a console connection to a FIOM and enter the **puremastership list** command to identify the master FIOM.
- 5 Manually set the uplink speed to 100 Gbps by entering the following command on the master FIOM:

```
exec.py -sa 'for i in {1..4}; do rpc.py -p switchd set_port_speed "{\"port\": \"qsfp\"$i\"/1\", \"speed\": 100, \"autoneg\": 0}\""; done'
[sup1.out] "OK"
[sup1.out] "OK"
[sup1.out] "OK"
[sup1.out] "OK"
[sup2.out] "OK"
[sup2.out] "OK"
[sup2.out] "OK"
[sup2.out] "OK"
```

- 6 If applicable, repeat steps 4 and 5 for additional chassis.

Connecting XFM-8400 Modules to Chassis (DCTv2)

A is equipped with a pair of XFM-8400 modules for multi-chassis configurations that can scale up to 10 chassis using Downlink Connection Topology version 2 (DCTv2) cable connections, which employs 2 x 100 Gb/s active optical splitter cables.

⚠ Important! EFM-3200e modules are not supported in configurations using 2 x 100 Gb/s splitter cables. For more information about legacy or Downlink Connection Topology version 1 (DCTv1) cable connection, refer to [Connecting EFM-3200e Modules to Chassis](#).

Unpack and inspect the optical cable accessory kit. Verify all the contents are included:

Table 4.2 Multi-Chassis Accessory Kit (80-2208-00)

Item	Description	Quantity	Notes
1	Optical splitter cable	4	0.5m
2	Blank label	1	Label dimensions, 4" x 6"

The following example shows the DCTv2 cable connections between a pair of XFM-8400 modules and a chassis.

⚠ Important! Only use MTP/MPO 24-strand fiber optic cables with 2 x 100 Gb/s AOC splitters.

Figure 4.7 Downlink Connection Topology version 2 (DCTv2) Interconnection

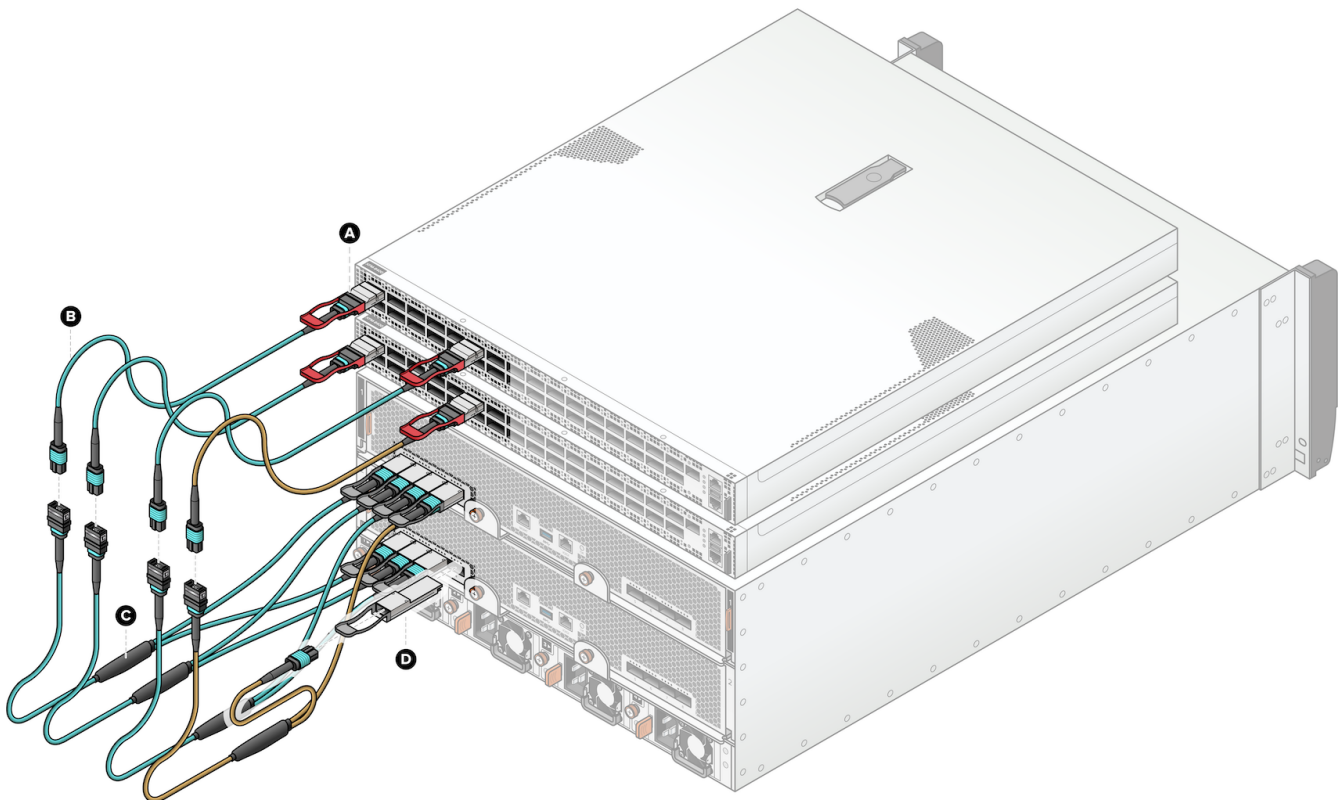


Table 4.3 DCTv2 Interconnection Components

Callout	Description
A	QSFP56 (200G optic)
B	24-strand fiber patch cable
C	Optical splitter cable
D	QSFP28 (100G optic)

XFM-8400 Modules to Chassis 1

Use the following instructions to connect a pair of XFM-8400 modules to a chassis.

⚠ Important! Do not connect any out-of-band management ports to individual chassis.

- 1 Retrieve active optical cable (AOC) splitters from the accessory kit.
- 2 Connect MTP/MPO 24-strand fiber patch cables (not included in accessory kit) to each AOC splitter.
- 3 Attach QSFP28 (100G optic) to fanout connections on splitter cables.
- 4 Attach QSFP56 (200G optic) to MTP/MPO 24-strand fiber patch cables on the XFM end.
- 5 Label the cables with XFM/FIOM port IDs as shown in the *Cable Configuration for Chassis 1* table.
- 6 Connect the cables from the XFMs to Chassis 1 in the connection order shown in the table.

Figure 4.8 Connecting Cables from XFMs to Chassis 1

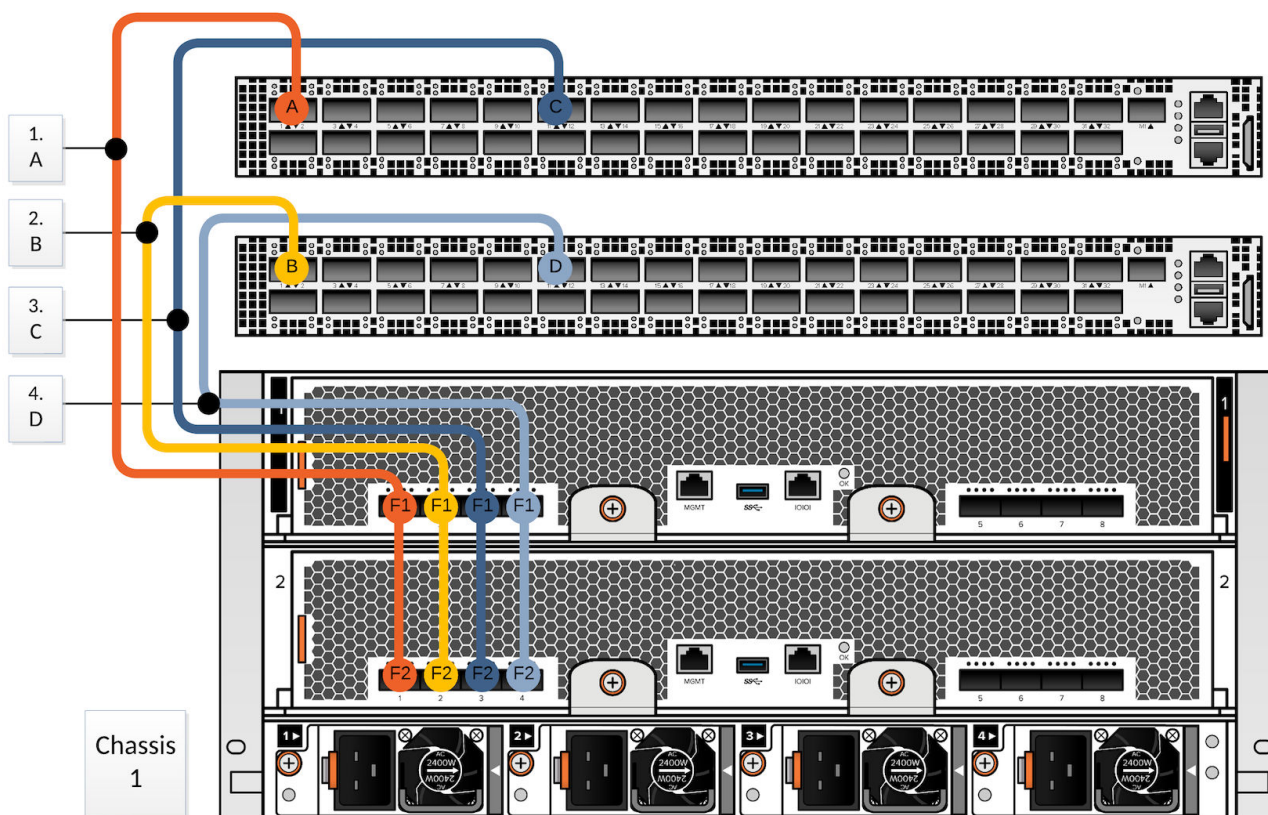


Table 4.4 Cable Configuration for Chassis 1

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
A 	XFM1.ETH1	F1	CH1.FM1.ETH1
		F2	CH1.FM2.ETH1
B 	XFM2.ETH1	F1	CH1.FM1:ETH2
		F2	CH1.FM2:ETH2
C 	XFM1.ETH11	F1	CH1.FM1:ETH3
		F2	CH1.FM2:ETH3

Table 4.4 Cable Configuration for Chassis 1 (continued)

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
D	XFM2.ETH11	F1	CH1.FM1:ETH4
		F2	CH1.FM2:ETH4

- 7 Verify the cables are connected to the assigned ports.
- 8 Pull each connector gently to ensure the latch is engaged. If applicable, proceed to the next section to connect additional chassis.
- 9 If applicable, repeat the previous steps for connecting additional chassis.

XFM-8400 Modules to Chassis 2

Figure 4.9 Connecting Cables from XFMs to Chassis 2

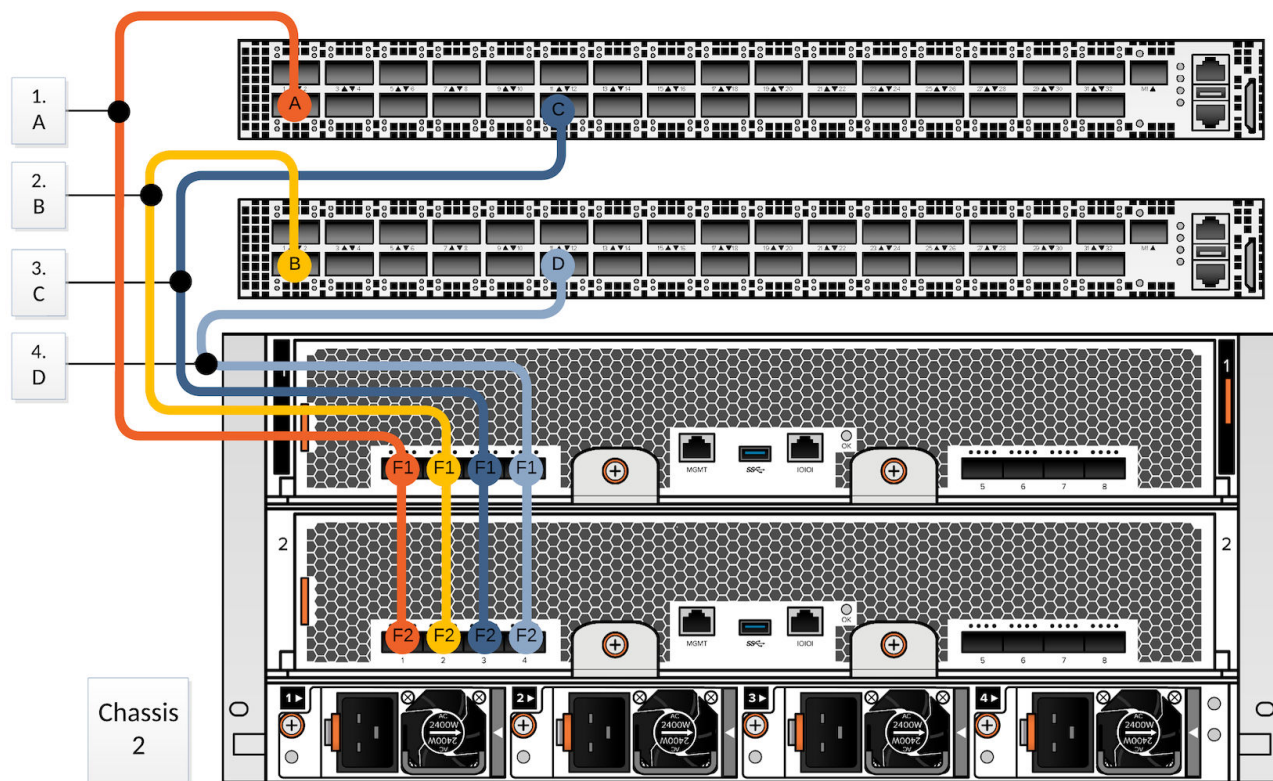


Table 4.5 Cable Configuration for Chassis 2

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
A 	XFM1.ETH2	F1	CH2.FM1.ETH1
		F2	CH2.FM2.ETH1
B 	XFM2.ETH2	F1	CH2.FM1.ETH2
		F2	CH2.FM2:ETH2
C 	XFM1.ETH12	F1	CH2.FM1:ETH3
		F2	CH2.FM2:ETH3
D 	XFM2.ETH12	F1	CH2.FM1:ETH4
		F2	CH2.FM2:ETH4

XFM-8400 Modules to Chassis 3

Figure 4.10 Connecting Cables from XFMs to Chassis 3

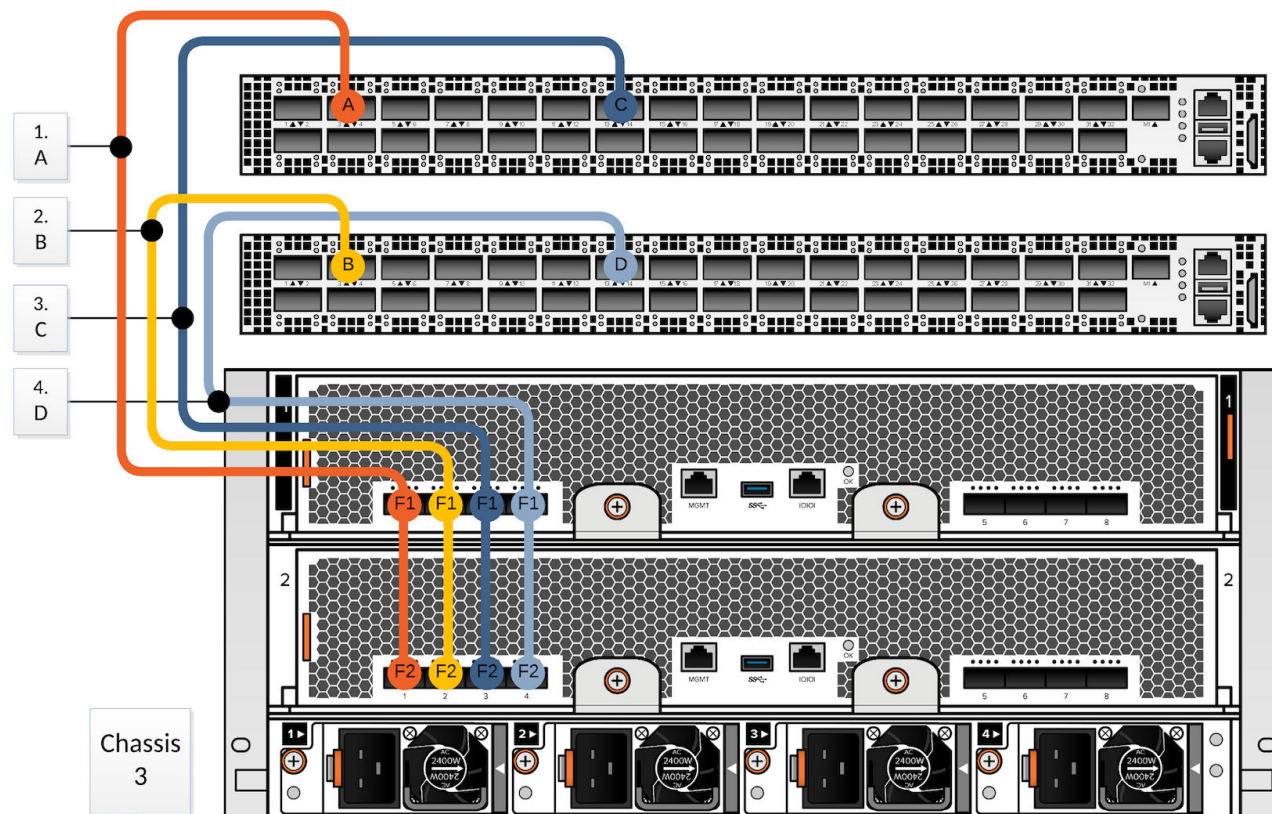


Table 4.6 Cable Configuration for Chassis 3

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
A 	XFM1.ETH3	F1	CH3.FM1.ETH1
		F2	CH3.FM2.ETH1
B 	XFM2.ETH3	F1	CH3.FM1.ETH2
		F2	CH3.FM2.ETH2
C 	XFM1.ETH13	F1	CH3.FM1.ETH3
		F2	CH3.FM2.ETH3

Table 4.6 Cable Configuration for Chassis 3 (continued)

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
D	XFM2.ETH13	F1	CH3.FM1:ETH4
		F2	CH3.FM2:ETH4

XFM-8400 Modules to Chassis 4

Figure 4.11 Connecting Cables from XFMs to Chassis 4

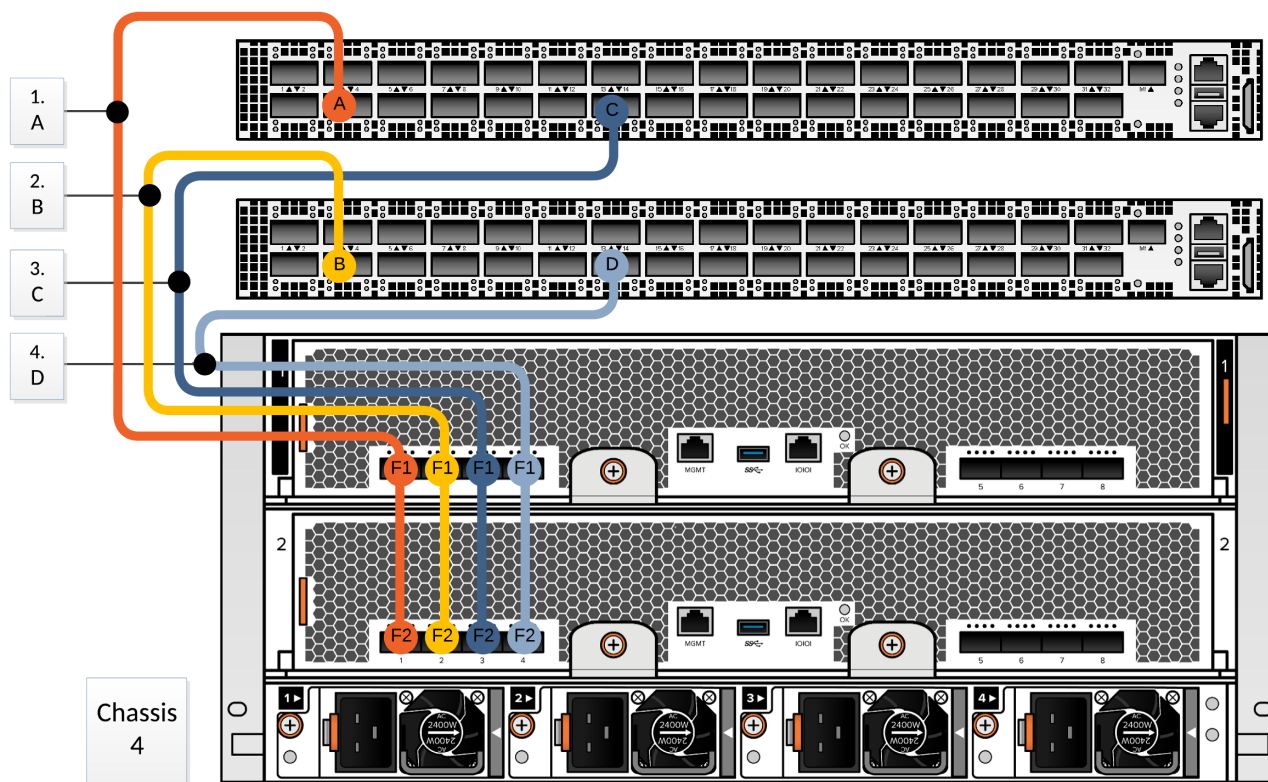


Table 4.7 Cable Configuration for Chassis 4

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
A	XFM1.ETH4	F1	CH4.FM1:ETH1
		F2	CH4.FM2:ETH1

Table 4.7 Cable Configuration for Chassis 4 (continued)

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
B 	XFM2.ETH4	F1	CH4.FM1:ETH2
		F2	CH4.FM2:ETH2
C 	XFM1.ETH14	F1	CH4.FM1:ETH3
		F2	CH4.FM2:ETH3
D 	XFM2.ETH14	F1	CH4.FM1:ETH4
		F2	CH4.FM2:ETH4

XFM-8400 Modules to Chassis 5

Figure 4.12 Connecting Cables from XFMs to Chassis 5

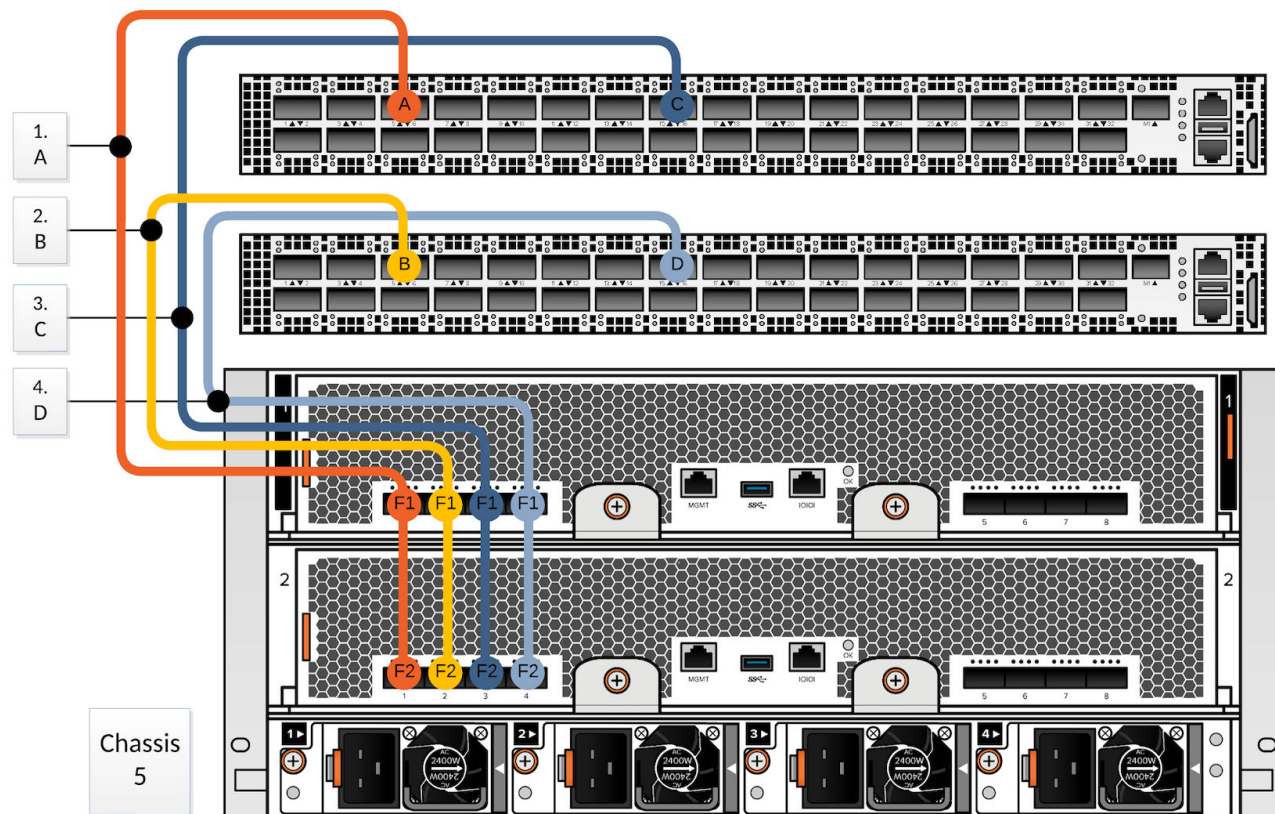


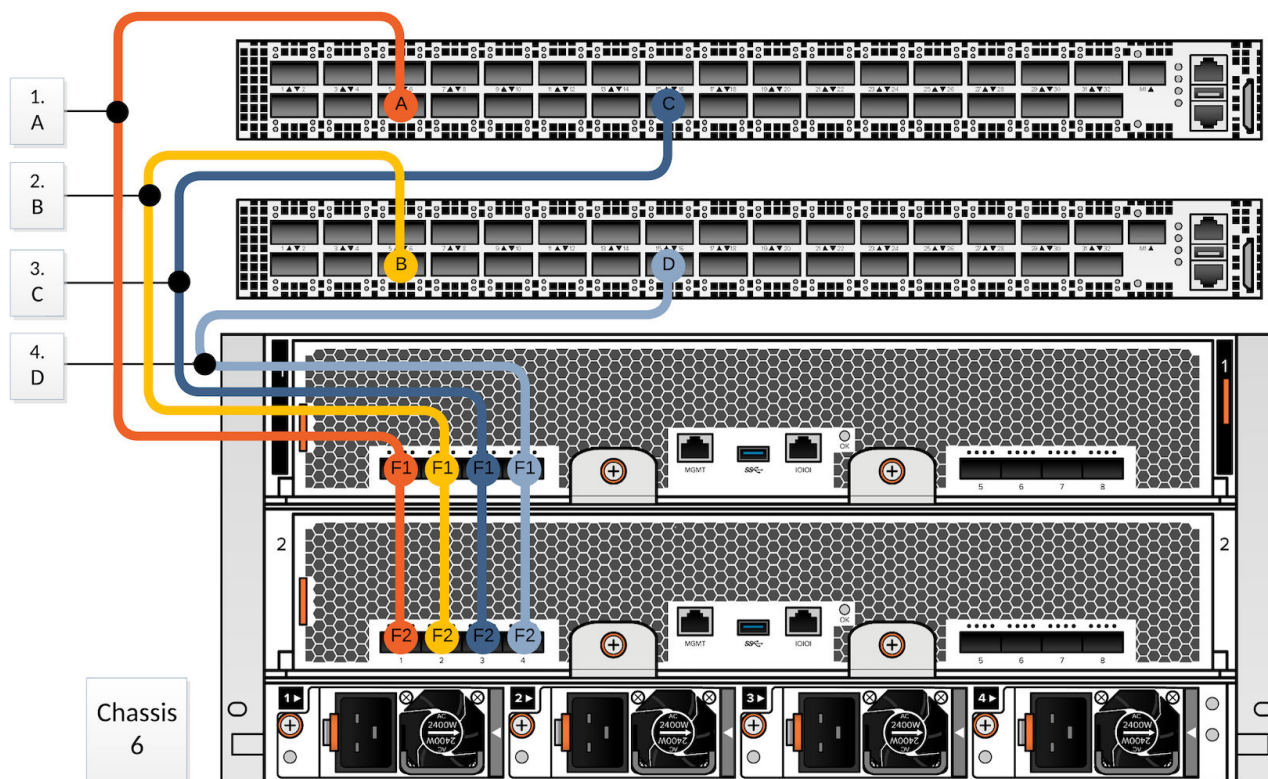
Table 4.8 Cable Configuration for Chassis 5

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
A 	XFM1.ETH5	F1	CH5.FM1.ETH1
		F2	CH5.FM2.ETH1
B 	XFM2.ETH5	F1	CH5.FM1.ETH2
		F2	CH5.FM2:ETH2
C 	XFM1.ETH15	F1	CH5.FM1.ETH3
		F2	CH5.FM2:ETH3

Table 4.8 Cable Configuration for Chassis 5 (continued)

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
D 	XFM2.ETH15	F1	CH5.FM1:ETH4
		F2	CH5.FM2:ETH4

XFM-8400 Modules to Chassis 6

Figure 4.13 Connecting Cables from XFMs to Chassis 6

Table 4.9 Cable Configuration for Chassis 6

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
A 	XFM1.ETH6	F1	CH6.FM1.ETH1
		F2	CH6.FM2.ETH1

Table 4.9 Cable Configuration for Chassis 6 (continued)

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
B 	XFM2.ETH6	F1	CH6.FM1:ETH2
		F2	CH6.FM2:ETH2
C 	XFM1.ETH16	F1	CH6.FM1:ETH3
		F2	CH6.FM2:ETH3
D 	XFM2.ETH16	F1	CH6.FM1:ETH4
		F2	CH6.FM2:ETH4

XFM-8400 Modules to Chassis 7

Figure 4.14 Connecting Cables from XFMs to Chassis 7

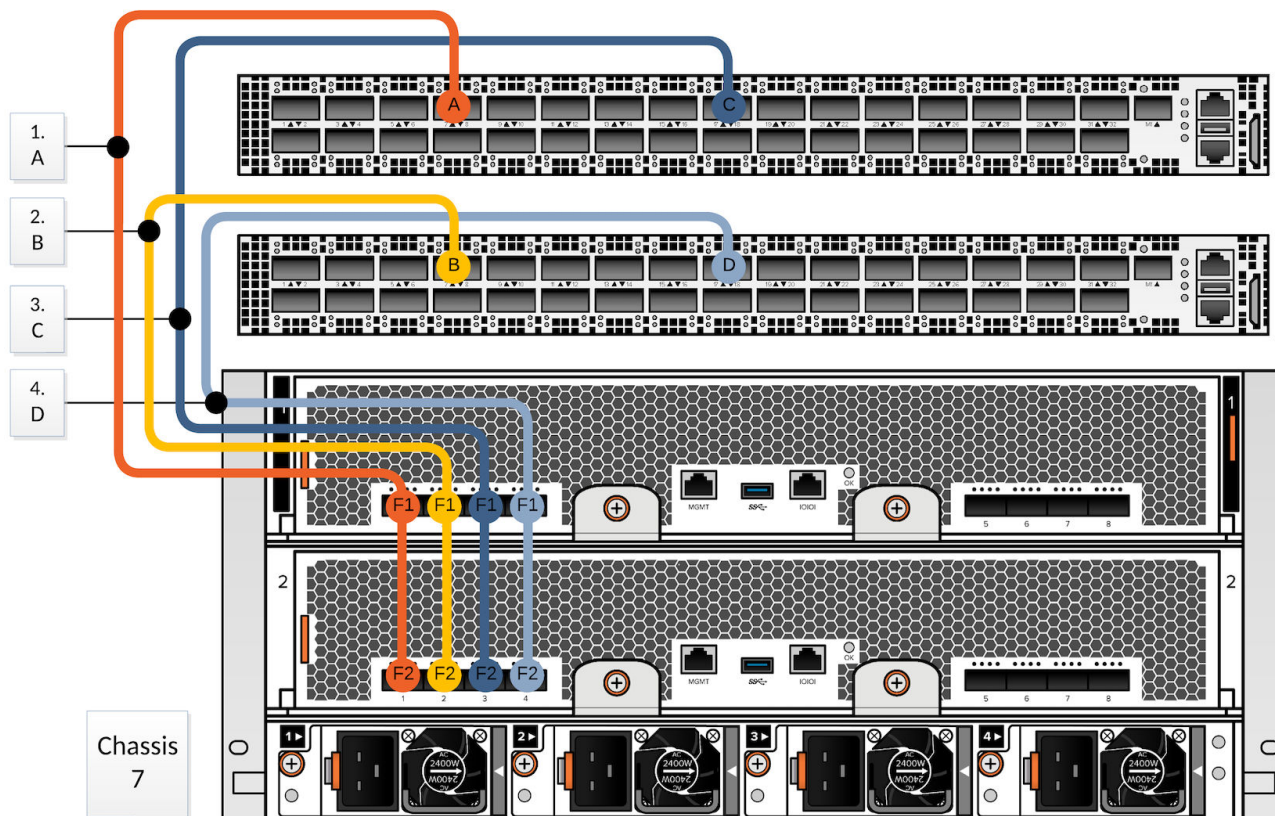


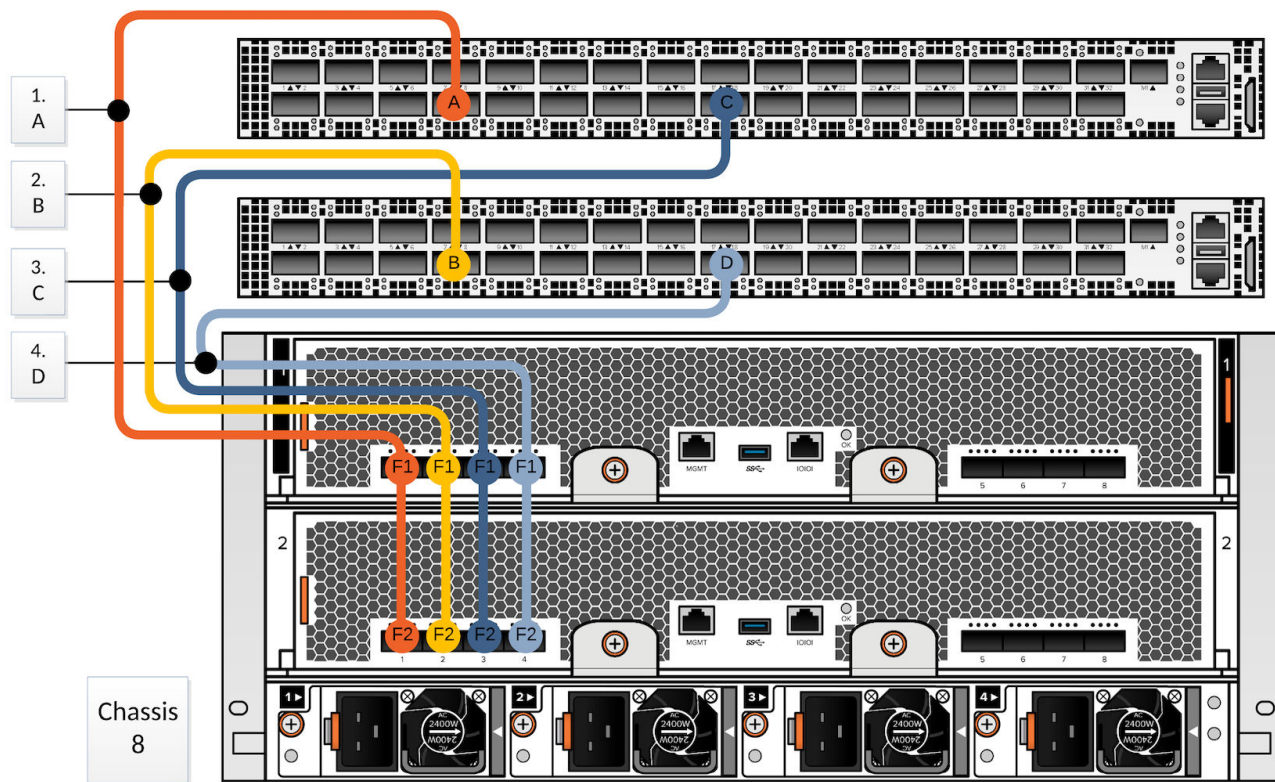
Table 4.10 Cable Configuration for Chassis 7

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
A 	XFM1.ETH7	F1	CH7.FM1.ETH1
		F2	CH7.FM2.ETH1
B 	XFM2.ETH7	F1	CH7.FM1.ETH2
		F2	CH7.FM2.ETH2
C 	XFM1.ETH17	F1	CH7.FM1.ETH3
		F2	CH7.FM2.ETH3

Table 4.10 Cable Configuration for Chassis 7 (continued)

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
D 	XFM2.ETH17	F1	CH7.FM1:ETH4
		F2	CH7.FM2:ETH4

XFM-8400 Modules to Chassis 8

Figure 4.15 Connecting Cables from XFMs to Chassis 8

Table 4.11 Cable Configuration for Chassis 8

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
A 	XFM1.ETH8	F1	CH8.FM1.ETH1
		F2	CH8.FM2.ETH1

Table 4.11 Cable Configuration for Chassis 8 (continued)

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
B 	XFM2.ETH8	F1	CH8.FM1:ETH2
		F2	CH8.FM2:ETH2
C 	XFM1.ETH18	F1	CH8.FM1:ETH3
		F2	CH8.FM2:ETH3
D 	XFM2.ETH18	F1	CH8.FM1:ETH4
		F2	CH8.FM2:ETH4

XFM-8400 Modules to Chassis 9

Figure 4.16 Connecting Cables from XFMs to Chassis 9

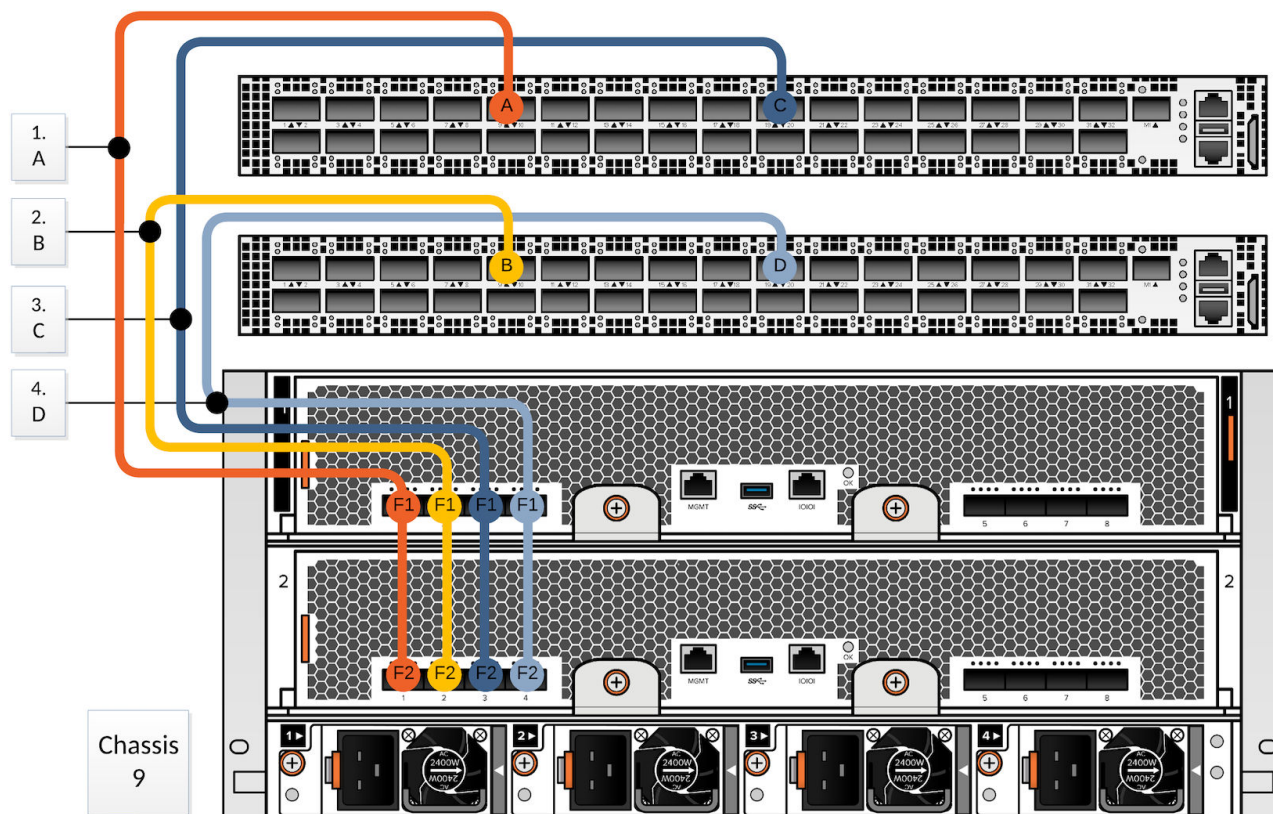


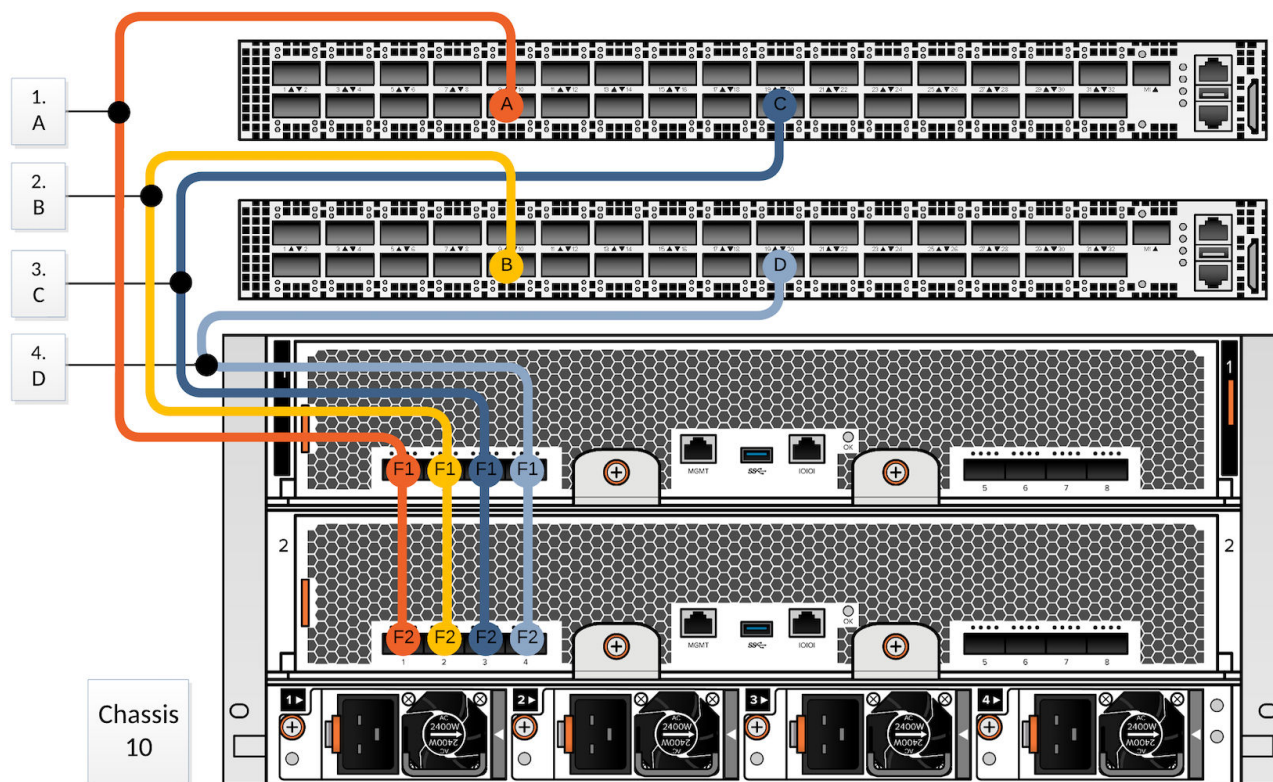
Table 4.12 Cable Configuration for Chassis 9

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
A 	XFM1.ETH9	F1	CH9.FM1.ETH1
		F2	CH9.FM2.ETH1
B 	XFM2.ETH9	F1	CH9.FM1.ETH2
		F2	CH9.FM2:ETH2
C 	XFM1.ETH19	F1	CH9.FM1.ETH3
		F2	CH9.FM2:ETH3

Table 4.12 Cable Configuration for Chassis 9 (continued)

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
D 	XFM2.ETH19	F1	CH9.FM1:ETH4
		F2	CH9.FM2:ETH4

XFM-8400 Modules to Chassis 10

Figure 4.17 Connecting Cables from XFMs to Chassis 10

Table 4.13 Cable Configuration for Chassis 10

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
A 	XFM1.ETH10	F1	CH10.FM1:ETH1
		F2	CH10.FM2:ETH1

Table 4.13 Cable Configuration for Chassis 10 (continued)

Cable	XFM-ETH Port	Fanout End	Chassis-FIOM Port
B 	XFM2.ETH10	F1	CH10.FM1:ETH2
		F2	CH10.FM2:ETH2
C 	XFM1.ETH20	F1	CH10.FM1:ETH3
		F2	CH10.FM2:ETH3
D 	XFM2.ETH20	F1	CH10.FM1:ETH4
		F2	CH10.FM2:ETH4

Upgrading FlashBlade//S Chassis

⚠ Important! Do not connect any network (uplink) cables to the XFM-8400/EFM-3200e modules until the Purity//FB software is upgraded.

To upgrade the chassis:

- 1 Verify the mastership of the XFM. Enter the **puremastership list** command. For example:

```
ir@irsled:~$ puremastership list
Name    Mode
XFM1    master
XFM2    standby
```

Before proceeding to the next step, confirm all blades and DirectFlash Modules are properly installed. Also review the [FlashBlade Field Team Installation Runbook](#) for any caveats that may be encountered during the installation.

- 2 Establish a console connection to the master XFM-8400/EFM-3200e module.

- 3 Enter the **purehw list --type ch** command, and verify all connected FlashBlade//S chassis are displayed.

```
$ purehw list --type ch
Name   Status   Identify Slot Index Speed Temperature Details
CH1    healthy  off      -      1      -      -           -
CH2    healthy  off      -      2      -      -           -
CH3    healthy  off      -      3      -      -           -
CH4    healthy  off      -      4      -      -           -
```

⚠ Important! The **purehw list --type ch** command may not properly list/display all the chassis if fiber optic cables are used for chassis links. If this issue occurs, establish a console connection to each chassis (in configuration) and run the **exec.py -s1,2 "transceiver.py"** command. Wait 5 to 10 minutes for the chassis discovery process to complete after running the command. Rerun **purehw list --type ch** to ensure all chassis are displayed.

- 4 Enter the **exec.py -xa -sa ir_version | grep build** command, and verify all connected FlashBlade//S chassis are displayed.
- 5 Enter the **fbdiag mc-link-check** command to verify the XFMs and FlashBlade//S chassis are connected correctly.

```
$ fbdiag mc-link-check
Cabling configuration is correct.
```

- 6 Perform the upgrade of Purity//FB software across all the chassis. Enter the following command on the master XFM to upgrade from a CTO release.

```
ir@irsled:~$ sudo /ssd/releases/elasticity.run upgrade -sa -na --not-
bootstrapped --disruptive --skip-fbhealth-check
```

Connecting XFM-8400/EFM-3200e to Upstream Switch

Use the checklist to ensure accuracy when connecting and configuring a network switch.

- Confirm the number of switches connecting to the XFM-8400/EFM-3200e modules.
- If you are using multiple switches, ensure a multi-chassis link aggregation group (MLAG) is configured between the switches.
- Determine which ports will be connecting to the XFM-8400/EFM-3200e modules.

- Verify all switch ports (connecting to the same FB ETH LAG group) are on the same port channel.
- Ensure all ports in the port channel are configured identically (access mode/trunk edge).
- Set the port speed as *fixed, no auto-negotiation*.
- Set the port channel to *active mode*.
- Determine which VLAN IDs are in use for the XFM-8400/EFM-3200e modules subnets.
- Verify the port channel allows the determined VLANs.

The FlashBlade//S multi-chassis configuration is equipped with two XFM-8400/EFM-3200e modules (also referred as *XFM*s) which are always serving input/output operations. The data virtual IPs are accessible through ports on XFM1 and XFM2. The network switches must be connected before initializing the storage system.

- Connect to all network switch ports connecting to the XFM-8400/EFM-3200e ETH ports (which are part of the same LAG group) into a single LACP group. The switch port can be configured as an access port or a trunk port.
- Use two switches for redundancy as recommended. When using two switches, chassis aggregation must be configured between switches. LACP is the only supported link aggregation scheme.

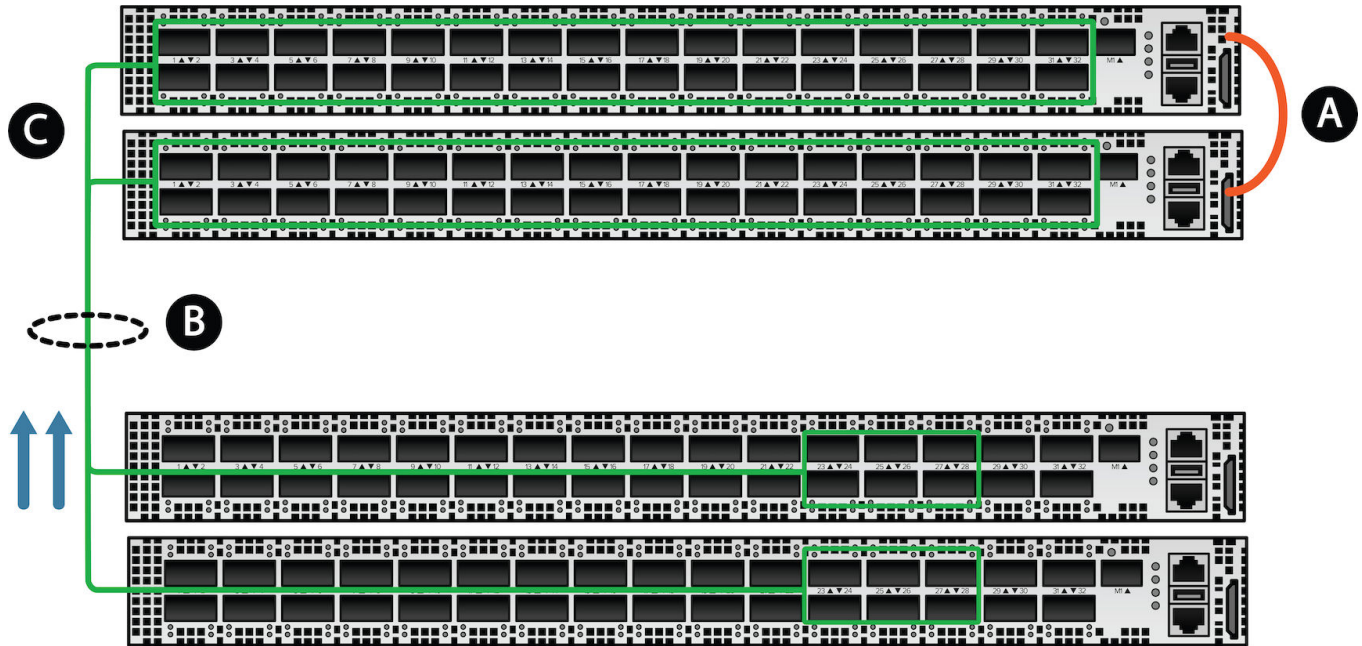
Table 4.14 Supported Chassis Aggregation Schemes

Chassis Aggregation	Vendor	Supported
MLAG	Arista	Yes
VSS	Cisco (6500)	No
VPC	Cisco (Nexus)	Yes
VLAG	Brocade	Not tested
MC-LAG	Juniper	Yes

Configuration Example

The following example shows all the links between a pair of XFM-8400 modules and switches of a single link aggregation group (LAG).

Figure 4.18 Example of Link Aggregation Setup



Callout	Description
A	Switches configured for link aggregation
B	Port channels
C	Uplink link ports (switch 1 [top]), (switch 2 [bottom])

Optional Network Cables and Transceivers

FlashBlade//S supports a variety of network cables and transceivers. For more information, visit [FlashBlade Transceiver and Cable Support](#).

Verifying Switch Configuration

Verify if the configuration is properly configured and active after completing the switch configuration. For example, to verify a configuration on Arista switches:

- 1 Check the status of MLAG. The state should indicate **Active**. Also, both **peer-link status** and **local-int status** should indicate as **Up**.

```
switch1#show mlag
MLAG Configuration:
domain-id          :          peer-mlag
local-interface    :          Vlan2000
peer-address       :          192.168.1.2
peer-link          :          Port-Channel2000

MLAG Status:
state              :          Active
negotiation status :          Connected
peer-link status  :          Up
local-int status :          Up
system-id         :          46:4c:a8:2d:dd:d3

MLAG Ports:
Disabled           :          0
Configured         :          0
Inactive           :          0
Active-partial     :          0
Active-full        :          2
```

- 2 Check the status of the port channels connecting to the FlashBlade//S system.

 **Note:** The switch port channel connected to the FlashBlade//S system is expected to be in a healthy state once the FlashBlade//S is configured. Use the procedure in the next section to configure the FlashBlade//S system.

```
switch1#sh port-channel 60
Port Channel Port-Channel60:
  Active Ports: Ethernet49/1      Ethernet49/2      Ethernet49/3
                Ethernet49/4      Ethernet50/1      Ethernet50/2
                Ethernet50/3      Ethernet50/4      Ethernet51/1
                Ethernet51/2      Ethernet51/3      Ethernet51/4
                Ethernet52/1      Ethernet52/2      Ethernet52/3
                Ethernet52/4      PeerEthernet49/1  PeerEthernet49/2
                PeerEthernet49/3  PeerEthernet49/4  PeerEthernet50/1
                PeerEthernet50/2  PeerEthernet50/3  PeerEthernet50/4
                PeerEthernet51/1  PeerEthernet51/2  PeerEthernet51/3
                PeerEthernet51/4  PeerEthernet52/1  PeerEthernet52/2
                PeerEthernet52/3  PeerEthernet52/4
```

Configuring FlashBlade//S

Continue with the following sections to configure the FlashBlade//S system. The configuration process includes the following:

- Setting up FlashBlade//S

- Performing health checks of the system
- Creating network and data VIPs

Setting Up FlashBlade//S

To set up the system:

- 1 From the master XFM, run the **sudo fbsetup** command to initiate the setup process. For example:

```
ir@irsled:~$ sudo fbsetup
FlashBlade Setup Wizard 4.3.x started Tue Jun  6 23:48:14 2023 UTC
Checking if running on entry point: OK (MC, on XFM)
Checking peer XFM: OK
Checking for tunables on XFMs: OK
Local XFM status: master
Peer XFM status: standby
Determining chassis present: 1-4
Determining blades present: 1.1-10,2.1-10,3.1-10,4.1-10
Checking for tunables on XFMs, FMs, and blades: OK
Checking health of all components (XFMs, FMs, and blades): OK
Array status: not bootstrapped
Checking version of all components (XFMs, FMs, and blades): OK
deploy: 79438b4d unknown
elasticity: 4.3.0
Note: if you make an entry error, hit Control-C and start over
```

- 2 Confirm the detected transceivers are correct. Enter **y** or **n** to modify the recommended settings. For example:

```
Configuring switch virtual MAC addresses
Detecting transceivers
Port          Vendor          Part Number      Type              Setting
-----
XFM1.ETH21    Arista Networks QSFP28-SR4-100G  100GBASE-SR4     AUTO
XFM1.ETH22    Arista Networks QSFP28-SR4-100G  100GBASE-SR4     AUTO
XFM1.ETH23    Arista Networks QSFP28-SR4-100G  100GBASE-SR4     AUTO
XFM1.ETH24    Arista Networks QSFP28-SR4-100G  100GBASE-SR4     AUTO
XFM1.ETH25    -               -                -                 AUTO
XFM1.ETH26    -               -                -                 AUTO
XFM1.ETH27    -               -                -                 AUTO
XFM1.ETH28    -               -                -                 AUTO
XFM2.ETH21    Arista Networks QSFP28-SR4-100G  100GBASE-SR4     AUTO
XFM2.ETH22    Arista Networks QSFP28-SR4-100G  100GBASE-SR4     AUTO
XFM2.ETH23    Arista Networks QSFP28-SR4-100G  100GBASE-SR4     AUTO
XFM2.ETH24    Arista Networks QSFP28-SR4-100G  100GBASE-SR4     AUTO
XFM2.ETH25    -               -                -                 AUTO
XFM2.ETH26    -               -                -                 AUTO
XFM2.ETH27    -               -                -                 AUTO
XFM2.ETH28    -               -                -                 AUTO
Modify these recommended settings (y/n)? [n]
```

3 Configure the link aggregation group (LAG). Choose a LAG configuration option. For example:

```
Configuring uplink 802.3ad Link Aggregation Groups.
FMs are configured symmetrically, so the number of ports per LAG will be
doubled.
Choices for LAG configuration:
  1) MC Single LAG
  2) MC Double LAG, (ETH21, ETH22, ETH23, ETH24) + (ETH25, ETH26, ETH27,
ETH28)
  3) MC Double LAG, (admin on ETH21) + (ETH22 - ETH28)
LAG configuration? [1]
Configuring port speed for LAG uplink
Current port configuration for LAG uplink: (ETH21, ETH22, ETH23, ETH24,
ETH25, ETH26, ETH27, ETH28)
Choices for Port speed:
  1) 200G
  2) 100G
  3) 40G
  4) 25G
  5) 10G
Port speed? [1]
New configuration for LAG uplink: 8x100GbE (ETH21, ETH22, ETH23, ETH24,
ETH25, ETH26, ETH27, ETH28)
Using MAC address 24:a9:37:d1:10:22 for LAG "uplink"
Restarting peer switch manager
Restarting local switch manager
Waiting for switches up: 6 seconds
```

4 Enter the hostname and domain information. For example:

 **Note:** Hostnames with underscores (_) are not supported.

```
Hostname? [fb]
Domainname? [purestorage.com]
Pure1 senderdomain? [purestorage.com]
Logs for fb.dev.purestorage.com will appear on FUSE under /ir_logs/
purestorage.com/redarrow
Automatic configuration: setting staging to False
```

 **Note:** Purity//FB versions prior to 4.3.0 release will ask if this setup is a "Pure colo/internal staging system". Enter the appropriate option.

5 Configure the time zone settings.

6 Configure the IPv4 admin interface. Enter **y** and the applicable IP address settings. For example:

```
Configure IPv4 admin interface (y/n)? [y]
IPv4 admin VIP? 10.211.0.20
IPv4 admin IP1? 10.211.0.21
IPv4 admin IP2? 10.211.0.22
Use out of band management port for admin interface? (y/n)? [n] y
IPv4 admin netmask or prefix length (e.g. 255.255.255.0 or 24)? 22
Calculated IPv4 admin network prefix: 10.211.0.0/22
Is IPv4 admin subnet L3-routed via a gateway (y/n)? [y]
IPv4 admin gateway address? 10.211.0.21 1
IPv4 admin subnet VLAN ID (0 for untagged/none) (0-4094)? [0]
IPv4 admin subnet name? [net1] mgmt
Configure IPv6 admin interface (y/n)? [n]
IPv4 configuration summary:
  Name: mgmt
  LAG: (none)
  VLAN ID: 0 (untagged)
  Subnet: 10.211.0.0/22
  Admin VIP: 10.211.0.20
  Admin IP1: 10.211.0.21
  Admin IP2: 10.211.0.22
  Gateway: 10.211.0.1
IPv6 configuration summary:
  Not configured
```

A summary of the entered network information is displayed.

```
IPv4 configuration summary:
  Name: subl
  LAG: uplink
  VLAN ID: 0 (untagged)
  Subnet: 10.233.127.0/24
  Admin VIP: 10.233.127.135
  Admin IP1: 10.233.127.136
  Admin IP2: 10.233.127.137
  Gateway: 10.233.127.254
IPv6 configuration summary:
  Not configured
```

7 Configure the DNS server. Enter the applicable settings for the DNS server. For example:

```
Add DNS nameserver IPv4/IPv6 address (empty when done)? 10.70.8.11
Add DNS nameserver IPv4/IPv6 address (empty when done)? 10.70.72.6
Add DNS nameserver IPv4/IPv6 address (empty when done)?
DNS nameservers: 10.70.8.11 10.70.72.6
First DNS search suffix: dev.purestorage.com
Add additional DNS search suffixes (y/n)? [n]
```

8 Configure the NTP server. Enter the applicable settings for the NTP servers. For example:

i Tip: Two or more unique servers are recommended for stability.

```
NOTE: Pure strongly recommends that three or more NTP servers are used.
With fewer, NTP clients may fail to lock onto a clock source and experience
drift.
Add NTP server (empty when done)? 0.pool.ntp.org
Add NTP server (empty when done)? 1.pool.ntp.org
Add NTP server (empty when done)? 2.pool.ntp.org
Add NTP server (empty when done)? 3.pool.ntp.org
Add NTP server (empty when done)?
NTP servers: 0.pool.ntp.org 1.pool.ntp.org 2.pool.ntp.org 3.pool.ntp.org
Add watcher email (empty when done)? fladmin@purestorage.com
Enable watcher fladmin@purestorage.com (y/n)? [y]
Add watcher email (empty when done)? fladmin2@purestorage.com
Enable watcher fladmin2@purestorage.com (y/n)? [y]
Add watcher email (empty when done)?
```

After entering the network information, the FlashBlade//S system performs a check of the gateway and DNS.

```
Restarting networking on peer FM
Restarting networking on local FM
[ 2283.158631,001] bond0: (slave ir0): speed changed to 0 on port 1
Restarting ccm
Checking gateway 10.211.0.1: success
Checking DNS server 10.70.8.11: success
Checking DNS server 10.70.72.6: success
```

9 If applicable, set up proxy setting for *phonehome*.

⚠ Important! Enabling the *phonehome* setting enables Pure1 to receive system logs for troubleshooting purposes.

```
No Internet proxy is configured
Configure a proxy (y/n)? [n]
```

10 Enter **y** to enable *log upload* setting.

```
Enable log upload which is currently disabled (y/n)? [n] y
Log upload will be enabled
Resetting log uploader
```

📄 Note: Prepare device helper will execute after enabling the *log upload* setting. Although there are additional logs displayed, no action from the user will required.

```
Preparing WSSDs (if present). This may take up to 10 minutes.
Completed preparing WSSDs.
```


- 11** Enter **y** to bootstrap the array. For example:

```
Bootstrap array (y/n)? [y]
Blades to bootstrap? [1.1-10,2.1-10,3.1-10,4.1-10,5.1-10]
Running health check: OK
Bootstrapping array with blades 1.1-10,2.1-10,3.1-10,4.1-10,5.1-10.
Stopping software
  Inuk
  Alert daemon
  GUI server
  Public REST server
  Token Exchange server
Starting software
  Inuk
```

- 12** Enter **n** to disable *ir* *ssh*. Change the default *ir* user password to enhance security. Enter **y** to change the password.

 **Note:** The user might be prompted to enter the password twice while changing the default password for an *ir* user.

```
Currently, ssh access is DISABLED for the ir user.
If ssh is DISABLED for ir, remote logins must go through Dynamic Root
Password.
NOTE: Changing the setting here will only take effect upon system reboot.
      For immediate effect, see KB Enabling and Disabling Dynamic Root
Password
      for FlashBlade.
Enable ir ssh (y/n)? [n]
ir user password is the default. If the ir account is enabled, it is highly
recommended that you change this to a password that is unique and is not used
on any other systems. If it is being enabled for use by the customer at a
dark site, they should choose and manage the password you are setting.
Change ir user password (y/n)? [y]
```

- 13** Restart the system. Enter **y** to restart the FlashBlade//S system.

```
On a new install, it is recommended to restart the system before final test.
Restart system now (y/n)? [y]
FlashBlade Setup Wizard 4.3.0 finished Thu Jul 13 22:03:06 2023 UTC
System restart initiated

ir@irsled:~$
ir@irsled:~$ [ 2739.125791,000] reboot: Restarting system
Checkpoint 19
```

After the FlashBlade//S restarts, wait 10 minutes for the system to complete its initialization process before performing health checks of the array.

Performing System Health Checks

After the system restart is complete, perform a health check to ensure the FlashBlade//S system is running properly without any issues.

 **Note:** Make sure to download the latest version of fbtools package to the master XFM-8400/EFM-3200e module before running a system health check.

To perform a health check:

- 1 Locate the latest version of fbtools package on Fuse at `/support/fbtools` and download to the master XFM before running a system health check.

- 2 Log into the system.

 **Note:** The `disable_ir_ssh` command will disallow any login as the `ir` user. Login as `pureeng` user and then issue `sudo su ir` command to regain `ir` user access. Any further login requires this step.

- 3 Perform a health check of the system. Enter the `/ssd/releases/fbtools-*/scripts/fbhealth`. For example:

```
ir@fb-xfm1:~$ /ssd/releases/fbtools-*/scripts/fbhealth
```

- 4 Verify the cable connections are correct. On the master XFM, enter the `fbdiag mc-link-check` command. For example:

```
ir@fb-xfm2:~$  
ir@fb-xfm2:~$ fbdiag mc-link-check  
Cabling configuration is correct.
```

- 5 Verify the supervisors are active. Enter the `puremastership list` command. For example:

```
ir@fb-xfm1:~$ puremastership list  
Name  Mode  
XFM2  master  
XFM1  standby
```

- 6 Verify the network configuration for DNS server is correct. Enter the `puredns list` command. For example:

```
ir@fb-xfm1:~$ puredns list  
Domain  Nameservers  
-        10.233.127.10  
         10.233.127.11
```

- 7 Verify the network configuration is correct. Enter the **purenetwork list** command. For example:

```
ir@fb-xfm1:~$ purenetwork list
Name      Enabled Subnet Address      VLAN Mask           Gateway      MTU  Services
fm1.admin0 True    net1  10.233.127.136 0    255.255.240.0 10.233.127.254 1500 support
fm2.admin0 True    net1  10.233.127.137 0    255.255.240.0 10.233.127.254 1500 support
vir0      True    net1  10.233.127.135 0    255.255.240.0 10.233.127.254 1500 management
```

Ping the gateway address to verify connectivity. For example:

```
ir@fb-xfm1:~$ ping 10.233.127.254
PING 10.233.127.254 (10.233.127.254) 56(84) bytes of data.
64 bytes from 10.233.127.254: icmp_seq=1 ttl=64 time=0.246 ms
64 bytes from 10.233.127.254: icmp_seq=2 ttl=64 time=0.139 ms
^C

--- 10.233.127.254 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 0.139/0.192/0.246/0.055 ms
```

- 8 Verify the software version is correct. Enter the **purearray list** command. For example:

```
ir@fb-xfm2:~$ purearray list
Name      ID                               Version Security Update Product Type      Revision
fb        10bbefd1-167f-4153-87e6-f894b54280ba 4.4.x -          FlashBlade//S200 06ca0874
ir@fb-xfm1:~$
```

- 9 Check all components are reporting proper functioning status. Enter the **purehw list** command. For example:

```
ir@fb-xfm2:~$ purehw list
Name      Status Identify Slot Index Speed      Temperature Details
CH1       healthy off      -    1    -        -          -
CH1.FB1   healthy off      1    -    -        19 C      -
CH1.FB1.BAY1 healthy off      1    -    -        -          -
CH1.FB1.BAY2 healthy off      2    -    -        -          -
CH1.FB1.BAY3 healthy off      3    -    -        -          -
CH1.FB1.BAY4 healthy off      4    -    -        -          -
CH1.FB2   healthy off      2    -    -        19 C      -
CH1.FB2.BAY1 healthy off      1    -    -        -          -
CH1.FB2.BAY2 healthy off      2    -    -        -          -
CH1.FB2.BAY3 healthy off      3    -    -        -          -
CH1.FB2.BAY4 healthy off      4    -    -        -          -
...
XFM1.ETH1.1 healthy -        1    1    100 Gbps -          -
XFM1.ETH1.2 healthy -        1    2    100 Gbps -          -
XFM1.ETH2.1 healthy -        2    1    100 Gbps -          -
XFM1.ETH2.2 healthy -        2    2    100 Gbps -          -
XFM1.ETH3.1 healthy -        3    1    100 Gbps -          -
XFM1.ETH3.2 healthy -        3    2    100 Gbps -          -
...
XFM2.ETH1.1 healthy -        1    1    100 Gbps -          -
XFM2.ETH1.2 healthy -        1    2    100 Gbps -          -
XFM2.ETH2.1 healthy -        2    1    100 Gbps -          -
XFM2.ETH2.2 healthy -        2    2    100 Gbps -          -
XFM2.ETH3.1 healthy -        3    1    100 Gbps -          -
```

```
XFM2.ETH3.2    healthy    -          3      2      100 Gbps    -          -
...
ir@fb-xfm2:~$
```

 **Note:** A truncated output is shown for this example.

- 10 Confirm Remote Assist (RA) is functioning properly. Enter the **puresupport connect** command.

 **Important!** When RA is enabled, contact Pure Storage Technical Services to validate RA.

```
ir@fb-xfm2:~$ puresupport connect
Name  Status    Opened                Expires
fb    connected 2023-01-21 20:04:18 PDT 2023-01-23 20:04:21 PDT
ir@fb-xfm2:~$
```

- 11 After validating RA communication is active, enter the **puresupport disconnect** command to disconnect from RA.

Creating Data VIP Addresses

Create data VIP addresses for connection redundancy and portability.

- 1 Create the data VIP:

- a Check for active network subnet. Enter the **puresubnet list** command. For example:

```
ir@fb-xfm2:~$ puresubnet list
Name    Enabled Prefix          VLAN Gateway      MTU  LAG    Services    Interfaces
net1     True   10.233.112.0/22  0      10.233.127.253 1500 -      management support
                                vm1.admin0
                                vm2.admin0
                                vir0
vlan3226 True   10.233.112.0/22  3226  10.233.112.1   1500 uplink data      v3226-data
```

- b Add the subnet. Enter the **puresubnet create net2 --prefix <IP subnet address> --vlan <vlan number> --gateway <gateway address>** command. For example:

 **Note:** Make sure you are not using an existing subnet before creating one.

```
ir@fb-xfm2:~$ puresubnet create --prefix 10.235.160.0/22 --vlan 203 --gateway 10.235.160.1 --mtu 1500 --lag uplink data
Name    Enabled Prefix          VLAN Gateway      MTU  LAG    Services    Interfaces
data     True   10.235.160.0/22  203  10.235.160.1   1500 uplink -      support
```

- c Check for available network. Enter the **purenetwork list** command. For example:

```
ir@fb-xfm2:~$ purenetwork list
Name    Enabled Subnet Address      VLAN Mask          Gateway      MTU  Services
fm1.admin0 True   mgmt  10.235.116.58 202 255.255.252.0 10.235.116.1 1500 support
fm2.admin0 True   mgmt  10.235.116.59 202 255.255.252.0 10.235.116.1 1500 support
vir0     True   mgmt  10.235.116.57 202 255.255.252.0 10.235.116.1 1500 management
```

- d Create the data VIP. Enter the **purenetwork create vip --address <IP Address> --servicelist data data01** command. For example:

 **Note:** You can use the GUI or CLI to create data VIPs.

```
ir@fb-xfm2:~$ purenetwork vip create --address 10.235.161.57 --servicelist data dataVIP1
Name      Enabled Subnet  Address      VLAN  Mask      Gateway      MTU  Services
dataVIP1  True    data    10.235.161.57 203    255.255.252.0 10.235.160.1 1500 data
```

- 2 Create a file system. Enter the **purefs create --size 32T share1** command. For example:

```
ir@fb-xfm2:~$ purefs create --size 32T share1
Name  Size  Used  % Used  Created      Rules      Fast Remove
share1 32T   0.00  0%      2017-03-07 09:35:14 EST *(rw,no_root_squash) False
```

Post-Configuration Procedures

Perform the necessary post-upgrade checks to ensure the FlashBlade//S is properly functioning before leaving the site.

- Request the customer to retain all the FlashBlade//S packaging materials for 30 days per purchase agreement.
- Verify the customer can establish a Remote Assist session as the *pureuser* account by using the `pure support connect` command.
- Send the Purity//FB release notes to the customer.
- Ensure all console sessions are logged out and the login prompts are displayed (fabric modules and switches).
- Clean up any mess created during the installation.
- Verify the customer's array exists in Pure1/Skyline and assign a support/system engineer (SE) or account executive (AE) to handle any issues.

FlashBlade//S Testing

Before concluding the installation and setup, request the customer to perform some basic NFS operations such as creating a file, writing data, and reading it.

All NFS clients are required to use defaults for most modern Linux distributions. For more information, see the following support [site](#).

Pure1/Skyline Setup

CloudAssist setup is critical for providing the proper support to customers. Make sure to verify the Pure1 Dashboard information for the FlashBlade//S is correct.

To verify the information, go to <https://support.purestorage.com/>.

Alert Setup

Configure alerts for the FlashBlade//S to notify the customer of any issues.

To configure alerts, establish a terminal session to the array and enter the

purealert create watcher <EMAIL ADDRESS OF WATCHER> command.

```
ir@fb-xfm2:~$ purealert create watcher name@example.com
Name                               Enabled
name@example.com                  True
```

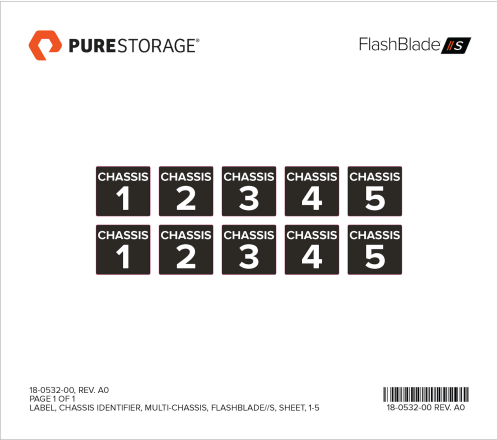
Appendix A

Applying Labels to Chassis and Cables

The FlashBlade//S Multi-Chassis Accessory Cable Kit is available for multi-chassis configurations using DCTv1 cabling scheme. Inspect and confirm all the parts are included in the kit:

- Label sheets
 - Chassis identifier labels

Figure 5.1 Chassis Identifier Labels



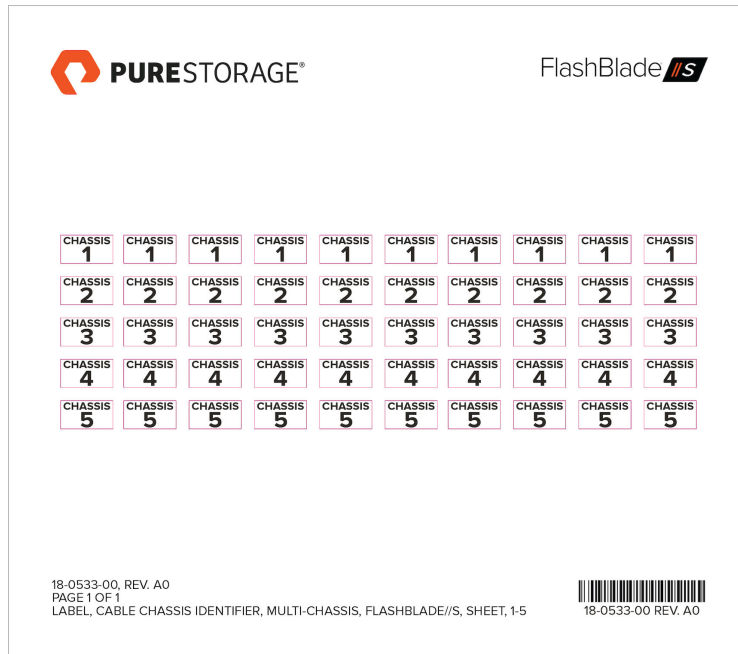
- Cable identifier labels

Figure 5.2 Cable Identifier Labels



- Chassis identifiers on cable identifier labels

Figure 5.3 Chassis Identifiers on Cable Identifier Labels



- 8 x Direct-attached cables (DAC) (lengths may vary)

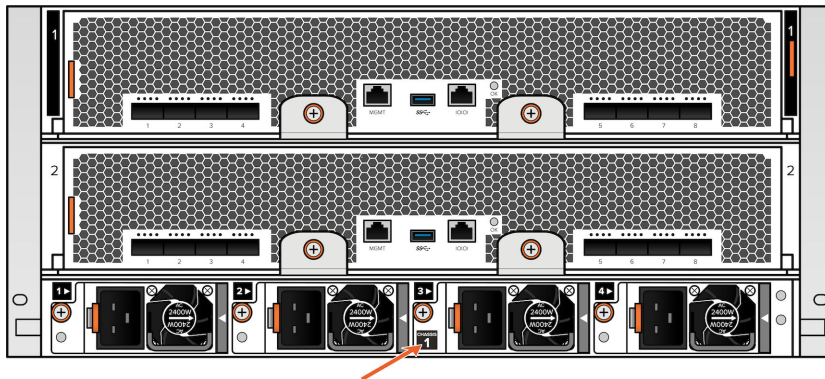
Figure 5.4 Example of DAC



To ensure proper connection and management of data cables, apply the proper labels to the FlashBlade//S chassis and data cables before connecting them to the FIOMs and XFM-8400/EFM-3200e modules.

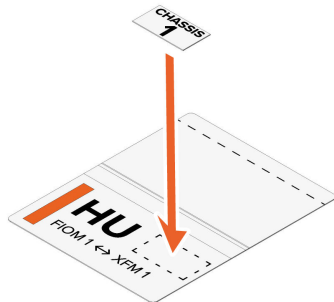
- 1 Obtain chassis identifier label sheet.
- 2 Remove a chassis identifier (black) label from the sheet and then apply it to the surface area (underneath the PSM captive screw) of PSM #3.

Figure 5.5 Location for Applying Chassis Label



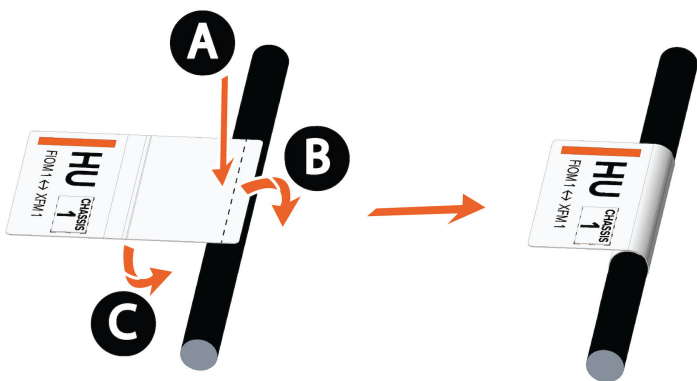
- 3 If applicable, repeat the previous steps for additional chassis.
- 4 Obtain both cable and chassis identifier label sheets.
- 5 Remove a chassis (white) label and apply it onto the specified area of the cable identifier label.

Figure 5.6 Location for Applying Chassis Label on Cable Identifier Label



- 6 Attaching the label to the cable:
 - a Align the dashed-lines on label to the cable axis.
 - b Wrap the short end of the label around the cable.
 - c Wrap the long end of the label completely around the cable.

Figure 5.7 Applying the Label



- 7 Repeat steps for additional cables.

Appendix B

Creating a USB Key

The section explains how to create a new USB key for **puresetup** binary for the Elasticity and fbtools files. Make sure you have a portable USB storage device readily available for this procedure.

 **Note:** Due to limited physical space between ports on the XFM-8400/EFM-3200e modules, it is recommended to use a small and thin form-factor USB storage device for copying files.

- 1 Connect the USB storage device to your computer.
- 2 Verify the USB key is formatted as MS-DOS (FAT32). Reformat, if necessary.

 **Important!** Purity//FB 4.1.x and later supports exFAT partitions, formatting a drive to use exFAT instead of FAT32 will allow for files larger than 4GB in size on new installs. For older Purity//FB (3.x) versions, or for users with windows laptops, NTFS can be used in place of exFAT to allow for >4GB file sizes.

- 3 Open a web browser. Alternatively, you can use a command line interface to obtain the binary software.
- 4 Download the latest version of Purity//FB (Elasticity) and fbtools files:
 - Purity//FB files
 - fbtools files

 **Note:** Due to the sorting mode, the last version is not necessarily located at the end of the list.

- 5 Search for the latest release and download the software to your computer.
 - From a web browser, right-click the file, select **Save Link As**, and click **Save**.
 - From command line, enter a utility command such as **curl** or **wget** to download the files. For example:

```
system-name:~$ wget http://c14-archive.dev.purestorage.com/flashblade/  
fbtools/fbtools-2.2.0.22.tar.gz
```

- 6 Copy the Elasticity and fbtools files to the USB storage device.

Appendix C

EFM-3200e Product Information

For more information about servicing EFM-3200e modules, refer to the following sections.

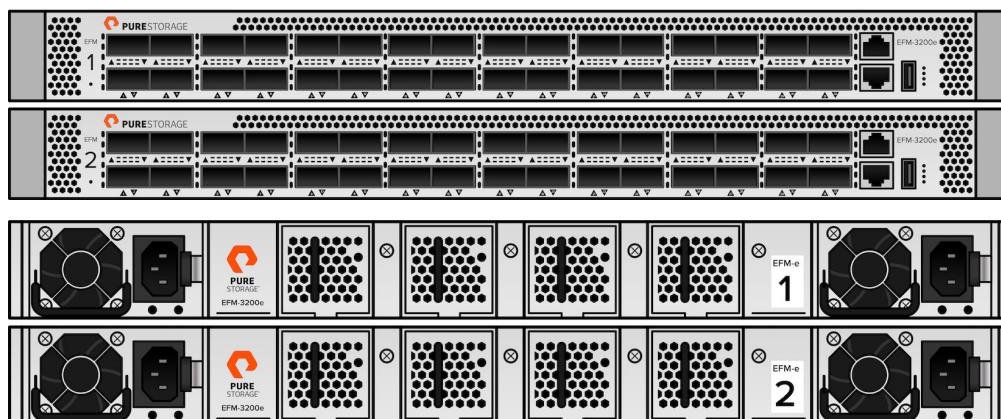
Unpacking EFM-3200e Modules and Cable Accessory Kit

EFM-3200e Modules

Unpack and verify the package contains the following items:

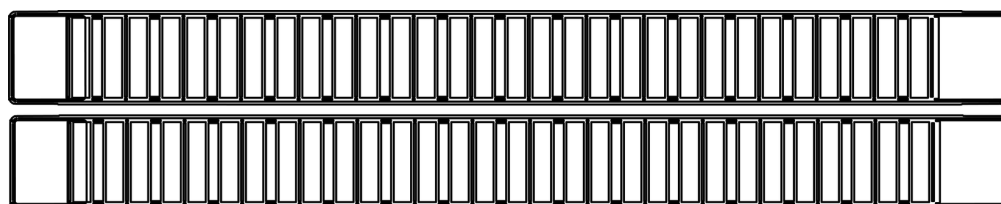
- 2 x EFM-3200e modules

Figure 7.1 Front and Back View of EFM-3200e Modules



- 2 x EFM-3200e bezels

Figure 7.2 EFM-3200e Bezels



- 4 x power cords, ISL cables, and labels
- Rack rail kit

Cable Accessory Kit

The EFM-3200e modules connect to FlashBlade//S FIOMs via Direct Attach cables. The following cable accessory kits for multi-chassis configurations are available.

Table 7.1 Accessory Kit with 100G 1M Cables (Part No. 80-1832-01)

Part	Quantity
1-meter QSFP28 to QSFP28 cable	8
Cable identifier label sheet	1
Cable chassis identifier label sheet	2
Chassis identifier label sheet	1

Table 7.2 Accessory Kit with 100G 2M Cables (Part No. 80-1833-01)

Part	Quantity
2-meter QSFP28 to QSFP28 cable	8
Cable identifier label sheet	1
Cable chassis identifier label sheet	2
Chassis identifier label sheet	1

Table 7.3 Accessory Kit with 100G 3M Cables (Part No. 80-1834-01)

Part	Quantity
3-meter QSFP28 to QSFP28 cable	8
Cable identifier label sheet	1

Table 7.3 Accessory Kit with 100G 3M Cables (Part No. 80-1834-01) (continued)

Part	Quantity
Cable chassis identifier label sheet	2
Chassis identifier label sheet	1

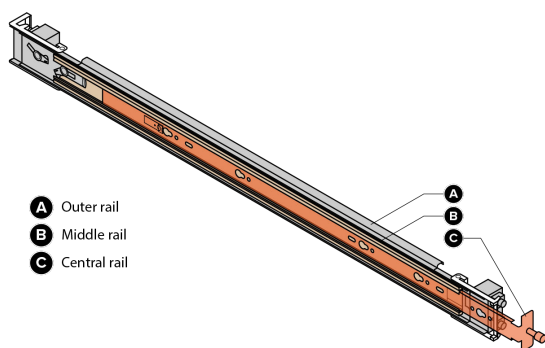
Mounting EFM-3200e Modules

⚠ Important! Pure Storage recommends installing EFM-3200e (XFM) modules at the top of the rack for unobstructed access during installation or maintenance activities. Make sure to leave a single RU space for each EFM-3200e module (total of 2 RU of contiguous space) above FlashBlade//S chassis 01.

Mount the EFM-3200e modules in ascending order with its connectors in the rear-facing direction of the rack so it is easier to connect the modules with the FlashBlade//S chassis. Install EFM-3200e (XFM2) module first directly above FlashBlade//S chassis 01 and then mount EFM-3200e (XFM1) directly above XFM2. For more details about component placement, see [FlashBlade//S System Configurations](#).

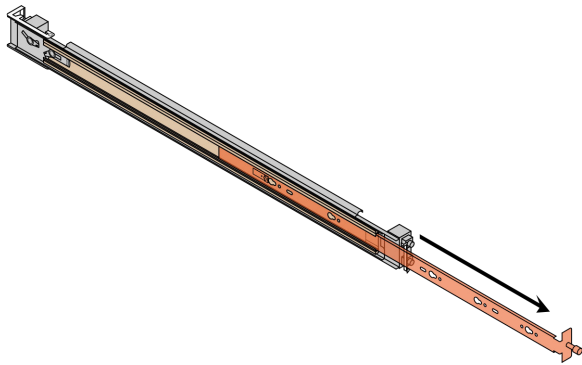
Preparing the EFM-3200e Rails

- 1 Obtain the rail kit from the EFM-3200e package. See the following figure for the parts of the rail.

Figure 7.3 Parts of the EFM-3200e Rail


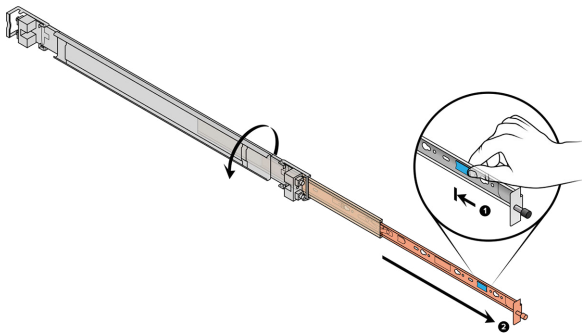
- 2 Before installing the rails, remove the center rail from each rail by extending it out. If necessary, loosen the captive screw.

Figure 7.4 Extending the Central Rail



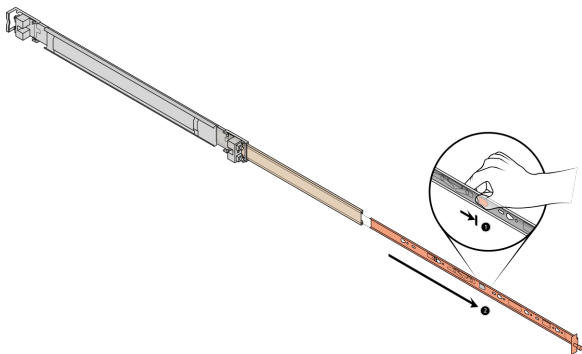
- 3 Turn over the rail, use your thumb to push the blue lever inward, and continue to extend the center rail until you feel resistance.

Figure 7.5 Location of the Blue Tab



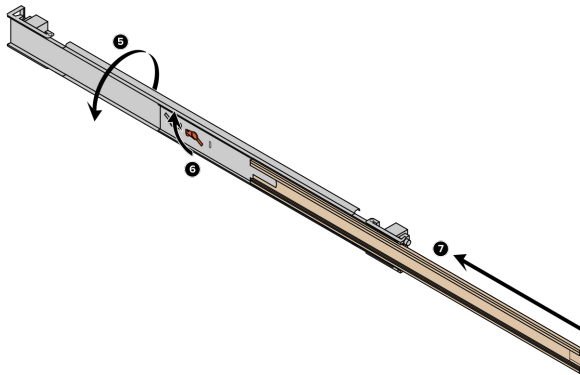
- 4 Use your thumb to pull the white lever outward and remove the entire center rail.

Figure 7.6 Pulling the White Tab



- 5 Turn over the rail to access the outer rail latch.

Figure 7.7 Reinserting the Middle Rail



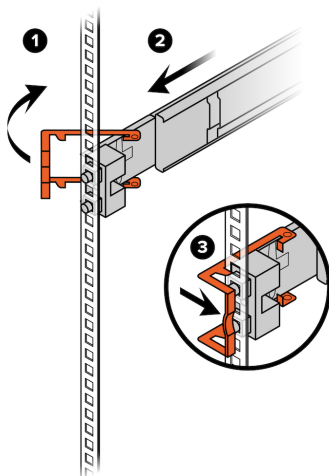
- 6** Press downward on the latch.
- 7** Reinsert the middle rail into the outer rail.
- 8** Repeat these steps to remove the center rail from the second rail.

Installing the EFM-3200e Rails

i Tip: Install the EFM-3200e rails so that the grooves on the middle rail are accessible from the rear of the rack.

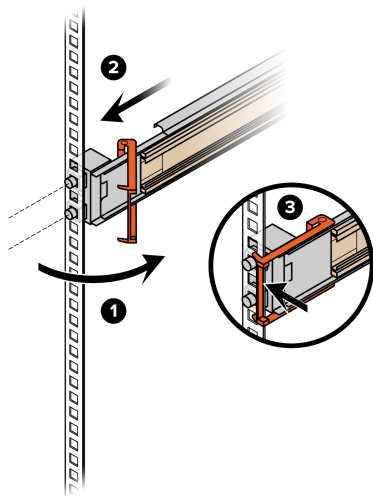
- 1** Open the latch on the rear of the EFM-3200e rail, align the pins with the correct post holes on the front rack post, and then close the latch.

Figure 7.8 Installing Rear Latch on Front Post



- 2** Open the latch on the front of the rail, align the pins with the correct post holes on the backside of the rear rack post, and then close the latch.

Figure 7.9 Installing Front Latch on Rear Post

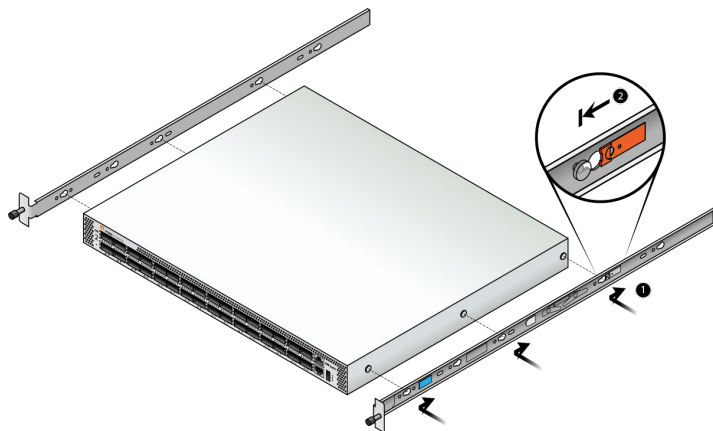


- 3 Repeat the steps to install the other rail.

Attaching the Center Rails to the EFM-3200e Modules

- 1 Obtain the center rails previously removed from the shelf rails.
- 2 Verify the latch on the center rail is secure before proceeding.
- 3 Align the rail with the studs on the sides of the EFM-3200e module and slide the rails onto the studs to secure in place.

Figure 7.10 Attaching Rails to EFM-3200e



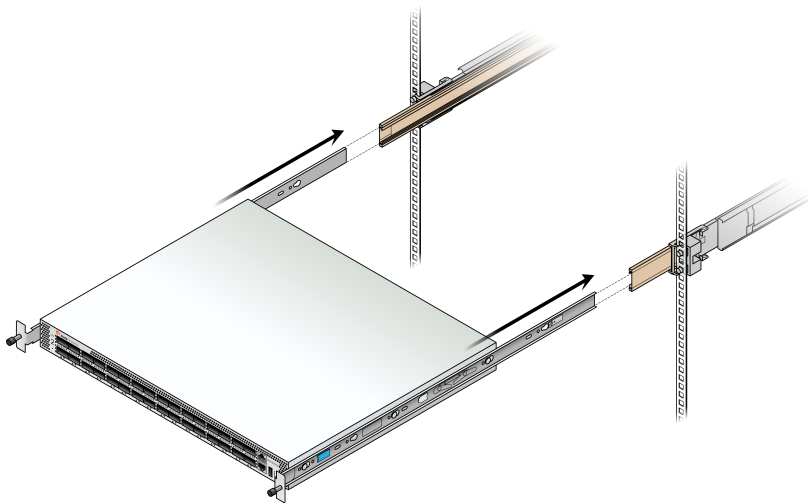
- 4 Repeat the steps for the other rail.

Mounting the EFM-3200e Modules to the Rack

⚠ CAUTION: To avoid damaging the EFM-3200e module, do not put any objects on top of an installed module.

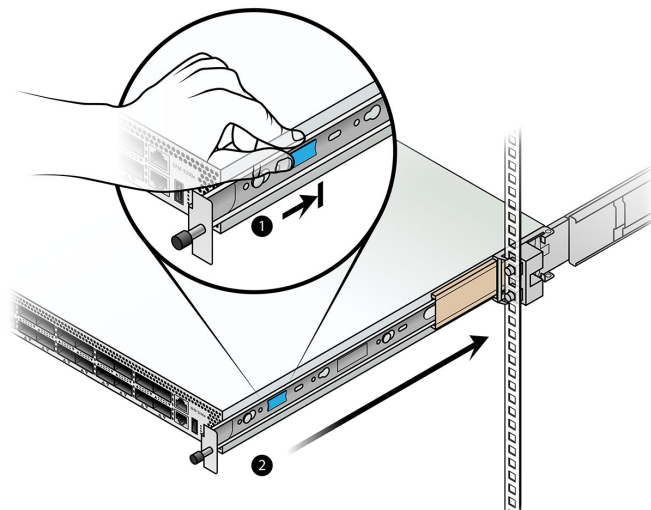
- 1 Slide the middle rails out 10-15 cm and align the center rails on the EFM-3200e module with the grooves in the middle rails. Keep the module parallel with the rails to avoid bending the center rails.

Figure 7.11 Rack Mounting an EFM-3200e Module



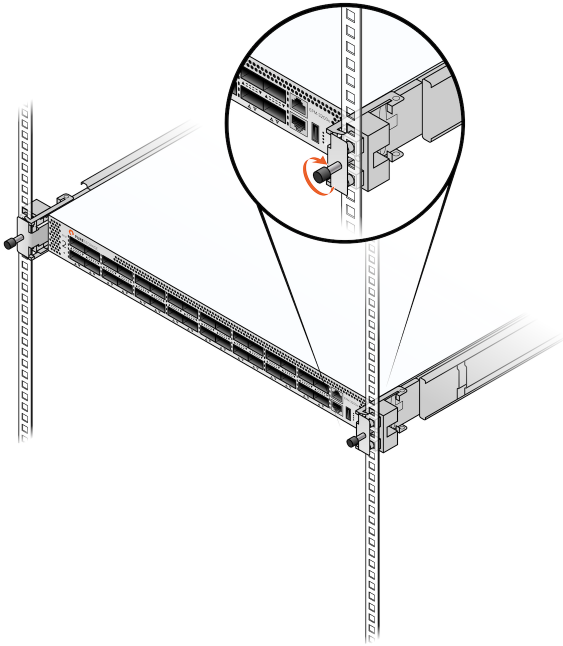
- 2 Slide the EFM-3200e module on to the middle rails until you meet resistance, and then press the blue levers on each center rail inward while sliding the entire module into the rack.

Figure 7.12 Mounting the EFM-3200e Module —Press Blue Levers



- 3 Tighten the captive screw on each side of the module to secure it in the rack.

Figure 7.13 Mounting the EFM-3200e —Tighten Screws



- 4** Repeat the procedure to install the second EFM-3200e module.

Installing Bezels on EFM-3200e Modules

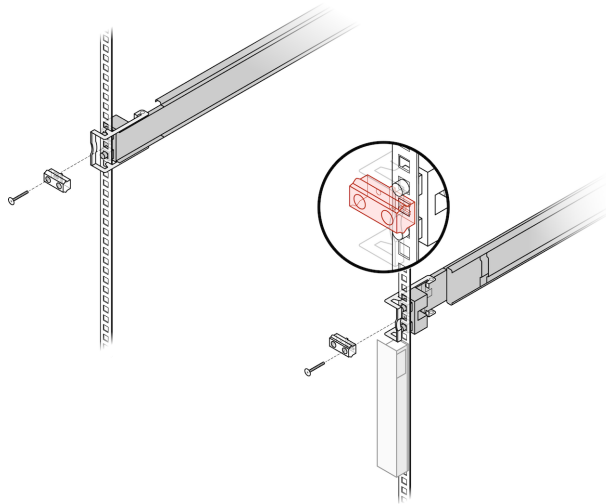
The EFM-3200e module does not occupy the full depth of the rack. Install bezels on the front of the rack to cover the gap between the front of the rack and the EFM-3200e front panel.

To install the XFM bezels:

- 1** Obtain two bezel clips from the XFM accessory kit and align them with the central hole of each rail so the grooves on each clip fit into the hole. Secure the bezel clips in place with a screw from the XFM accessory kit.

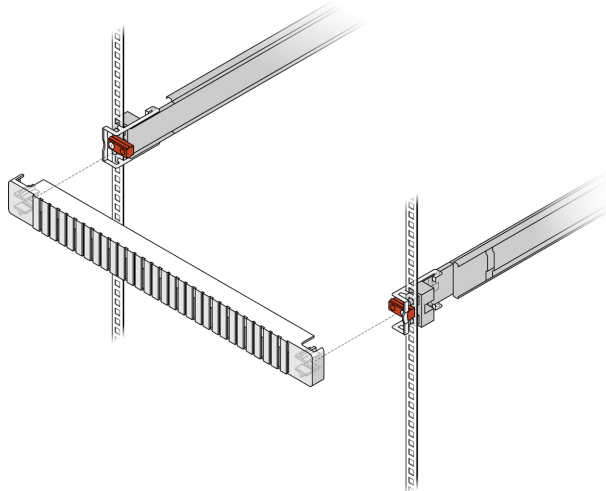
If you have installed clip nuts in the screw holes, you may turn over the bezel clips and secure them to the rack with the flat side over the screw hole instead of the side with the grooves.

Figure 7.14 Align and Secure Bezel Clips



- 2 Align the XFM bezel with the bezel clips and press the bezel onto the clips until it clicks into place.

Figure 7.15 Securing the XFM Bezel



- 3 Repeat steps 1 and 2 to install the second bezel on the other XFM slot.

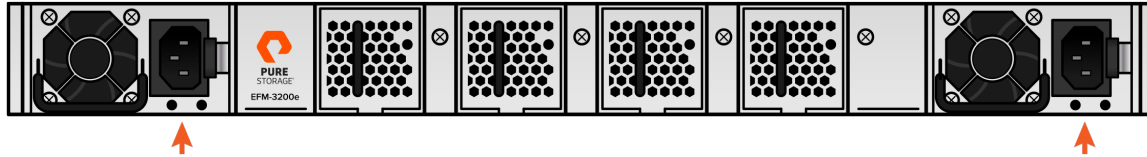
Powering on EFM-3200e Modules

Note: An EFM-3200e module is also referred to as *XFM*.

⚠ Do not connect the network and data cables to the FlashBlade//S Fabric I/O modules and EFM-3200e ports before turning on the power.

- 1 Connect power cords to XFM1 and an AC power source.

Figure 7.16 Location of Power Connectors on EFM-3200e Module



- 2 Repeat the above step for XFM2. Make sure to connect the power cords to a different AC power distribution unit for redundancy.

Connecting Serial Console Cable to EFM-3200e Console Port

Connect a laptop to the console port on each EFM-3200e module via USB-to-Serial cable for initial multi-chassis setup. First configure the EFM-3200e modules and then continue with the FlashBlade//S chassis.

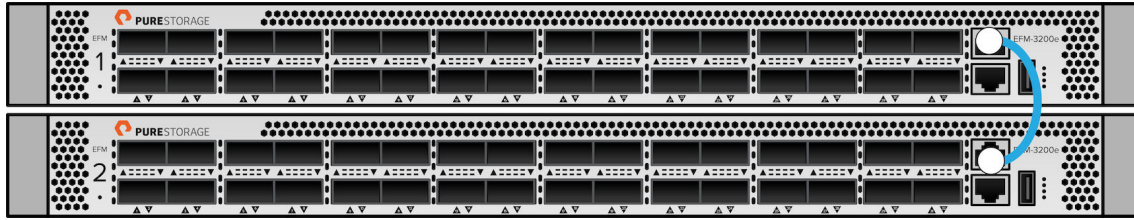
The terminal settings for the console port:

- 8-N-1 (8 data bits, no parity, 1 stop bit)
- Xon/Xoff flow control
- 115200 baud

To connect to the EFM-3200e console port:

- 1 Locate EFM-3200e and identify EFM 1.
- 2 Connect a USB-to-Serial cable to the CONSOLE port on EFM 1.

Figure 7.17 Console Ports on EFM-3200e

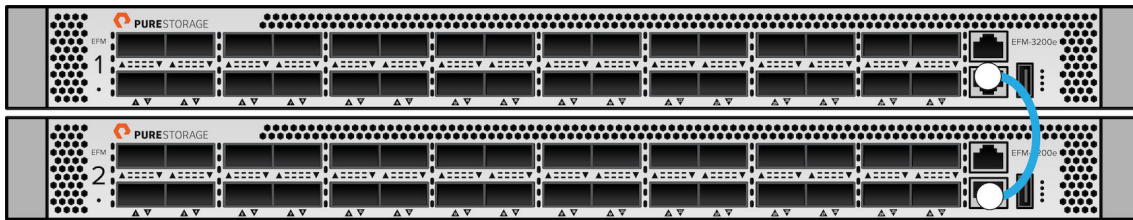


- 3 Proceed to the [Upgrading Purity//FB Software](#) to configure each EFM-3200e module.

Connecting Out-of-Band Management (EFM-3200e)

Connect an RJ-45 cable to the EFM-3200e management ports and management network.

Figure 7.18 Location of Management Port On EFM-3200e Modules



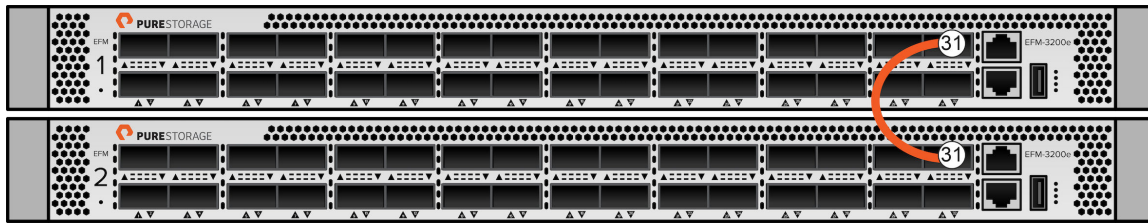
Note: If the Out-of-Band 1G port on the EFM-3200e modules with multi-chassis configurations are used as a management interface, turn on the flow control for the connected port on the external switch.

Interconnecting EFM-3200e Modules

Establish the interconnections between the two EFM-3200e modules before connecting the modules to the FlashBlade//S chassis.

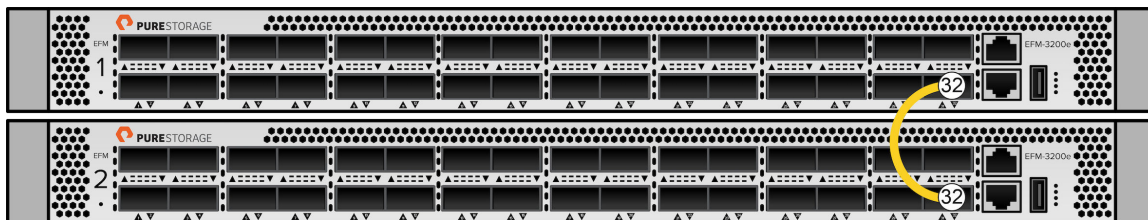
- 1 Retrieve two cables labeled **EV**.
- 2 Connect one cable labeled **EV** from XFM 1 port 31 to XFM 2 port 31.

Figure 7.19 Connect EV Cable to Port 31 on EFM-3200e



- 3 Connect the other cable labeled **EV** from XFM 1 port 32 to XFM 2 port 32.

Figure 7.20 Connect EV Cable to Port 32 on XFMs



Connecting EFM-3200e Modules to Chassis

Before connecting the network cables between the FlashBlade//S chassis and XFM-8400/EFM-3200e modules, reference the label application instructions in the appendix, [Applying Labels to Chassis and Cables](#), to properly label each cable for a particular system configuration.

⚠ Important! Do not connect any out-of-band management ports to individual chassis.

EFM-3200e Modules to Chassis 1

- 1 Connect the cables from the XFMs to Chassis 1 in the connection order shown in the table below. Match the cable ID with the ports shown in the table.

Figure 7.21 Connecting Cables from XFM's to Chassis 1

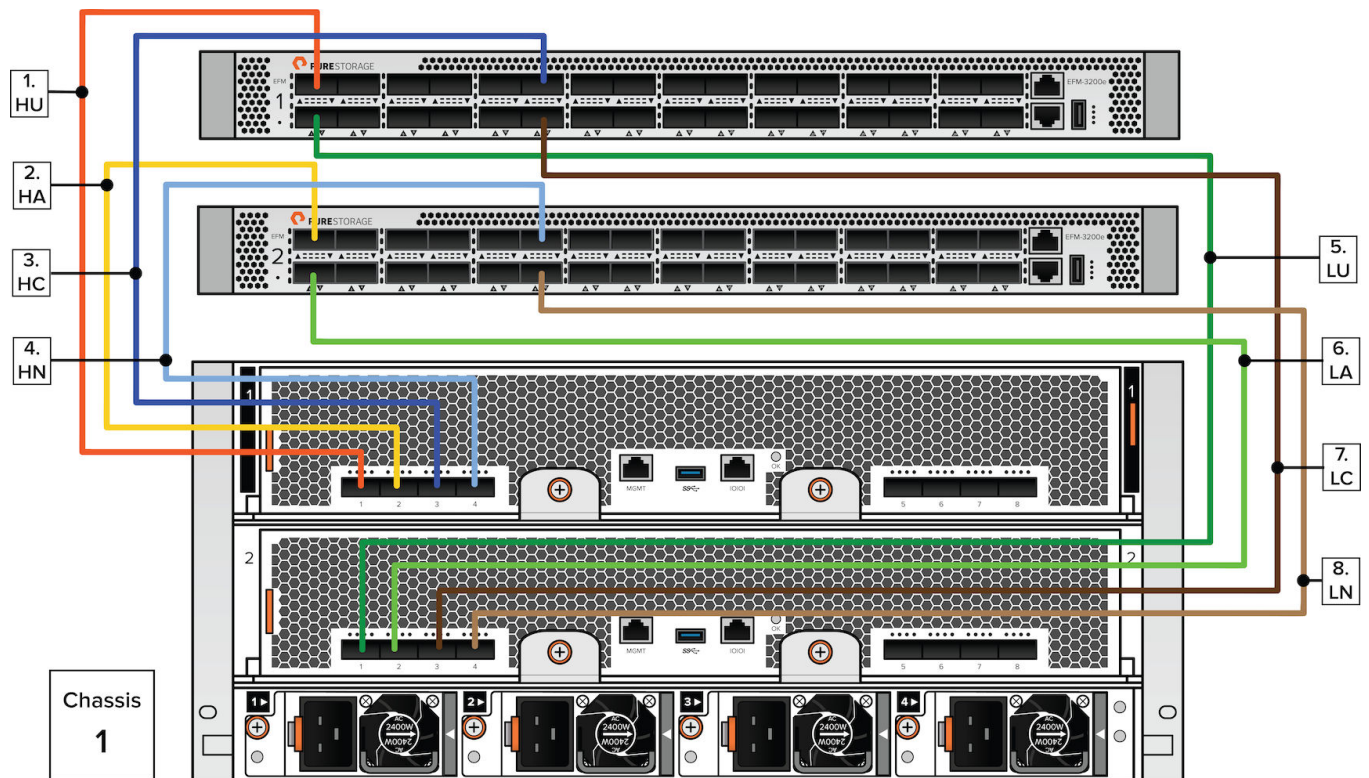
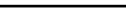


Table 7.4 Cable Configuration for Chassis 1

Connection Order	Cable ID	XFM-ETH Port	Chassis-FIOM Port	Cable Color
1	HU	XFM1.ETH1	CH1.FM1.ETH1	
2	HA	XFM2.ETH1	CH1.FM1.ETH2	
3	HC	XFM1.ETH11	CH1.FM1.ETH3	
4	HN	XFM2.ETH11	CH1.FM1.ETH4	
5	LU	XFM1.ETH2	CH1.FM2.ETH1	
6	LA	XFM2.ETH2	CH1.FM2.ETH2	
7	LC	XFM1.ETH12	CH1.FM2.ETH3	
8	LN	XFM2.ETH12	CH1.FM2.ETH4	

- 2 Verify the cables are connected into the correct ports.

- 3 Pull each connector gently to ensure the latch is engaged. If applicable, proceed to the next section to connect additional chassis.

EFM-3200e Modules to Chassis 2

- 1 Connect the cables from the XFMs to Chassis 2 in the connection order shown in the table below. Match the cable ID with the ports shown in the table.

Figure 7.22 Connecting Cables from XFMs to Chassis 2

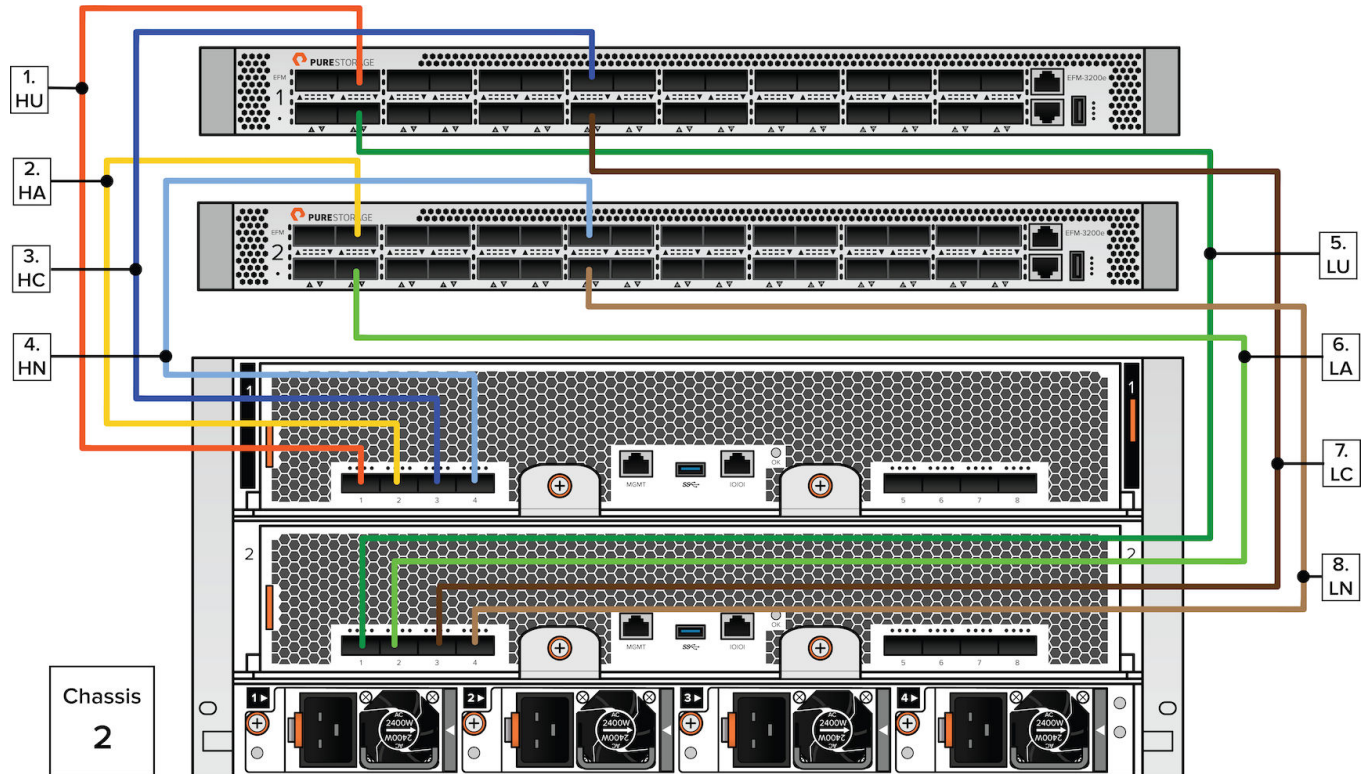


Table 7.5 Cable Configuration for Chassis 2

Connection Order	Cable ID	XFM-ETH Port	Chassis-FIOM Port	Cable Color
1	HU	XFM1.ETH3	CH2.FM1.ETH1	
2	HA	XFM2.ETH3	CH2.FM1.ETH2	
3	HC	XFM1.ETH13	CH2.FM1.ETH3	
4	HN	XFM2.ETH13	CH2.FM1.ETH4	
5	LU	XFM1.ETH4	CH2.FM2.ETH1	

Table 7.5 Cable Configuration for Chassis 2 (continued)

Connection Order	Cable ID	XFM-ETH Port	Chassis-FIOM Port	Cable Color
6	LA	XFM2.ETH4	CH2.FM2.ETH2	
7	LC	XFM1.ETH14	CH2.FM2.ETH3	
8	LN	XFM2.ETH14	CH2.FM2.ETH4	

- 2 Verify the cables are connected into the correct ports.
- 3 Pull each connector gently to ensure the latch is engaged. If applicable, proceed to the next section to connect additional chassis.

EFM-3200e Modules to Chassis 3

- 1 Connect the cables from the XFMs to Chassis 3 in the connection order shown in the table below. Match the cable ID with the ports shown in the table.

Figure 7.23 Connecting Cables from XFMs to Chassis 3

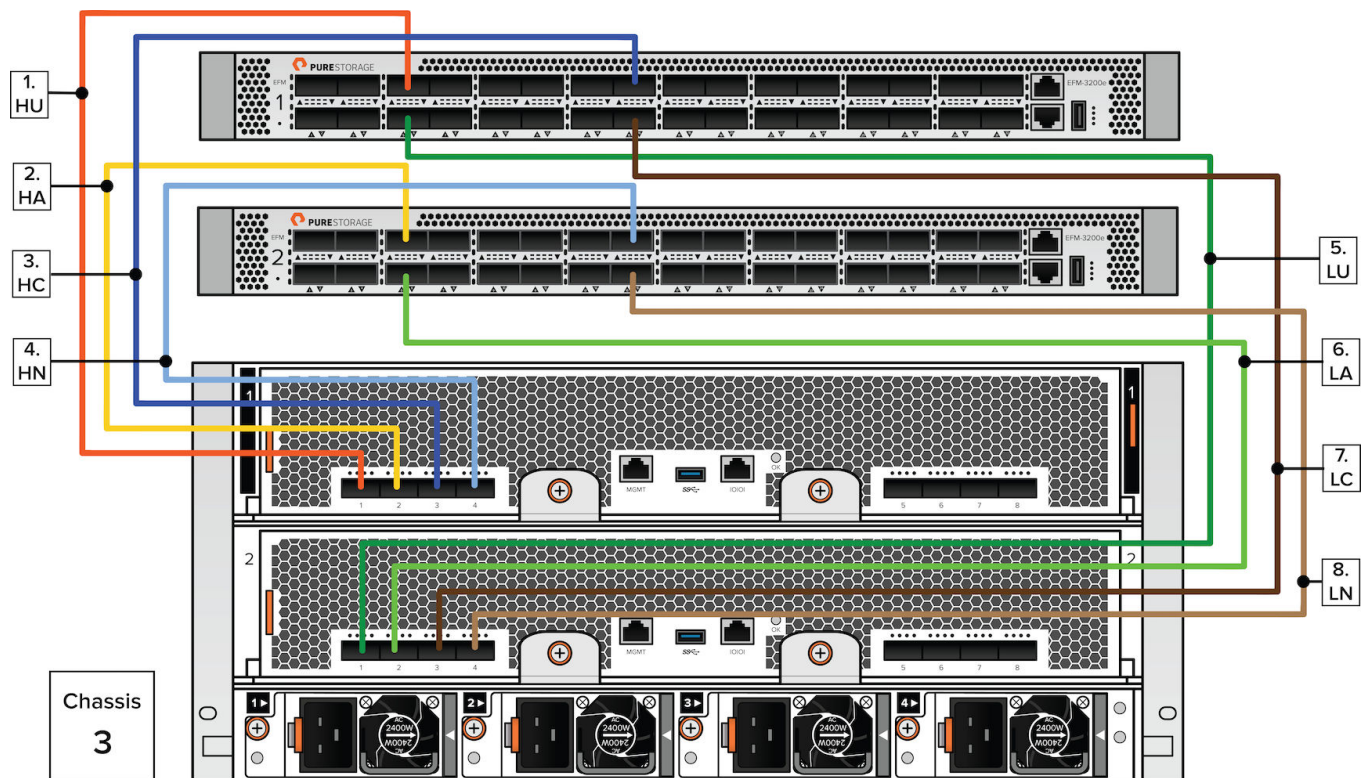


Table 7.6 Cable Configuration for Chassis 3

Connection Order	Cable ID	XFM-ETH Port	Chassis-FIOM Port	Color of Cable on Figure
1	HU	XFM1.ETH5	CH3.FM1.ETH1	
2	HA	XFM2.ETH5	CH3.FM1.ETH2	
3	HC	XFM1.ETH15	CH3.FM1.ETH3	
4	HN	XFM2.ETH15	CH3.FM1.ETH4	
5	LU	XFM1.ETH6	CH3.FM2.ETH1	
6	LA	XFM2.ETH6	CH3.FM2.ETH2	
7	LC	XFM1.ETH16	CH3.FM2.ETH3	
8	LN	XFM2.ETH16	CH3.FM2.ETH4	

- 2 Verify the cables are connected into the correct ports.
- 3 Pull each connector gently to ensure the latch is engaged. If applicable, proceed to the next section to connect additional chassis.

EFM-3200e Modules to Chassis 4

- 1 Connect the cables from the XFMs to chassis 4 in the connection order shown in the table below. Match the cable ID with the ports shown in the table.

Figure 7.24 Connecting Cables from XFMs to Chassis 4

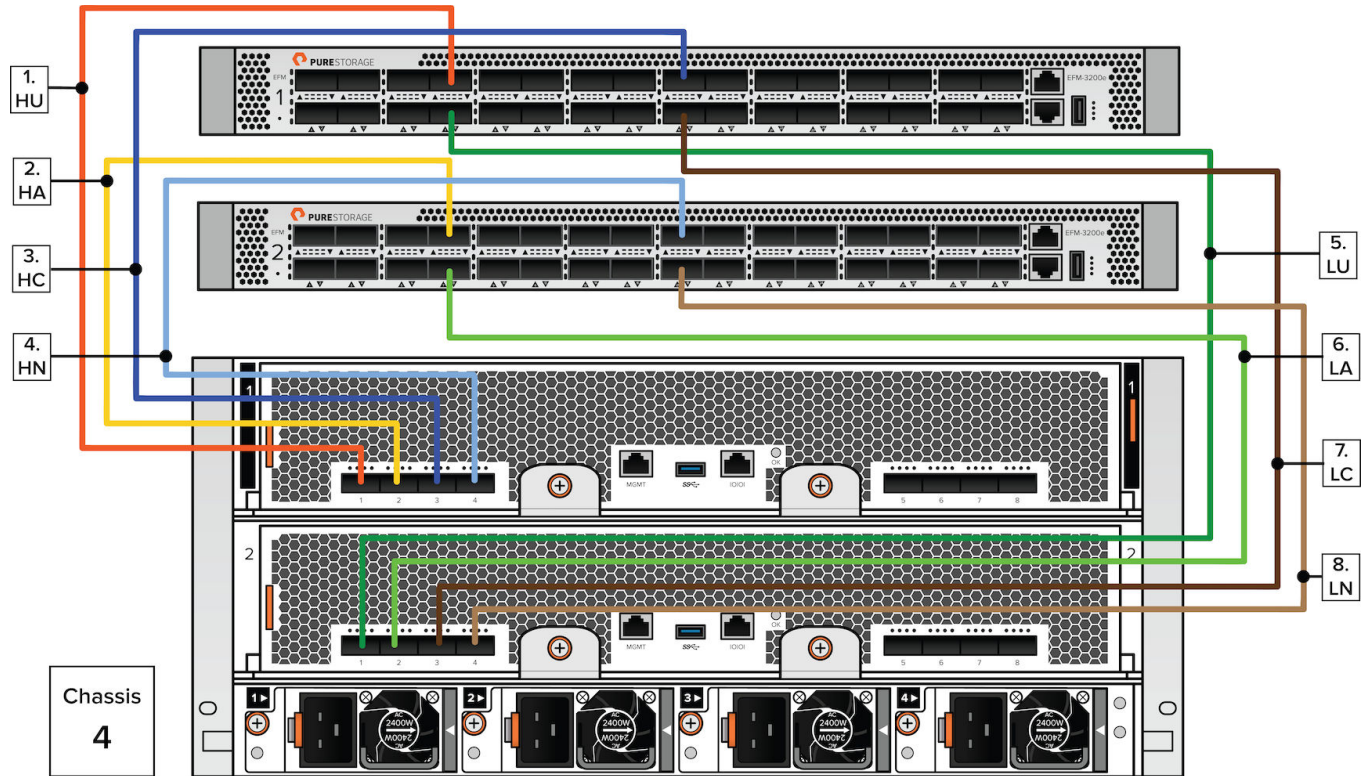


Table 7.7 Cable Configuration for Chassis 4

Connection Order	Cable ID	XFM-ETH Port	Chassis-FIOM Port	Cable Color
1	HU	XFM1.ETH7	CH4.FM1.ETH1	
2	HA	XFM2.ETH7	CH4.FM1.ETH2	
3	HC	XFM1.ETH17	CH4.FM1.ETH3	
4	HN	XFM2.ETH17	CH4.FM1.ETH4	
5	LU	XFM1.ETH8	CH4.FM2.ETH1	
6	LA	XFM2.ETH8	CH4.FM2.ETH2	
7	LC	XFM1.ETH18	CH4.FM2.ETH3	
8	LN	XFM2.ETH18	CH4.FM2.ETH4	

- 2 Verify the cables are connected into the correct ports.

- 3 Pull each connector gently to ensure the latch is engaged. If applicable, proceed to the next section to connect additional chassis.

EFM-3200e Modules to Chassis 5

- 1 Connect the cables from the XFM's to chassis 5 in the connection order shown in the table below. Match the cable ID with the ports shown in the table.

Figure 7.25 Connecting Cables from XFM's to Chassis 5

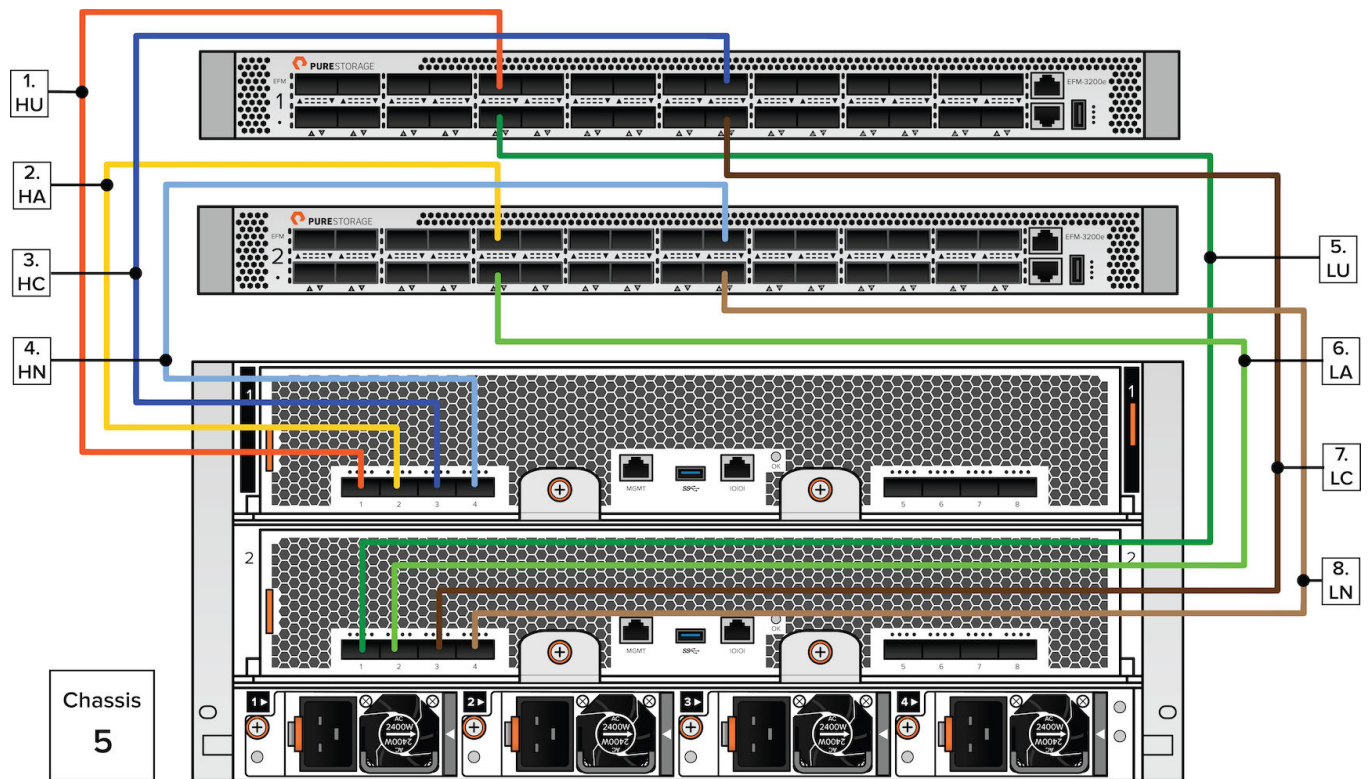


Table 7.8 Connecting the XFM's to Chassis 5

Connection Order	Cable ID	Connect from port	Connect to port	Color of Cable on Figure
1	HU	XFM1.ETH9	CH5.FM1.ETH1	
2	HA	XFM2.ETH9	CH5.FM1.ETH2	
3	HC	XFM1.ETH19	CH5.FM1.ETH3	
4	HN	XFM2.ETH19	CH5.FM1.ETH4	
5	LU	XFM1.ETH10	CH5.FM2.ETH1	

Table 7.8 Connecting the XFM's to Chassis 5 (continued)

Connection Order	Cable ID	Connect from port	Connect to port	Color of Cable on Figure
6	LA	XFM2.ETH10	CH5.FM2.ETH2	
7	LC	XFM1.ETH20	CH5.FM2.ETH3	
8	LN	XFM2.ETH20	CH5.FM2.ETH4	

- 2 Verify the cables are connected into the correct ports.
- 3 Pull each connector gently to ensure the latch is engaged.



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