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Installation Guide

Ultrastar® Data60 3000 Series

Regulatory Model H4060-J
Document D018-000831-000
Revision 01
June 2024

Table of Contents

Revision History

Date	Revision	Comment
June 2024	01	Initial release

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Preparation

This chapter provides information needed to prepare for installing a Data60 3000 Series storage enclosure.

In This Chapter:

1.1 Installation Equipment & Specifications

This following tables list components, hardware, tools, equipment, and specifications needed for installing a Data60 3000 Series storage enclsure.

Table 2: Components and Hardware

Category	Item	Qty
Components	Chassis – includes IOM(s), HEM(s), PSUs, IOM fan, System Fans, and chassis cover	1
	Rail Assembly – includes left and right rails, stabilizer bar, and rack-mounting hardware	1 assembly
	Chassis Cover Alignment Brackets	2
	CMA – includes upper arm, lower arm, and cable tray	1 assembly
	Drive Assemblies	Up to 60
Cables	Host Cable (active, optical, HD mini-SAS to HD mini-SAS)	Up to 12
	Host Cable (passive, copper, HD mini-SAS to HD mini-SAS)	Up to 12
	Power Cable – 3m C13-C20 14AWG	Up to 2
	Power Cable – 3m C13-C14 18AWG	Up to 2
	Cat5 Ethernet management cable with RJ45 connector	Up to 2
Hardware	M4 x 3.2mm low profile screws (rail installation)	4
	M5 cagenuts (rail installation)	8
	M5 4U captive screw plates (rail & alignment bracket installation)	2
	System latch brackets (rail & system installation)	2
	M5 x 12mm screws (rail & system installation)	6

Table 3: Tools & Equipment

Equipment / Tool	Required or Optional
#2 Phillips screwdriver	Required
T15 Torx screwdriver	Required
Cable-tie / hook-and-loop strip	Optional
Level	Optional
Lift Equipment	Optional
ESD Mitigation Equipment (site specific)	Required

Table 4: Torque Specifications for Screws

Screw Type	Torque Value
M4 x 3.2mm low profile screws (rail installation)	0.9-1.3 Nm (8-10 in-lbf)
M5 4U captive screw plates (rail & alignment bracket installation)	3.4-3.6 Nm (30-32 in-lbf)
M5 x 12mm screws (rail & system installation)	3.4-3.6 Nm (30-32 in-lbf)
M5 captive rack-ear screws	3.4-3.6 Nm (30-32 in-lbf)
M5 chassis cover captive screws	3.4-3.6 Nm (30-32 in-lbf)
M3 cable tray captive screws	0.3-0.6 Nm (3-5 in-lbf)

1.2 Installation Safety

Safety is the number one priority for personnel installing the Data60 3000 Series platform. This section outlines safety considerations when performing an installation.

Protect Yourself and Others

Before installing an Data60 3000 Series, it is important to take precautions to keep all personnel involved with—or near the installation site—safe. Make sure all paths and floors are clean and free of obstacles. Do not wear loose clothing that can become tangled or caught on equipment. Do not wear tight clothing that may restrict movement. Read all safety labels and instructions in this manual and on the equipment being used for installation. Never lift the Data60 3000 Series alone; it should always be teamlifted. When installing the unit in a rack, it is highly recommended that you install it at the lowest possible U height of the rack. This is intended to prevent an imbalanced load and it keeps the center of gravity low on the rack to help prevent tipping hazards.

Protect Your Equipment

Always use the proper tooling and specifications outlined in this document during installation. This includes torque specifications and driver heads when installing screws, lifting equipment, and safety equipment, as well as the Data60 3000 Series itself. Always respect the ESD requirements outlined at your site. Use ESD mitigation and prevention equipment to prevent discharges that may damage equipment. During installation, do not tip the enclosure.

The following is a list of safety equipment that should be considered before proceeding:

- Safety Shoes/Steel-toed Boots (ESD-safe is a plus)
- Lifting equipment
- ESD mitigation equipment
- Safety vests and hard hats
- Rack support or anchoring equipment

Installation

This chapter provides information, requirements, and procedures necessary to install and complete the initial bringup of a Data60 3000 Series storage enclosure.

In This Chapter:

2.1 Rail Assembly Installation

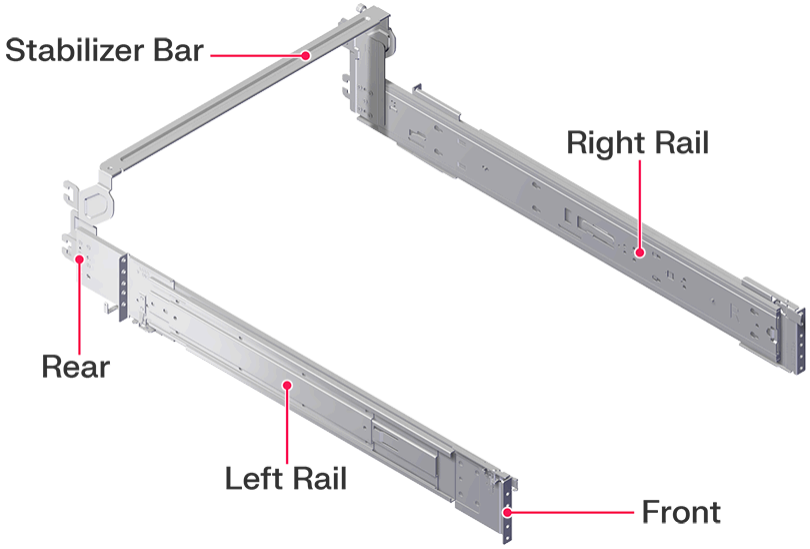
This procedure provides instructions for installing the rail assembly on a Data60 3000 Series platform.

Table 5: Rail Assembly Installation Information

Category	Details
Number of People	3 total (2 for team-lift & 1 for guiding/spotting)
Average Installation Time	1 hour
Toolless?	No
Required Tool(s)	T15 Torx screwdriver
	#2 Phillips screwdriver
Optional Tool(s)	Level
Torque Value(s)	Inner rail screws: 0.9-1.3 Nm (8-10 in-lbf)
	Screw plate screws: 3.4-3.6 Nm (30-32 in-lbf)
	Latch bracket screws: 3.4-3.6 Nm (30-32 in-lbf)
Required Part(s)	1 rail assembly

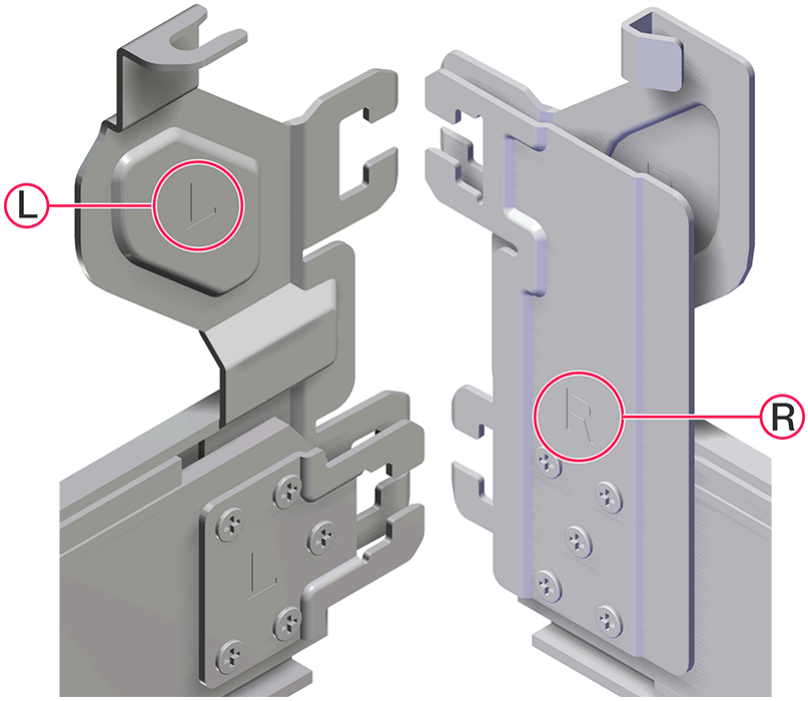
The following images show features of the rail assembly for orientation purposes.

Figure 1: Rail Assembly Orientation



Note: At the rear of each rail, the inside is marked with an *L* for left or *R* for right.

Figure 2: Left and Right Rails Identification

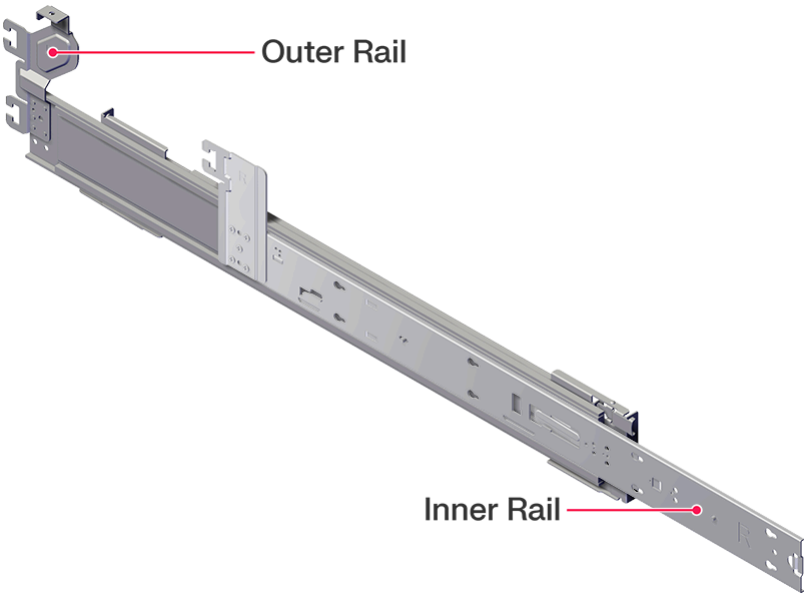


Step 1: Remove the rail assembly from its packaging.

Step 2: Separate the inner rails from the outer rails.

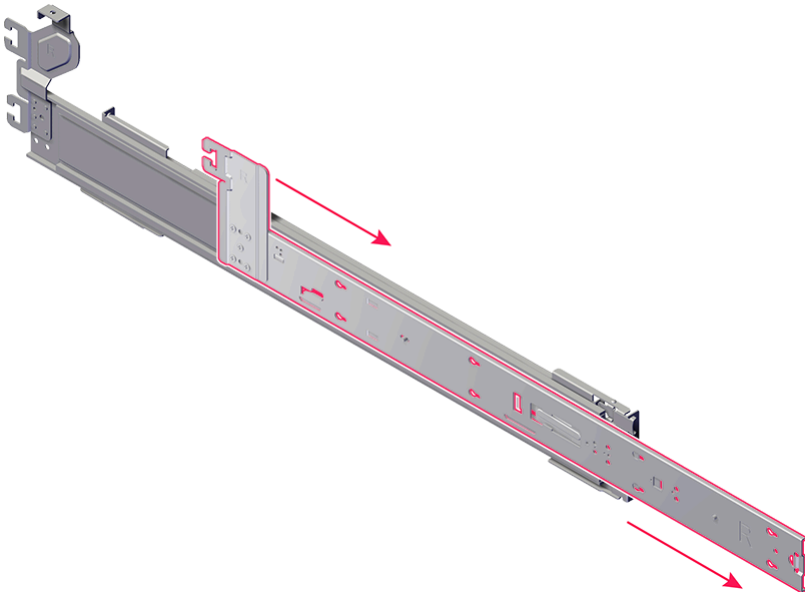
Each rail is comprised of two sections that can be extended or collapsed. The outermost section (outer rail) and the innermost section (inner rail) can be separated from each other. The following diagram shows the inner and outer sections of the right rail.

Figure 3: Inner and Outer Rails



a. Slide the inner rail away from the outer rail until the safety latch engages (clicks into place), preventing the inner rail from extending further.

Figure 4: Extend the Inner Rail



b. On the outside of the inner rail, press the safety latch to disengage it. Then, continue sliding the inner rail away from the outer rail until they are separated.

Figure 5: Disengage the Inner Rail Saftey Latch

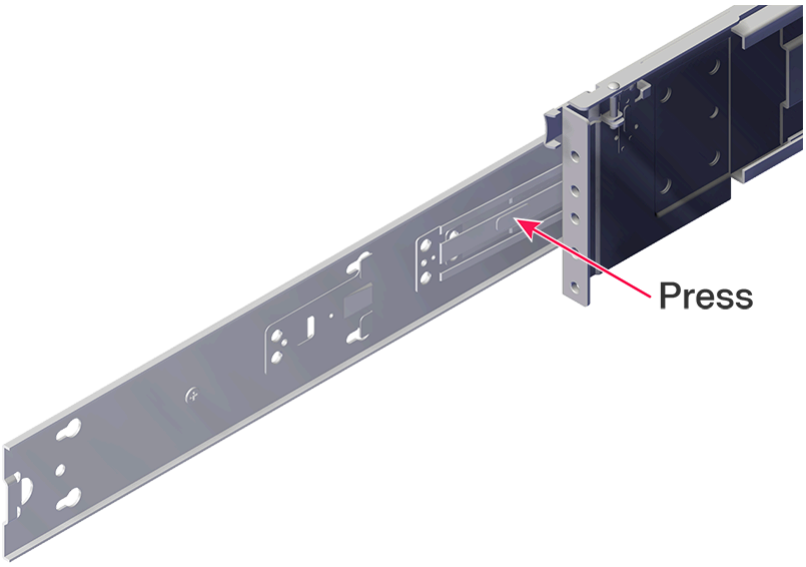
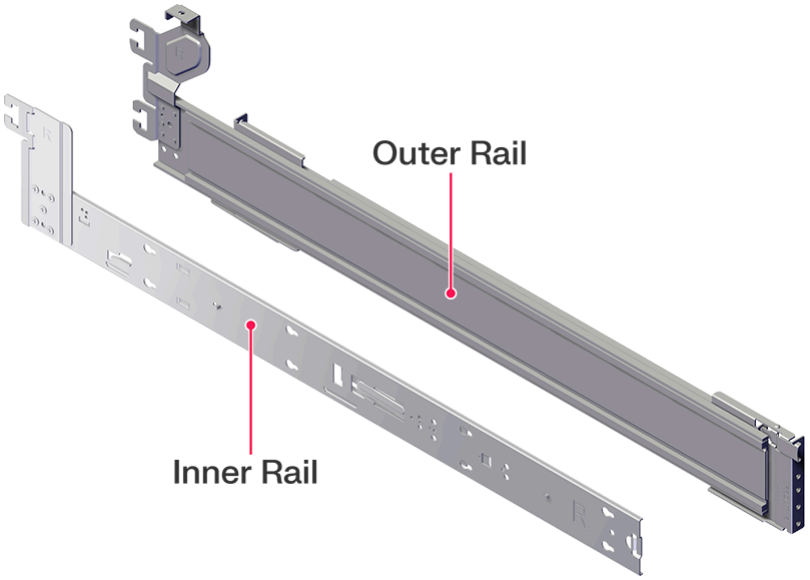


Figure 6: Separate the Inner & Outer Rails



c. On the inside of the outer rail, disengage the safety latch. Then, collapse the outer rail so it is ready for installation.

Figure 7: Disengage the Outer Rail Saftey Latch

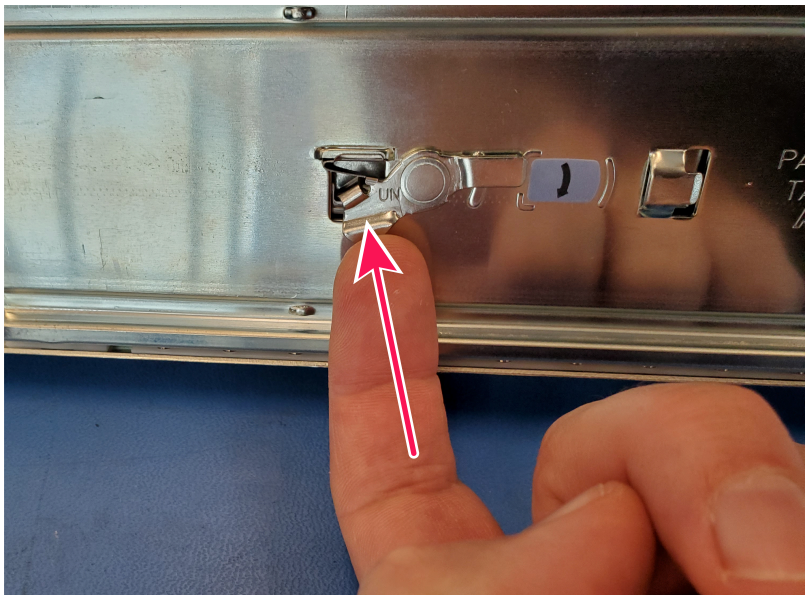
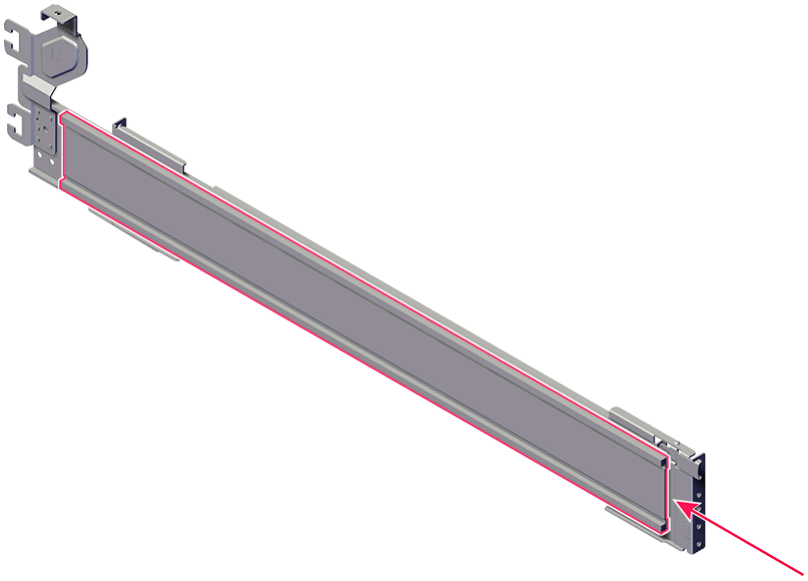


Figure 8: Collapsed Outer Rail



d. Repeat these steps to separate the inner and outer portions of the left rail.

Step 3 : Install the inner rails onto the chassis.

a. On the side of the chassis, align the keyholes of the inner rail to the mounting posts on the chassis. Then, slide the inner rail toward the rear of the enclosure to lock the rail in place.

Figure 9: Align Keyholes With Mounting Posts

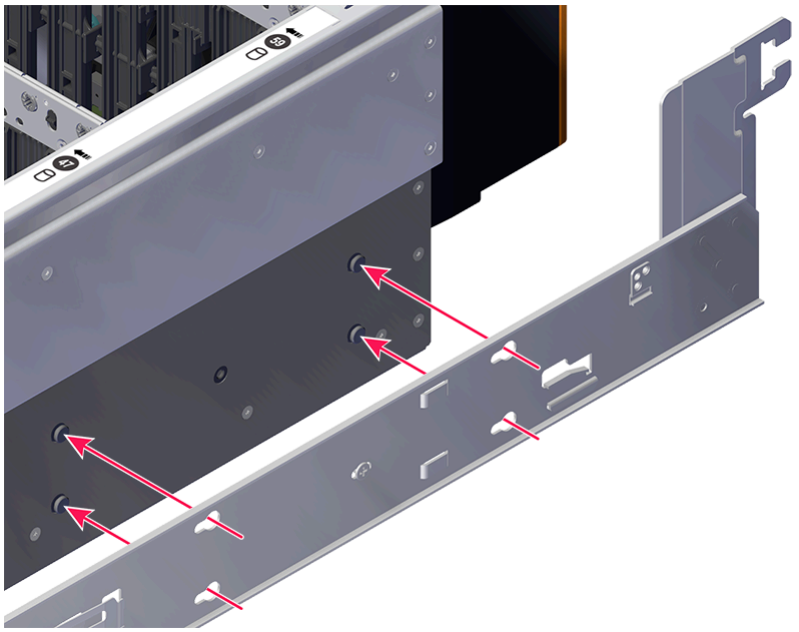
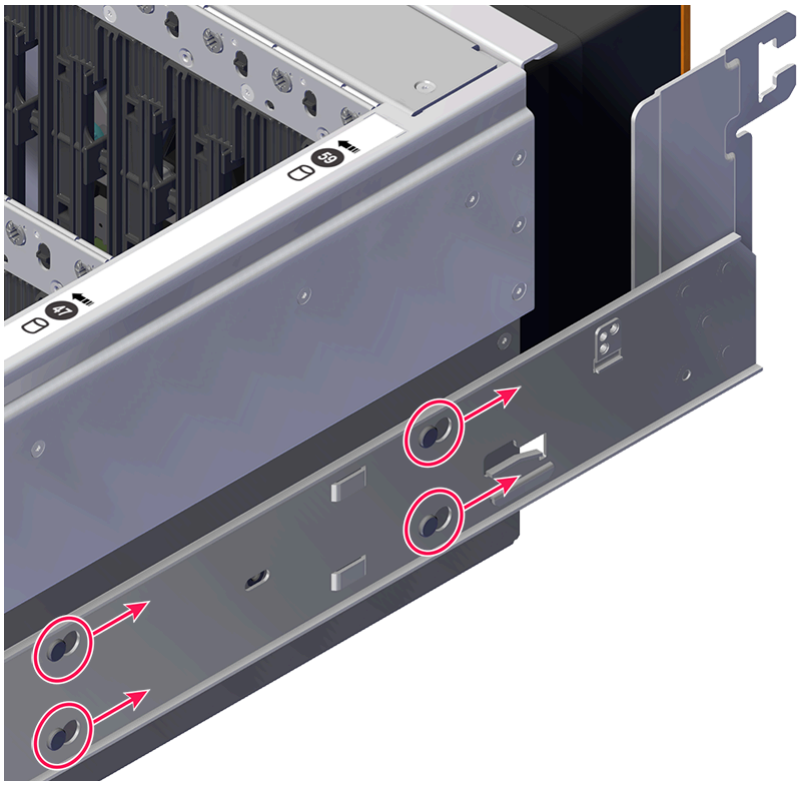
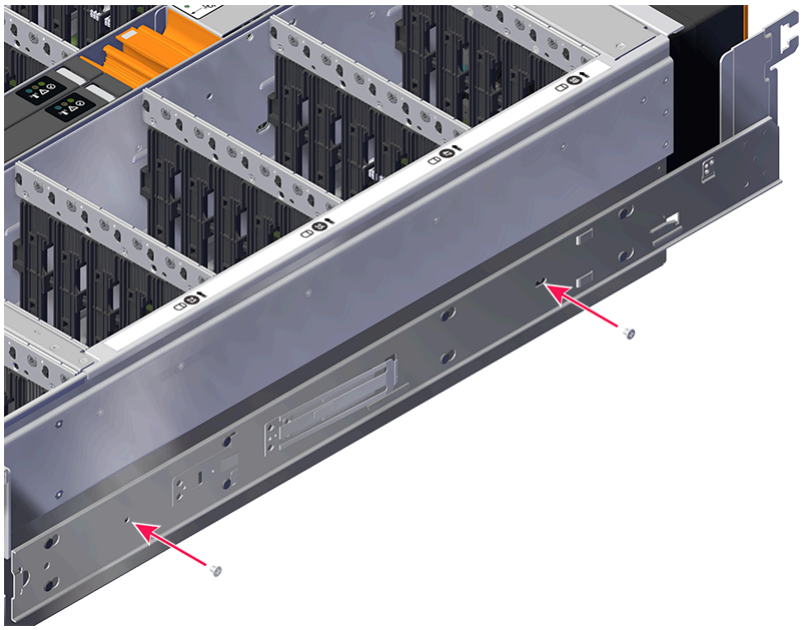


Figure 10: Slide Rail Toward Rear



b. Use a #2 Phillips screwdriver to install two (2) low-profile M4 x 3.2mm screws to secure the inner rail to the chassis. Torque the screws to 0.9-1.3 Nm (8-10 in-lbf).

Figure 11: Install Inner Rail Screws



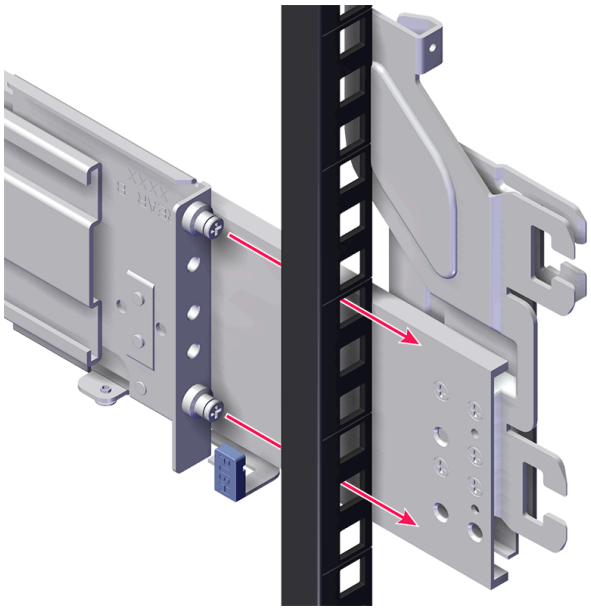
c. Repeat these steps to attach and secure the other inner rail to the other side of the chassis.

Step 4 : Install the outer rails onto the rack.

Note: The chassis will occupy 4U of rack space. A best practice is to install the chassis into the lowest available space. This will help to maintain a low center of gravity for the rack and reduce its potential of tipping.

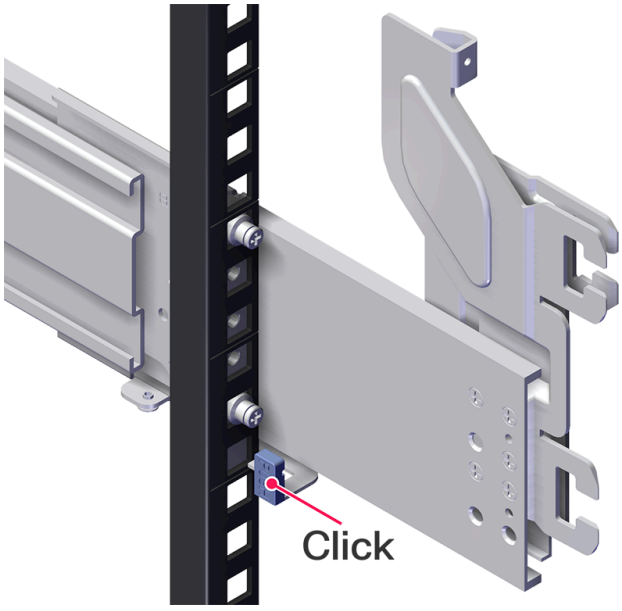
a. At the rear of the rack, align the rear alignment pins of the outer rail with the holes in the rear rack post and screwplate.

Figure 12: Align Rear Pins with Rack Holes



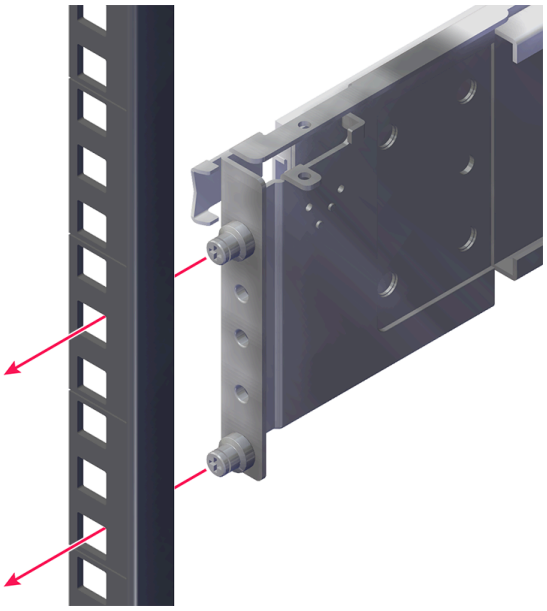
b. Depress the blue latch, and insert the alignment pins into the rack post holes. When the rail is fully seated into the rack, the blue latch will click into place.

Figure 13: Rear of Rail Installed



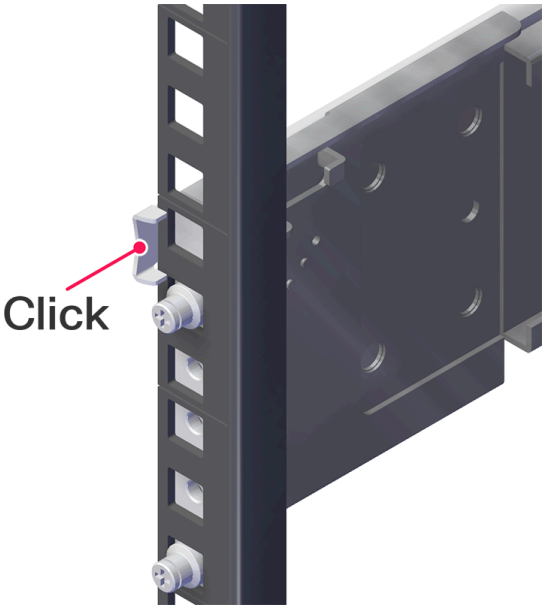
c. At the front of the rack, align the front alignment pins of the outer rail with the holes in the front rack post.

Figure 14: Align Front Pins with Rack Holes



d. Insert the alignment pins into the rack post holes. When the rail is fully seated into the rack, the latch will click into place.

Figure 15: Front of Rail Installed

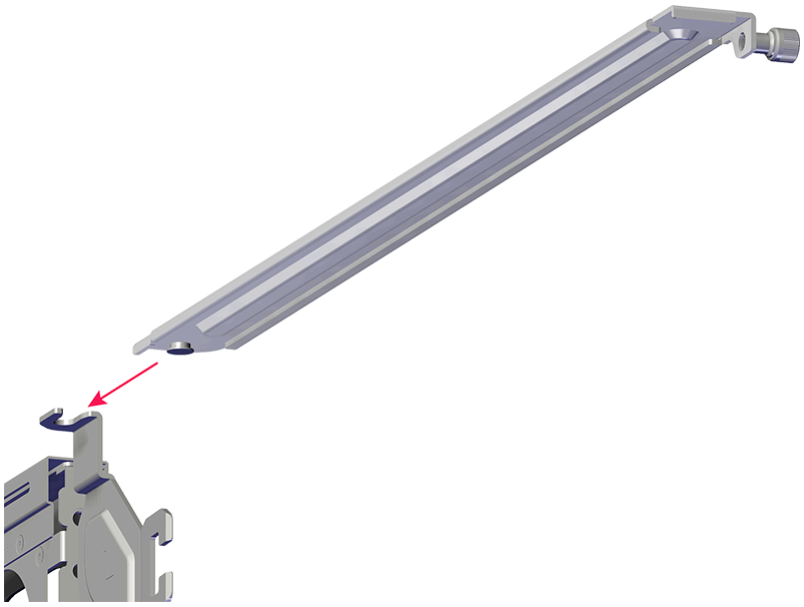


e. Repeat these steps to install the other rail on the other side of the rack.

Tip: Use a level to ensure that the left and right rails are installed at the same height, and that both rails are level from front-to-back.

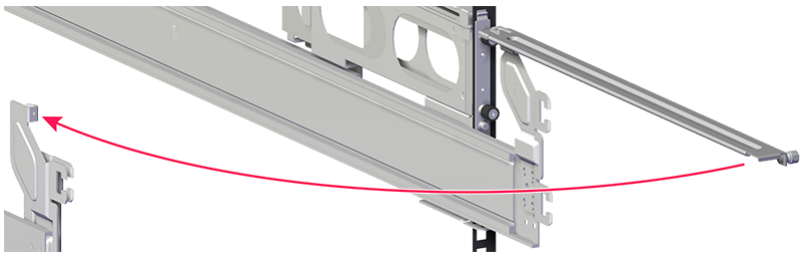
f. At the rear of the rack, insert the pin of the rail assembly's stabilizer bar into the notch on the left outer rail.

Figure 16: Install the Stabilizer Bar



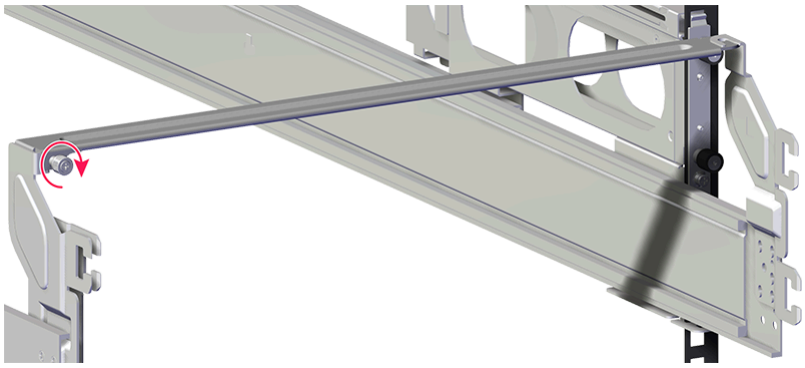
g. Rotate the stabilizer bar inward to close it.

Figure 17: Closre the Stabilizer Bar



h. Tighten the captive screw of the stabilizer bar by hand. Alternately, use a #2 Phillips screwdriver.

Figure 18: Tighten the Stabilizer Bar's Captive Screw



Step 5 : Install cage nuts into the rack.

a. At the front of the rack, install a cage nut into the uppermost hole of the 4U space that the enclosure will occupy.

Note: For the purposes of this installation procedure, this uppermost hole will be called *Position #1*. The cagenut in this position will receive the captive screw of the chassis cover.

Figure 19: Rack Hole Positions

b. Install additional cage nuts into positions 3, 4, and 6.

Note: The cage nuts in these positions will receive the screws for the rack ears.

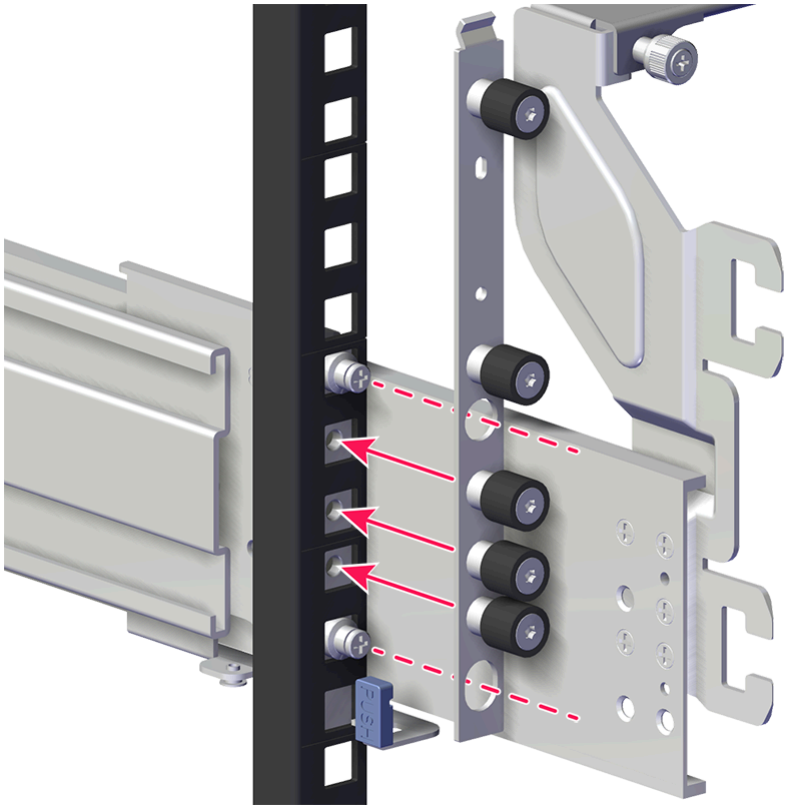
c. Repeat these steps to install cage nuts on the other front rack post.

Step 6 : Install the chassis cover alignment brackets onto the rail assembly.

Note: Each alignment bracket is labeled *Rear Left Top* or *Rear Right Top* on the inside face.

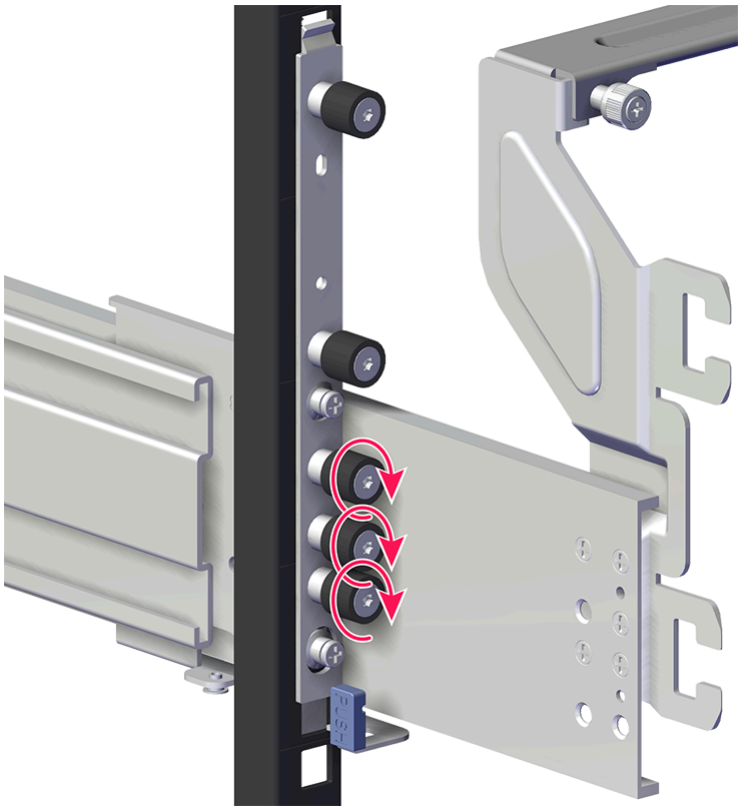
a. At the rear of the rack, align a screwplate with the rear of the rail assembly. The rail pins fit through the holes in the screw plate, and the three captive screws at the bottom align with the screw holes in the outer rail

Figure 20: Align the Screwplate



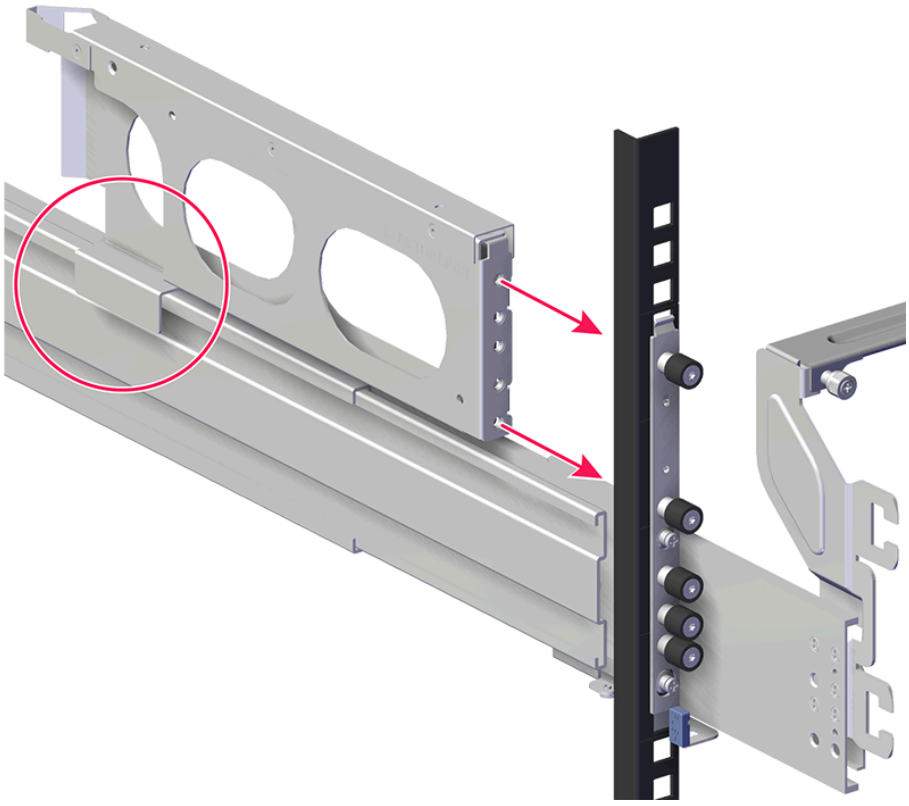
b. Use a T15 Torx screwdriver to tighten the three (3) captive screws at the bottom of the screwplate. Torque the captive screws to 3.4-3.6 Nm (30-32 in-lbf).

Figure 21: Tighten the Bottom Captive Screws



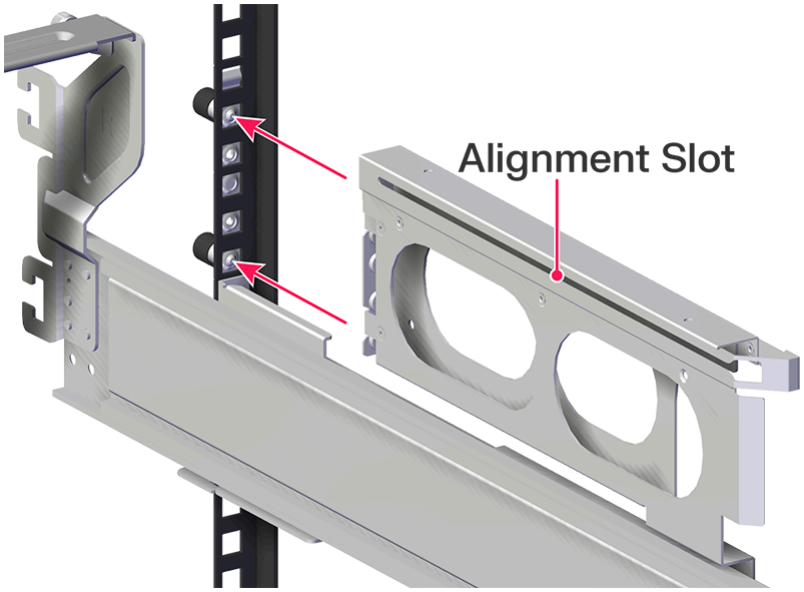
c. Place the alignment bracket on the rail assembly in the orientation shown in the following image, with the tab overhanging the outside of the outer rail and the two screw holes facing toward the remaining captive screws on the screwplate.

Figure 22: Place the Alignment Bracket (Outside View)



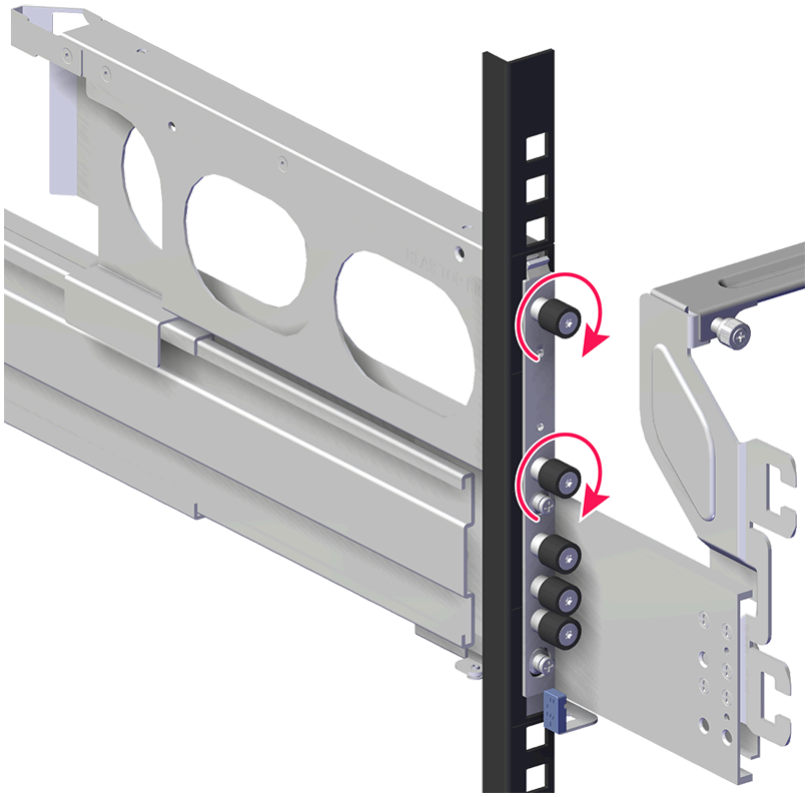
When viewed from the opposite side, the slot of the alignment bracket should face inward, where the enclosure will be.

Figure 23: Place the Alignment Bracket (Inside View)



d. Use a T15 Torx screwdriver to tighten the two (2) remaining captive screws, securing the alignment bracket to the rack. Torque the captive screws to 3.4-3.6 Nm (30-32 in-lbf).

Figure 24: Secure the Alignment Bracket

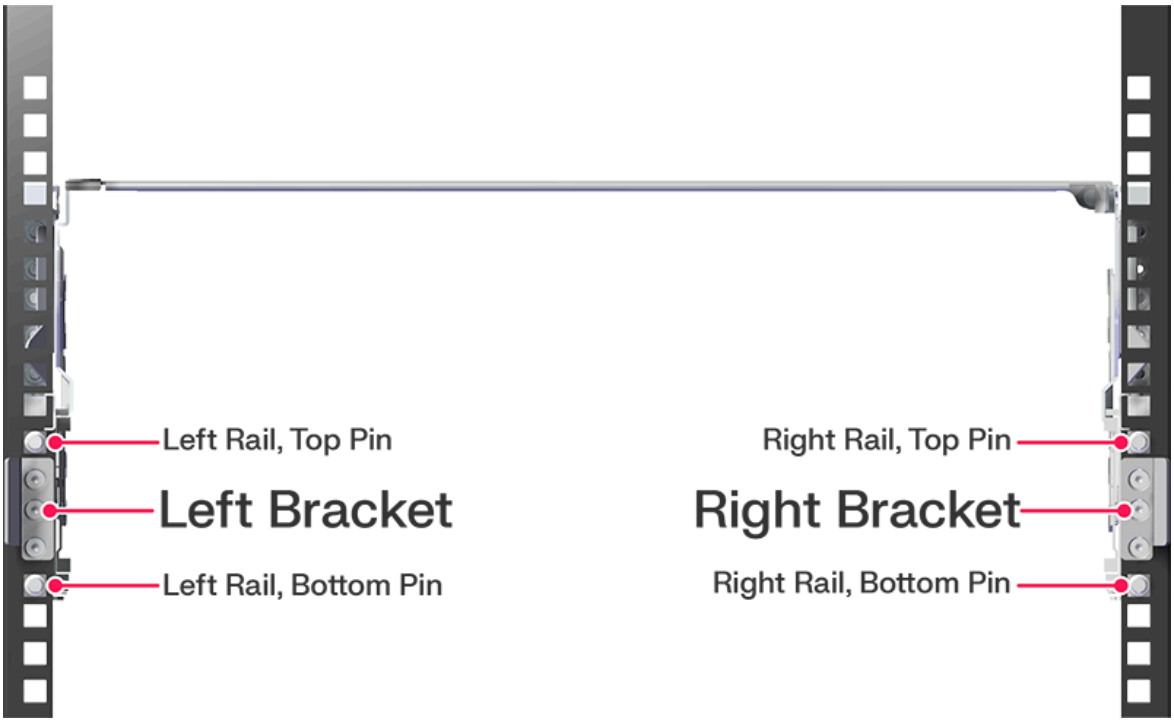


e. Repeat these steps to install the other alignment bracket.

Step 7 : Install the system latch brackets onto the front of the rack.

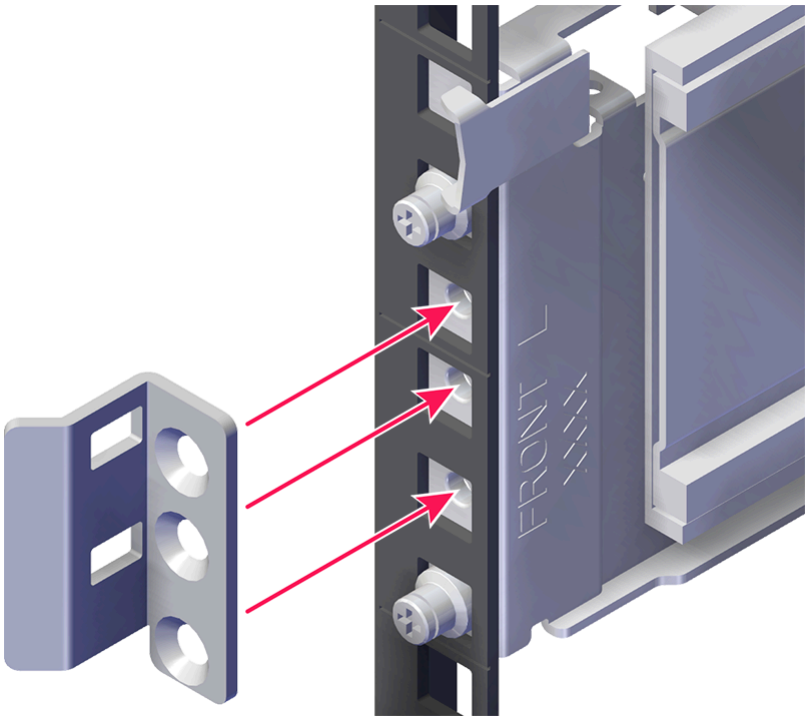
Note: The following image shows the correct placement and orientation of the system latch brackets. The brackets fit between the front pins of each outer rail, and they receive the spring-loaded latches on the enclosure handles.

Figure 25: Orientation of the System Latch Brackets



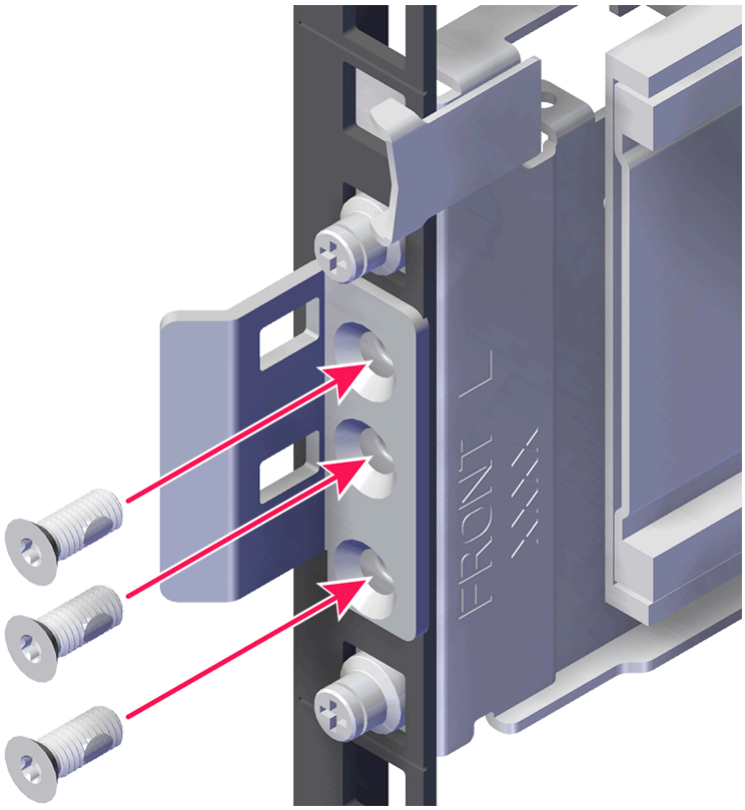
a. At the front of the rack, align the left latch bracket with the screw holes between the pins of the left outer rail.

Figure 26: Align the Left Latch Bracket



b. Use a T15 Torx screwdriver to install three (3) M5 x 12mm screws, securing the latch bracket to the rack. Torque the screws to 3.4-3.6 Nm (30-32 in-lbf).

Figure 27: Align the Left Latch Bracket



c. Repeat these steps to install the right latch bracket.

Result: The rail assembly has now been installed.

What to do next: Proceed to Chassis Installation Procedure *(page 23)*.

2.2 Chassis Installation Procedure

This procedure provides instructions for installing the chassis of a Data60 3000 Series platform.

Table 6: Chassis Installation Information

Category	Details
Number of People	3 total (2 for team-lift & 1 for guiding/spotting)
Average Installation Time	2 hours
Toolless?	No
Required Tool(s)	T15 Torx screwdriver
Torque Value(s)	Chassis cover screws: 3.4-3.6 Nm (30-32 in-lbf)
Required Part(s)	1 chassis

Step 1: Remove the chassis from its packaging.

Step 2: Install the chassis into the rack.

Warning: The following steps for installing the chassis into the rack require two people or lift equipment. **Do not attempt to lift the chassis with only one person.** Doing so could cause damage to the system or serious bodily harm.

Warning: The handles on the front of the chassis are not intended to support the weight of the chassis. **Do not attempt to lift the chassis using the handles.** Doing so could cause damage to the system or serious bodily harm.

a. If the outer rails are not locked into the service (extended) position, pull them out until the safety latches are engaged.

b. With the assistance of another person, lift the chassis and insert the inner rails (attached to the chassis) into the outer rails (attached to the rack).

Tip: For this step, it is helpful to have a third person to spot the lifting operation and to help guide the inner rails into the outer rails.

Figure 28: Install the Chassis Into the Rack

Important: The outer rails have grooves (highlighted in the following image) that receive and retain the inner rails.

Figure 29: Outer Rail Grooves

Warning: Ensure that the inner rails are properly inserted into the grooves of the outer rails, as shown in the following image. If not properly inserted, the weight of the chassis will not be supported by the outer rails, and the chassis could fall, causing damage to the system or serious bodily harm.

Figure 30: Correct Insertion of Inner Rails into Outer Rails

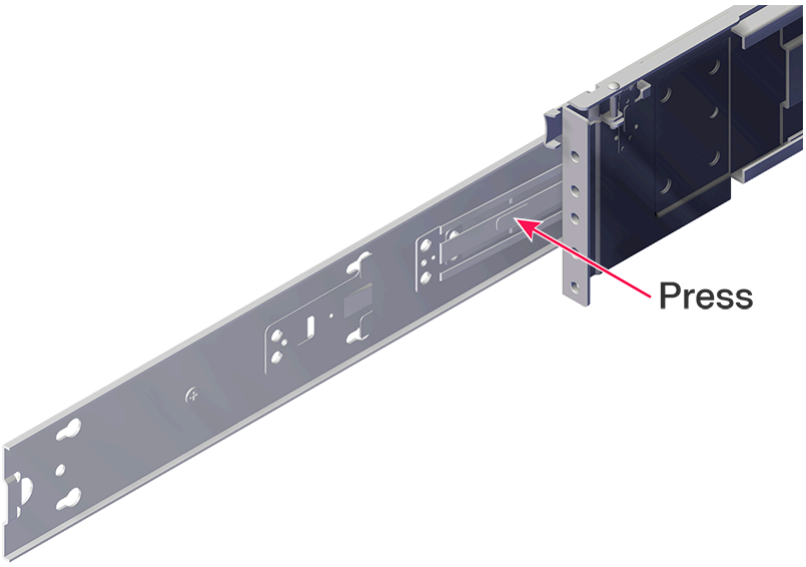
Note: When properly inserted, the inner rails should slide inside the outer rails without binding.

c. Push the chassis toward the rack until the safety latches engage. This is the servicing (extended) position.

Step 3 : Secure the chassis cover to the rack.

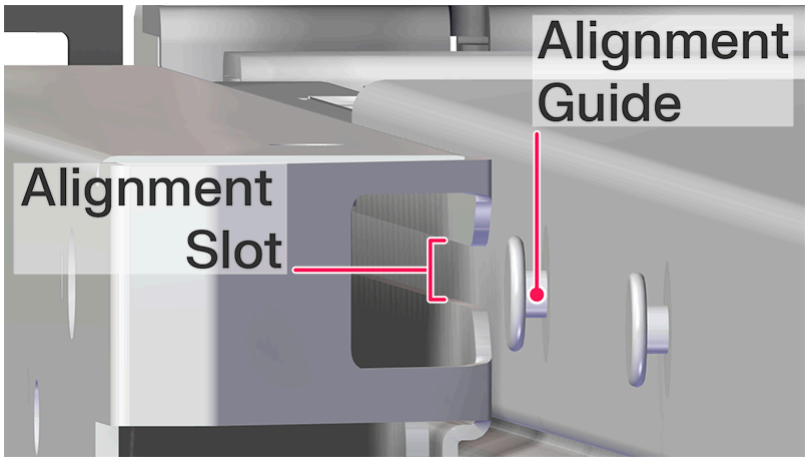
a. Press the safety latches on the rails to unlock them and allow the enclosure to be pushed in.

Figure 31: Unlock the Safety Latches



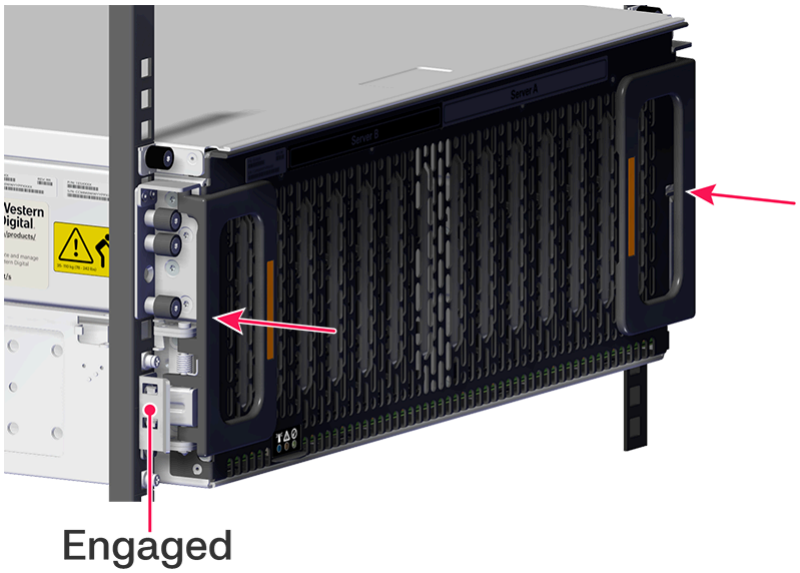
b. As you push the enclosure into the rack, ensure that the guides of the chassis cover slide into the slots of the alignment brackets.

Figure 32: Guide Pins into Alignment Slots



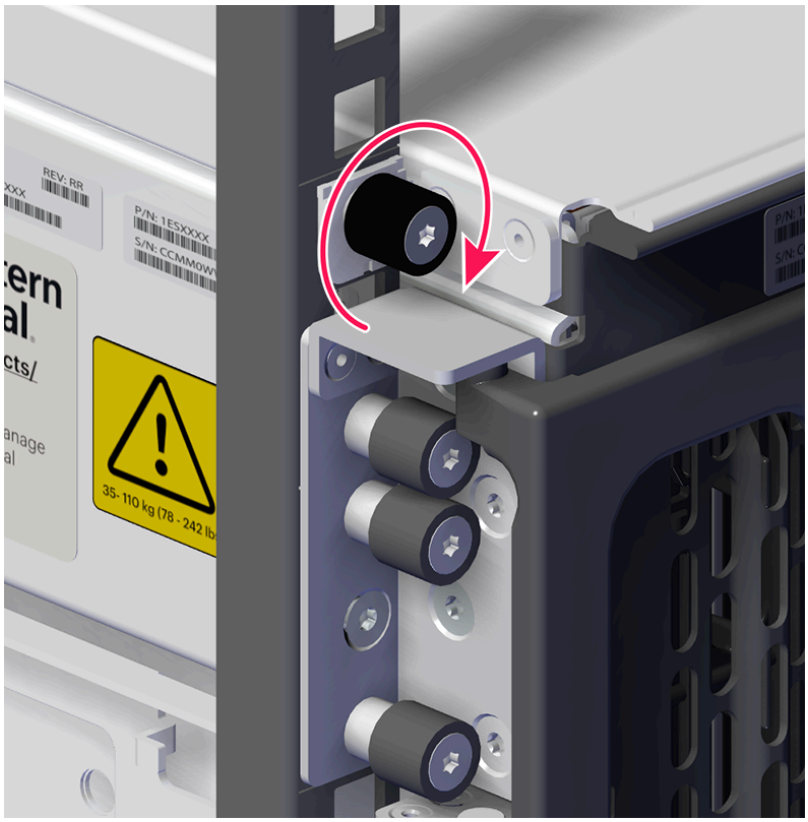
c. Push the enclosure all the way into the rack until the enclosure latches engage with the rack brackets.

Figure 33: Push the Enclosure Into the Rack



d. Use a T15 Torx screwdriver to tighten the two (2) captive screws at the front of the chassis cover (one on each side). Torque the captive screws to 3.4-3.6 Nm (30-32 in-lbf).

Figure 34: Tighten the Captive Screws



Result: The chassis is now installed.

What to do next: Proceed to Drive Assembly Installation *(page 29)*.

2.3 Drive Assembly Installation

This procedure provides instructions for installing drive assemblies in a Data60 3000 Series platform.

Table 7: Drive Assembly Installation Information

Category	Details
Number of People	1
Average Installation Time	1 hour
Toolless?	Yes
Required Tool(s)	None
Required Part(s)	Drive assemblies

Step 1: Move the enclosure into its servicing (extended) position.

a. Grasp both enclosure handles and rotate them outward.

This will disengage the enclosure latches from the rack brackets, allowing the enclosure to be pulled out of the rack.

Figure 35: Open the Enclosure Handles

b. Use the enclosure handles to pull the enclosure out of the rack.

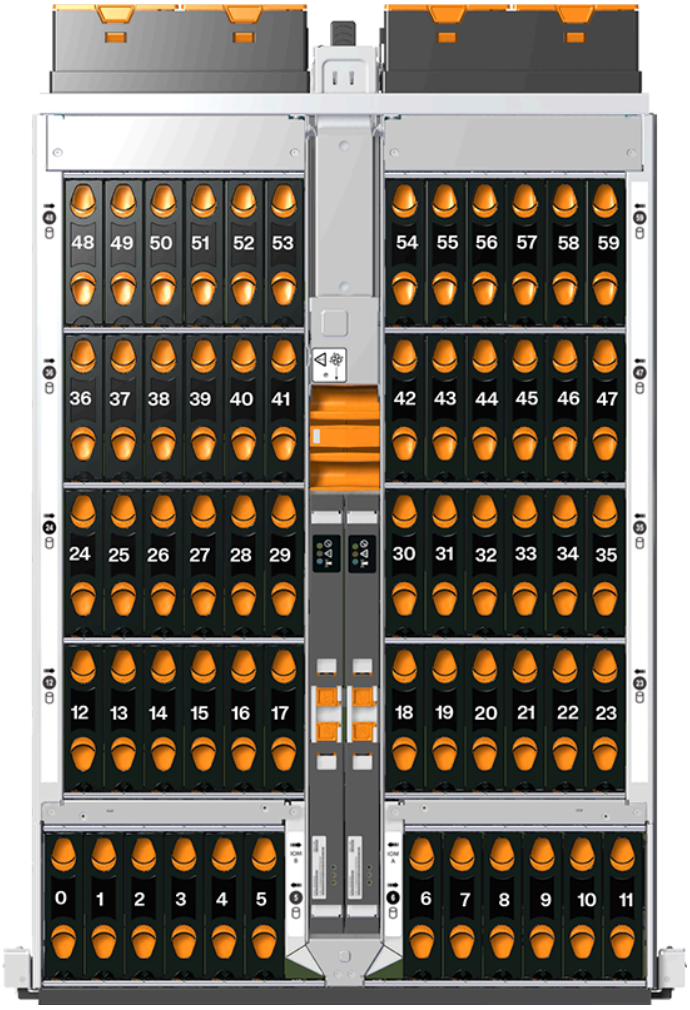
Figure 36: Pull the Enclosure Out

The chassis cover is secured to the rack and will remain in place, exposing the interior of the enclosure. At the enclosure's maximum extended position, the rails will lock to prevent any further movement; this is the servicing position.

Step 2 : Install the drive assemblies.

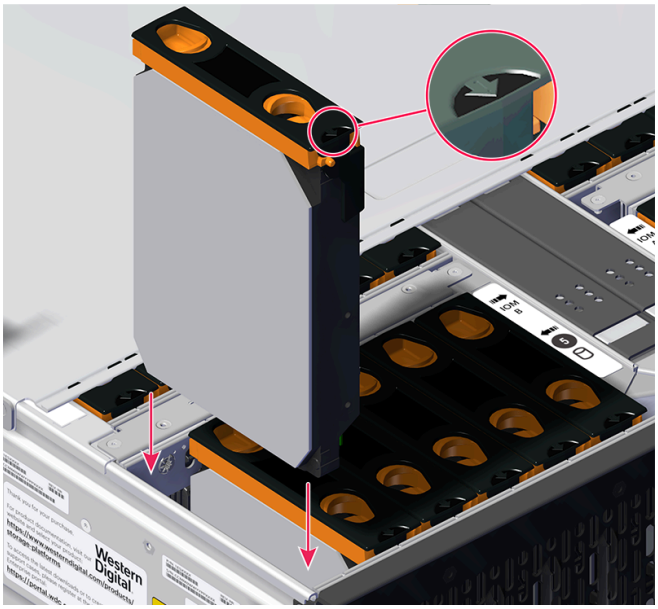
Note: When installing drives, populate the enclosure from left-to-right, rear-to-front. For example, begin with slot 48 (as shown in the following diagram), continue through 59, then proceed with 36 through 47, and so on.

Figure 37: Drive Layout



Note: When installing drives, ensure that the LED pointer on the top of the drive carrier points toward the front of the enclosure, as shown in the following image:

Figure 38: LED Pointer Orientation



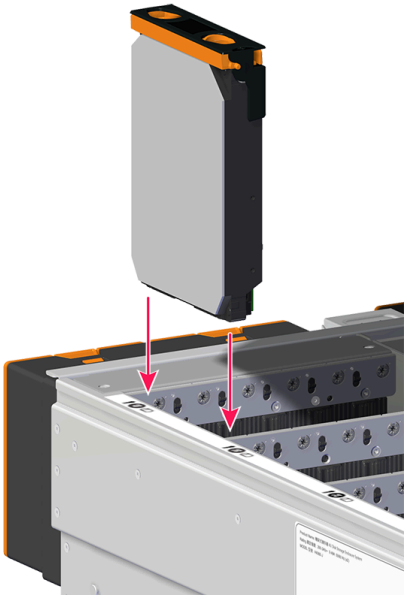
Caution: To ensure proper airflow for enclosure cooling, any rows partially populated with drive assemblies should be completed with drive blanks.

a. Ensure that the enclosure is in its servicing (extended) position.

b. Identify the first drive assembly to be installed.

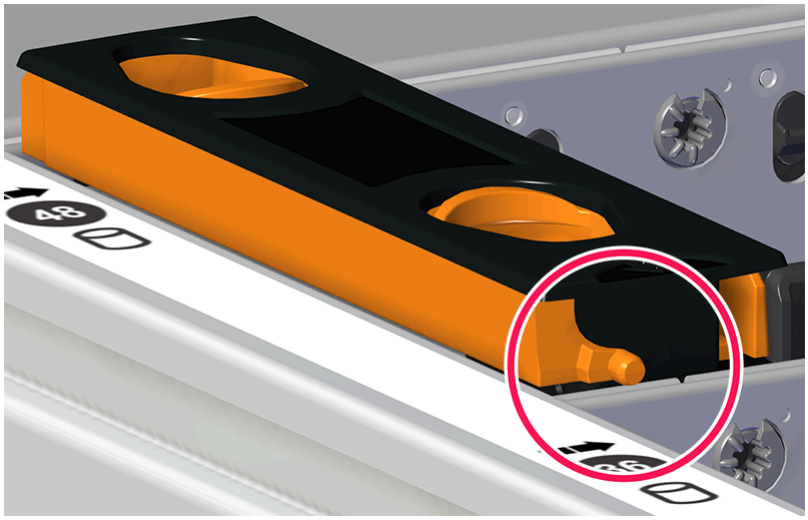
c. Align the drive assembly with the empty slot. Lower it into the slot, ensuring that it stays level and does not bind.

Figure 39: Insert the Drive Assembly



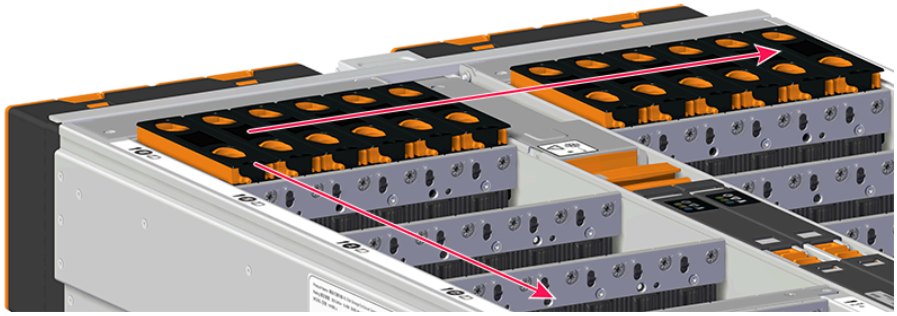
d. Lower the drive assembly until the spring-loaded posts on the carrier contact the top edges of the drive slot. This is a partial insertion; the drive assembly will be fully seated later on.

Figure 40: Partially Insert the Drive Assembly



e. Repeat this partial insertion for the remaining drive assemblies, populating the enclosure from left-to-right, rear-to-front.

Figure 41: Partially Insert All Drive Assemblies



f. Returning to the first drive assembly, pinch the latch release and carefully press downward to fully seat the drive assembly into the drive slot. As the drive mates with the baseboard connector, release the orange latch making sure that the latch pins on the drive carrier seat correctly into the grommets on the drive dividers.

Figure 42: Fully Insert the Drive Assemblies

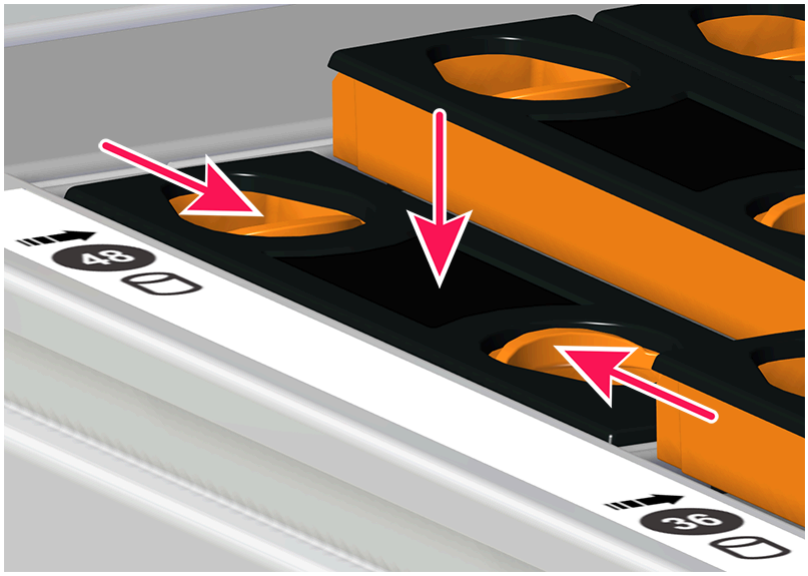
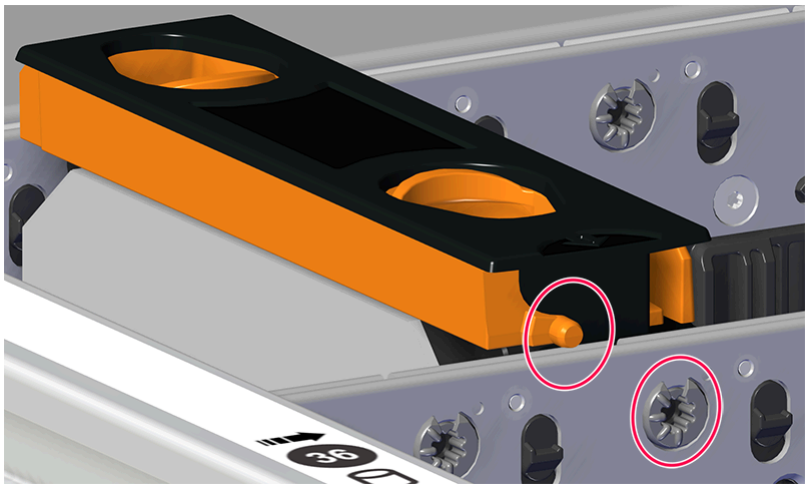


Figure 43: Latch Pins and Grommets

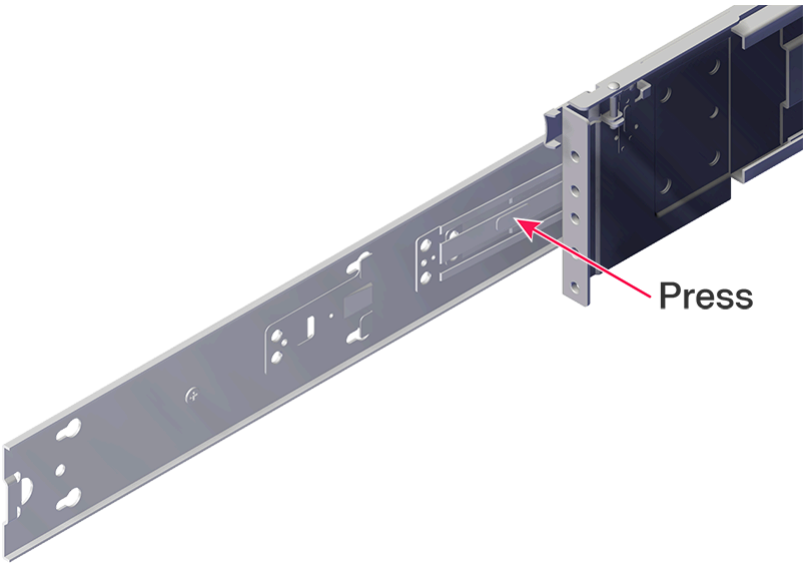


g. Repeat this action to fully install the remaining drive assemblies in the same order, from left-to-right, rear-to-front.

Step 3 : Return the enclosure to its operating postion.

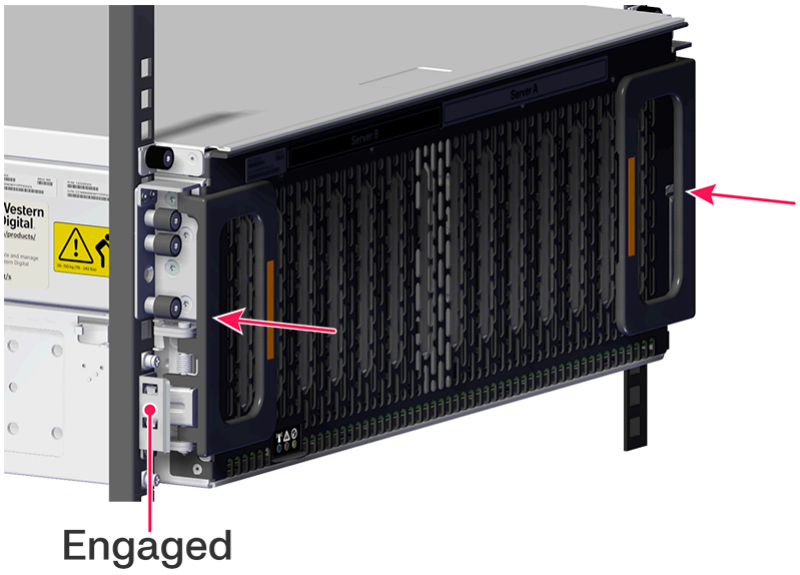
a. Press the safety latches on the rails to unlock them and allow the enclosure to be pushed in.

Figure 44: Unlock the Safety Latches



b. Push the enclosure all the way into the rack until the enclosure latches engage with the rack brackets.

Figure 45: Push the Enclosure Into the Rack



Result: The drive assemblies have now been installed.

What to do next: Proceed to Cable Tray Installation *(page 37)*.

2.4 Cable Tray Installation

This procedure provides instructions for installing a cable tray on a Data60 3000 Series platform.

Table 8: Cable Tray Installation Information

Category	Details
Number of People	1
Average Installation Time	1 minute
Toolless?	No
Required Tools	T15 Torx screwdriver
Torque Value(s)	Cable tray screws: 0.3-0.6 Nm (3-5 in-lbf)
Required Part(s)	1 cable tray

Step 1: Remove the cable tray from its packaging

Step 2: Install the cable tray.

a. At the rear of the rack, insert the guide pins of the cable tray into the alignment slots on the rear of the rail assembly. Then, slide the cable tray forward until it is seated against the enclosure.

Figure 46: Insert the Pins Into the Slots

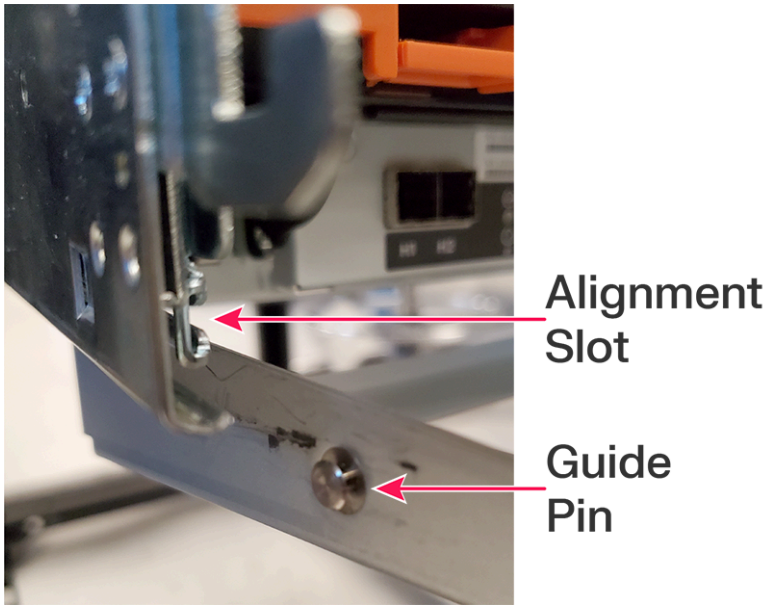
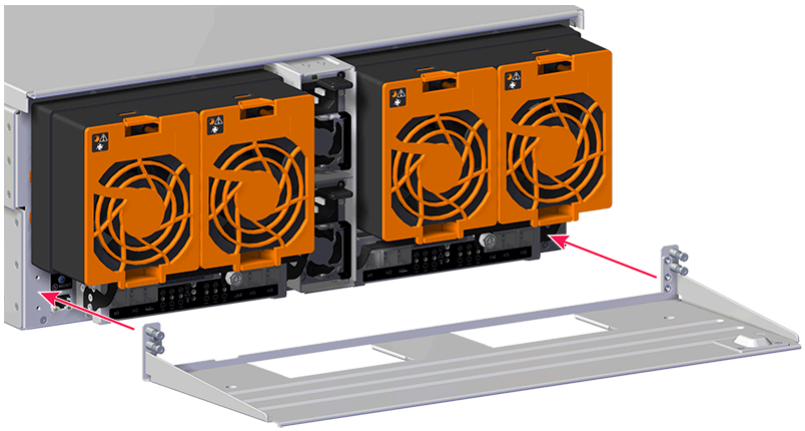


Figure 47: Slide the Cable Tray Forward



b. Use a T15 Torx screwdriver to tighten the cable tray's four (4) captive screws. Torque the captive screws to 0.3-0.6 Nm (3-5 in-lbf).

Figure 48: Tighten the Cable Tray Captive Screws

Result: The cable tray has now been installed.

What to do next: Proceed to Cable Management Assembly Installation *(page 39)*.

2.5 Cable Management Assembly Installation

Table 9: CMA Installation Information

Category	Details
Number of People	1
Average Installation Time	4 minutes
Required Tool(s)	None
Required Part(s)	1 CMA kit

Step 1: Remove the CMA from its packaging.

Step 2: At the rear of the enclosure, install the CMA.

a. Orient the CMA arms as shown in the following image. Attach the dual connectors of each CMA arm to the dual clips on the rear of the Rail Assembly. The latches will click into place.

Figure 49: Attach the CMA Arms

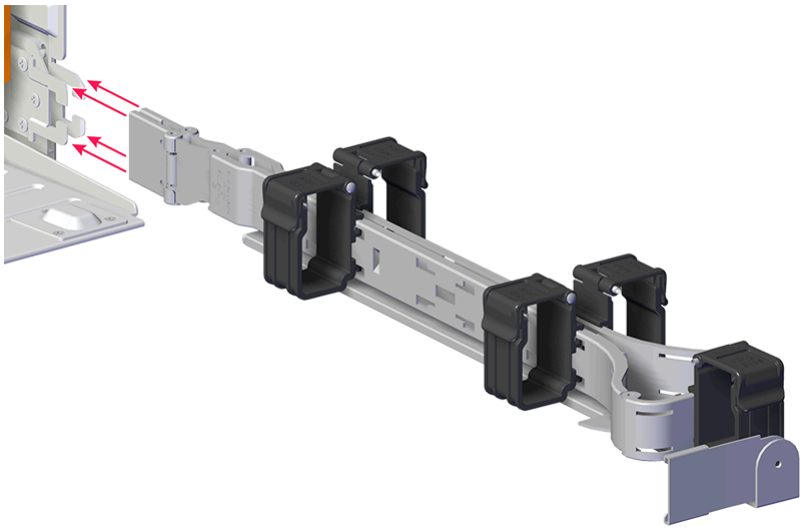
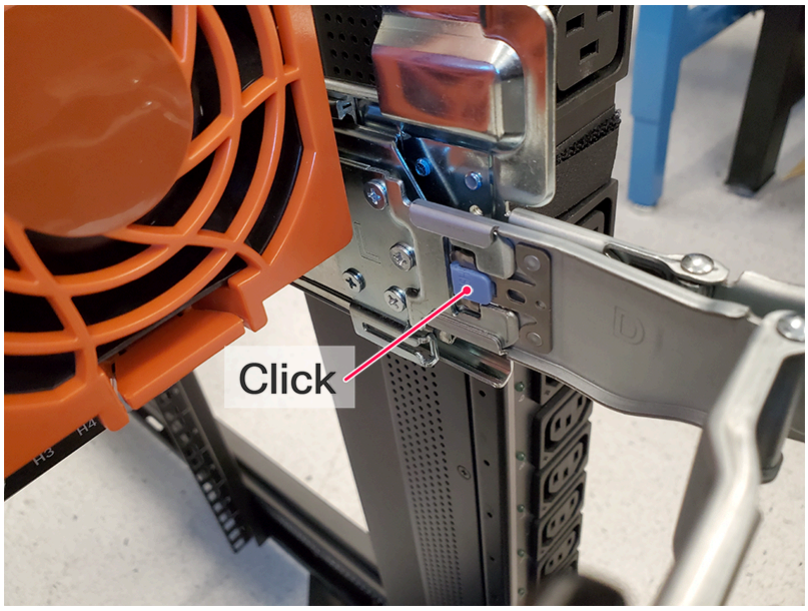
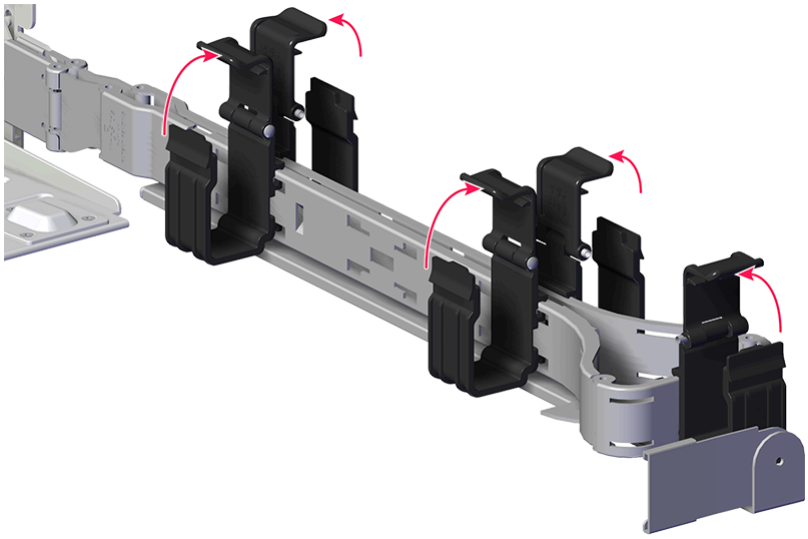


Figure 50: Secure the CMA Latches



b. Open the baskets of the CMA arms.

Figure 51: Open the CMA Arm Baskets



c. Plug the Ethernet cables into the appropriate HEM ports.

Note: For cable installation information, see Cable Installation & Routing *(page 43)*.

d. Plug the power cables into the PSUs.

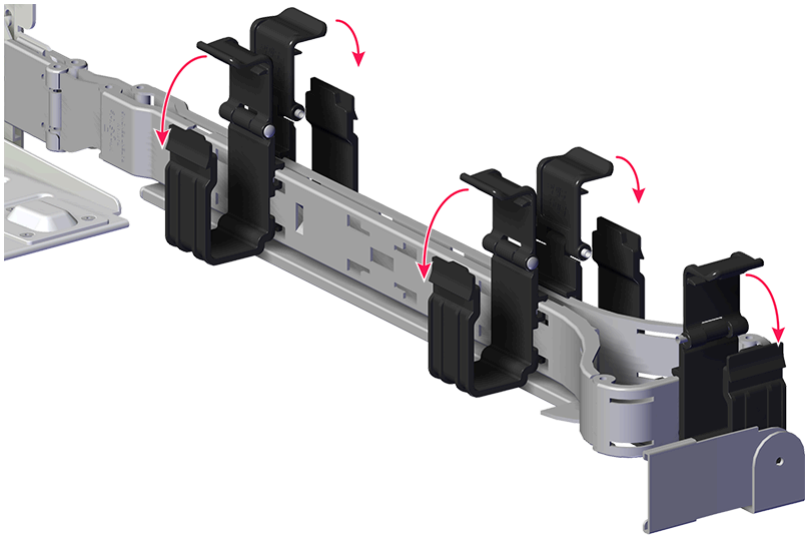
Important: Make sure the power cables are not connected to a PDU. If they are, the system will power up when the cable is plugged into the PSU. This is not intended at this stage of installation.

e. Route the power and data cables through the CMA arms.

Note: For routing information, see Cable Installation & Routing *(page 43)*.

f. Close the baskets of the CMA arms to secure the cabling.

Figure 52: Close the CMA Arm Baskets



Step 3 : Close the CMA arms.

a. Close both CMA arms, securing them to the rear of the Rail Assembly by their elbow clips.

Figure 53: Close the CMA Arms

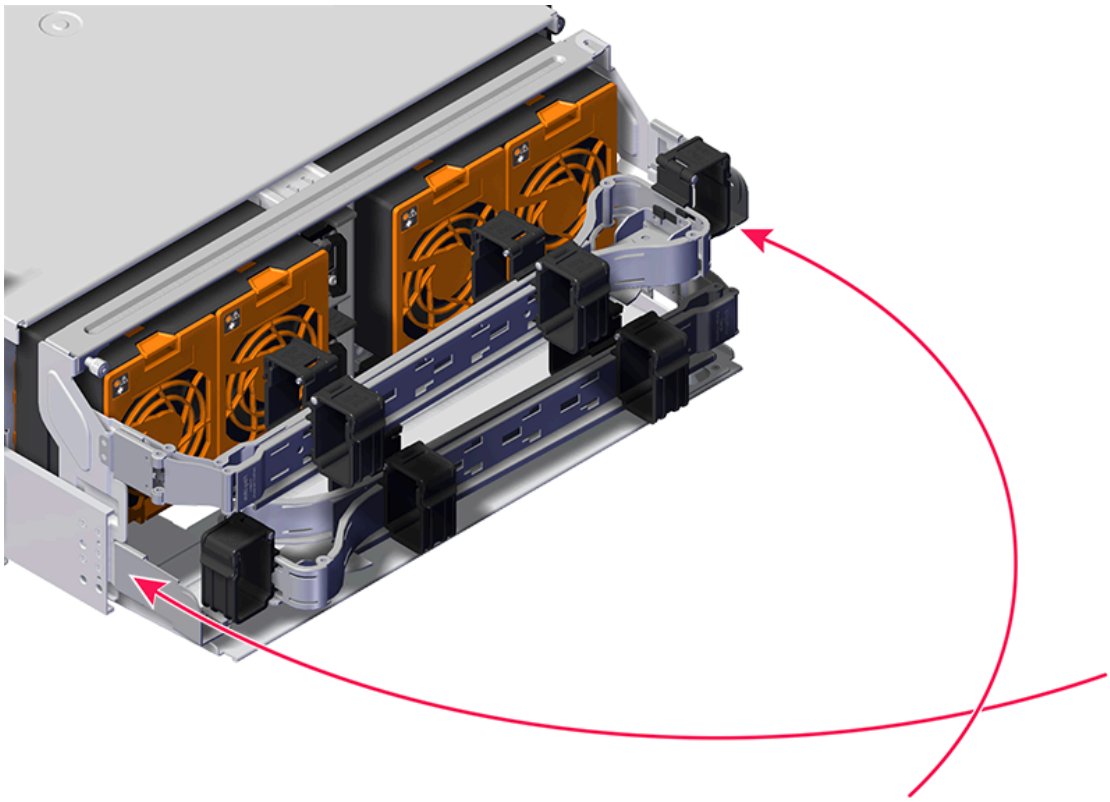
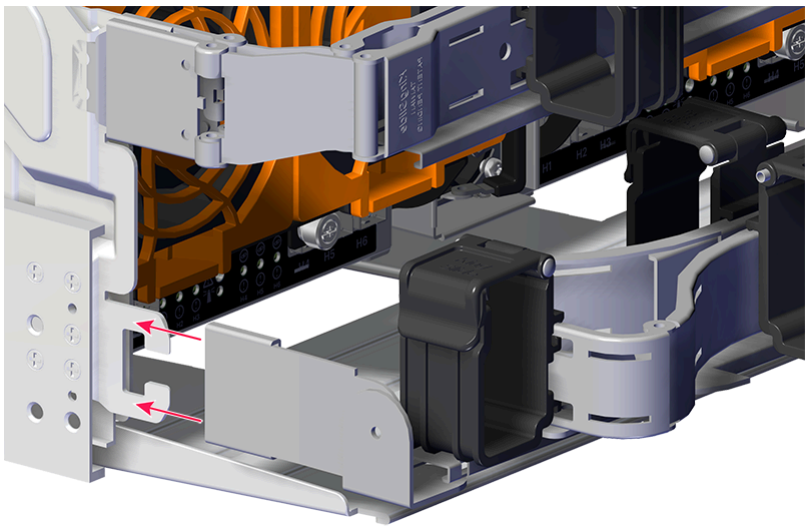


Figure 54: Attach the CMA Clips



Result: The CMA has now been installed.

What to do next: Proceed to Cable Installation & Routing *(page 43)*.

2.6 Cable Installation & Routing

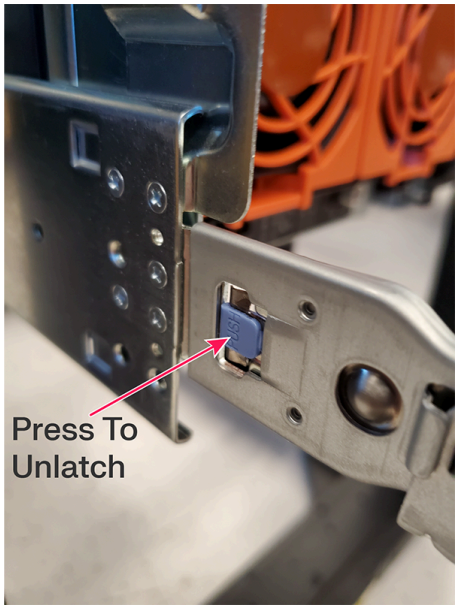
Table 10: Cable Installation & Routing Information

Category	Details
Number of People	1
Average Installation Time	30 minutes
Required Tool(s)	T15 Torx screwdriver
Torqe Value(s)	Rack ear screws: 3.4-3.6 Nm (30-32 in-lbf)
Required Components (per CMA arm)	Up to 6 (6) mini-SAS HD to min-SAS HD cables[1]
	One (1) RJ45 Ethernet cable (for enclosure management)
	One (1) power cable[2]
Optional Materials	Cable tie or hook-and-loop strip

Step 1: Open the CMA arms.

a. From the rear of the enclosure (hot aisle), press the blue tab on the elbow-side connector of each CMA arm (the single connector, not the double connector). This will release the CMA arm and allow it to open.

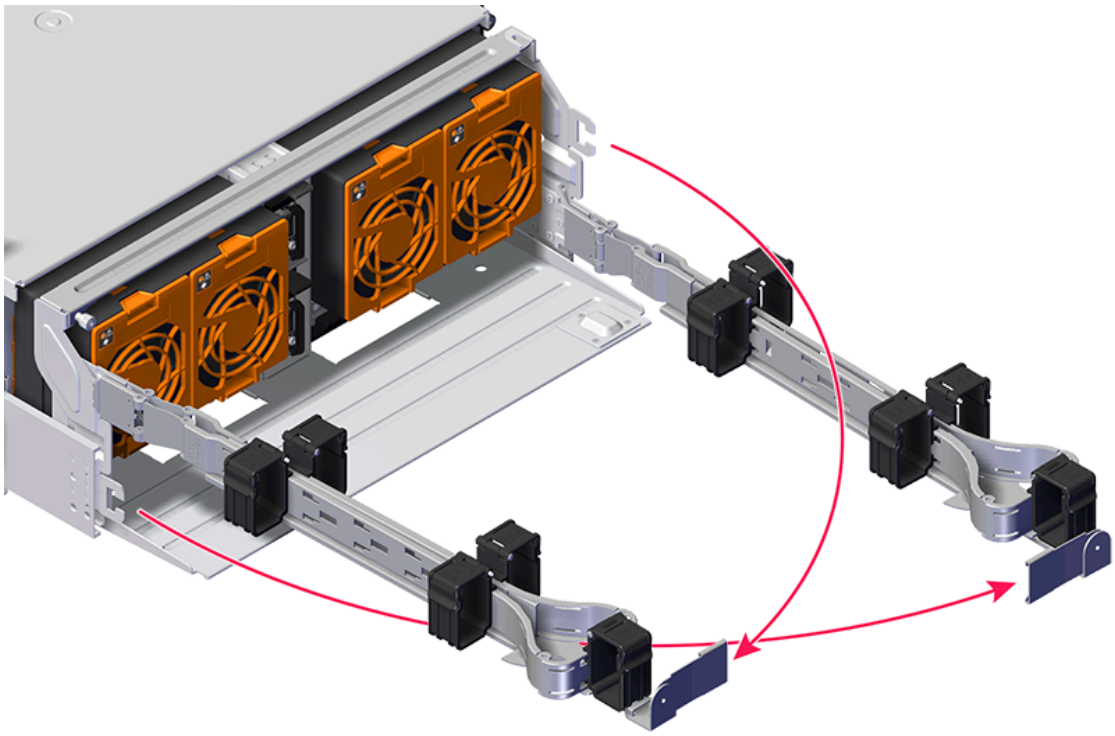
Figure 55: Unlatch the Elbow-Side of the CMA Arms



b. Open both CMA arms to expose the rear of the enclosure.

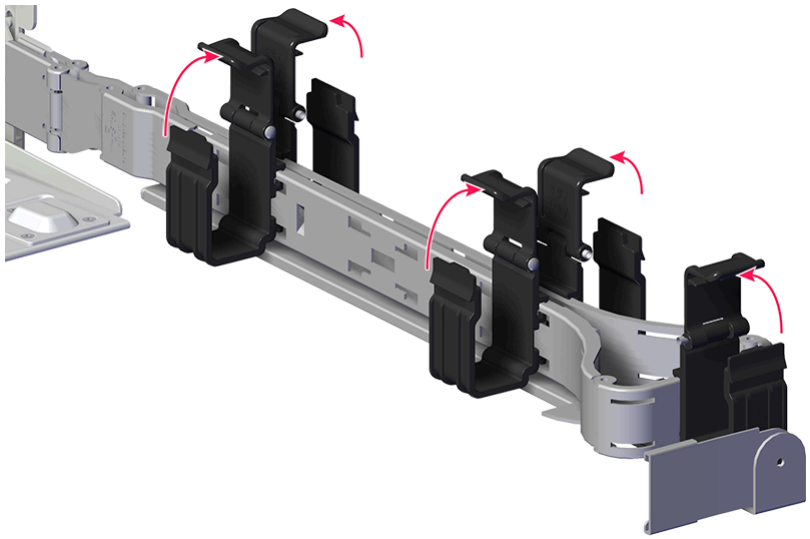
1. See the Data60 3000 Series Compatibility Matrix for compatible data cables.
2. See the Data60 3000 Series Compatibility Matrix for compatible power cables.

Figure 56: Open the CMA Arms



Step 2 : Open the CMA arm baskets.

Figure 57: Open the CMA Arm Baskets



Step 3 : Install the cables for HEM A.

a. Plug one (1) Ethernet cable into the enclosure management port on the left side of the enclosure.

Figure 58: Install the Left Management Cable

b. Plug six (6) SAS cables into the SAS ports on HEM A.

Figure 59: Install the Left SAS Cables

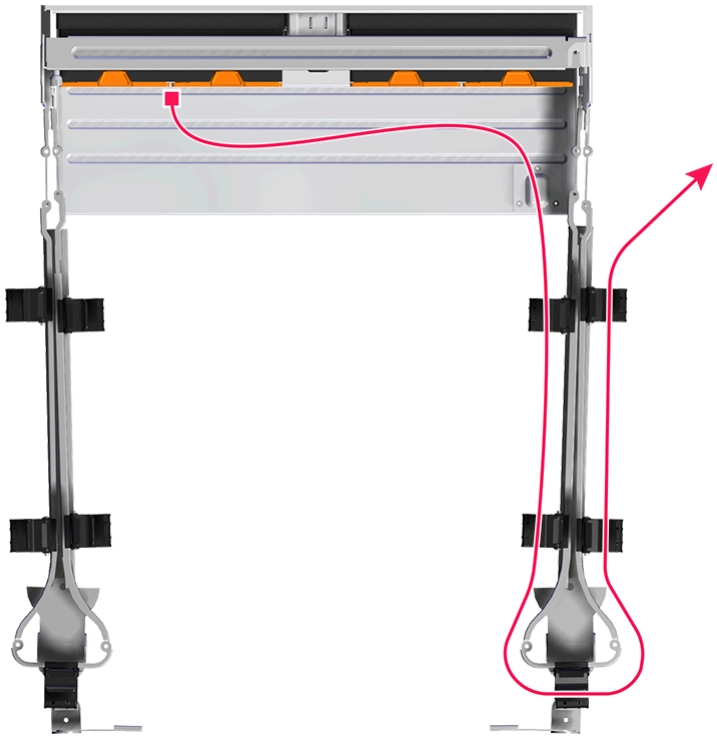
c. Plug one (1) power cable into the lower PSU.

Important: Make sure the power cable is not connected to a PDU. If it is, the system will power up when the cable is plugged into the PSU. This is not intended at this stage of cable installation.

Figure 60: Install the Lower PSU Cable

d. Route the Ethernet management cable, the SAS cables, and the power cable through the lower CMA arm on the right side of the enclosure (as seen from the rear).

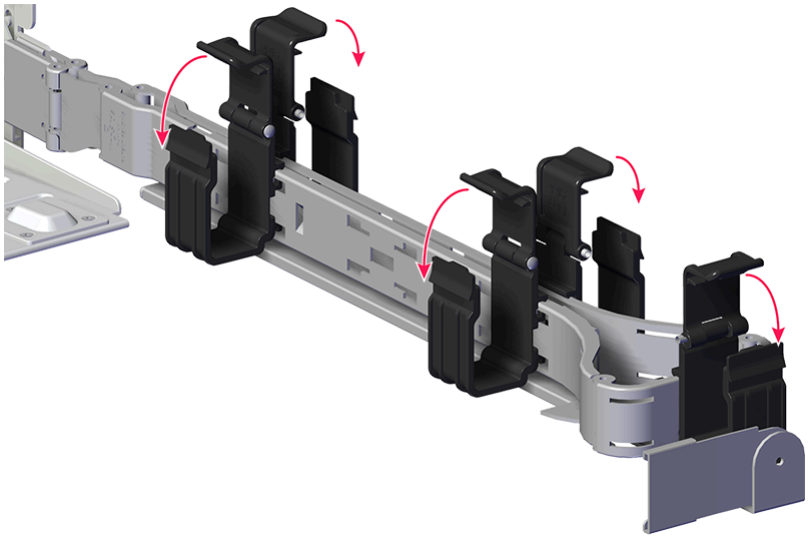
Figure 61: Route the HEM A Cables Through the Lower CMA Arm



Note: For additional routing tips, see Special Considerations for Cable Routing *(page 53)*.

e. Close the CMA arm baskets.

Figure 62: Close the CMA Arm Baskets



Step 4 : Install the cables for HEM B.

a. Plug one (1) Ethernet cable into the enclosure management port on the right side of the enclosure.

Figure 63: Install the Right Management Cable

b. Plug six (6) SAS cables into the SAS ports on HEM B.

Figure 64: Install the Right SAS Cables

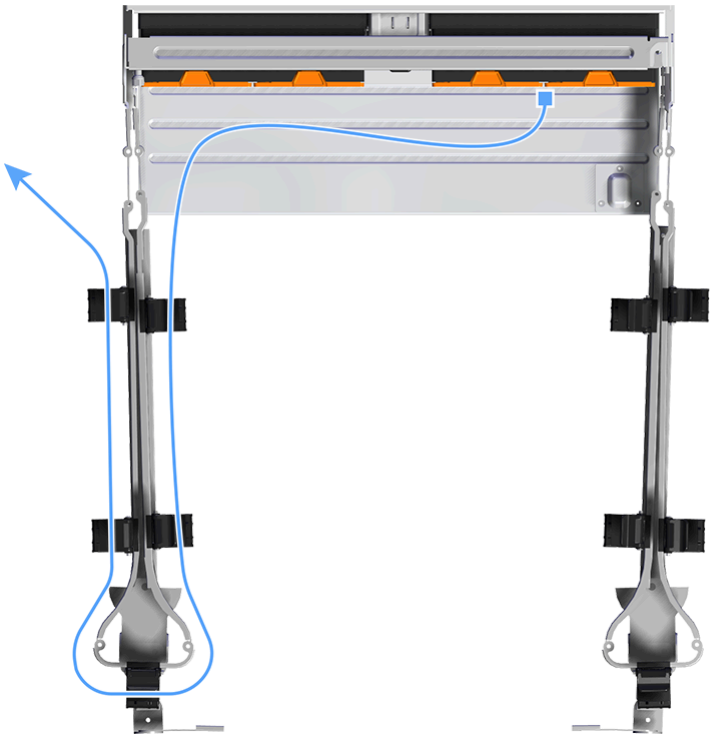
c. Plug one (1) power cable into the upper PSU.

Important: Make sure the power cable is not connected to a PDU. If it is, the system will power up when the cable is plugged into the PSU. This is not intended at this stage of cable installation.

Figure 65: Install the Upper PSU Cable

d. Route the Ethernet management cable, the SAS cables, and the power cable through the upper CMA arm on the left side of the enclosure (as seen from the rear).

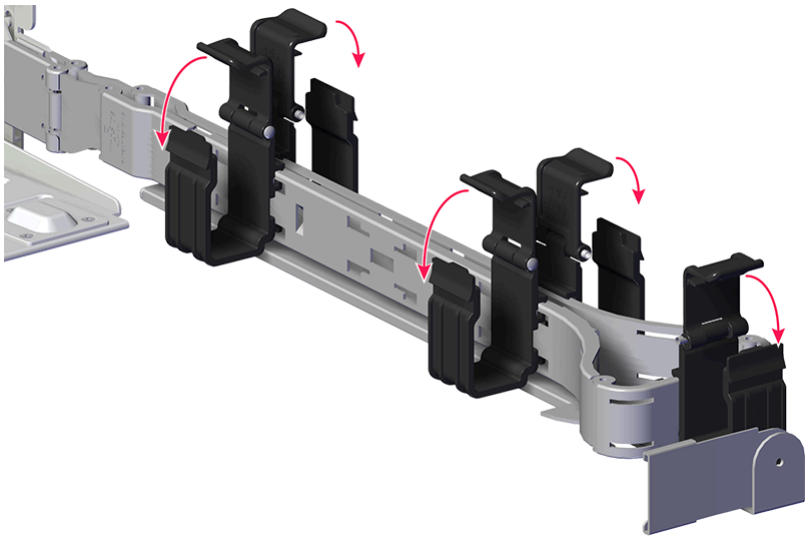
Figure 66: Route the HEM B Cables Through the Upper CMA Arm



Note: For additional routing tips, see Special Considerations for Cable Routing *(page 53)*.

e. Close the CMA arm baskets.

Figure 67: Close the CMA Arm Baskets



Step 5 : Close the CMA arms.

a. Close both CMA arms, securing them to the rear of the Rail Assembly by their elbow clips.

Figure 68: Close the CMA Arms

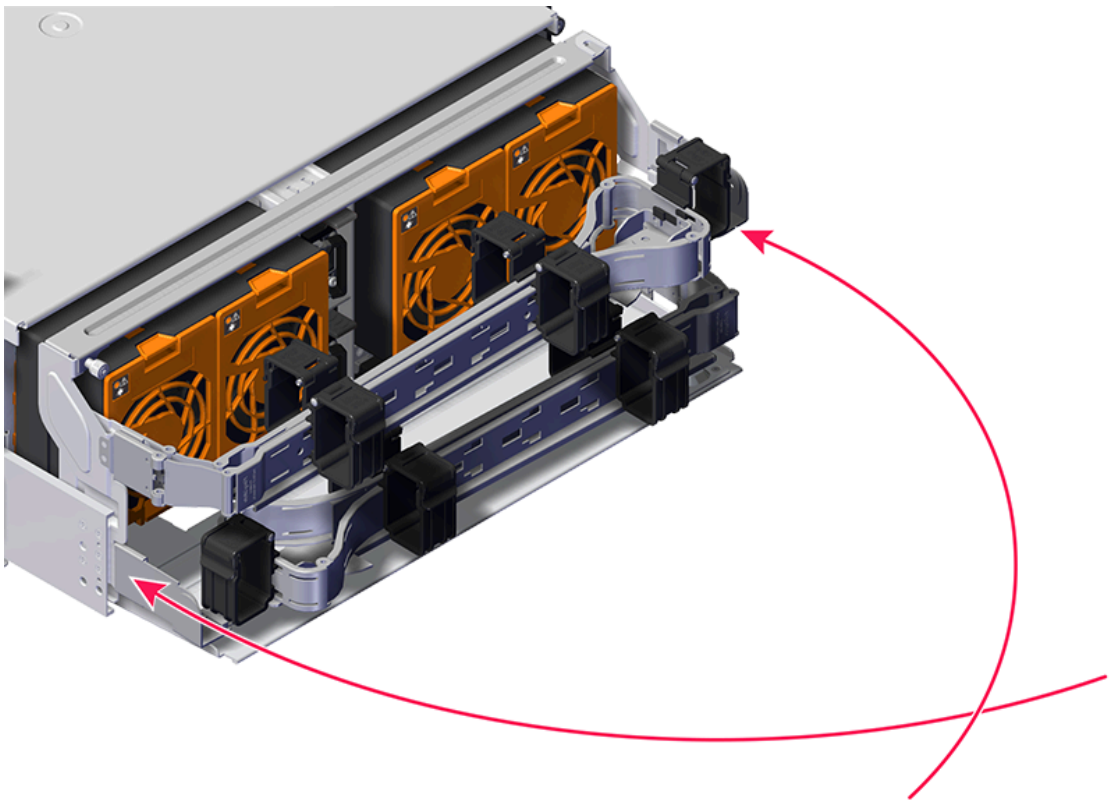
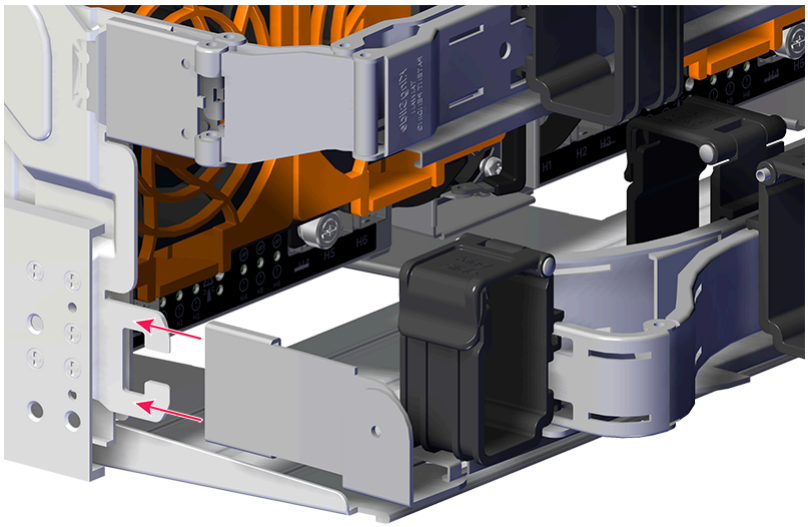


Figure 69: Attach the CMA Clips



Step 6 : Test the cable routing by moving the enclosure into its servicing (extended) position.

a. Grasp both enclosure handles and rotate them outward.

This will disengage the enclosure latches from the rack brackets, allowing the enclosure to be pulled out of the rack.

Figure 70: Open the Enclosure Handles

b. Use the enclosure handles to pull the enclosure out of the rack.

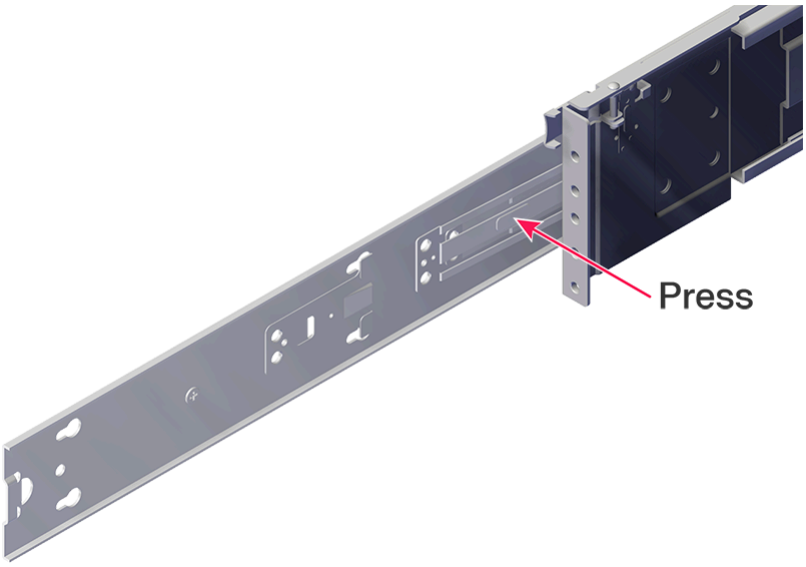
Figure 71: Pull the Enclosure Out

c. Check the cables for binding during the extension movement, and make routing adjustments as needed.

Step 7 : Return the enclosure to its operating postion.

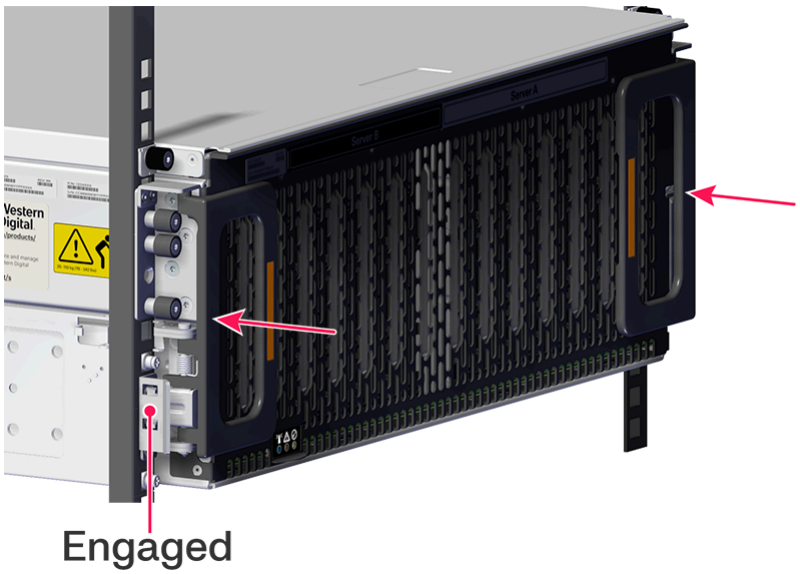
a. Press the safety latches on the rails to unlock them and allow the enclosure to be pushed in.

Figure 72: Unlock the Safety Latches



b. Push the enclosure all the way into the rack until the enclosure latches engage with the rack brackets.

Figure 73: Push the Enclosure Into the Rack



c. Check the cables for binding during the enclosure's movement back into the rack, and make routing adjustments as needed.

d. Use a T15 Torx screwdriver to tighten the three (3) captive screws on each rack-ear (total of 6). If needed, use a T15 Torx screwdriver to reinstall the shipping screws (1 on each rack ear). Torque the screws to 3.4-3.6 Nm (30-32 in-lbf).

Figure 74: Tighten the Rack-Ear Screws

Result: The cabling has now been routed through the CMA.

What to do next: Proceed to Enclosure Power-Up *(page 57)*.

2.6.1 Special Considerations for Cable Routing

This section describes special considerations for installers routing cables through the CMA.

Cable Length From Connector to First CMA Basket

The recommended distance from the end of the cable connector to the first basket on the CMA depends on the type of cable and where it plugs in to the enclosure. Refer to the following diagram and associated table to determine the correct distances. These recommendations will provide enough slack between the HEM ports and the CMA to prevent stress on the port and cable binding during operating and servicing cycles.

Figure 75: Cable Identification

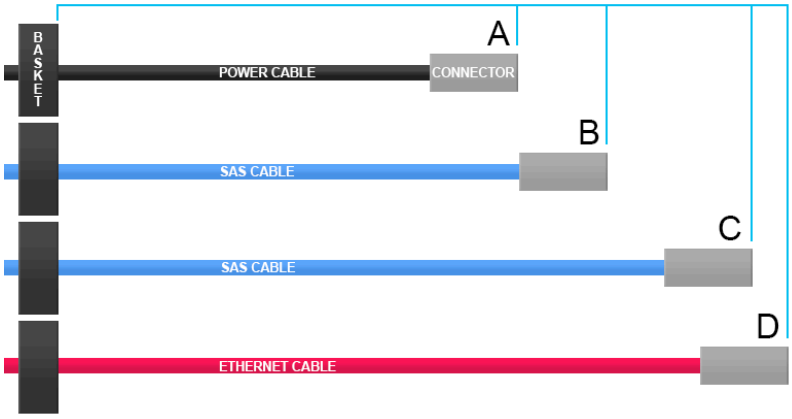


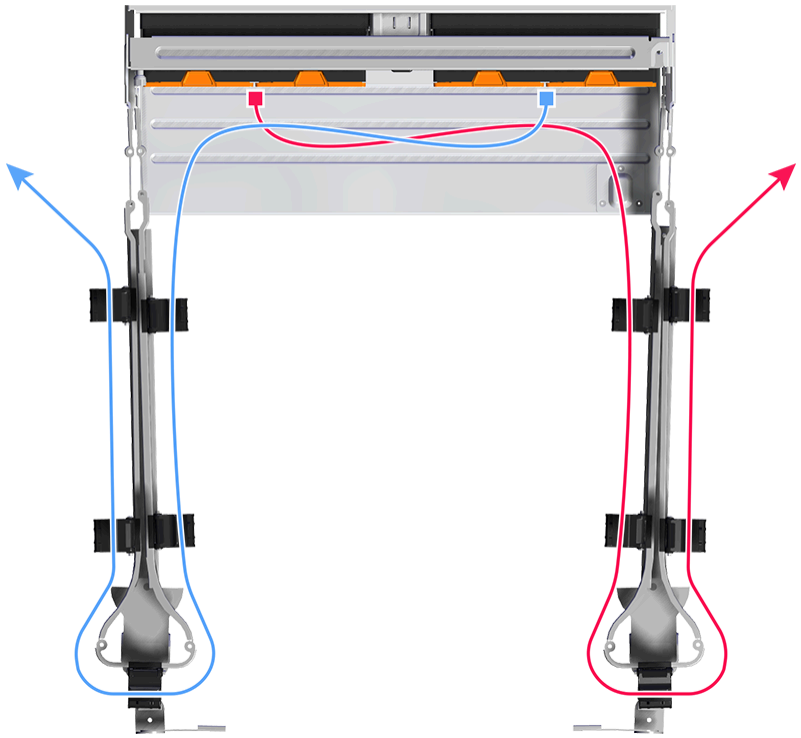
Table 11: Recommended Cable Distance Between Connector & Basket

Cable Identifier	Cable Description	Distance to First Basket
A	Power Cable (to PSU)	419.1-444.5 mm (16.5-17.5 in.)
B	SAS Cables (to nearest HEM ports)	508-533.4 mm (20-21 in.)
C	SAS Cables (to farthest HEM ports)	596.9-622.3 mm (23.5-24.5 in.)
D	Ethernet Cable (to enclosure management port)	635-660.4 mm (25-26 in.)

Criss-Cross Routing

The cables from the lower CMA arm on the right side (as seen from the rear) should be routed to the HEM A ports on the left side of the enclosure. The cables from the upper CMA arm on the left side should be routed to the HEM B ports on the right side of the enclosure. When installed properly, the cable bundles from each CMA arm should criss-cross in front of the HEMs.

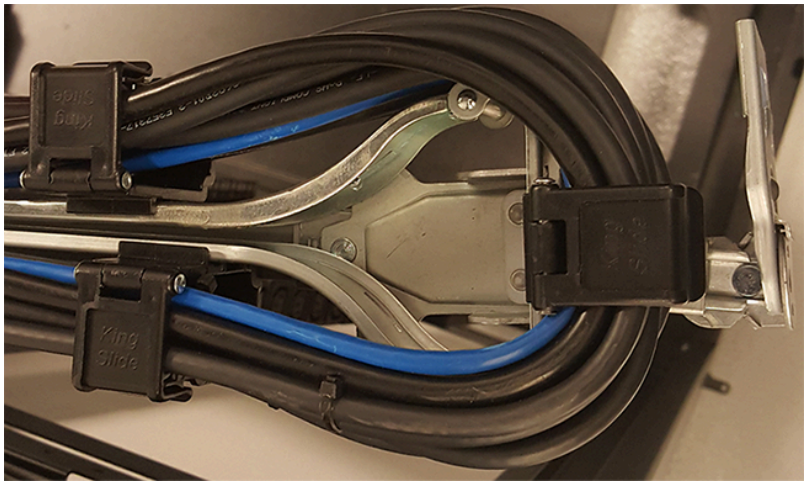
Figure 76: Criss-Crossed Cables



Slack at the CMA Elbow Joint

When the cables are routed through the CMA, make sure slack is provided at the elbow joint of the CMA. Do not wrap the cables tightly around this joint, as doing so may cause binding and prevent smooth operation. To ensure there is enough slack at the elbow, slide the enclosure in and out of the rack, and have another installer check for binding in the elbow joint. Make sure the cables are bending without twisting.

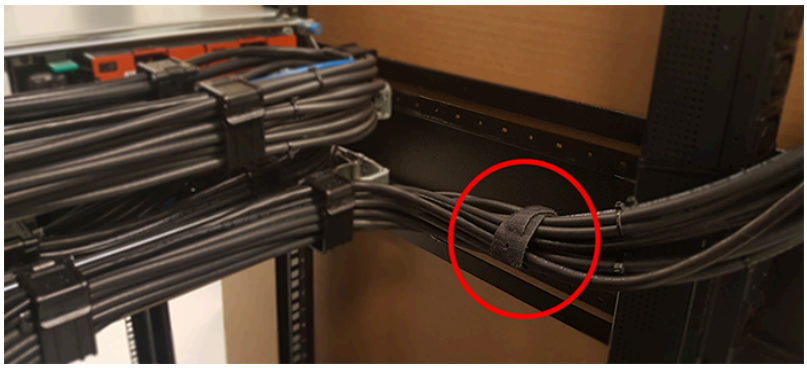
Figure 77: CMA Elbow Joint With Full Cable Bundle



Bundling at the CMA Exit

At the end of the CMA where the cables exit, use a cable tie or hook-and-loop strip to bundle the cables together. Make sure the cables can bend without twisting.

Figure 78: Cable Tie at Exit of CMA



2.7 Enclosure Power-Up

Table 12: Enclosure Power-Up Information

Category	Details
Number of People	1
Average Required Time	5 minutes
Required Tools	None
Required Parts	None

Step 1: Power up the enclosure.

a. Plug the power cables into a PDU to power up the enclosure.

b. After the enclosure boots up, ensure that the chassis's fault LED (amber) is OFF, and the power LED (green) is solid ON, indicating proper function.

Result: The enclosure is now powered up and ready for operation.

Safety

The following chapter provides safety information for the Data60 3000 Series.

In This Chapter:

3.1 Electrostatic Discharge

CAUTION

Electrostatic discharge can harm delicate components inside Western Digital products.

Electrostatic discharge (ESD) is a discharge of stored static electricity that can damage equipment and impair electrical circuitry. It occurs when electronic components are improperly handled and can result in complete or intermittent failures.

Wear an ESD wrist strap for installation, service and maintenance to prevent damage to components in the product. Ensure the antistatic wrist strap is attached to a chassis ground (any unpainted metal surface). If possible, keep one hand on the frame when you install or remove an ESD-sensitive part.

Before moving ESD-sensitive parts, place them in ESD static-protective bags until you are ready to install the part.

3.2 Optimizing Location

- Failure to recognize the importance of optimally locating your product, and failure to protect against electrostatic discharge (ESD) when handling your product, can result in lowered system performance or system failure.
- Do not position the unit in an environment with extreme high temperatures or extreme low temperatures. Be aware of the proximity of the unit to heaters, radiators, and air conditioners.
- Position the unit so that there is adequate space around it for proper cooling and ventilation.
- Keep the unit away from direct strong magnetic fields, excessive dust, and electronic/electrical equipment that generate electrical noise.

3.3 Power Connections

Be aware of the ampere limit on any power supply or extension cables being used. The total ampere rating being pulled on a circuit by all devices combined should not exceed 80% of the maximum limit for the circuit.

CAUTION The power outlet must be easily accessible and close to the unit.

Always use properly grounded, unmodified electrical outlets and cables. Ensure all outlets and cables are rated to supply the proper voltage and current.

When power cycling the unit, wait 10 seconds before re-applying power. Failure to do so may cause the enclosure to boot up in an inaccessible state. If this is encountered, remove power, wait 10 seconds, and then reapply power.

3.4 Power Cords

Use only tested and approved power cords to connect to properly grounded power outlets or insulated sockets of the rack's internal power supply.

If an AC power cord was not provided with your product, purchase one that is approved for use in your country or region.

CAUTION To avoid electrical shock or fire, check the power cord(s) that will be used with the product as follows:

- The power cord must have an electrical rating that is greater than that of the electrical current rating marked on the product.
- Do not attempt to modify or use the AC power cord(s) if they are not the exact type required to fit into the grounded electrical outlets.
- The power supply cord(s) must be plugged into socket-outlet(s) that is / are provided with a suitable earth ground.
- The power supply cord(s) is / are the main disconnect device to AC power. The socket outlet(s) must be near the equipment and readily accessible for disconnection.

3.5 Rack-Mountable Systems

CAUTION: **Always install rack rails and storage enclosure according to Data60 3000 Series product documentation. Follow all cautions, warnings, labels, and instructions provided within the rackmount instructions.**

Reliable grounding of rack-mounted equipment should be maintained.

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

Observe the maximum rated ambient temperature, which is specified in the product documentation.

For safe operation of the equipment, installation of the equipment in a rack should be such that the amount of air flow is not impeded so that the safe operation of the equipment is not compromised.

3.6 Safety and Service

 All maintenance and service actions appropriate to the end-users are described in the product documentation. All other servicing should be referred to a Western Digital-authorized service technician.

 To avoid shock hazard, turn off power to the unit by unplugging both power cords before servicing the unit. Use extreme caution around the chassis because potentially harmful voltages are present.

 When replacing a hot-plug power supply, unplug the power cord to the power supply being replaced before removing it from the Data60 3000 Series.

 The power supply in this product contains no user-serviceable parts. Do not open the power supply. Hazardous voltage, current and energy levels are present inside the power supply. Return to manufacturer for servicing.

 Use caution when accessing part of the product that are labeled as potential shock hazards, hazardous access to moving parts such as fan blades.

3.7 Safety Warnings and Cautions

To avoid personal injury or property damage, before you begin installing the product, read, observe, and adhere to all of the following safety instructions and information. The following safety symbols may be used throughout the documentation and may be marked on the product and/or the product packaging.

CAUTION Indicates the presence of a hazard that may cause minor personal injury or property damage if the CAUTION is ignored.

WARNING Indicates the presence of a hazard that may result in serious personal injury if the WARNING is ignored.

 Indicates potential hazard if indicated information is ignored.

 Indicates shock hazards that result in serious injury or death if safety instructions are not followed.

 Indicates do not touch fan blades, may result in injury.

 Indicates disconnect all power sources before servicing.