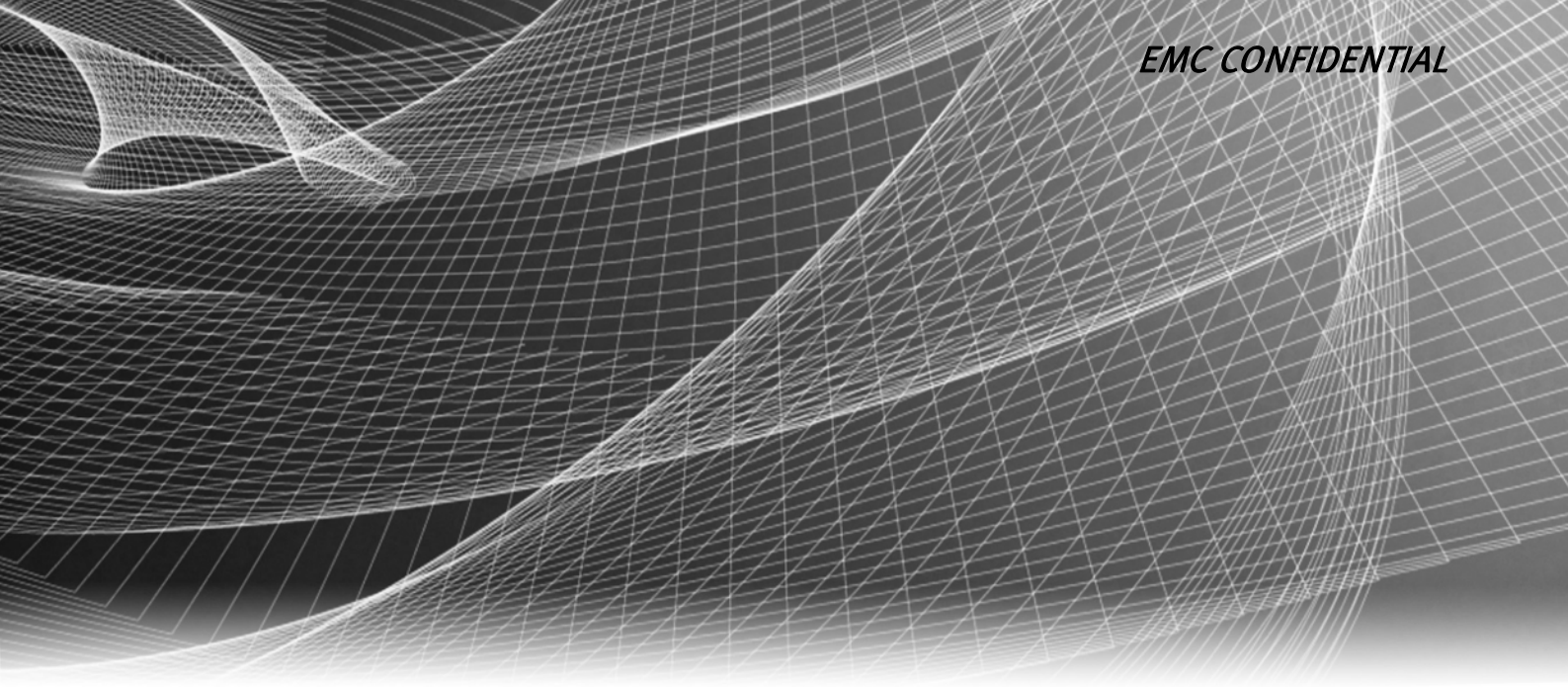

EMC
XtremIO Storage Array

Versions 4.0 and 4.0.1

Hardware Installation and Upgrade Guide

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EMC²

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CONTENTS

Chapter 4 Installing Hardware Components

Chapter 5 Connecting the Cluster Cables

Appendix B Dispersed Cluster Supplement

PREFACE

As part of an effort to improve its product lines, EMC periodically releases revisions of its software and hardware. Therefore, some functions described in this document might not be supported by all versions of the software or hardware currently in use. The product release notes provide the most up-to-date information on product features.

Contact your EMC technical support professional if a product does not function properly or does not function as described in this document.

Note: This document was accurate at publication time. Go to EMC Online Support (https://support.emc.com) to ensure that you are using the latest version of this document.

Purpose

This document provides the required information for installing the hardware components of the EMC XtremIO Storage Array.

Audience

This document is intended for the EMC field support personnel.

Related Documentation

The following EMC publications provide additional information:

- *EMC 40U-C Cabinet Site Preparation Guide*
- *EMC 40U-C Cabinet Unpacking and Setup Guide*
- *EMC 44U Cabinet Site Preparation Guide*
- *EMC 44U Cabinet Unpacking and Setup Guide*
- *EMC XtremIO Storage Array Software Installation and Upgrade Guide*
- *EMC XtremIO Storage Array Site Preparation Guide*
- *EMC XtremIO Storage Array User Guide*
- *EMC XtremIO Storage Array FRU Replacements Guide*
- *EMC XtremIO Storage Array Release Notes*

CHAPTER 1
Introduction

This Chapter includes the following topics:

Hardware Installation Configurations

The XtremIO Storage Array package comes in the following configurations:

- Factory-assembled rack

  In this configuration, all components are already installed and wired within either a 40U or a 44U EMC rack.

- Mini-rack

  In this configuration, all components are packed within one or more 12U shipping racks.

Installing a Factory-Assembled Rack

For instructions on installing the factory-assembled rack, refer to the *EMC Cabinet Unpacking and Setup Guide.*

When installing a factory-assembled rack, follow these general guidelines:

- Verify that no cables have been disconnected during shipping, by gently pushing on each cable to its port.
- Do not disconnect or replace any cables in a factory-assembled rack.
- Do not remove any shipping brackets from a factory-assembled rack.

After installing the factory-assembled rack, perform the procedures for "Connecting the Cluster to Site Facilities" on page 119.

Note: For instructions on installing the software and initializing the cluster, refer to the *EMC XtremIO Storage Array Software Installation and Upgrade Guide*.

Note: For instructions on transferring an XtremIO cluster from a factory-assembled 40U EMC rack to a customer's rack, refer to Appendix A, "Rack Transfer Procedure," on page page 145.

Installing from a Mini-Rack (Field Installation)

This guide provides detailed instructions for installing the XtremIO hardware components from a mini-rack into the customer's rack.

To install the XtremIO cluster from the mini-rack, perform the following procedures:

1. "Unpacking the Mini-Rack" on page 23
2. "Racking the Hardware" on page 33 according to instructions for "Installing Hardware Components" on page 43
3. "Connecting the Cluster Cables" on page 81
4. "Connecting the Cluster to Site Facilities" on page 119
5. "Installing the Bezels" on page 125

Note: For instructions on installing the software and initializing the cluster, refer to the *EMC XtremIO Storage Array Software Installation and Upgrade Guide*.

Hardware Components

The main hardware components of the EMC XtremIO Storage Array are:

- DAE Unit

With 25 SSDs
(for Regular X-Bricks)

OR

With 13 SSDs
(for 5TB Starter Kits)

- Storage Controller

- Battery Backup Unit

5P 1550i R

OR

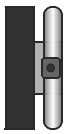
1550 Evolution

- InfiniBand Switch

- XMS Server (optional)

- Filler Catch

- Bezel Clip



- Cable Management Bracket

- Power Outlet Plug Cover

- BBU Cable Connector Sleeve

Cables

Cables used with the EMC XtremIO Storage Array are:

- DB9-RJ45 Cable (serial)

- RJ45-RJ50 Cable (serial)

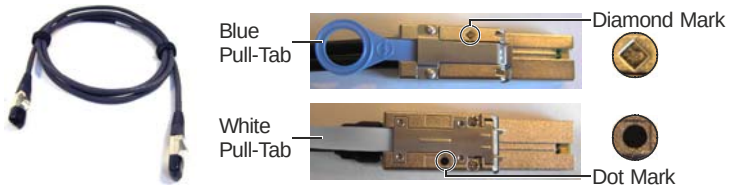
- Managed Ethernet Port Cable (RJ45)

- IPMI Ethernet Port Cable

- Power Cable (C13-C14)

- InfiniBand Cable

- SAS Cable*



* There are two types of SAS cable. To distinguish between them, check the diamond or dot mark on their connectors, and their blue or white pull-tabs (respectively).

X-Brick Configuration Kits

Each X-Brick in the XtremIO cluster is supplied with an X-Brick configuration kit.

There are different configuration kits for an X-Brick in a single X-Brick cluster and those for a multiple X-Brick cluster.

Also, for a multiple X-Brick cluster, contents of the X-Brick configuration kits differ according to the number of the X-Brick in the cluster.

Table 1 describes different X-Brick configuration kits and their contents.

Table 1 X-Brick Configuration Kits

Component	Accessories
Single X-Brick configuration kit including: • Cables kit • Bezels kit **Note:** This kit is supplied only with a single X-Brick cluster and with a 5TB Starter Kit.	**Cables kit:** • 8 x C13-C14 Power Cables • 2 x InfiniBand Cables • 2 x SAS Cables (with dot mark) • 2 x SAS Cables (with diamond mark) • 1 x DB9-RJ45 Cable • 1 x RJ45-RJ50 (in newer packages) or 1 x DB9-RJ45 Cable (in earlier packages) • 4 x Ethernet Cables • 1 x Hardware Legend label • 2 x Cable management brackets (may not be included in some earlier packages) • 4 x BBU Cable Connector Sleeves **Bezels kit:** • 4 x 1U bezels for Storage Controllers and Battery Backup Units • 1 x 2U bezel for DAE • 4 x Bezel Catches (for two BBUs) • 4 x Spare Screws • 6 x Velcro Strips

Table 1 X-Brick Configuration Kits

Component	Accessories
X-Brick 1 configuration kit including: • Cables kit • Bezels kit **Note:** This kit is supplied with all multiple X-Brick clusters.	**Cables kit:** • 7 x C13-C14 Power Cables • 4 x InfiniBand Cables • 2 x SAS Cables (with dot mark) • 2 x SAS Cables (with diamond mark) • 1 x DB9-RJ45 Cable • 1 x RJ45-RJ50 (in newer packages) or 1 x DB9-RJ45 Cable (in earlier packages) • 4 x Ethernet Cables • 1 x Hardware Legend Label • 2 x Cable Management Brackets (may not be included in some earlier packages) • 2 x BBU Cable Connector Sleeves **Bezels kit:** • 4 x 1U bezels for Storage Controllers and Battery Backup Units • 1 x 2U Bezel for DAE • 4 x Bezel Catches (for two BBUs) • 4 x Spare Screws • 6 x Velcro Strips
X-Brick 2 configuration kit including: • Cables kit • Bezels kit	**Cables kit:** • 11 x C13-C14 Power Cables • 6 x InfiniBand Cables • 2 x SAS Cables (with dot mark) • 2 x SAS Cables (with diamond mark) • 1 x DB9-RJ45 Cable • 1 x RJ45-RJ50 (in newer packages) or 1 x DB9-RJ45 Cable (in earlier packages) • 4 x Ethernet Cables • 2 x Cable Management Brackets (may not be included in some earlier packages) • 2 x BBU Cable Connector Sleeves **Bezels kit:** • 2 x 1U Bezels for Storage Controllers • 1 x 2U Bezel for DAE • 2 x 1U Filler without backer (for InfiniBand Switch) • 1 x 1U Filler with backer (for between InfiniBand Switches) • 4 x Bezel Catches (for two InfiniBand Switches) • 2 x Catches for 1U Filler (for between InfiniBand Switches) • 4 x Spare Screws • 6 x Velcro Strips

Table 1 X-Brick Configuration Kits

Component	Accessories
X-Brick 3-6 configuration kit including: • Cables kit • Bezels kit	**Cables kit:** • 7 x C13-C14 Power Cables • 4 x InfiniBand Cables • 2 x SAS Cables (with dot mark) • 2 x SAS Cables (with diamond mark) • 1 x DB9-RJ45 Cable • 1 x RJ45-RJ50 (in newer packages) or 1 x DB9-RJ45 Cable (in earlier packages) • 4 x Ethernet Cables • 2 x Cable Management Brackets (may not be included in some earlier packages) • 2 x BBU Cable Connector Sleeves **Bezels kit:** • 3 x 1U Bezels for Storage Controllers and Battery Backup Units • 1 x 2U Bezel for DAE • 2 x Bezel Catches (for one BBU) • 4 x Spare Screws • 6 x Velcro Strips
X-Brick 7-8 configuration kit including: • Cables kit • Bezels kit	**Cables kit:** • 7 x C13-C14 Power Cables • 4 x InfiniBand Cables • 2 x SAS Cables (with dot mark) • 2 x SAS Cables (with diamond mark) • 1 x DB9-RJ45 Cable • 1 x RJ45-RJ50 (in newer packages) or 1 x DB9-RJ45 Cable (in earlier packages) • 4 x Ethernet Cables • 2 x Cable Management Brackets (may not be included in some earlier packages) • 2 x BBU Cable Connector Sleeves **Bezels kit:** • 8 x 4U Bezels for the DAE and its two associated Storage Controllers • 12 x 1U Bezels for the Battery Backup Unit, Physical XMS, InfiniBand Switches, Place holders (for between InfiniBand Switches) • 2 x Bezel Catches (for one BBU) • 4 x Spare Screws • 6 x Velcro Strips

Hardware Component Ports

Storage Controller

Figure 1 shows the relevant components and ports on the rear side of the Storage Controller.

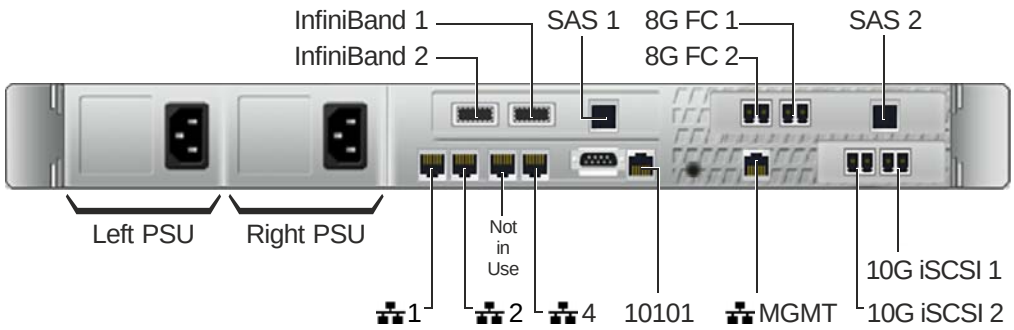


Figure 1 Storage Controller Ports (Rear Side)

DAE

Figure 2 shows the relevant components and ports on the rear side of the DAE.

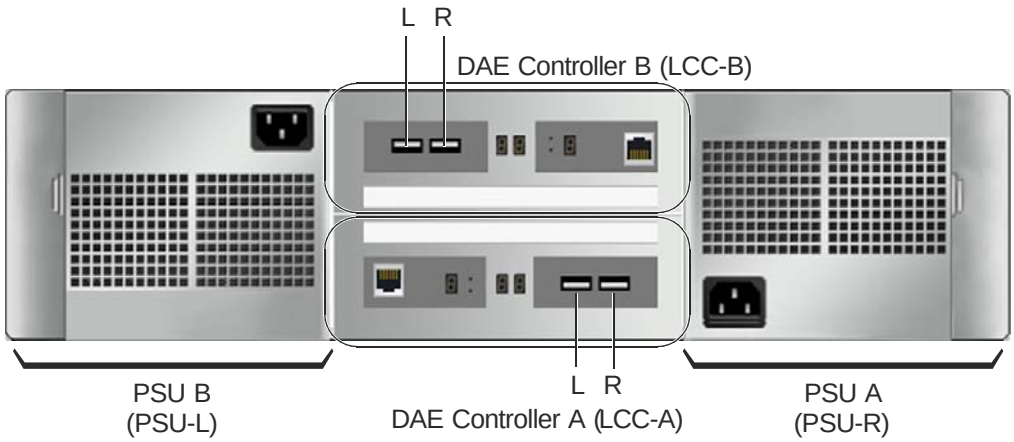


Figure 2 DAE Ports (Rear Side)

Note: A Link Control Card (LCC) is also known as a DAE Controller.

Battery Backup Unit

Battery Backup Units of an XtremIO cluster can be of one of the following types:

- 5P 1550i R
- 1550 Evolution

Figure 3 shows the relevant ports on the rear side of the 5P 1550i Battery Backup Unit.

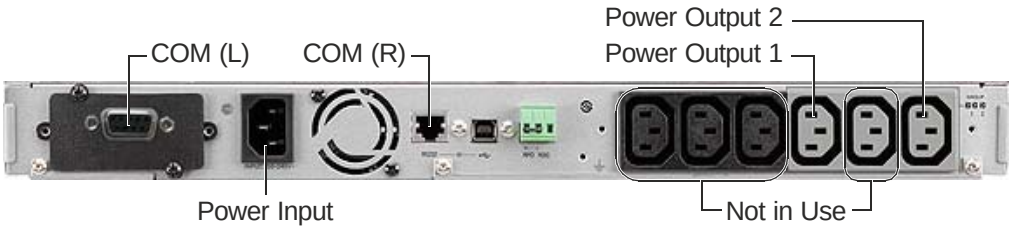


Figure 3 5P 1550i Battery Backup Unit Ports (Rear Side)

Each 5P 1550i Battery Backup Unit is supplied with one of the following:

- A DB9-RJ50 adapter (as shown in Figure 4), for connecting the data cable to COM (R) port.
  - The RJ50 end of the adapter (with the short cable, as shown in Figure 5) must be connected to COM (R) port of the Battery Backup Unit (see Figure 3).
  - The DB9 end of the adapter must be connected to the D-type connector of the data cable (with the long cable, as shown in Figure 5).
- An RJ45-RJ50 cable (as shown in Figure 6), for connecting the BBU directly to the Storage Controller.
  - The RJ45 end of the cable (as shown in Figure 7) must be connected to the 10101 port of the Storage Controller.
  - The RJ50 end of the cable (also shown in Figure 7) must be connected to the COM (R) port of the BBU.

Figure 4 DB9-RJ50 adapter

Figure 5 Data cable (DB9-RJ45 serial)

Figure 6 RJ45-RJ50 cable

Figure 7 RJ45 Connector (left); RJ50 Connector (right)

Note: Each cable has labeling clearly indicating which device and port to plug into.

Figure 8 shows the relevant ports on the rear side of the 1550 Evolution Battery Backup Unit.

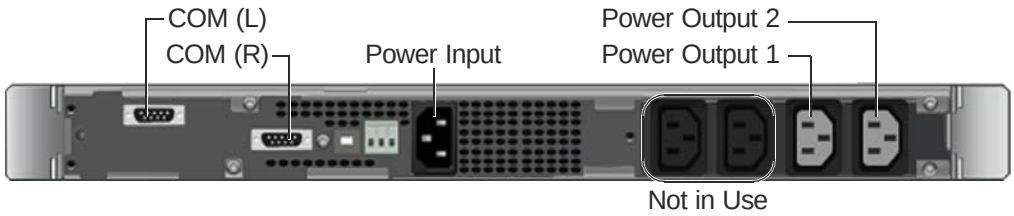


Figure 8 1550 Evolution Battery Backup Unit Ports (Rear Side)

InfiniBand Switch

Figure 9 and Figure 10 show the relevant ports on the rear and front sides of the InfiniBand Switch (respectively).

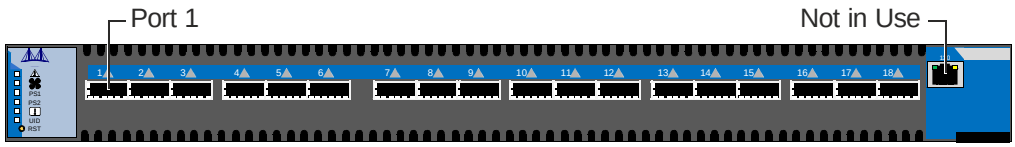


Figure 9 InfiniBand Switch Ports (Rear Side)

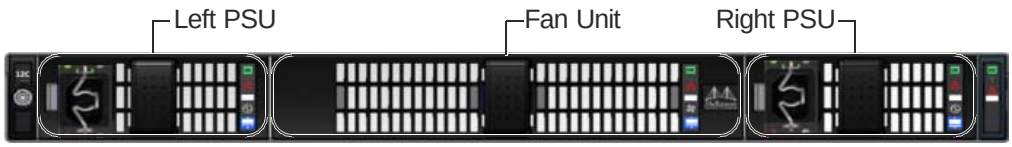


Figure 10 InfiniBand Switch Ports (Front Side)

Physical XMS (Optional)

Figure 11 shows the relevant components and ports on the rear side of the (optional) physical XMS.

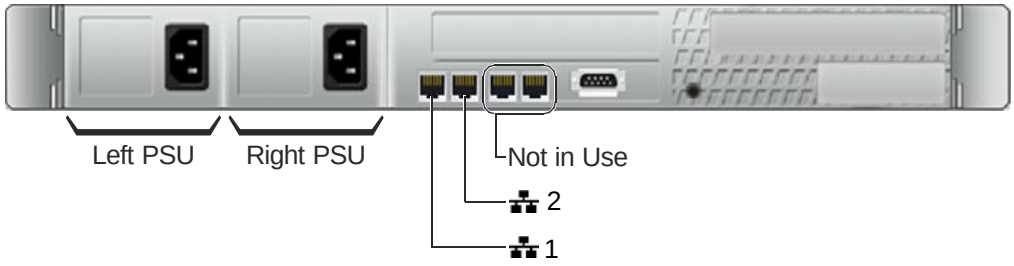


Figure 11 Physical XMS Ports (Rear Side)

Port Naming Convention

Storage Controller Ports

Table 2 indicates the Storage Controller port names (see Figure 1).

Table 2 Storage Controller Port Names

Component	Port Name	Legacy Port Name	*Example**
Power	X‹x›-SC‹y›-PSU-‹L/R›	X‹x›-N‹y›-PSU-‹L/R›	*X1-SC2-PSU-L*
MGMT	X‹x›-SC‹y›-🖧1	X‹x›-N‹y›-MGMT1	*X1-SC2-🖧1*
InfiniBand	X‹x›-SC‹y›-IB‹1/2›	X‹x›-N‹y›-IB‹1/2›	*X1-SC2-IB1*
SAS	X‹x›-SC‹y›-SAS‹1/2›	X‹x›-N‹y›-SAS‹1/2›	*X1-SC2-SAS1*
COM	X‹x›-SC‹y›-IOIOI	X‹x›-N‹y›-IOIOI	*X1-SC2-IOIOI*
External FC	X‹x›-SC‹y›-FC‹1/2›	X‹x›-N‹y›-FC‹1/2›	*X1-SC2-FC1*
External iSCSI	X‹x›-SC‹y›-iSCSI‹1/2›	X‹x›-N‹y›-iSCSI‹1/2›	*X1-SC2-iSCSI1*
IPMI	X‹x›-SC‹y›-🖧4 X‹x›-SC‹y›-🖧MGMT	X‹x›-N‹y›-D-IPMI X‹x›-N‹y›-RMM4	*X1-SC2-🖧4* *X1-SC2-🖧MGMT*

** Assumptions are: x is 1, y is 2, PSU is L, IB is 1, SAS is 1, FC is 1, iSCSI is 1*

DAE Ports

Table 3 indicates the DAE port names (see Figure 8).

Table 3 DAE Port Names

Component	Port Name	Legacy Port Name	*Example**
Power	X‹x›-DAE-PSU-‹A/B›	N/A	*X1-DAE-PSU-A*
SAS	X‹x›-SC‹y›-DAE Controller-‹A/B›-‹L/R›	X‹x›-N‹y›-LCC-‹A/B›-‹L/R›	*X1-SC2-DAE Controller A-L*

** Assumptions are: x is 1, y is 2, PSU is A, DAE Controller is A & L*

Battery Backup Unit Ports

Table 4 indicates the Battery Backup Unit port names for a single X-Brick cluster (see Figure 2).

Table 4 Battery Backup Unit Port Names on a Single X-Brick Cluster

Component	Port Name	Legacy Port Name	*Example**
Power Input	X1-BBU‹1/2›-Input	X‹x›-BBU-Input	*X1-BBU2-Input*
Power Output	X1-BBU‹1/2›-Output‹1/2›	X‹x›-BBU-Prog‹1/2›	*X1-BBU2-Output1*
COM	X1-BBU‹1/2›-COM-‹L/R›	X‹x›-BBU-COM-‹L/R›	*X1-BBU2-COM-R*

** Assumptions are: BBU is 2, Power Output is 1, COM is R*

Table 5 indicates the Battery Backup Unit port names for a multiple X-Brick cluster (see Figure 2).

Table 5 Battery Backup Unit Port Names on a Multiple X-Brick Cluster

Component	Port Name	Legacy Port Name	*Example**
Power Input	X‹x›-BBU-Input	N/A	*X1-BBU-Input*
Power Output	X‹x›-BBU-Output‹1/2›	N/A	*X1-BBU-Output1*
COM	X‹x›-BBU-COM-‹L/R›	N/A	*X1-BBU-COM-L*

** Assumptions are: x is 1, Power Output is 1, COM is L*

InfiniBand Ports

Table 6 indicates the InfiniBand port names (see Figure 9 and Figure 10).

Table 6 InfiniBand Port Names

Component	Port Name	Legacy Port Name	*Example**
Power Input	IBSW‹1/2›-PSU-‹R/L›	N/A	*IBSW2-PSU-L*
Port	IBSW‹1/2›-P‹01-18›	N/A	*IBSW2-P04*

** Assumptions are: IBSW is 2, PSU is L, Port is 04*

Physical XMS Ports

Table 7 indicates the (Optional) physical XMS port names (see Figure 1).

Table 7 Physical XMS Port Names

Component	Port Name	Legacy Port Name	*Example**
Power	XMS-PSU-‹L/R›	N/A	*XMS-PSU-L*
Management	XMS- 1 (MGMT1)	XMS-MGMT1	*XMS-MGMT1*

** Assumption is: PSU is L*

CHAPTER 2
Unpacking the Mini-Rack

This Chapter includes the following topics:

Opening the Mini-Rack Box

The EMC XtremIO Storage Array mini-rack box comes in one size. Each mini-rack can contain one or two X-Bricks. Therefore, one and two X-Brick orders arrive in a single mini-rack, four X-Brick orders arrive in two mini-racks, six X-Brick orders arrive in three mini-racks, and eight X-Brick orders arrive in four mini-racks.

Note: If the X-Brick cluster order includes a physical XMS, the XMS unit is added in a separate box on top of the mini-rack, as shown in Figure 13.

Figure 12 shows the boxed mini-rack.

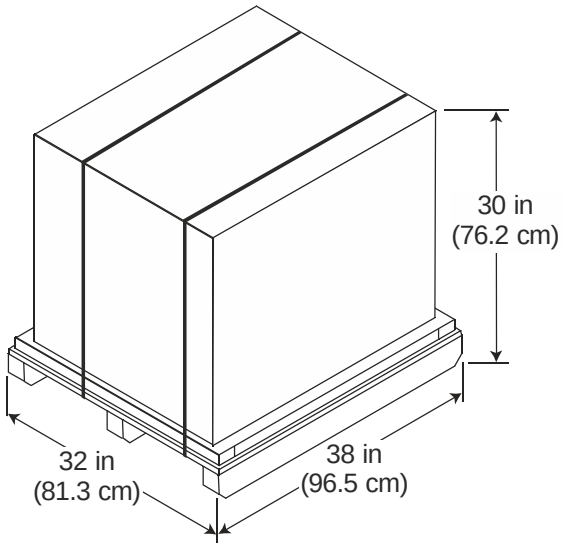


Figure 12 Mini-Rack Box

Figure 13 shows the boxed mini-rack with a physical XMS box on top.

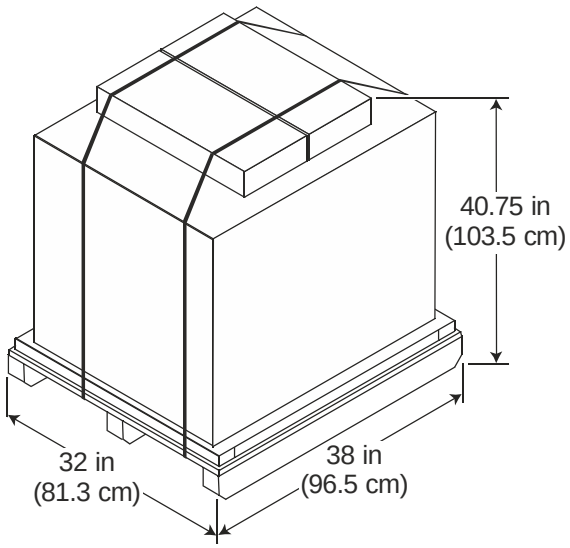


Figure 13 Mini-Rack Box with the Optional Physical XMS Box on Top

To open the mini-rack box:

1. Move the box that contains the mini-rack close to your rack, but far enough away that you have adequate space for unpacking and installation.
2. Snip the strapping that fastens the box.
3. If a physical XMS box is on top of the mini-rack box, remove it, as shown in Figure 14, and set it aside for later use.

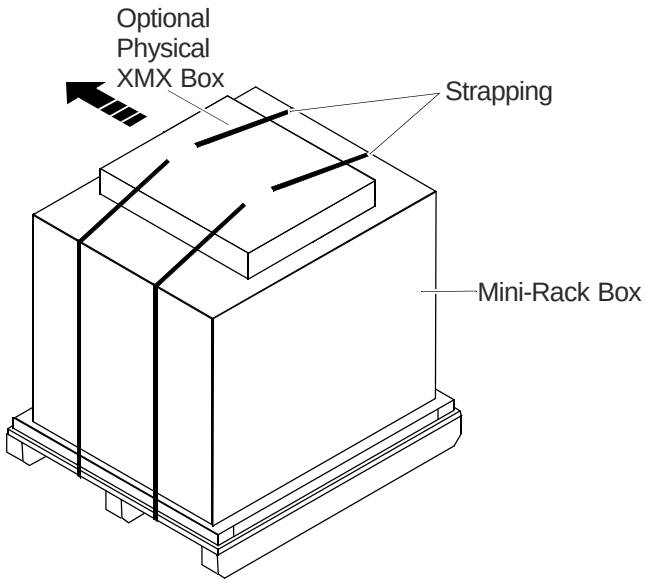


Figure 14 Removing the Optional Physical XMS Box

4. Remove the outer cardboard from the mini-rack box.

Verifying the Package Contents

Note:

- Except for the optional physical XMS, rails and screws (rail kits) of all components are mounted on the mini-rack and should be re-used, as explained in Chapter 4.
- If there are any damaged or missing components, notify your Sales associate immediately to arrange for replacements.

Single X-Brick Cluster

Figure 15 shows the components stacked in a mini-rack containing a single X-Brick cluster or a 5TB Starter Kit.

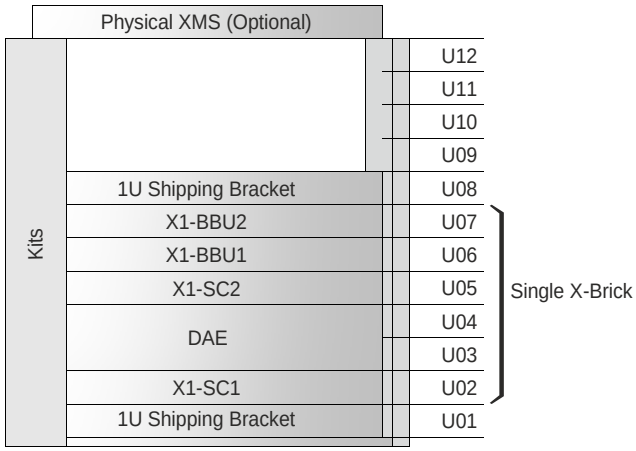


Figure 15 Components Stacked in a Mini-Rack Containing a Single X-Brick Cluster

For a single X-Brick cluster or a 5TB Starter Kit, verify that you have received all of the hardware components, as shown in Table 8.

Table 8 Single X-Brick Cluster Package Contents

	Component	Accessories
❑	Single X-Brick configuration kit	See Table 1 on page 14.
❑	2 x Storage Controllers	• 2 x Rail Kits with Mounting Screws (one Rail Kit for each Storage Controller) • 1 x License (packed separately) • 1 x PSNT Label (packed separately)
❑	1 x DAE Unit	• 1 x Rail Kit with Mounting Screws
❑	2 x Battery Backup Units	• 2 x Rail Kits with Mounting Screws (one Rail Kit for each Battery Backup Unit)
❑	1 x Doc kit	• 2 x Bezel keys • 1 x Power Off label • Documents
❑	1 x Physical XMS (optional)	• 1 x Rail Kit with Mounting Screws • 1 x 1U bezel for XMS • 1 x Ethernet Cable • 2 x C13-C14 Power Cables

Two X-Brick Cluster

Figure 16 shows the components stacked in a mini-rack, containing a two X-Brick cluster.

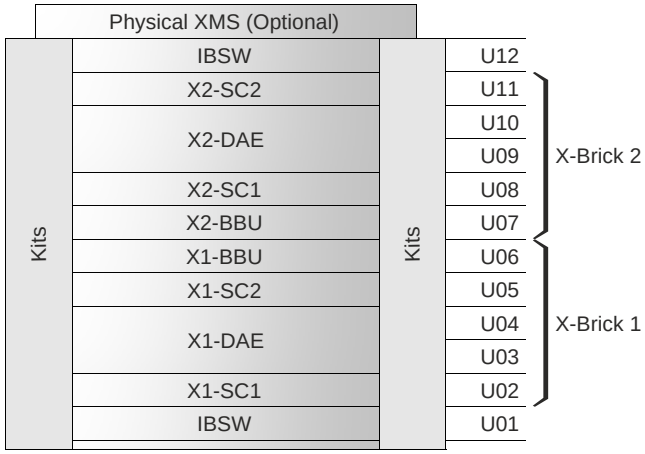


Figure 16 Components Stacked in a Mini-Rack Containing a Two X-Brick Cluster

For a two X-Brick cluster, verify that you have received all of the hardware components, as shown in Table 9.

Table 9 Two X-Brick Cluster Package Contents

	Component	Accessories
❑	X-Brick 1 configuration kit	See Table 1 on page 14.
❑	X-Brick 2 configuration kit	See Table 1 on page 14.
❑	4 x Storage Controllers	• 4 x Rail Kits with Mounting Screws (one Rail Kit for each Storage Controller) • 1 x License (packed separately) • 1 x PSNT Label (packed separately)
❑	2 x DAE Units	• 2 x Rail Kits with Mounting Screws (one Rail Kit for each DAE Unit)
❑	2 x Battery Backup Units	• 2 x Rail Kits with Mounting Screws (one Rail Kit for each Battery Backup Unit)
❑	2 x InfiniBand switches	• 2 x Rail Kits with Mounting Screws (one Rail Kit for each InfiniBand Switch)
❑	1 x Doc kit	• 2 x Bezel keys • 1 x Power Off label • Documents
❑	1 x Physical XMS (optional)	• 1 x Rail Kit with Mounting Screws • 1 x 1U bezel for XMS • 1 x Ethernet Cable • 2 x C13-C14 Power Cables

Four X-Brick Cluster

Figure 17 shows the components stacked in a mini-rack, containing a four X-Brick cluster.

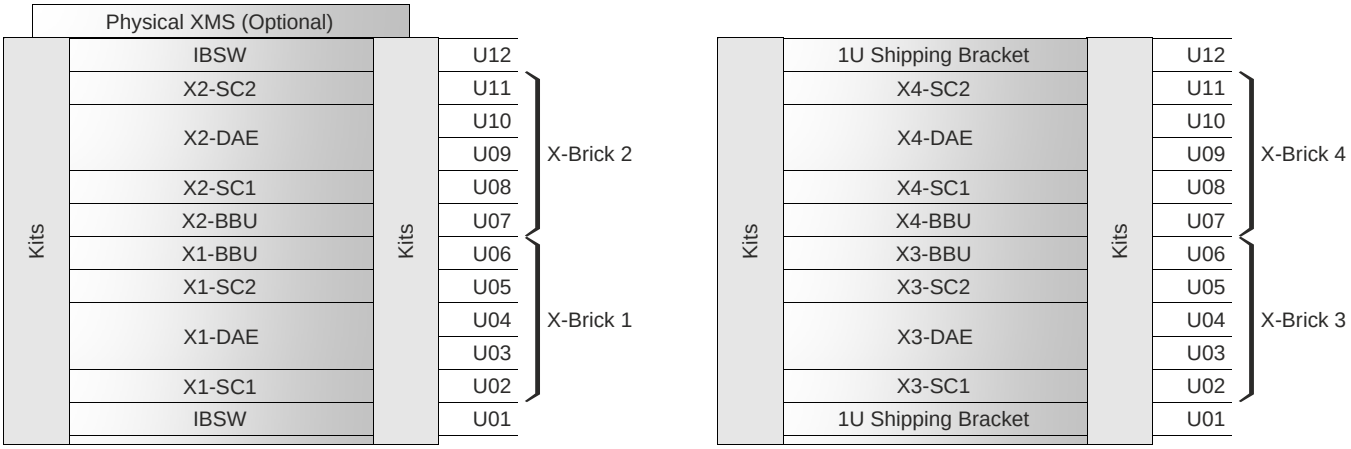


Figure 17 Components Stacked in a Mini-Rack Containing a Four X-Brick Cluster

For a four X-Brick cluster, verify that you have received all of the hardware components, as shown in Table 10.

Table 10 Four X-Brick Cluster Package Contents

	Component	Accessories
❑	X-Brick 1 configuration kit	See Table 1 on page 14.
❑	X-Brick 2 configuration kit	See Table 1 on page 14.
❑	2 x X-Brick 3-6 configuration kits	See Table 1 on page 14.
❑	8 x Storage Controllers	• 8 x Rail Kits with Mounting Screws (one Rail Kit for each Storage Controller) • 1 x License (packed separately) • 1 x PSNT Label (packed separately)
❑	4 x DAE Units	• 4 x Rail Kits with Mounting Screws (one Rail Kit for each DAE Unit)
❑	4 x Battery Backup Units	• 4 x Rail Kits with Mounting Screws (one Rail Kit for each Battery Backup Unit)
❑	2 x InfiniBand switches	• 2 x Rail Kits with Mounting Screws (one Rail Kit for each InfiniBand Switch)
❑	1 x Doc kit	• 2 x Bezel keys • 1 x Power Off label • Documents
❑	1 x Physical XMS (optional)	• 1 x Rail Kit with Mounting Screws • 1 x 1U bezel for XMS • 1 x Ethernet Cable • 2 x C13-C14 Power Cables

Six X-Brick Cluster

Figure 18 shows the components stacked in a mini-rack, containing a six X-Brick cluster.

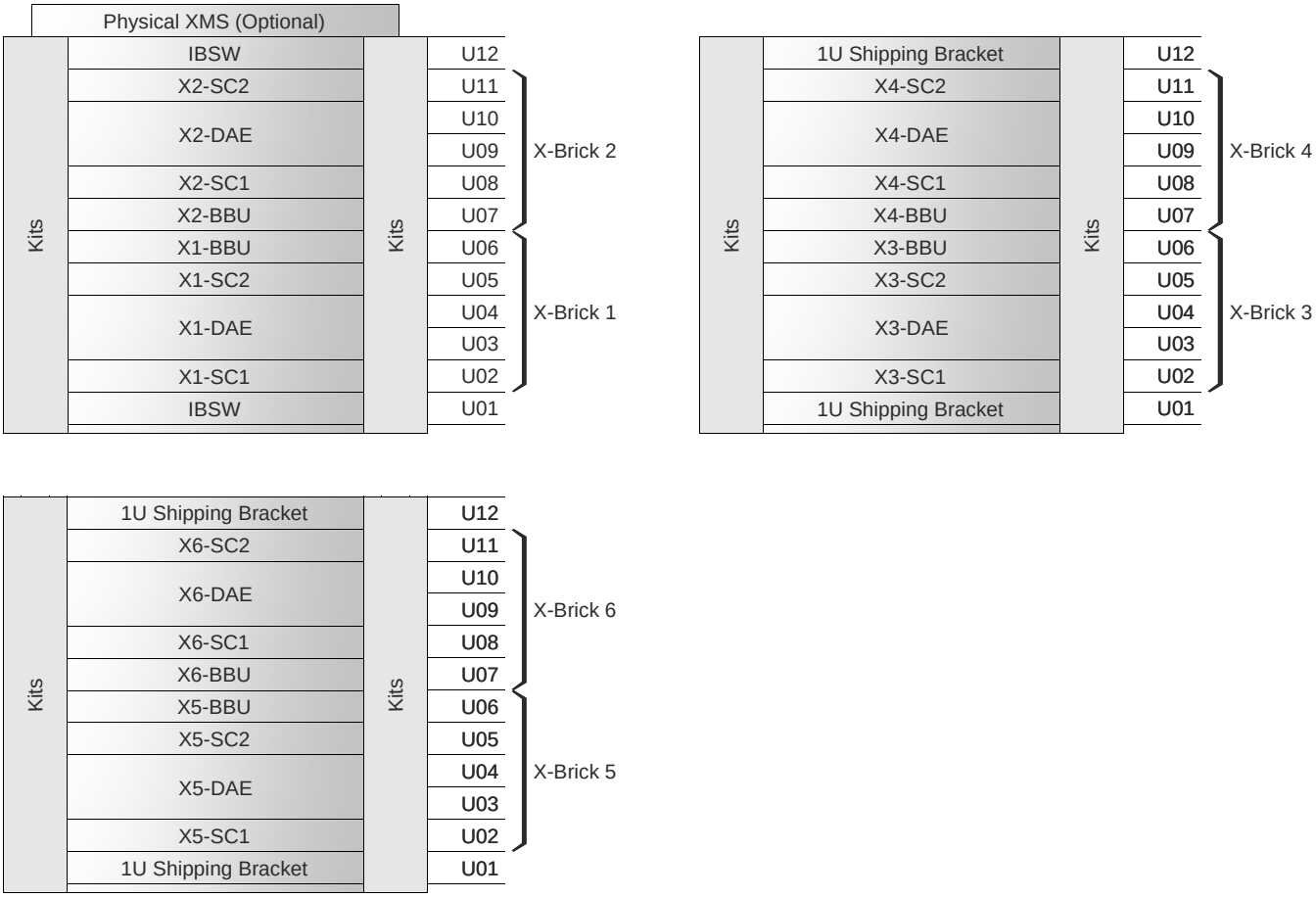


Figure 18 Components Stacked in a Mini-Rack Containing a Six X-Brick Cluster

For a six X-Brick cluster, verify that you have received all of the hardware components, as shown in Table 11.

Table 11 Six X-Brick Cluster Package Contents

	Component	Accessories
❑	X-Brick 1 configuration kit	See Table 1 on page 14.
❑	X-Brick 2 configuration kit	See Table 1 on page 14.
❑	4 x X-Brick 3-6 configuration kits	See Table 1 on page 14.
❑	12 x Storage Controllers	• 12 x Rail Kits with Mounting Screws (one Rail Kit for each Storage Controller) • 1 x License (packed separately) • 1 x PSNT Label (packed separately)
❑	6 x DAE Units	• 6 x Rail Kits with Mounting Screws (one Rail Kit for each DAE Unit)
❑	6 x Battery Backup Units	• 6 x Rail Kits with Mounting Screws (one Rail Kit for each Battery Backup Unit)
❑	2 x InfiniBand switches	• 2 x Rail Kits with Mounting Screws (one Rail Kit for each InfiniBand Switch)
❑	1 x Doc kit	• 2 x Bezel keys • 1 x Power Off label • Documents
❑	1 x Physical XMS (optional)	• 1 x Rail Kit with Mounting Screws • 1 x 1U bezel for XMS • 1 x Ethernet Cable • 2 x C13-C14 Power Cables

Eight X-Brick Cluster

Figure 19 shows the components stacked in a mini-rack, containing an eight X-Brick cluster.

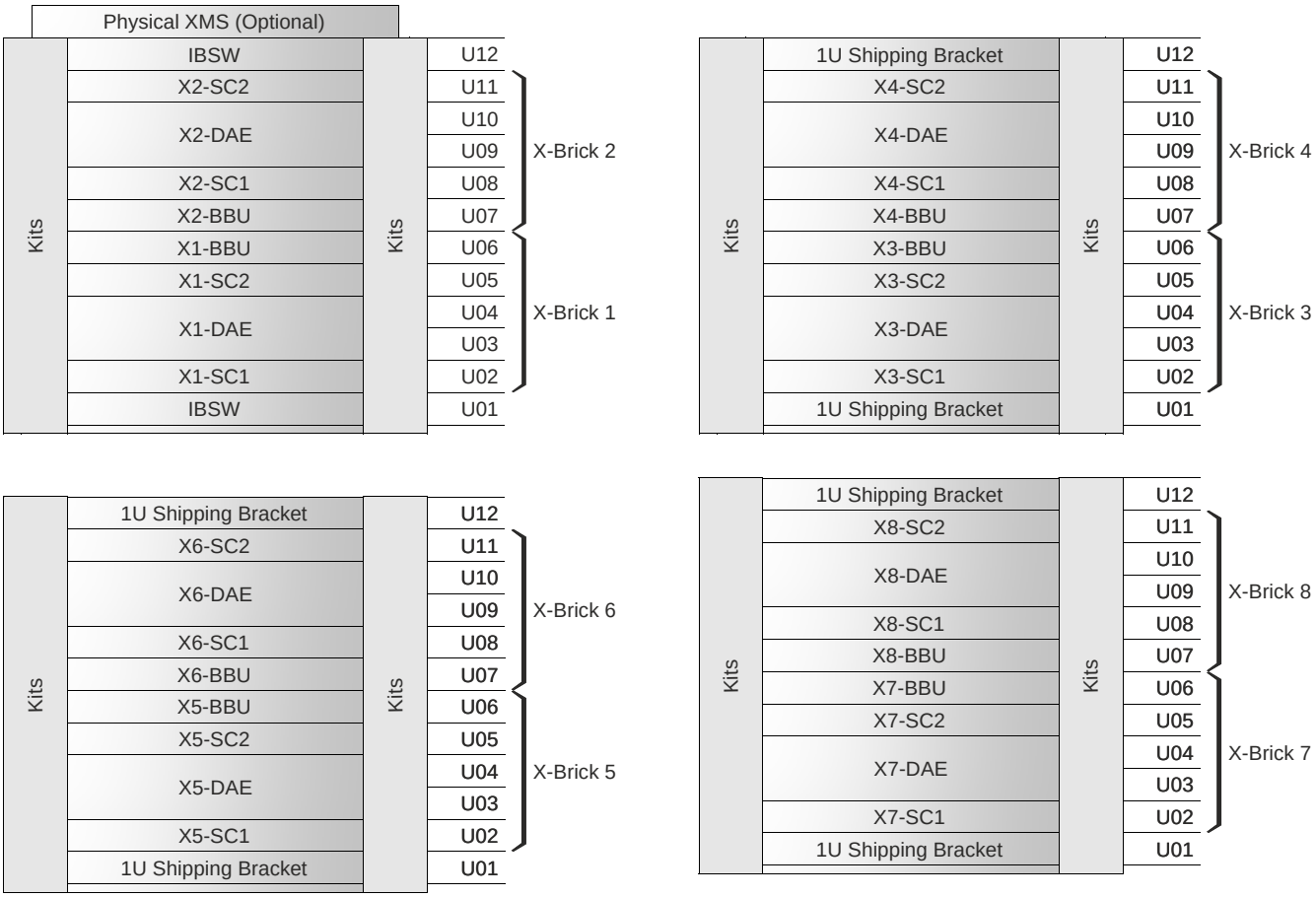


Figure 19 Components Stacked in a Mini-Rack Containing an Eight X-Brick Cluster

For an eight X-Brick cluster, verify that you have received all of the hardware components, as shown in Figure 12.

Table 12 Eight X-Brick Cluster Package Contents

	Component	Accessories
❑	X-Brick 1 configuration kit	See Table 1 on page 14.
❑	X-Brick 2 configuration kit	See Table 1 on page 14.
❑	4 x X-Brick 3-6 configuration kits	See Table 1 on page 14.
❑	2 x X-Brick 7-8 configuration kits	See Table 1 on page 14.
❑	16 x Storage Controllers	• 16 x Rail Kits with Mounting Screws (one Rail Kit for each Storage Controller) • 1 x License (packed separately) • 1 x PSNT Label (packed separately)
❑	8 x DAE Units	• 8 x Rail Kits with Mounting Screws (one Rail Kit for each DAE Unit)
❑	8 x Battery Backup Units	• 8 x Rail Kits with Mounting Screws (one Rail Kit for each Battery Backup Unit)
❑	2 x InfiniBand switches	• 2 x Rail Kits with Mounting Screws (one Rail Kit for each InfiniBand Switch)
❑	1 x Doc kit	• 2 x Bezel keys • 1 x Power Off label • Documents
❑	1 x Physical XMS (optional)	• 1 x Rail Kit with Mounting Screws • 1 x 1U bezel for XMS • 1 x Ethernet Cable • 2 x C13-C14 Power Cables

Missing, Wrong or Damaged Components

For detailed information on how to handle missing, wrong or damaged items, access the *Missing, Wrong, or Damaged (MWD) Customer Complaints Capture System* via the following URL:

https://emcmwd.emc.com/default.asp

CHAPTER 3
Racking the Hardware

This Chapter includes the following topics:

General Guidelines

Install the equipment in the rack, according to the following guidelines:

- The X-Bricks, Storage Controllers, Battery Backup Units and InfiniBand Switches are numbered from bottom to top.
- All mounting hardware (rails, screws, etc.) from within the mini-rack are to be re-used for installing the corresponding hardware component in the customer's rack.
- Do not install any bezels before completing all hardware and cable connections.
- Remove only one component at a time from the mini-rack and install it into the customer's rack before removing the next component.
- For installing the components in the customer's rack, remove them from the mini rack, starting from the bottom and working up (except for the lower InfiniBand Switch, which should be removed from the bottom of the mini-rack after installing X-Brick 2).
- In a multiple X-Brick cluster:
  - Place a Battery Backup Unit above each odd-numbered X-Brick.
  - Place a Battery Backup Unit below each even-numbered X-Brick.
- Stack the InfiniBand switches above the second X-Brick, leaving a 1U space between the two switches (for power cabling).
- It is recommended to wear an ESD bracelet or grounding heels when installing hardware components.

Physical XMS / Place Holder

If you are installing the first (or the single) X-Brick in an empty rack, leave a 1U space at the bottom of the rack for an optional physical XMS. If a physical XMS is not to be installed, leave the 1U place holder at the bottom of the rack to prevent the accumulation of dust/dirt around the Storage Controller, which may occur at the bottom of the rack. If the first (or the single) X-Brick is to be installed higher up in the rack and a physical XMS is not to be installed, the 1U place holder will not be necessary.

Racking a Single X-Brick Cluster

A single X-Brick cluster or a 5TB Starter Kit requires 6U of contiguous rack space, not including the extra 1U for the physical XMS, as described in "Physical XMS / Place Holder" on page 34.

For a single X-Brick cluster or a 5TB Starter Kit, stack the components as shown in Figure 20.

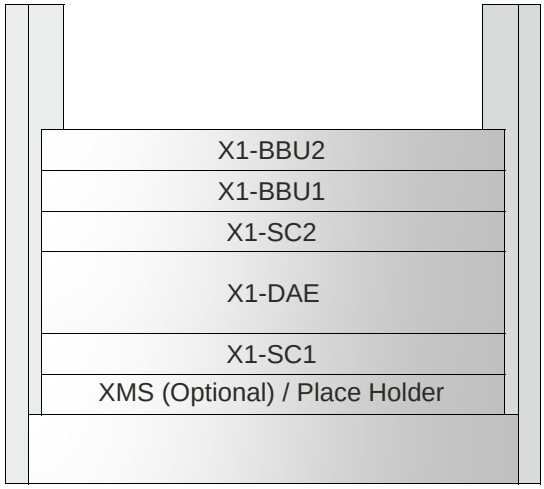


Figure 20 Single X-Brick Cluster Stacking Order

Racking a Two X-Brick Cluster

A two X-Brick cluster requires 13U of contiguous rack space, not including the extra 1U for the physical XMS, as described in "Physical XMS / Place Holder" on page 34.

For a two X-Brick cluster, stack the components as shown in Figure 21.

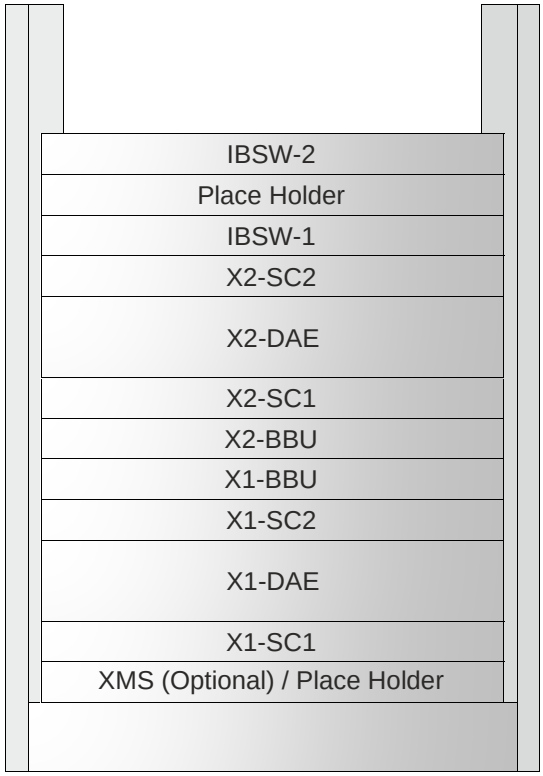


Figure 21 Two X-Brick Cluster Stacking Order

Racking a Four X-Brick Cluster

A four X-Brick cluster requires 23U of contiguous rack space, not including the extra 1U for the physical XMS, as described in "Physical XMS / Place Holder" on page 34.

For a four X-Brick cluster, stack the components as shown in Figure 22.

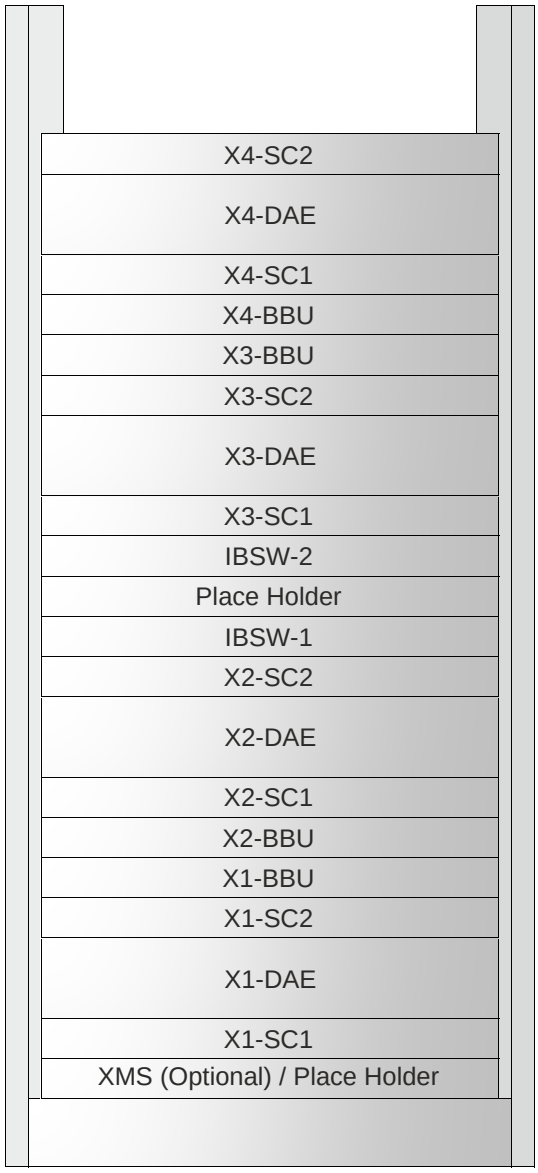


Figure 22 Four X-Brick Cluster Stacking Order

Racking a Six X-Brick Cluster

A six X-Brick cluster requires 33U of contiguous rack space, not including the extra 1U for the physical XMS, as described in "Physical XMS / Place Holder" on page 34.

For a six X-Brick cluster, stack the components as shown in Figure 23.

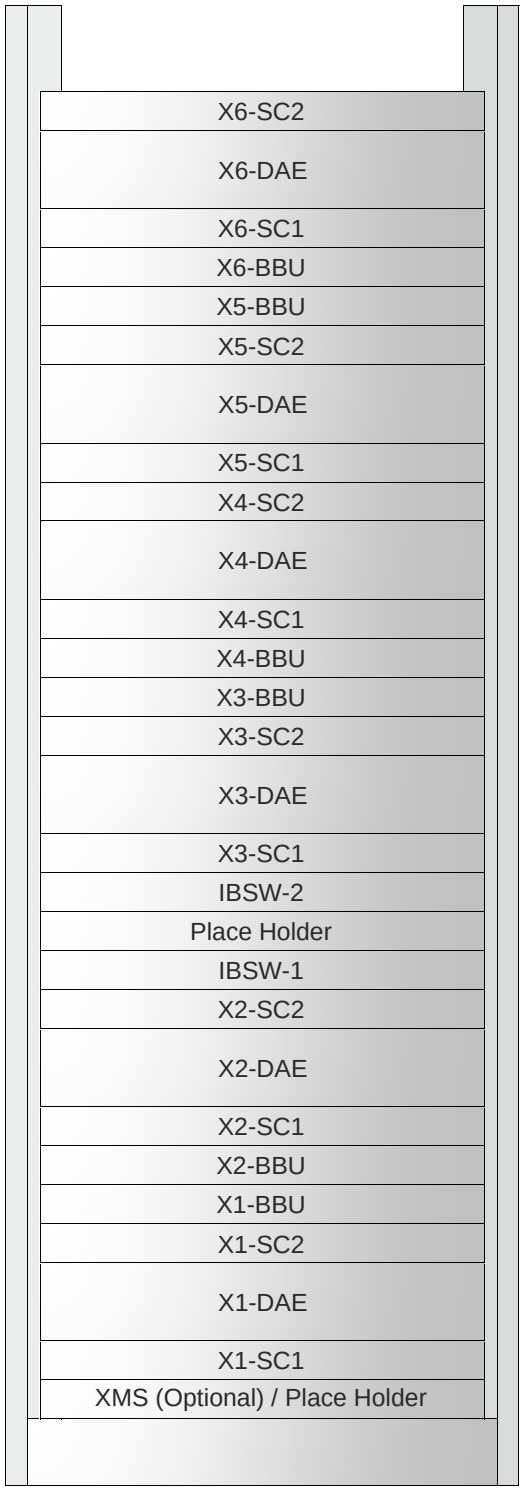


Figure 23 Six X-Brick Cluster Stacking Order

Racking an Eight X-Brick Cluster

An eight X-Brick cluster can be installed in the following configurations:

- In two adjacent racks:
  - With the first rack housing X-Bricks 1 to 6, requiring 33U of contiguous rack space
  - With the second rack housing X-Bricks 7 and 8, requiring 10U of contiguous rack space
- In a single rack, requiring 43U of contiguous rack space

Note: The above rack spaces do not include the extra 1U for the physical XMS, as described in "Physical XMS / Place Holder" on page 34.

For an eight X-Brick cluster in two adjacent racks, stack the components as shown in Figure 24.

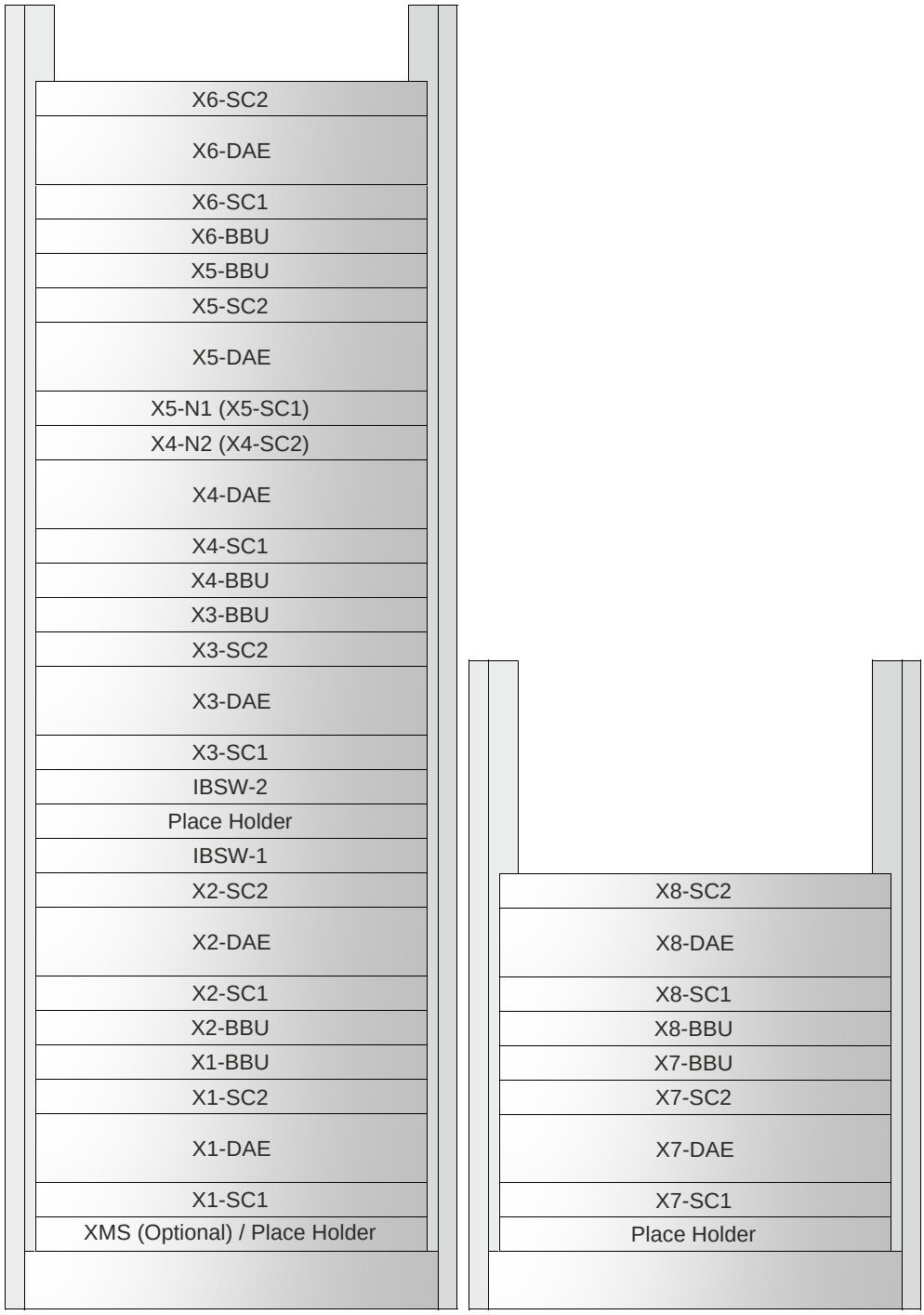


Figure 24 Eight X-Brick Cluster Stacking Order in Two Adjacent Racks

For an eight X-Brick cluster in a single rack, stack the components as shown in Figure 25.

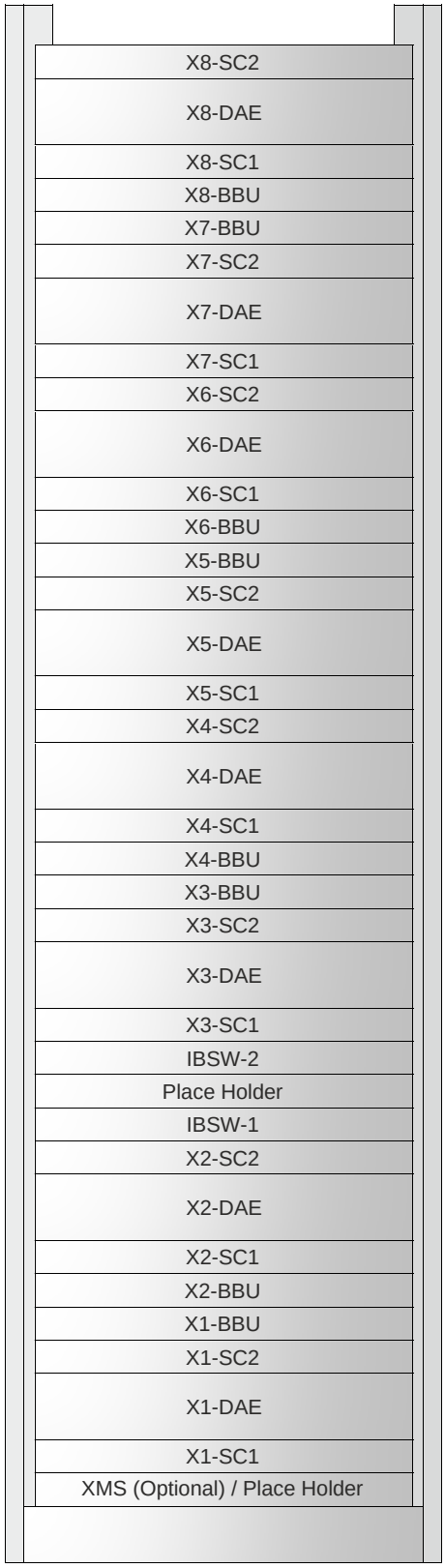


Figure 25 Eight X-Brick Cluster Stacking Order in a Single Rack

CHAPTER 4
Installing Hardware Components

This Chapter includes the following topics:

Required Tools

A #2 Phillips screwdriver is required for removing and tightening the screws of all XtremIO hardware components.

A #1 JIS screwdriver may also be required for some server rail screws.

Installing the Physical XMS (Optional)

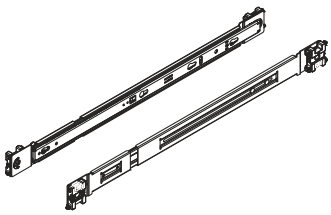
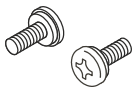
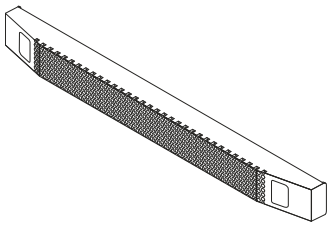
To install the physical XMS, perform the following procedures:

1. "Verifying the Parts" on page 44
2. "Adjusting the Rail Assemblies for the Cabinet Channel Holes" on page 45
3. "Removing Inner Rails from the Rail Assemblies" on page 47
4. "Attaching the Inner Rails to the Server" on page 48
5. "Installing the Slide Rails in the Cabinet" on page 49
6. "Installing the Server in the Cabinet/Rack" on page 51

Verifying the Parts

Verify that the installation pack includes the parts as listed in Table 13.

Table 13 Server Mounting Kit Parts

Component	Use
Two universal rail assemblies (consist of slide rails for connection to the cabinet and inner rails for connection to the server) 	Attach on either side between cabinet channels.
Four Phillips pan-head 8-32 x 0.35 in screws 	Stabilize the server and rail mounting.
1U bezel (application specific) 	Covers front of server in cabinet.

Adjusting the Rail Assemblies for the Cabinet Channel Holes

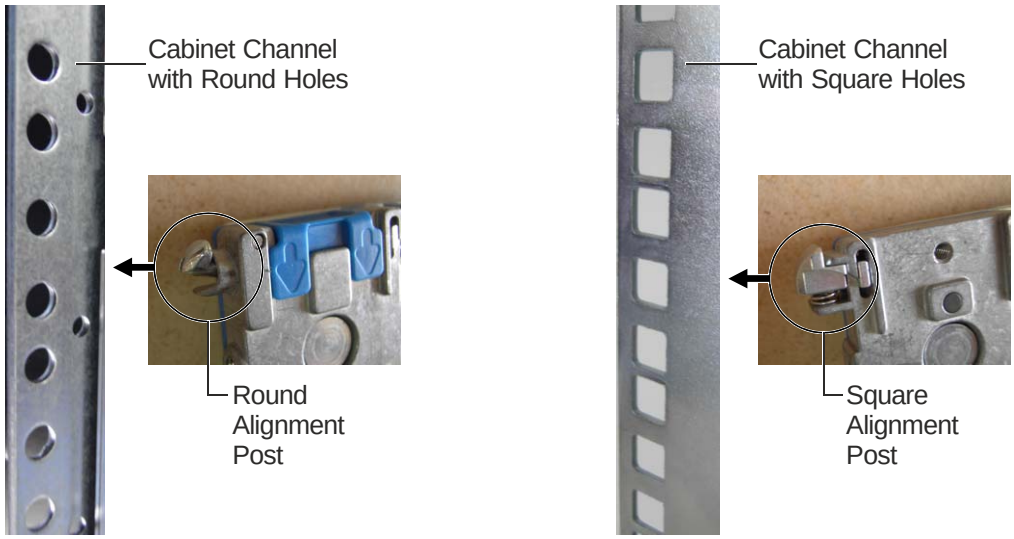


Figure 26 Adjusting the Alignment Posts (at the ends of Server Rails) According to the Shape of Cabinet Channel Holes

The rail assemblies are shipped with round alignment posts at the end of the rails for cabinet channels (NEMA rails) with round holes. If your cabinet has channels with square holes, switch the rail alignment posts to square posts.

Note: On each end of each rail assembly, switch the alignment post assembly (see Figure 27).

To switch rail alignment posts:

1. Remove the screw that secures the alignment post assembly.
2. Push the plastic tab on the alignment post assembly up or down, depending on the rail end, and hold the tab in.
3. Rotate the alignment post assembly clockwise to switch from round posts to square posts, or counter clockwise to switch from square posts to round posts, until the assembly clicks into place.
4. Secure the alignment post assembly in place with the screw that you removed.

Note: The screw goes in the hole opposite the hole from which you removed it.

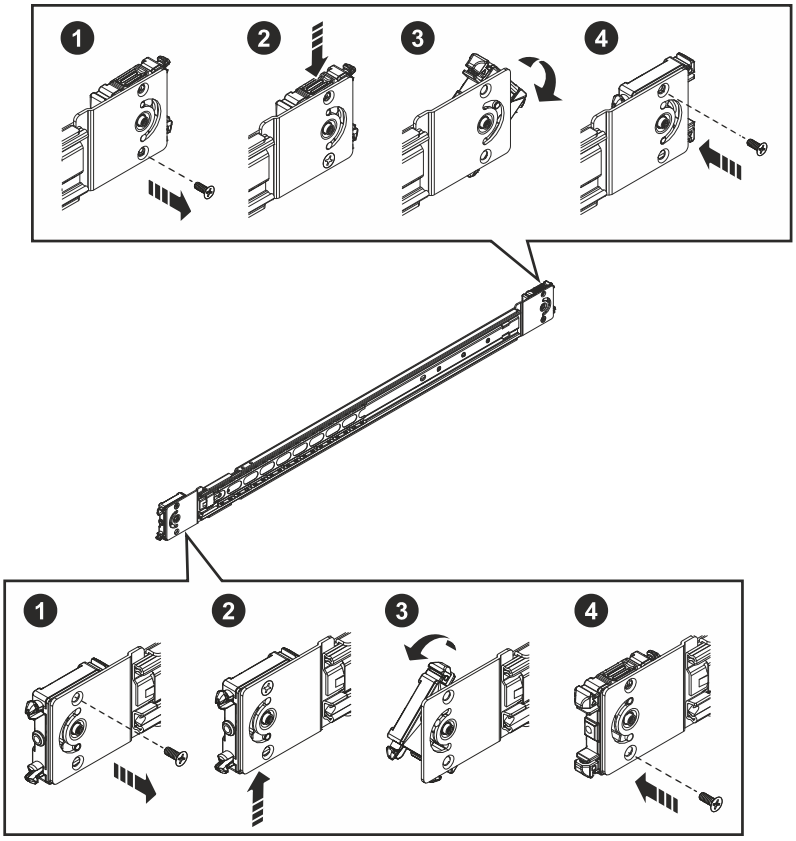


Figure 27 Switching from Round Rail Alignment Posts to Square Alignment Posts

Removing Inner Rails from the Rail Assemblies

Note: Perform this procedure for each rail assembly.

To remove the inner rail from a rail assembly (see Figure 28):

1. Slide the inner rail out from the slide rail as far as possible.
2. On the inner rail, slide the blue disconnect tab forward to release the inner rail from the slide rail.
3. Slide the inner rail completely out of the slide rail.

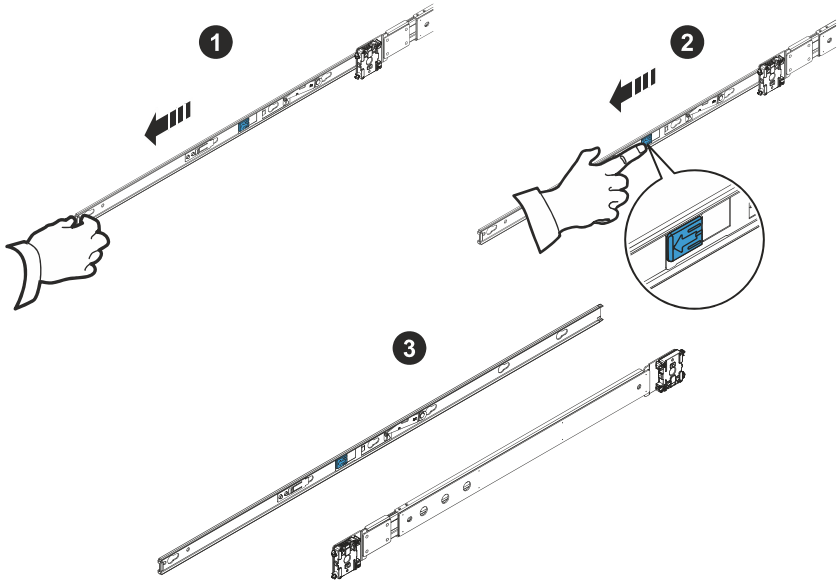


Figure 28 Removing the Inner Rail from the Slide Rail

Attaching the Inner Rails to the Server

Note: Attach an inner rail to each side of the server.

To attach an inner rail to the server (see Figure 29):

1. With the flat side of the inner rail facing the side of the server, align the large end of the rail notches of the inner rail with the connection studs on the server and push the inner rail onto the connection studs.
2. Slide the inner rail forward along the server until the studs fit securely into the small end of the rail notches.

   An audible click indicates that the rail is secure.

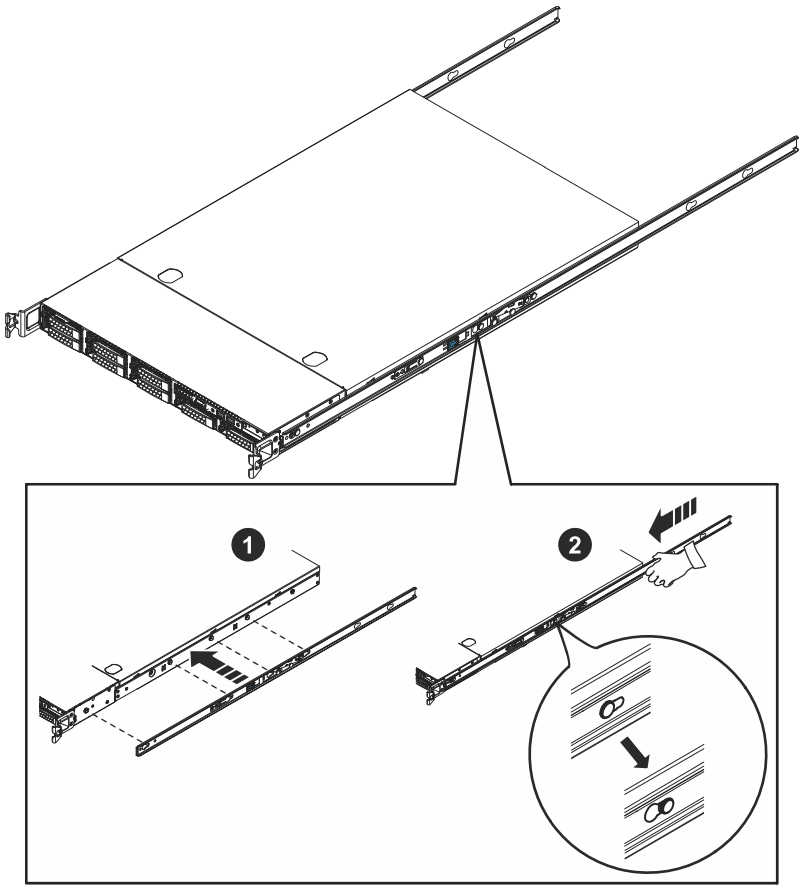


Figure 29 Attaching an Inner Rail to the Server

Installing the Slide Rails in the Cabinet

The universal rail assemblies for this server support cabinets in which the front and rear mounting channels are 24 inches to 34 inches apart.

Note: Install each slide rail in the cabinet

To install a slide rail in the cabinet:

1. From the front of the cabinet, align the rail alignment posts with the rear channel holes for the selected 1 U (1.75 in) of cabinet space for the server.
2. Insert the alignment posts securely into the holes, as shown in Figure 30.

   An audible click indicates that the connection is secure.

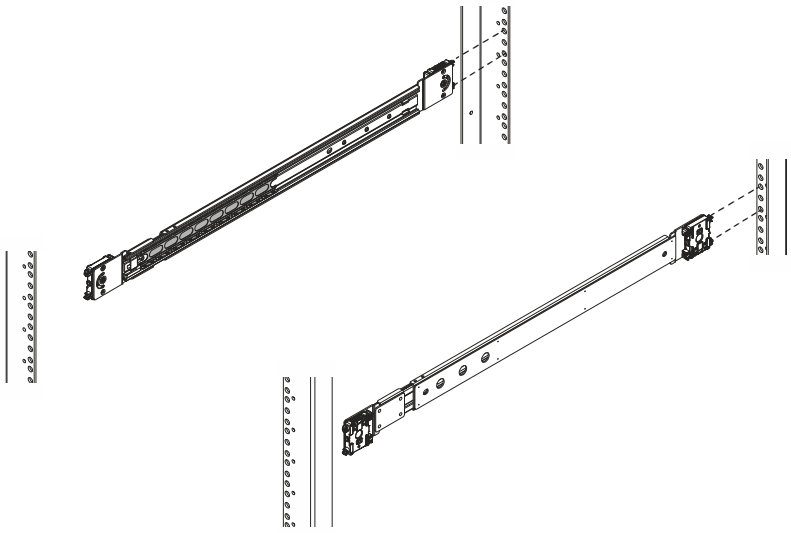


Figure 30 Inserting Rail Alignment Posts into Rear Channel Holes

3. Pull the slide rail forward so that the front alignment posts go securely into the holes on the front channel, as shown in Figure 31.

   An audible click indicates that the connection is secure.

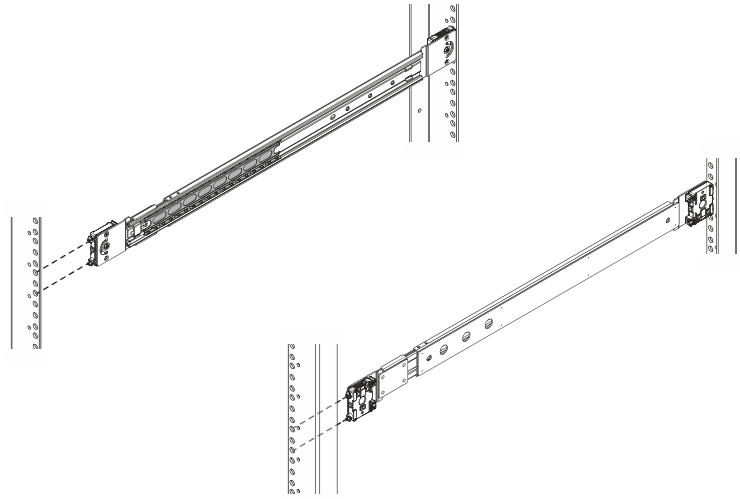


Figure 31 Inserting Rail Alignment Posts into Front Channel Holes

Installing the Server in the Cabinet/Rack

To install the server in the cabinet:

1. On each slide rail bring the ball bearing retainer assembly fully to the front, so that it rides onto the security knob, as shown in Figure 32.

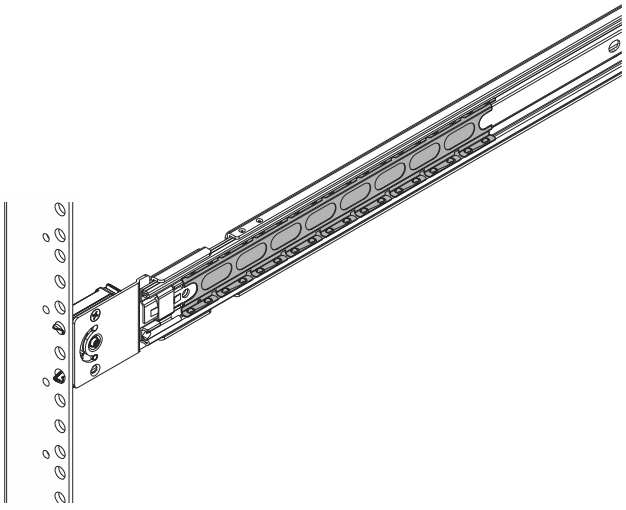


Figure 32 Correct Location for Ball Bearing Retainer Assembly

2. From the front of the cabinet, align the inner rails that are attached to the server with the white plastic guide block on the front inside of each slide rail, as shown in Figure 33.

Note: For clarity, Figure 33 shows the inner rail without the server attached.

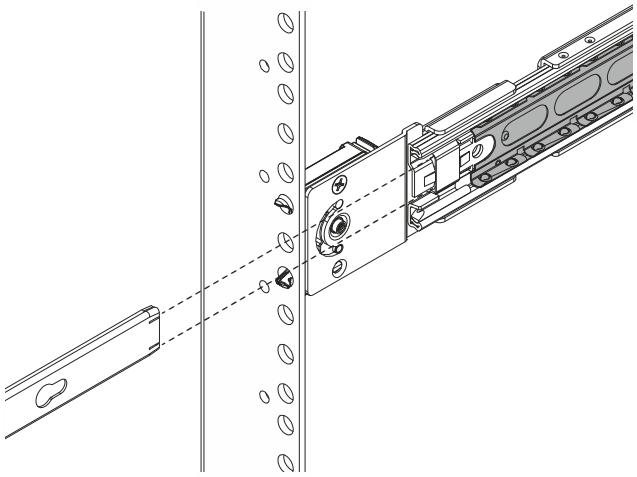


Figure 33 Aligning the Inner Rail with the White Plastic Guide Block

3. Slide the server into the chassis, so that the inner rails extends over the plastic guide blocks and the first part of the ball bearing retainer assemblies, as shown in Figure 34.

Note: For clarity, Figure 34 shows the inner rail without the server attached.

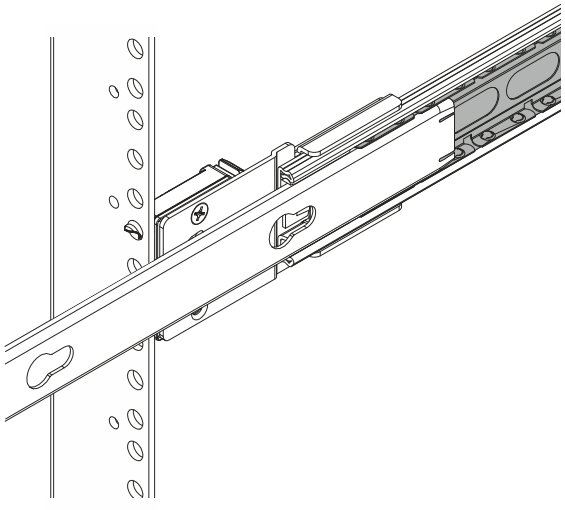


Figure 34 Inner Rail over the First Part of the Ball Bearing Retainer Assembly

4. Once the inner rails are properly engaged with the ball bearing retainer assemblies, push the server into the cabinet until the slide rails are engaged and locked.

   An audible click indicates that the slide rails are engaged and locked.

5. On the outside of each rail assembly, slide the blue disconnect tab forward to unlock the server, and push the server completely into the cabinet, as shown in Figure 35.

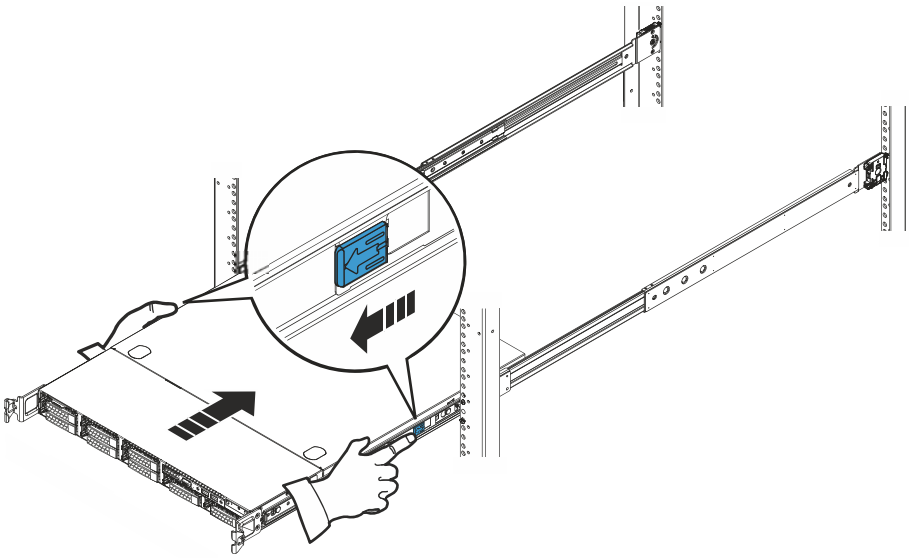


Figure 35 Inserting the Server in the Cabinet

6. To further secure the rail assembly and server in the cabinet, insert and tighten a small stabilizer screw directly behind each bezel latch, as shown in Figure 36.

Note: This step in mandatory.

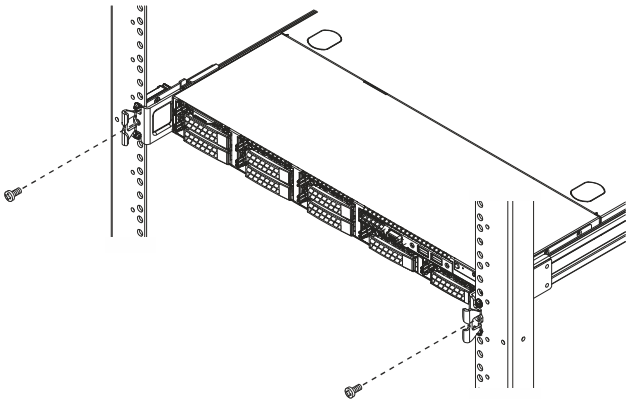


Figure 36 Installing the Stabilizer Screws

7. Secure the rail to the rear channel with a small stabilizer screw, as shown in Figure 37.

Note: This step is optional.

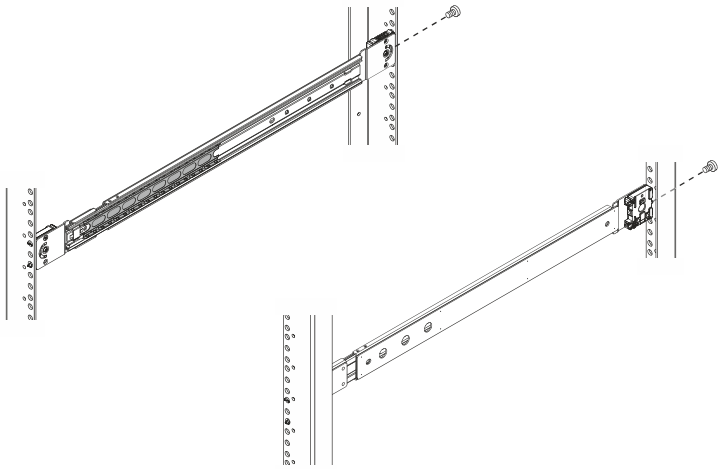


Figure 37 Inserting Stabilizer Screws (with Server not Shown)

Installing the Storage Controllers

To install a Storage Controller, perform the following procedures:

1. "Removing a Storage Controller from the Mini-Rack" on page 54
2. "Adjusting the Rail Assemblies for the Cabinet Channel Holes" on page 56
3. "Installing the Slide Rails in the Cabinet" on page 58
4. "Installing the Server in the Cabinet/Rack" on page 60
5. "Installing the Cable Management Bracket" on page 63

Removing a Storage Controller from the Mini-Rack

To remove a Storage Controller from the mini-rack:

1. From the front side of the Storage Controller, remove the two screws that connect it to the mini-rack, as shown in Figure 38.

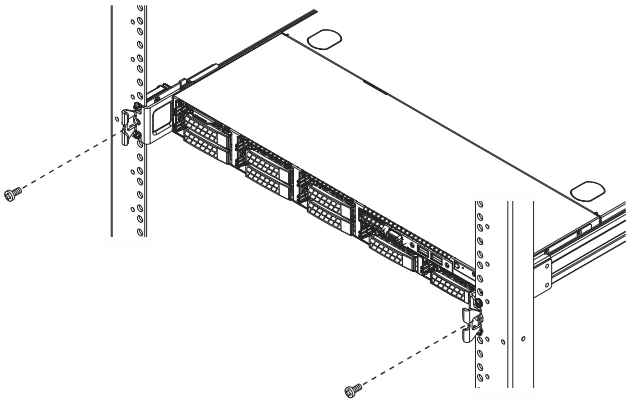


Figure 38 Removing Stabilizer Screws

2. From the rear side of the Storage Controller, remove the two screws that connect it to the mini-rack.
3. Set the four screws aside for later use in this procedure.

4. Pull the server forward until it locks in place, then, slide the blue disconnect tabs forward to release the inner rails from the slide rails, as shown in Figure 39.

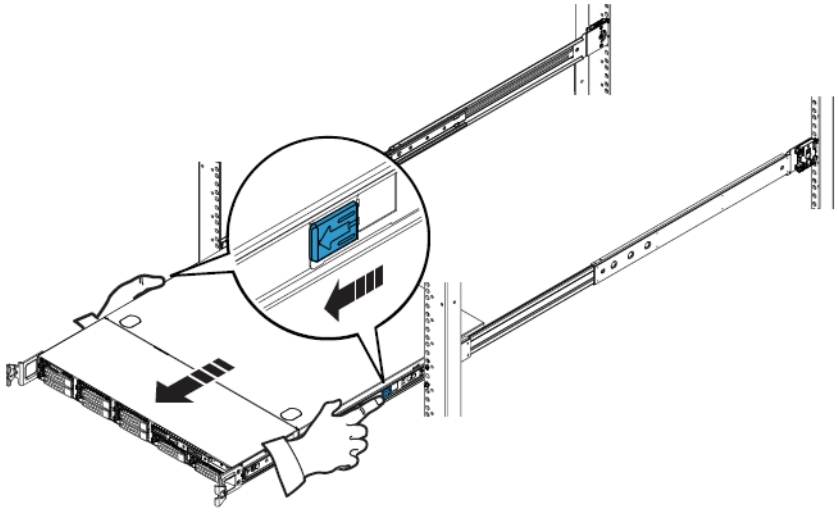


Figure 39 Releasing the Inner Rails

Note: If necessary, apply sufficient pressure on the Storage Controller rail from the rear side of the mini-rack.

5. Pull the server forward to completely disengage it from the rails.
6. Remove the rails from the mini-rack.

Adjusting the Rail Assemblies for the Cabinet Channel Holes

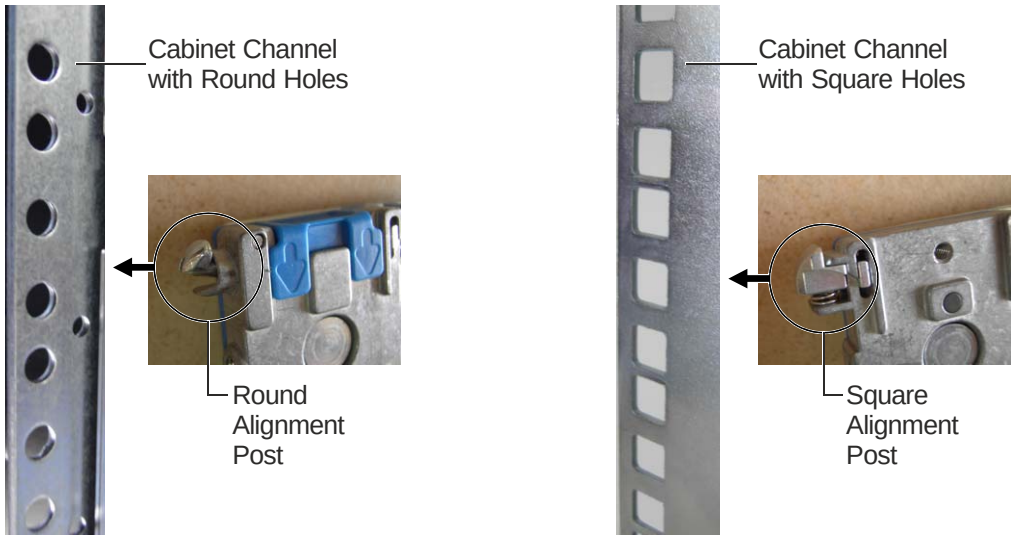


Figure 40 Adjusting the Alignment Posts (at the ends of Server Rails) According to the Shape of Cabinet Channel Holes

The rail assemblies are shipped with round alignment posts at the end of the rails for cabinet channels (NEMA rails) with round holes. If your cabinet has channels with square holes, switch the rail alignment posts to square posts.

Note: On each end of each rail assembly, switch the alignment post assembly (see Figure 41).

To switch rail alignment posts:

1. Remove the screw that secures the alignment post assembly.
2. Push the plastic tab on the alignment post assembly up or down, depending on the rail end, and hold the tab in.
3. Rotate the alignment post assembly clockwise to switch from round posts to square posts, or counter clockwise to switch from square posts to round posts, until the assembly clicks into place.
4. Secure the alignment post assembly in place with the screw that you removed.

Note: The screw goes in the hole opposite the hole from which you removed it.

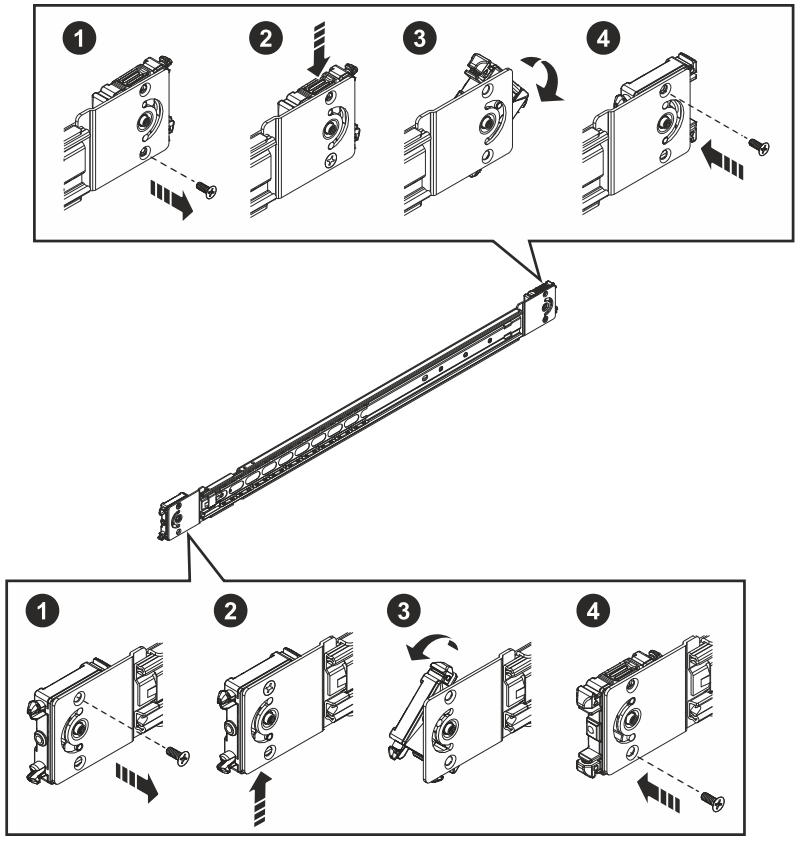


Figure 41 Switching from Round Rail Alignment Posts to Square Alignment Posts

Installing the Slide Rails in the Cabinet

The universal rail assemblies for this server support cabinets in which the front and rear mounting channels are 24 inches to 34 inches apart.

Note: Install each slide rail in the cabinet

To install a slide rail in the cabinet:

1. From the front of the cabinet, align the rail alignment posts with the rear channel holes for the selected 1 U (1.75 in) of cabinet space for the server.
2. Insert the alignment posts securely into the holes, as shown in Figure 42.

   An audible click indicates that the connection is secure.

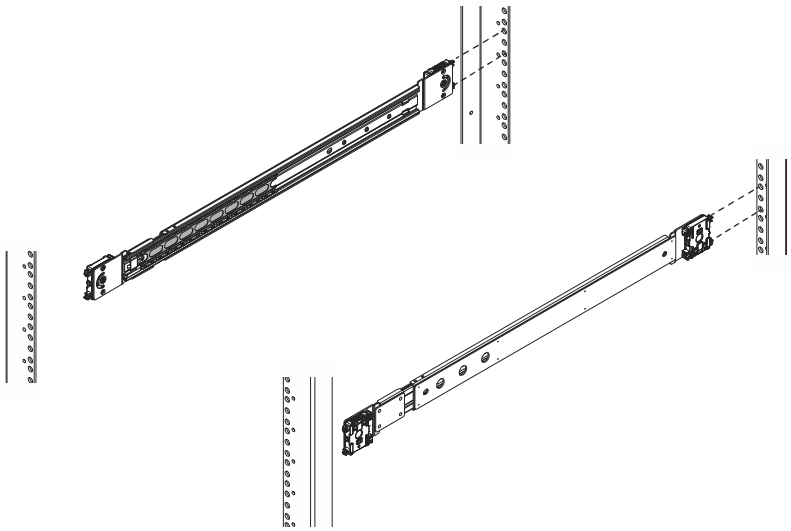


Figure 42 Inserting Rail Alignment Posts into Rear Channel Holes

Note: Make sure that the white plastic guide is aligned with the front of the cabinet (see step 3 on page 61).

3. Pull the slide rail forward so that the front alignment posts go securely into the holes on the front channel, as shown in Figure 43.

   An audible click indicates that the connection is secure.

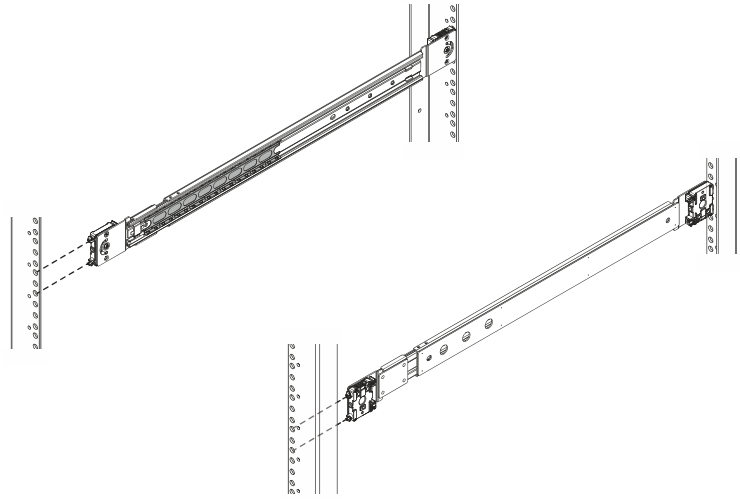


Figure 43 Inserting Rail Alignment Posts into Front Channel Holes

Installing the Server in the Cabinet/Rack

To install the server in the cabinet:

1. On each slide rail bring the ball bearing retainer assembly fully to the front, so that it rides onto the security knob, as shown in Figure 44.

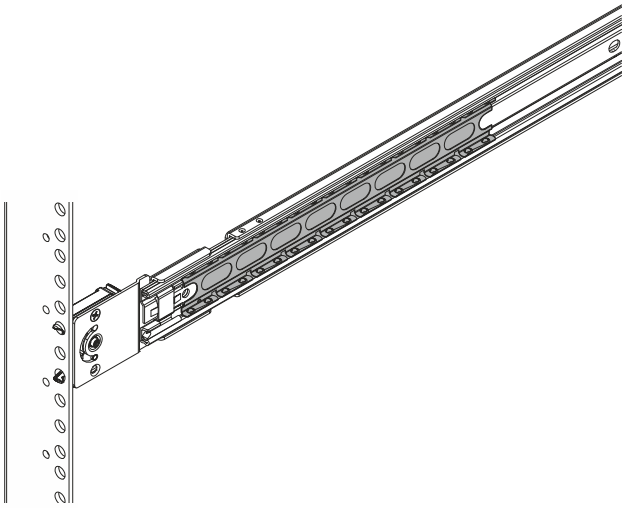


Figure 44 Correct Location for Ball Bearing Retainer Assembly

2. From the front of the cabinet, align the inner rails that are attached to the server with the white plastic guide block on the front inside of each slide rail, as shown in Figure 45.

Note: For clarity, Figure 45 shows the inner rail without the server attached.

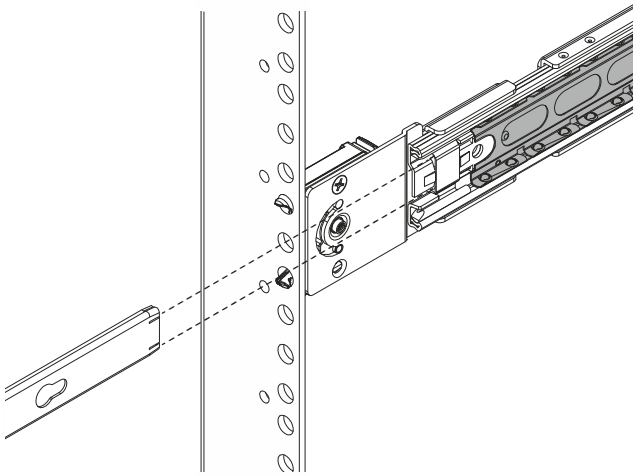


Figure 45 Aligning the Inner Rail with the White Plastic Guide Block

3. Slide the server into the chassis, so that the inner rails extends over the plastic guide blocks and the first part of the ball bearing retainer assemblies, as shown in Figure 46.

Note: For clarity, Figure 46 shows the inner rail without the server attached.

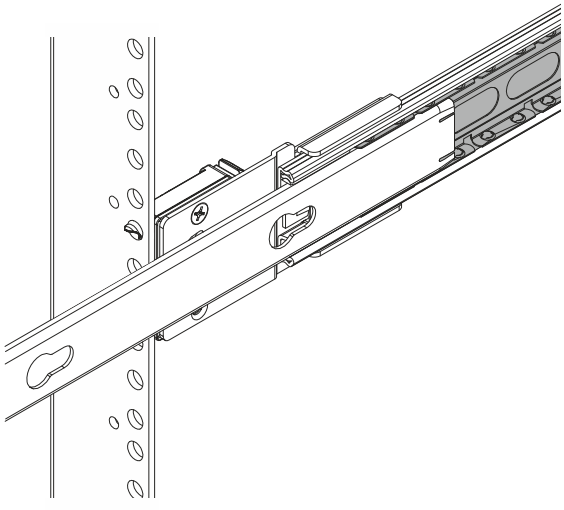


Figure 46 Inner Rail over the First Part of the Ball Bearing Retainer Assembly

4. Once the inner rails are properly engaged with the ball bearing retainer assemblies, push the server into the cabinet until the slide rails are engaged and locked.

   An audible click indicates that the slide rails are engaged and locked.

5. On the outside of each rail assembly, slide the blue disconnect tab forward to unlock the server, and push the server completely into the cabinet, as shown in Figure 47.

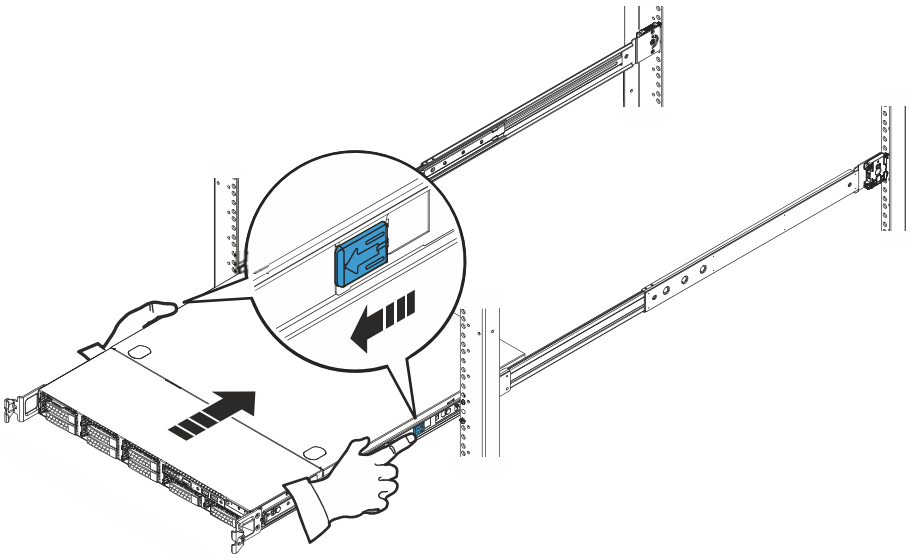


Figure 47 Inserting the Server in the Cabinet

6. To further secure the rail assembly and server in the cabinet, insert and tighten a small stabilizer screw directly behind each bezel latch, as shown in Figure 48.

Note: This step is a mandatory.

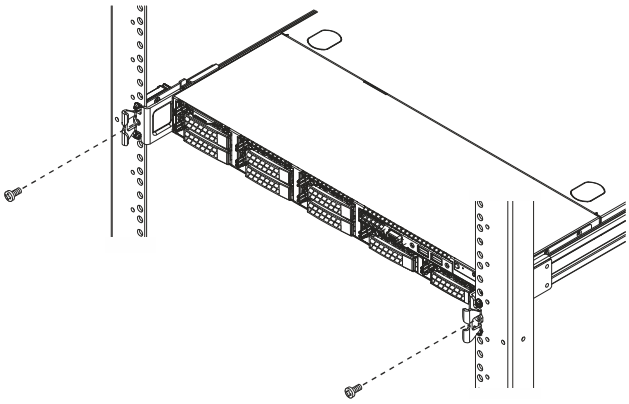


Figure 48 Installing the Stabilizer Screws

7. Secure the rail to the rear channel with a small stabilizer screw, as shown in Figure 49.

Note: This step is a optional.

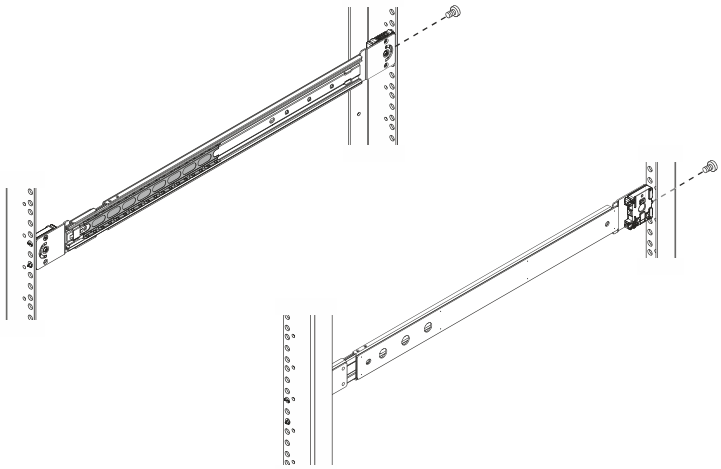


Figure 49 Inserting Stabilizer Screws (with Server not Shown)

Installing the Cable Management Bracket

Note: The cable management bracket is to be introduced with/after version 4.0. Some earlier shipments may not include the bracket. If the cable management bracket is not included in the package, ignore these instructions.

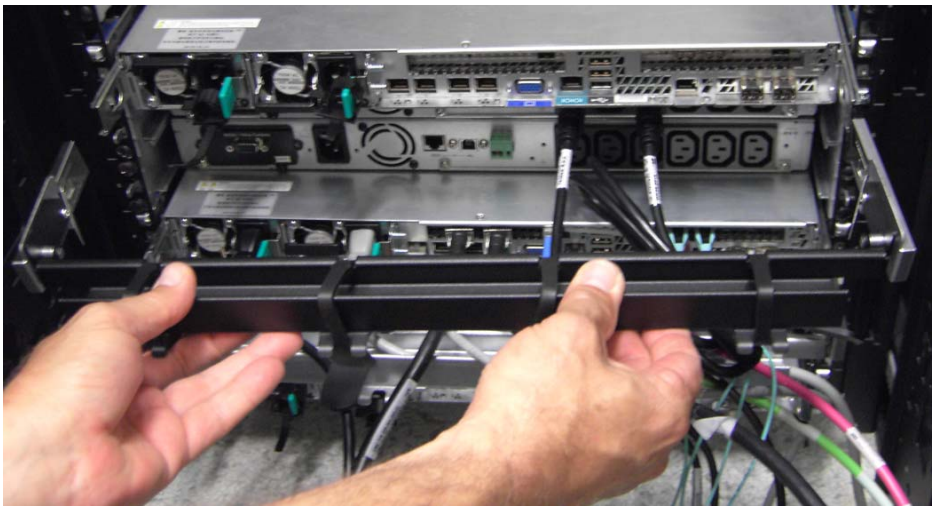


Figure 50 Cable Management Bracket

To Install the cable management bracket:

1. Make sure that the cable management bracket's cable tray is facing upwards, as shown in Figure 50.
2. Insert the rails of the cable management bracket onto the inner rails of the Storage Controller, as shown in Figure 51.

Figure 51 Inserting Cable Management Bracket Rails onto the Storage Controller Inner Rails

3. Push to slide in the cable management bracket until an audible click is heard from both sides. This indicates that the cable management bracket and the Storage Controller rails are engaged and locked.

Note: If other components cause physical interference, tilt the cable tray up/down by simultaneously pulling both latches on the left and right side of the cable management bracket, and then pushing the tray up/down.

Figure 52 Cable Management Bracket (Right) Latch

Installing the DAE

To install the DAE, perform the following procedures:

1. "Removing the DAE from the Mini-Rack" on page 65
2. "Installing the Rails for the Disk-Array Enclosure" on page 67
3. "Installing the DAE in the Cabinet/Rack" on page 68

Removing the DAE from the Mini-Rack

To remove the DAE from the mini-rack:

1. Remove the four screws (two per side) that secure the front of the enclosure to the front vertical channels of the mini-rack, as shown in Figure 53.

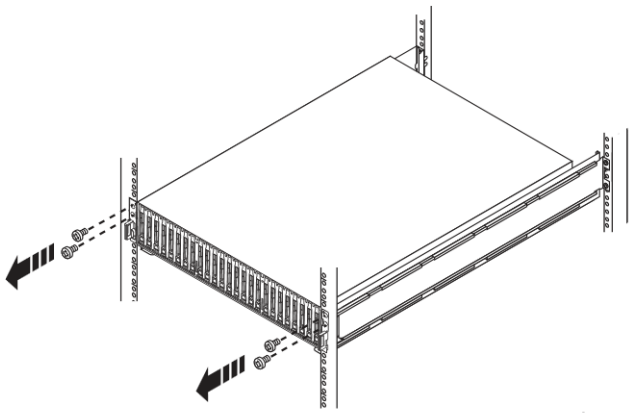


Figure 53 Removing the Four Screws that Connect the DAE to the Mini-Rack

2. With help from another person, slide the enclosure out of the mini-rack.

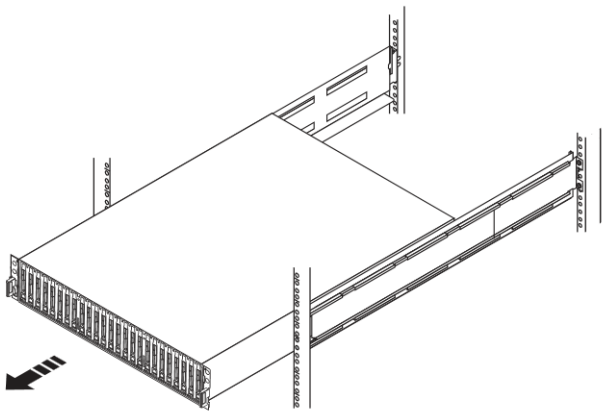


Figure 54 Removing the DAE from the Mini-Rack

3. Set the DAE aside in a clean area, free from dust and debris.
4. From the front of the DAE rails, remove the two remaining visible screws.

5. From the rear side of the mini-rack, remove the shipping bracket.

   Note: The shipping bracket does not need to be installed in the customer's rack.

6. From the rear side of the mini-rack, remove the two remaining screws from the DAE rails.
7. Set all (eight) screws aside for later use in this procedure.
8. Carefully remove the disk array enclosure rails from the mini-rack and set them aside for later use in this procedure.

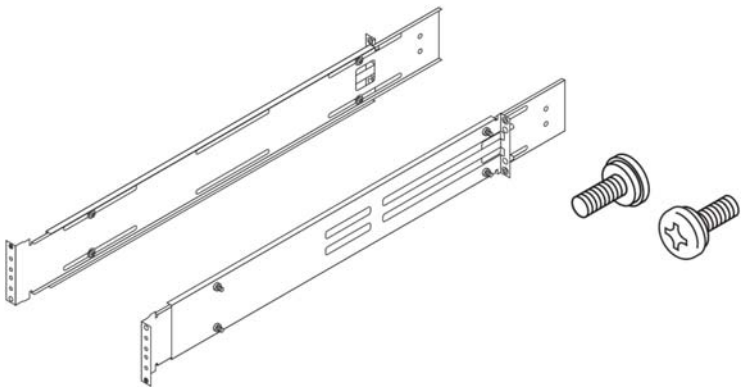


Figure 55 DAE Rails and (Eight) Screws

Installing the Rails for the Disk-Array Enclosure

You should install each rail in the cabinet.

To install a rail for the DAE:

1. From the front of the cabinet, insert the rail alignment pins above and below the bottom U mark on the rear cabinet channel, as shown in Figure 56.

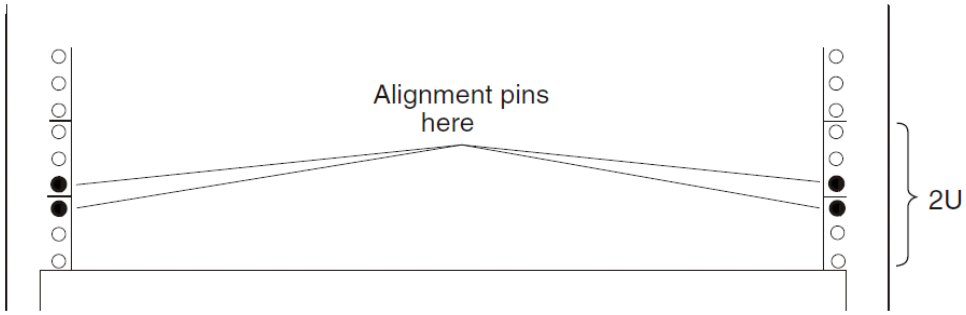


Figure 56 Holes for Alignment Pins

2. Pull the sliding rail to the front of the cabinet.
3. Secure the sliding rail to the front channel by tightening the provided screw into the lower hole of the rail, as shown in Figure 57.

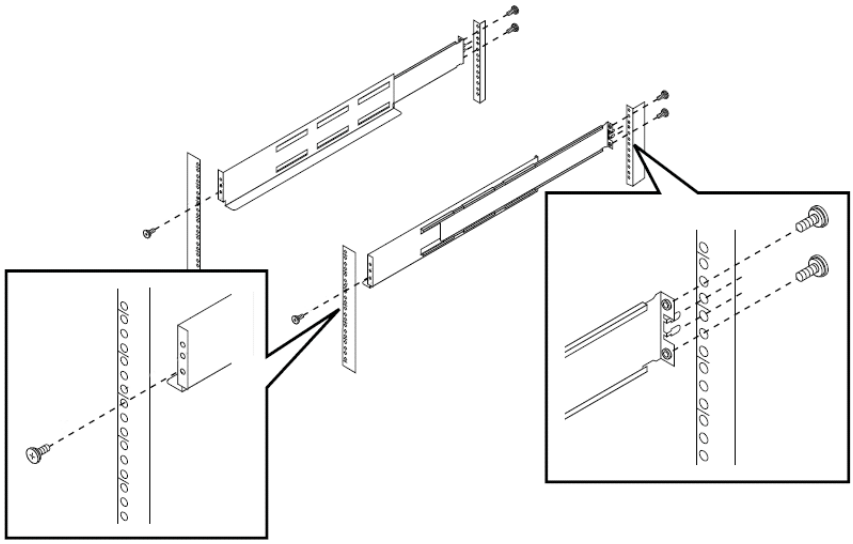


Figure 57 Installing the DAE Rails

4. Secure the rail to the rear channel with two screws, as shown in Figure 57, but leave the screws slightly loose to allow for adjustment when you install the DAE.

Note: For this step, use two of the spare screws from the Bezels kit.

Installing the DAE in the Cabinet/Rack

⚠CAUTION

The DAE is heavy and should be installed into a rack by two people. To avoid personal injury and/or damage to the equipment, do not attempt to lift and install the enclosure into a cabinet/rack without a mechanical lift and/or help from another person.

To install the DAE in the cabinet/rack:

1. With help from another person, lift the DAE and, from the front of the rack, slide it onto the rails, as shown in Figure 58.

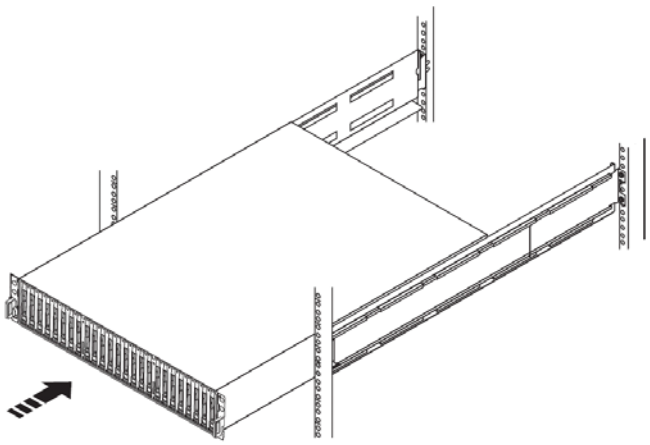


Figure 58 Sliding the DAE onto the rails

When the DAE slides into the back of the cabinet, the rear tabs on each rail are inserted into the two notches in the rear of the enclosure. The tabs secure and support the rear of the enclosure, as shown in Figure 59.

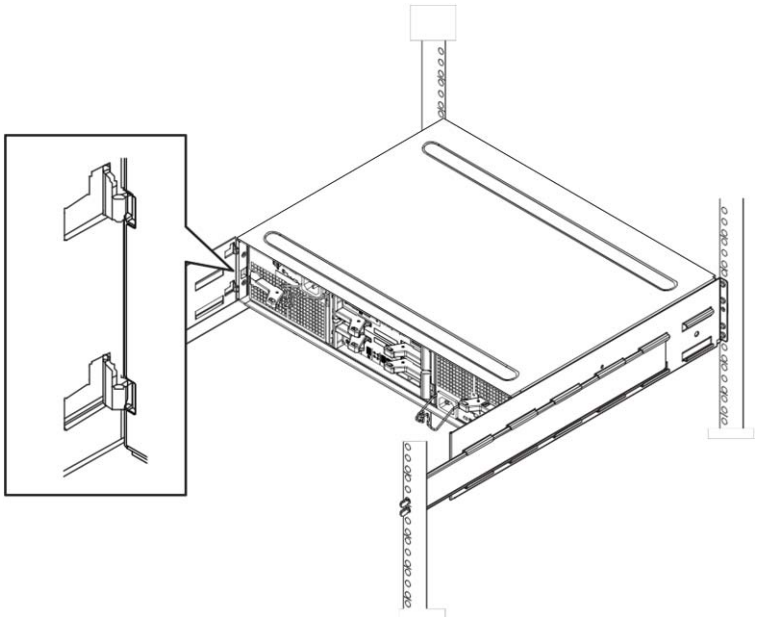


Figure 59 Rail Tabs Inserted into the DAE Notches

If the enclosure does not slide all the way into the cabinet, loosen the screws that hold the rear of the rails in place, and then adjust the rails to allow the tabs to fit into the notches.

2. Once the DAE is completely seated into the rear tabs, tighten the screws (two on each rail) that secure the rails to the channels.
3. Secure the front of the enclosure to the front vertical channels of the cabinet by using four screws (two per side), as shown in Figure 60.

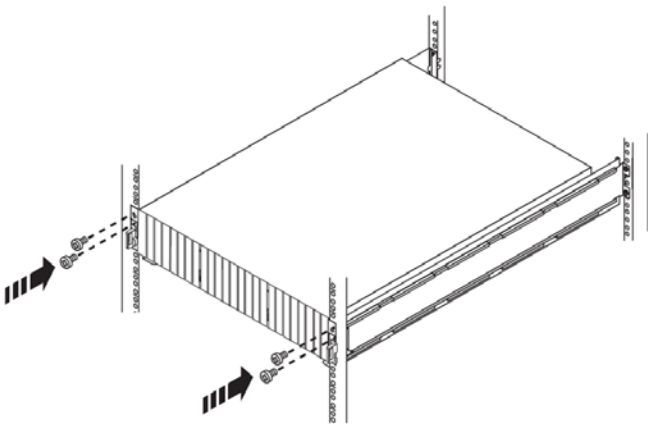


Figure 60 Securing the DAE to the Front of the Cabinet

Installing the Battery Backup Unit

To install the Battery Backup Unit, perform the following procedures:

1. "Removing the Battery Backup Unit from the Mini-Rack" on page 70
2. "Installing the Rails for the Battery Backup Unit" on page 71
3. "Installing the Battery Backup Unit in the Cabinet/Rack" on page 72

Note: The green jumper block on the rear side of the Battery Backup Unit can be disconnected easily and fall from its place. Always make sure that the jumper block is secured in place.

Removing the Battery Backup Unit from the Mini-Rack

⚠CAUTION

The Battery Backup Unit is heavy and should be removed from the mini-rack by two people. To avoid personal injury and/or damage to the equipment, do not attempt to lift or remove the BBU without a mechanical lift and/or help from another person.

To remove the Battery Backup Unit from the mini-rack:

1. From the front side of the Battery Backup Unit, remove the two middle screws that are connected to the rails.
2. Set the two screws aside for later use in this procedure.
3. From the rear side of the mini-rack, gently push the Battery Backup Unit forward to bring it to a comfortable position for removal from the front side.
4. With help from another person physically remove the Battery Backup Unit from the mini-rack and set it aside.
5. Remove the four remaining screws from the Battery Backup Unit rails, located on the front of the unit.
6. Set the four screws aside for later use in this procedure.
7. Remove the four remaining screws from the Battery Backup Unit rails, located on the rear of the unit. Hold the rails in hand when removing the screws. Removing these remaining screws causes the Battery Backup Unit rails to dislodge from the mini-rack

8. Set these four screws and two rails aside for later use in this procedure.

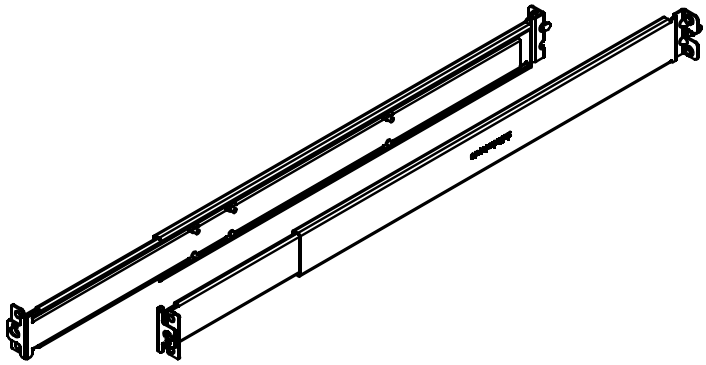


Figure 61 Battery Backup Unit Rails

Note: At this point you should have 10 mounting screws and 2 Battery Backup Unit rails set aside.

Installing the Rails for the Battery Backup Unit

You should install each rail in the cabinet.

To install a rail for the Battery Backup Unit:

1. From the front of the cabinet, align the rail with the rear channel holes of the selected 1U (1.75 in) of cabinet space for the Battery Backup Unit.
2. Pull the sliding rail forward, so that the front alignment posts go securely into the holes on the front channel.
3. Secure the rail to the front and rear channels with four screws, as shown in Figure 62.

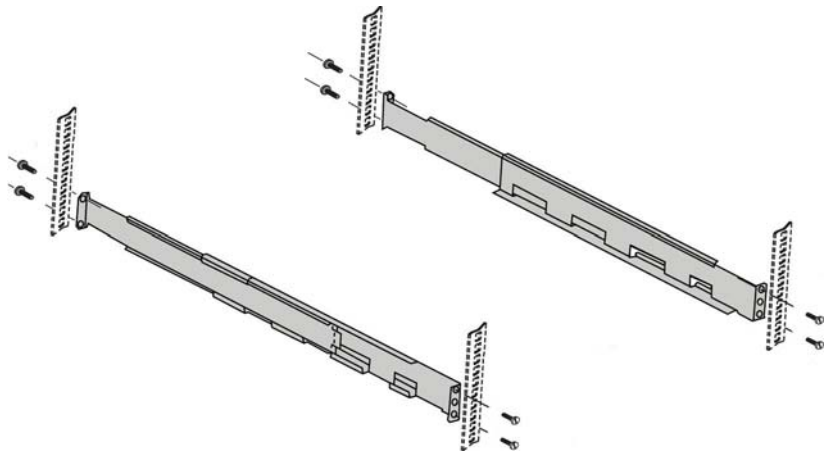


Figure 62 Installing the Battery Backup Unit Rails

Note: The actual Battery Backup Unit rails look different from the ones shown in Figure 62.

Installing the Battery Backup Unit in the Cabinet/Rack

⚠CAUTION

The Battery Backup Unit is heavy and should be installed into the rack by two people. To avoid personal injury and/or damage to the equipment, do not attempt to lift or install the BBU without a mechanical lift and/or help from another person.

To install the Battery Backup Unit in the rack/cabinet:

1. Verify that the Bezel kit contains two bezel clips, as shown in Figure 63.

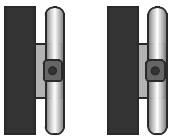


Figure 63 Bezel Clips

2. With help from another person, lift the Battery Backup Unit and, from the front of the rack, slide it onto the rails.
3. Align the screw hole of each bezel clip with those on the front side of the inner rails (one on each side), as shown in Figure 64.

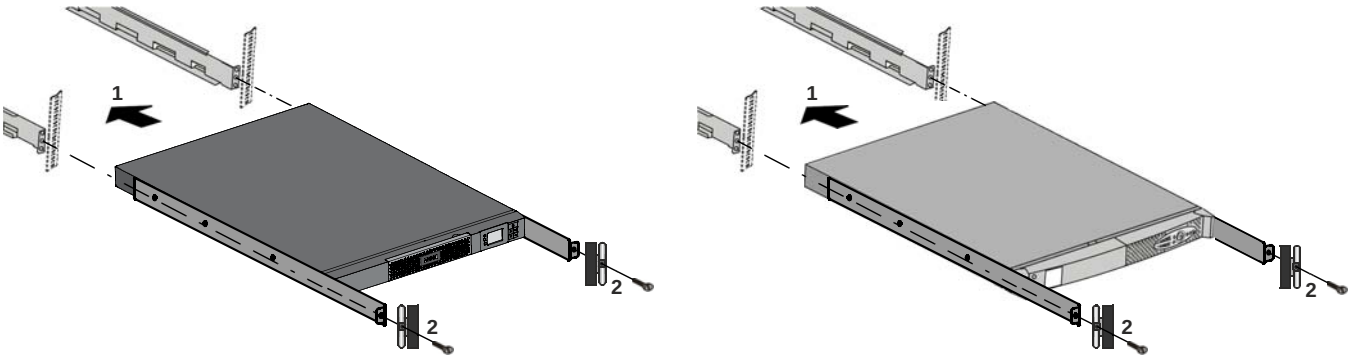


Figure 64 Installing the Battery Backup Unit in the cabinet/rack -
Left: 5P 1550i R, Right: 1550 Evolution

4. Through each bezel clip, tighten a screw (one on each side) to secure the unit to rack, as shown in Figure 64.

Note: For this step, use the screws that secured the Battery Backup Unit to the mini-rack.

Installing the InfiniBand Switch

To install the InfiniBand Switch, perform the following procedures:

1. "Removing the InfiniBand Switch from the Mini-Rack" on page 73
2. "Installing the Rails for the InfiniBand Switch" on page 74
3. "Installing the InfiniBand Switch in the Cabinet/Rack" on page 75

Removing the InfiniBand Switch from the Mini-Rack

To remove the InfiniBand Switch from the mini-rack:

1. From the front side of the InfiniBand Switch, remove the two middle screws that are connected to the rails.
2. Set the two screws aside for later use in this procedure.
3. From the rear side of the mini-rack, gently push the InfiniBand Switch forward to bring it to a comfortable position for removal from the front side.
4. Physically remove the InfiniBand Switch from the mini-rack and set it aside.
5. Remove the four remaining screws from the InfiniBand Switch rails, located on the front of the unit.
6. Set the four screws aside for later use in this procedure.
7. Remove the four remaining screws from the InfiniBand Switch rails, located on the rear of the unit. Hold the rails in hand when removing the screws. Removing these remaining screws causes the InfiniBand Switch rails to dislodge from the mini-rack
8. Set these four screws and two rails aside for later use in this procedure.

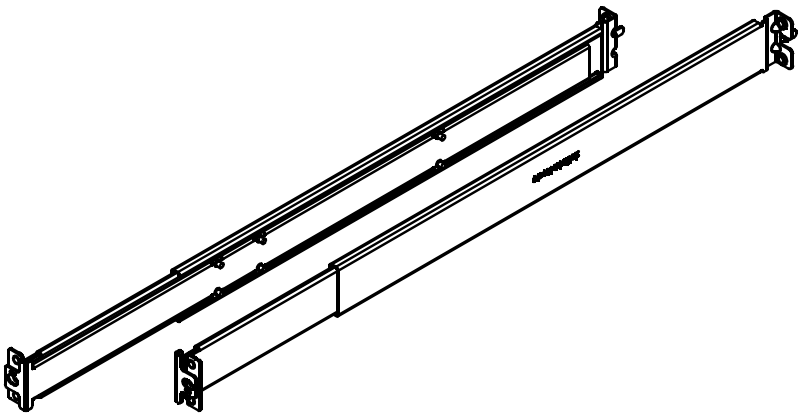


Figure 65 InfiniBand Switch Rails

Note: At this point you should have 10 mounting screws and 2 InfiniBand Switch rails set aside.

Installing the Rails for the InfiniBand Switch

You should install each rail in the cabinet.

To install a rail for the InfiniBand Switch:

1. From the front of the cabinet, align the rail with the rear channel holes of the selected 1U (1.75 in) of cabinet space for the InfiniBand Switch.
2. Pull the sliding rail forward, so that the front alignment posts go securely into the holes on the front channel.
3. Secure the rail to the front and rear channels with four screws, as shown in Figure 66.

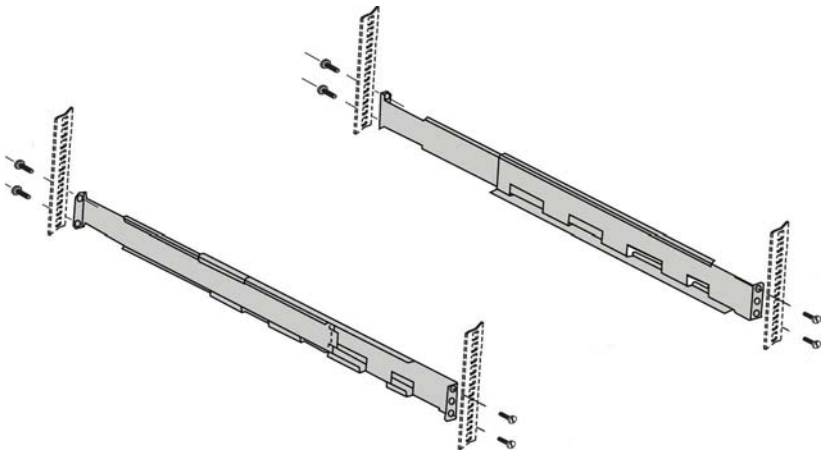


Figure 66 Installing the InfiniBand Switch Rails

Note: The actual InfiniBand Switch rails look different from the ones shown in Figure 66.

Installing the InfiniBand Switch in the Cabinet/Rack

To install the InfiniBand Switch in the rack/cabinet:

1. Verify that the Bezel kit contains two bezel clips, as shown in Figure 67.

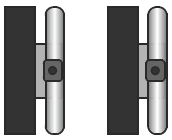


Figure 67 Bezel Clips (Bezel Catches)

2. Lift the InfiniBand Switch and, from the front of the rack, slide it onto the rails.
3. Align the screw hole of each bezel clip with those on the front side of the inner rails (one on each side), as shown in Figure 68.

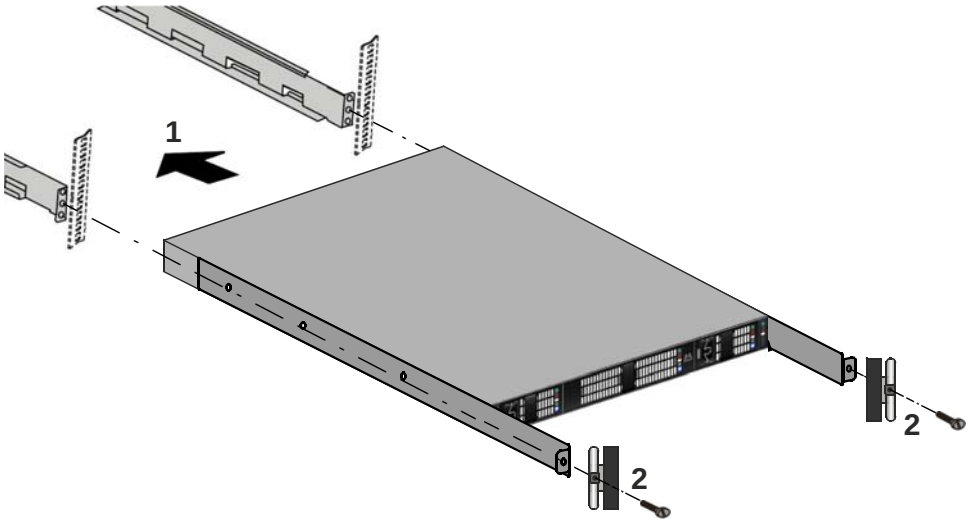


Figure 68 Installing the InfiniBand Switch in the cabinet/rack

4. Through each bezel clip, tighten a screw (one on each side) to secure the unit to rack, as shown in Figure 68.

Note: For this step, use the screws that secured the InfiniBand Switch to the mini-rack.

Installing the 1U Place Holder Bezel Catches

In order to install the bezel for the 1U place holder (between the two InfiniBand Switches), two bezel catches must be installed on the cabinet's rail channels (one on each side of the place holder).

Figure 69 shows the dedicated plastic bezel catch for 1U place holder, a pair of which is provided in the relevant bezels kit (see Table 1 on page 14).

Figure 69 Plastic Bezel Catch for 1U Place Holder

To install the plastic bezel catches for 1U place holder:

1. Verify that both InfiniBand Switches are installed and there is a 1U space between them.
2. With the 1U side of the catch facing outwards, place a bezel catch on the rack channel (between the two InfiniBand Switches), so as to insert the outer slot onto the channel, as shown in Figure 70.

Figure 70 Inserting the Outer Slot of a Bezel Catch onto the Channel

3. Push the bezel catch well onto the channel, as shown in Figure 71.

Figure 71 Pushing the Bezel Catch onto the Channel

4. Repeat the above steps to install the second bezel catch on the other side.

Placing the Power Off Label

Figure 72 shows the Power Off label.

Figure 72 Power Off Label

Affix the label to the inside of the rack (do not block any ventilation holes) or place it in a convenient location for reference.

Placing the Hardware Legend Label

Figure 73 shows the Hardware Legend label.

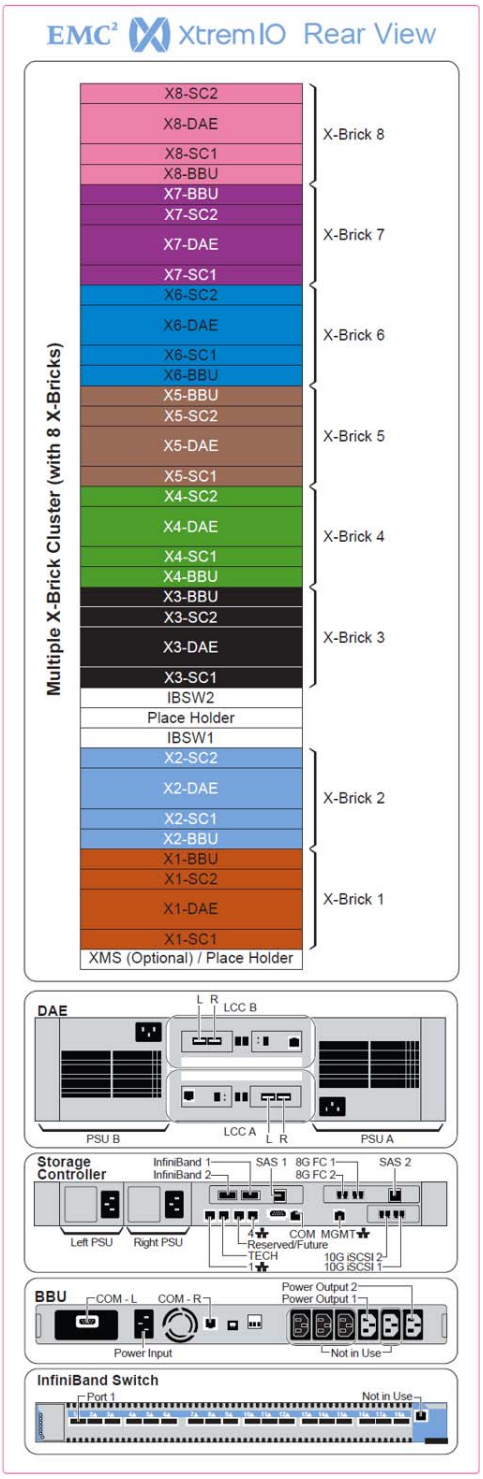


Figure 73 Hardware Legend Label

Affix the label to the inside of the rack (do not block any ventilation holes) or place it in a convenient location for reference.

CHAPTER 5
Connecting the Cluster Cables

This Chapter includes the following topics:

General Cabling Guidelines

Connect the cables according to the following guidelines:

- There is a separate (labeled) kit for each X-Brick, containing the appropriate cables (see Table 1 on page 14). To avoid confusion when installing a multiple X-Brick cluster (due to having many open kits), it is recommended to connect cables for one X-Brick at a time.
- The source and destination of most cables are indicated on labels which are attached to the cables' both ends. It is essential that these cables be correctly oriented during installation. As long as this is done correctly, each X-Brick and InfiniBand switch will have a consistent color scheme. Make sure to connect each cable according to the labels affixed at either end, and according to the instructions in this guide.
- To differentiate between redundant power sources (A and B), power cables are supplied in black and gray colors. In order to avoid miswiring and jeopardizing HA, make sure to use gray power cables for PWR-A and black power cables for PWR-B.

  Note: You should take the power requirements of the cluster and its components into account so as to select the appropriate PDU outlets and ensure that the individual branch circuits are not overloaded.
  For power requirements information, refer to *EMC XtremIO Storage Array Site Preparation Guide*.

- In a multiple X-Brick cluster, the long (66") power cables should be connected to InfiniBand switches only. The shorter power cables are for all other components.
- Route the cables so as not to block access to rear serviceable parts.
- Use Velcro straps to arrange the cables neatly.
- Do not install any bezels before completing all hardware and cable connections.

Connecting the Cables for a Single X-Brick Cluster

This section provides detailed information for cabling a single X-Brick cluster.

To identify each component for cabling a single X-Brick cluster, refer to Figure 74.

Note: The BBUs shown in Figure 74 are of 5P 1550i R type.

Figure 74 Components of a Single X-Brick Cluster (Rear View)

Connecting the Power Cables

Connect the power cables, as shown in Table 14 and Table 15.

Table 14 Connecting the Power Cables in a Single X-Brick Cluster with 5P 1550i R BBUs

Source	Destination
X1-SC1-PSU-L	X1-BBU2-Output1
X1-SC1-PSU-R	X1-BBU1-Output1
X1-BBU1-Input	PWR-A
X1-SC2-PSU-L	X1-BBU2-Output2
X1-SC2-PSU-R	X1-BBU1-Output2
X1-BBU2-Input	PWR-B
X1-DAE-PSU-L	PWR-B
X1-DAE-PSU-R	PWR-A

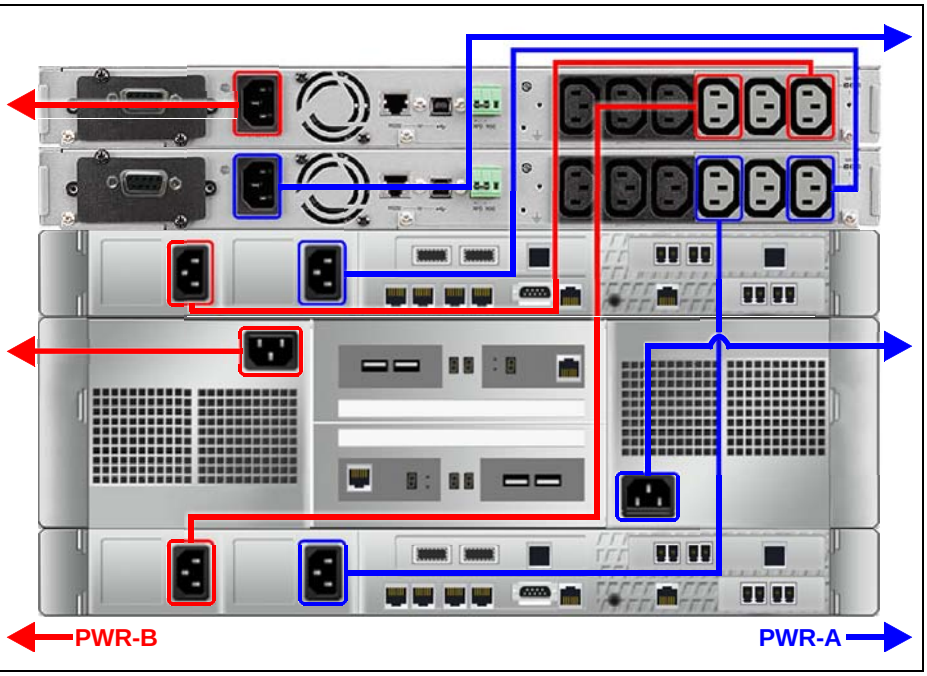
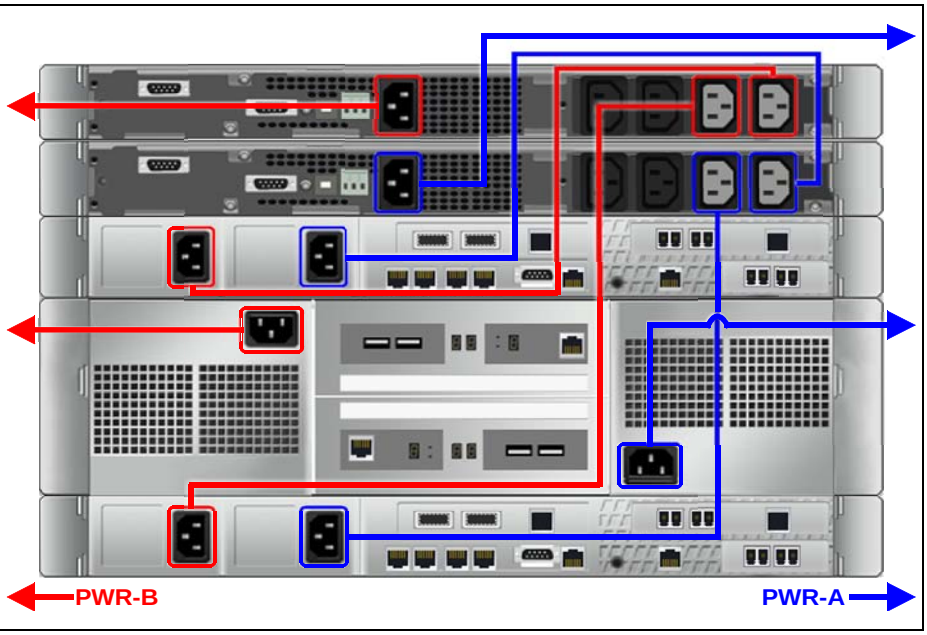


Table 15 Connecting the Power Cables in a Single X-Brick Cluster with 1550 Evolution BBUs

Source	Destination
X1-SC1-PSU-L	X1-BBU2-Output1
X1-SC1-PSU-R	X1-BBU1-Output1
X1-BBU1-Input	PWR-A
X1-SC2-PSU-L	X1-BBU2-Output2
X1-SC2-PSU-R	X1-BBU1-Output2
X1-BBU2-Input	PWR-B
X1-DAE-PSU-L	PWR-B
X1-DAE-PSU-R	PWR-A



Connecting the Battery Backup Unit Communication Cables

Connect the serial communication cables, as shown in Table 16 and Table 17, and make sure to tighten their screw jacks.

Table 16 Connecting the Battery Backup Unit Communication Cables in a Single X-Brick Cluster with 5P 1550i R BBUs

Source	Destination
X1-SC1-IOIOI	X1-BBU1-COM-R
X1-SC2-IOIOI	X1-BBU2-COM-R

Note: Each 5P 1550i Battery Backup Unit is supplied with either a DB9-RJ45 adapter (as shown in Figure 4 on page 18), for connecting the data cable to COM (R) port, or an RJ45-RJ50 cable (as shown in Figure 6 on page 18) for connecting the BBU directly to the Storage Controller. For the a DB9-RJ50 adapter, the RJ50 end of the adapter (with the short cable, as shown in Figure 4 on page 18) must be connected to COM (R) port of the Battery Backup Unit (see Figure 4 on page 18).
The DB9 end of the adapter must be connected to the D-type connector of the data cable (with the long cable, as shown in Figure 5 on page 18).
For the an RJ45-RJ50 cable, the RJ50 end of the cable must be connected to the COM (R) port of the BBU and the RJ45 end of the cable must be connected to the 10101 port of the Storage Controller. Make sure to connect the cables according to their source and destination labels.

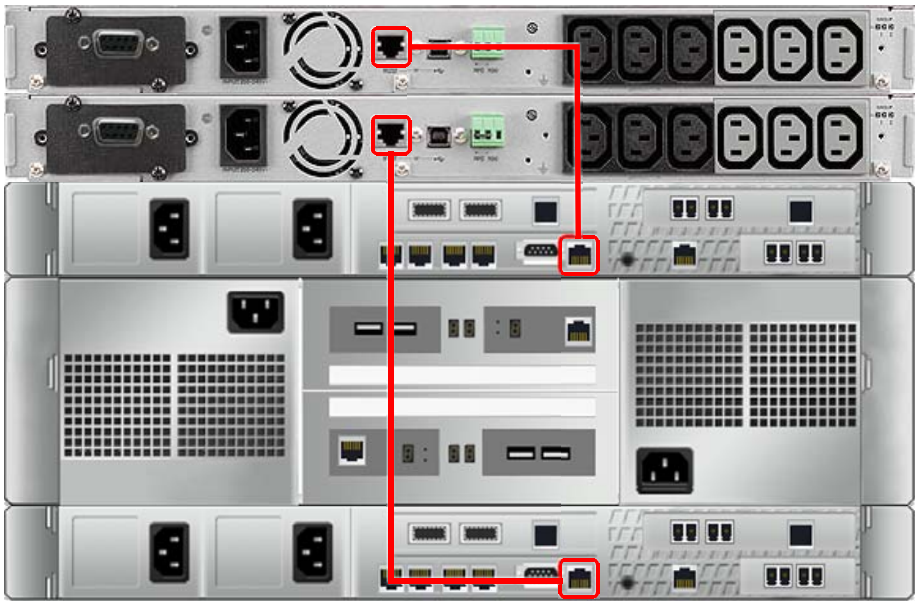
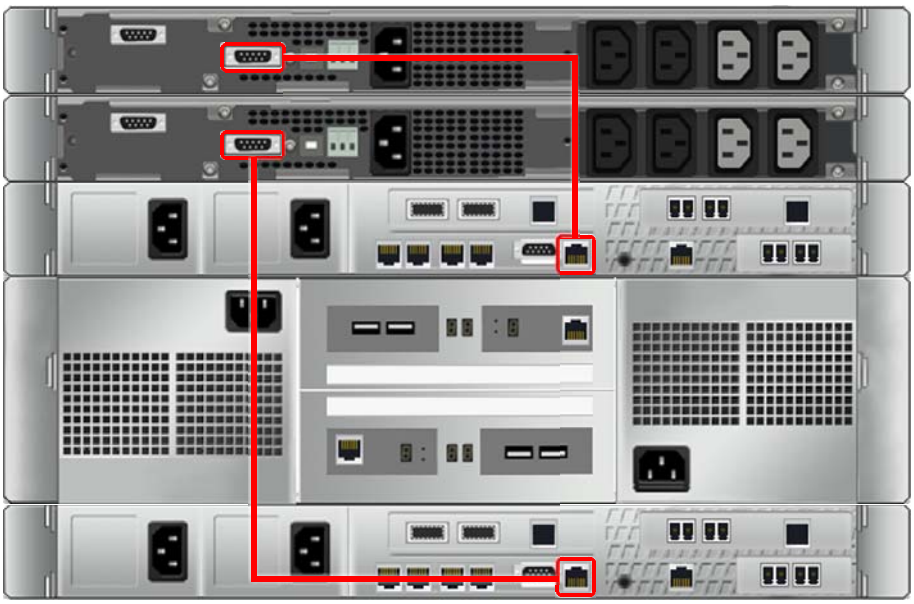


Table 17 Connecting the Battery Backup Unit Communication Cables in a Single X-Brick Cluster with 1550 Evolution BBUs

Source	Destination
X1-SC1-IOIOI	X1-BBU1-COM-R
X1-SC2-IOIOI	X1-BBU2-COM-R

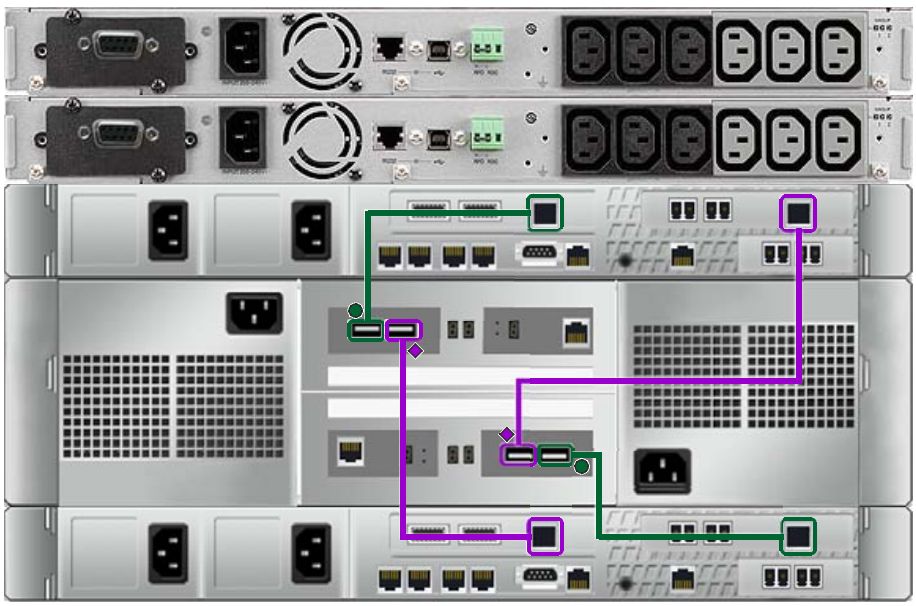


Connecting the DAE SAS Cables

Connect the SAS cables, as shown in Table 18.

Table 18 Connecting the DAE SAS Cables in a Single X-Brick Cluster

Source	Destination
X1-SC1-SAS1	X1-LCC-B-R
X1-SC1-SAS2	X1-LCC-A-R
X1-SC2-SAS1	X1-LCC-B-L
X1-SC2-SAS2	X1-LCC-A-L

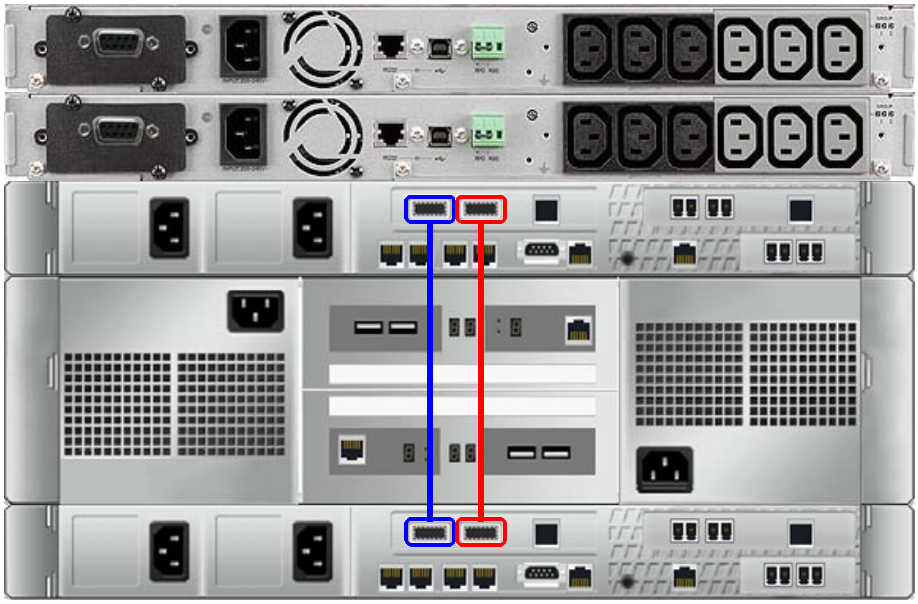


Connecting the InfiniBand Cables

Connect the InfiniBand cables, as shown in Table 19.

Table 19 Connecting the InfiniBand Cables in a Single X-Brick Cluster

Source	Destination
X1-SC1-IB2	X1-SC2-IB2
X1-SC1-IB1	X1-SC2-IB1



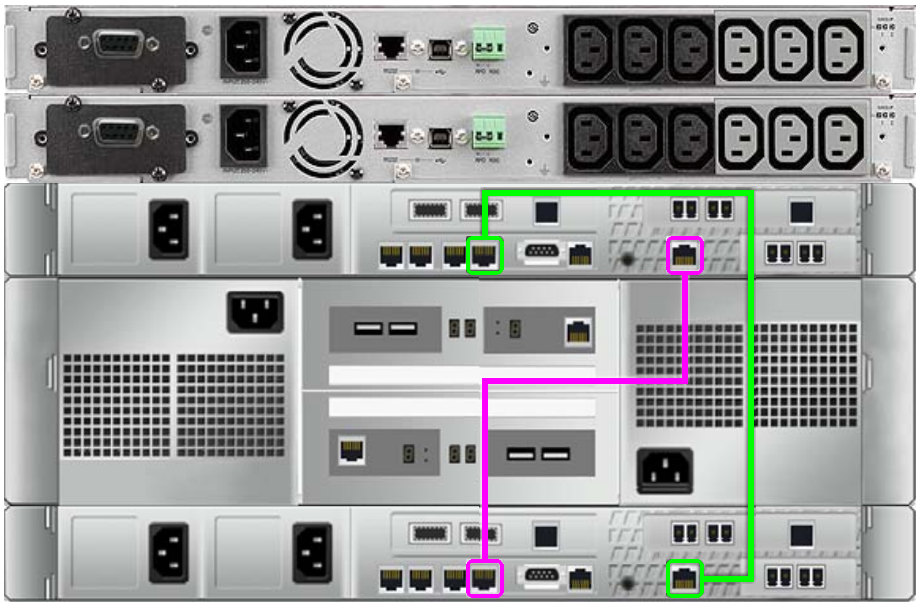
Connecting the Storage Controller IPMI Cables

Note: IPMI cables must always remain connected to the cluster (unlike with earlier XtremApp versions).

Connect the IPMI cables, as shown in Table 20.

Table 20 Connecting the IPMI Cables in a Single X-Brick Cluster

Source	Destination
X1-SC1-4	X1-SC2-MGMT
X1-SC1-MGMT	X1-SC2-4



Connecting the Cables for a Multiple X-Brick Cluster

This section provides detailed information for cabling a multiple X-Brick cluster.

To identify each component for cabling a multiple X-Brick cluster, refer to Figure 75, Figure 76 and Figure 77.

Note: The BBUs shown in Figure 75, Figure 76 and Figure 77 are of 5P 1550i R type.

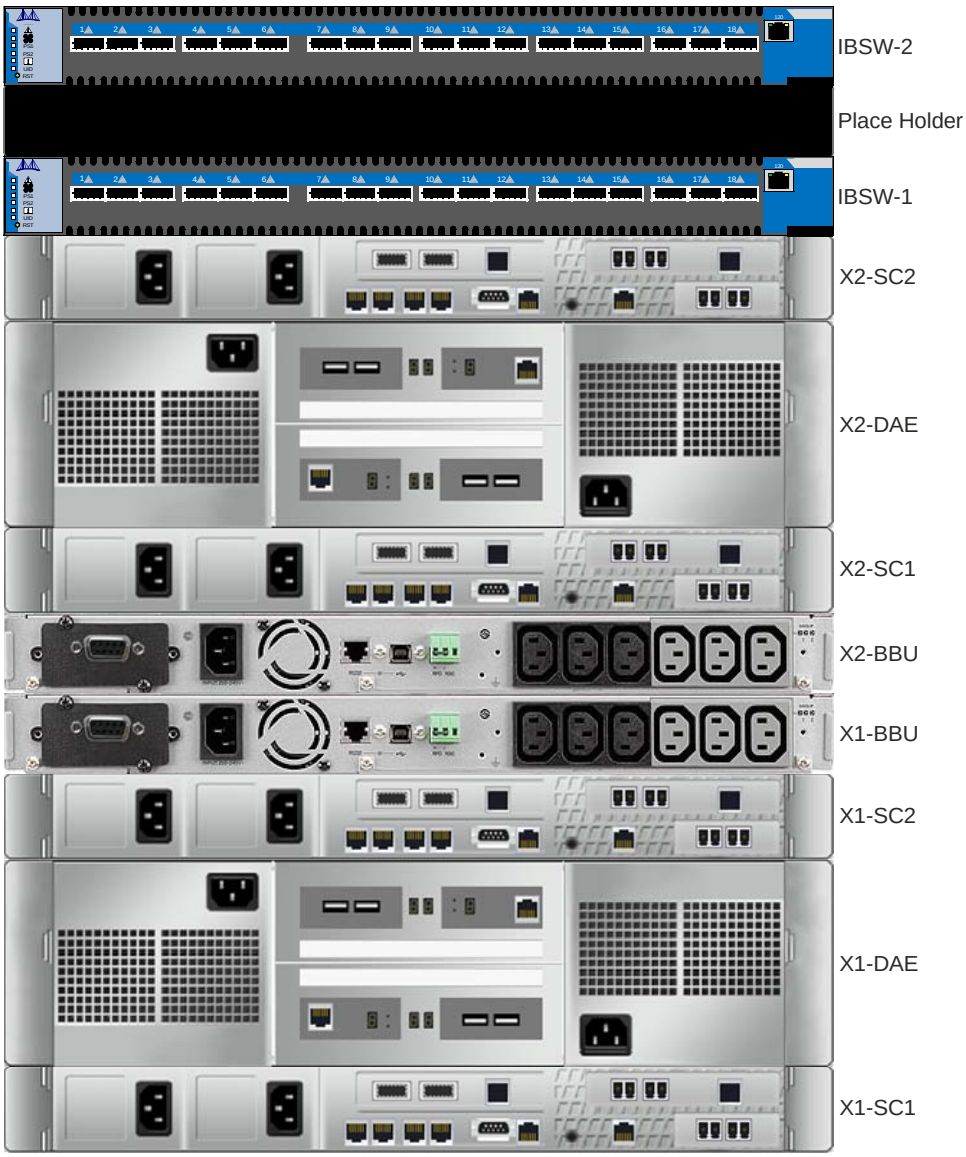


Figure 75 Components of X-Bricks 1 and 2 in a Multiple X-Brick Cluster (Rear View)

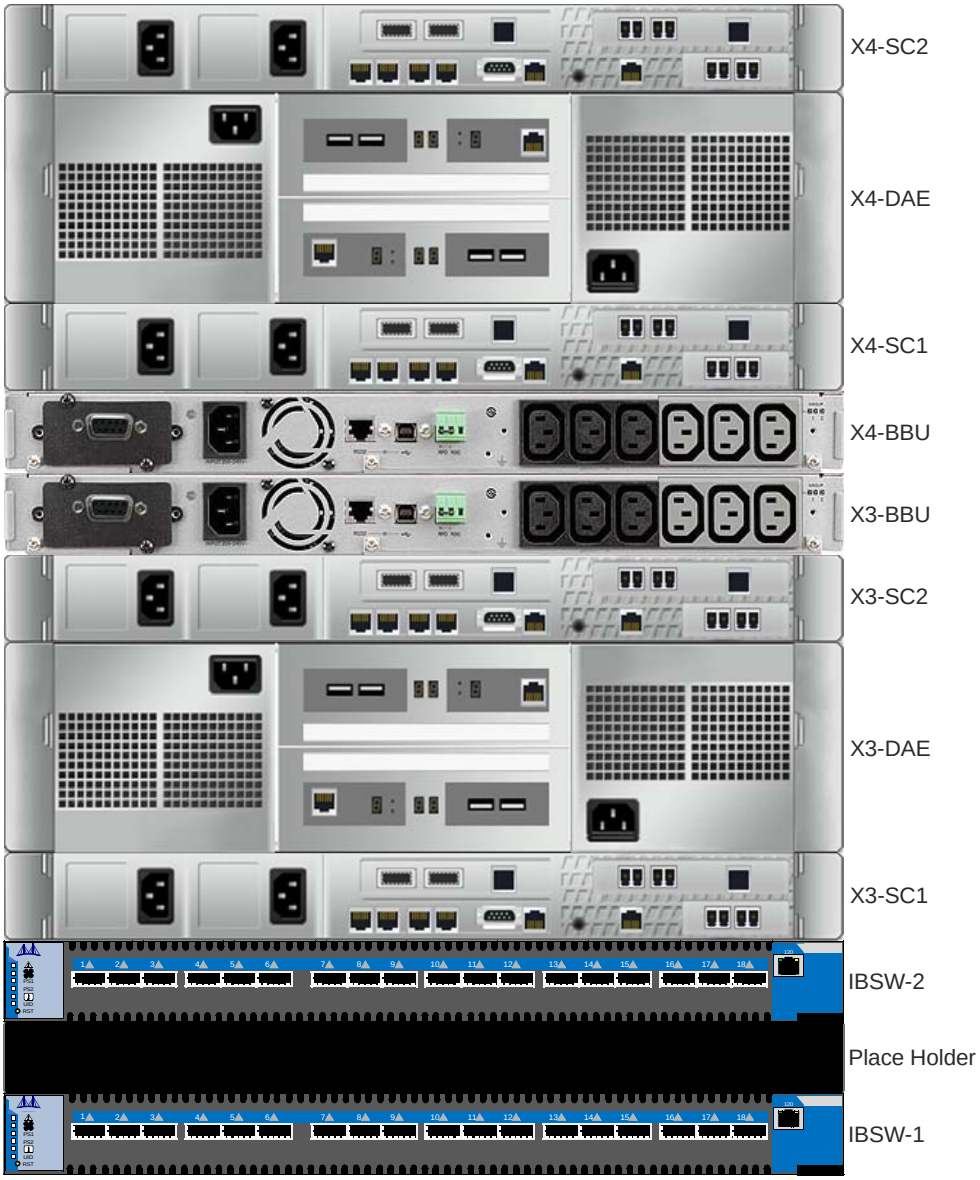


Figure 76 Components of X-Bricks 3 and 4 in a Multiple X-Brick Cluster (Rear View)

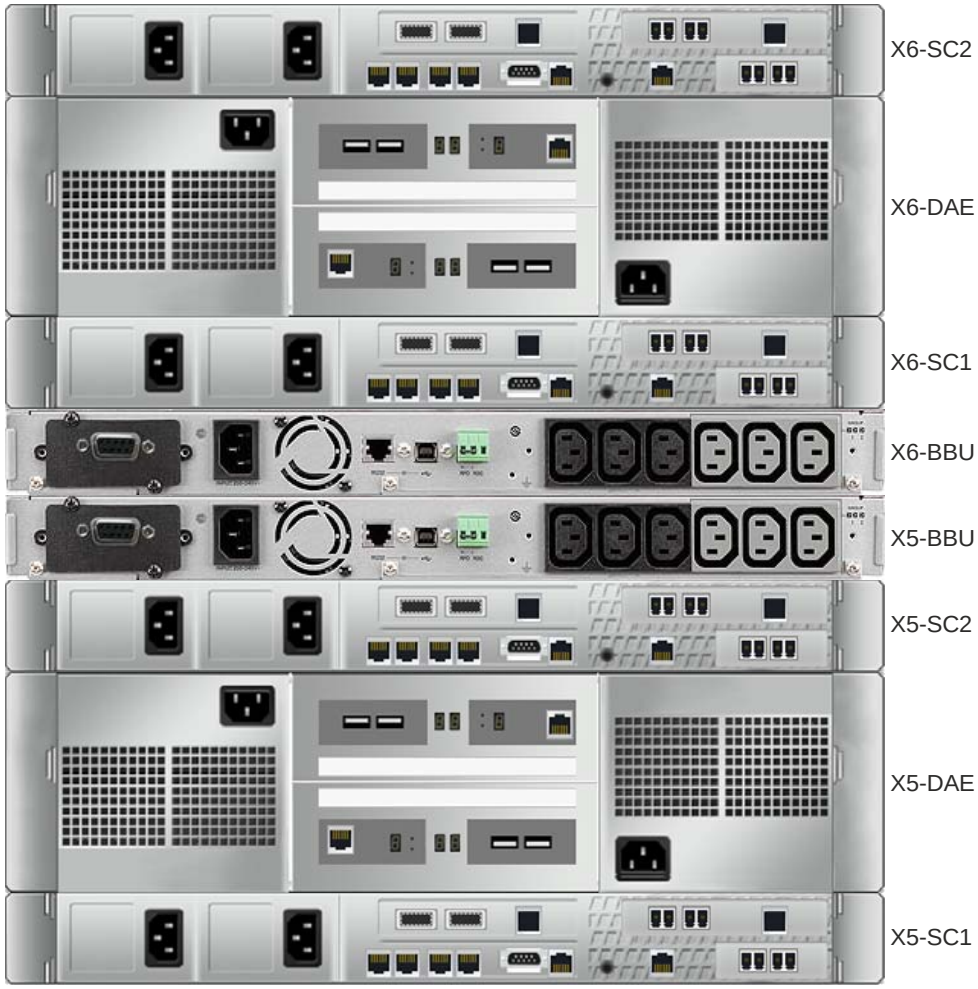


Figure 77 Components of X-Bricks 5 and 6 in a Multiple X-Brick Cluster (Rear View)

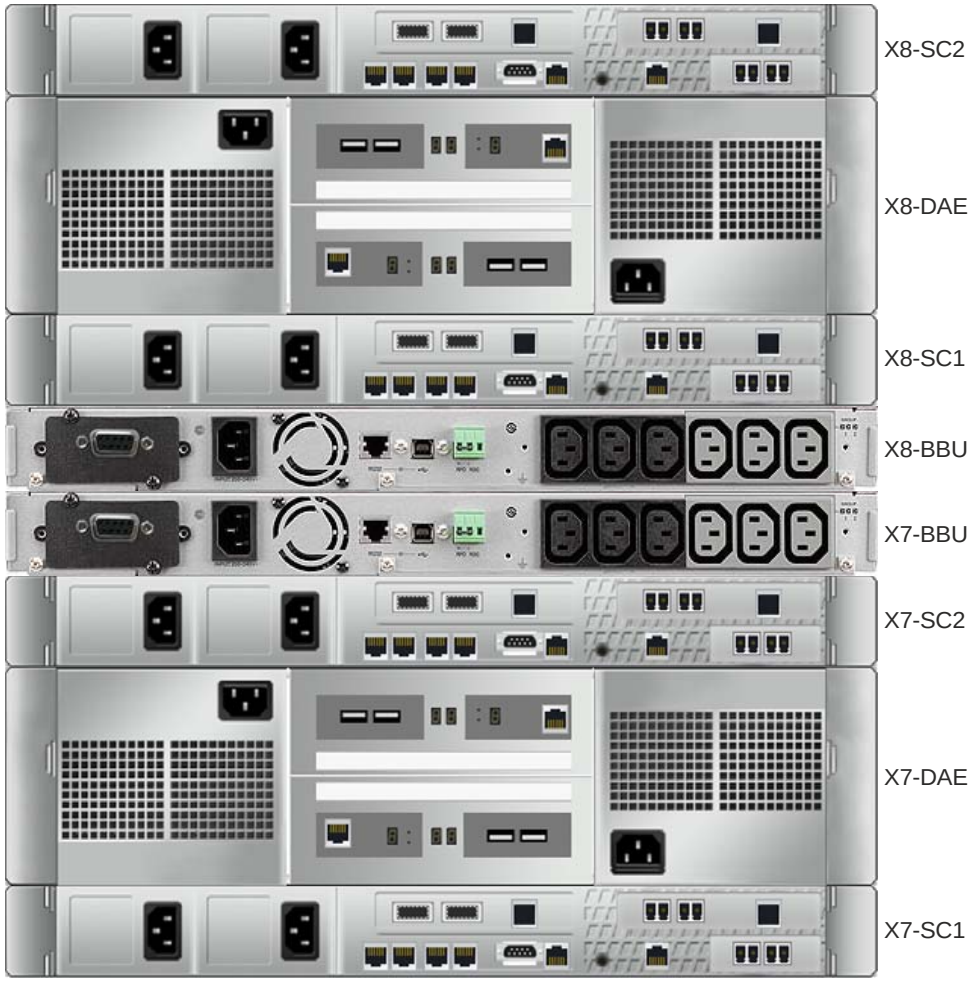


Figure 78 Components of X-Bricks 7 and 8 in a Multiple X-Brick Cluster (Rear View)

Connecting the Power Cables

Note: Storage Controllers' PWR-A and PWR-B power cables are distinguished with a warning label (attached to the cable), as shown in Figure 79. Make sure to use only these cables for connecting the Storage Controllers to the rack PDUs.

Figure 79 Warning Label on Storage Controller to PDU (PWR-A and PWR-B) Power Cables

Connect the power cables, as shown in Table 21, Table 22, Table 23, Table 24, Table 25 and Table 26.

Table 21 Connecting the Power Cables for X-Bricks 1 and 2 with 5P 1550i R BBUs

Source	Destination
X1-BBU-Input	PWR-A
X1-SC1-PSU-L	PWR-B
X1-SC2-PSU-L	PWR-B
X1-SC1-PSU-R	X1-BBU-Output1
X1-SC2-PSU-R	X1-BBU-Output2
X2-BBU-Input	PWR-B
X2-SC1-PSU-L	PWR-A
X2-SC2-PSU-L	PWR-A
X2-SC1-PSU-R	X2-BBU-Output1
X2-SC2-PSU-R	X2-BBU-Output2
IBSW1-PSU-L	PWR-A
IBSW1-PSU-R	PWR-B
IBSW2-PSU-L	PWR-A
IBSW2-PSU-R	PWR-B
X1-DAE-PSU-L	PWR-B
X2-DAE-PSU-L	PWR-B
X1-DAE-PSU-R	PWR-A
X2-DAE-PSU-R	PWR-A

Note: The long (66") power cables should be connected to InfiniBand switches only. The power cords with a warning label on one end are for connecting the Storage Controllers to the PDU. The power cords without warning labels are for connecting the DAEs.

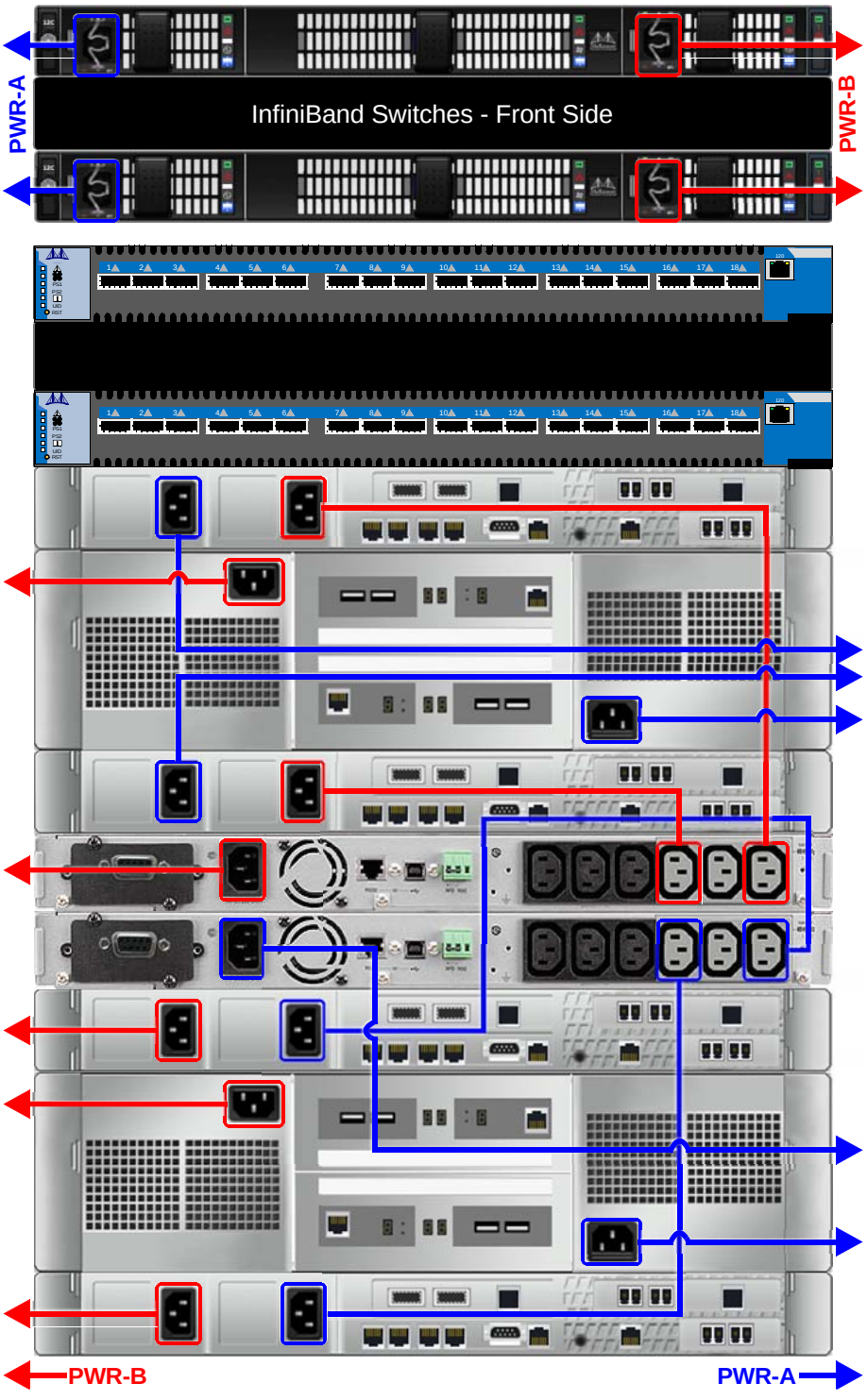


Table 22 Connecting the Power Cables for X-Bricks 3 and 4 with 5P 1550i R BBUs

Source	Destination
X3-BBU-Input	PWR-A
X3-SC1-PSU-L	PWR-B
X3-SC2-PSU-L	PWR-B
X3-SC1-PSU-R	X3-BBU-Output1
X3-SC2-PSU-R	X3-BBU-Output2
X4-BBU-Input	PWR-B
X4-SC1-PSU-L	PWR-A
X4-SC2-PSU-L	PWR-A
X4-SC1-PSU-R	X4-BBU-Output1
X4-SC2-PSU-R	X4-BBU-Output2
X3-DAE-PSU-L	PWR-B
X4-DAE-PSU-L	PWR-B
X3-DAE-PSU-R	PWR-A
X4-DAE-PSU-R	PWR-A

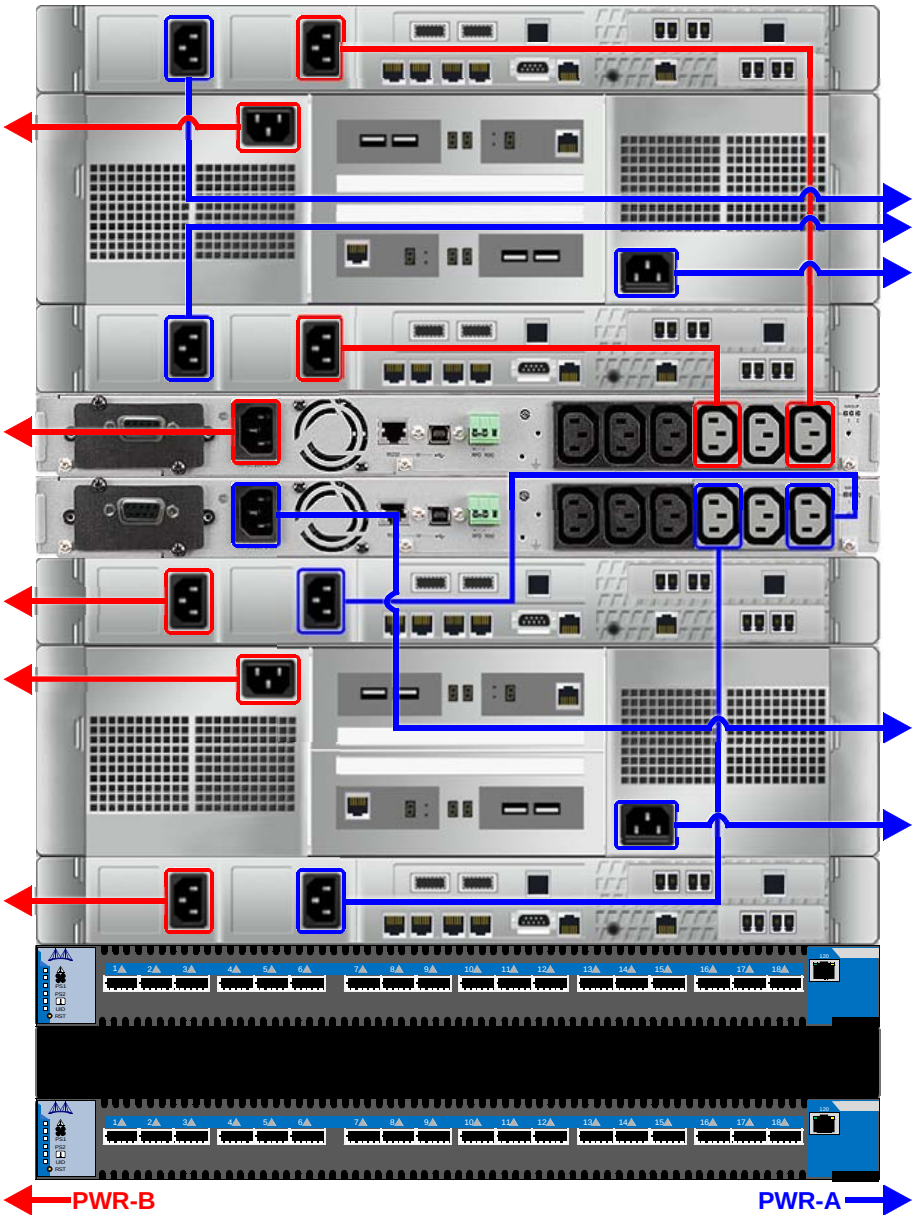


Table 23 Connecting the Power Cables for X-Bricks 5 & 6 and X-Bricks 7 & 8 with 5P 1550i R BBUs

Source	Destination
X5-BBU-Input	PWR-A
X5-SC1-PSU-L	PWR-B
X5-SC2-PSU-L	PWR-A
X5-SC1-PSU-R	X5-BBU-Output1
X5-SC2-PSU-R	X5-BBU-Output2
X6-BBU-Input	PWR-B
X6-SC1-PSU-L	PWR-A
X6-SC2-PSU-L	PWR-B
X6-SC1-PSU-R	X6-BBU-Output1
X6-SC2-PSU-R	X6-BBU-Output2
X5-DAE-PSU-L	PWR-B
X6-DAE-PSU-L	PWR-B
X5-DAE-PSU-R	PWR-A
X6-DAE-PSU-R	PWR-A
X7-BBU-Input	PWR-A
X7-SC1-PSU-L	PWR-B
X7-SC2-PSU-L	PWR-A
X7-SC1-PSU-R	X7-BBU-Output1
X7-SC2-PSU-R	X7-BBU-Output2
X8-BBU-Input	PWR-B
X8-SC1-PSU-L	PWR-A
X8-SC2-PSU-L	PWR-B
X8-SC1-PSU-R	X8-BBU-Output1
X8-SC2-PSU-R	X8-BBU-Output2
X7-DAE-PSU-L	PWR-B
X8-DAE-PSU-L	PWR-B
X7-DAE-PSU-R	PWR-A
X8-DAE-PSU-R	PWR-A

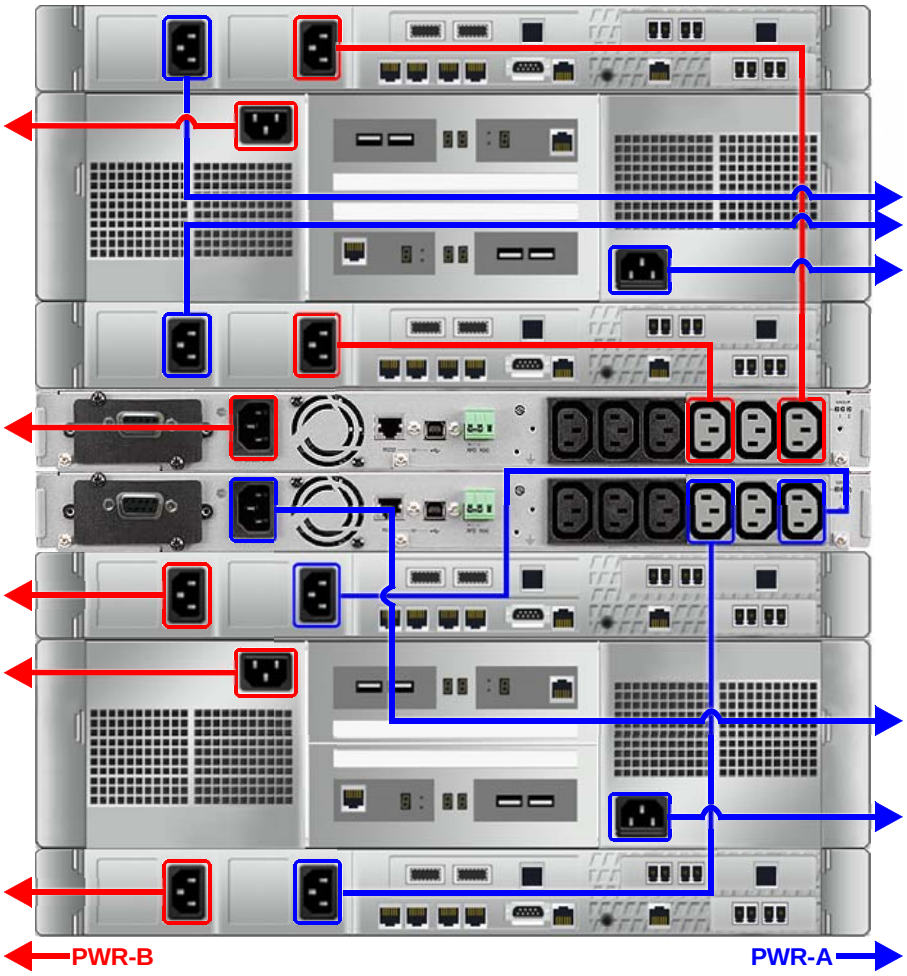


Table 24 Connecting the Power Cables for X-Bricks 1 and 2 with 1550 Evolution BBUs

Source	Destination
X1-BBU-Input	PWR-A
X1-SC1-PSU-L	PWR-B
X1-SC2-PSU-L	PWR-B
X1-SC1-PSU-R	X1-BBU-Output1
X1-SC2-PSU-R	X1-BBU-Output2
X2-BBU-Input	PWR-B
X2-SC1-PSU-L	PWR-A
X2-SC2-PSU-L	PWR-A
X2-SC2-PSU-R	X2-BBU-Output1
X2-SC2-PSU-R	X2-BBU-Output2
IBSW1-PSU-L	PWR-A
IBSW1-PSU-R	PWR-B
IBSW2-PSU-L	PWR-A
IBSW2-PSU-R	PWR-B
X1-DAE-PSU-L	PWR-B
X2-DAE-PSU-L	PWR-B
X1-DAE-PSU-R	PWR-A
X2-DAE-PSU-R	PWR-A

Note: The long (66") power cables should be connected to InfiniBand switches only. The shorter power cables are for all other components.

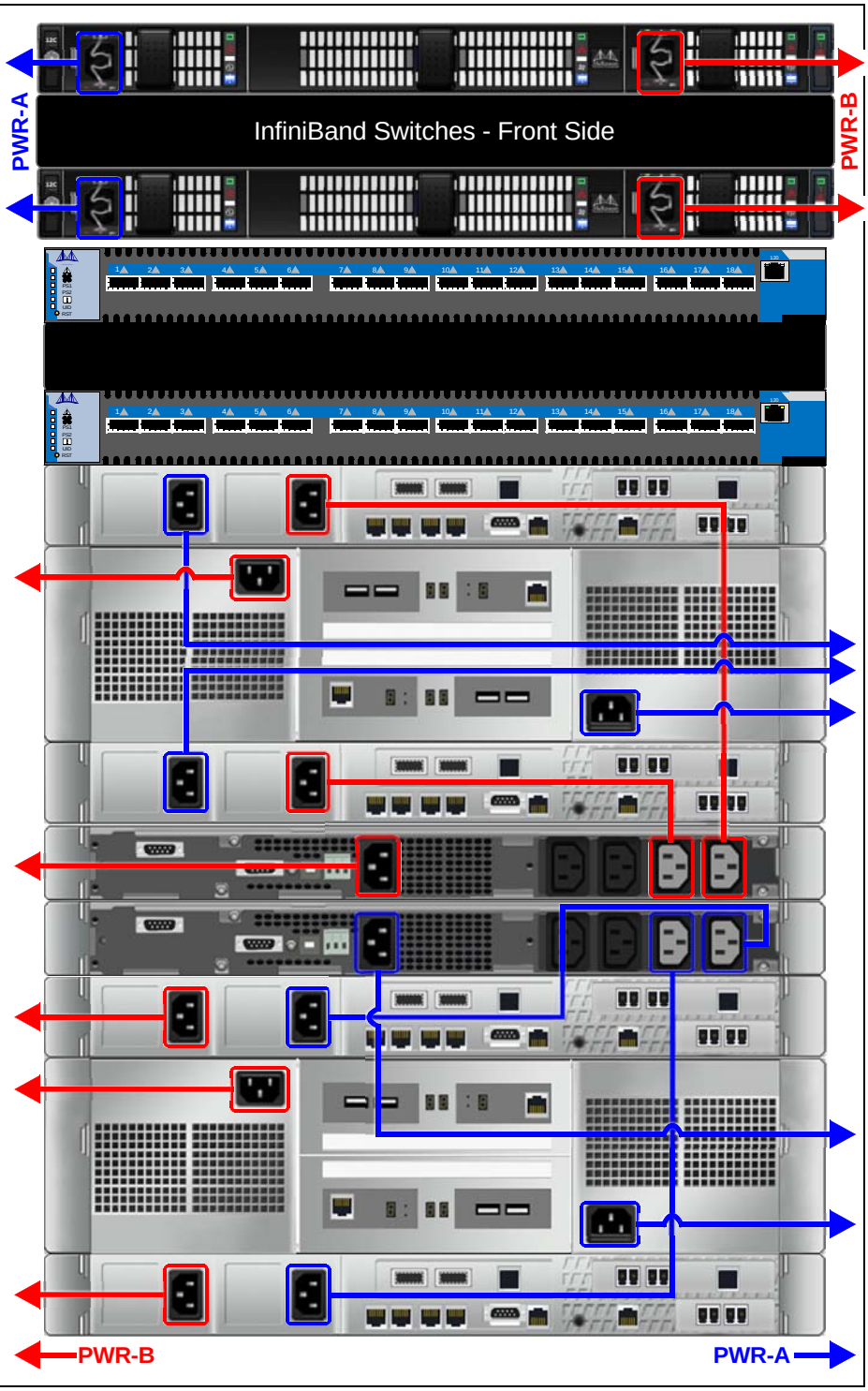


Table 25 Connecting the Power Cables for X-Bricks 3 and 4 with 1550 Evolution BBUs

Source	Destination
X3-BBU-Input	PWR-A
X3-SC1-PSU-L	PWR-B
X3-SC2-PSU-L	PWR-B
X3-SC1-PSU-R	X3-BBU-Output1
X3-SC2-PSU-R	X3-BBU-Output2
X4-BBU-Input	PWR-B
X4-SC1-PSU-L	PWR-A
X4-SC2-PSU-L	PWR-A
X4-SC1-PSU-R	X4-BBU-Output1
X4-SC2-PSU-R	X4-BBU-Output2
X3-DAE-PSU-L	PWR-B
X4-DAE-PSU-L	PWR-B
X3-DAE-PSU-R	PWR-A
X4-DAE-PSU-R	PWR-A

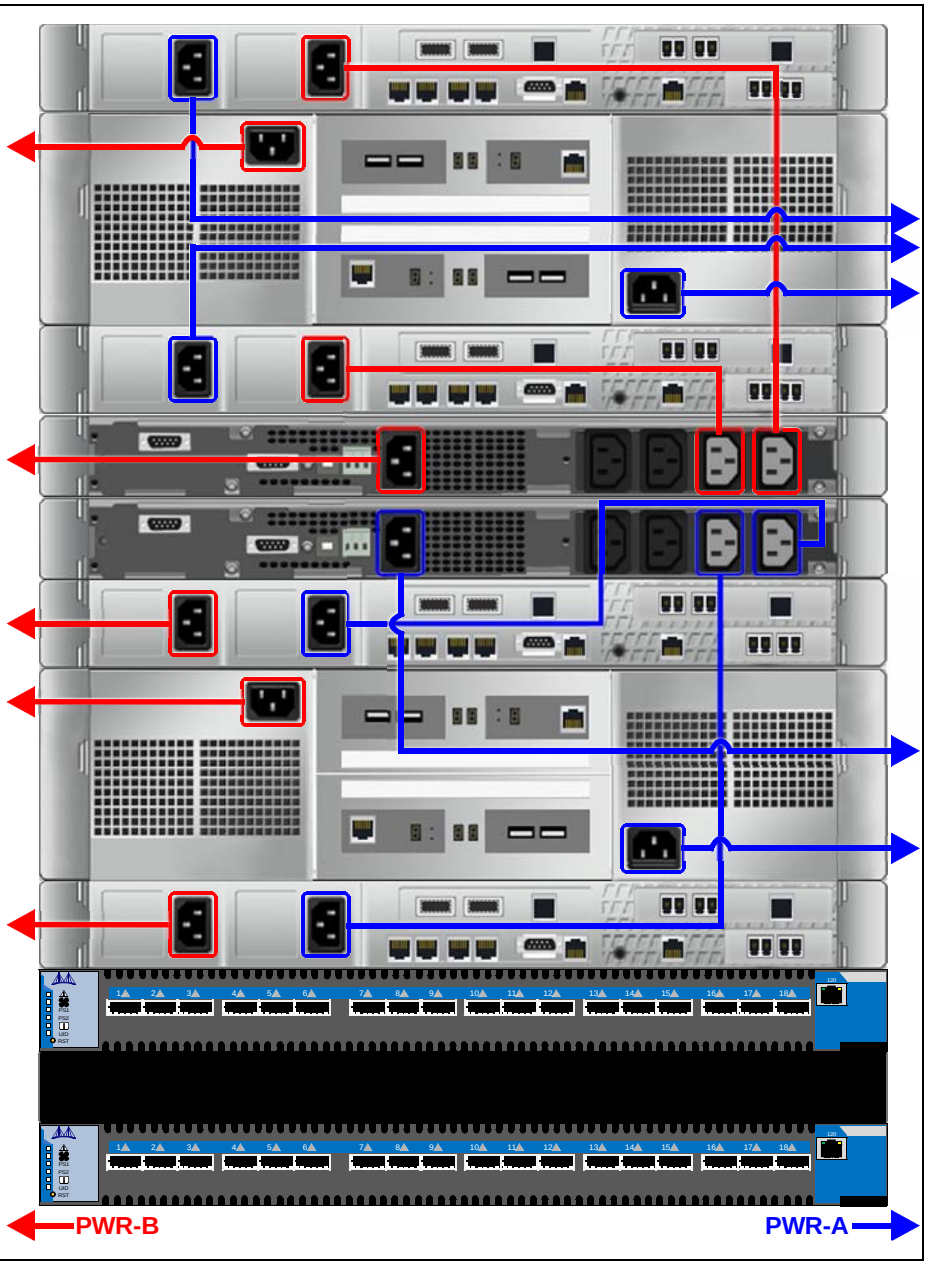
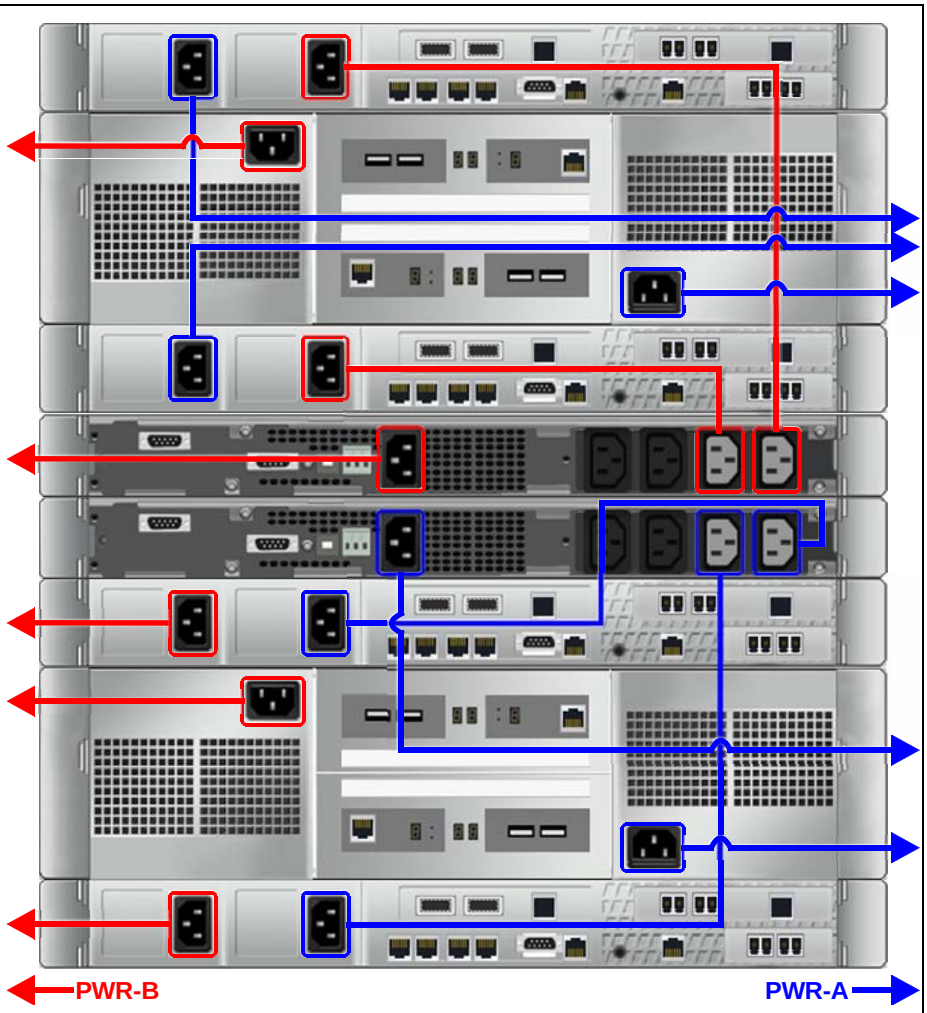


Table 26 Connecting the Power Cables for X-Bricks 5 & 6 and X-Bricks 7 & 8 with 1550 Evolution BBUs

Source	Destination
X5-BBU-Input	PWR-A
X5-SC1-PSU-L	PWR-B
X5-SC2-PSU-L	PWR-B
X5-SC1-PSU-R	X5-BBU-Output1
X5-SC2-PSU-R	X5-BBU-Output2
X6-BBU-Input	PWR-B
X6-SC1-PSU-L	PWR-A
X6-SC2-PSU-L	PWR-A
X6-SC1-PSU-R	X6-BBU-Output1
X6-SC2-PSU-R	X6-BBU-Output2
X5-DAE-PSU-L	PWR-B
X6-DAE-PSU-L	PWR-B
X5-DAE-PSU-R	PWR-A
X6-DAE-PSU-R	PWR-A
X7-BBU-Input	PWR-A
X7-SC1-PSU-L	PWR-B
X7-SC2-PSU-L	PWR-B
X7-SC1-PSU-R	X7-BBU-Output1
X7-SC2-PSU-R	X7-BBU-Output2
X8-BBU-Input	PWR-B
X8-SC1-PSU-L	PWR-A
X8-SC2-PSU-L	PWR-A
X8-SC1-PSU-R	X8-BBU-Output1
X8-SC2-PSU-R	X8-BBU-Output2
X7-DAE-PSU-L	PWR-B
X8-DAE-PSU-L	PWR-B
X7-DAE-PSU-R	PWR-A
X8-DAE-PSU-R	PWR-A



Connecting the Battery Backup Unit Communication Cables

Connect the serial communication cables, as shown in Table 27, Table 28, Table 29, Table 30, Table 31 and Table 32, and make sure to tighten their screw jacks.

Table 27 Connecting the Battery Backup Unit Communication Cables for X-Bricks 1 and 2 with 5P 1550i R BBUs

Source	Destination
X1-SC1-IOIOI	X1-BBU-COM-L
X1-SC2-IOIOI	X1-BBU-COM-R
X2-SC1-IOIOI	X2-BBU-COM-L
X2-SC2-IOIOI	X2-BBU-COM-R

Note: Each 5P 1550i Battery Backup Unit is supplied with either a DB9-RJ45 adapter (as shown in Figure 4 on page 18), for connecting the data cable to COM (R) port, or an RJ45-RJ50 cable (as shown in Figure 6 on page 18) for connecting the BBU directly to the Storage Controller. For the a DB9-RJ50 adapter, the RJ50 end of the adapter (with the short cable, as shown in Figure 4 on page 18) must be connected to COM (R) port of the Battery Backup Unit (see Figure 4 on page 18).
The DB9 end of the adapter must be connected to the D-type connector of the data cable (with the long cable, as shown in Figure 5 on page 18).
For the an RJ45-RJ50 cable, the RJ50 end of the cable must be connected to the COM (R) port of the BBU and the RJ45 end of the cable must be connected to the 10101 port of the Storage Controller. Make sure to connect the cables according to their source and destination labels.

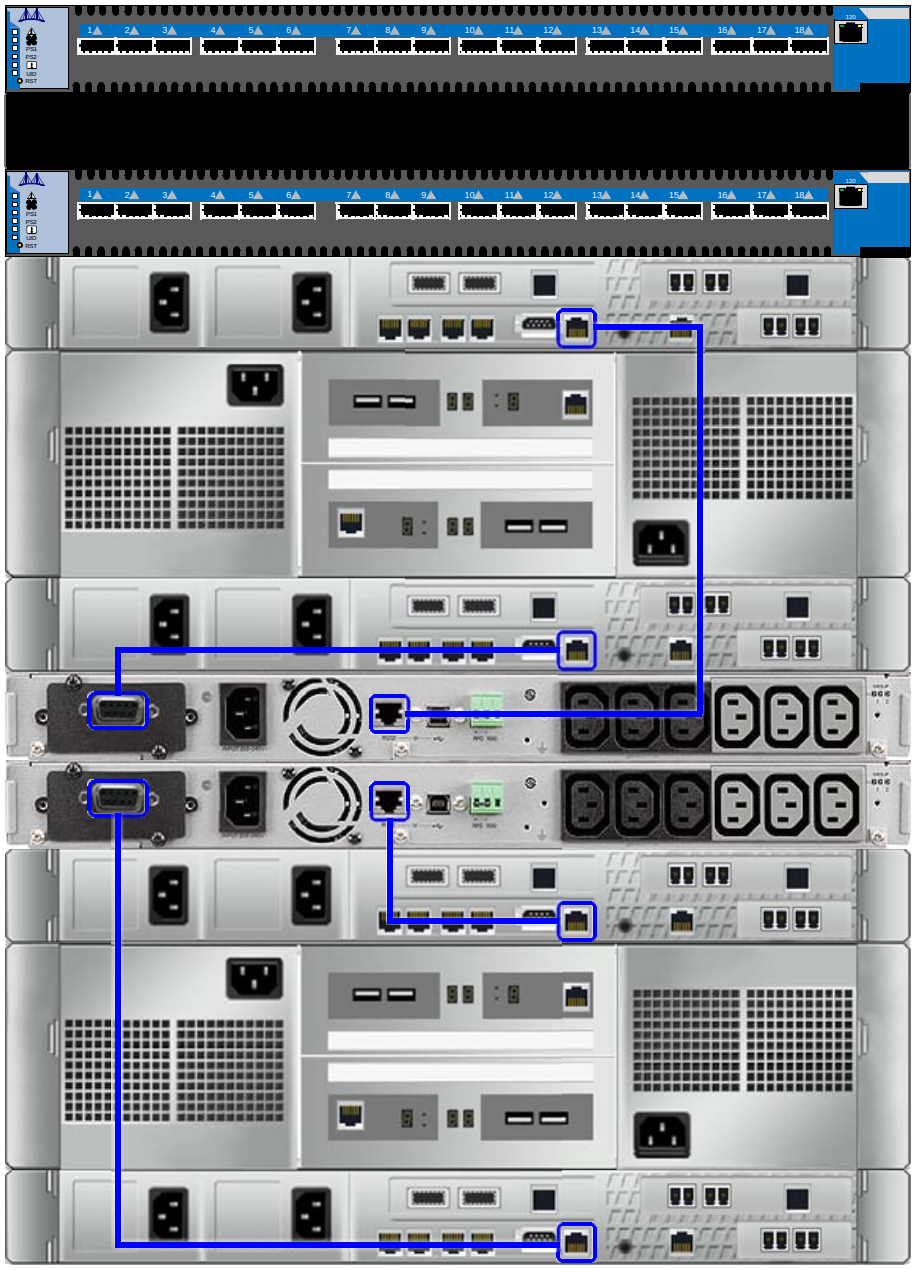


Table 28 Connecting the Battery Backup Unit Communication Cables for X-Bricks 3 and 4 with 5P 1550i R BBUs

Source	Destination
X3-SC1-IOIOI	X3-BBU-COM-L
X3-SC2-IOIOI	X3-BBU-COM-R
X4-SC1-IOIOI	X4-BBU-COM-L
X4-SC2-IOIOI	X4-BBU-COM-R

Note: Each 5P 1550i Battery Backup Unit is supplied with either a DB9-RJ45 adapter (as shown in Figure 4 on page 18), for connecting the data cable to COM (R) port, or an RJ45-RJ50 cable (as shown in Figure 6 on page 18) for connecting the BBU directly to the Storage Controller. For the a DB9-RJ50 adapter, the RJ50 end of the adapter (with the short cable, as shown in Figure 4 on page 18) must be connected to COM (R) port of the Battery Backup Unit (see Figure 4 on page 18).
The DB9 end of the adapter must be connected to the D-type connector of the data cable (with the long cable, as shown in Figure 5 on page 18).
For the an RJ45-RJ50 cable, the RJ50 end of the cable must be connected to the COM (R) port of the BBU and the RJ45 end of the cable must be connected to the 10101 port of the Storage Controller. Make sure to connect the cables according to their source and destination labels.

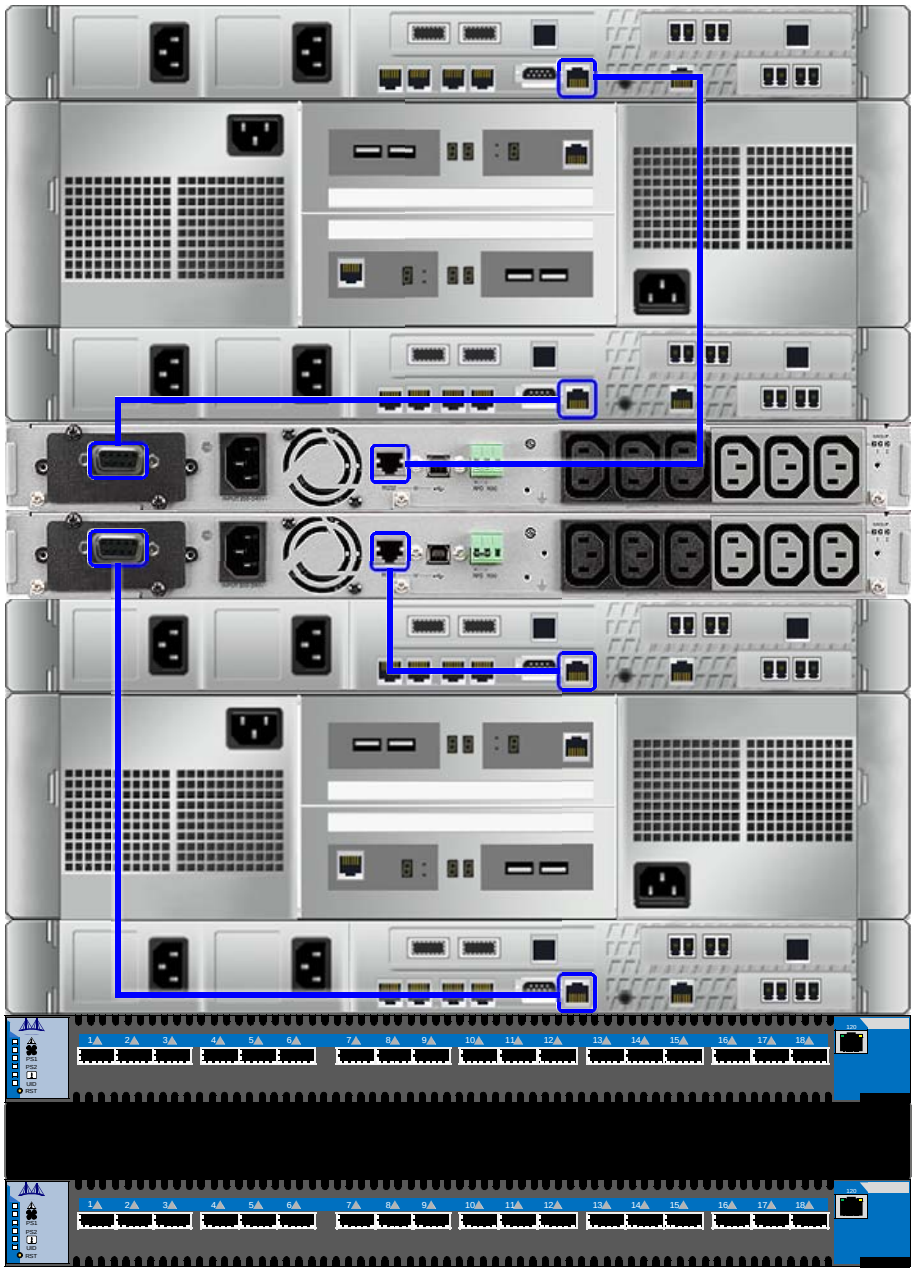


Table 29 Connecting the Battery Backup Unit Communication Cables for X-Bricks 5 & 6 and X-Bricks 7 & 8 with 5P 1550i R BBUs

Source	Destination
X5-SC1-IOIOI	X5-BBU-COM-L
X5-SC2-IOIOI	X5-BBU-COM-R
X6-SC1-IOIOI	X6-BBU-COM-L
X6-SC2-IOIOI	X6-BBU-COM-R
X7-SC1-IOIOI	X7-BBU-COM-L
X7-SC2-IOIOI	X7-BBU-COM-R
X8-SC1-IOIOI	X8-BBU-COM-L
X8-SC2-IOIOI	X8-BBU-COM-R

Note: Each 5P 1550i Battery Backup Unit is supplied with either a DB9-RJ45 adapter (as shown in Figure 4 on page 18), for connecting the data cable to COM (R) port, or an RJ45-RJ50 cable (as shown in Figure 6 on page 18) for connecting the BBU directly to the Storage Controller. For the a DB9-RJ50 adapter, the RJ50 end of the adapter (with the short cable, as shown in Figure 4 on page 18) must be connected to COM (R) port of the Battery Backup Unit (see Figure 4 on page 18).
The DB9 end of the adapter must be connected to the D-type connector of the data cable (with the long cable, as shown in Figure 5 on page 18).
For the an RJ45-RJ50 cable, the RJ50 end of the cable must be connected to the COM (R) port of the BBU and the RJ45 end of the cable must be connected to the 10101 port of the Storage Controller. Make sure to connect the cables according to their source and destination labels.

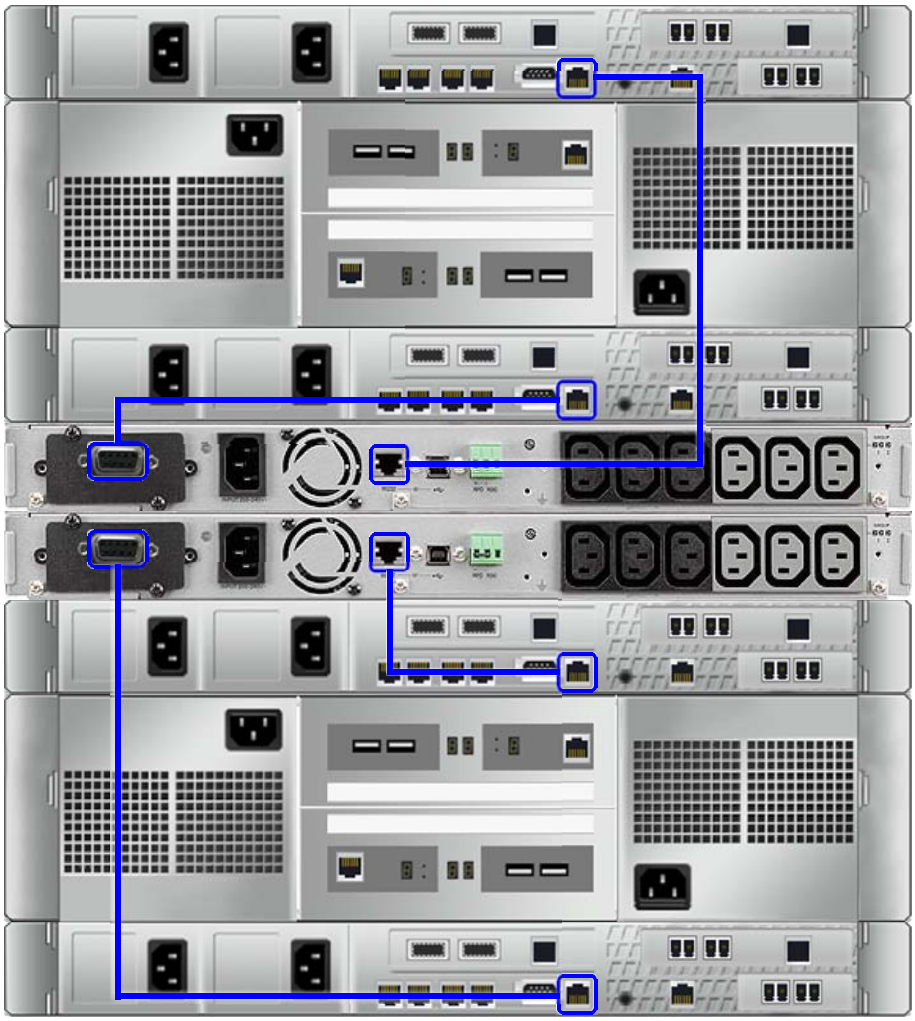


Table 30 Connecting the Battery Backup Unit Communication Cables for X-Bricks 1 and 2 with 1550 Evolution BBUs

Source	Destination
X1-SC1-IOIOI	X1-BBU-COM-L
X1-SC2-IOIOI	X1-BBU-COM-R
X2-SC1-IOIOI	X2-BBU-COM-L
X2-SC2-IOIOI	X2-BBU-COM-R

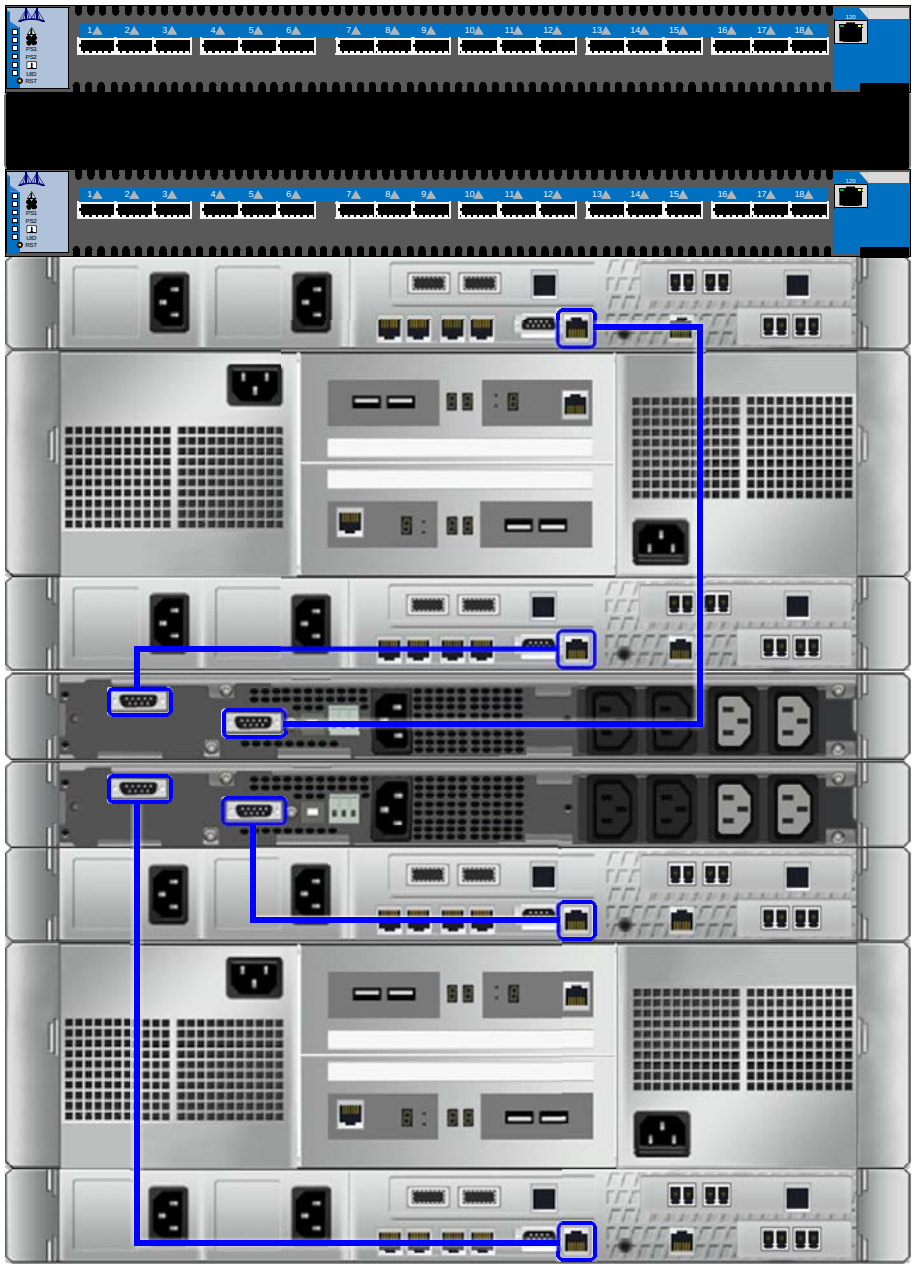


Table 31 Connecting the Battery Backup Unit Communication Cables for X-Bricks 3 and 4 with 1550 Evolution BBUs

Source	Destination
X3-SC1-IOIOI	X3-BBU-COM-L
X3-SC2-IOIOI	X3-BBU-COM-R
X4-SC1-IOIOI	X4-BBU-COM-L
X4-SC2-IOIOI	X4-BBU-COM-R

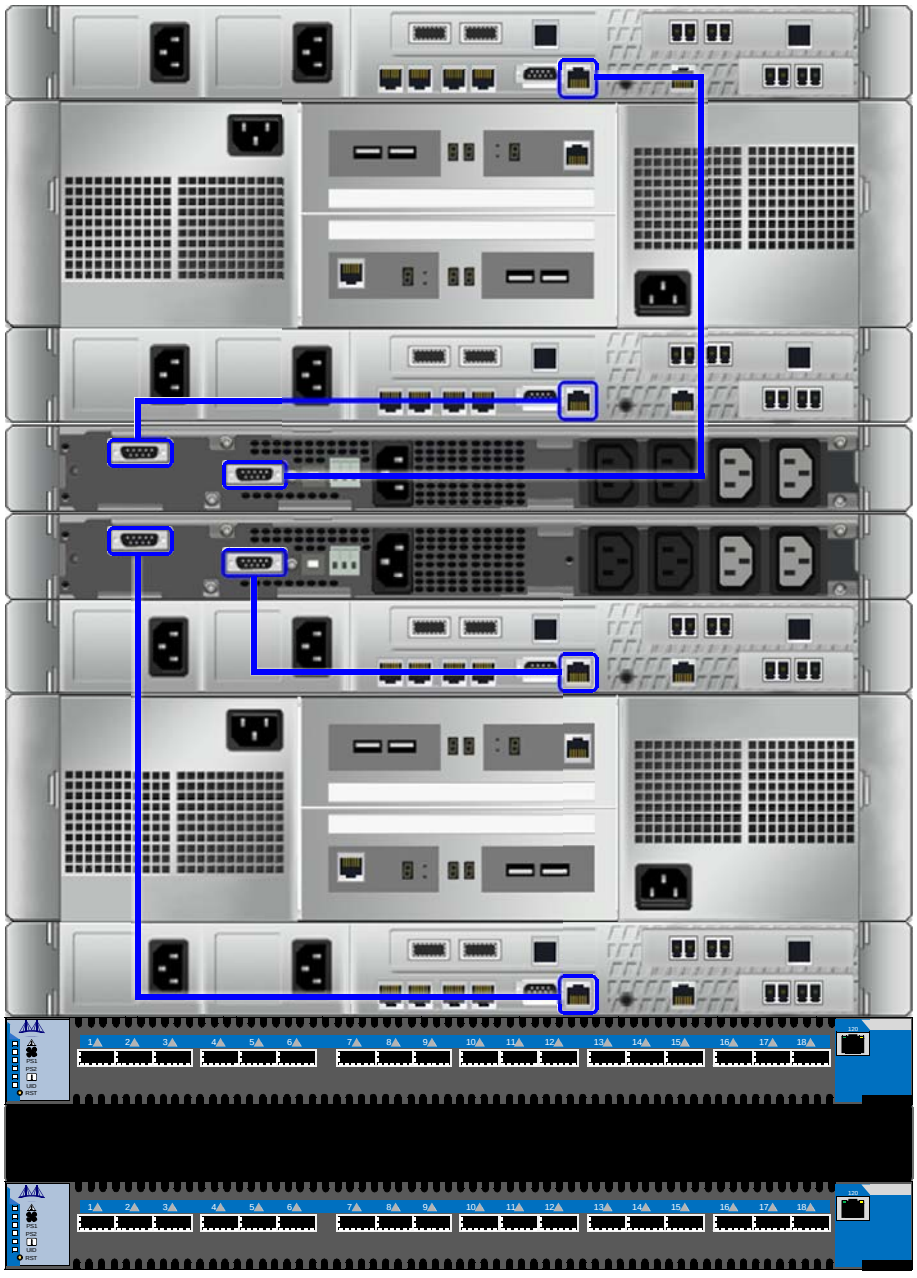
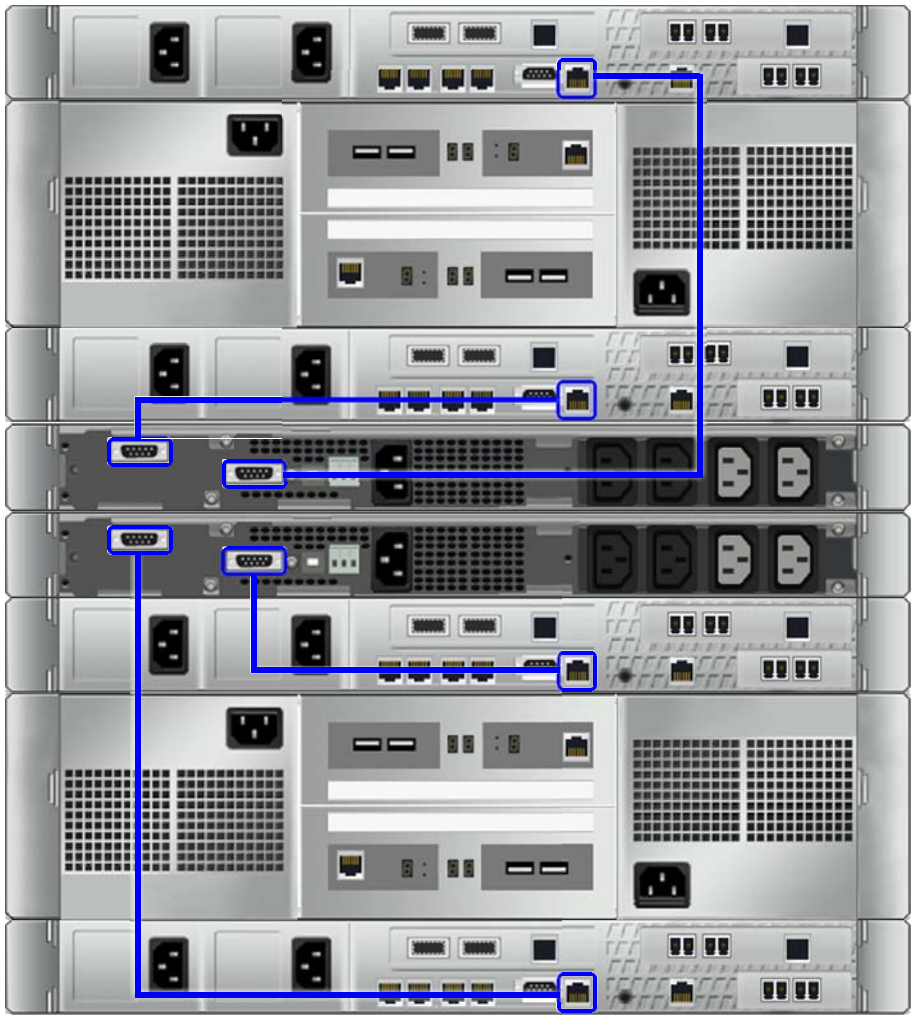


Table 32 Connecting the Battery Backup Unit Communication Cables for X-Bricks X-Bricks 5 & 6 and X-Bricks 7 & 8 with 1550 Evolution BBUs

Source	Destination
X5-SC1-IOIOI	X5-BBU-COM-L
X5-SC2-IOIOI	X5-BBU-COM-R
X6-SC1-IOIOI	X6-BBU-COM-L
X6-SC2-IOIOI	X6-BBU-COM-R
X7-SC1-IOIOI	X7-BBU-COM-L
X7-SC2-IOIOI	X7-BBU-COM-R
X8-SC1-IOIOI	X8-BBU-COM-L
X8-SC2-IOIOI	X8-BBU-COM-R

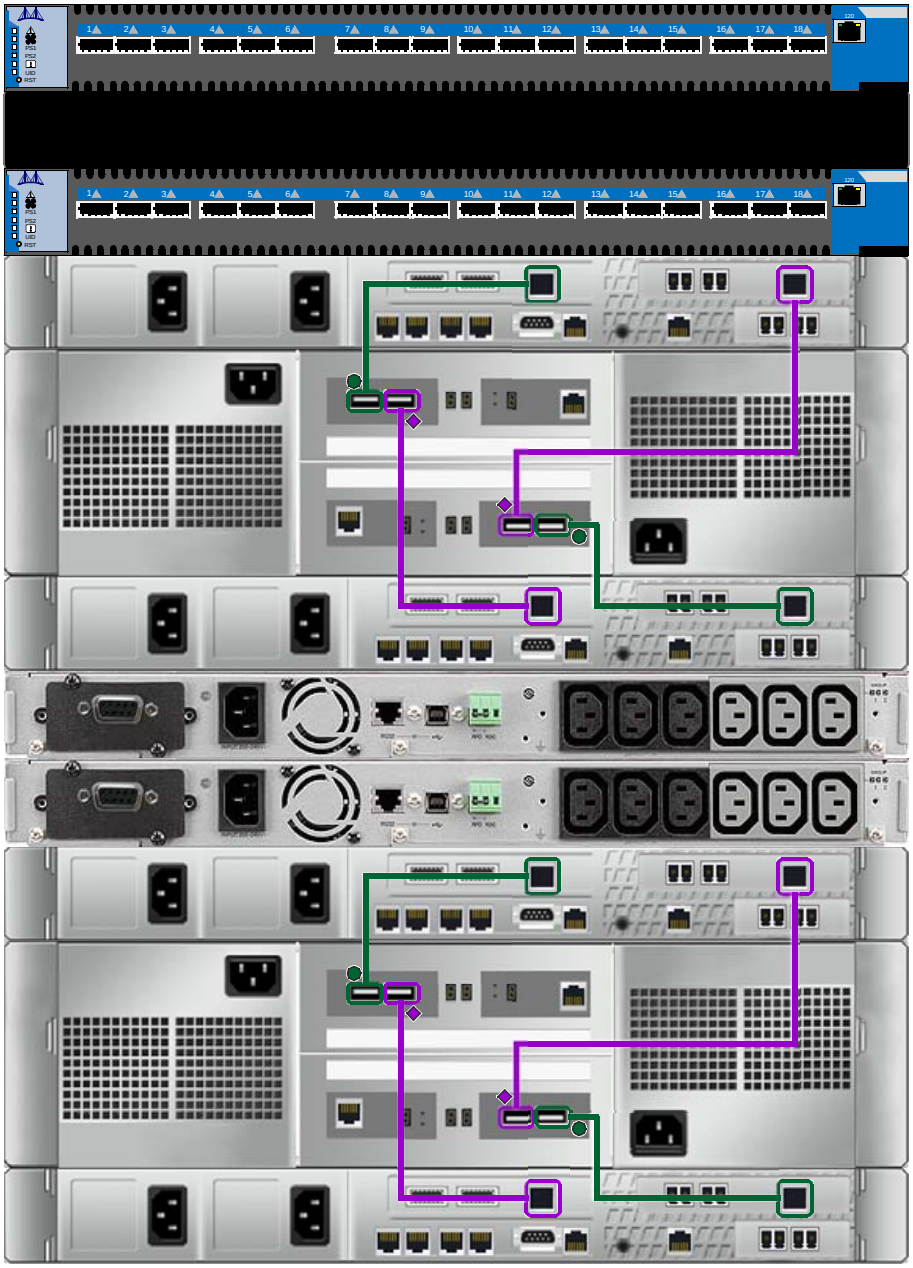


Connecting the DAE SAS Cables

Connect the SAS cables, as shown in Table 33, Table 34 and Table 35.

Table 33 Connecting the DAE SAS Cables for X-Bricks 1 and 2

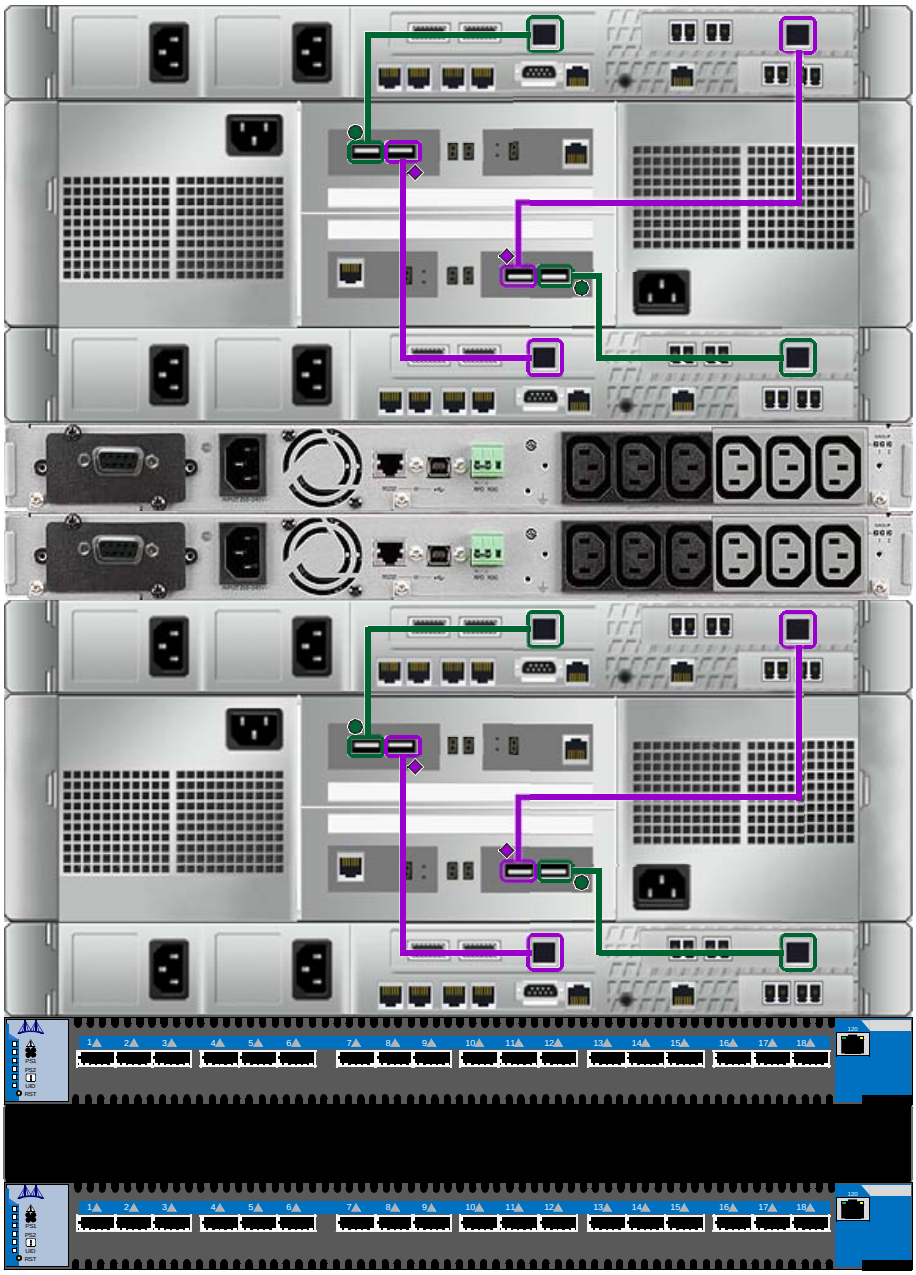
Source	Destination
X1-SC1-SAS1	X1-LCC-B-R
X1-SC1-SAS2	X1-LCC-A-R
X1-SC2-SAS2	X1-LCC-A-L
X1-SC2-SAS1	X1-LCC-B-L
X2-SC1-SAS1	X2-LCC-B-R
X2-SC1-SAS2	X2-LCC-A-R
X2-SC2-SAS2	X2-LCC-A-L
X2-SC2-SAS1	X2-LCC-B-L



◆ Indicates SAS connector with diamond mark.
● Indicates SAS connector with dot mark.

Table 34 Connecting the DAE SAS Cables for X-Bricks 3 and 4

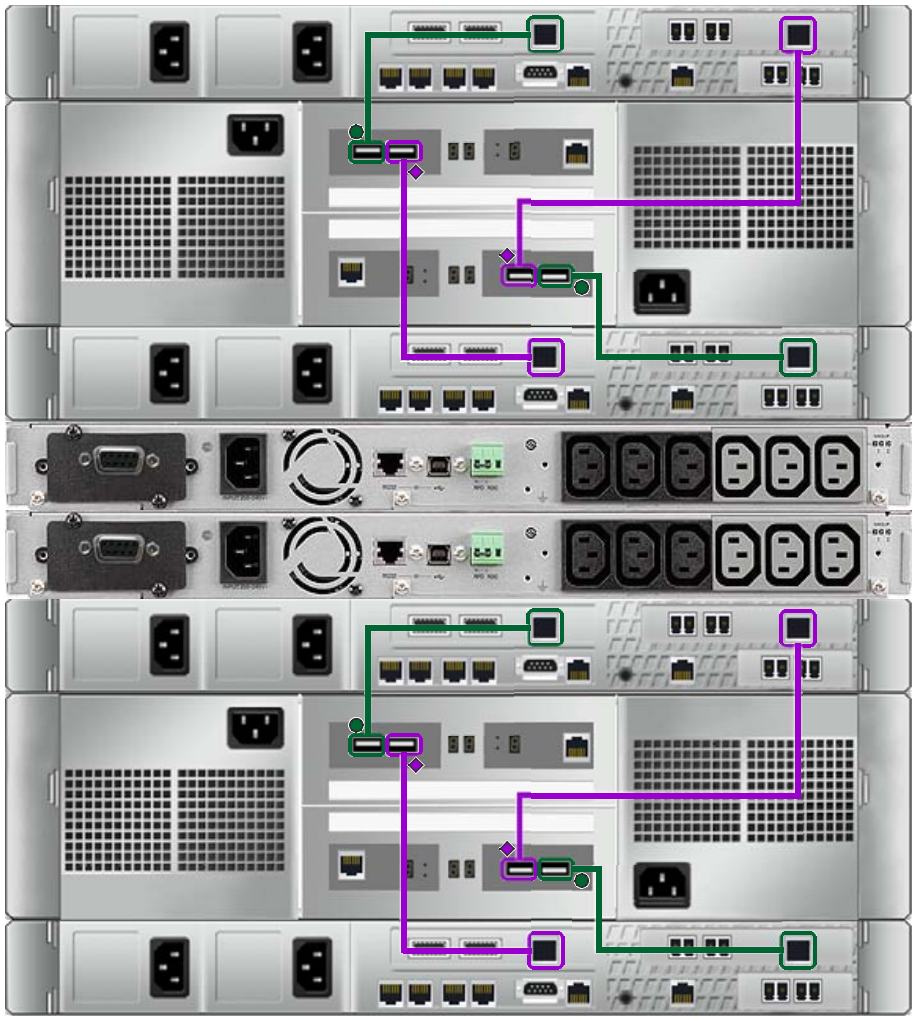
Source	Destination
X3-SC1-SAS1	X3-LCC-B-R
X3-SC1-SAS2	X3-LCC-A-R
X3-SC2-SAS2	X3-LCC-A-L
X3-SC2-SAS1	X3-LCC-B-L
X4-SC1-SAS1	X4-LCC-B-R
X4-SC1-SAS2	X4-LCC-A-R
X4-SC2-SAS2	X4-LCC-A-L
X4-SC2-SAS1	X4-LCC-B-L



◆ Indicates SAS connector with diamond mark.
● Indicates SAS connector with dot mark.

Table 35 Connecting the DAE SAS Cables for X-Bricks 5 & 6 and X-Bricks 7 & 8

Source	Destination
X5-SC1-SAS1	X5-LCC-B-R
X5-SC1-SAS2	X5-LCC-A-R
X5-SC2-SAS2	X5-LCC-A-L
X5-SC2-SAS1	X5-LCC-B-L
X6-SC1-SAS1	X6-LCC-B-R
X6-SC1-SAS2	X6-LCC-A-R
X6-SC2-SAS2	X6-LCC-A-L
X6-SC2-SAS1	X6-LCC-B-L
X7-SC1-SAS1	X7-LCC-B-R
X7-SC1-SAS2	X7-LCC-A-R
X7-SC2-SAS2	X7-LCC-A-L
X7-SC2-SAS1	X7-LCC-B-L
X8-SC1-SAS1	X8-LCC-B-R
X8-SC1-SAS2	X8-LCC-A-R
X8-SC2-SAS2	X8-LCC-A-L
X8-SC2-SAS1	X8-LCC-B-L



◆ Indicates SAS connector with diamond mark.
● Indicates SAS connector with dot mark.

Connecting the InfiniBand Cables

Connect the InfiniBand cables, as shown in Table 36, Table 37, Table 38 and Table 39.

Table 36 Connecting the InfiniBand Cables for X-Bricks 1 and 2

Source	Destination
X1-SC1-IB1	IBSW1-P01
X1-SC1-IB2	IBSW2-P01
X1-SC2-IB1	IBSW1-P02
X1-SC2-IB2	IBSW2-P02
X2-SC1-IB1	IBSW1-P03
X2-SC1-IB2	IBSW2-P03
X2-SC2-IB1	IBSW1-P04
X2-SC2-IB2	IBSW2-P04
IBSW1-P17	IBSW2-P17
IBSW1-P18	IBSW2-P18

Note: To provide maximum isolation conditions, it is recommended to run the InfiniBand cables from IBSW1 to the right side of the rack, and to run the InfiniBand cables from IBSW2 to the left side of the rack.

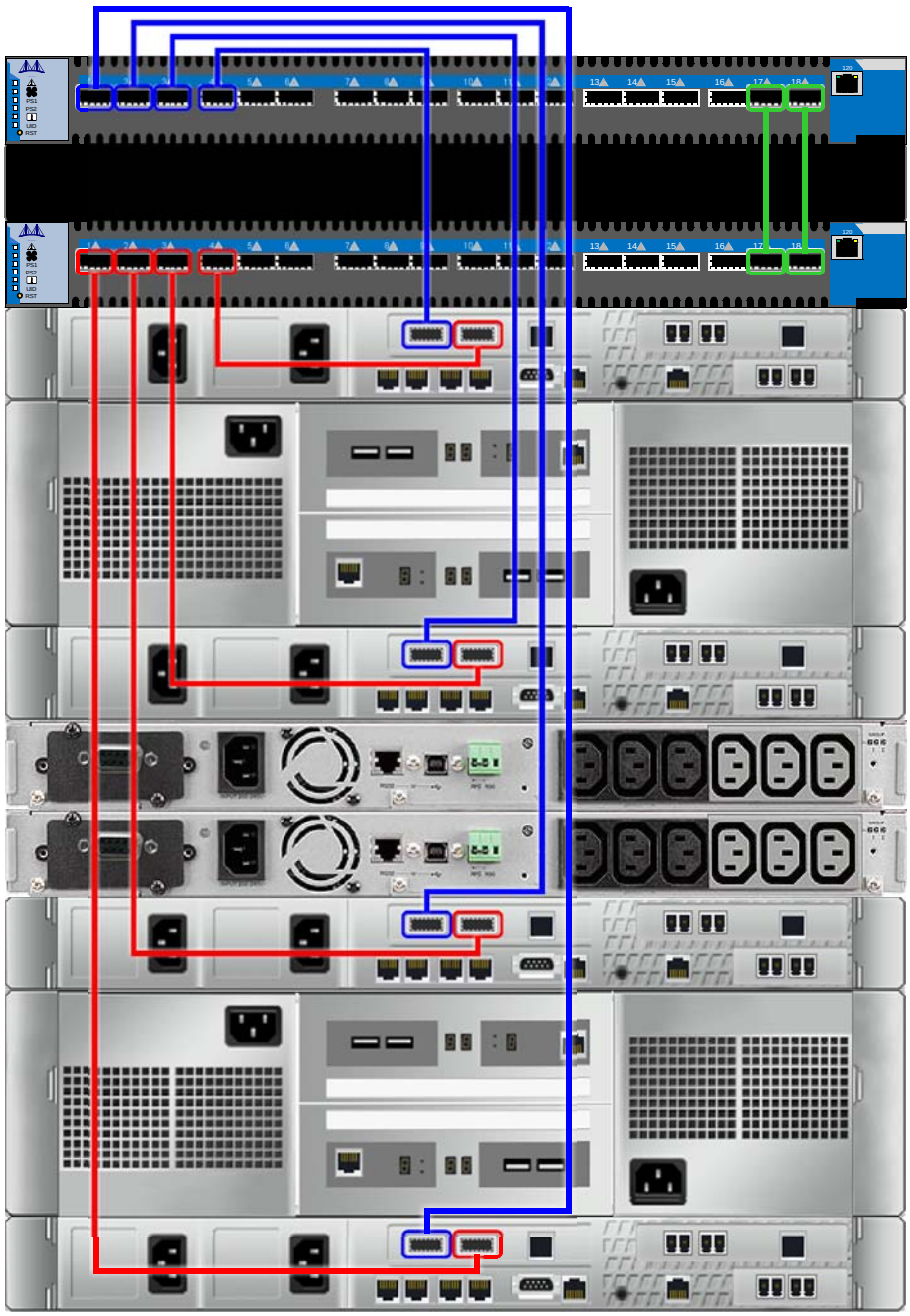


Table 37 Connecting the InfiniBand Cables for X-Bricks 3 and 4

Source	Destination
X3-SC1-IB1	IBSW1-P05
X3-SC1-IB2	IBSW2-P05
X3-SC2-IB1	IBSW1-P06
X3-SC2-IB2	IBSW2-P06
X4-SC1-IB1	IBSW1-P07
X4-SC1-IB2	IBSW2-P07
X4-SC2-IB1	IBSW1-P08
X4-SC2-IB2	IBSW2-P08

Note: To provide maximum isolation conditions, it is recommended to run the InfiniBand cables from IBSW1 to the right side of the rack, and to run the InfiniBand cables from IBSW2 to the left side of the rack.

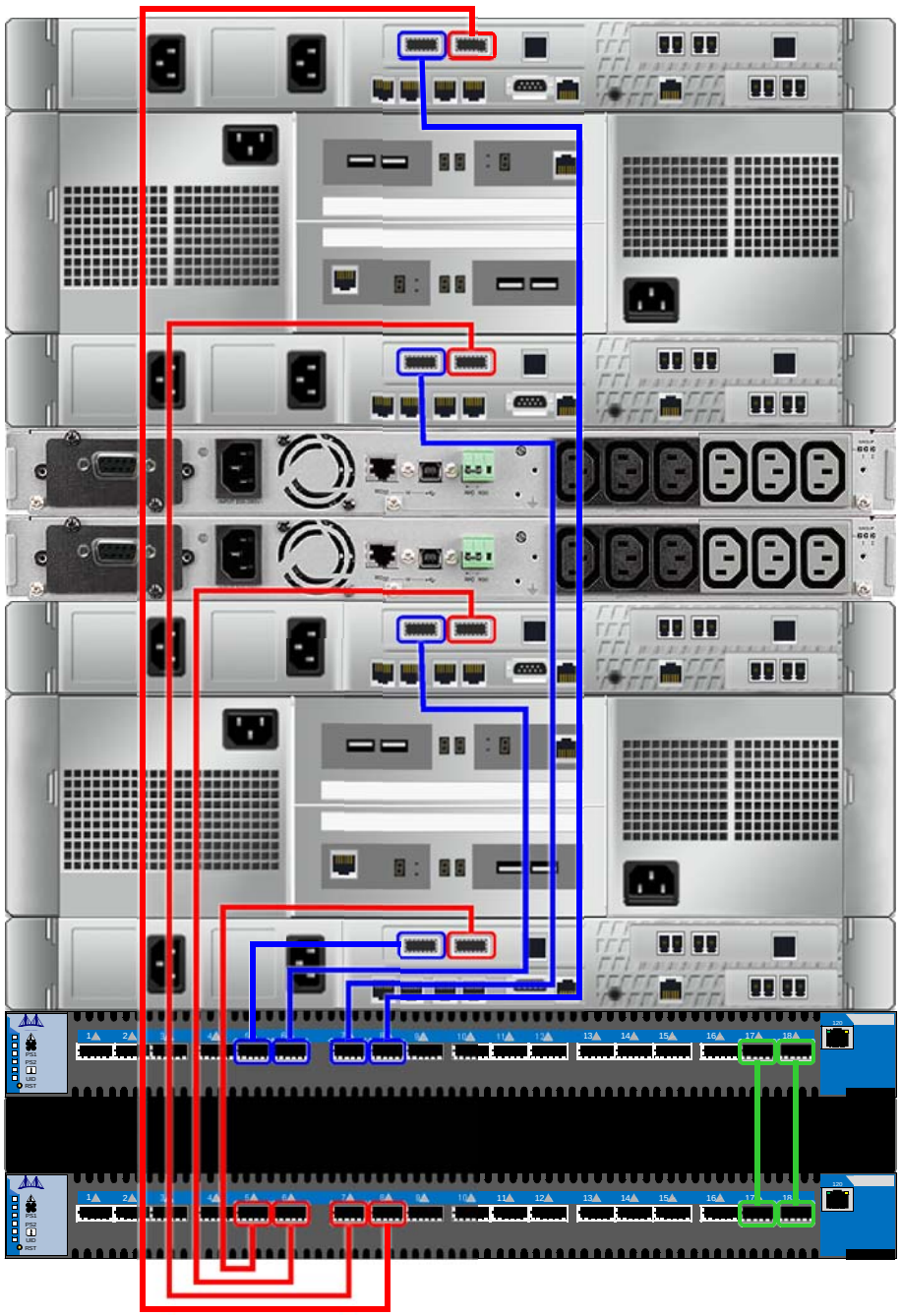


Table 38 Connecting the InfiniBand Cables for X-Bricks 5 and 6

Source	Destination
X5-SC1-IB1	IBSW1-P09
X5-SC1-IB2	IBSW2-P09
X5-SC2-IB1	IBSW1-P10
X5-SC2-IB2	IBSW2-P10
X6-SC1-IB1	IBSW1-P11
X6-SC1-IB2	IBSW2-P11
X6-SC2-IB1	IBSW1-P12
X6-SC2-IB2	IBSW2-P12

Note: To provide maximum isolation conditions, it is recommended to run the InfiniBand cables from IBSW1 to the right side of the rack, and to run the InfiniBand cables from IBSW2 to the left side of the rack.

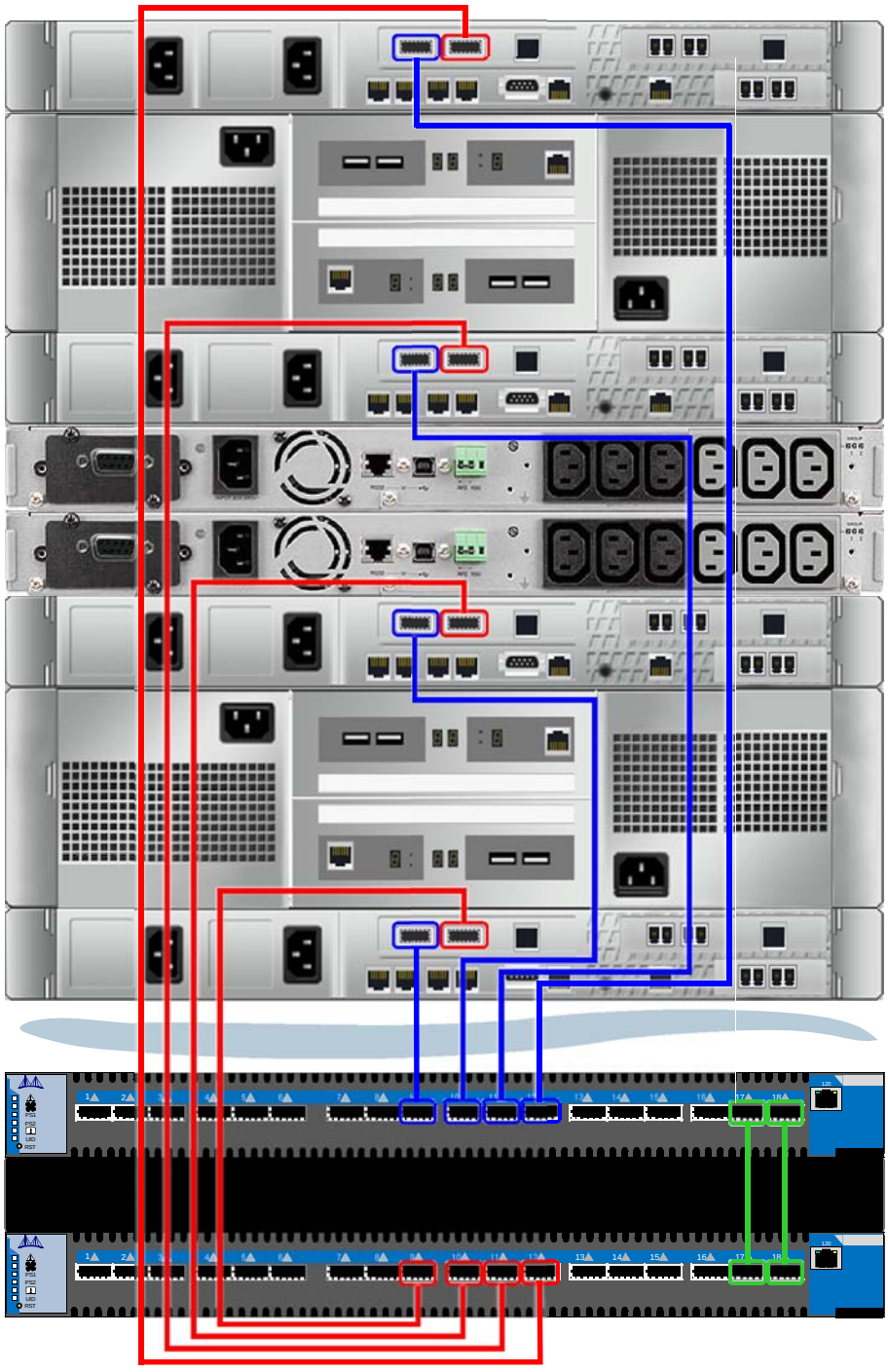
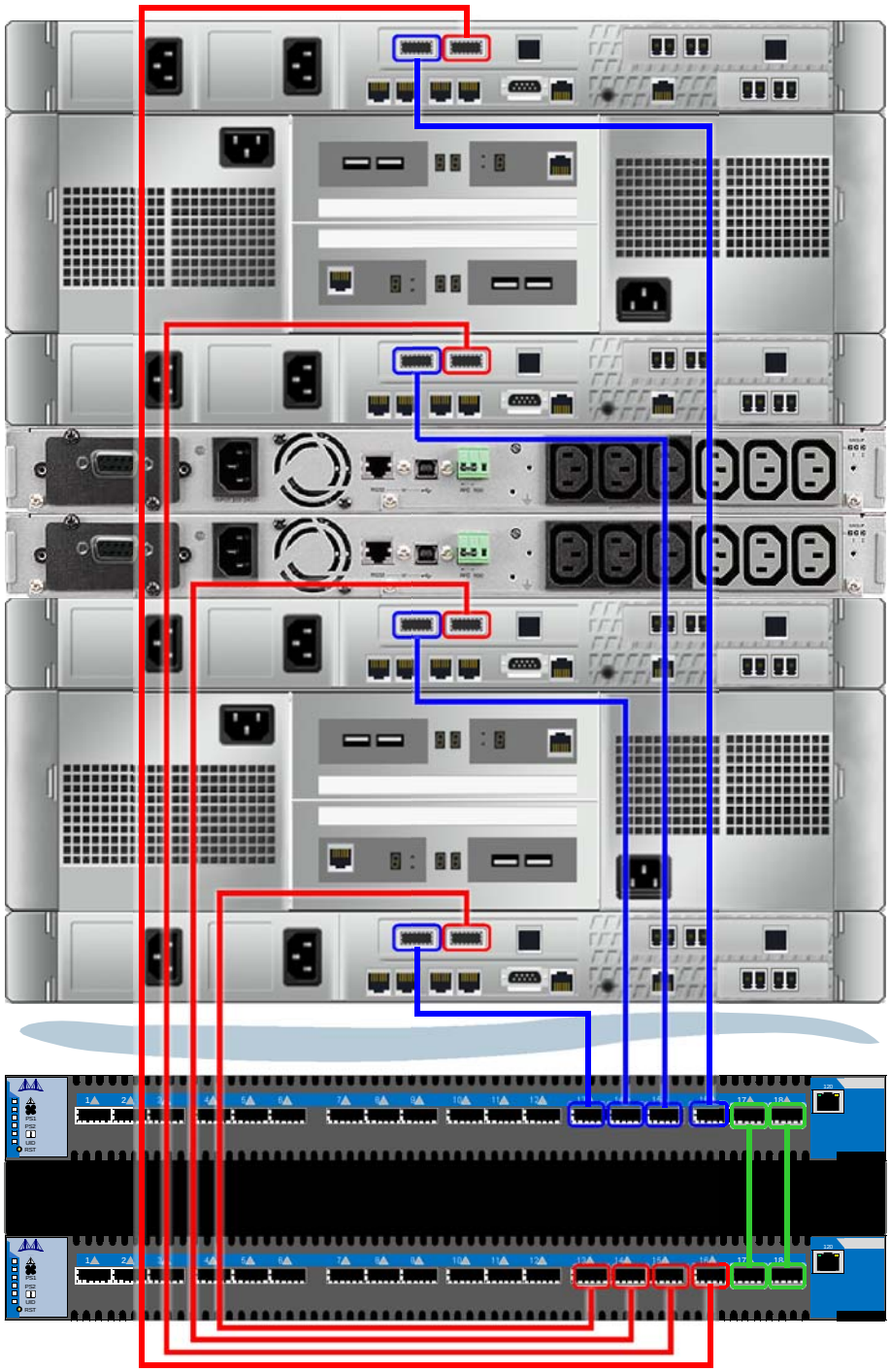


Table 39 Connecting the InfiniBand Cables for X-Bricks 7 and 8

Source	Destination
X7-SC1-IB1	IBSW1-P09
X7-SC1-IB2	IBSW2-P09
X7-SC2-IB1	IBSW1-P10
X7-SC2-IB2	IBSW2-P10
X8-SC1-IB1	IBSW1-P11
X8-SC1-IB2	IBSW2-P11
X8-SC2-IB1	IBSW1-P12
X8-SC2-IB2	IBSW2-P12

Note: For clusters dispersed over two racks, the 5m InfiniBand cable must be routed beneath a raised floor or through a ceiling-mounted cable trough.

Note: To provide maximum isolation conditions, it is recommended to run the InfiniBand cables from IBSW1 to the right side of the rack, and to run the InfiniBand cables from IBSW2 to the left side of the rack.



Connecting the Storage Controller IPMI Cables

Note: IPMI cables must always remain connected to the cluster (unlike with earlier XtremApp versions).

Connect the IPMI cables, as shown in Table 40, Table 41 and Table 42.

Table 40 Connecting the IPMI Cables for X-Bricks 1 and 2

Source	Destination
X1-SC1-4	X1-SC2-MGMT
X1-SC1-MGMT	X1-SC2-4
X2-SC1-4	X2-SC2-MGMT
X2-SC1-MGMT	X2-SC2-4

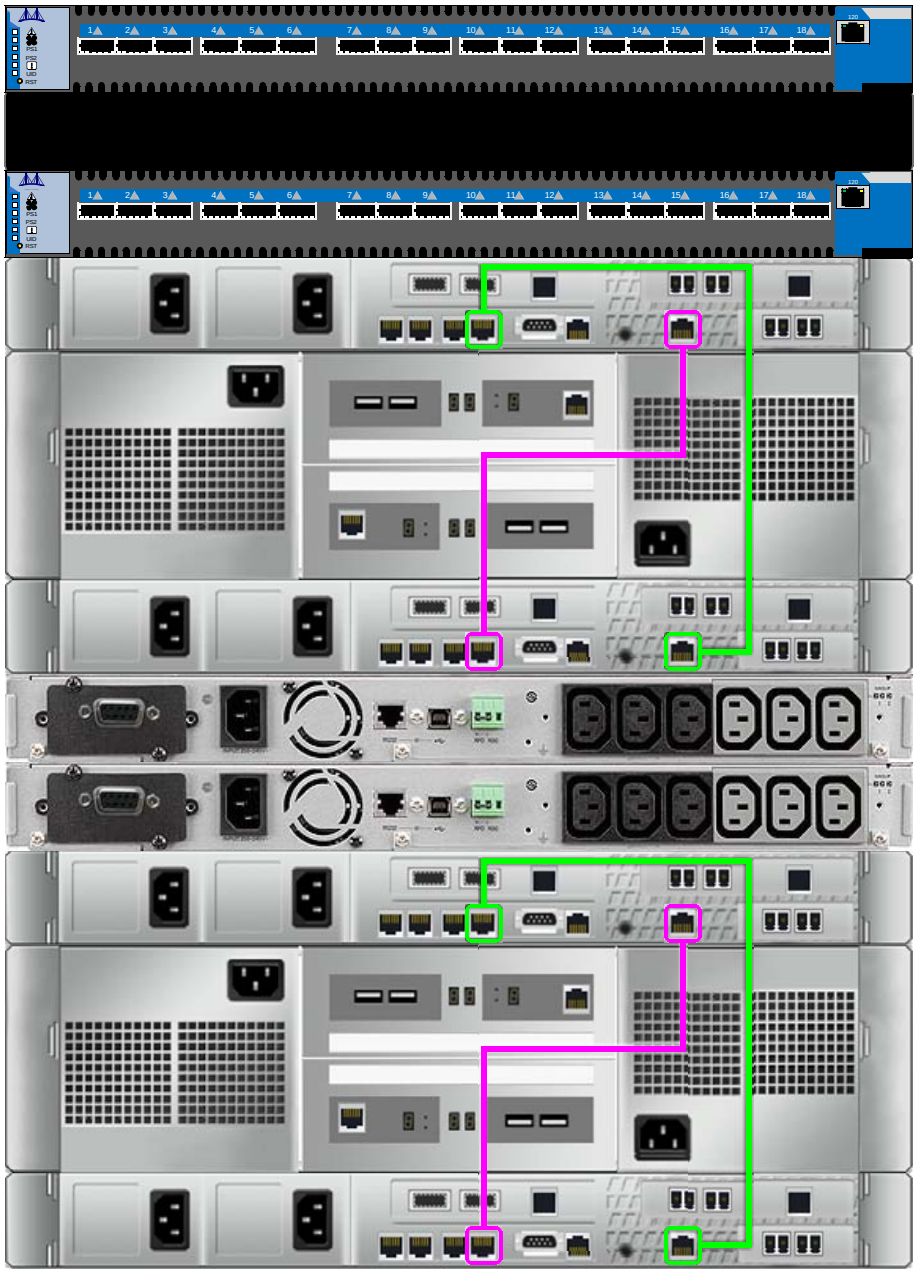


Table 41 Connecting the IPMI Cables for X-Bricks 3 and 4

Source	Destination
X3-SC1-4	X3-SC2-MGMT
X3-SC1-MGMT	X3-SC2-4
X4-SC1-4l	X4-SC2-MGMT
X4-SC1-MGMT	X4-SC2-4

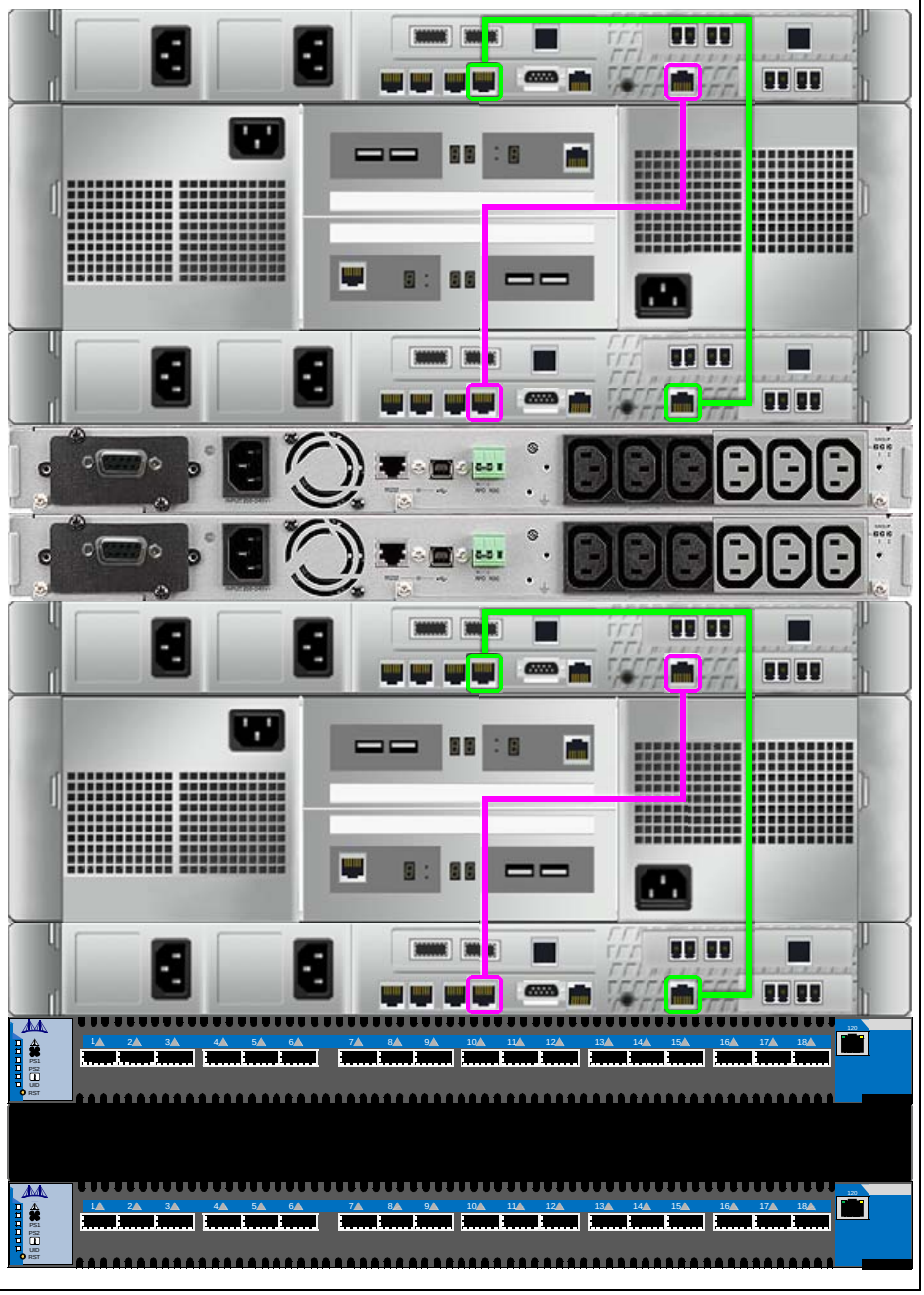
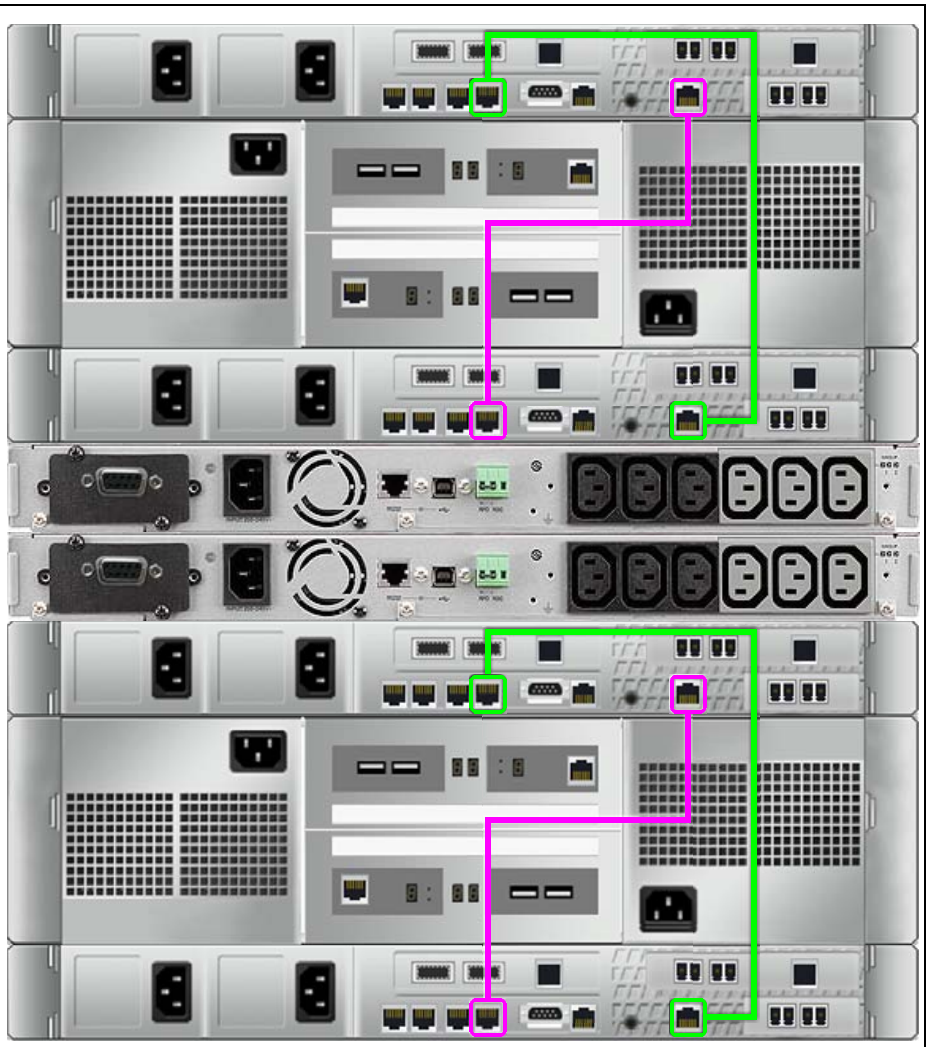


Table 42 Connecting the IPMI Cables for X-Bricks 5 & 6 and X-Bricks 7 & 8

Source	Destination
X5-SC1-4	X5-SC2-MGMT
X5-SC1-MGMT	X5-SC2-4
X6-SC1-4	X6-SC2-MGMT
X6-SC1-MGMT	X6-SC2-4
X7-SC1-4	X7-SC2-MGMT
X7-SC1-MGMT	X7-SC2-4
X8-SC1-4	X8-SC2-MGMT
X8-SC1-MGMT	X8-SC2-4



Connecting the (Optional) Physical XMS Power Cables

Connect the (optional) physical XMS power cables, as shown in Table 43.

Table 43 Connecting the (Optional) Physical XMS Power Cables

Source	Destination	
XMS-PSU-L	PWR-B	
XMS-PSU-R	PWR-A	

Fastening the Storage Controller Cables

Before fastening the Storage Controller cables, complete the following procedures:

- Connecting the Cluster to Host
- Connecting the Storage Controllers' Management Ports to Network

Note: The cable management bracket is to be introduced with/after version 4.0. Some earlier shipments may not include the bracket. If the cable management bracket is not included in the package, ignore these instructions.

To fasten the Storage Controller cables on the cable management bracket:

1. Tilt the cable tray of the cable management bracket downwards, by simultaneously pulling the latches on the left and right, as shown in Figure 80, and then by pushing the tray downwards.

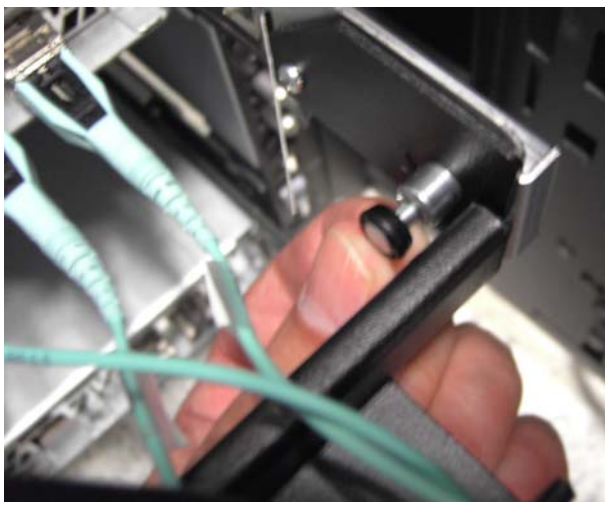


Figure 80 Pulling the Right-hand Latch

2. Place the Storage Controller cables in the tray of the cable management bracket and route them towards the left and right of the tray according to their direction towards the sides of the rack.

3. Fasten the cable straps, as shown in Figure 81 and Figure 82.

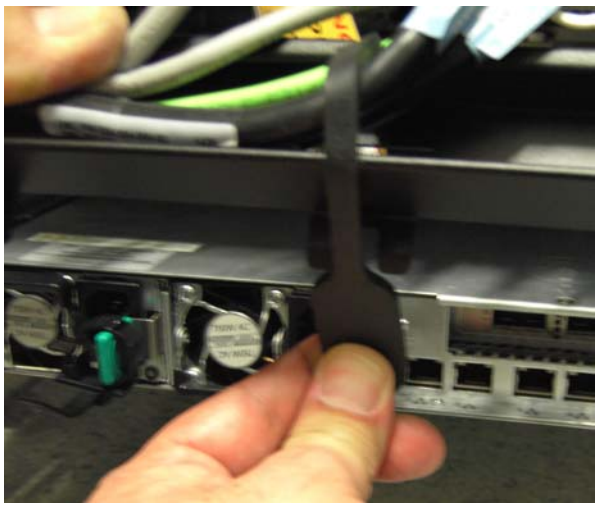


Figure 81 Fastening Cable Strap

Figure 82 Cables Fastened in Cable Management Bracket

4. Lift the cable tray, while pulling the latches (on the left and right side of the bracket) until the latches click in.

Note: Make sure that the latches are engaged and the tray is locked in position.

Figure 83 shows an example of a prepared cable management bracket.

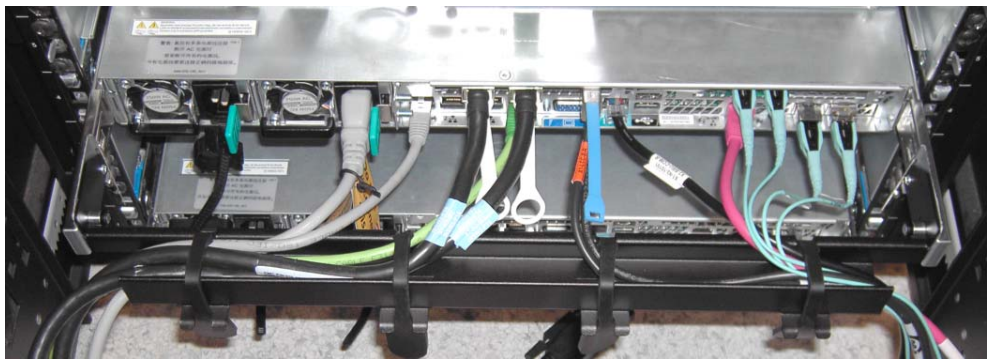


Figure 83 Cable Management Bracket with its Tray in Upright Position

Placing the PSNT Label

Prepare the PSNT label, as shown in Figure 84, and tie it to the power cord of X1-SC1-PSU-L.

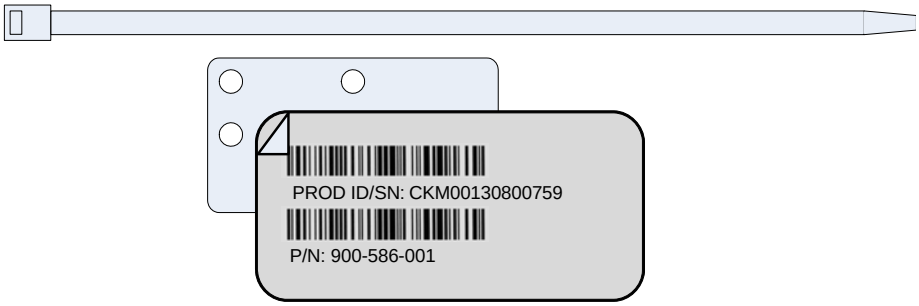


Figure 84 PSNT Label

CHAPTER 6
Connecting the Cluster to Site Facilities

This Chapter includes the following topics:

Connecting the Cluster to Host

The XtremIO cluster can be connected to the host SAN via Fibre Channel (FC) or iSCSI ports.

Connecting the Cluster to the Host Switch via FC

To connect the cluster to the host switch via FC:

1. Connect the external FC cables to **FC-1** and **FC-2** ports of all Storage Controllers in the cluster, as shown in Figure 85.

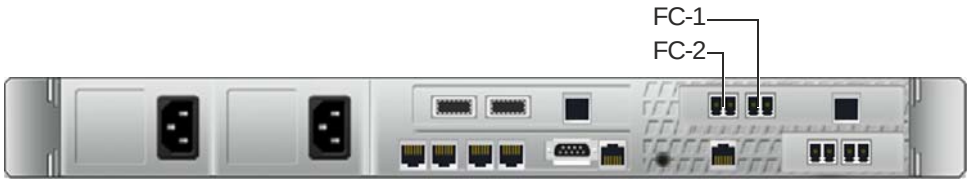


Figure 85 Storage Controller FC Ports

2. Make sure that the other end of the external FC cables are connected to the customer's switch.

Note: For connection via FC, at least one FC port of each Storage Controller in the cluster must be connected to the host switch. However, it is highly recommended to connect both FC ports of all Storage Controllers to two separate switches, so that each FC port of each Storage Controller will be connected to a different switch.

Connecting the Cluster to the Host Switch via iSCSI

To connect the cluster to the host switch via iscsi:

1. Connect the external iscsi cables to **iSCSI-1** and **iSCSI-2** ports of all Storage Controllers in the cluster, as shown in Figure 86.

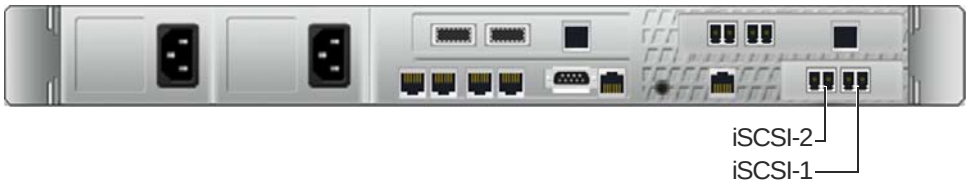


Figure 86 Storage Controller iSCSI Ports

2. Make sure that the other end of the external iSCSI cables are connected to the customer's switch.

Note: For connection via iSCSI, at least one iSCSI port of each Storage Controller in the cluster must be connected to the host switch. However, it is highly recommended to connect both iSCSI ports of all Storage Controllers to two separate switches, so that each iSCSI port of each Storage Controller will be connected to a different switch.

Connecting the Storage Controllers' Management Ports to Network

Note: The Storage Controllers' Management ports should be connected to a 1GbE full-duplex network.

To connect the Storage Controllers' Management ports to network:

1. Connect an Ethernet cable (RJ45) to the **1** ports of each Storage Controller in the cluster, as shown in Figure 87.

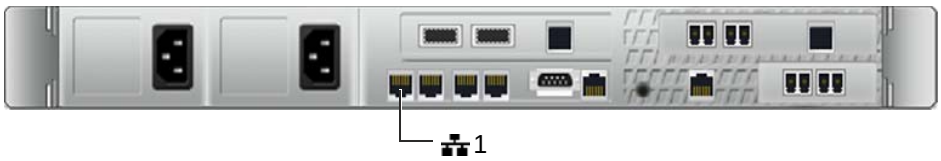
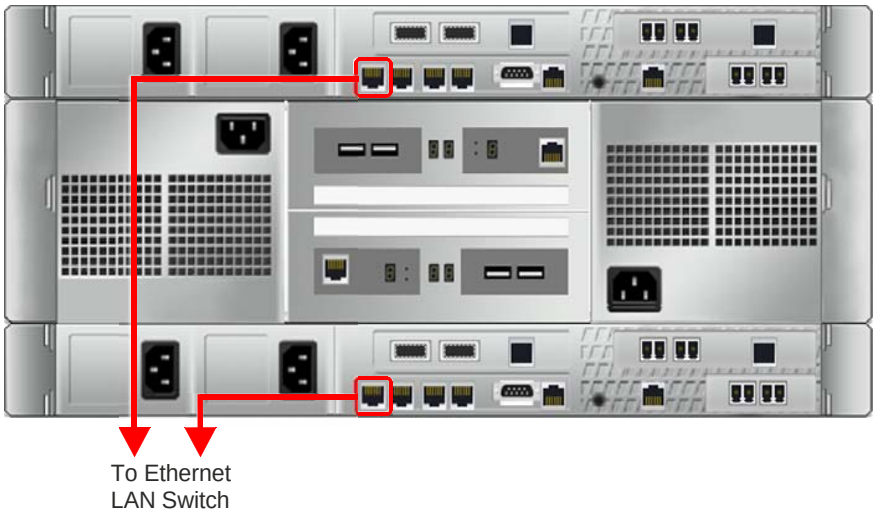


Figure 87 Storage Controller Management Port

2. Make sure that the other end of each of the Ethernet cables is connected to the customer's LAN management switch.

Table 44 Single X-Brick Cluster - External Network

Source	Destination
X1-SC-1	Ethernet LAN Switch
X1-SC-2	
XMS	



Connecting the (Optional) Physical XMS Management Port to Network

Note: The XMS Management port should be connected to a 1GbE full-duplex network.

To connect the (optional) physical XMS Management port to network:

1. Connect an Ethernet cable (RJ45) to the **1** port of the physical XMS, as shown in Figure 87.

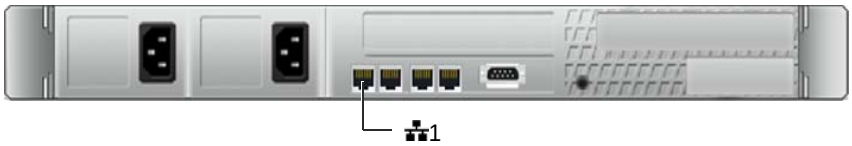


Figure 88 Physical XMS Management Port

2. Make sure that the other end of the Ethernet cable is connected to the customer's LAN management switch.

Connecting the Power

If the XtremIO cluster is installed in a third-party/customer rack, verify that the rack is connected to power via two separate branch feed circuits.

If the XtremIO cluster is installed in a factory-assembled rack, connect the rack to power via two separate branch feed circuits, according to the documentation supplied with the rack.

Note: For 6 X-Brick and 8 X-Brick factory-assembled rack configurations, four AC circuits are required.

Note: For instructions on powering up the cluster, refer to *EMC XtremIO Storage Array User Guide.*

Checking the BBU Connectivity

Once cluster creation is completed (according to *XtremIO Storage Array Software Installation and Upgrade Guide* instructions), upon initializing each cluster's service, the system automatically runs the BBU connectivity checking procedure (if the "check-BBU-connectivity" option was selected during the Create Cluster process). The procedure powers down one PSU at a time via the BBU output ports, and then powers them back on again. This procedure can be initiated manually, if the check-BBU-connectivity option was not selected.

Note: The BBU connectivity check is mandatory. Failing to perform it may comprise HA.

Note: If the XMS was disconnected during a power feed verification procedure, causing the procedure not to complete, it is recommended to run the following command on all BBUs and all outlets: `modify-bbu-power bbu-id=<BBU ID> outlet=<Outlet ID>` on

CHAPTER 7
Installing the Bezels

This Chapter includes the following topics:

Bezel Types

Table 45 describes different bezel types.

Table 45 Bezel Types

Bezel	Description	Used for
	2U Bezel with X logo	• DAE
	1U Bezel with logo	• Storage Controller • Battery Backup Unit
	1U Bezel without logo	• Physical XMS
	1U Filler without logo and without backer	• InfiniBand Switch
	1U Filler without logo and with backer	• Place holder (between two InfiniBand Switches)
	4U Bezel with X logo (for 44U EMC racks)	• DAE and its two associated Storage Controllers
	1U Bezel without logo (for 44U EMC racks)	• Battery Backup Unit • Physical XMS • InfiniBand Switch • Place holder (between two InfiniBand Switches)

Installing the Bezels

Note: Do not install any bezels before completing all hardware and cable connections.

There is a separate (labeled) kit for each X-Brick, containing the appropriate bezels (see Table 1 on page 14). To avoid confusion (due to having many open kits), it is recommended to connect the bezels for one X-Brick at a time.

After completing all hardware component installations and cable connections, install the correct bezel on each component, as shown in Table 45 and Figure 89 and Figure 90.

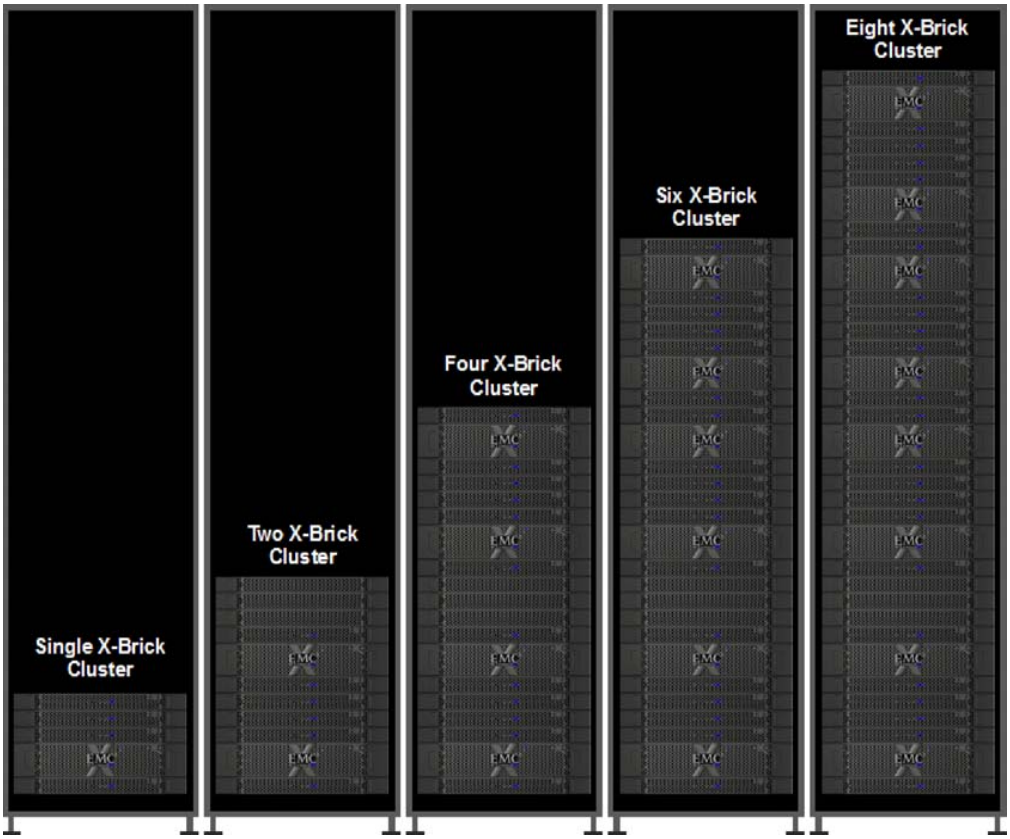


Figure 89 XtremIO Clusters with Bezels Installed

Note: Bezels of a 5TB Starter Kit are identical to those of a single X-Bricks cluster.

Figure 90 XtremIO Eight X-Brick Cluster with Bezels Installed in a 44U EMC Rack

Bezels may include a key lock. All bezels include two tabs on either side that you press in to release the bezel and its latches.

Note: An arrow label, attached to the 1U Bezel without a logo for 44U EMC racks (see Table 45 on page 126) indicates the correct orientation for installing the bezel. Make sure to install this bezel with the arrow pointing up. After installing the bezel, remove the arrow label.

To install a bezel:

1. Align the bezel with its corresponding component, as shown in Figure 91 and Figure 92.

   Note:

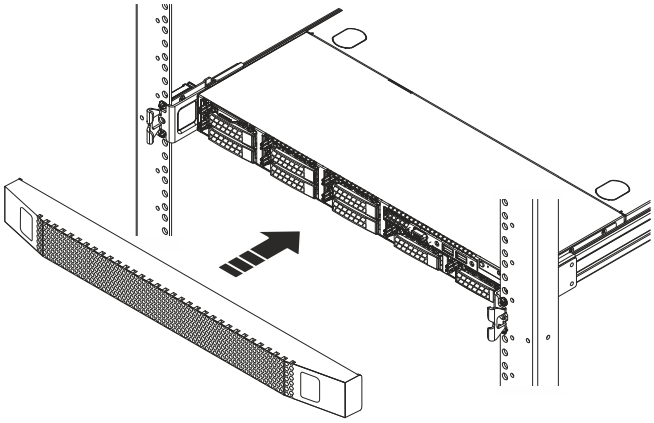


Figure 91 Installing the 1U Bezel

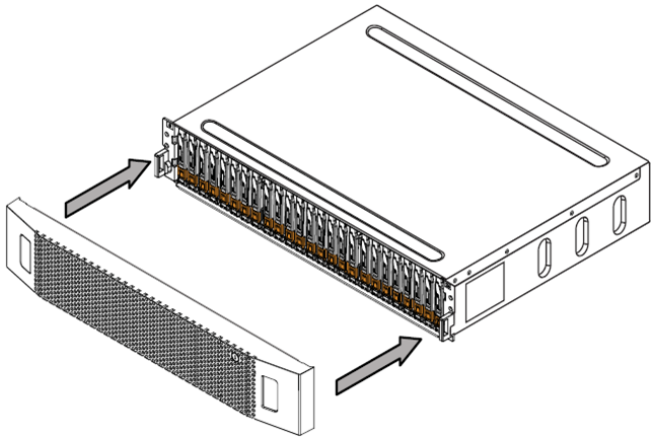


Figure 92 Installing the 2U Bezel

2. Pushing on the ends (not the middle) of the bezel, press the bezel onto the latch brackets until is snaps into place.
3. If the bezel has a key lock, lock the bezel with the provided key and store the key in a secure place.

CHAPTER 8
Upgrading (Expanding) the Hardware

This Chapter includes the following topics:

Six X-Brick Cluster Requirements for 40U EMC Racks

Note: This section applies only to factory-racked configurations.

XtremIO Storage Array configurations of four X-Brick clusters or less require only two of the four available power distribution panels (PDPs) to be connected to an electricity source, in order to adequately supply power to all four power distribution units (PDUs) of a standard cluster (supporting loads of up to 4800 VA). Therefore, factory-assembled racks of four or less X-Bricks are shipped to customers in a "two PDP" configuration. A six X-Brick cluster exceeds this power limitation. Therefore, a standard rack that is intended for a six X-Brick cluster configuration needs to be rewired to a "four PDP configuration" in order to support up to 9600 VA. EMC racks that are intended for six X-Brick cluster configurations should be rewired prior to the installation of a fifth and sixth X-Brick.

Note: Failing to fulfill this requirement may cause circuit breakers to trip, rendering data unavailable.

There is no need to shut down the cluster for upgrading from a two PDP configuration to a four PDP configuration, as long as the rewiring procedure is performed on one side of the cabinet at a time.

Note: This section applies only to 40U EMC racks.

To rewire a two PDP-configured PDU to a four PDP configuration:

1. Verify that both lines are currently feeding power to the cabinet.
2. Verify that the fourth X-Brick's two Storage Controllers' PSUs green lights are lit.
3. Switch off both of the upper-PDP master switches, as shown in Figure 93.

   Note: This action has no effect on the cluster, as it is not connected.

Figure 93 PDP Master Switch Off

4. Connect a third and fourth redundant power source to the upper PDPs (on both sides of the cabinet), as shown in Figure 94.

Figure 94 Upper PDP with Plug Connector (to be Connected to the Power Source)

5. Disconnect the upper-right PDU power cable from the lower-right PDP port, as shown in Figure 95.

Figure 95 Disconnecting the Upper PDU Power Cable from the Lower PDP Port

6. Connect the upper-right PDU power cable to the upper-right PDP, as shown in Figure 96.

Figure 96 Connecting the Upper-right PDU Power Cable

7. Switch the upper-right PDP's master switch to the 'On' position.
8. Verify that both lines are currently feeding power to the cabinet.
9. Verify that the fourth X-Brick's two Storage Controllers' PSUs green lights are lit.
10. Perform Steps 1 through 8 for the left side of the cabinet.
11. Verify that the green lights are lit on the PSUs of all of the cluster's components.
12. Use the Velcro straps to arrange and secure the cables neatly.

Note: The PDUs are now ready for X-Bricks 5 and 6 power connection as described in Table 23 and Table 26 in Chapter 5.

Figure 97 and Figure 98 on page 135 show the difference between the two PDP and four PDP configurations.

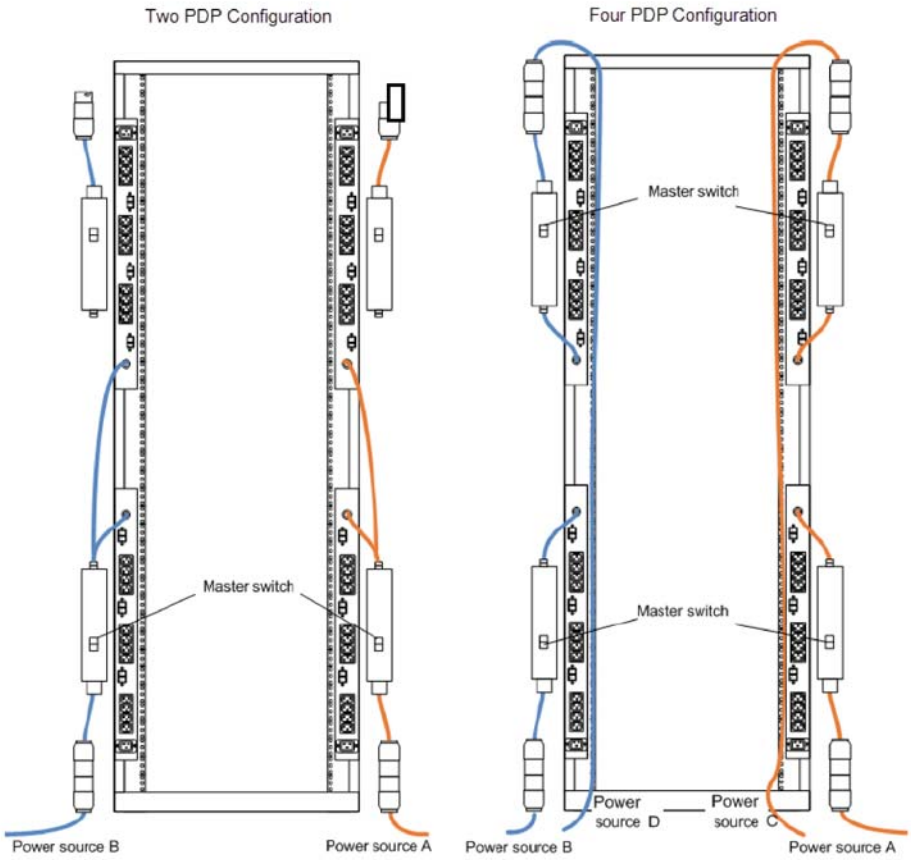


Figure 97 Two PDP and Four PDP PDU Configurations in an EMC 40U Rack

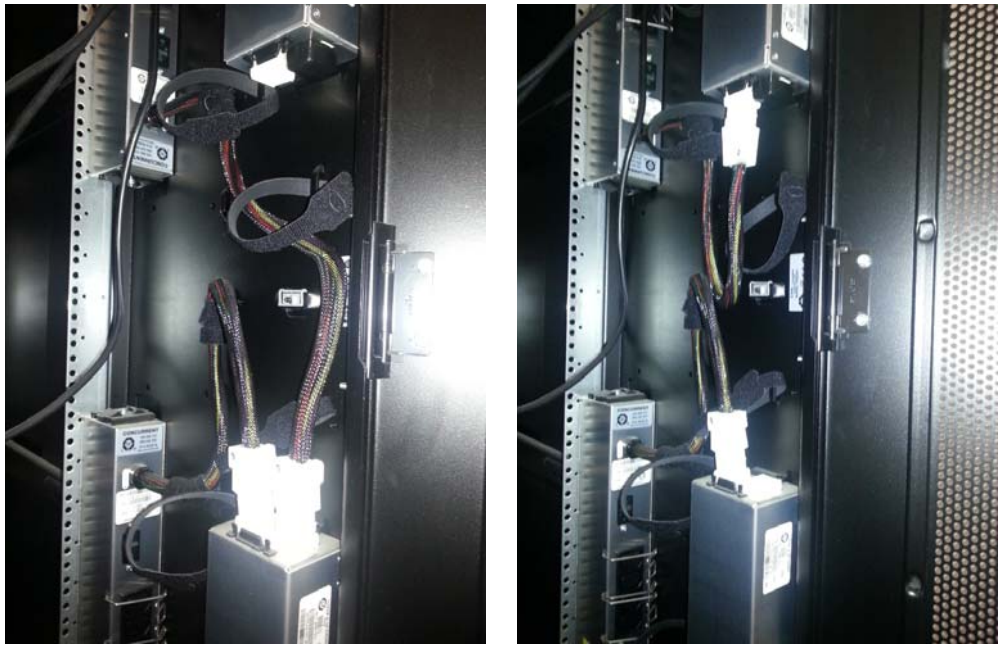


Figure 98 Two PDP and Four PDP PDU Rewiring in an EMC Rack

Eight X-Brick Cluster Requirements for 40U EMC Racks

Eight X-Brick cluster configurations are housed using two 40U racks (the first one housing six X-Bricks and the second one housing two X-Bricks). The factory-assembled racks of four or less X-Bricks are shipped to customers in a “two PDP” configuration. For expanding a factory-assembled cluster of four or less X-Bricks to eight X-Bricks, the rack (originally designed to house four X-Bricks, which will house six X-Bricks) needs to be rewired to a “four PDP configuration”. This enables the rack to support loads of up to 9600 VA, as described in “Six X-Brick Cluster Requirements for 40U EMC Racks” on page 132.

Configuring PDUs in 44U EMC Racks

Factory-assembled racks are shipped in a “four PDU” configuration. The racks require two or four independent 200-240 V power sources, depending on the rack components and configuration:

- Cluster configurations of four or less X-Bricks only need power connected to the unpopulated P1 connectors on the four power distribution units (PDUs) within the rack, as shown in Figure 99 on page 137.
- Cluster configurations of six or eight X-Bricks require all four PDUs to be connected to an electricity source, as shown in Figure 100 on page 138.

Note: The PDU configurations do not include a power On/Off switch. Make sure the (four) circuit breaker switches on each PDU (as shown in Figure 101 on page 139) are UP, in the OFF (0) position until you are ready to supply AC power. Make sure that the power is OFF before disconnecting power from a PDU.

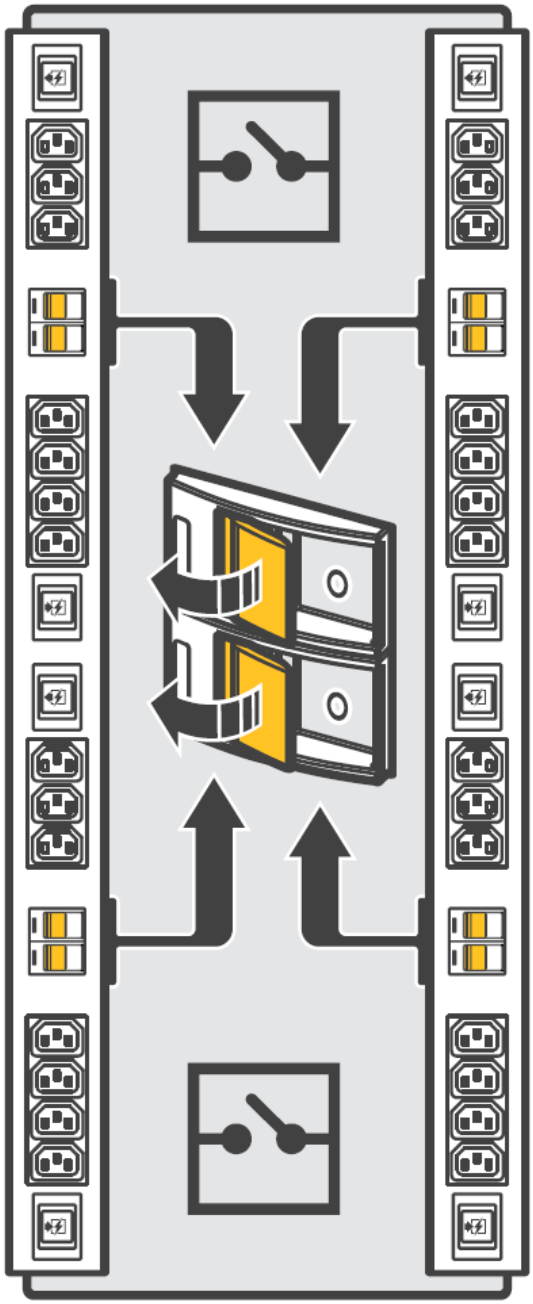


Figure 99 Four PDU Circuit Breaker Switches

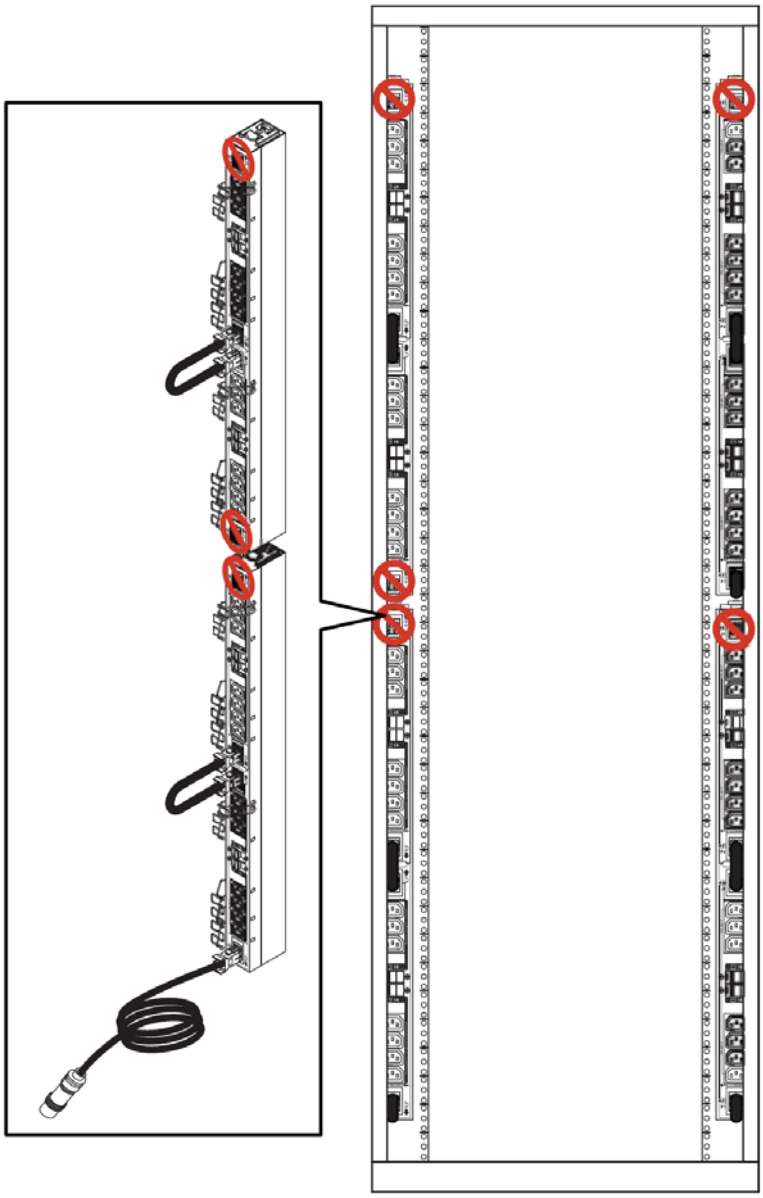


Figure 100 44U EMC Rack, Supporting Two AC Source Connections (One per Side)

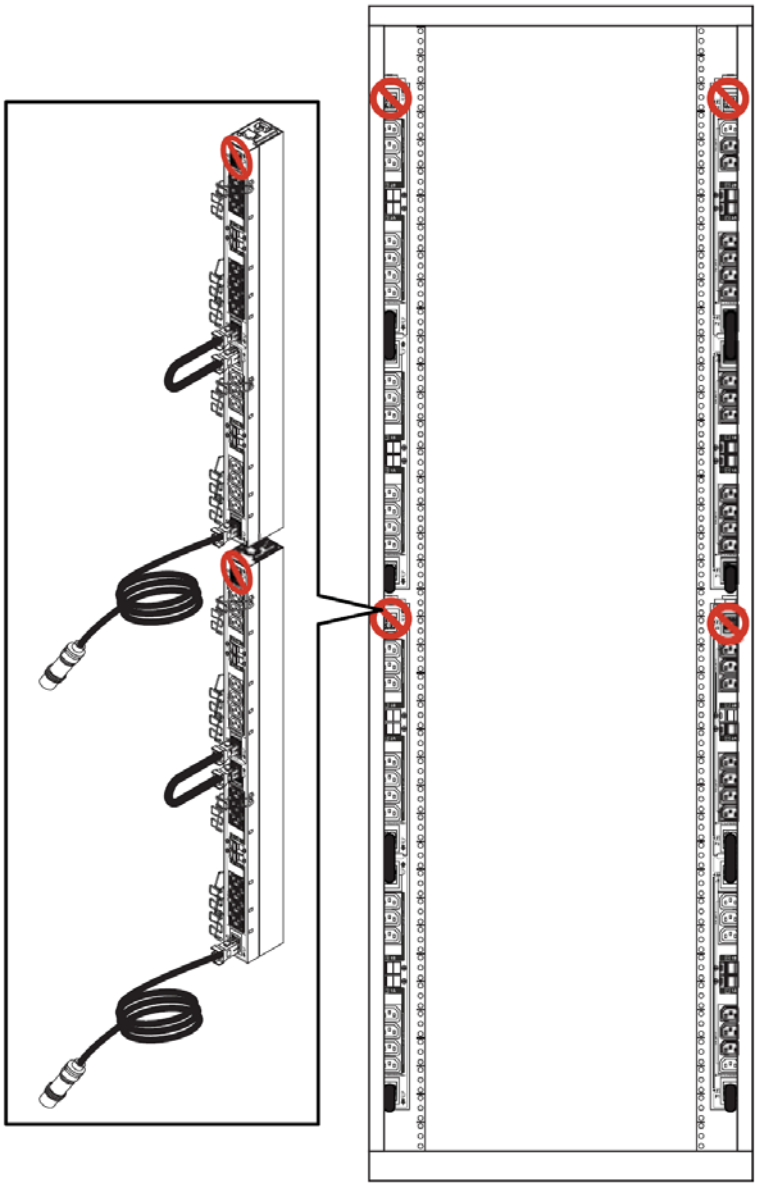


Figure 101 44U EMC Rack, Supporting Four AC Source Connections (Two per Side)

Cluster Expansion

You can expand an XtremIO cluster by adding X-Brick(s) on top of the existing X-Brick(s).

For upgrading an existing cluster, X-Bricks are supplied in mini-racks. Therefore, the procedures for adding X-Bricks to a cluster are similar to those for installing a cluster from a mini-rack.

Adding X-Brick(s) to a Single X-Brick Cluster

NOTICE

Expanding a single X-Brick to a multiple X-Brick cluster is a disruptive procedure. It requires software installation and re-initilization. Existing data and configuration on the cluster **will be erased**.
Existing data should be backed-up and/or migrated elsewhere **before** starting the expansion procedure.

Expanding a single X-Brick to a multiple X-Brick cluster requires converting the single X-Brick to X-Brick number one, to which additional X-Bricks can be added.

The Single X-Brick Upgrade Kit, which should be used for this purpose, includes:

- 4 x C13-C14 Power Cables (the quantity may be 2 in some earlier packages)
- 4 x InfiniBand Cables
- 1 x DB9-RJ45 Cable
- 1 x RJ45-RJ50 (in newer packages)
  or
  1 x DB9-RJ45 Cable (in earlier packages)
- 2 x BBU Cable Connector Sleeves

Additional X-Bricks are supplied in X-Brick configuration kits, as described in Table 1 on page 14.

To add X-Brick(s) to a single X-Brick cluster:

1. Verify that the customer has backed up all data and that the cluster is ready to be shut down.

   NOTICE

   As a result of the upgrade, all existing data and configurations on the cluster will be erased.

2. Perform a planned shut down of the cluster, according to the instructions in the *EMC XtremIO Storage Array UserUser Guide*.
3. Unpack the mini-rack according to instructions in Chapter 2.
4. Install the hardware components according to instructions in Chapter 3 and Chapter 4.

5. From the existing X-Brick, disconnect and **discard** the six cables that are shown in Table 46 and Table 47.

Table 46 Cables that Should be Discarded when Upgrading a Single X-Brick with 5P 1550i R BBUs

Source	Destination
X1-SC1-PSU-L	X1-BBU2 (X2-BBU)-Prog1
X1-SC2-PSU-L	X1-BBU2 (X2-BBU)-Prog2
X1-SC1-IB2	X1-SC2-IB2
X1-SC1-IB1	X1-SC2-IB1
X1-SC1-IOIOI	X1-BBU1 (X1-BBU)-COM-R
X1-SC2-IOIOI	X1-BBU2 (X2-BBU)-COM-R

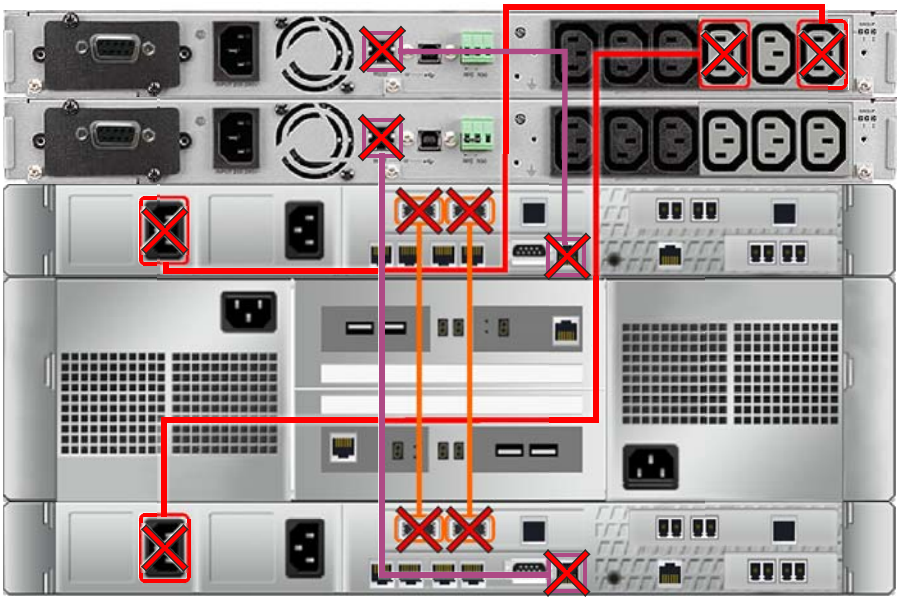
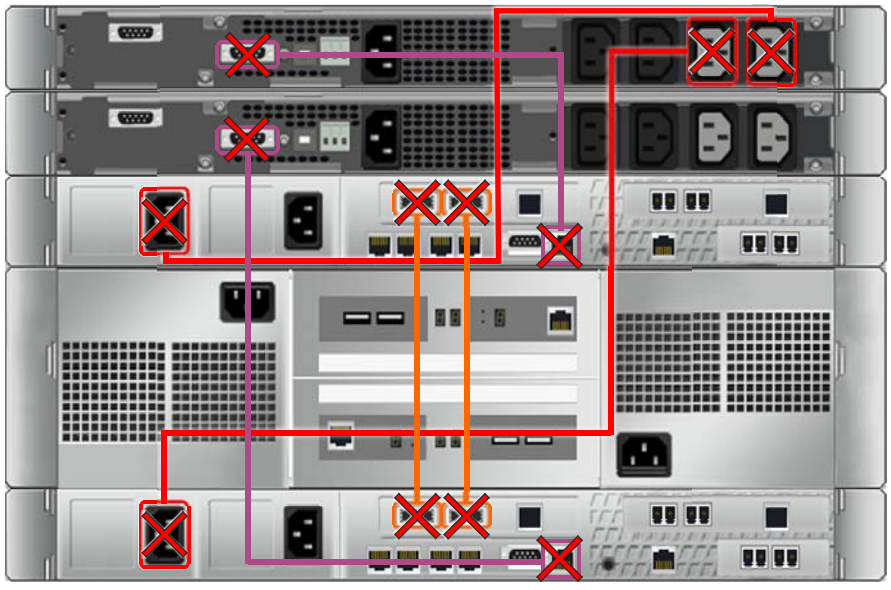


Table 47 Cables that Should be Discarded when Upgrading a Single X-Brick with 1550 Evolution BBUs

Source	Destination
X1-SC1-PSU-L	X1-BBU2 (X2-BBU)-Prog1
X1-SC2-PSU-L	X1-BBU2 (X2-BBU)-Prog2
X1-SC1-IB2	X1-SC2-IB2
X1-SC1-IB1	X1-SC2-IB1
X1-SC1-IOIOI	X1-BBU1 (X1-BBU)-COM-R
X1-SC2-IOIOI	X1-BBU2 (X2-BBU)-COM-R



6. From the existing X-Brick, disconnect the following cables and **reuse** them in the following step:
   - Both Battery Backup Unit communication cables
   - All power cables

   Note: Some of the cables that you disconnect in this step will be reconnected to the same ports in the following step. However, for good order and minimizing confusion, it is recommended to remove all of the above cables and connect them like new cables in the next step.
   There is no need to disconnect the Storage Controllers' IPMI cables, DAE SAS cables and the external (FC/iSCSI and MGMT) cables from the existing X-Brick.

7. Connect all X-Brick cables according to instructions in Chapter 5.

   Note: Use the cables that you disconnected in the above step, as well as those in the Single X-Brick Upgrade Kit, to connect the existing X-Brick (which now becomes the first X-Brick in the cluster).
   Use the contents of the supplied X-Brick configuration kit(s) (see Table 1 on page 14) to connect the additional X-Brick(s) in the cluster.

8. Connect the cluster to site facilities according to instructions in Chapter 6.
9. Install the bezels according to instructions in Chapter 7.

Note: For instructions on installing the software and initializing the cluster, refer to the *EMC XtremIO Storage Array Software Installation and Upgrade Guide*.

Adding X-Bricks to a Multiple X-Brick Cluster

NOTICE

Adding X-Bricks to a multiple X-Brick cluster must only be performed with direction from the XtremIO Global Tech Support.

Note: Expanding a multiple X-Brick cluster is a non-disruptive procedure.

For instructions and guidance on expanding a multiple X-Brick cluster, contact the XtremIO Global Tech Support.

Expanding a 5TB Starter Kit

Note: This procedure is not disruptive and can be carried out on a live cluster.

A 5TB Starter Kit contains 13 SSDs (inserted in DAE slots 0-12), as opposed to 25 SSDs in a regular X-Brick. Expanding a 5TB Starter Kit upgrades it to a fully populated X-Brick.

The expanding procedure is carried out by physically adding 12 SSDs to the DAE (in addition to the existing 13 SSDs of the 5TB Starter Kit).

Note: A partial expansion is not allowed. To expand a 5TB Starter Kit, the DAE must contain a total of 25 (13+12) SSDs.

After inserting the SSDs, the cluster should be expanded by adding/assigning the new SSDs.

To expand a 5TB Starter Kit:

1. Remove the DAE bezel (see "Removing the Bezels" on page 150).
2. Remove the 12 plastic air seals from slots 13-24 of the DAE, as shown in Figure 102.

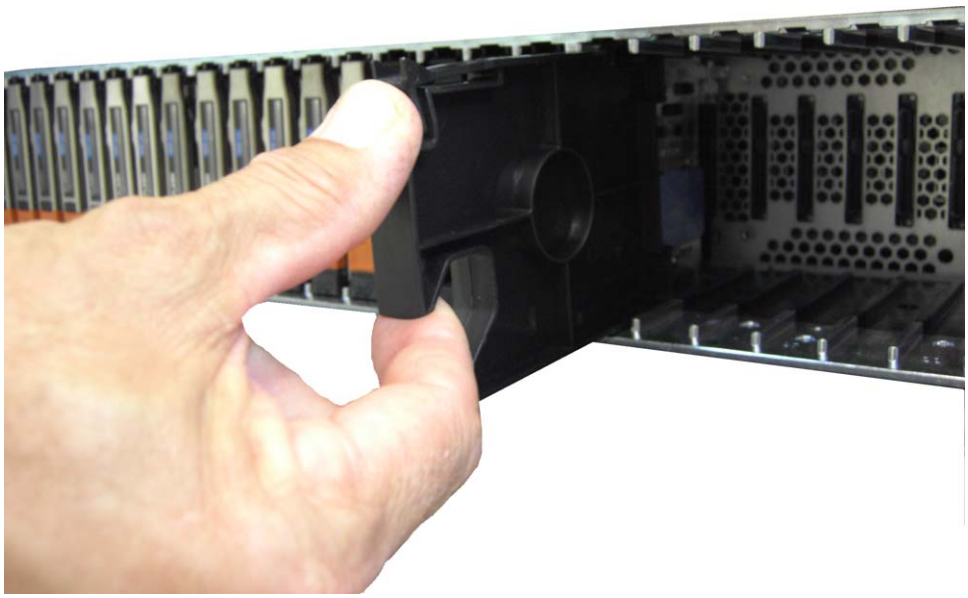


Figure 102 Removing the Plastic Air Seals

3. Insert the SSDs into slots 13-24 of the DAE as follows:
   a. Align the disk or module with the guides in the slot.
   b. With the disk carrier latch fully open, gently push the disk into the slot. The latch begins to rotate downward when its tabs meet the enclosure.
   c. Push the handle down to engage the latch, as shown in Figure 103.

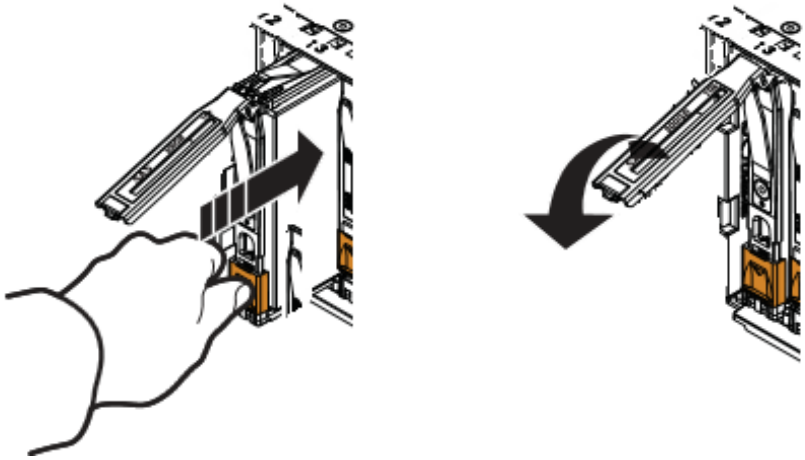


Figure 103 Inserting SSDs

4. Install the DAE bezel (see "Installing the Bezels" on page 127).
5. Expand the cluster, as per the instructions in *EMC XtremIO Storage Array Software Installation and Upgrade Guide*.

APPENDIX A
Rack Transfer Procedure

This section provides instructions for transferring an XtremIO cluster from a factory-assembled EMC 40U rack to the customer's rack.

This section includes the following topics:

Introduction

The instructions in this section apply only when transferring a cluster from a factory-assembled 40U EMC rack to the customer's own third-party rack.

These instructions are not relevant for transferring a cluster from a factory-assembled 44U EMC rack to the customer's own third-party rack.

Rack Transfer Bezels Kits

Bezels in a factory-installed 40U EMC rack are different from those that should be installed on the customer’s rack. Therefore, all bezels must be replaced as part of the rack transfer. Different bezels kits are provided for this purpose.

Table 48 describes different bezels kits and their contents.

Table 48 Rack Transfer Bezels Kits

Bezels Kit	Contents
X-Brick 1 bezels kit	• 4 x 1U bezels for Storage Controllers and Battery Backup Units • 1 x 2U bezel for DAE • 4 x Bezel catches (for two BBUs) • 4 x Spare screws • 6 x Velcro strips
X-Brick 2 bezels kit	• 2 x 1U bezels for Storage Controllers • 1 x 2U bezel for DAE • 2 x 1U filler without backer (for InfiniBand Switch) • 1 x 1U filler with backer (for between InfiniBand Switches) • 4 x Bezel catches (for two InfiniBand Switches) • 2 x Catches for 1U filler (for between InfiniBand Switches) • 4 x Spare screws • 6 x Velcro strips
X-Brick 3-8 bezels kit	• 3 x 1U bezels for Storage Controllers and Battery Backup Units • 1 x 2U bezel for DAE • 2 x Bezel catches (for one BBU) • 4 x Spare screws • 6 x Velcro strips

Rack Transfer Kits

Before carrying out the rack transfer procedure, verify that you have received all of the required components, as shown in Table 49, Table 50, Table 51, Table 52 and Table 53 (for a single X-Brick, two X-Brick, four X-Brick, six X-Brick, and eight X-Brick cluster, respectively).

Table 49 Single X-Brick Cluster Package Contents

	Component
❑	1 x X-Brick 1 bezels kit (see Table 48 on page 146)
❑	1 x DAE rails kits with Mounting Screws
❑	2 x Battery Backup Unit rails kits with Mounting Screws (one rail kit for each Battery Backup Unit)
❑	2 x Cable management brackets (may not be included in some earlier packages)

Table 50 Two X-Brick Cluster Package Contents

	Component
❑	1 x X-Brick 1 bezels kit (see Table 48 on page 146)
❑	1 x X-Brick 2 bezels kit (see Table 48 on page 146)
❑	2 x DAE rails kits with Mounting Screws
❑	2 x InfiniBand Switch rails kits with Mounting Screws (one rail kit for each InfiniBand Switch)
❑	2 x Battery Backup Unit rails kits with Mounting Screws (one rail kit for each Battery Backup Unit)
❑	4 x Cable management brackets (may not be included in some earlier packages)

Table 51 Four X-Brick Cluster Package Contents

	Component
❑	1 x X-Brick 1 bezels kit (see Table 48 on page 146)
❑	1 x X-Brick 2 bezels kit (see Table 48 on page 146)
❑	2 x X-Brick 3-8 bezels kits (see Table 48 on page 146)
❑	4 x DAE rails kits with Mounting Screws
❑	2 x InfiniBand Switch rails kit with Mounting Screws (one rail kit for each InfiniBand Switch)
❑	4 x Battery Backup Unit rails kits with Mounting Screws (one rail kit for each Battery Backup Unit)
❑	8 x Cable management brackets (may not be included in some earlier packages)

Table 52 Six X-Brick Cluster Package Contents

	Component
❑	1 x X-Brick 1 bezels kit (see Table 48 on page 146)
❑	1 x X-Brick 2 bezels kit (see Table 48 on page 146)
❑	4 x X-Brick 3-8 bezels kits (see Table 48 on page 146)
❑	6 x DAE rails kits with Mounting Screws
❑	2 x InfiniBand Switch rails kit with Mounting Screws (one rail kit for each InfiniBand Switch)
❑	6 x Battery Backup Unit rails kits with Mounting Screws (one rail kit for each Battery Backup Unit)
❑	12 x Cable management brackets (may not be included in some earlier packages)

Table 53 Eight X-Brick Cluster Package Contents

	Component
❑	1 x X-Brick 1 bezels kit (see Table 48 on page 146)
❑	1 x X-Brick 2 bezels kit (see Table 48 on page 146)
❑	6 x X-Brick 3-8 bezels kits (see Table 48 on page 146)
❑	8 x DAE rails kits with Mounting Screws
❑	2 x InfiniBand Switch rails kit with Mounting Screws
❑	8 x Battery Backup Unit rails kits with Mounting Screws (one rail kit for each Battery Backup Unit)
❑	16 x Cable management brackets (may not be included in some earlier packages)

Missing, Wrong or Damaged Components

For detailed information on how to handle missing, wrong or damaged items, access the *Missing, Wrong, or Damaged (MWD) Customer Complaints Capture System* via the following URL:

https://emcmwd.emc.com/default.asp

Procedure Overview

Before starting the rack transfer:

1. Verify that the cluster is ready to be shut down.
2. Perform a planned shut down of the cluster, according to the instructions in the *EMC XtremIO Storage Array User Guide*.

To transfer an XtremIO cluster from a factory-assembled 40U EMC rack to a customer's rack, perform the following procedures:

1. "Removing the Bezels" on page 150
2. "Removing the Shipping Brackets" on page 151
3. "Removing the Cable Management Brackets" on page 152
4. "Removing the Cluster Cables" on page 154
5. "Transferring the Hardware Components" on page 154
6. "Installing the Cable Management Brackets" on page 165
7. "Installing the 1U Place Holder Bezel Catches" on page 176
8. "Connecting the Cluster Cables" on page 177
9. "Connecting the Cluster to Site Facilities" on page 177
10. "Fastening the Storage Controller Cables" on page 177
11. "Installing the Bezels" on page 177

Required Tools

A #2 Phillips screwdriver is required for removing and tightening the screws of all XtremIO hardware components.

A #1 JIS screwdriver may also be required for some server rail screws.

Removing the Bezels

From the front side of the EMC rack, remove the bezels that cover all cluster components.

To remove a bezel:

1. If the bezel is locked, unlock the bezel with the provided key. If the bezel is not locked, proceed to the following step.
2. Press both tabs on either side of the bezel (to release the bezel from its latches) and pull the bezel off the latches, as shown in Figure 104.

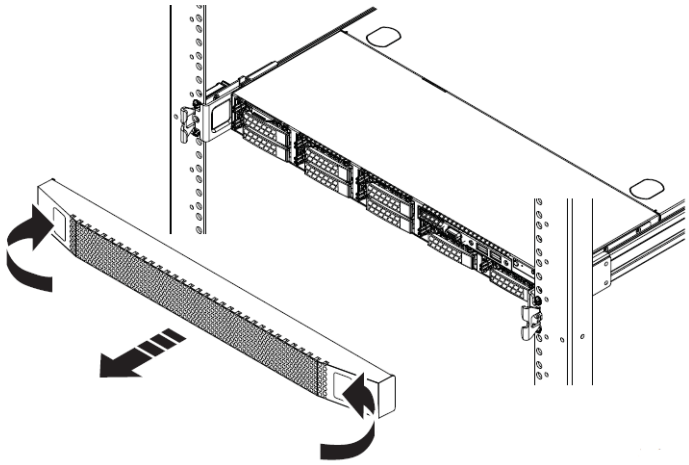


Figure 104 Removing a Bezel

3. Place all removed bezels away (separately) from those in bezels kits.

Note: Bezels removed from the EMC rack will not be re-installed on the customer's rack. Take care not to confuse them with the correct bezels that are provided for this purpose in the bezels kits.

Removing the Shipping Brackets

Remove all shipping brackets that are installed in the factory-installed EMC rack.

To remove a shipping bracket:

1. Release the two screws that connect the shipping bracket to the rack, as shown in Figure 105.

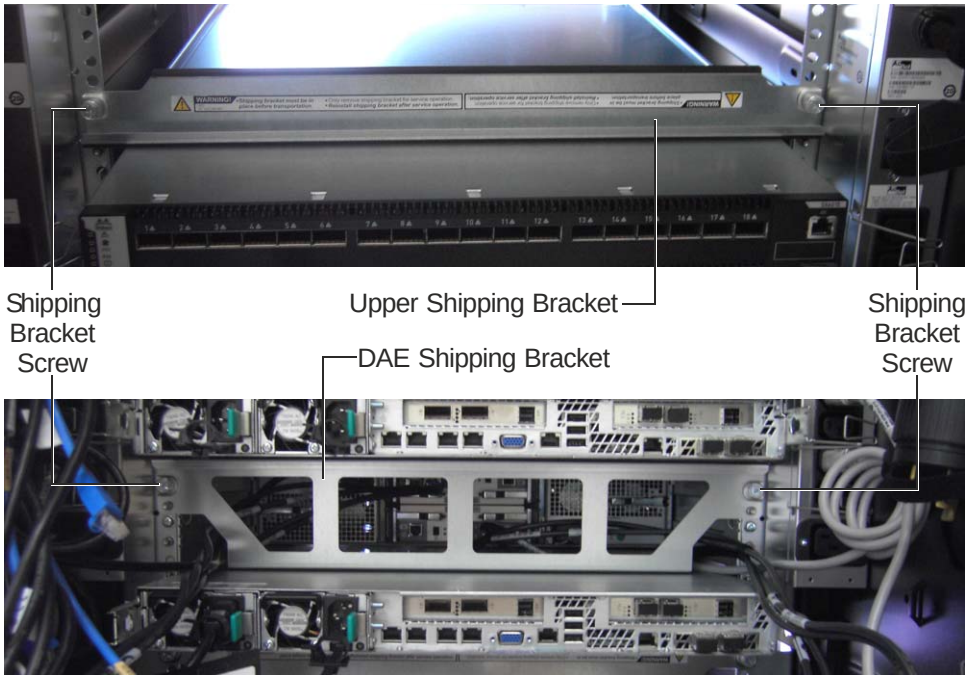


Figure 105 Shipping Brackets

2. Remove the shipping bracket from the rack.

Note: There is no need to install the shipping brackets on the customer's rack.

Removing the Cable Management Brackets

Remove all cable management brackets that are installed in the factory-installed EMC rack (mounted on the rear side of the Storage Controllers).

Note: The cable management bracket is to be introduced with/after version 4.0. Some earlier shipments may not include the bracket. If the cable management bracket is not included in the package, ignore these instructions.

To remove a cable management bracket:

1. Disconnect all cables from the back of the Storage Controller.

   Note: Make sure that all cables are clearly labeled before disconnecting them from the Storage Controller.

2. Release the cables from the cable tray of the cable management bracket, by releasing its cable straps, as shown in Figure 106.

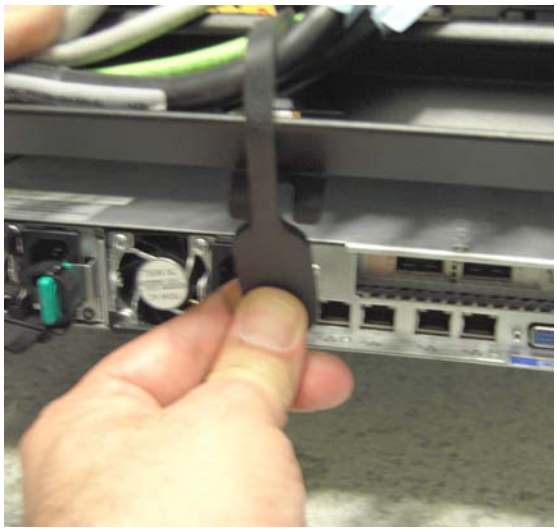


Figure 106 Releasing a Cable Strap

3. Pull the tabs on both sides of the cable management bracket to release the bracket from the Storage Controller's inner rail, as shown in Figure 107.

Figure 107 Pulling a Cable Management Bracket Tab

4. Pull the cable management bracket out and remove it from the Storage Controller, as shown in Figure 108.

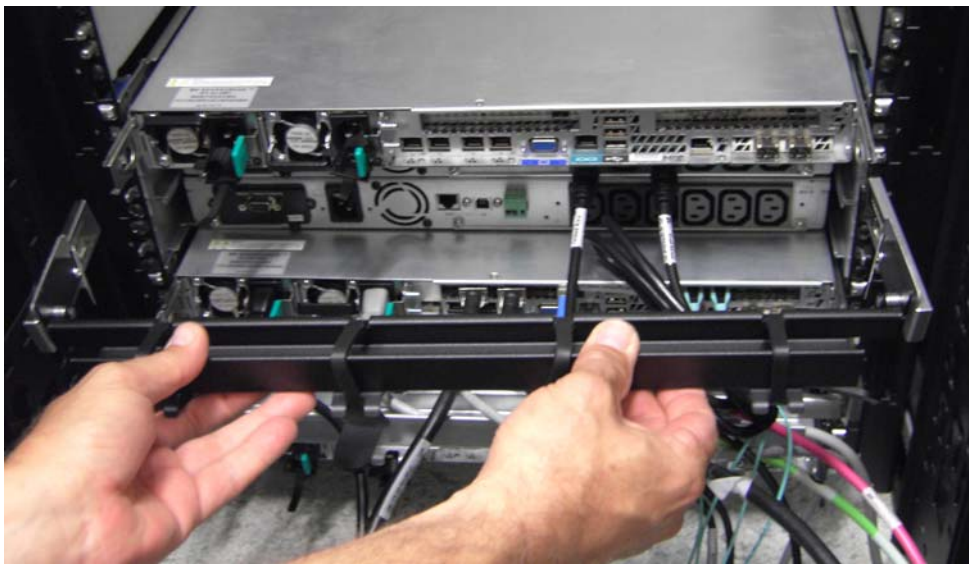


Figure 108 Removing a Cable Management Bracket

Removing the Cluster Cables

Note: Cables removed from the EMC rack will be re-installed in the customer's rack. It is very important to make sure that the cables and their connectors are not damaged or contaminated during the procedure.

Remove the cables according to the following guidelines:

- Before removing each cable, make sure that its source and destination ports are clearly labeled on its both ends. If not, label them.
- Remove each cable carefully and gently.
- In a multiple X-Brick cluster, disconnect the cables from one X-Brick before moving to the next one. Keep the cables for each X-Brick together and do not mix them with those of another X-Brick.
- In a multiple X-Brick cluster, disconnect the InfiniBand cables and keep them together.
- Disconnect all other cables from the cluster and keep them separately, and ensure they remain clean and undamaged.

Transferring the Hardware Components

Note: Rack the hardware in the customer's cabinet as per the instructions in Chapter 3.

To transfer the cluster's hardware components from the EMC rack to a customer's rack, perform the following procedures:

1. "Transferring the Physical XMS (Optional) and Storage Controllers" on page 154
2. "Transferring the DAE" on page 165
3. "Transferring the Battery Backup Unit" on page 169
4. "Transferring the InfiniBand Switch" on page 173

Transferring the Physical XMS (Optional) and Storage Controllers

To transfer an (optional) physical SMS or a Storage Controller from the EMC rack to the customer's rack, perform the following procedures:

1. "Removing the Server from the EMC Rack" on page 155
2. "Removing the Server's Slide Rails from the EMC Rack" on page 156
3. "Adjusting the Rail Assemblies for the Cabinet Channel Holes" on page 159
4. "Installing the Slide Rails in the Customer's Rack" on page 160
5. "Installing the Server in the Customer's Rack" on page 162

Removing the Server from the EMC Rack

To remove the server from the EMC rack:

1. From the front side of the server, remove the two screws that connect it to the rack, as shown in Figure 109.

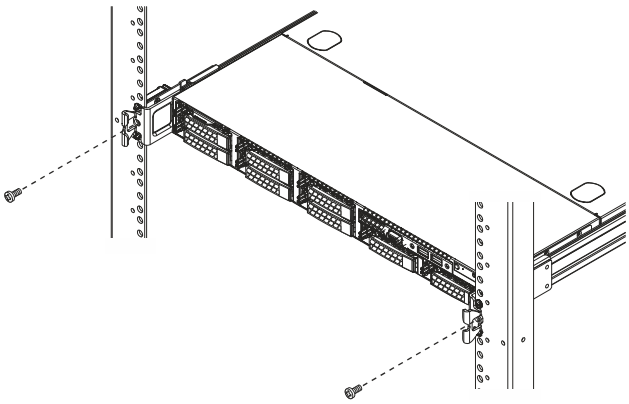


Figure 109 Removing Stabilizer Screws

2. From the rear side of the slide rail, remove the rail's stabilizer screw, as shown in Figure 110.

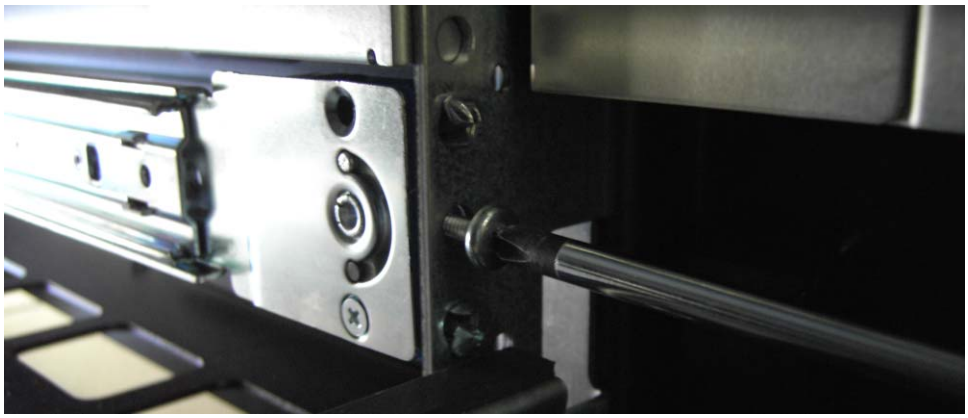


Figure 110 Removing the Stabilizer Screw from the Rear Side of Slide Rail

3. Set the four screws aside for later use in this procedure.
4. Pull the server forward until it locks in place, then, slide the blue disconnect tabs forward to release the inner rails from the slide rails, as shown in Figure 111.

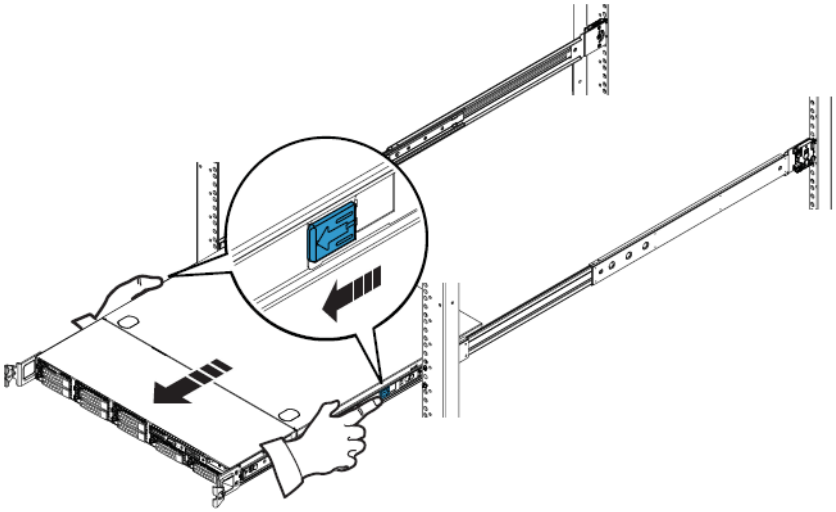


Figure 111 Releasing the Inner Rails

Note: If necessary, apply sufficient pressure on the server rail from the rear side of the rack.

5. Pull the server forward to completely disengage it from the rails.

Removing the Server's Slide Rails from the EMC Rack

Remove both slide rails of the server, as described here.

To remove a slide rail from the EMC rack:

1. From the front side of the slide rail, push the rail's two alignment posts towards each other, as shown in Figure 112.

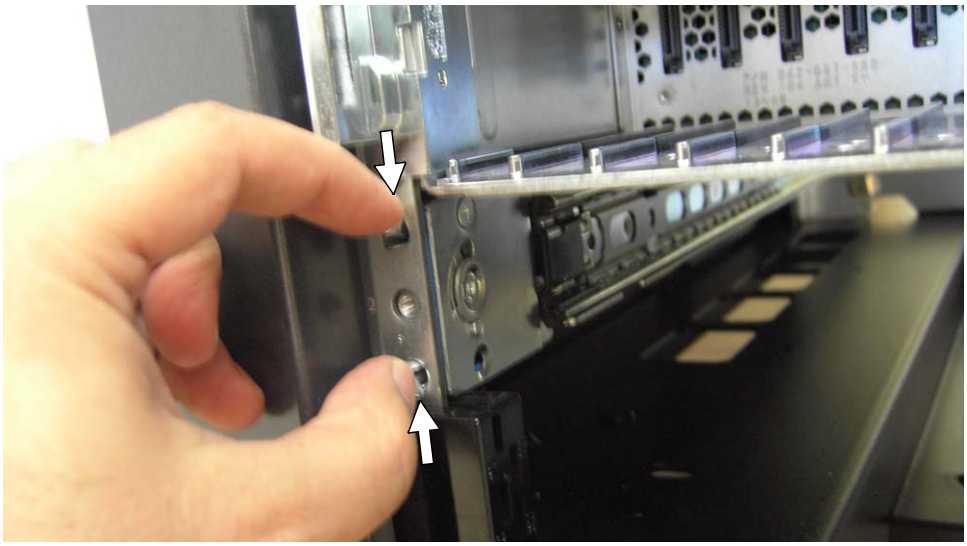


Figure 112 Pushing to Release the Rail Alignment Posts from the Front Side

2. Carefully disengage the rail's front side from the rack, as shown in Figure 113.

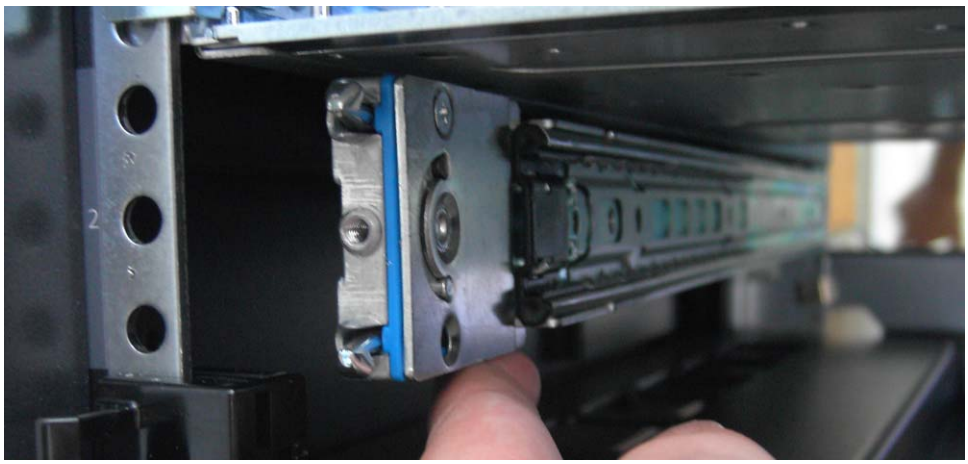


Figure 113 Rail Released from the Front Side

3. From the rear side of the slide rail, push the rail's two rear alignment posts towards each other, as shown in Figure 114.

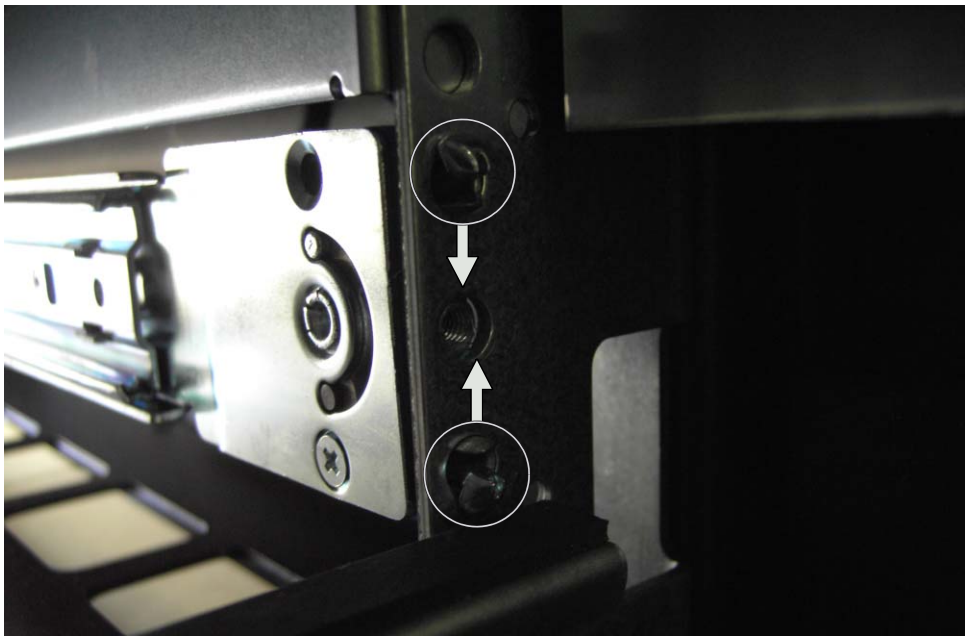


Figure 114 Pushing to Release the Rail Alignment Posts

4. Remove the rail from the rack, as shown in Figure 115.

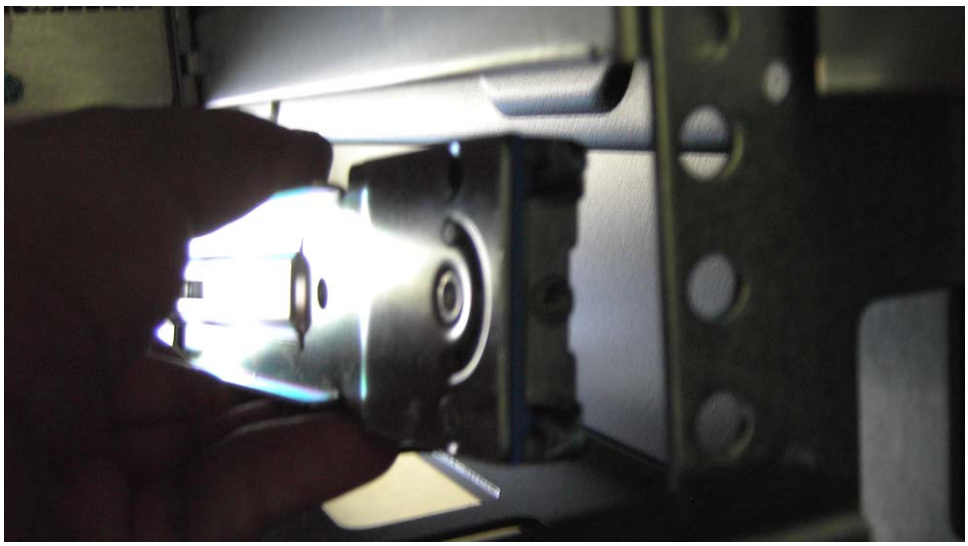


Figure 115 Rail Released from the Rear Side

Adjusting the Rail Assemblies for the Cabinet Channel Holes

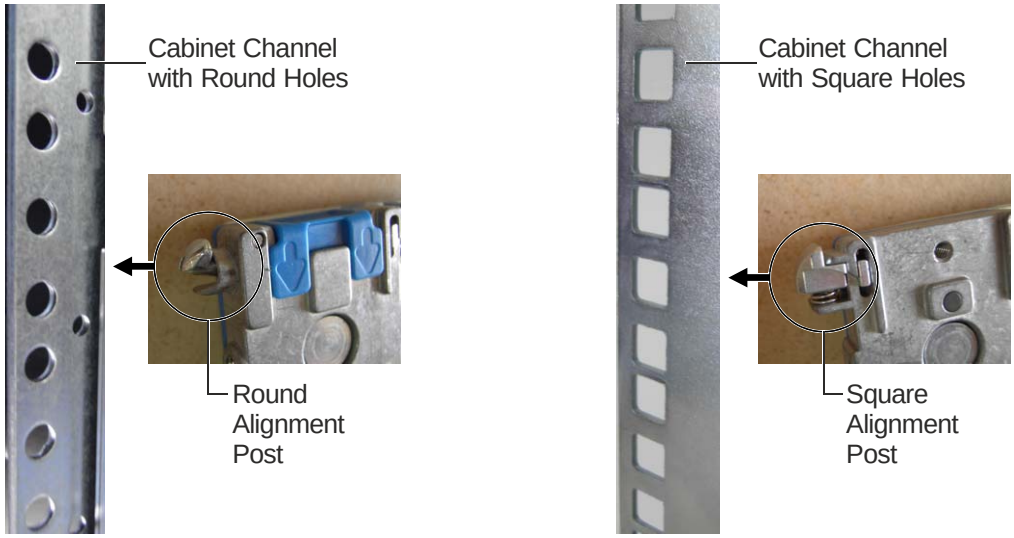


Figure 116 Adjusting the Alignment Posts (at the ends of Server Rails) According to the Shape of Cabinet Channel Holes

The rail assemblies in EMC racks are with round alignment posts at the end of the rails for cabinet channels (NEMA rails) with round holes. If the customer's cabinet has channels with square holes, switch the rail alignment posts to square posts.

Note: On each end of each rail assembly, switch the alignment post assembly (see Figure 117).

To switch rail alignment posts:

1. Remove the screw that secures the alignment post assembly.
2. Push the plastic tab on the alignment post assembly up or down, depending on the rail end, and hold the tab in.
3. Rotate the alignment post assembly clockwise to switch from round posts to square posts, or counter clockwise to switch from square posts to round posts, until the assembly clicks into place.
4. Secure the alignment post assembly in place with the screw that you removed.

   Note: The screw goes in the hole opposite the hole from which you removed it.

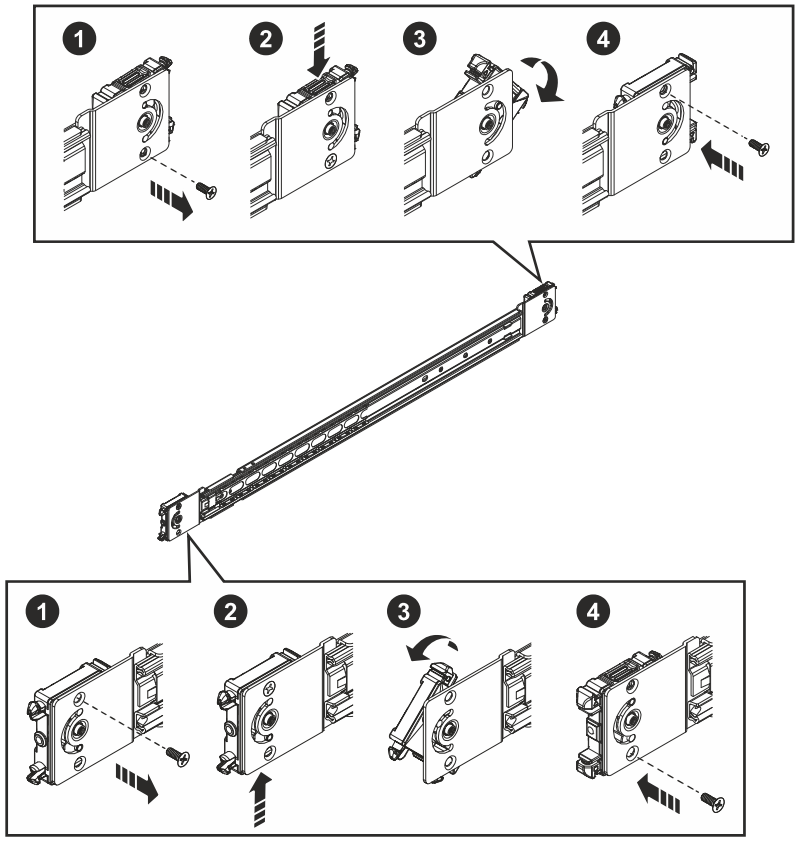


Figure 117 Switching from Round Rail Alignment Posts to Square Alignment Posts

Installing the Slide Rails in the Customer's Rack

The universal rail assemblies for this server support cabinets in which the front and rear mounting channels are 24 inches to 34 inches apart.

Note: Install each slide rail in the cabinet

To install a slide rail in the cabinet:

1. From the front of the cabinet, align the rail alignment posts with the rear channel holes for the selected 1 U (1.75 in) of cabinet space for the server.
2. Insert the alignment posts securely into the holes, as shown in Figure 118.

   An audible click indicates that the connection is secure.

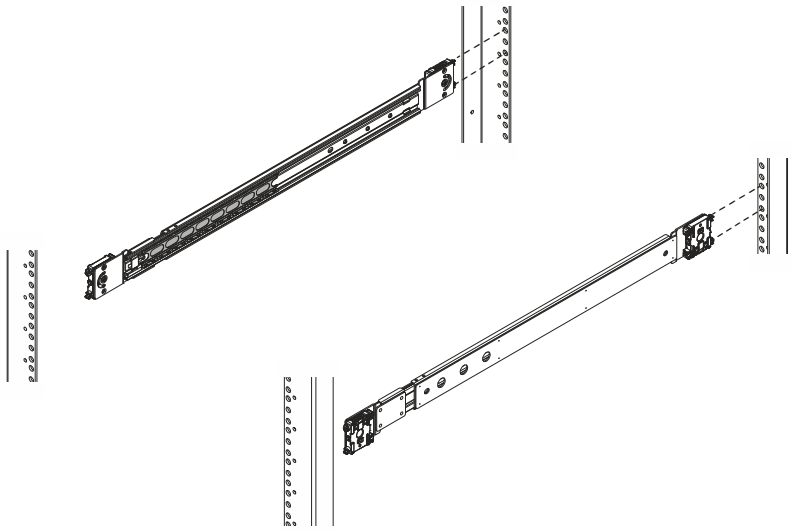


Figure 118 Inserting Rail Alignment Posts into Rear Channel Holes

3. Pull the slide rail forward so that the front alignment posts go securely into the holes on the front channel, as shown in Figure 119.

   An audible click indicates that the connection is secure.

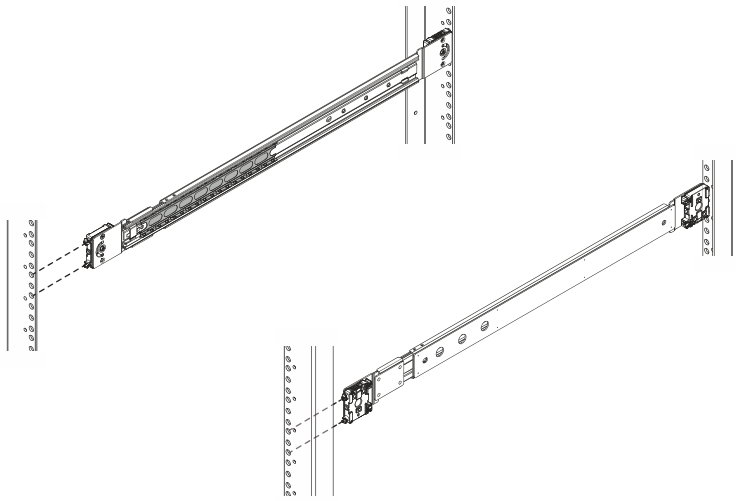


Figure 119 Inserting Rail Alignment Posts into Front Channel Holes

Installing the Server in the Customer's Rack

To install the server in the customer's rack:

1. On each slide rail bring the ball bearing retainer assembly fully to the front, so that it rides onto the security knob, as shown in Figure 120.

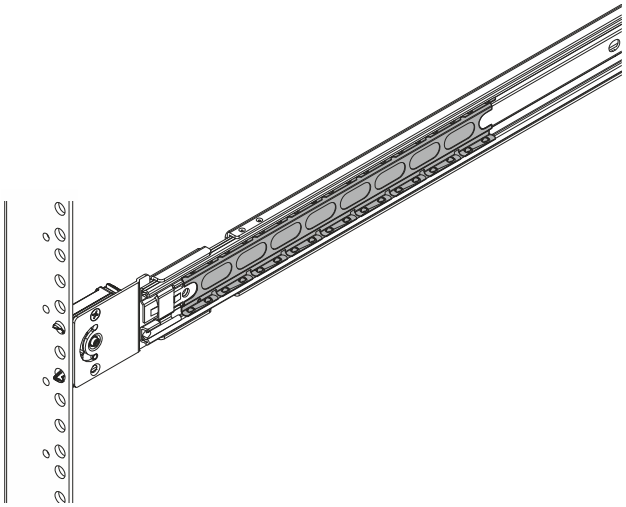


Figure 120 Correct Location for Ball Bearing Retainer Assembly

2. From the front of the cabinet, align the inner rails that are attached to the server with the white plastic guide block on the front inside of each slide rail, as shown in Figure 121.

Note: For clarity, Figure 121 shows the inner rail without the server attached.

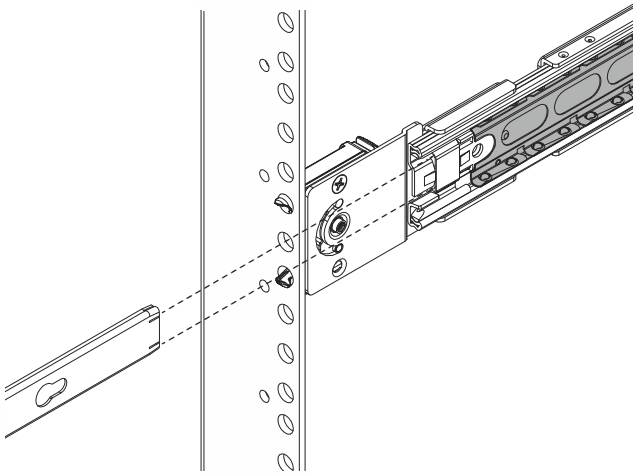


Figure 121 Aligning the Inner Rail with the White Plastic Guide Block

3. Slide the server into the chassis, so that the inner rails extends over the plastic guide blocks and the first part of the ball bearing retainer assemblies, as shown in Figure 122.

Note: For clarity, Figure 122 shows the inner rail without the server attached.

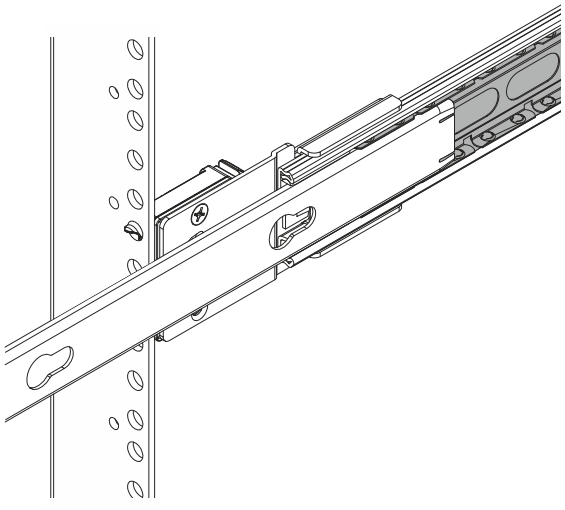


Figure 122 Inner Rail over the First Part of the Ball Bearing Retainer Assembly

4. Once the inner rails are properly engaged with the ball bearing retainer assemblies, push the server into the cabinet until the slide rails are engaged and locked.

   An audible click indicates that the slide rails are engaged and locked.

5. On the outside of each rail assembly, slide the blue disconnect tab forward to unlock the server, and push the server completely into the cabinet, as shown in Figure 123.

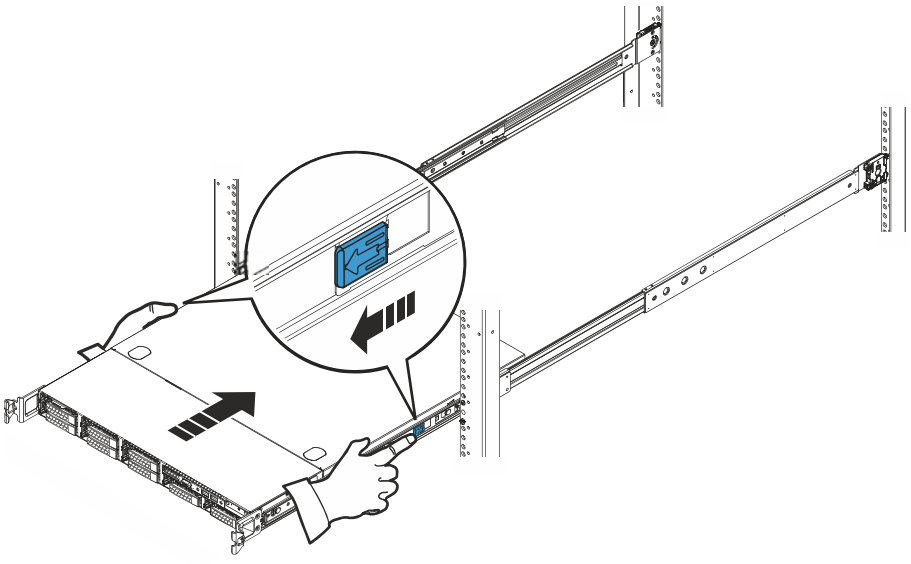


Figure 123 Inserting the Server in the Cabinet

6. To further secure the rail assembly and server in the cabinet, insert and tighten a small stabilizer screw directly behind each bezel latch, as shown in Figure 124.

Note: This step is mandatory.

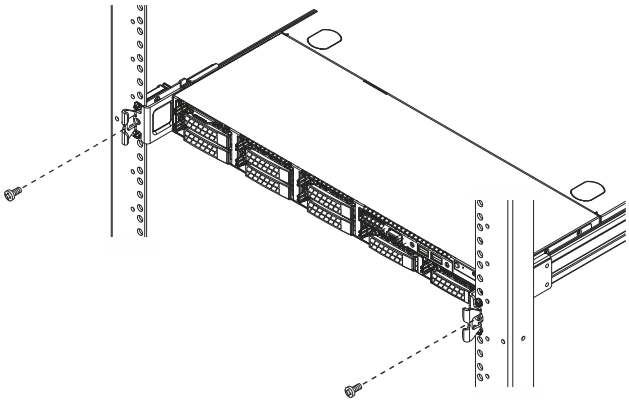


Figure 124 Installing the Stabilizer Screws

7. Secure the rail to the rear channel with a small stabilizer screw, as shown in Figure 125.

Note: This step is optional.

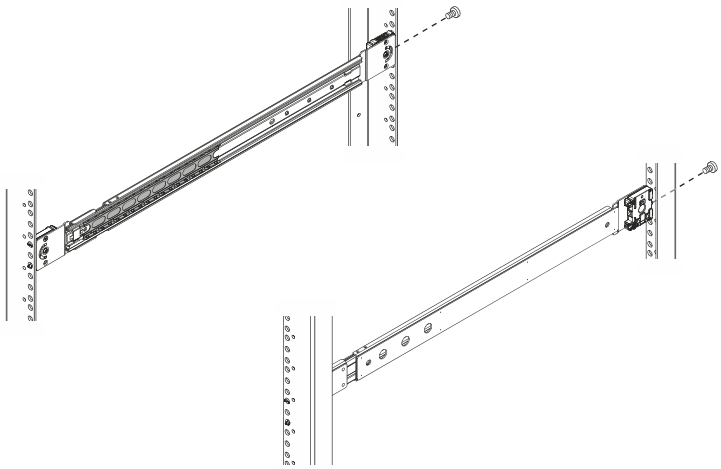


Figure 125 Inserting Stabilizer Screws (with Server not Shown)

Installing the Cable Management Brackets

Install the cable management brackets, as per the instructions in "Installing the Cable Management Bracket" on page 63.

Transferring the DAE

To transfer a DAE from the EMC rack to the customer's rack, perform the following procedures:

1. "Removing the DAE from the EMC Rack" on page 165
2. "Installing the DAE Rails in the Customer's rack" on page 166
3. "Installing the DAE in the Customer's Rack" on page 168

Removing the DAE from the EMC Rack

To remove the DAE from the EMC rack:

1. Remove the four screws (two per side) that secure the front of the enclosure to the front vertical channels of the rack, as shown in Figure 126.

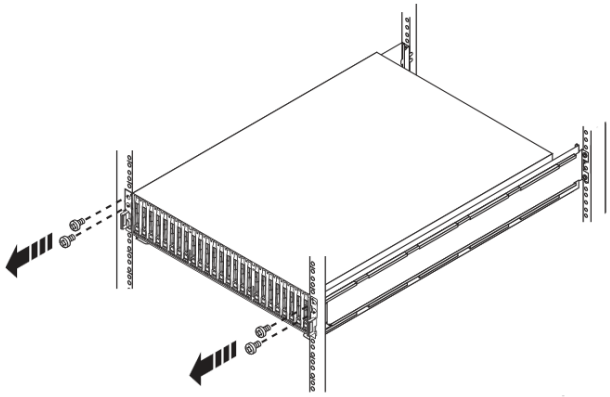


Figure 126 Removing the Four Screws that Connect the DAE to the Mini-Rack

2. With help from another person, slide the enclosure out of the rack.

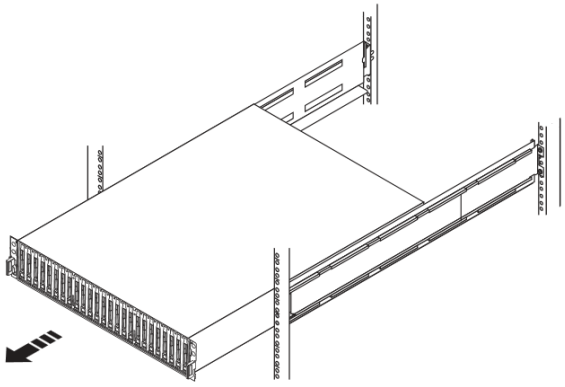


Figure 127 Removing the DAE from the Mini-Rack

3. Set the DAE aside in a clean area, free from dust and debris.

Note: There is no need to remove the DAE rails from the EMC rack.

Installing the DAE Rails in the Customer's rack

Figure 128 shows the DAE rails and screws which are supplied in the DAE rails kit.

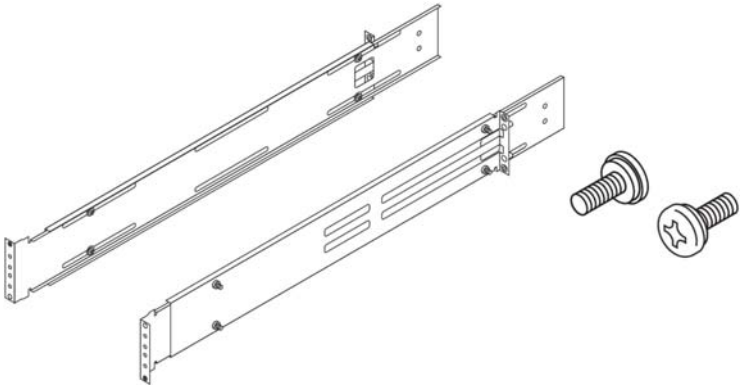


Figure 128 DAE Rails and (Ten) Screws

You should install each rail in the customer's rack.

To install a DAE rail:

1. From the front of the customer's rack, insert the rail alignment pins above and below the bottom U mark on the rear cabinet channel, as shown in Figure 129.

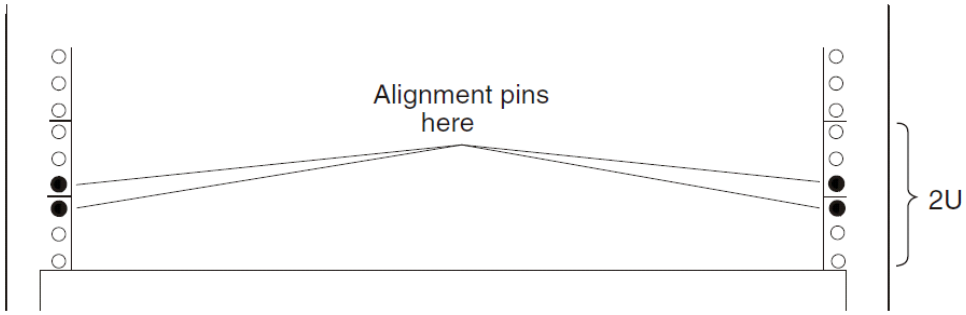


Figure 129 Holes for Alignment Pins

2. Pull the sliding rail to the front of the cabinet.
3. Secure the sliding rail to the front channel by tightening the provided screw into the lower hole of the rail, as shown in Figure 130.

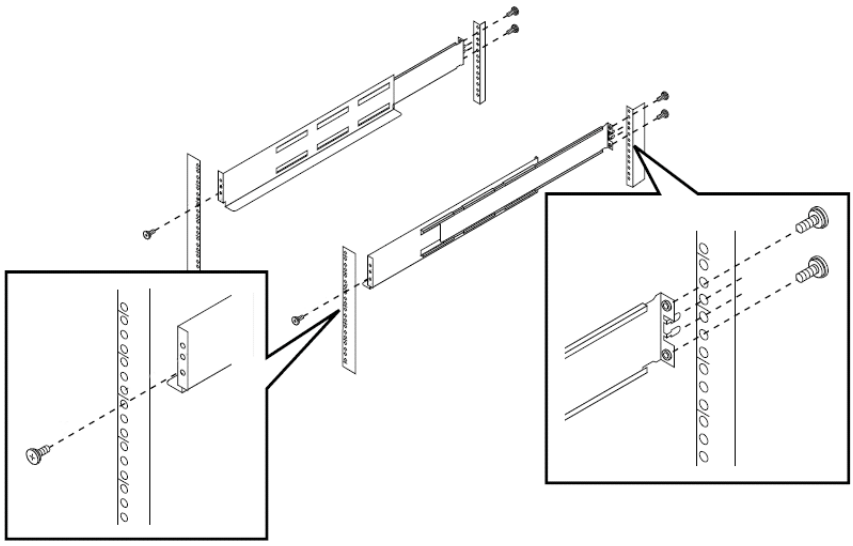


Figure 130 Installing the DAE Rails

4. Secure the rail to the rear channel with two screws, as shown in Figure 130, but leave the screws slightly loose to allow for adjustment when you install the DAE.

Installing the DAE in the Customer's Rack

⚠CAUTION

The DAE is heavy and should be installed into a rack by two people. To avoid personal injury and/or damage to the equipment, do not attempt to lift and install the enclosure into a cabinet/rack without a mechanical lift and/or help from another person.

To install the DAE in the customer's rack:

1. With help from another person, lift the DAE and, from the front of the rack, slide it onto the rails, as shown in Figure 131.

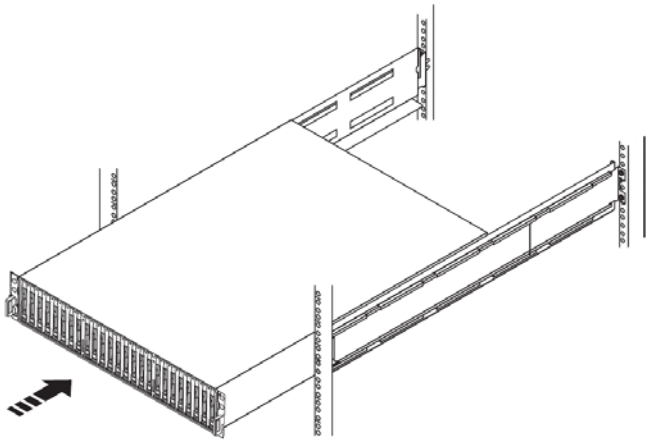


Figure 131 Sliding the DAE onto the rails

When the DAE slides into the back of the cabinet, the rear tabs on each rail are inserted into the two notches in the rear of the enclosure. The tabs secure and support the rear of the enclosure, as shown in Figure 132.

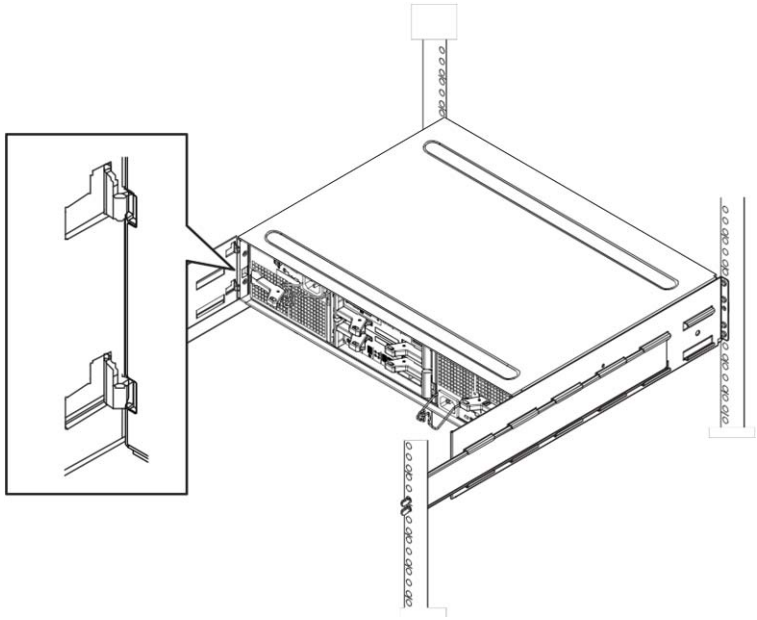


Figure 132 Rail Tabs Inserted into the DAE Notches

If the enclosure does not slide all the way into the cabinet, loosen the screws that hold the rear of the rails in place, and then adjust the rails to allow the tabs to fit into the notches.

2. Once the DAE is completely seated into the rear tabs, tighten the screws (two on each rail) that secure the rails to the channels.
3. Secure the front of the enclosure to the front vertical channels of the cabinet by using four screws (two per side), as shown in Figure 133.

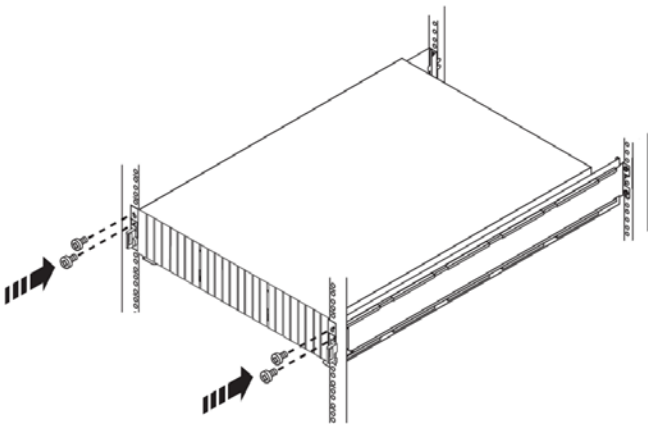


Figure 133 Securing the DAE to the Front of the Cabinet

Transferring the Battery Backup Unit

To transfer a Battery Backup Unit from the EMC rack to the customer's rack, perform the following procedures:

1. "Removing the Battery Backup Unit from the EMC Rack" on page 170
2. "Installing the Outer Rails of the Battery Backup Unit in the Customer's Rack" on page 171
3. "Installing the Battery Backup Unit in the Customer's Rack" on page 172

Note: The green jumper block on the rear side of the Battery Backup Unit can be disconnected easily and fall from its place. Always make sure that the jumper block is secured in place.

Removing the Battery Backup Unit from the EMC Rack

⚠CAUTION

The Battery Backup Unit is heavy and should be removed from the rack by two people. To avoid personal injury and/or damage to the equipment, do not attempt to lift or remove the BBU without a mechanical lift and/or help from another person.

To remove the Battery Backup Unit from the EMC rack:

1. From the front side of the customer's rack, remove the bezel clip from each side of the Battery Backup Unit (two bezel catches) by removing its connecting screw, as shown in Figure 134.

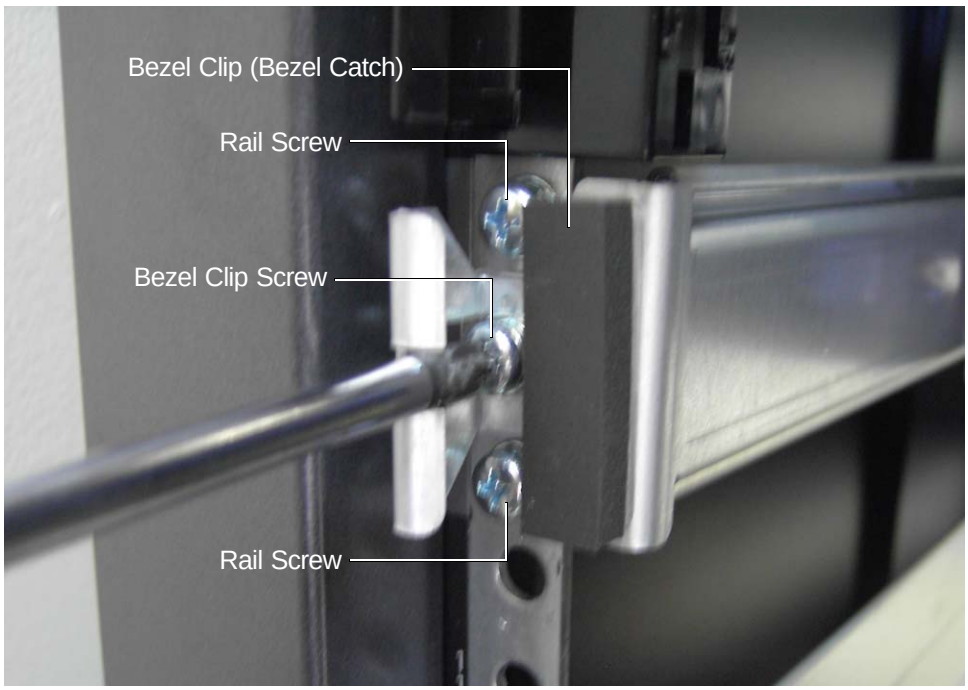


Figure 134 Bezel Clip (Bezel Catch) and Rail Screws on the Front Side of the Battery Backup Unit

2. From the rear side of the rack, gently push the Battery Backup Unit forward to bring it to a comfortable position for removal from the front side.
3. With help from another person physically remove the Battery Backup Unit from the rack and set it aside.

Note: Do not remove the inner rails from the Battery Backup Unit. Also, there is no need to remove the outer rails from the EMC rack.

Installing the Outer Rails of the Battery Backup Unit in the Customer's Rack

Figure 135 shows the outer rails of the Battery Backup Unit which are supplied in the BBU rails kit.

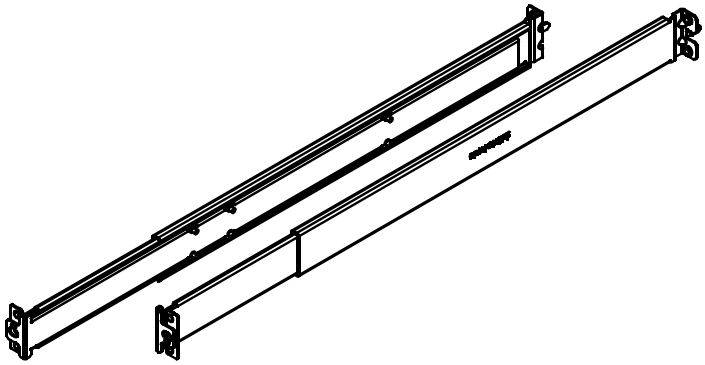


Figure 135 Battery Backup Unit Outer Rails

You should install each rail in the customer's rack.

To install an outer rail of the Battery Backup Unit in the customer's rack:

1. From the front of the customer's rack, align the rail with the rear channel holes of the selected 1U (1.75 in) of cabinet space for the Battery Backup Unit.
2. Pull the sliding rail forward, so that the front alignment posts go securely into the holes on the front channel.
3. Secure the rail to the front and rear channels with four screws[1], as shown in Figure 136.

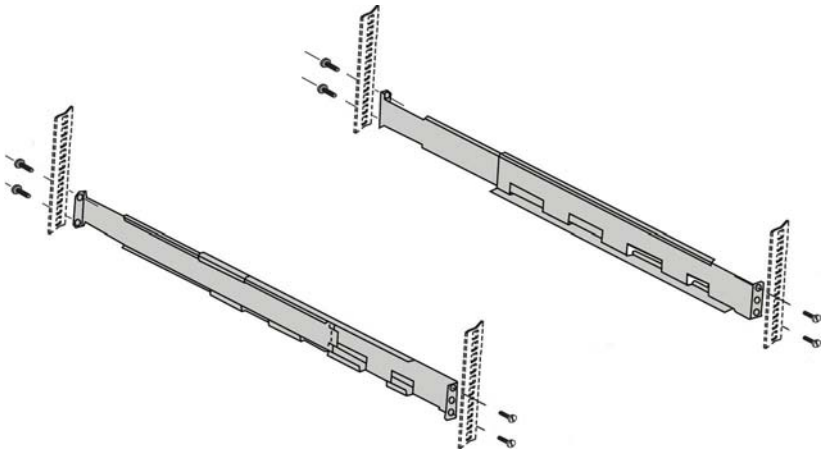


Figure 136 Installing the Battery Backup Unit Rails

Note: The actual Battery Backup Unit rails look different from the ones shown in Figure 136.

1. If no screws are available, ask the customer to provide them or use the ones from the EMC rack.

Installing the Battery Backup Unit in the Customer's Rack

⚠CAUTION

The Battery Backup Unit is heavy and should be installed into the rack by two people. To avoid personal injury and/or damage to the equipment, do not attempt to lift or install the BBU without a mechanical lift and/or help from another person.

To install the Battery Backup Unit in the customer's rack:

1. Verify that the bezels kit contains two bezel clips, as shown in Figure 137.

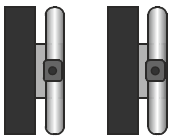


Figure 137 Bezel Clips (Bezel Catches)

2. With help from another person, lift the Battery Backup Unit and, from the front of the customer's rack, slide it onto the rails.
3. Align the screw hole of each bezel clip with those on the front side of the inner rails (one on each side), as shown in Figure 138.

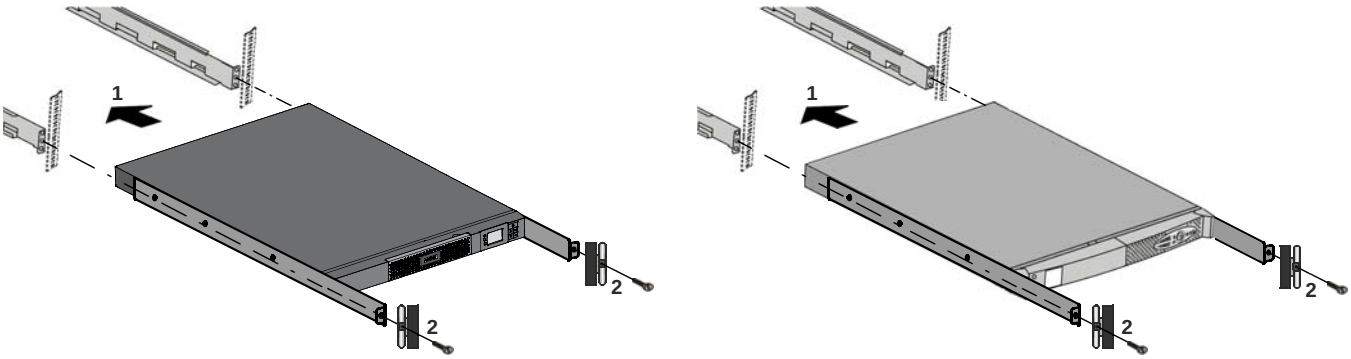


Figure 138 Installing the Battery Backup Unit in the rack -
Left: 5P 1550i R, Right: 1550 Evolution

4. Through each bezel clip, tighten a screw (one on each side) to secure the unit to rack, as shown in Figure 138.

Note: For this step, use the screws that secured the Battery Backup Unit to the EMC rack.

Transferring the InfiniBand Switch

To transfer an InfiniBand Switch from the EMC rack to the customer's rack, perform the following procedures:

1. "Removing the InfiniBand Switch from the EMC Rack" on page 173
2. "Installing the Outer Rails of the InfiniBand Switch in the Customer's Rack" on page 174
3. "Installing the InfiniBand Switch in the Customer's Rack" on page 175

Removing the InfiniBand Switch from the EMC Rack

To remove the InfiniBand Switch from the EMC rack:

1. From the front side of the customer's rack, remove the bezel clip from each side of the InfiniBand Switch (two bezel catches) by removing its connecting screw, as shown in Figure 139.

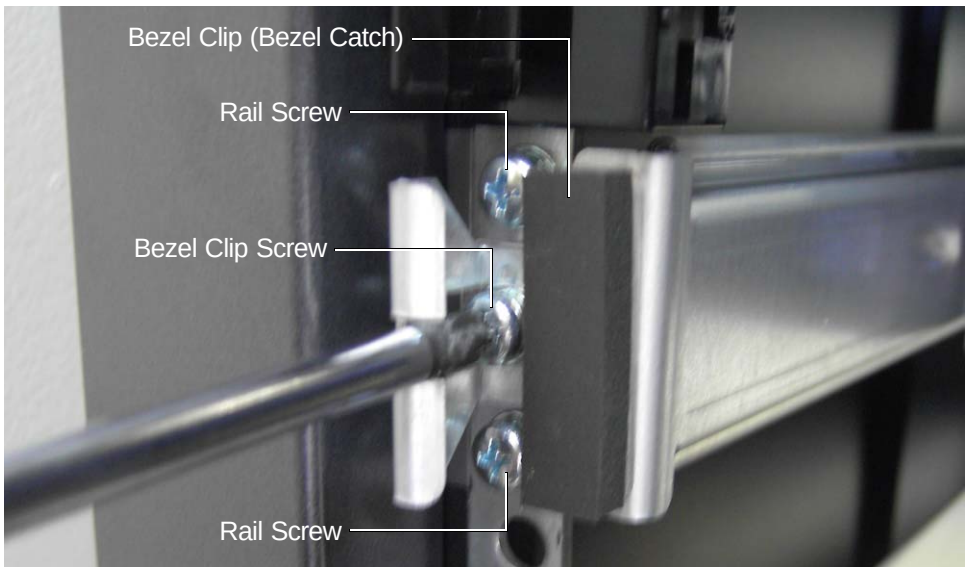


Figure 139 Bezel Clip (Bezel Catch) and Rail Screws on the Front Side of the InfiniBand Switch

2. From the rear side of the EMC rack, gently push the InfiniBand Switch forward to bring it to a comfortable position for removal from the front side.
3. Physically remove the InfiniBand Switch from the rack and set it aside.

Note: Do not remove the inner rails from the InfiniBand Switch. Also, there is no need to remove the outer rails from the EMC rack.

Installing the Outer Rails of the InfiniBand Switch in the Customer's Rack

Figure 140 shows the outer rails which are supplied in the InfiniBand Switch rails kit.

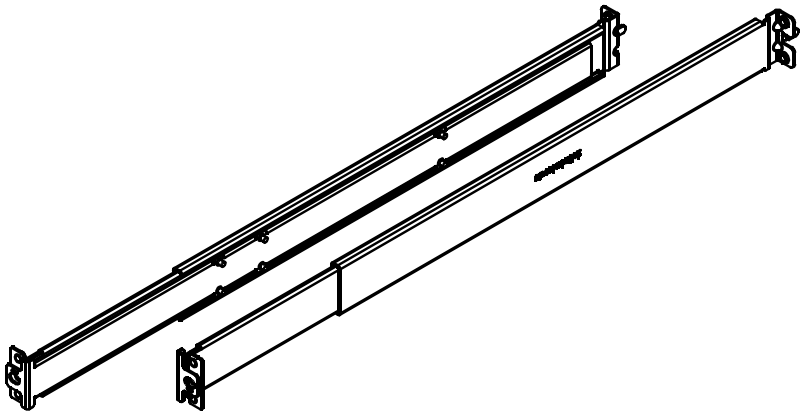


Figure 140 InfiniBand Switch Rails

You should install each rail in the cabinet.

To install an outer rail of the InfiniBand Switch in the customer's rack:

1. From the front of the customer's rack, align the rail with the rear channel holes of the selected 1U (1.75 in) of cabinet space for the InfiniBand Switch.
2. Pull the sliding rail forward, so that the front alignment posts go securely into the holes on the front channel.
3. Secure the rail to the front and rear channels with four screws[1], as shown inFigure 141.

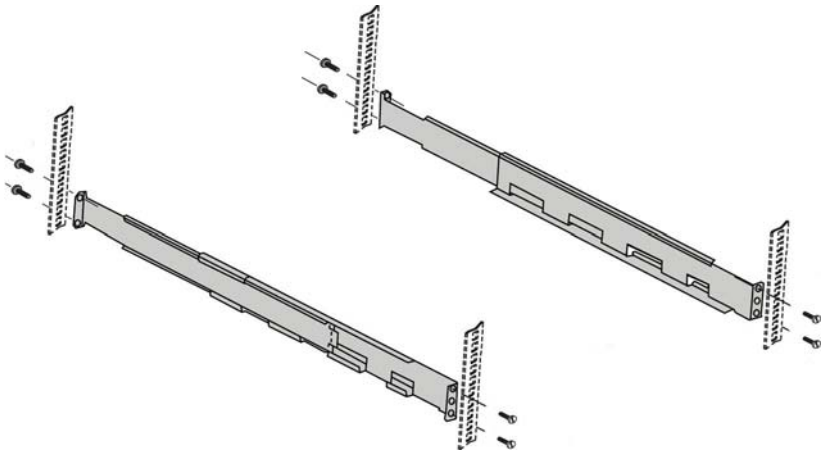


Figure 141 Installing the InfiniBand Switch Rails

Note: The actual InfiniBand Switch rails look different from the ones shown in Figure 141.

1. If no screws are available, ask the customer to provide them or use the ones from the EMC rack.

Installing the InfiniBand Switch in the Customer's Rack

To install the InfiniBand Switch in the customer's rack:

1. Verify that the bezels kit contains two bezel clips, as shown in Figure 142.

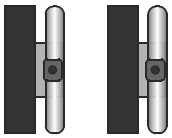


Figure 142 Bezel Clips (Bezel Catches)

2. Lift the InfiniBand Switch and, from the front of the customer's rack, slide it onto the rails.
3. Align the screw hole of each bezel clip with those on the front side of the inner rails (one on each side), as shown in Figure 143.

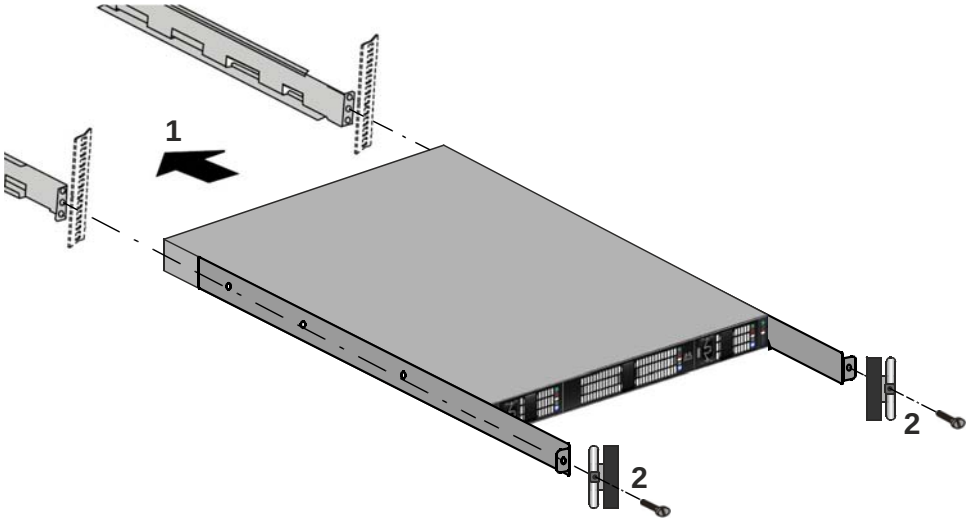


Figure 143 Installing the InfiniBand Switch in the cabinet/rack

4. Through each bezel clip, tighten a screw (one on each side) to secure the unit to rack, as shown in Figure 143.

Note: For this step, use the screws that secured the InfiniBand Switch to the EMC rack.

Installing the 1U Place Holder Bezel Catches

In order to install the bezel for the 1U place holder (between the two InfiniBand Switches), two bezel catches must be installed on the cabinet's rail channels (one on each side of the place holder).

Figure 144 shows the dedicated plastic bezel catch for 1U place holder, a pair of which is provided in the relevant bezels kit (see Table 1 on page 14).

Figure 144 Plastic Bezel Catch for 1U Place Holder

To install the plastic bezel catches for 1U place holder:

1. Verify that both InfiniBand Switches are installed in the customer's rack and there is a 1U space between them.
2. With the 1U side of the catch facing outwards, place a bezel catch on the rack channel (between the two InfiniBand Switches), so as to insert the outer slot onto the channel, as shown in Figure 145.

Figure 145 Inserting the Bezel Catch onto the Channel

3. Push the bezel catch well onto the channel, as shown in Figure 146.

Figure 146 Pushing the Bezel Catch onto the Channel

4. Repeat the above steps to install the second bezel catch on the other side.

Connecting the Cluster Cables

Connect the cluster cables, as per the instructions in Chapter 5.

Connecting the Cluster to Site Facilities

Connect the cluster to site facilities, as per the instructions in Chapter 6.

Fastening the Storage Controller Cables

Fasten the Storage Controller Cables, as per the instructions in "Fastening the Storage Controller Cables" on page 116.

Installing the Bezels

Install the bezels, as per the instructions in Chapter 7.

Note: Use only the bezels that are provided in the bezels kits, described in Table 48 on page 146.

APPENDIX B
Dispersed Cluster Supplement

This section contains information for installing an XtremIO cluster in a dispersed configuration.

This section includes the following topics:

Overview

A dispersed cluster applies to:

- Installation of a new cluster with X-Bricks dispersed over 1, 2 or 3 adjacent racks
- Expansion of an existing cluster in a dispersed configuration over 1, 2 or 3 adjacent racks

RPQ Documentation

NOTICE

Installation of a dispersed cluster can only be carried out via an RPQ, and is subject to EMC's approval.

RPQ approval includes a diagram identifying the agreed locations of X-Bricks and InfiniBand Switches, along with a wiring diagram.

No deviation from this configuration is supported without EMC's agreement.

Cable Kits

The following cable kits are available for the installation of a dispersed cluster:

- **2 meter cable kit:**

  Where the X-Brick is in the same rack as the InfiniBand Switches.

  The contents of this cable kit are:

  - 4 x InfiniBand cables of 2 meters (each) for connecting the InfiniBand Switches to the Storage Controllers
  - 1 x Label sheets set (see Figure 148 and Figure 149).

- **5 meter cable kit:**

  Where the X-Brick is **not** in the same rack as the InfiniBand Switches.

  The contents of this cable kit are:

  - 4 x InfiniBand cables of 5 meters (each) for connecting the InfiniBand Switches to the Storage Controllers
  - 2 x Label sheets sets (see Figure 148 and Figure 149).
  - 1 x Hardware Legend Label (see Figure 73 on page 79).

Note: A cable kit of the appropriate length is provided for each dispersed X-Brick, according to its position on the racks, as specified in the RPQ.

Figure 147 InfiniBand Cable

Figure 148 Cable Label Sheets for X-Bricks 1 - 3

Figure 149 Cable Label Sheets for X-Bricks 4 - 6

Considerations

- When using more than one rack, five meter cables are required.
- Five meter cables must be either routed underneath the raised floor or through a ceiling-mounted cable trough, when running from one rack to another.
- The location of the InfiniBand Switches and all X-Bricks within the racks must be designated in such a way to enable easy connection of the 5 meter cables.

Replacing the Cables in the X-Brick Configuration Kits with those in the Dispersed Cluster Cable Kits

In a non-dispersed cluster, each X-Brick is connected to the InfiniBand Switches with two cables. These may be of one, two, or five meters depending on the X-Brick's location (its distance from the InfiniBand Switches).

For a dispersed cluster:

- One meter cables may be replaced by two or five meter cables.
- Two meter cables may be replaced by five meter cables.
- Five meter cables do not need replacing.

To replace the InfiniBand cables for each X-Brick:

1. Unpack the X-Brick configuration kit and remove the four InfiniBand cables. These cables are labeled.

   For more information, see "X-Brick Configuration Kits" on page 14.
2. Open the appropriate dispersed cluster cable kit (for two meters or five meters) and remove the four InfiniBand cables. These cables are not labeled.
3. To each long cable, affix a source and destination label (from the provided label sheets), which are identical to the labels affixed to the corresponding shorter cable.
4. Discard the shorter InfiniBand cables from the X-Brick configuration kit.
5. Add the longer InfiniBand cables (which you just labeled), to the corresponding X-Brick configuration kit.

Note: To avoid confusion, it is recommended to label the cables for one X-Brick configuration kit at a time.

Installing/Expanding the Cluster

When all cables are ready for use in a dispersed cluster, continue to install/expand the cluster as described in the appropriate chapters of this guide.

Power Requirements

You must ensure that even when working with dispersed clusters, the power sources PWR-A and PWR-B are connected correctly for all components, as described “Connecting the Power Cables” on page 93.

Attaching the Hardware Legend Label

If you are using more than one rack, affix the Hardware Legend Label (as shown in Figure 73 on page 79) to the inside of the second or third rack (do not block any ventilation holes), or place it in a convenient location for reference.