V-Series User Manual

v.26041

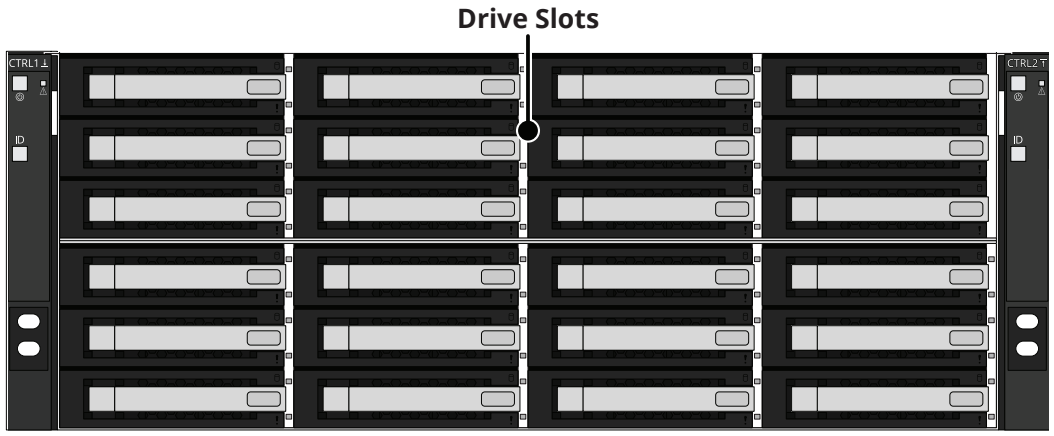
Contents

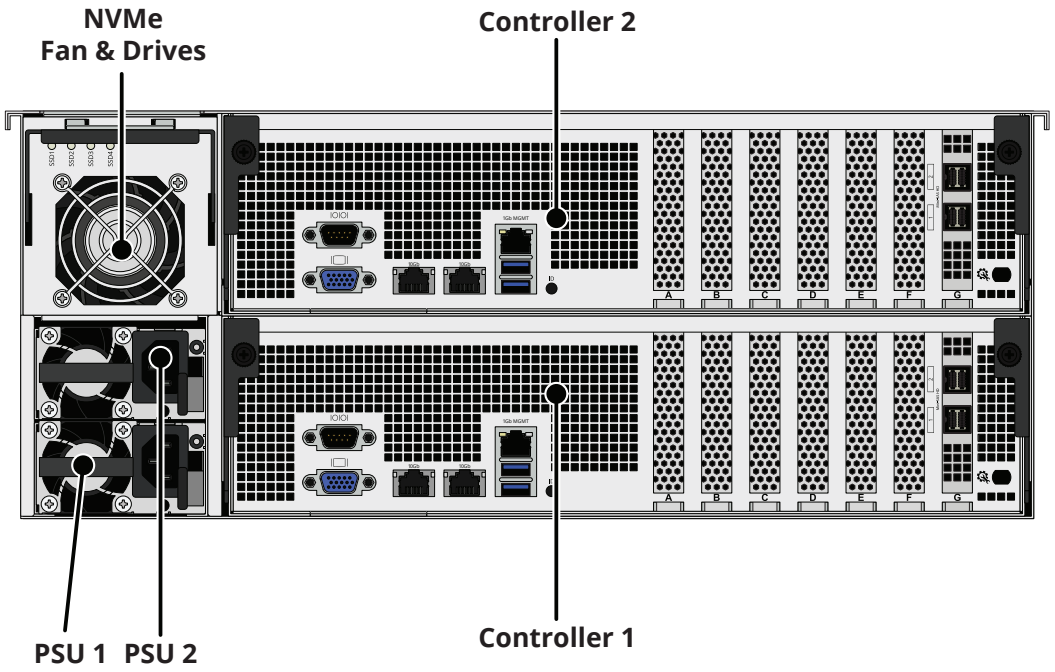
1 Introduction

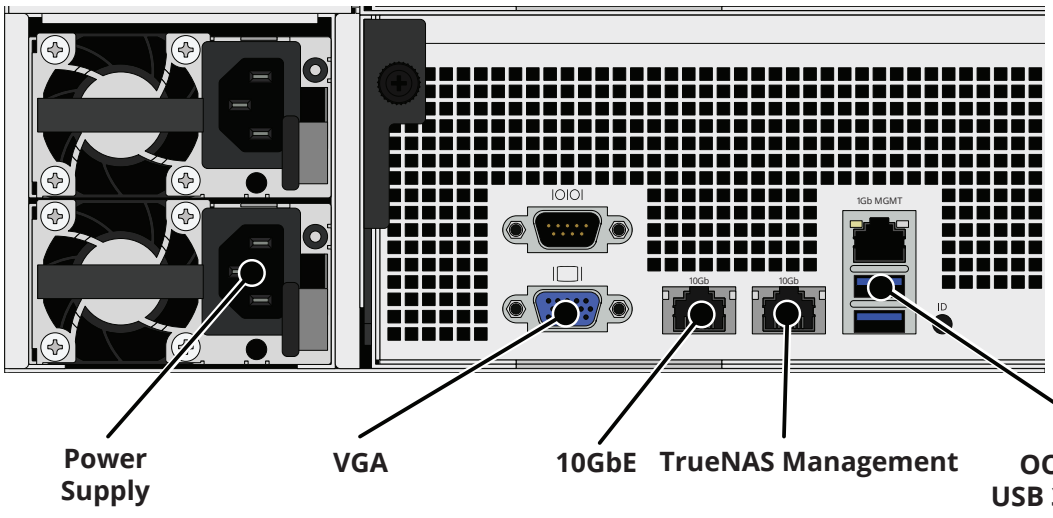
The TrueNAS V-Series is a 4U, 24-bay tri-mode storage array with redundant power supplies.

Your system comes with the TrueNAS operating system preloaded.

Review the safety considerations and requirements before interacting with the V-Series.







2 Safety

2.1 Anti-Static Precautions

Warning - Electrostatic Discharge (ESD)

Static electricity can build up in your body and discharge when touching conductive materials. Electrostatic Discharge (ESD) is harmful to sensitive electronic devices and components. Keep these safety recommendations in mind before opening the system case or handling non-hot-swappable system components.

- Turn off the system and remove power cables before opening the case or touching internal components.
- Place the system on a clean, hard work surface like a wooden tabletop. Use an ESD dissipative mat if possible to protect the internal components.
- Touch the metal chassis with your bare hand to dissipate static electricity in your body before handling any internal components, including components not yet installed in the system. We always recommend wearing an anti-static wristband and using a grounding cable.
- Store all system components in anti-static bags.

2.2 Laser Products

Important - Description

This equipment must use Laser Class 1 optical transceiver, and Complies with 21 CFR 1040.10 and 1040.11.

2.3 Personal Protective Equipment (PPE)

Warning - PPE

Wear proper PPE, like anti-static wrist straps and smocks before touching any sensitive equipment inside the chassis. If you are unsure how to properly replace any parts, contact TrueNAS Support.

2.4 Handling the System

Hold the system from the sides or bottom whenever possible. Always be mindful of loose cabling or connectors, and avoid pinching or bumping these elements.

These instructions use “left” and “right” according to your perspective when facing the system or rack.

Warning - Damage or Injury

The V-Series weighs approximately 117 lbs (51.61 kg) when fully populated and requires a minimum of **two** people to lift.

When handling rails, system components, or drives, never force movement if a component seems stuck. Gently remove the component and check for pinched cables or obstructing material before installing it again. Installing a component with excessive force can damage the system or cause personal injury.

3 Recommended Tools

We recommend these tools when interacting with the TrueNAS V-Series:

- Long #2 Phillips head screwdriver
- Tape measure
- Level

4 Specifications

V-Series Components	
Drive Count	3.5 inch SAS HDDs or 2.5 inch NVMe SSDS
Cooling Fans	9 (4 per controller + 1 rear NVMe)
Power Supplies (200v)	2
Power Distribution Requirements	200V - 240V
Processor	32 Core
RAM	384 - 768 GB
Onboard Networking	Management Port
Additional Networking 1 (Optional)	Up to 2x 200 GbE or 1x 400 GbE
Additional Networking 2 (Optional)	Up to 2x 200 GbE or 1x 400 GbE
Max Storage (Raw)	Up to 30 PB
Storage Expansion	ES24N, ES102, ES24, or ES60

V-Series Dimensions and Weight	
Dimensions (H x W x L)	7 in x 19 in x 30.5 in (177.8 mm x 482.6 mm x 774.7 mm)
Length with Chassis Rail	31.25 in (793.75 mm)
Net Weight (Fully Loaded)	117 lbs (51.61 kg)

V-Series Environmental Specifications	
Operating Temperature	32°F - 95°F (0°C - 35°C)
Non-Operating Temperature	-14°F - 158°F (-10°C - 70°C)
Operating Humidity (non-condensing)	5% - 95%
Supply Voltage	200-240VAC, 10A, 50-60 Hz

Compliance

TrueNAS

MODEL NAME:
TrueNAS Model V
雙插槽網路儲存伺服器

VOLTAGE:
200-240VAC
Current 10A Max (x2)

FREQUENCY:
50/60Hz

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference. **(2)** This device must accept any interference received, including interference that may cause undesired operation. 警語: 為避免電磁干擾, 本產品不應安裝或使用於住宅環境。

CAN ICES(A)/NMB(A)

WARNING: To remove all hazardous voltages, disconnect all power cords.

CONTACT: support@TrueNAS.com | www.truenas.com | 1-866-TRUENAS

The TrueNAS V-Series is a **network storage server** intended for use in **enterprise and data center environments**.

The apparatus is designed to be operated:
- In controlled IT environments, within the specified ranges for temperature, humidity, and supply voltage
- In properly grounded electrical installations, in accordance with local electrical codes
- In accordance with the TrueNAS software documentation, including configuration, operation, and maintenance instructions

This product is not designed or intended for:
- Use in life-support systems or other safety-critical applications where failure could result in injury or loss of life
- Use in residential consumer environments, unless explicitly installed and operated in a controlled, non-domestic IT setting
- Any application outside the conditions and purposes described in this manual and the TrueNAS software documentation

For detailed configuration and operational guidance, refer to the TrueNAS software documentation provided with the product and available from TrueNAS.

The V-Series is FCC/CE-marked and complies with:
- **FCC 47 CFR Part 15, Class A -** Radiated and conducted emissions limits for commercial IT equipment (EMI/EMC)
- **Low Voltage Directive (LVD) 2014/35/EU** - Electrical safety
- **Electromagnetic Compatibility (EMC) Directive 2014/30/EU -** Electromagnetic interference and immunity
- **RoHS Directive 2011/65/EU, as amended by (EU) 2015/863** - Restriction of hazardous substances
- **WEEE Directive 2012/19/EU -** Waste electrical and electronic equipment

For regulatory or compliance-related queries, contact compliance@truenas.com.
EU Authorized Representative: Obelis S.A. - Boulevard Général Wahis 53, B-1030 Brussels, BELGIUM

ⓘ Important - Battery Information

This product contains a lithium coin cell (CMOS battery) used to maintain system settings. Do not dispose of the battery with household waste. Used batteries must be collected and disposed of separately in accordance with local regulations and the EU Battery Directive 2006/66/EC. The crossed-out wheeled bin symbol indicates that the battery must be taken to an appropriate collection facility for recycling.

Caution: Risk of battery explosion if battery is replaced by an incorrect type.

5 Space Requirements

This document guides you through racking your system and accessing the TrueNAS web UI.

See the back page of this document for guidance on where to access in-depth product information and setup recommendations.

ⓘ Note - Rack Space

The V-Series requires 4U of rack space and a #2 Phillips head screwdriver to install in a rack.

The system is 30.5” (77.47 cm) long. Rack posts must be 26” - 36” (660.4 cm - 914.4 cm) apart to install the rail kit.

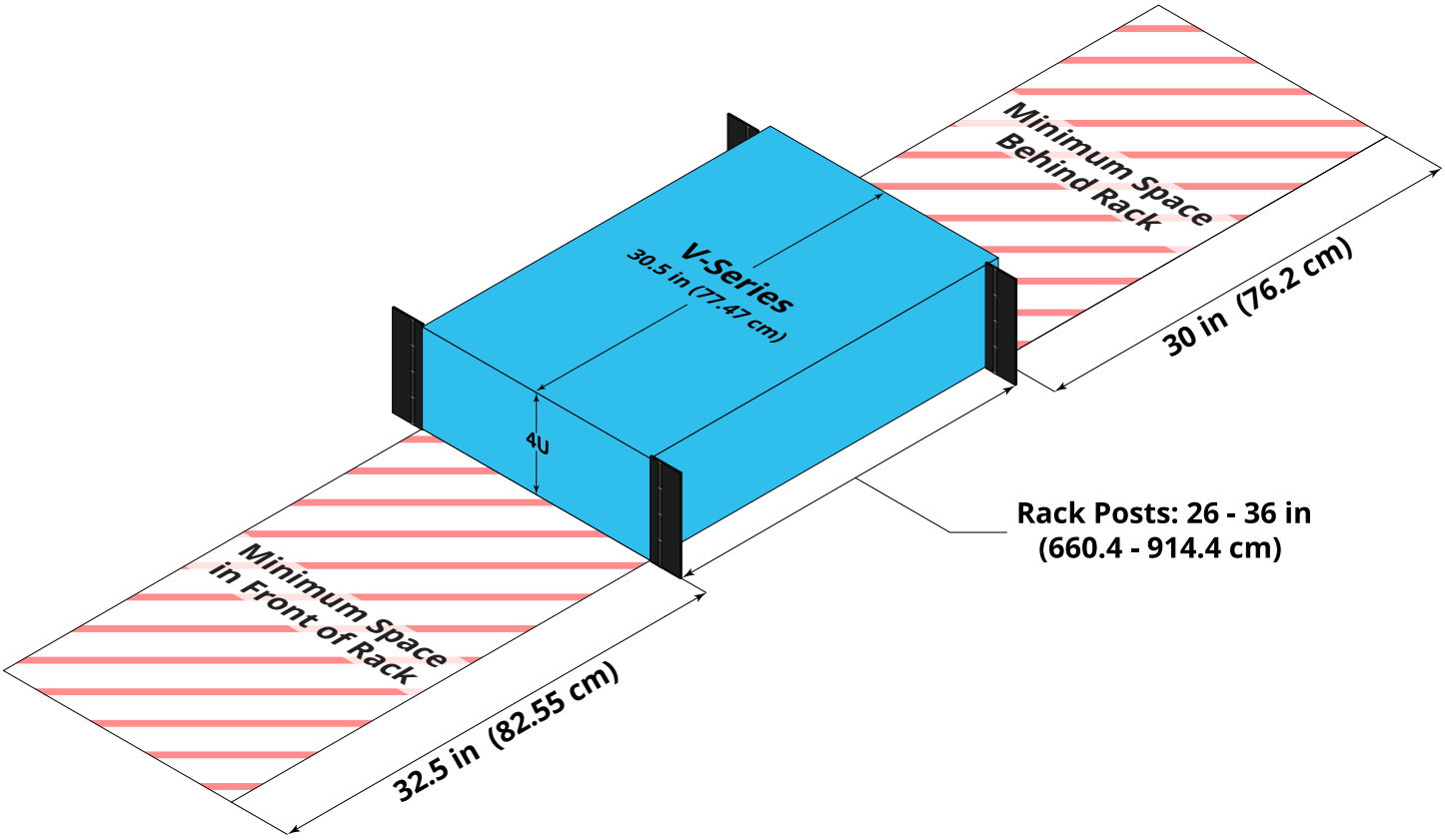
You must have at least 32.5” (82.55 cm) of space in front of the rack and 30” (76.2 cm) of space behind the rack.

ⓘ Important - Damage or Injury

When handling rails, system components, or drives, never force movement if a part seems stuck or does not insert properly. Gently remove the part and check for pinched cables or obstructing material before installing it again. Installing a part with excessive force can damage the system or cause personal injury.

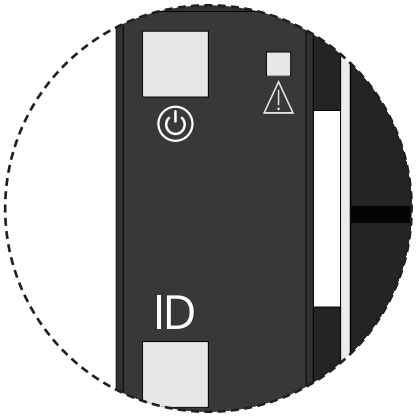
Warning - Team Lift

The V-Series requires two people to lift safely. Failure to follow safety recommendations can lead to severe system damage or personal injury.



6 Buttons and LED Indicators

6.1 Front Indicators and Buttons



Light / Button	Function	Color and Indication
⏻	Powers the system on/off	Blue (Solid): System Ready
ID	Activates Locate ID	Blue (Solid): Locate ID active
⚠	Alert	Red (Flashing): Fan/PSU Fault or Overheat Condition Green (Solid): No alerts, default

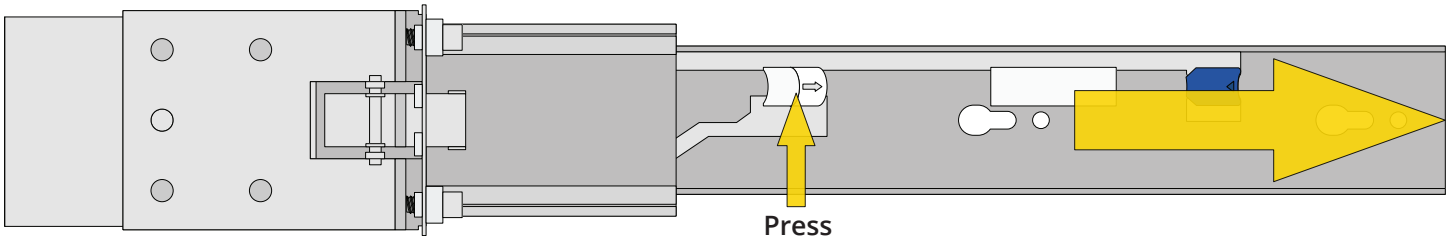
Light / Button	Color and Indication
🛢	Blue (Solid): Disk Online/Hot Spare Blue (Flashing): Disk Activity
!	Red (Solid): Drive Fault
Both	Red and Blue (Flashing): Locate ID Active

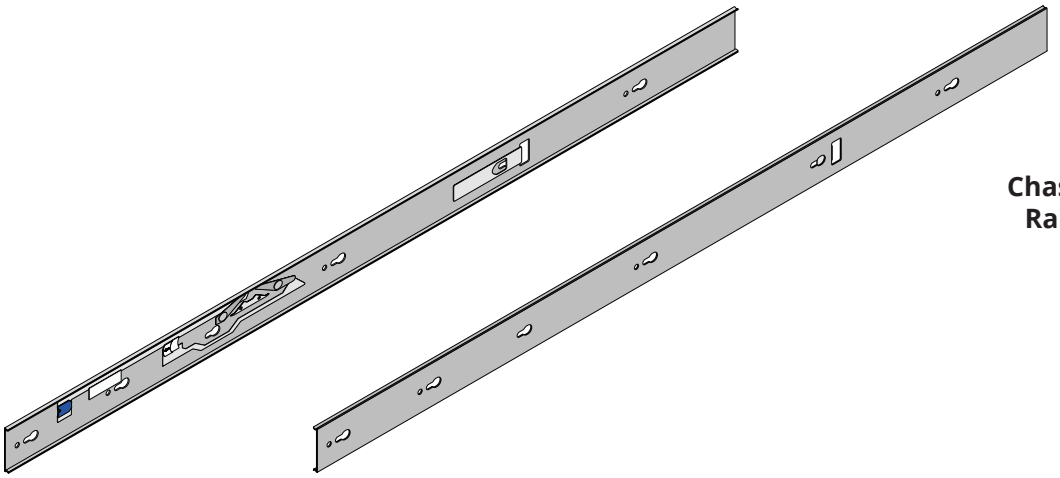
7 Racking Procedure

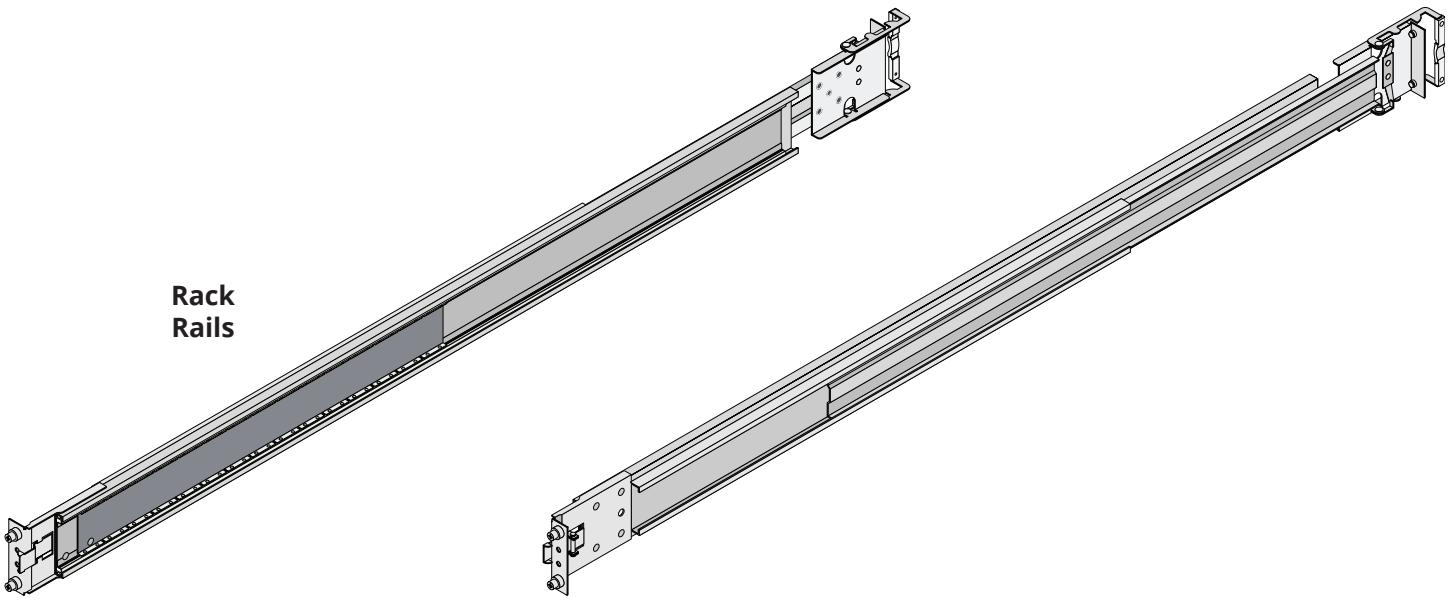
7.1 Remove Chassis Rail from Rack Rail

The rail kit separates into two pieces, the inner chassis rail and the outer rack rail.

Extend the inner rack rail until it locks in place, then slide the chassis rail out until it stops. Push the white release tab in the direction of the engraved arrow and pull the chassis rail free.

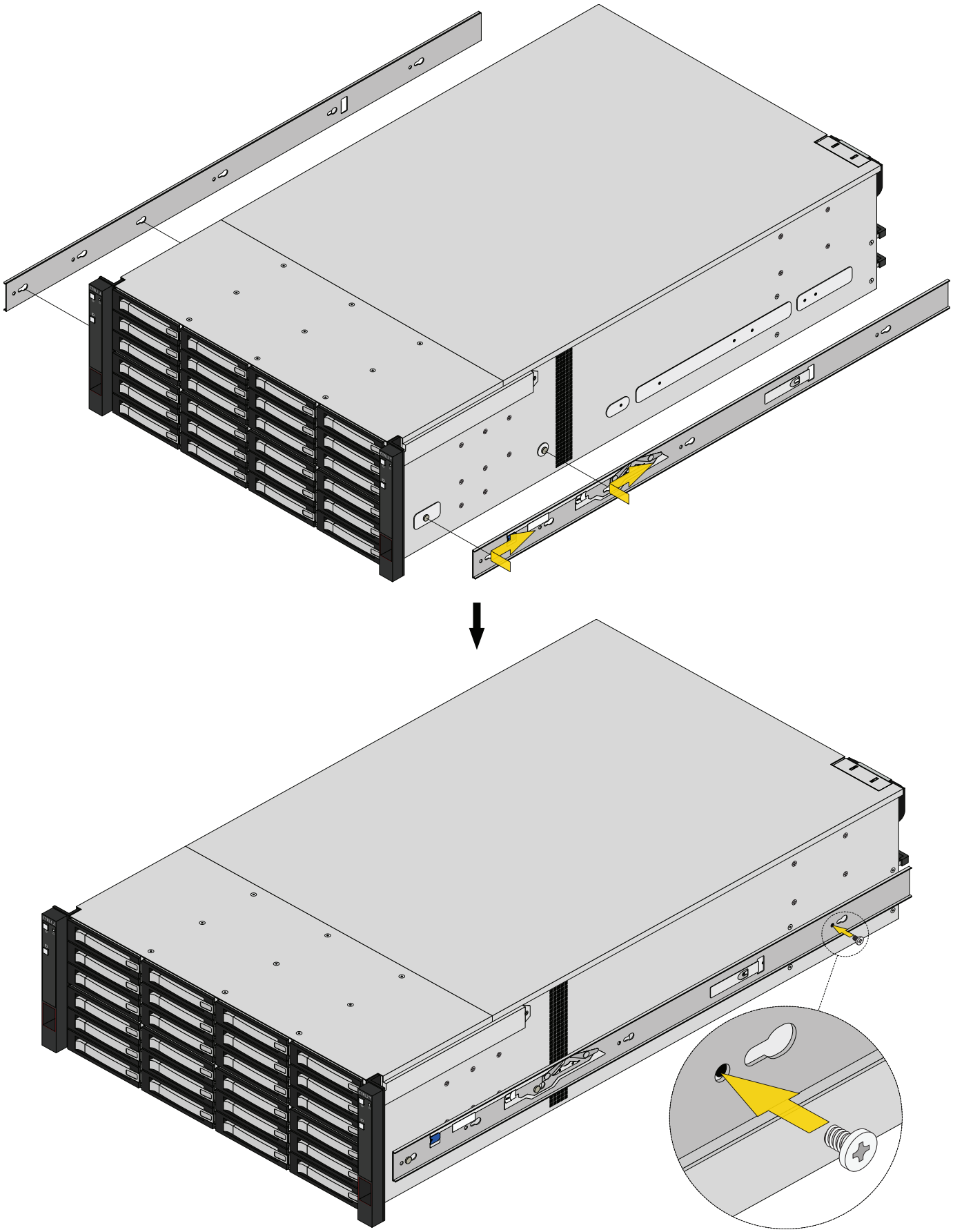






7.2 Install the Chassis Rail on the System

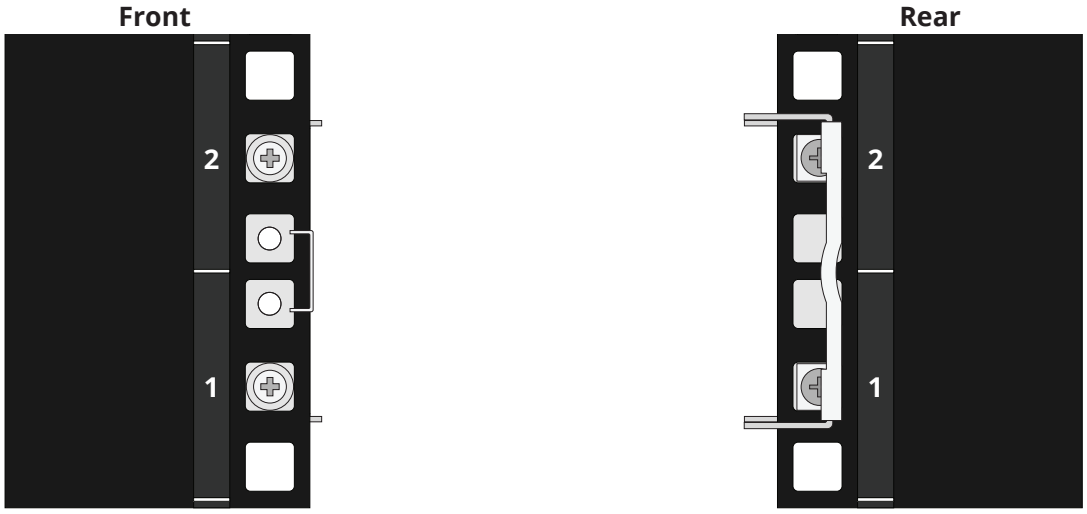
Fit the rail keyholes over the pegs on the system and slide the rail toward the back of the system until it locks. Use one low-profile M4 screws to secure the rail to the chassis. Repeat the process for the other chassis rail.

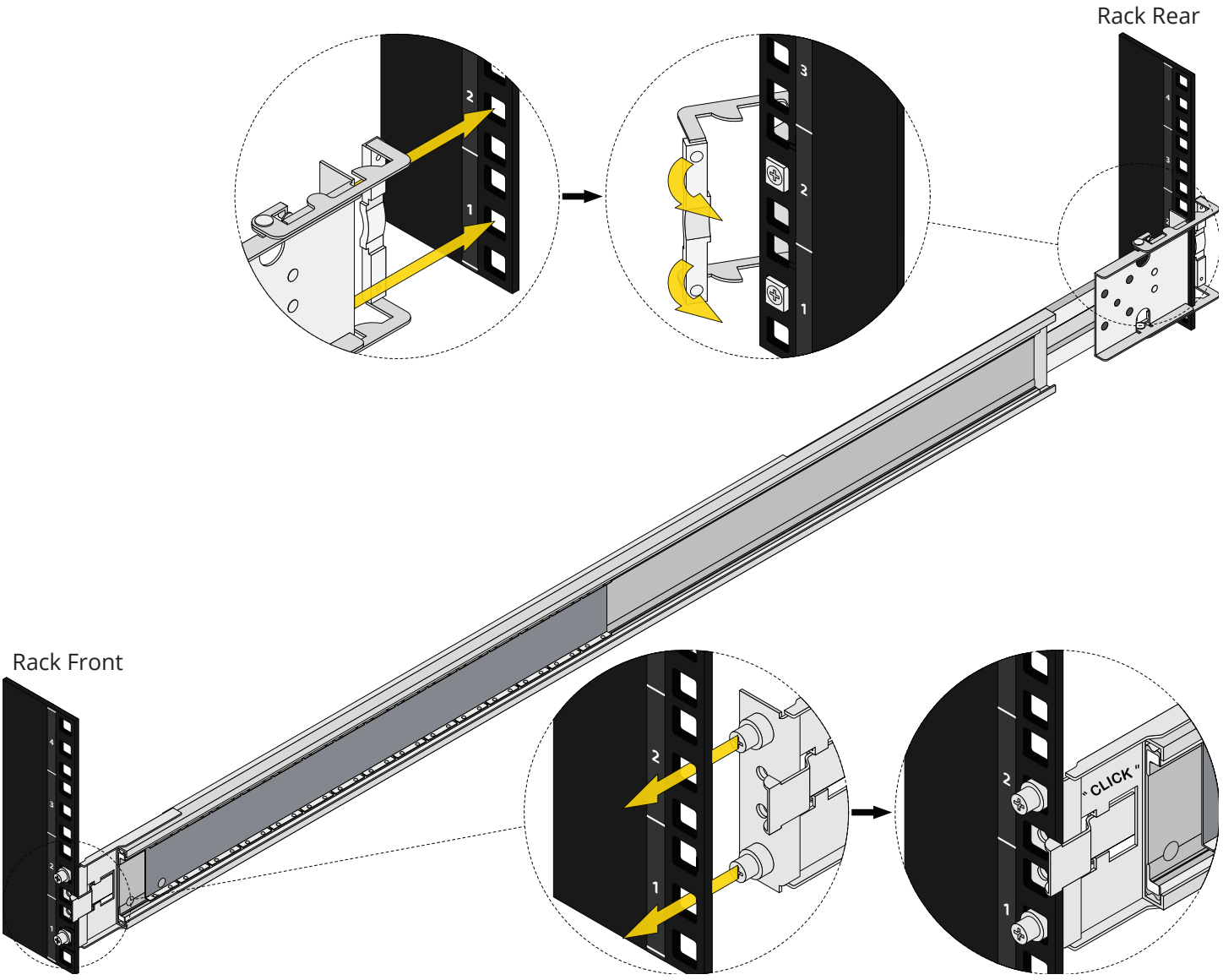


7.3 Install the Rack Rail in the Rack

Align the square rear pins with the rear rack mounting holes in the middle of the bottom 2U of rack space. Swing the gray latch handle open and pull it to extend the rail until the square pins are fully seated in the rack holes.

At the front end, align the round pins with the front rack holes and push them in until the latch clicks and locks. Ensure the rail is level, then repeat the process for the second rack rail.





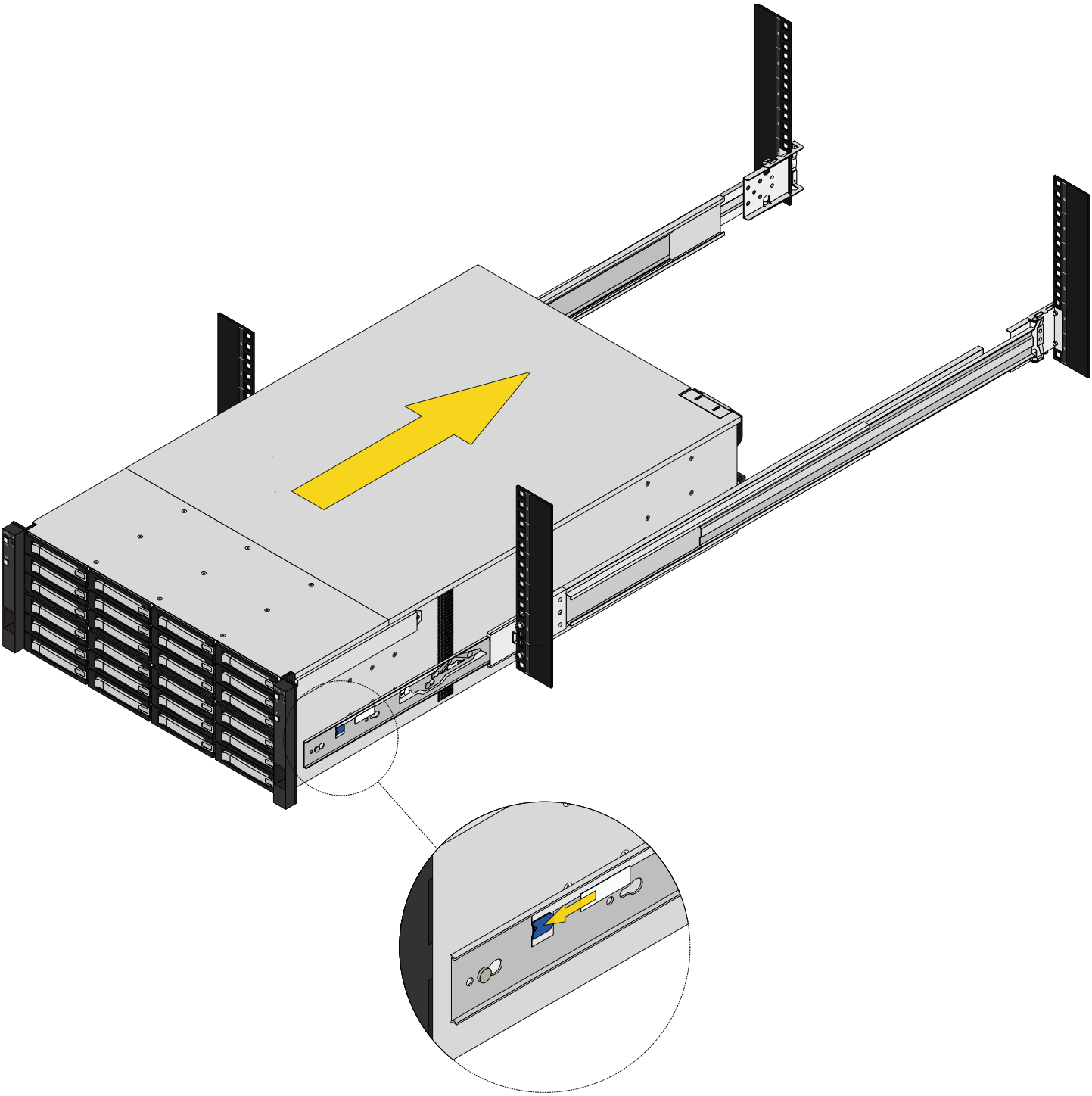
7.4 Install the System in the Rack

Team-lift the system and align the chassis rails with the rack rails. Slide the ends of the chassis rails into the rack rails and push the system into the rack until the metal safeties click and lock.

Pull the blue release tabs towards the front of the system and finish pushing the system into the rack.

Warning - Pinch Point

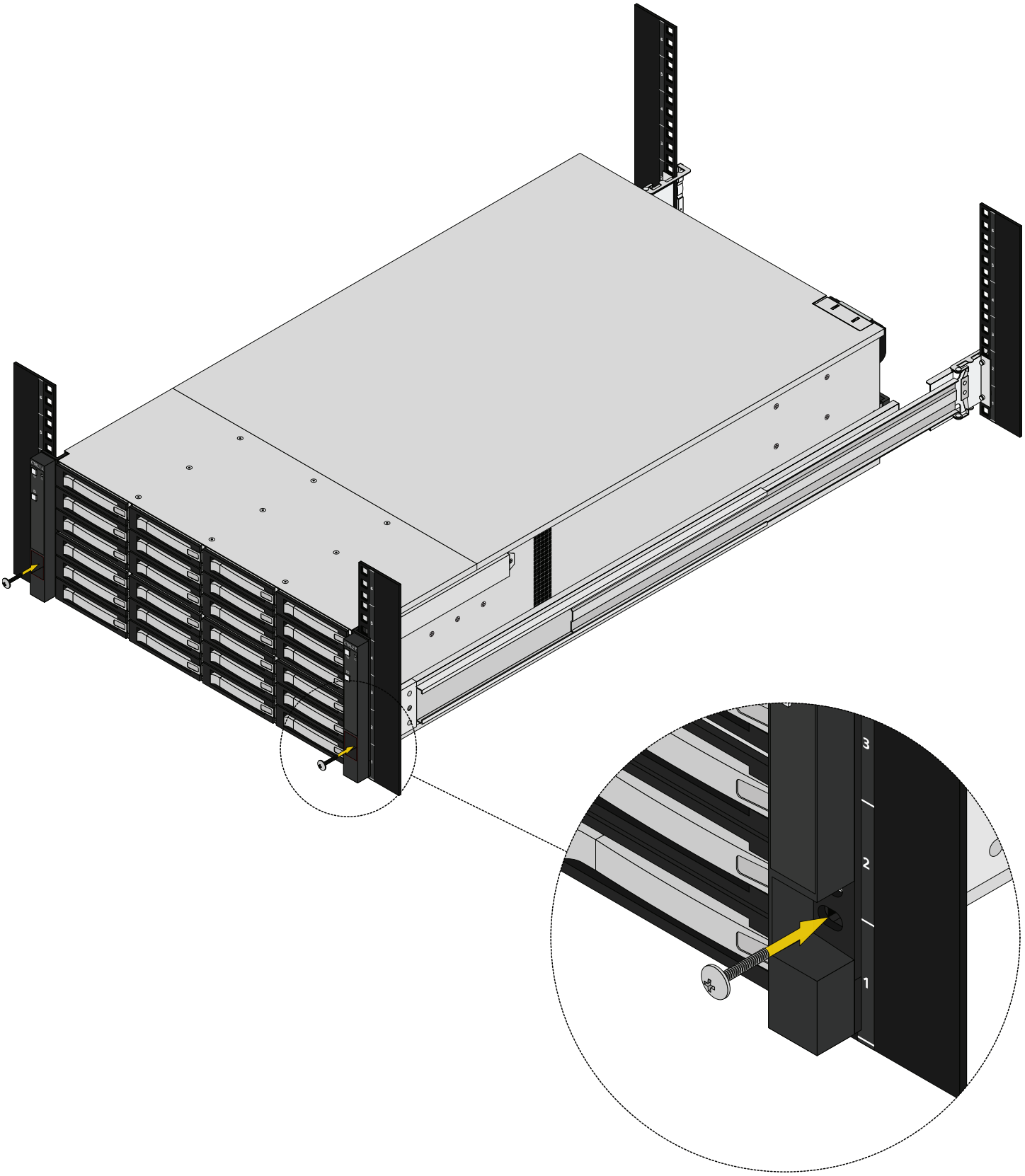
The V-Series can pinch or crush fingers when sliding the rail sleeves onto the rack rails.



7.5 Secure the System to the Rack

The rail kit includes two M5 mounting screws you can use to secure the chassis ears to the rack.

Locate the bottom mounting points on each ear, then install the M5 mounting screws.



7.6 Install Cables

Connect ethernet network cables from your local switch or management network to the 1Gb MGMT Out-of-Band Management (OOBM) port and port 1 on both controllers.

Next, connect a monitor and keyboard to the VGA and USB ports on the bottom controller (Controller 1).

If you ordered SAS cards or additional NICs with your V-Series, you can set them up now for networking.

For detailed connection diagrams and networking setups, see the V-Series User Manual.

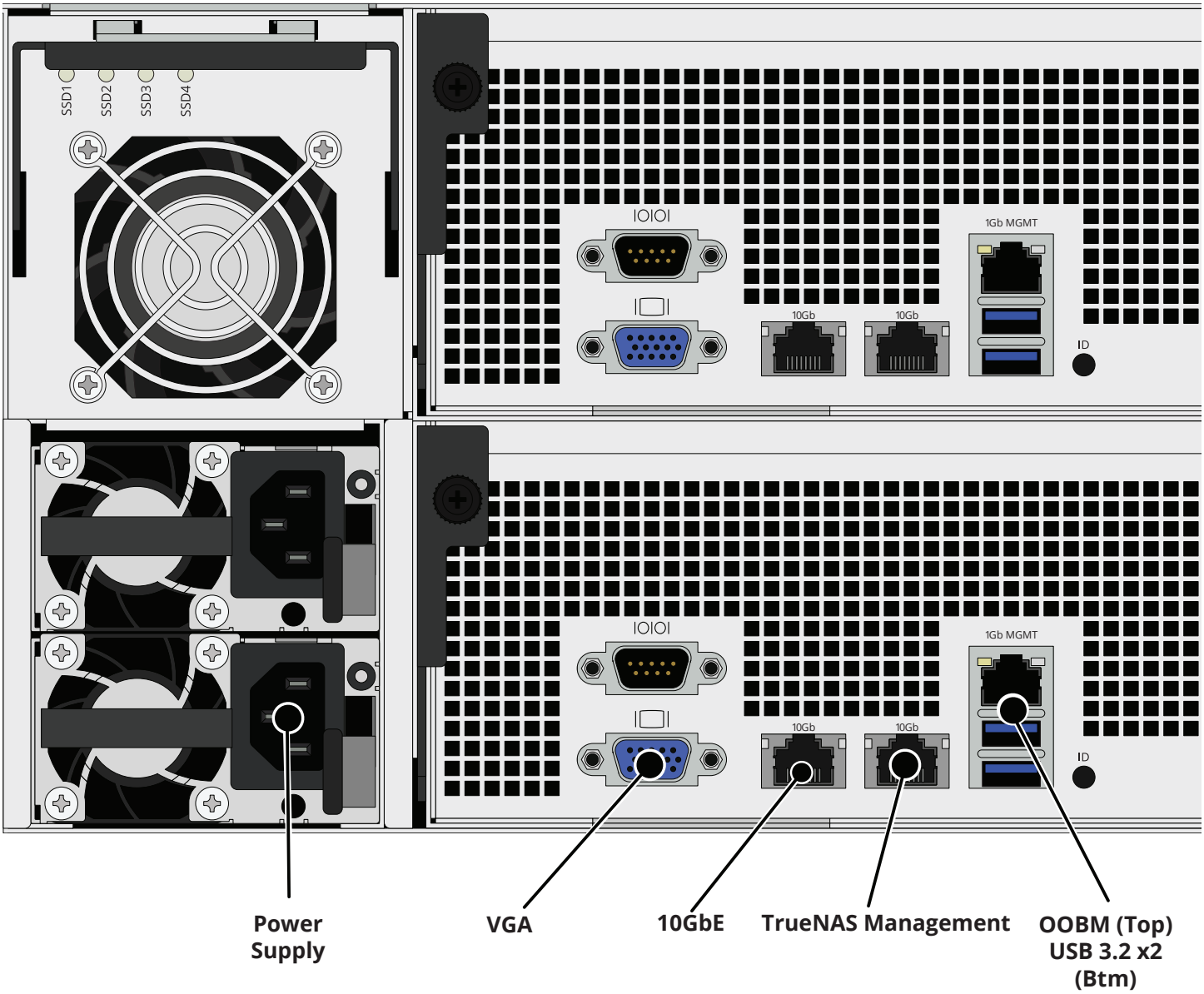
Connect the power cables into each power supply, but do not plug them into a PDU yet.

Important - AC Input Requirement

The V-Series requires 200-240 VAC (Volts Alternating Current) to operate.

Warning - Grounded Connection

Always connect power cords to properly grounded connections.

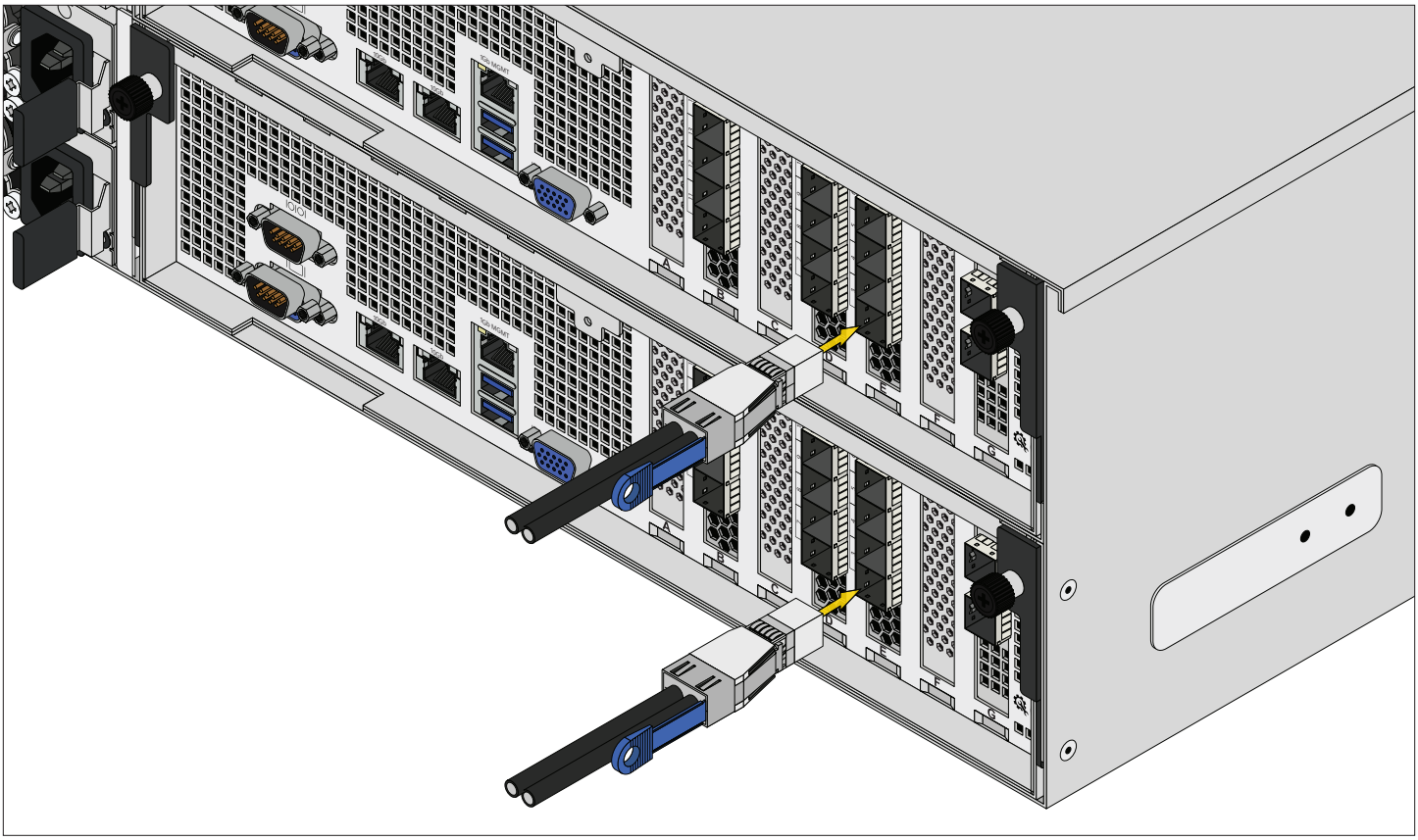


7.7 Connect SAS Cables

Connect SAS cables to SAS HBA ports in numerical order on each controller.

Line the SAS cable connector up with an HBA port. Ensure the blue tab on the SAS cable is on the right.

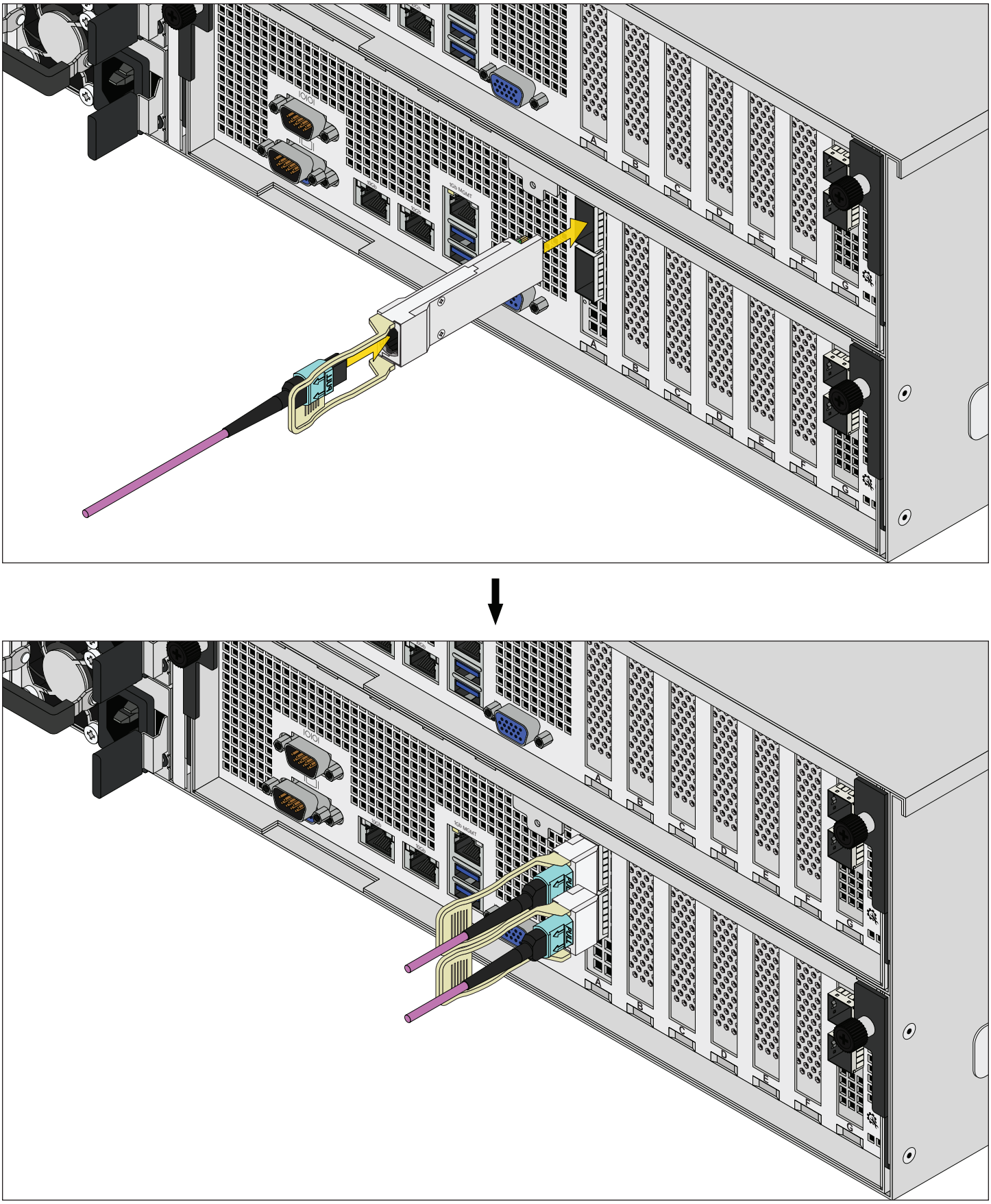
Gently push the connector into the port until it clicks., then repeat for each additional cable. See the V-Series User Manual or your expansion shelf documentation for SAS connection diagrams before booting the V-Series.



7.8 40GbE, 100GbE, and 200GbE NIC Cabling

If you ordered your system with a 40GbE, 100GbE, or 200GbE NIC, you can connect the cables now.

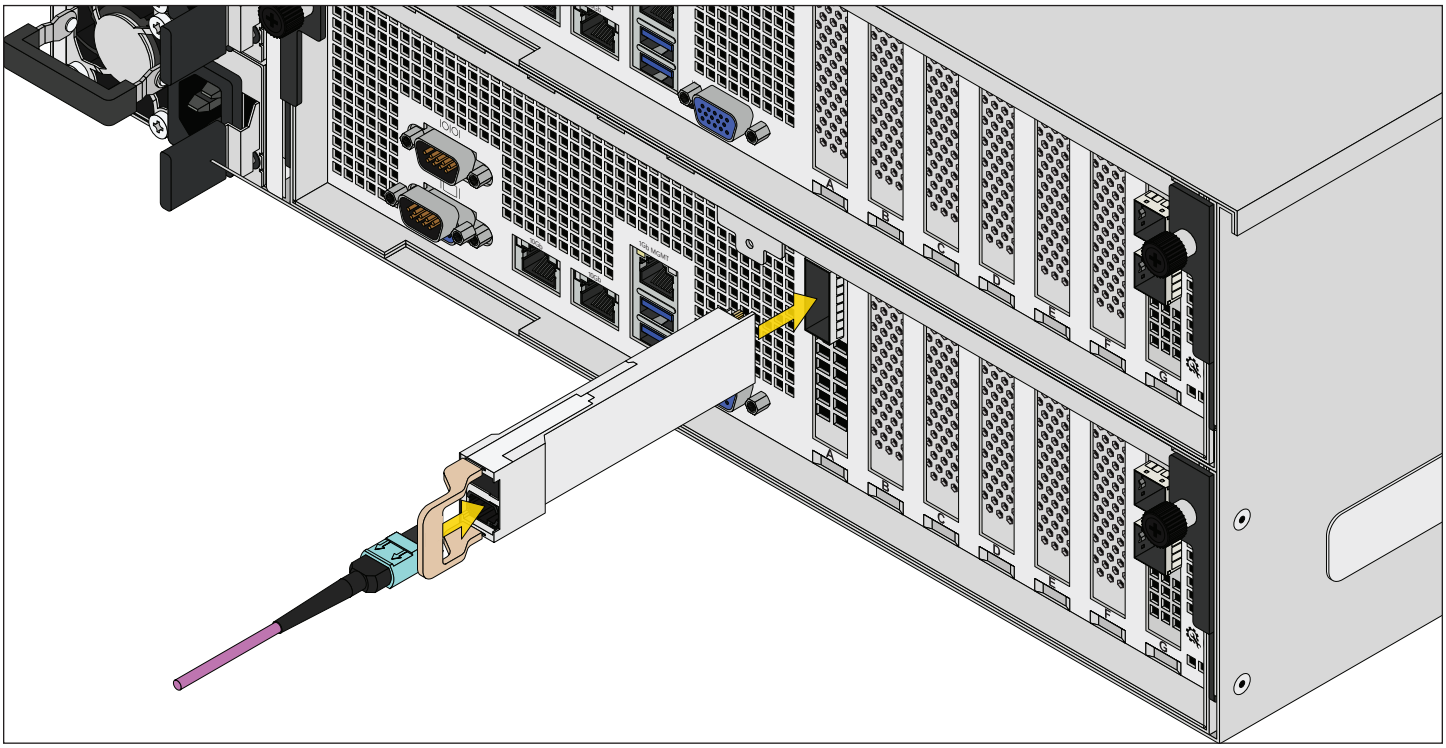
Insert SR4 optics into the first port with the gold connectors on the right, then plug the fiber cable into the optics.



7.9 400GbE NIC Cabling

If you ordered your system with a 400GbE NIC, you can connect the cable now.

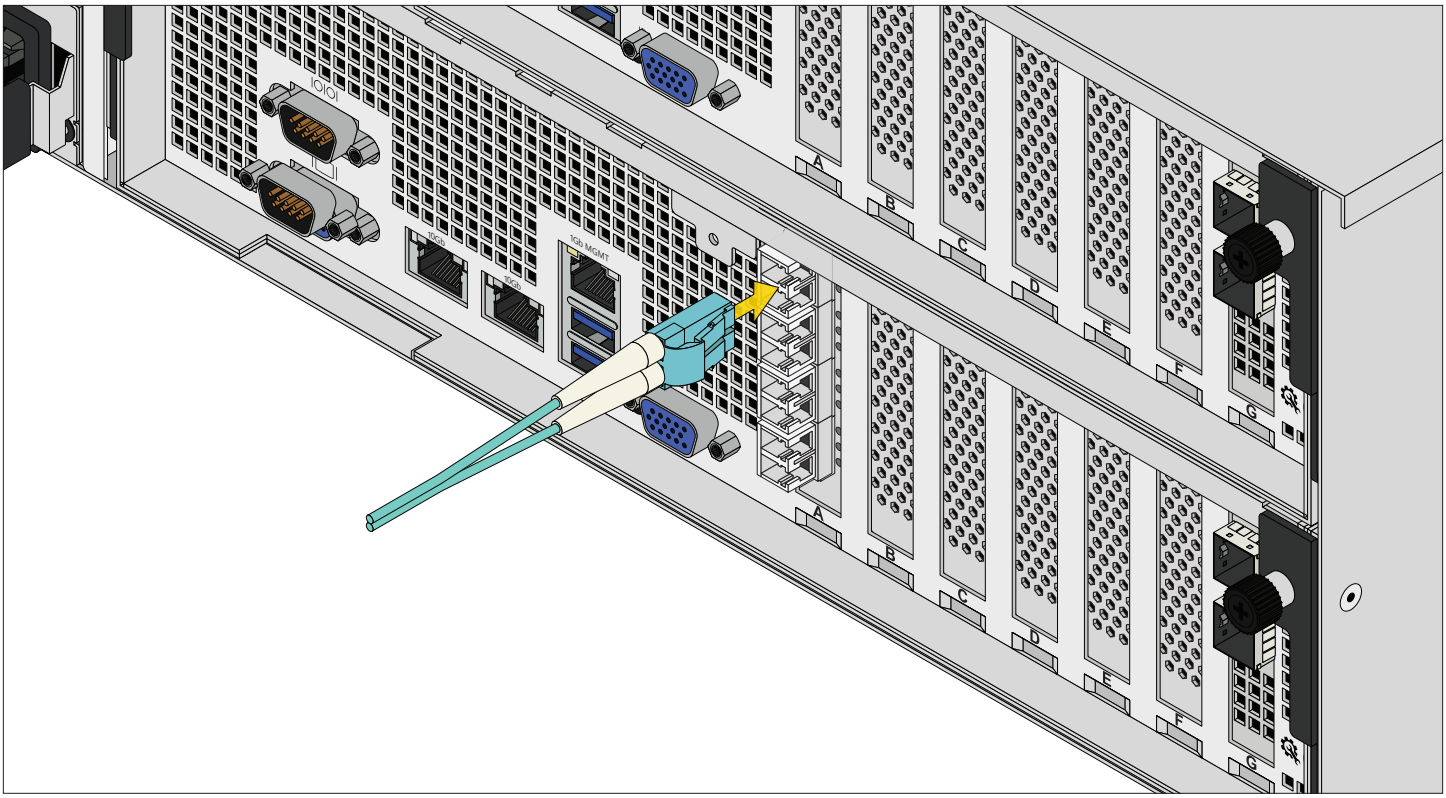
Insert SR4 optics into the port with the gold connectors facing down, then plug the fiber cable into the optics.



7.10 16 Gbit Fibre Channel Cabling

If you ordered your system with a 16 Gbit fibre channel card, you can connect the SR cable(s) now.

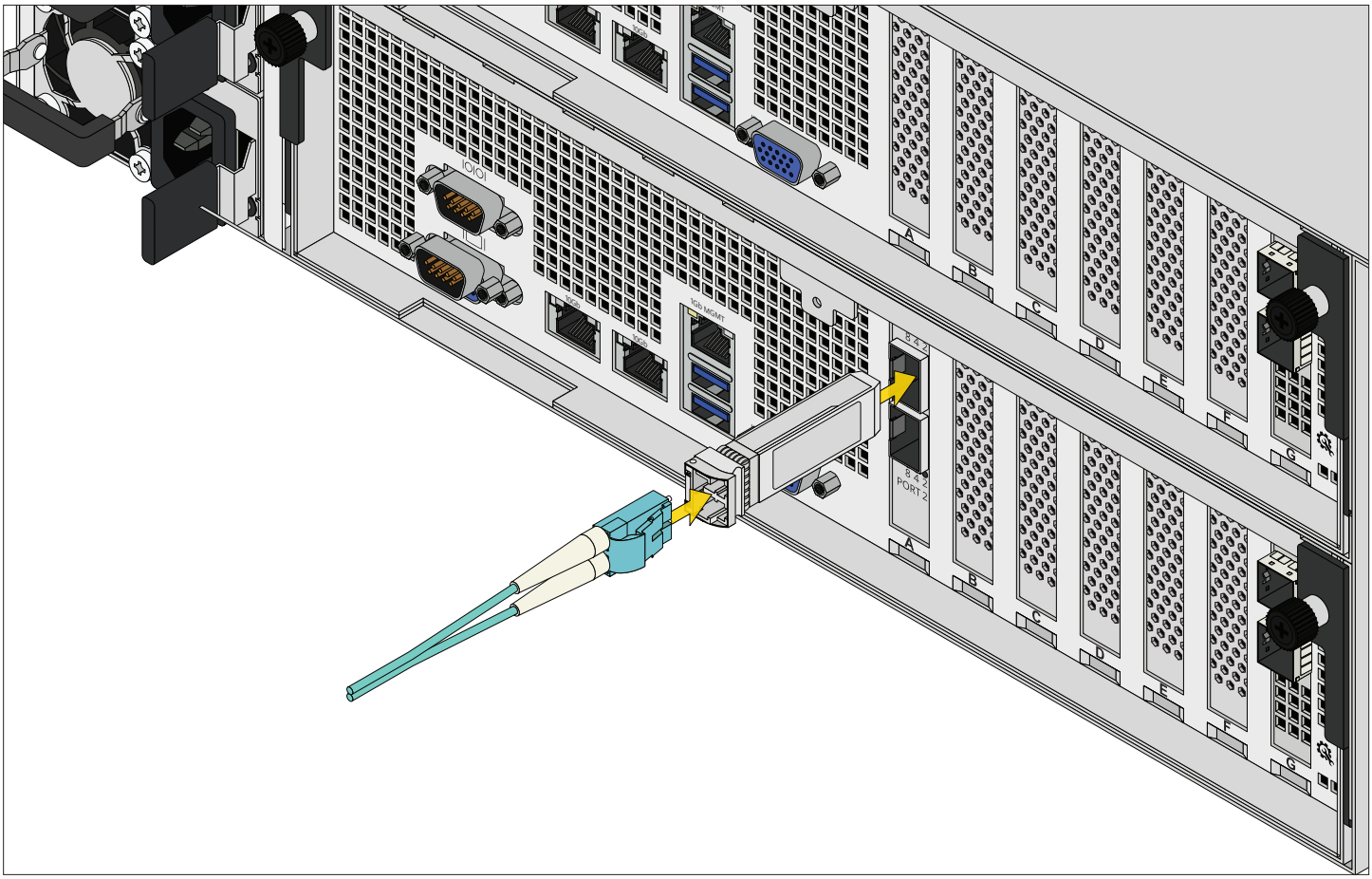
Insert the SR cable(s) into the fibre channel ports with the connectors facing towards the right. Up to four SR cables can be connected to a single 16 Gbit fibre channel card.



7.11 32 Gbit Fibre Channel Cabling

If you ordered your system with a 32 Gbit fibre channel card, you can connect the SR cable(s) now.

Connect the SR cable(s) to the SR optics with the connectors facing towards the right, then insert the SR optics in the fibre channel card. Up to two SR cables can be connected to a single 32 Gbit fibre channel card.



7.12 Boot the System

After plugging the power cables into outlets, the system powers on and boots into TrueNAS.

When booted, the system console displays the TrueNAS web UI IP address, which is either preconfigured according to customer guidelines or automatically generated with DHCP.

Enter the IP address into a browser on a computer on the same network to access the web user interface.

See the password stickers on each controller at the rear of the unit for login credentials.

8 Storage Expansion

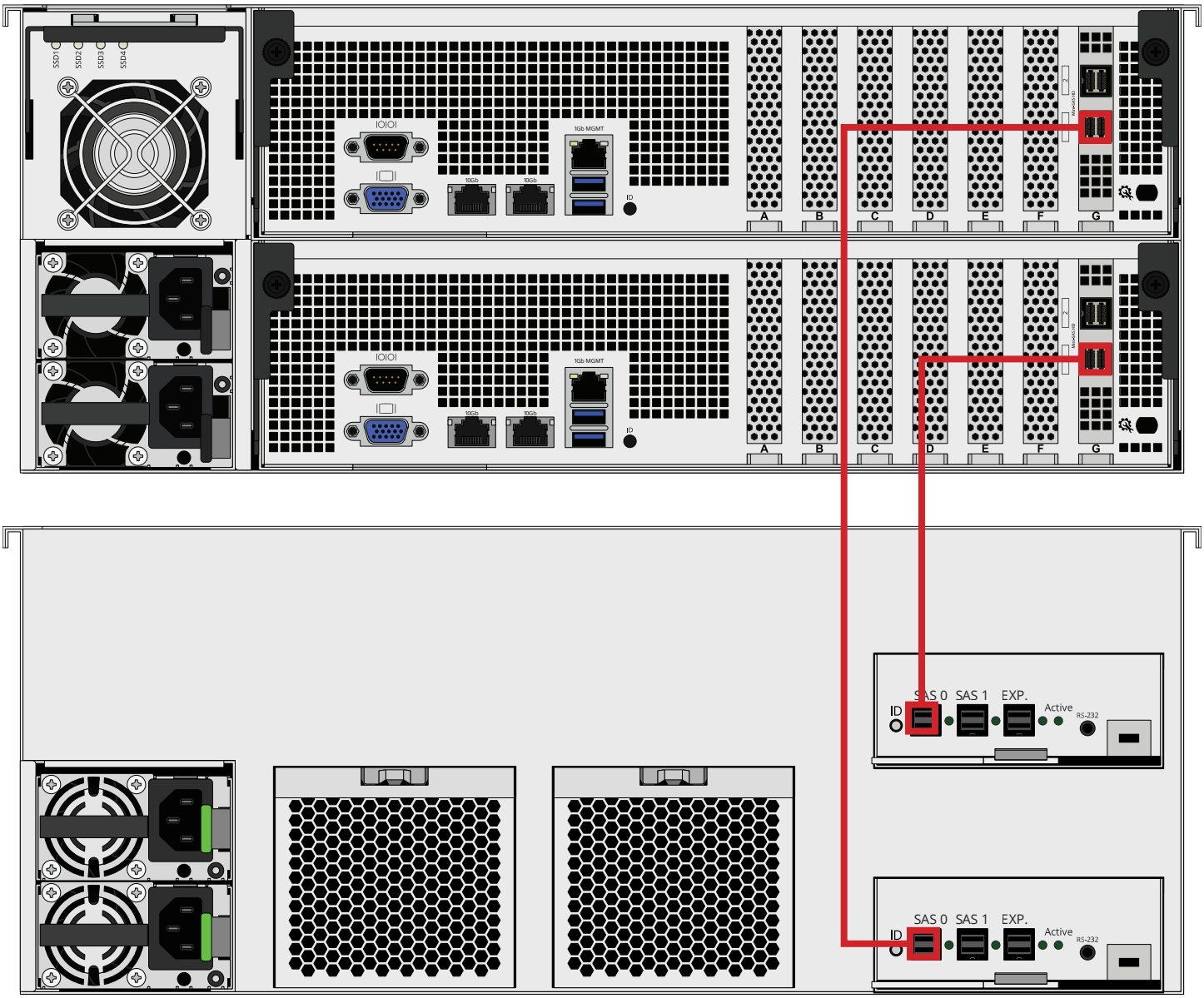
⊙ Important - Expansion Configuration

When setting up storage expansion connections, please adhere to the wiring examples below. Connecting Expansion Shelves incorrectly causes errors. Never cable a single controller to different IOMs/expanders on the same shelf.

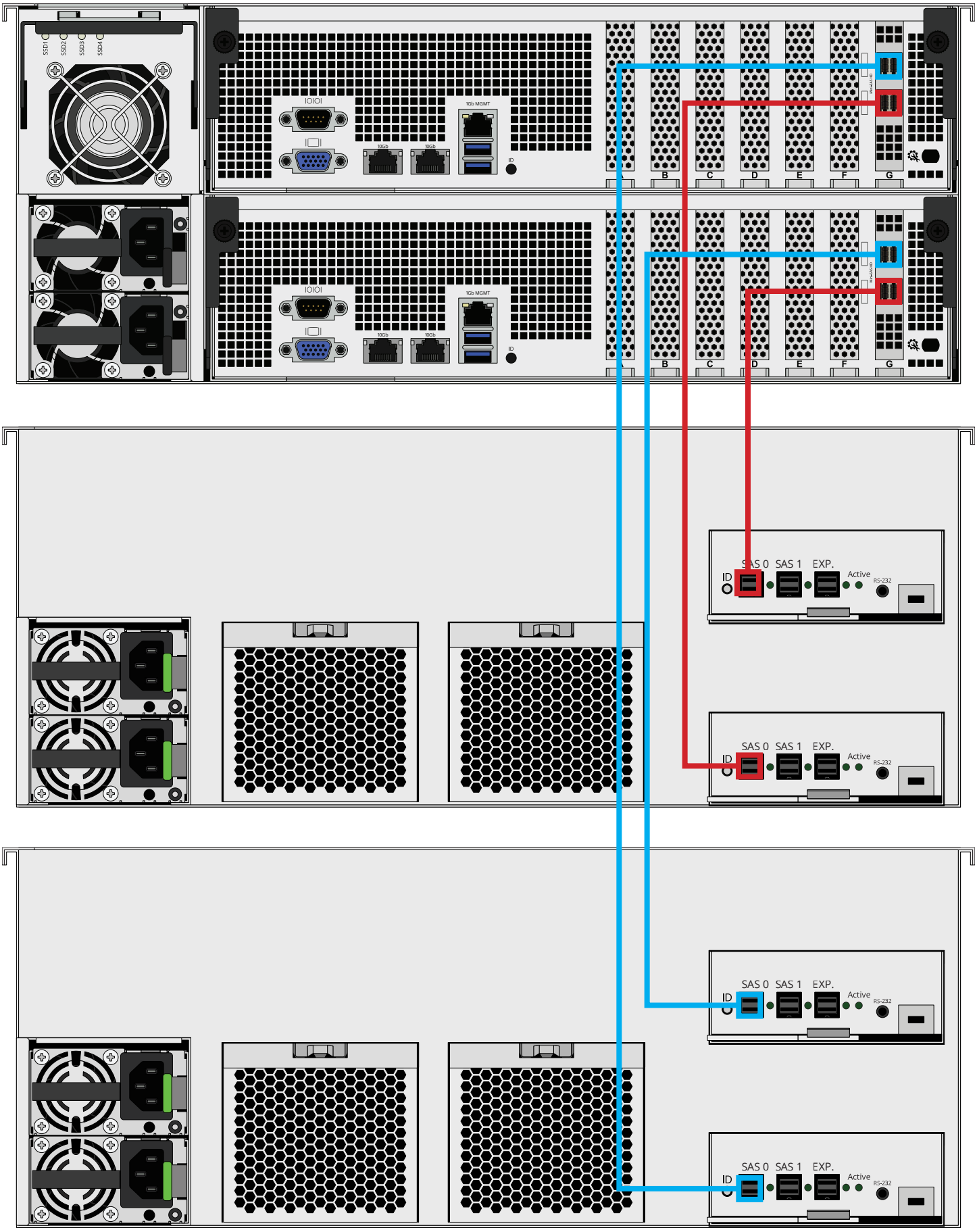
8.1 ES24

8.1.1 V160 - ES24

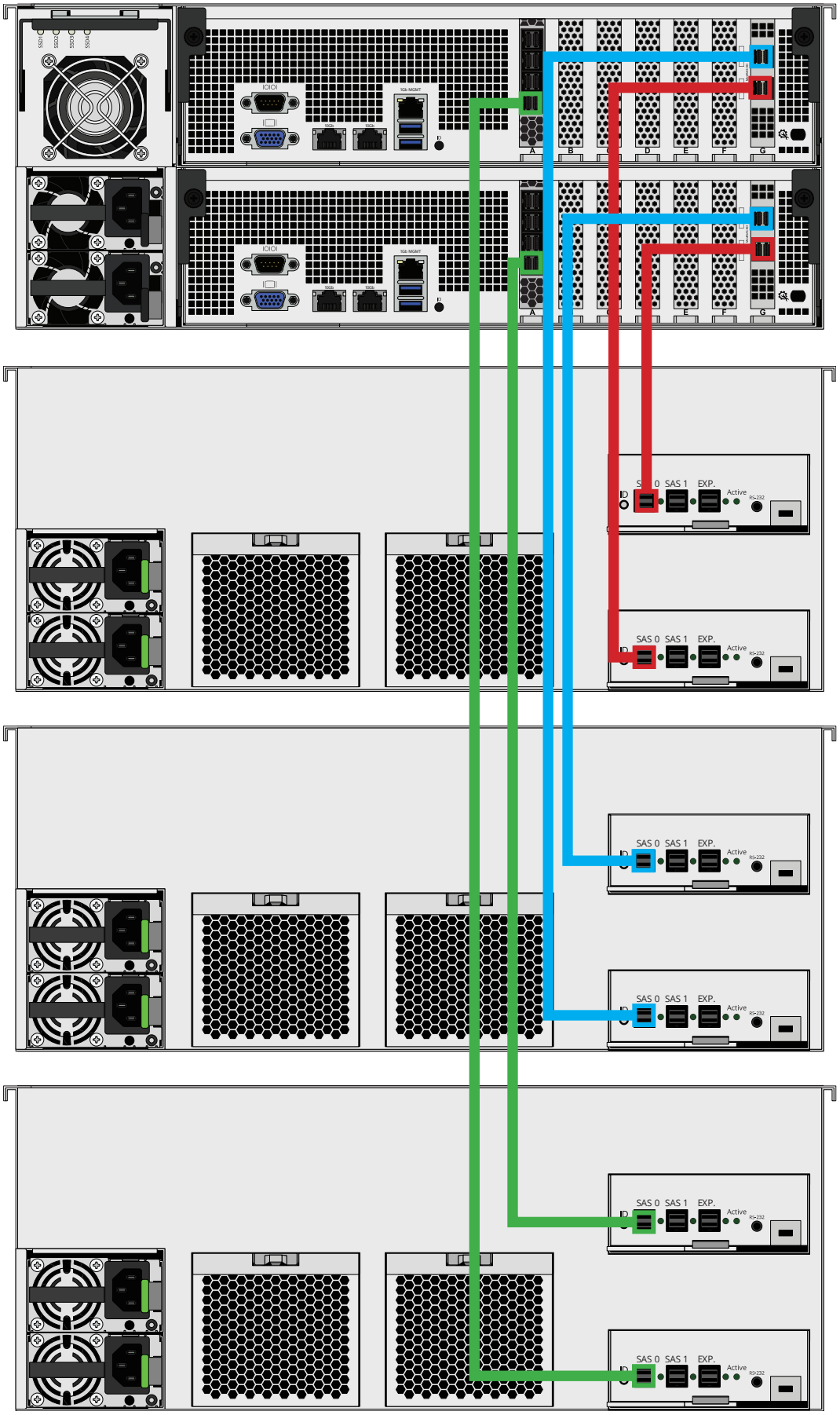
V160 with one ES24 expansion shelf.



V160 with two ES24 expansion shelves.



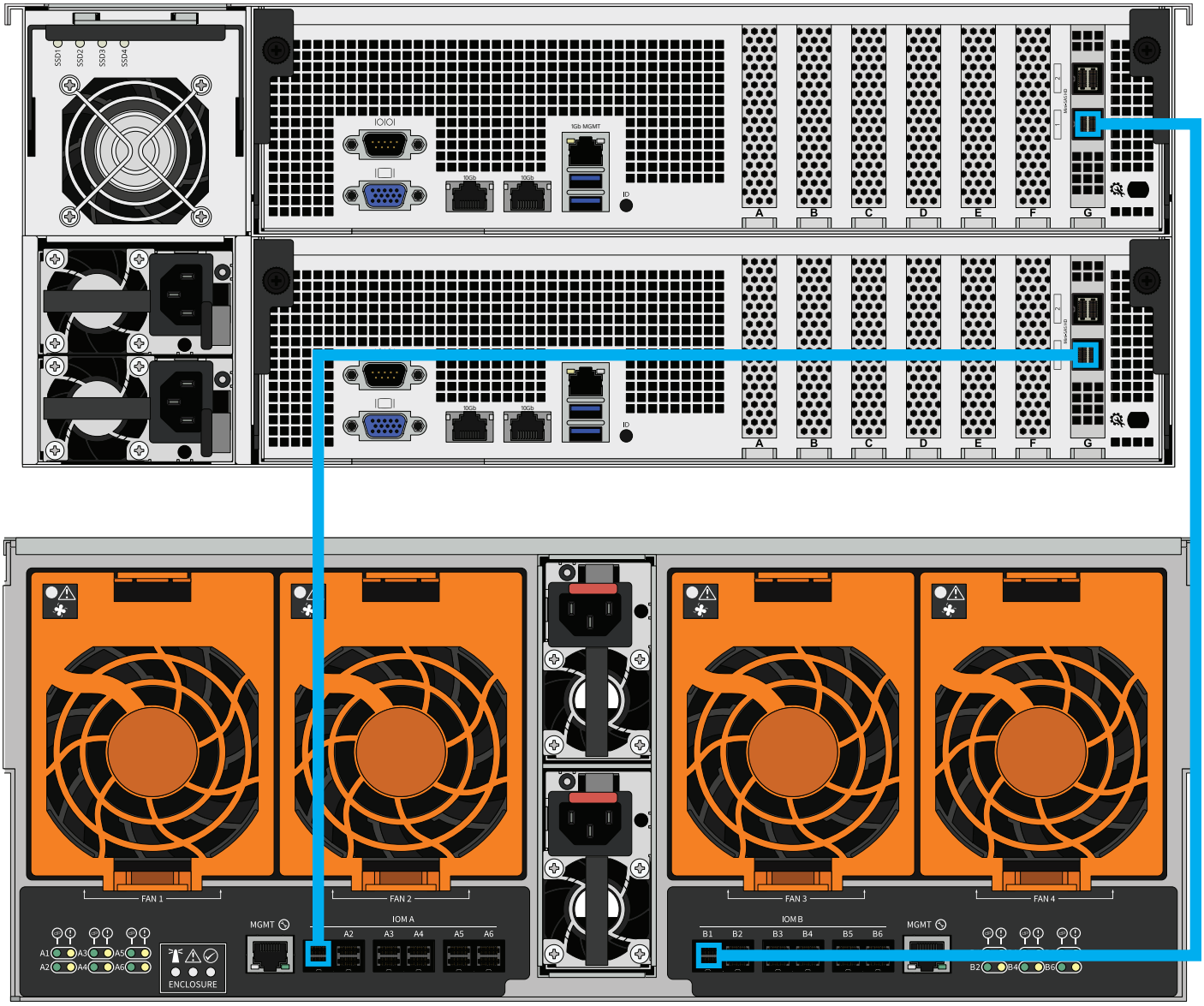
V160 connected to three ES24s, note that up to fourteen ES24s may be connected to the V160 depending on which controller pack you ordered.



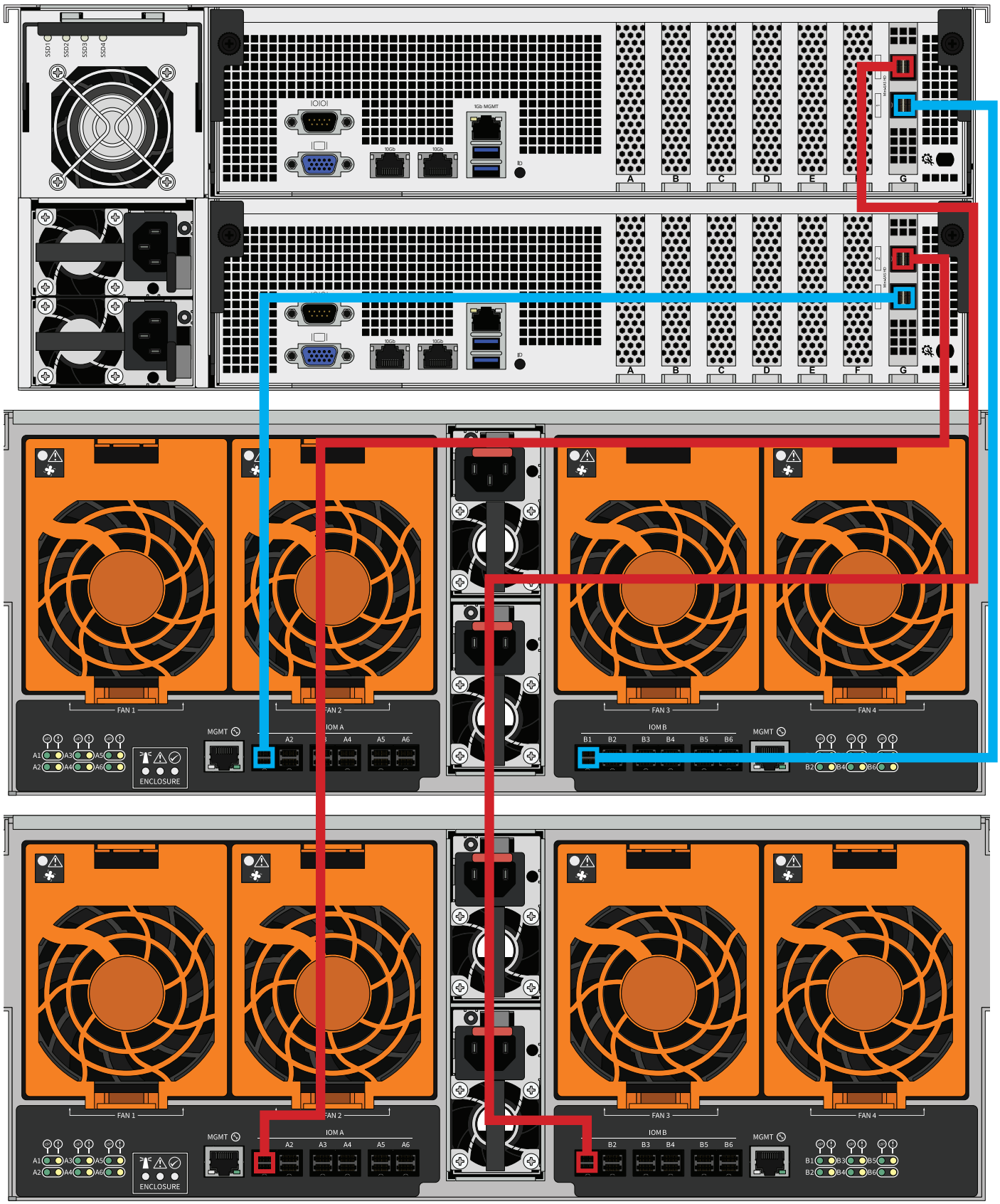
8.2 ES60

8.2.1 V160 - ES60

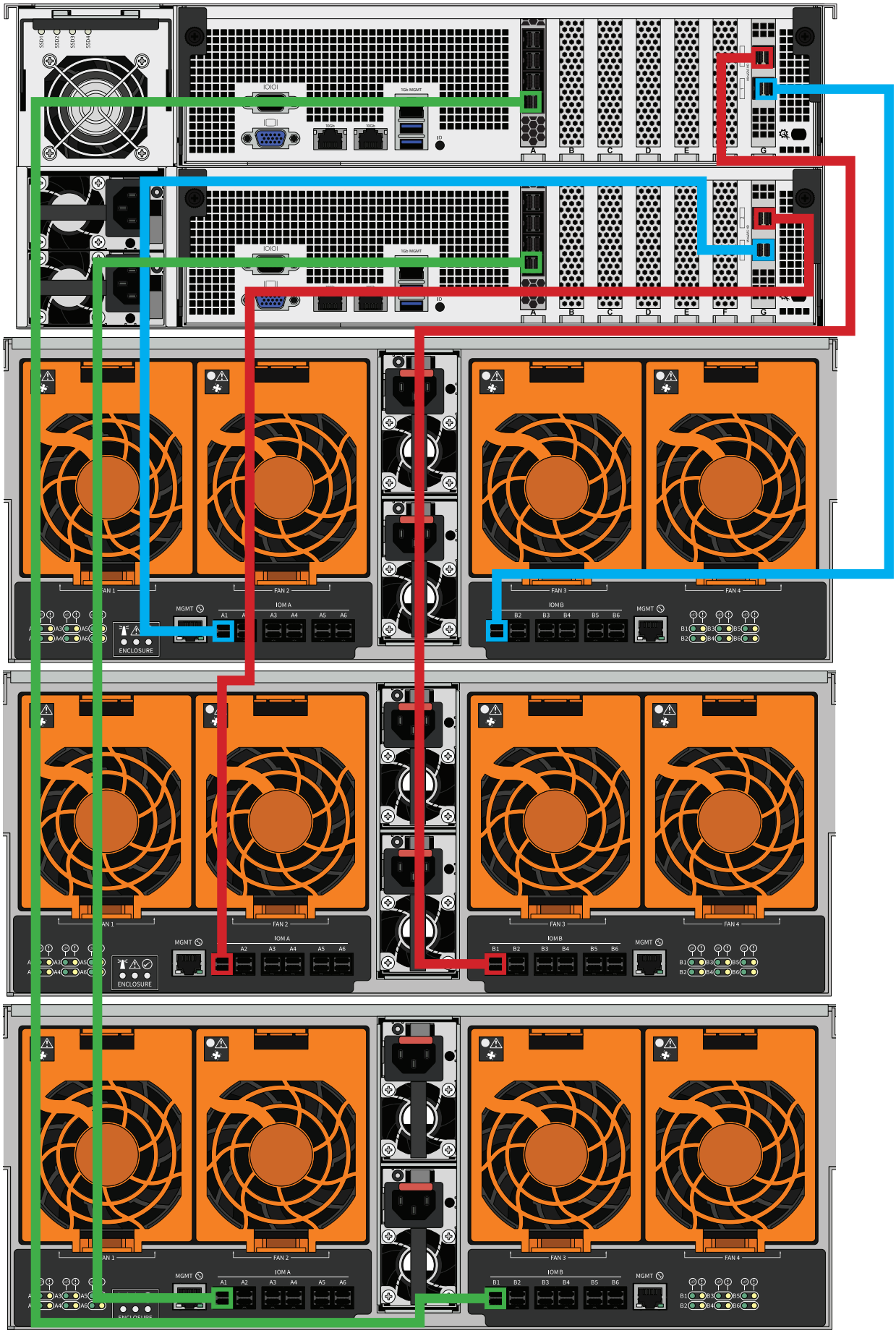
V160 with one ES60 expansion shelf.



V160 with two ES60 expansion shelves.



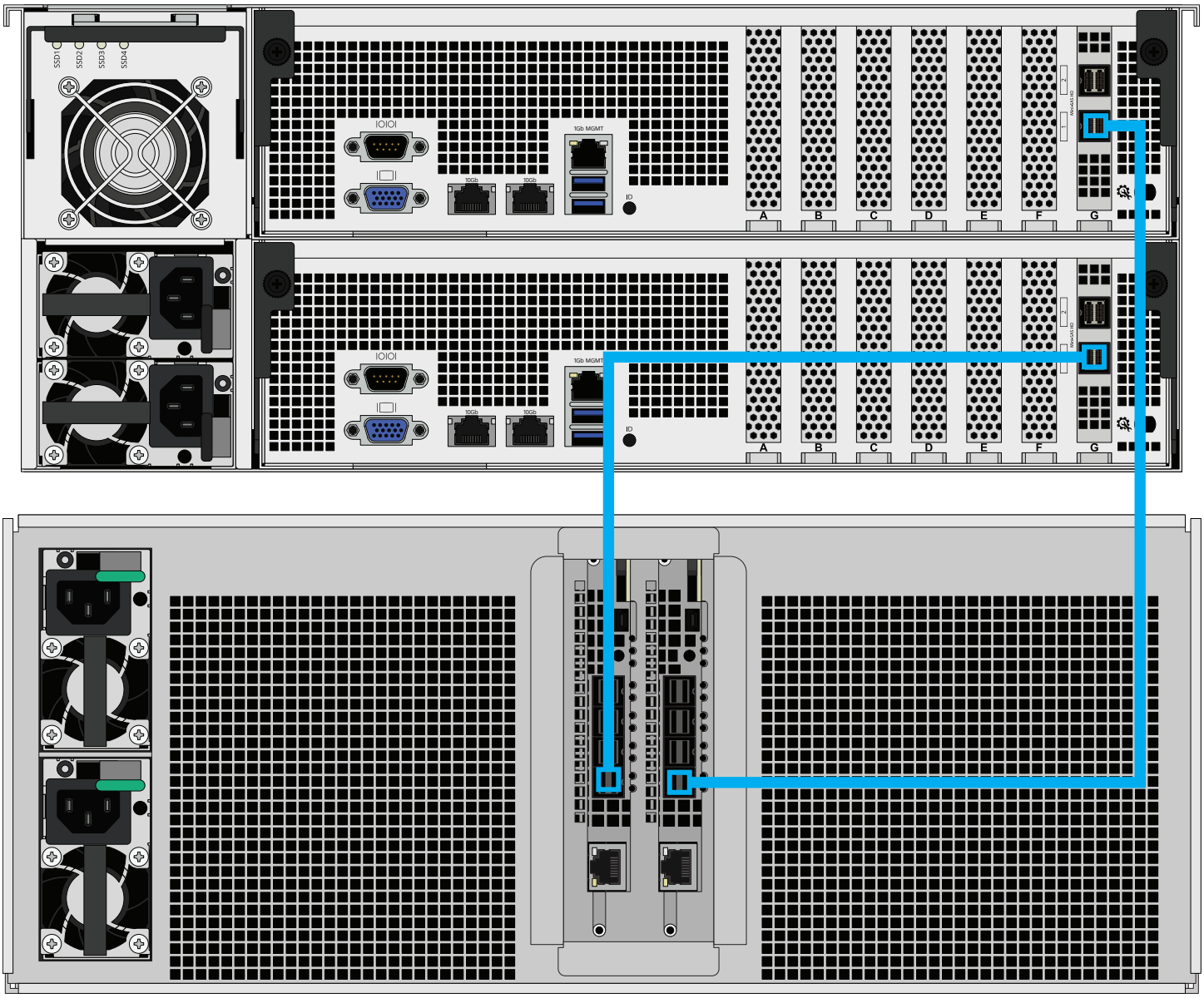
V160 connected to three ES60s, note that up to fourteen ES60s may be connected to the V160 depending on which controller pack you ordered.



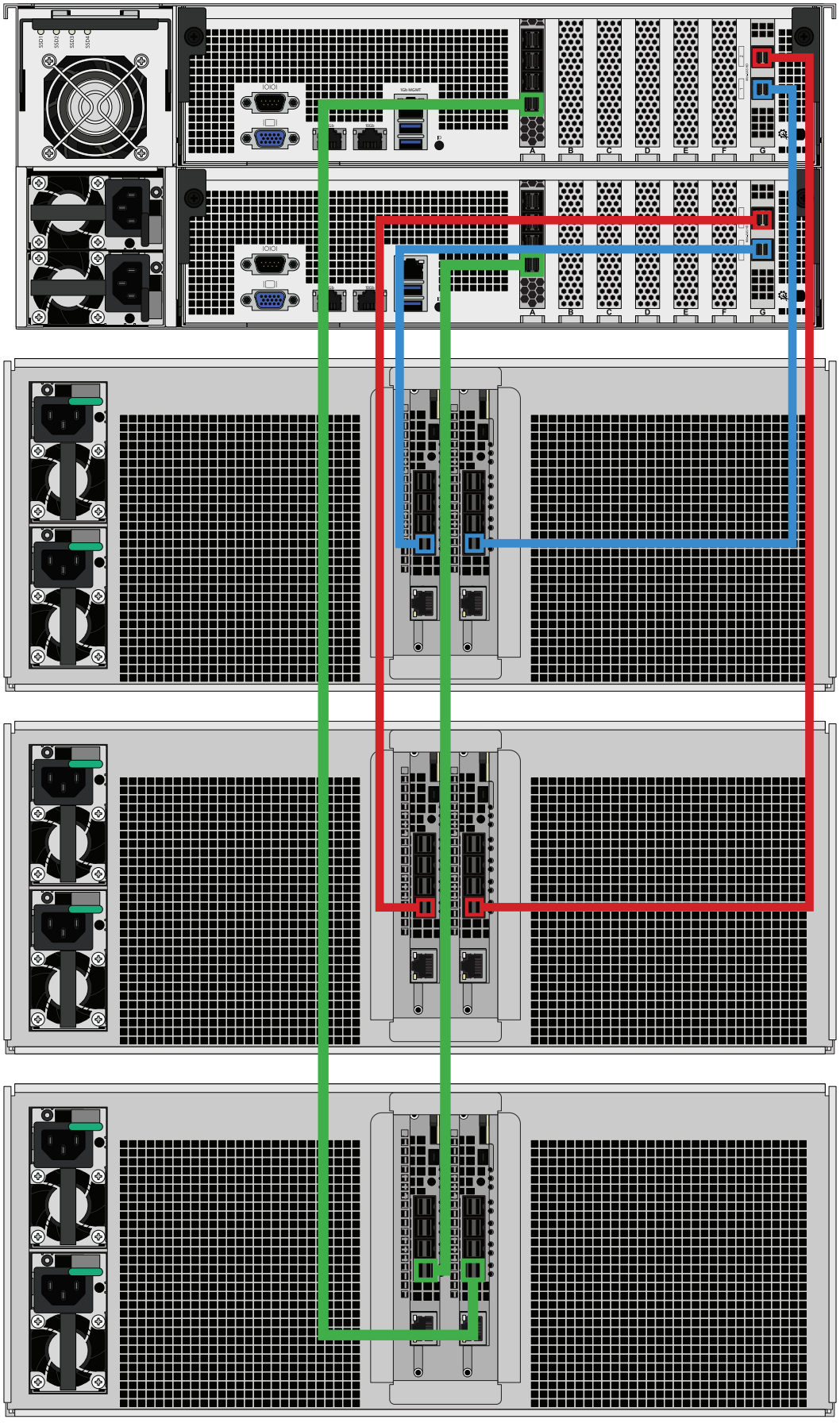
8.3 ES102

8.3.1 V160 - ES102

V160 with one ES102 expansion shelf.

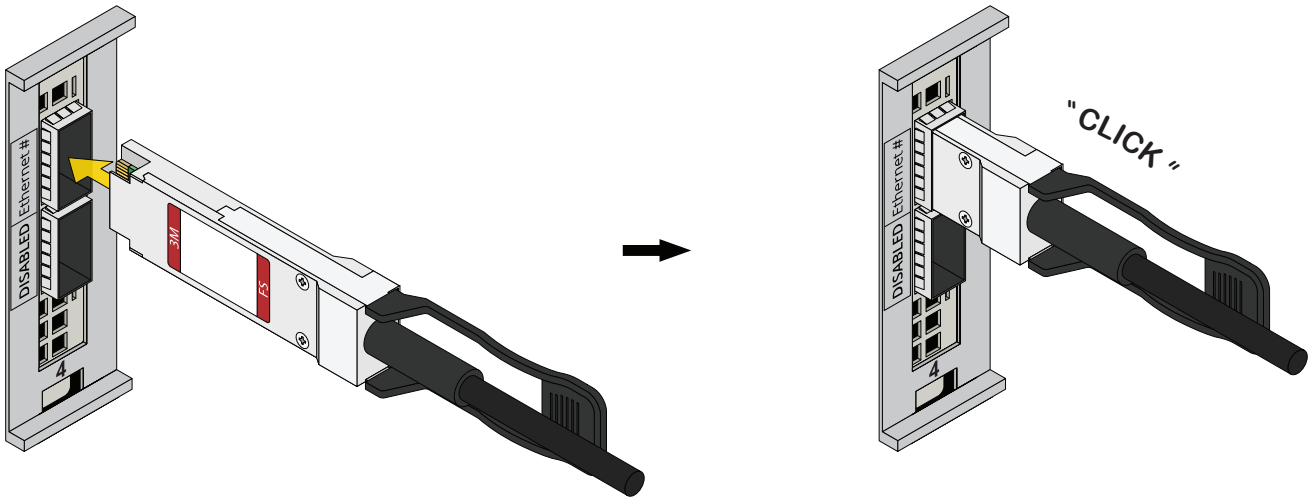


V160 connected to three ES102s, note that up to fourteen ES102s may be connected to the V160 depending on which controller pack you ordered.



8.4 ES24N

Insert the DAC optics into the first (top) ethernet port. The optics cables click and lock into place when installed correctly. Repeat for the other controller.



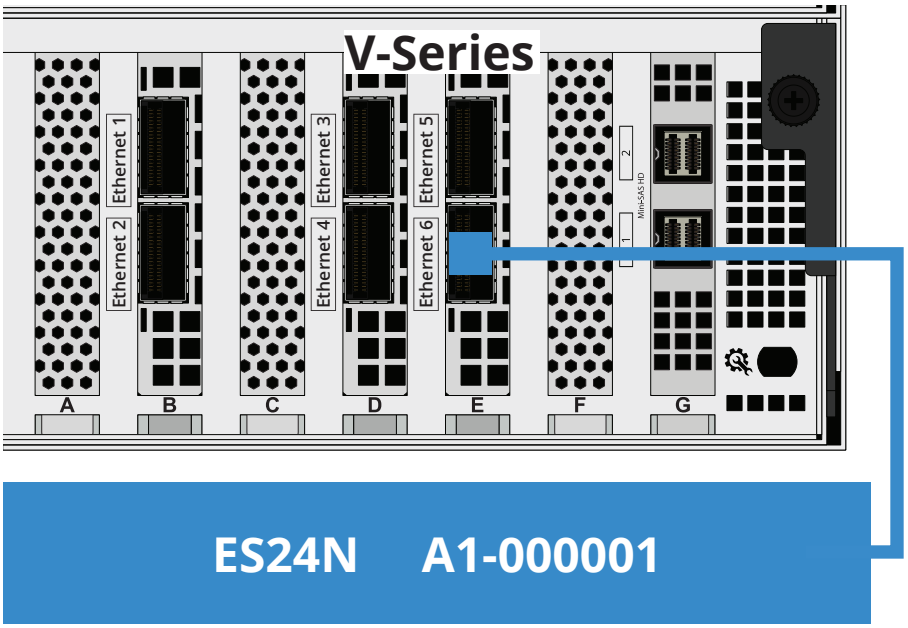
Important - Cabling Sequence

You must connect the ES24N DAC cables to the V-Series numerical ethernet ports in descending order, starting with the ES24N that has the **lowest A1 serial number**.

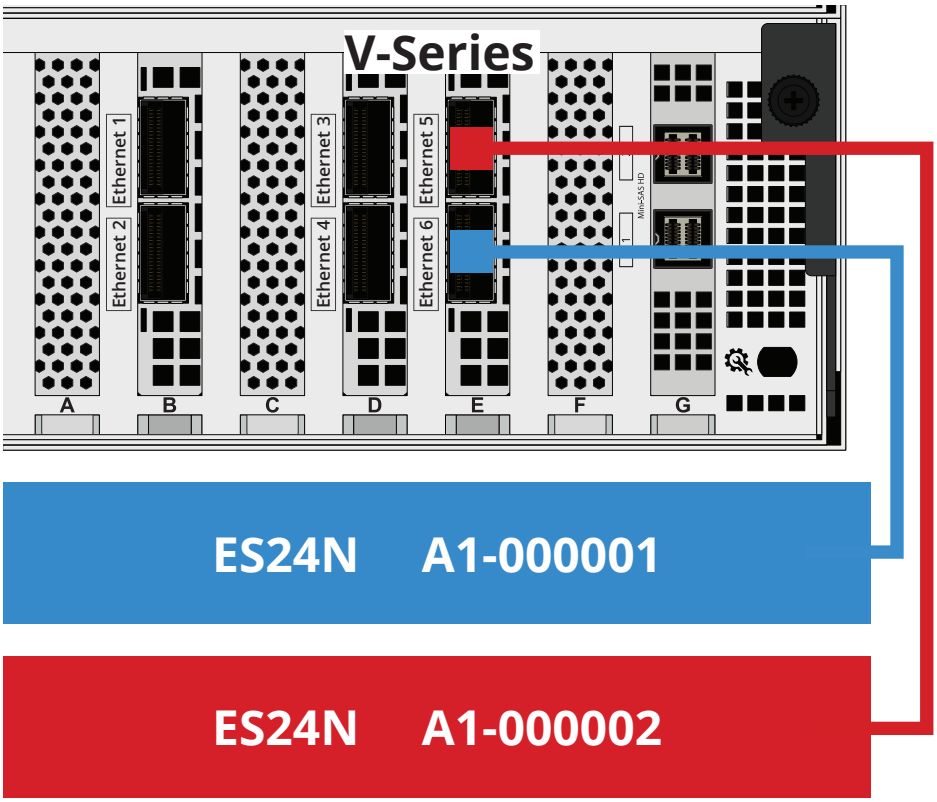
Connect the left ES24N IOM to the bottom V-Series controller, and the right ES24N IOM to the top V-Series controller.

The following diagrams show the correct connection sequences for two, four, and six shelf configurations.

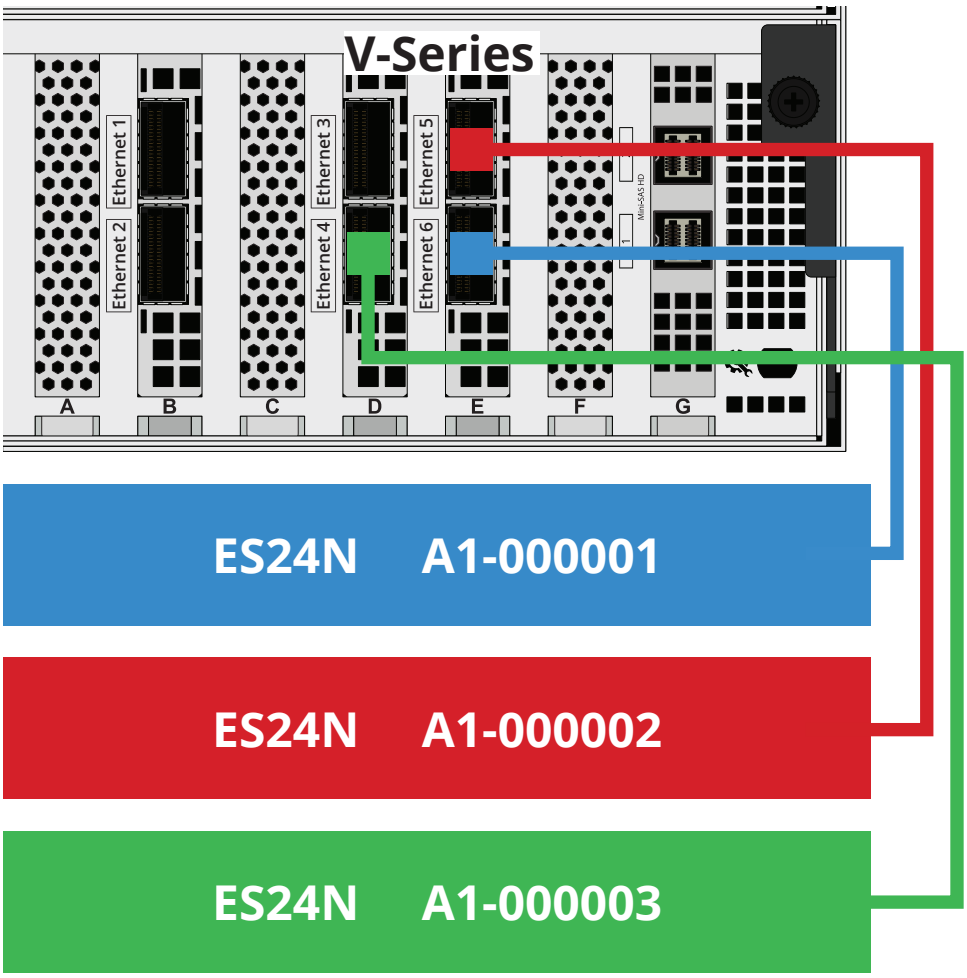
V-Series with one ES24N expansion shelf



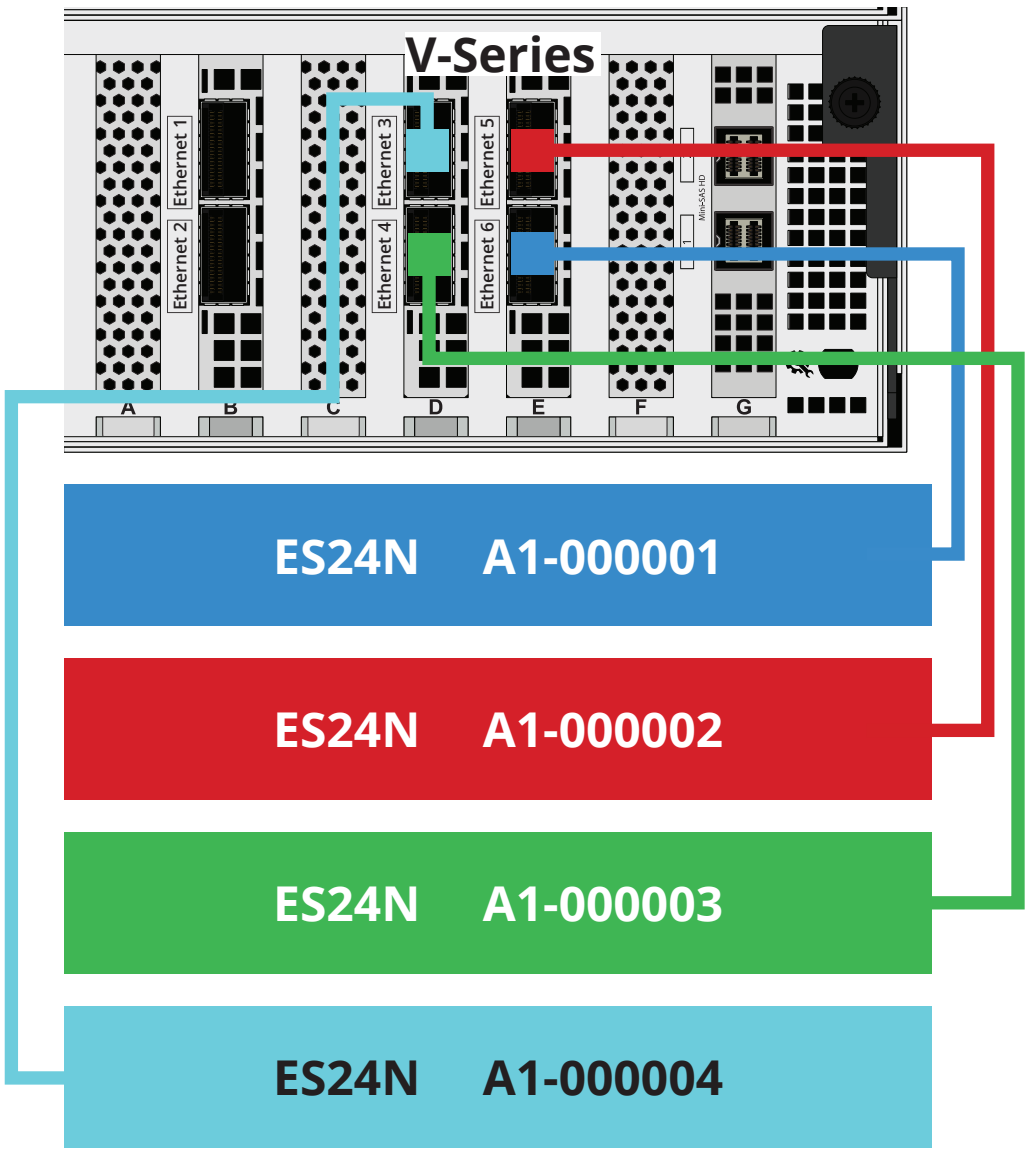
V-Series with two ES24N expansion shelves



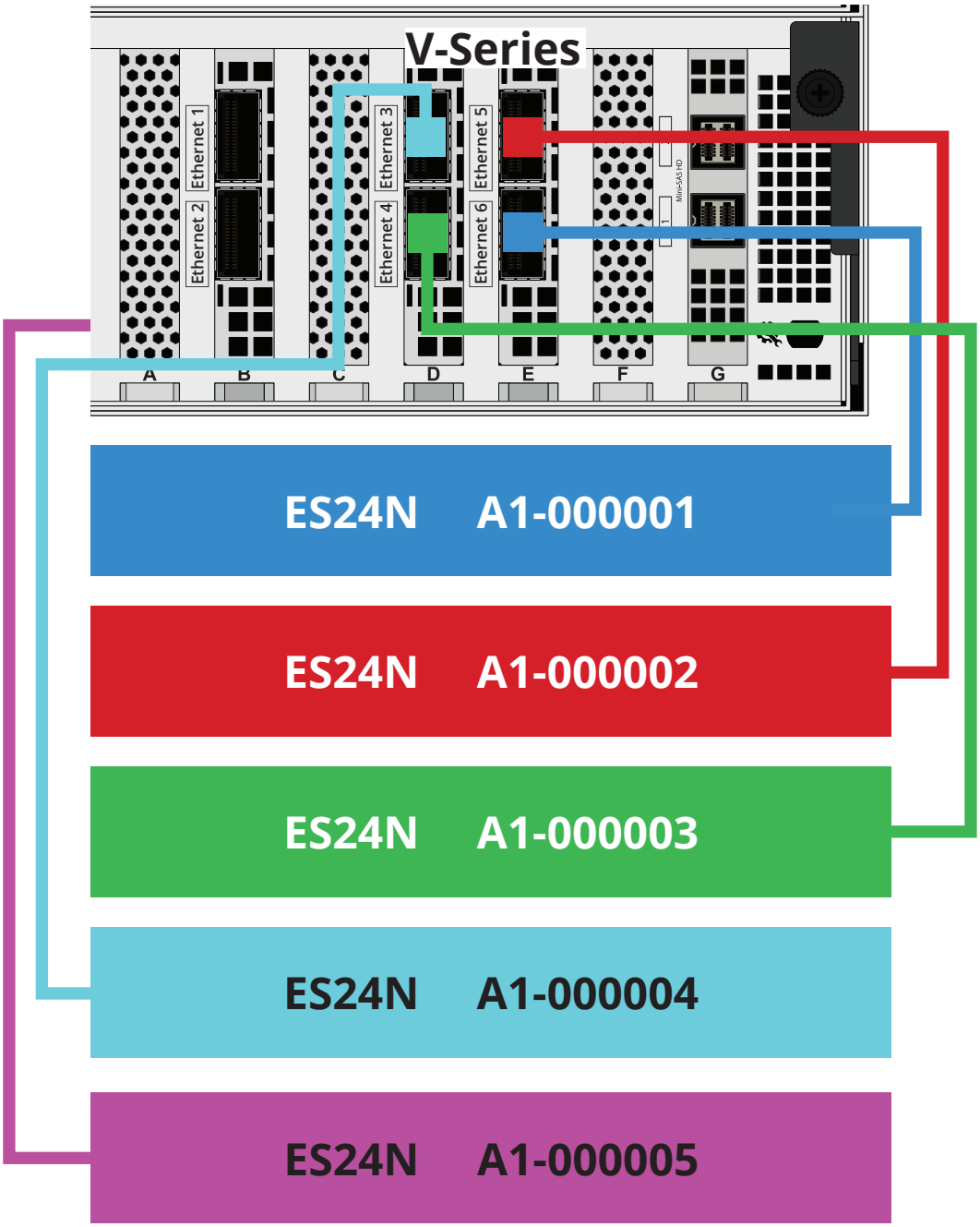
V-Series with three ES24N expansion shelves



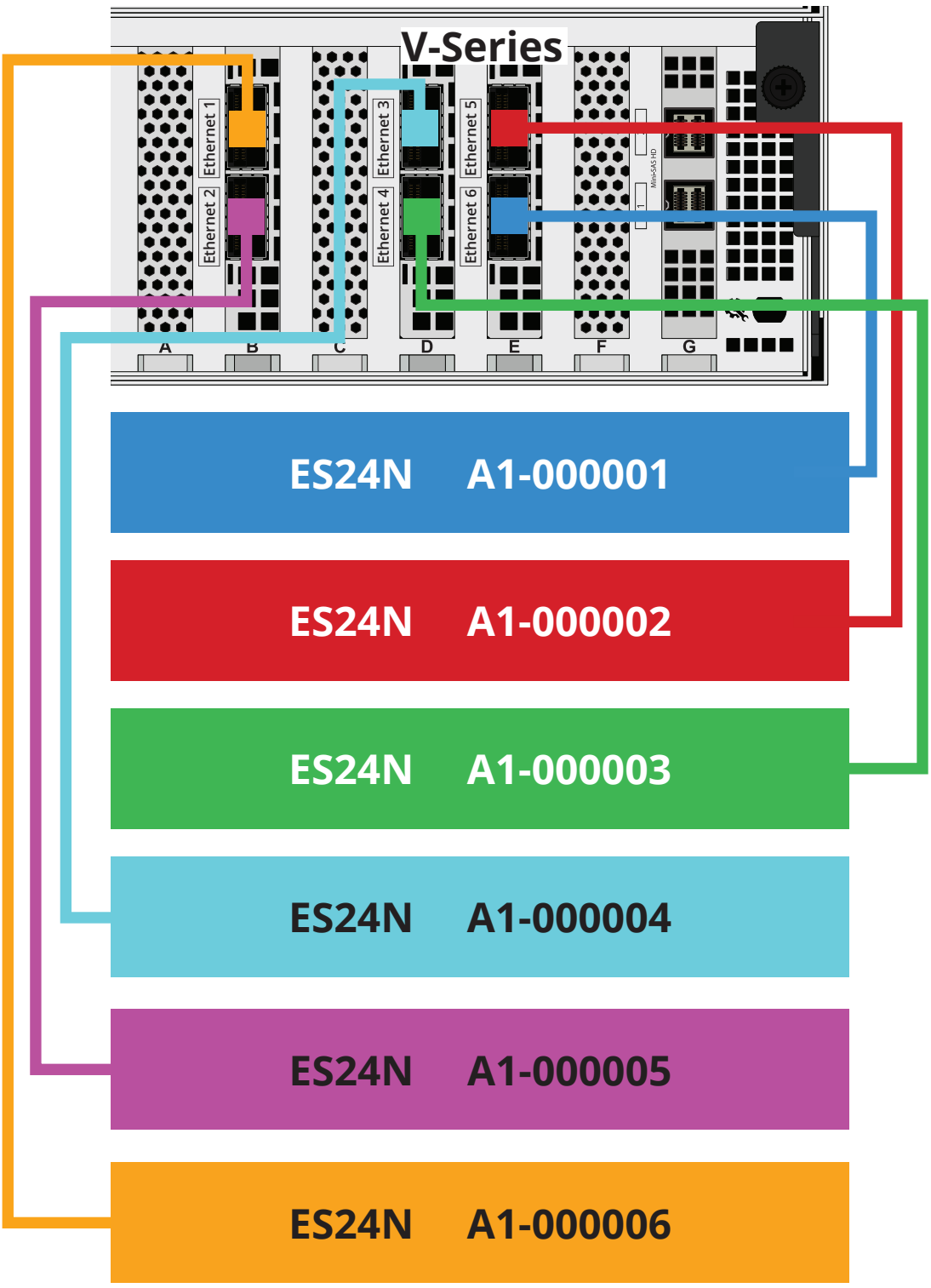
V-Series with four ES24N expansion shelves



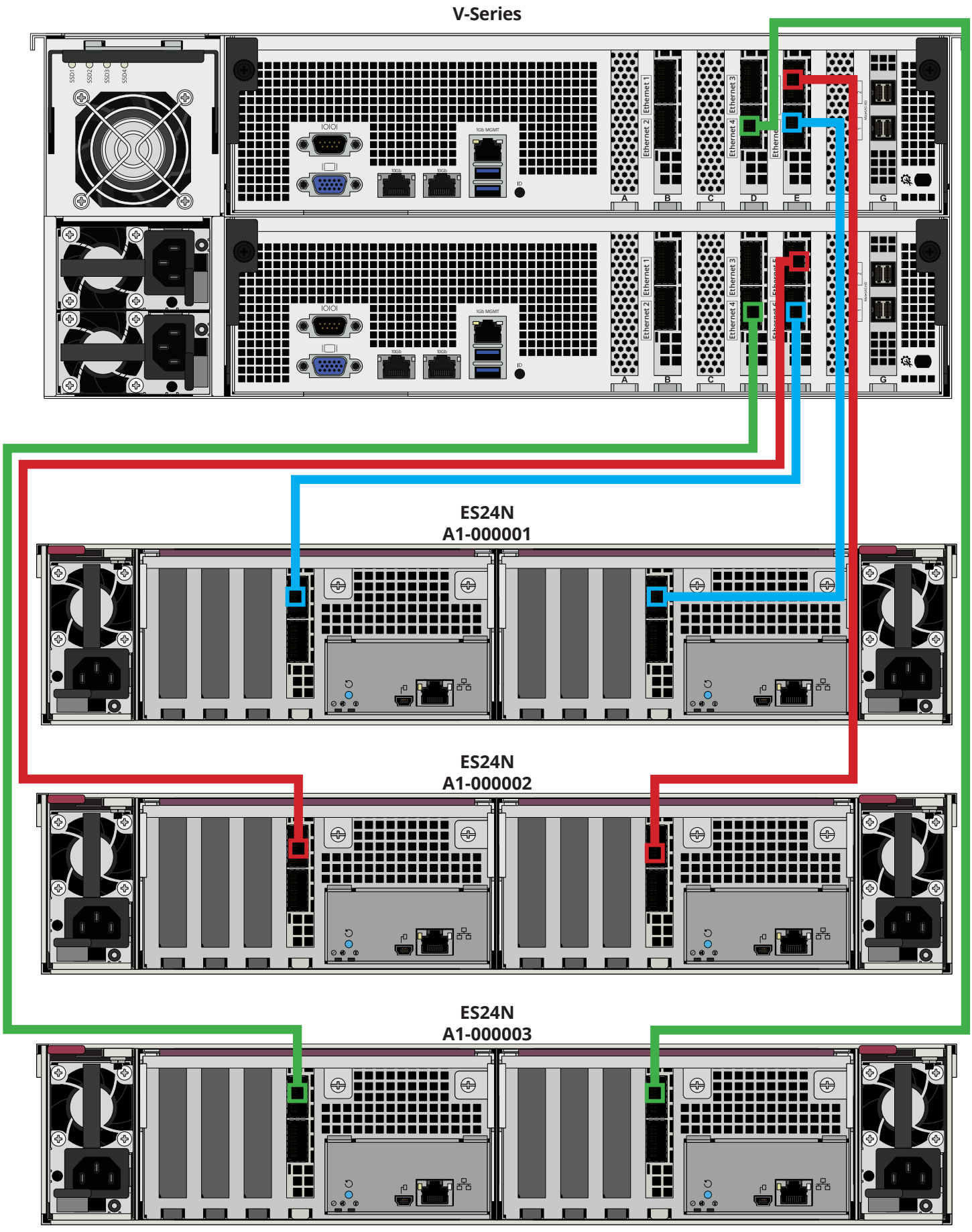
V-Series with five ES24N expansion shelves



V-Series with six ES24N expansion shelves

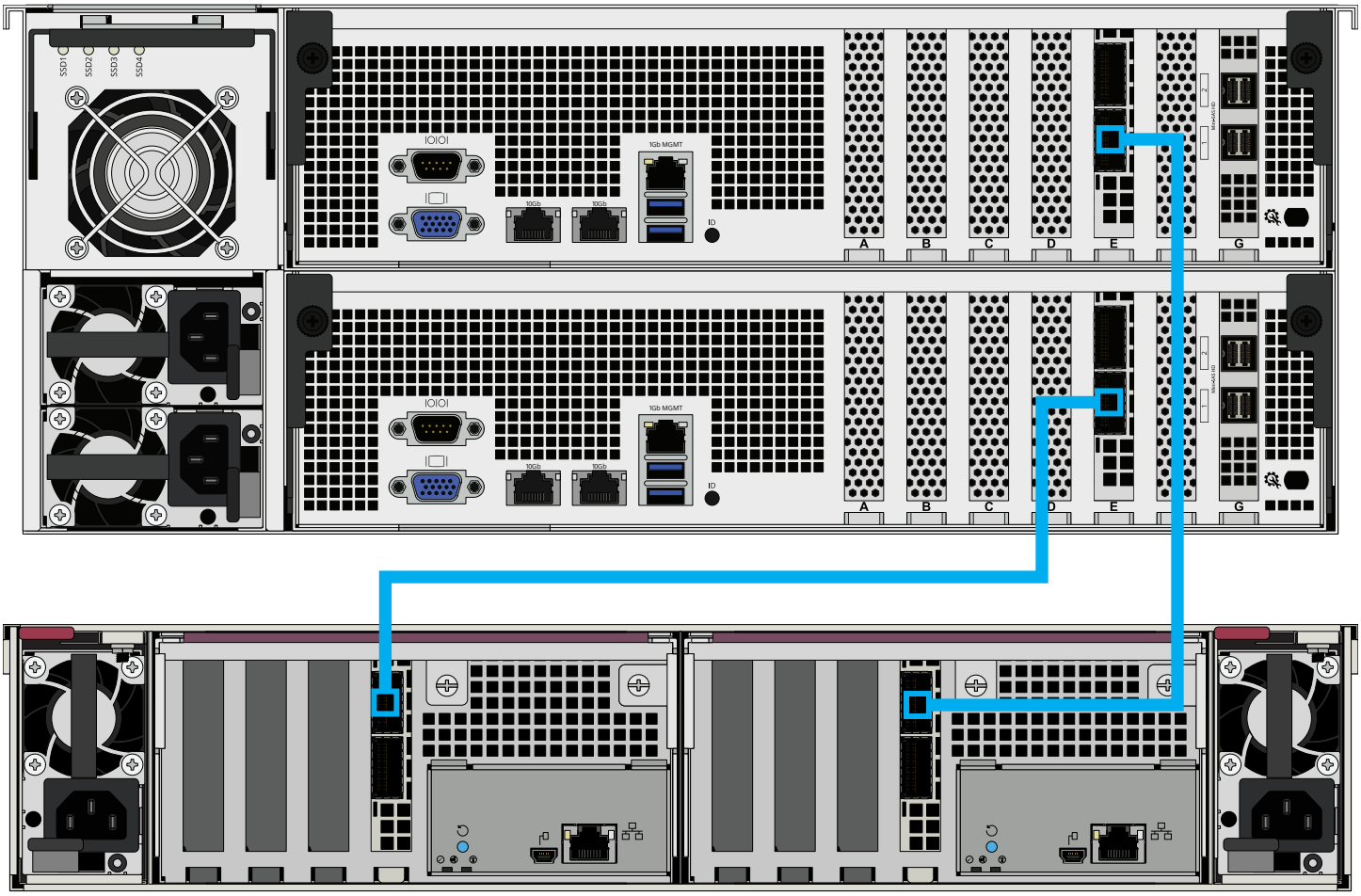


The following diagram is an example of three ES24N shelves connected to an V-Series system.

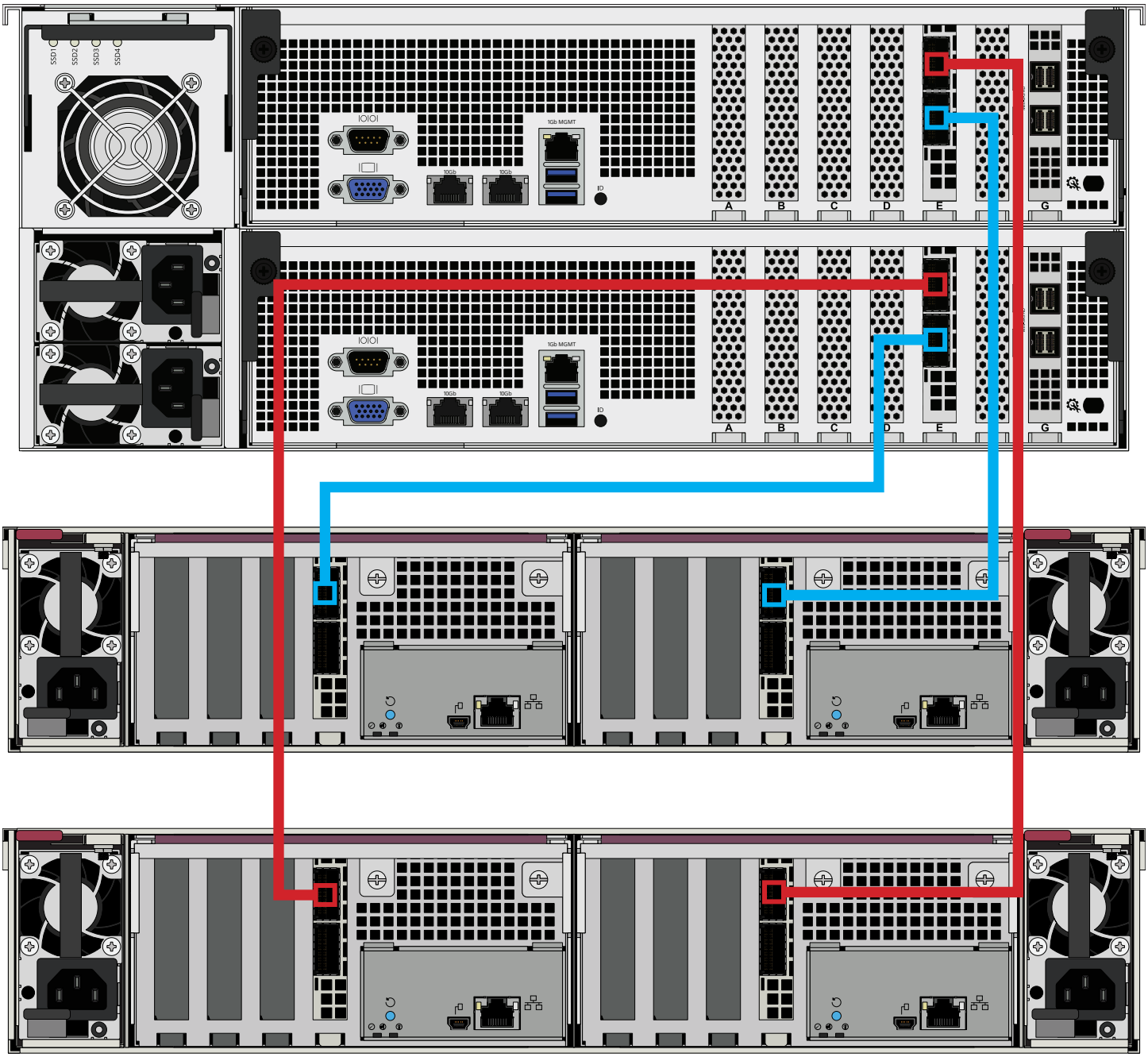


8.4.1 V160 - ES24N

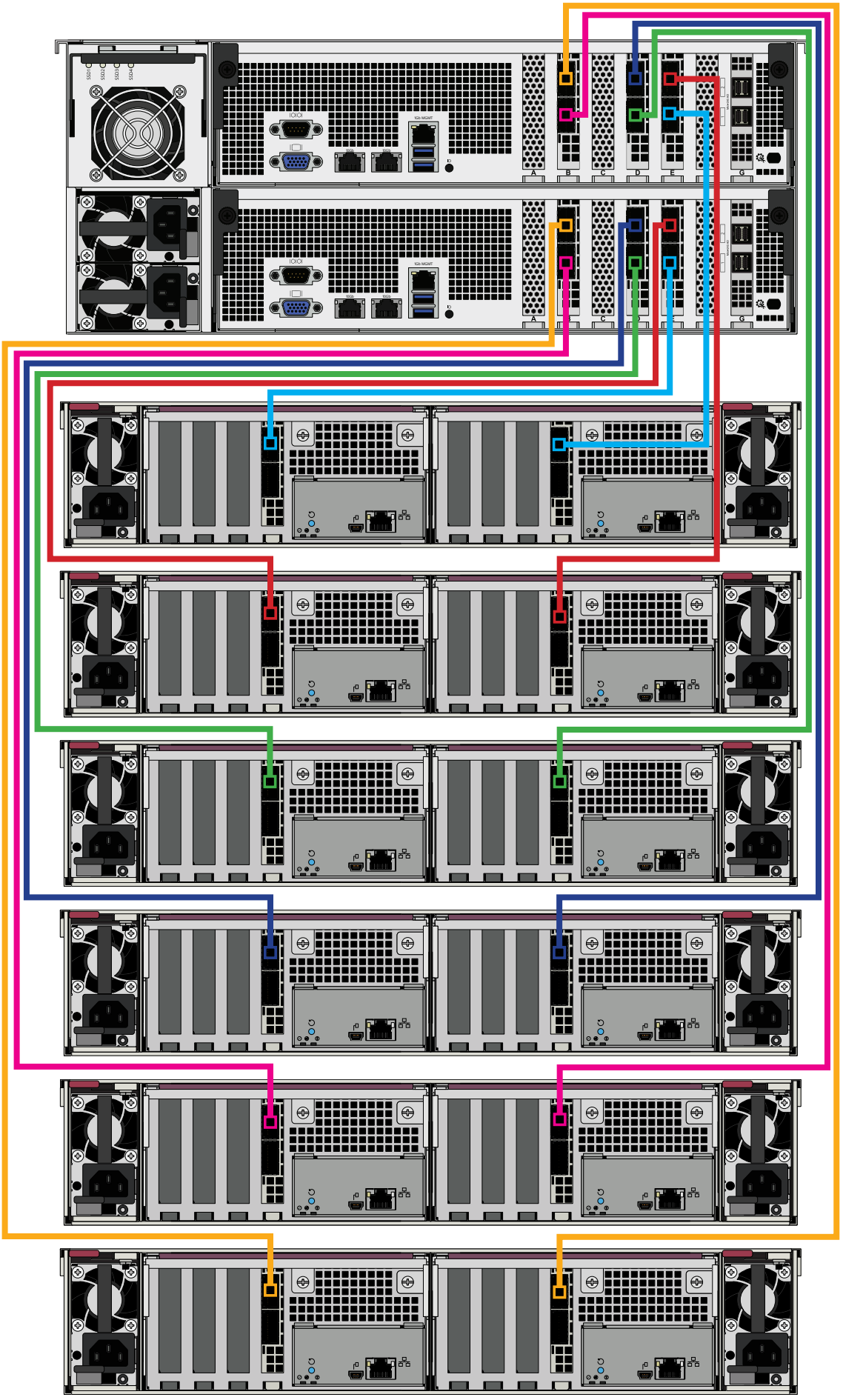
V160 with one ES24N expansion shelves. This expansion uses 100 GbE ports and must be connected starting from the right side with the highest number first.



V160 with two ES24N expansion shelves



V160 with six ES24N expansion shelves



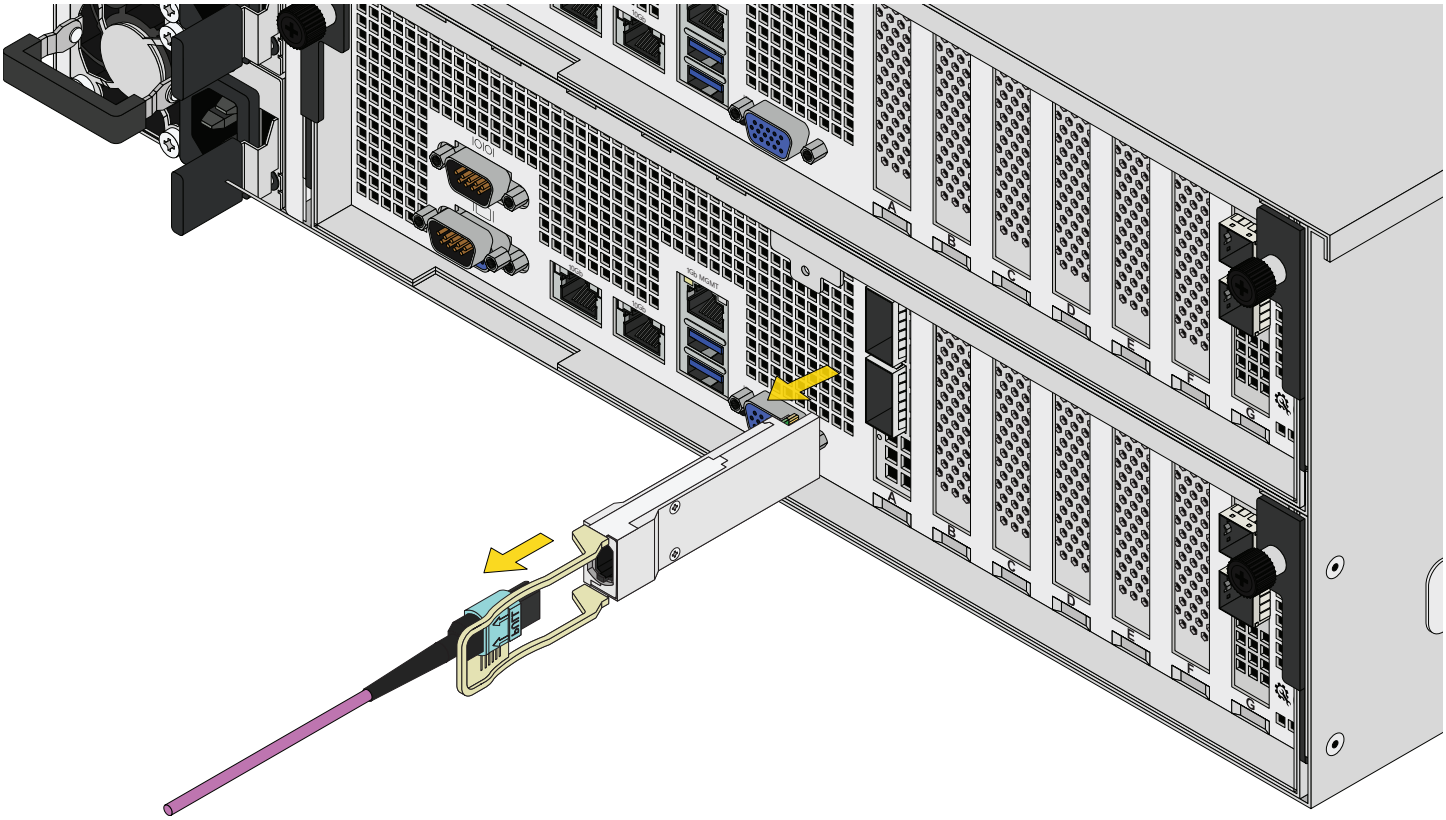
9 Unracking Procedure

9.1 Uninstall Cables

Disconnect both power cables from the PSUs, then disconnect all USB and networking cables.

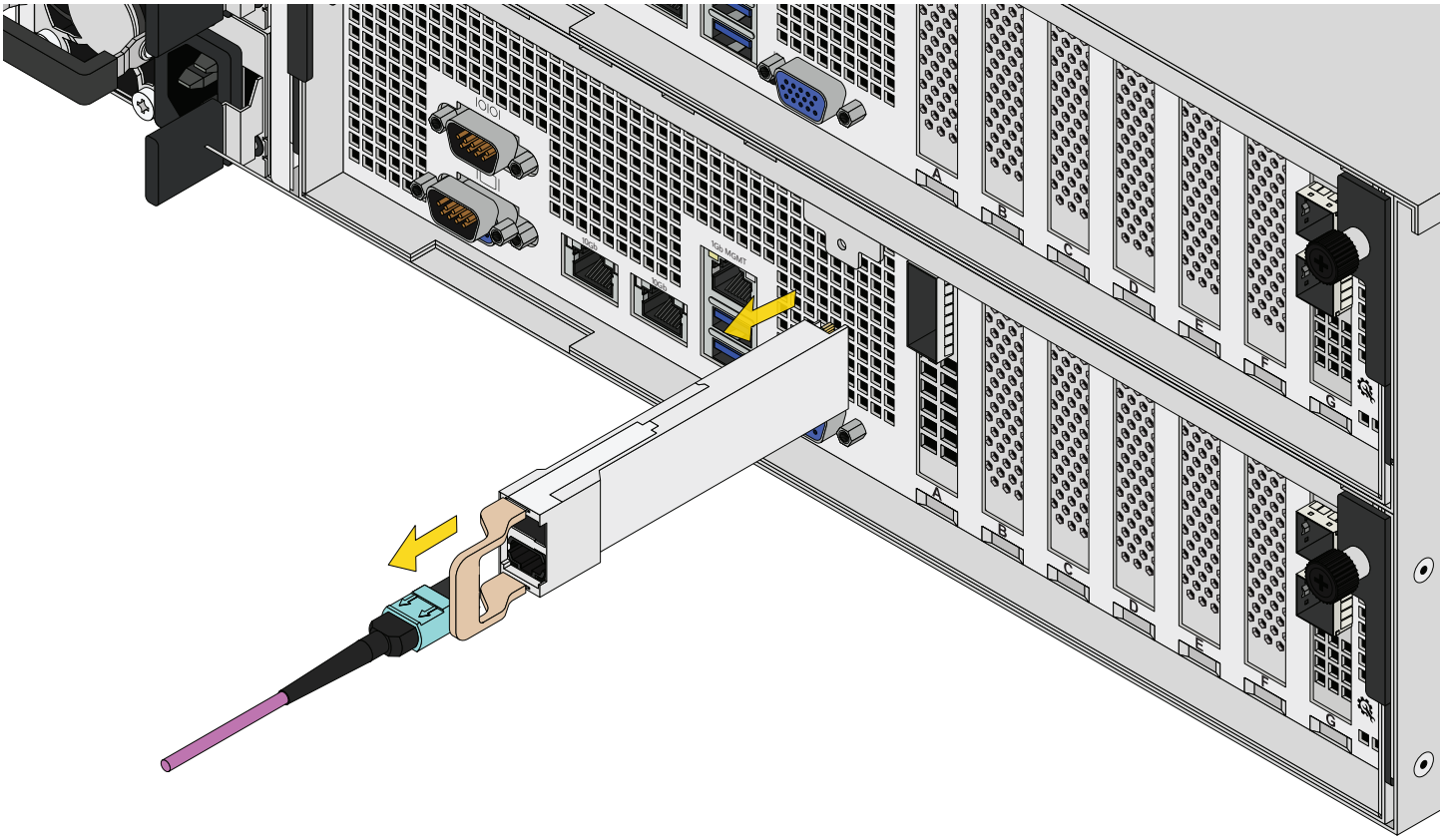
9.1.1 Disconnect 40,100, and 200GbE NIC Cabling

Pull the blue release tab on the cable to remove it from the optics, then pull the release handle on the optics and gently remove them from the network port.



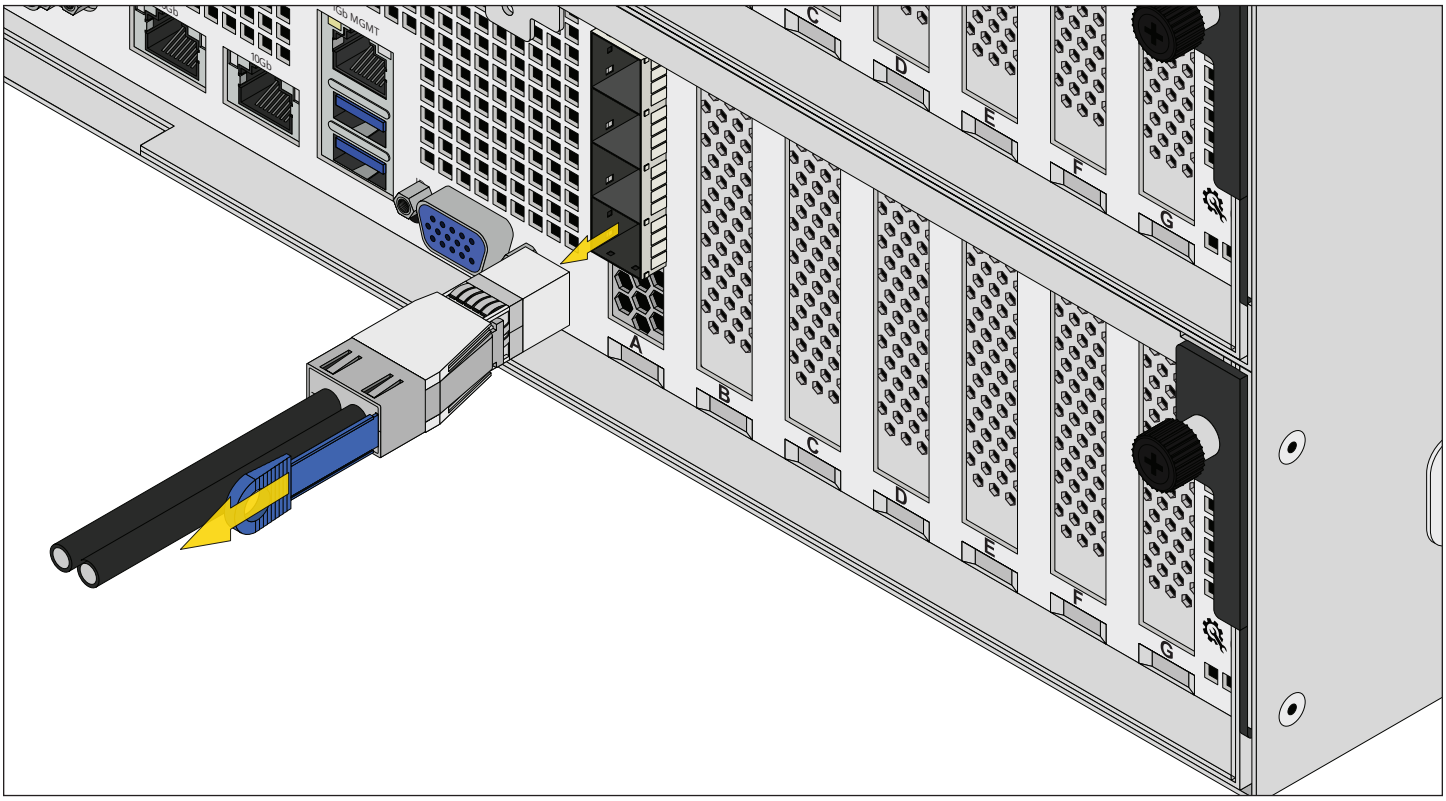
9.1.2 Disconnect 400GbE NIC Cabling

Pull the blue release tab on the cable to remove it from the optics, then pull the release handle on the optics and gently remove them from the network port.



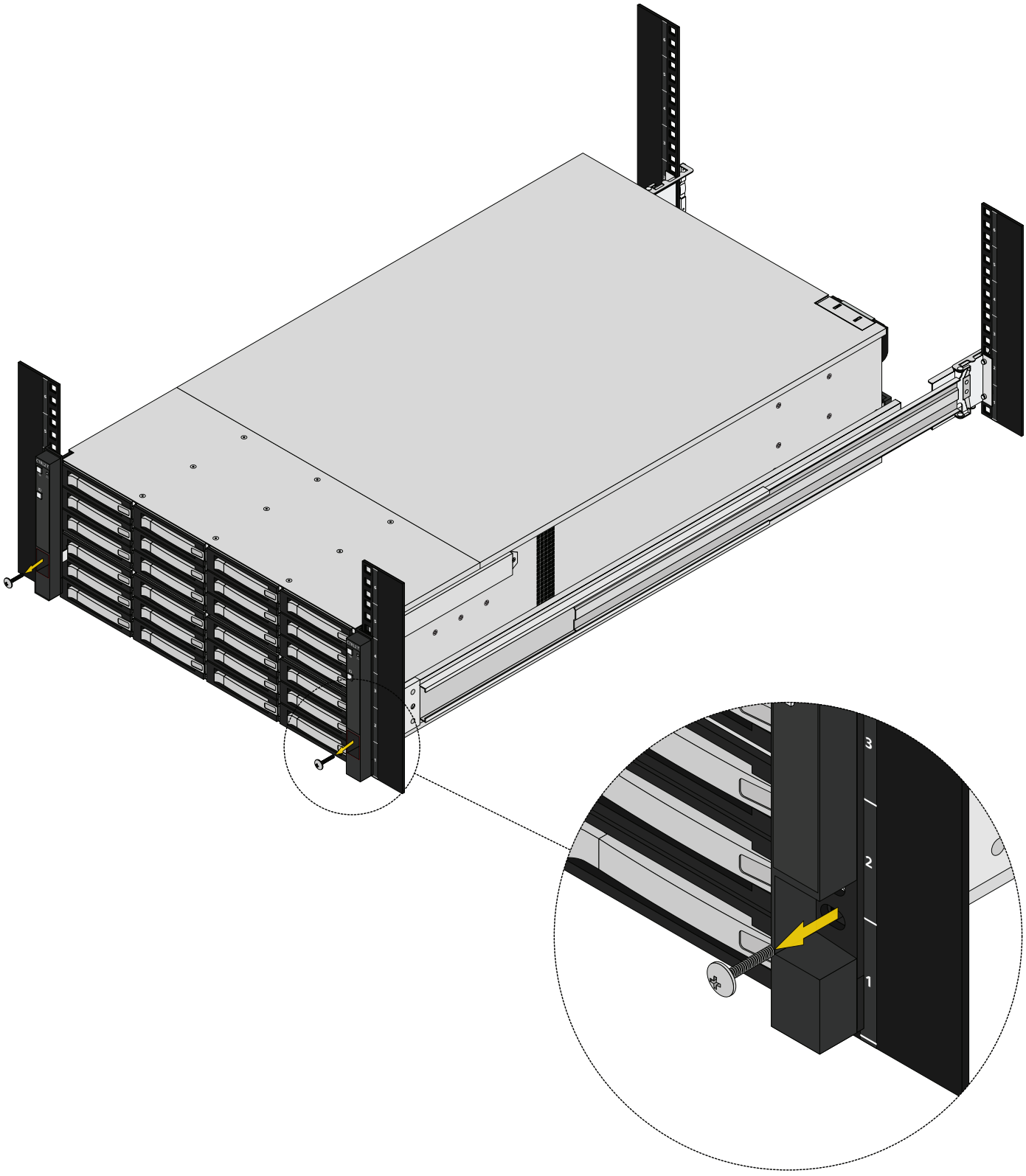
9.1.3 Disconnect SAS HBA Cabling

Pull the blue tab on the bottom of the SAS cable to release it from the SAS port.



9.2 Release the System from the Rack

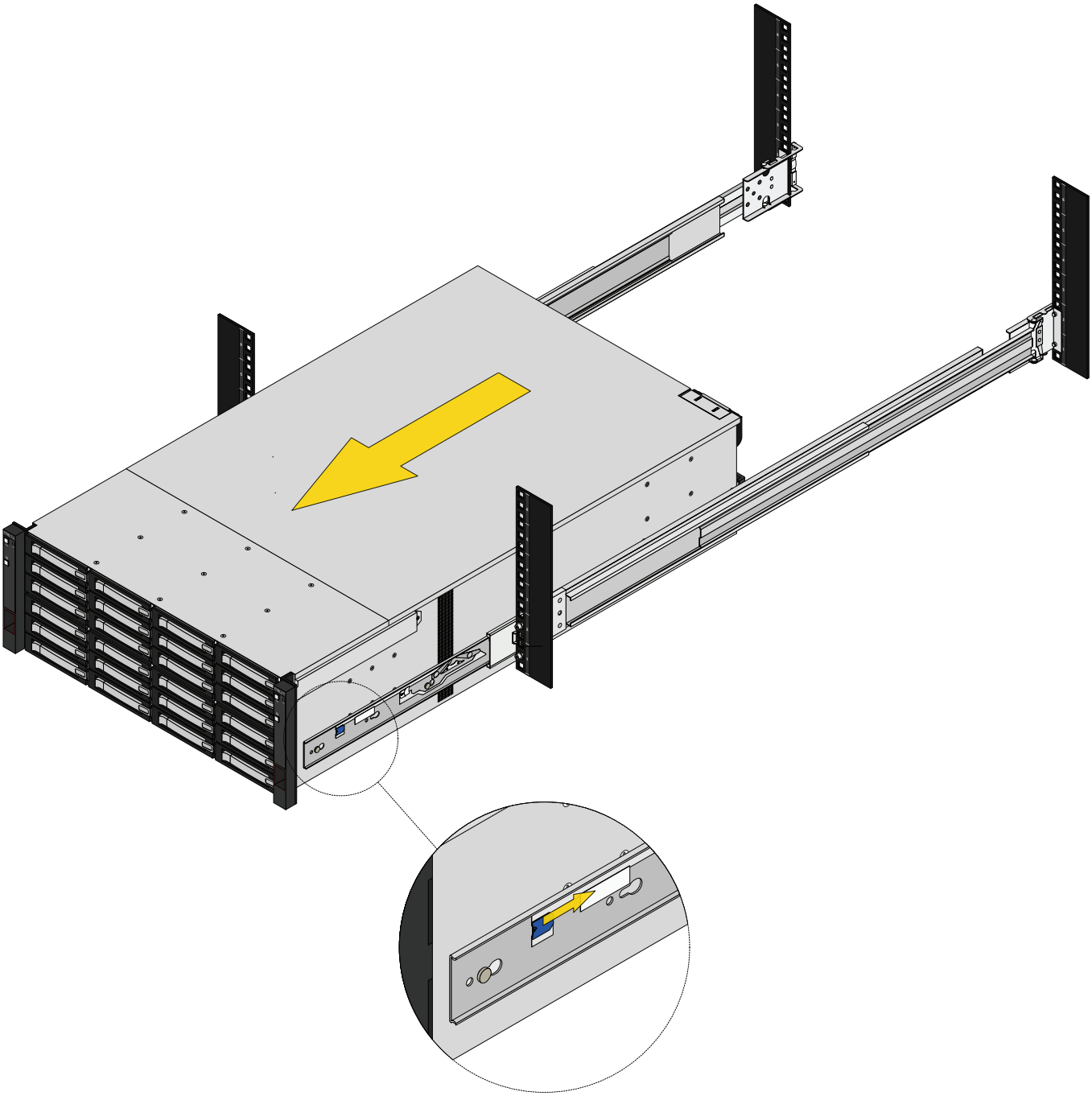
Loosen the captive screws to release each system ear from the rack.



9.3 Remove the System from the Rack

Team-lift the system and align the chassis rails with the rack rails. Slide the ends of the chassis rails into the rack rails and push the system into the rack until the metal safeties click and lock.

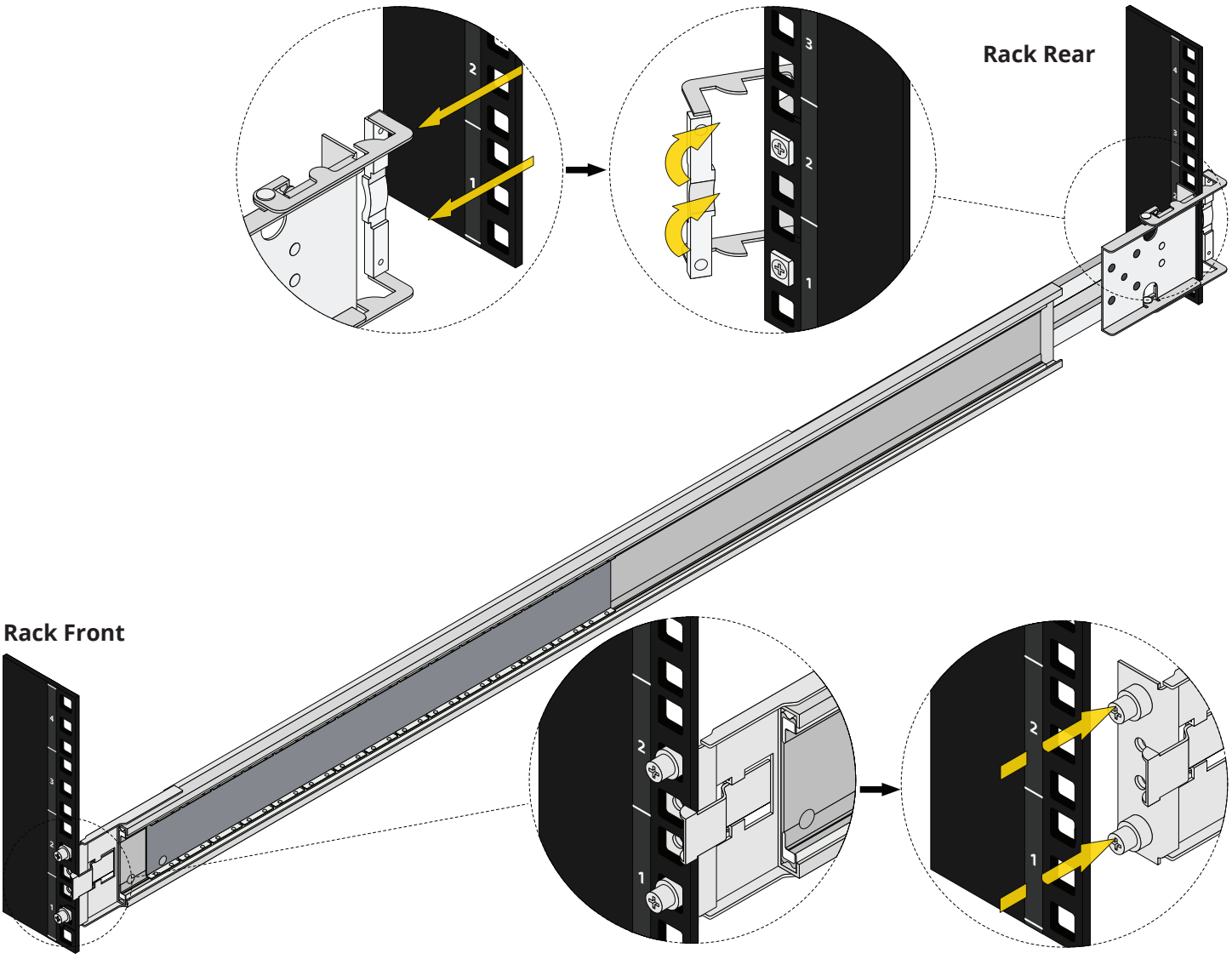
Pull the V-Series out of the rack until the rails lock, then pull the blue release tabs towards the front of the system and finish pulling the system out of the rack.



9.4 Uninstall the Rack Rails from the Rack

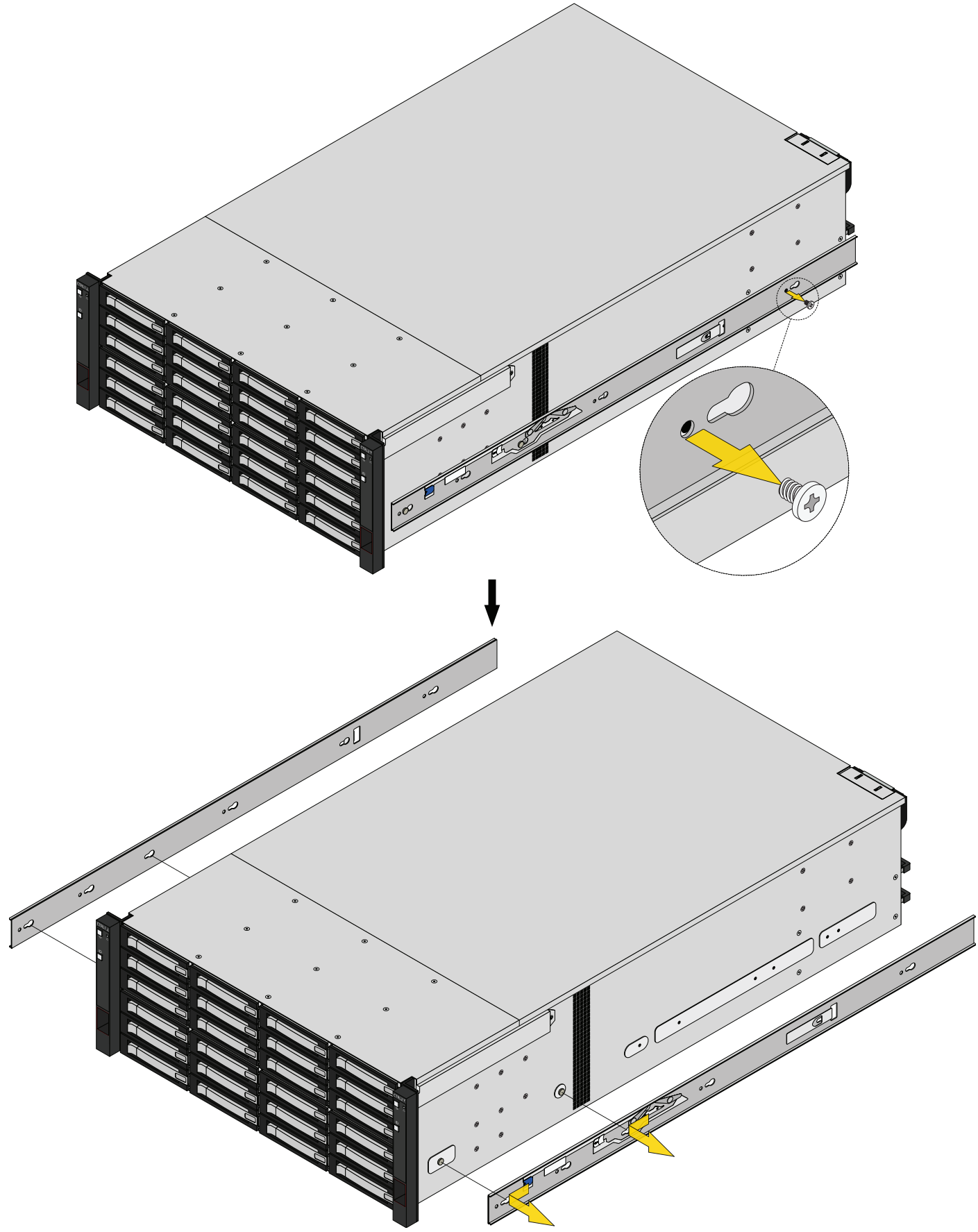
Remove the M5 screw holding the rack rail to the rear rack post, then, press the spring latch plate on each side of the rail to release it from the rack, the remove the rail from the rack.

Repeat for the other rack rail.



9.5 Uninstall the Chassis Rail from the System

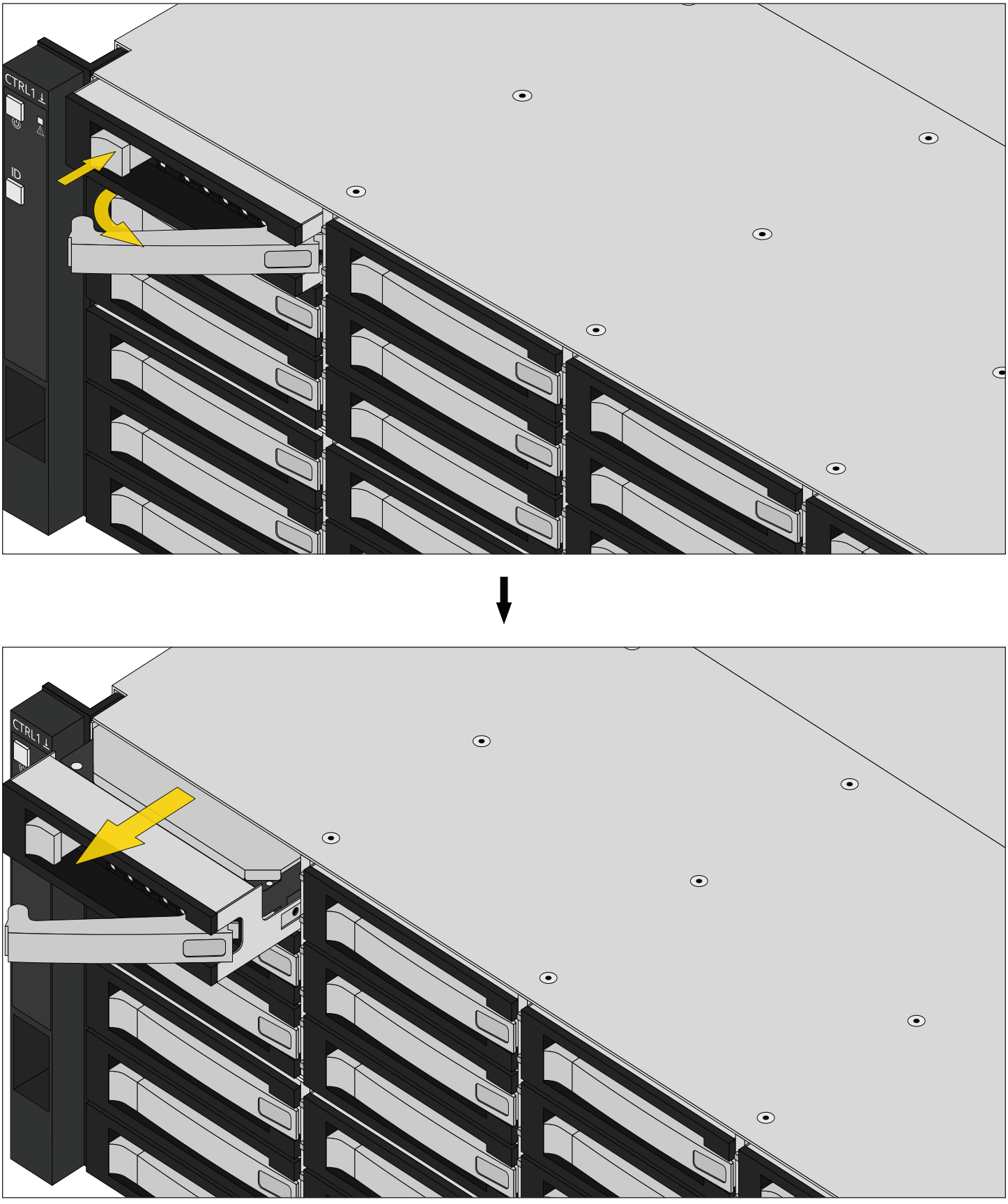
Remove the round M4 screws from the chassis rails, then pull the retention latches away from the chassis rails and slide them toward the front of the system. Pull the chassis rails over the mounting pegs and away from the system.



10 Drive Replacement

10.1 Remove Drive Tray

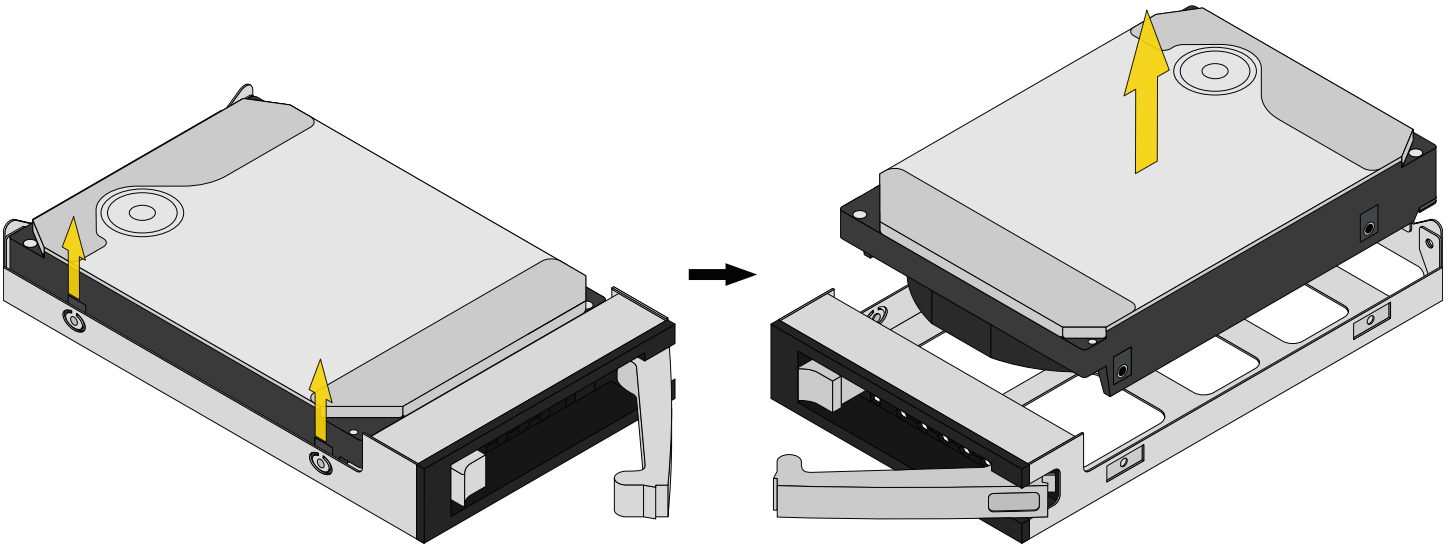
To remove a drive tray, push the blue button on the right side of the tray to release the locking arm. Gently open the arm until it stops, then pull the tray out from the system.



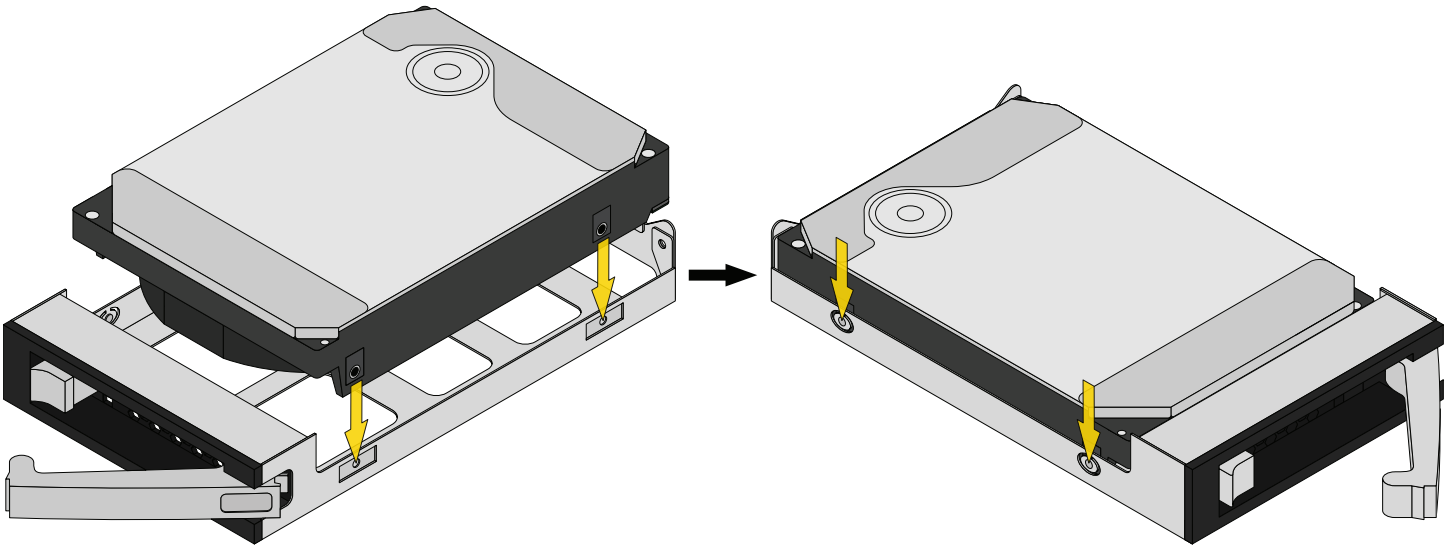
10.2 HDDs

> **Important**
>
> Note that front bay drive RMAs come installed in the tray with all necessary parts. If instructed by TrueNAS Support to install, remove, or replace front bay RMAs, refer to the below documentation.

To remove an HDD from a tray, push the side attached to the flexible pegs from underneath the tray, then lift the drive out.

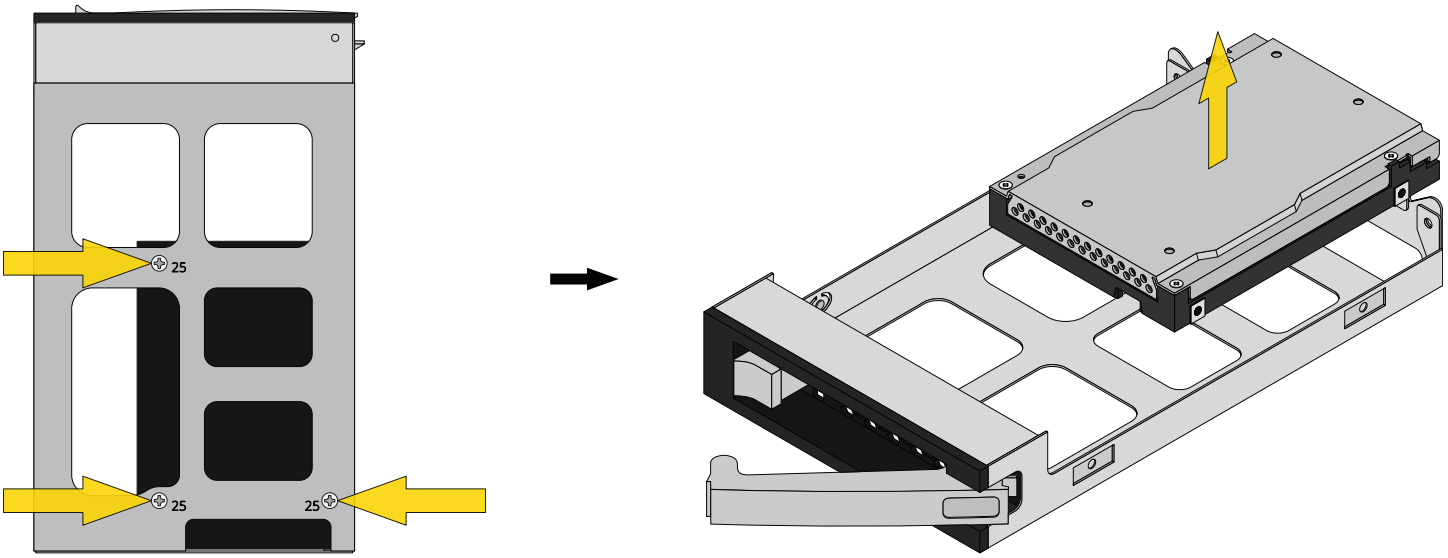


To install a drive in a tray, ensure the drive connectors point out the back of the tray and push the drive side screw holes into the fixed retention pegs on one side of the tray. Push the other side of the drive down into the flexible retention pegs to secure the drive.

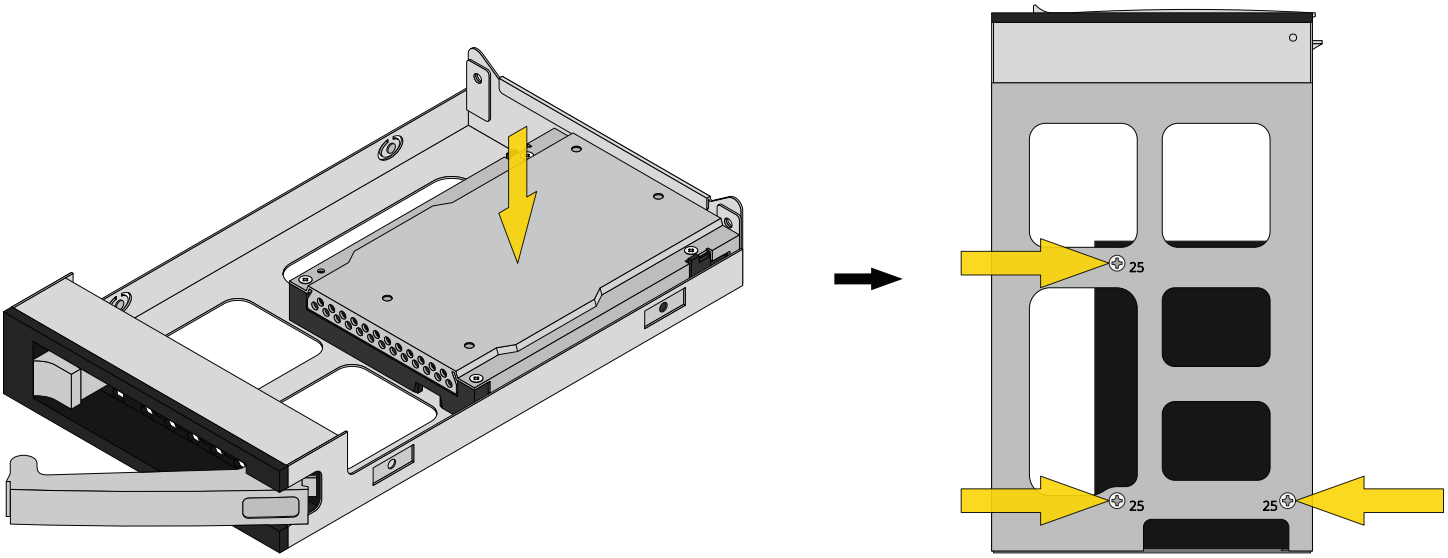


10.3 SSDs

To remove an SSD from a tray, remove the three 2.5” SSD screws from the bottom of the tray, then remove the drive from the tray.

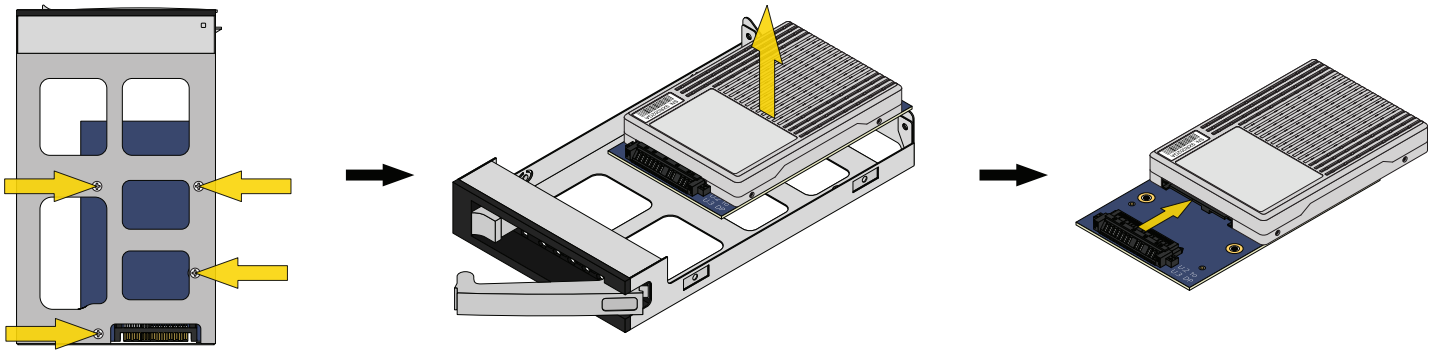


To install an SSD in a tray, ensure the drive connectors point out the back of the tray, then lower the drive into the tray. Install three 2.5” SSD screws to secure the drive to the tray.

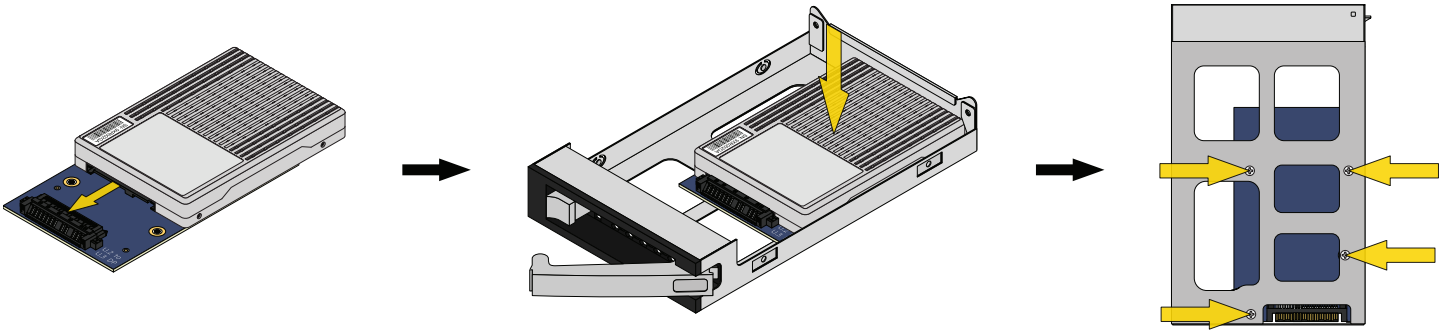


10.4 Passive Interposer

To remove a passive interposer from a tray, remove the four 2.5” SSD screws from the bottom of the tray, then remove the drive and passive interposer from the tray. Finally, disconnect the 2.5” SSD from the passive interposer by carefully sliding the drive out of the passive interposer connector.

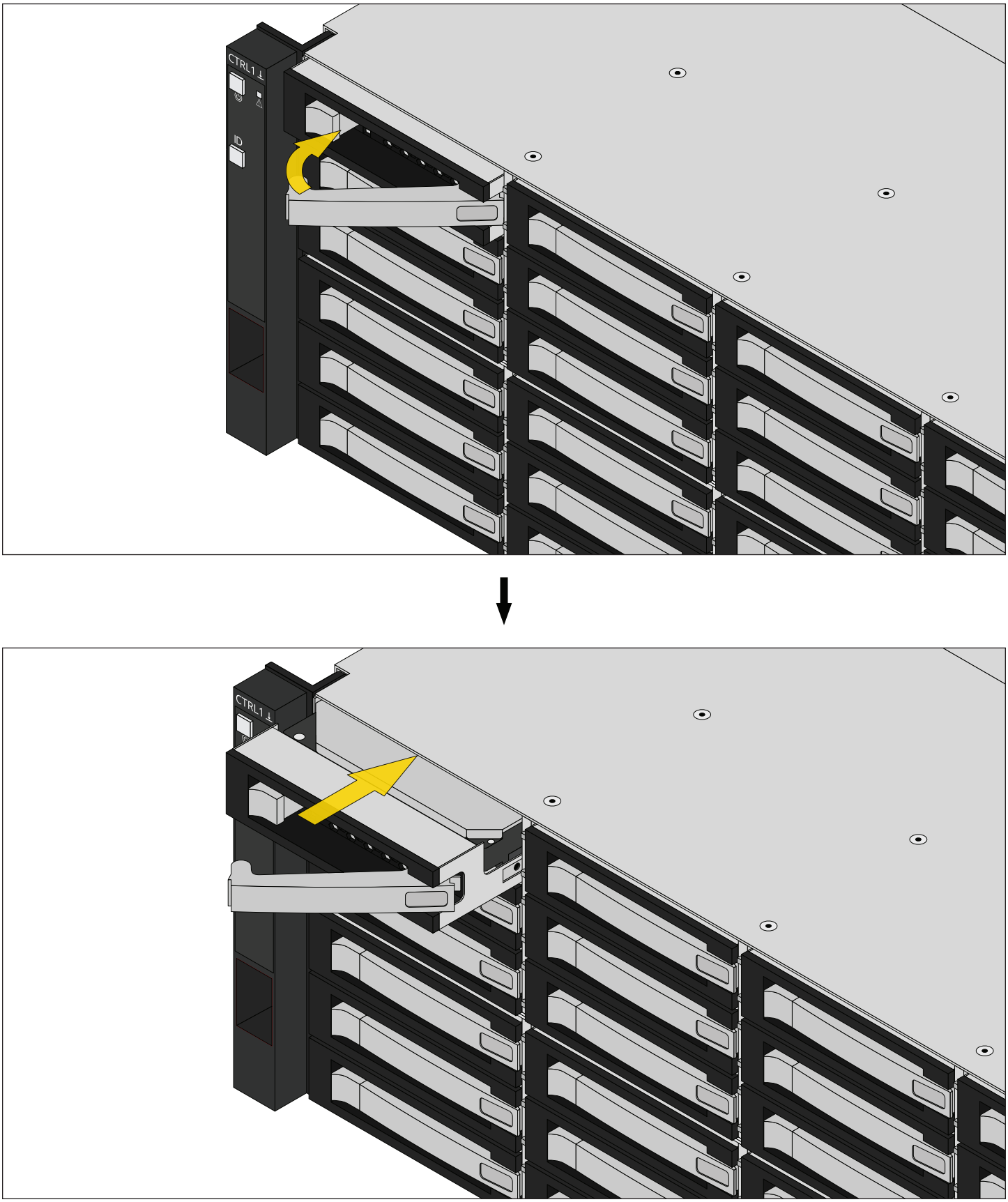


To install a passive interposer in a tray, attach the 2.5” SSD to the passive interposer using the passive interposer’s connector. Ensure the interposer connector points out the back of the tray, then lower the drive into the tray. Install four 2.5” SSD screws to secure the drive to the tray.



10.5 Install Drive Tray

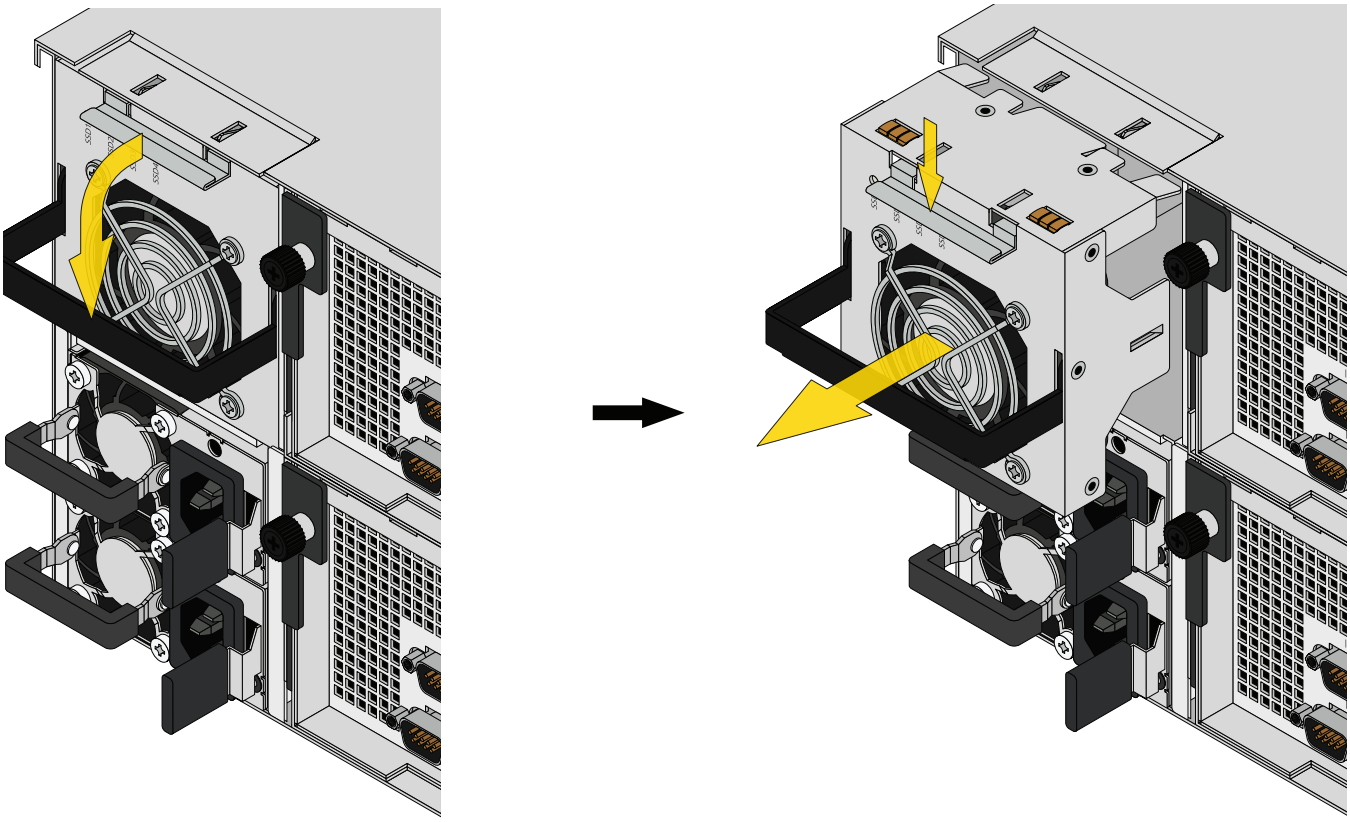
Align the tray with an empty slot and gently push it in until it stops, then close the locking arm.

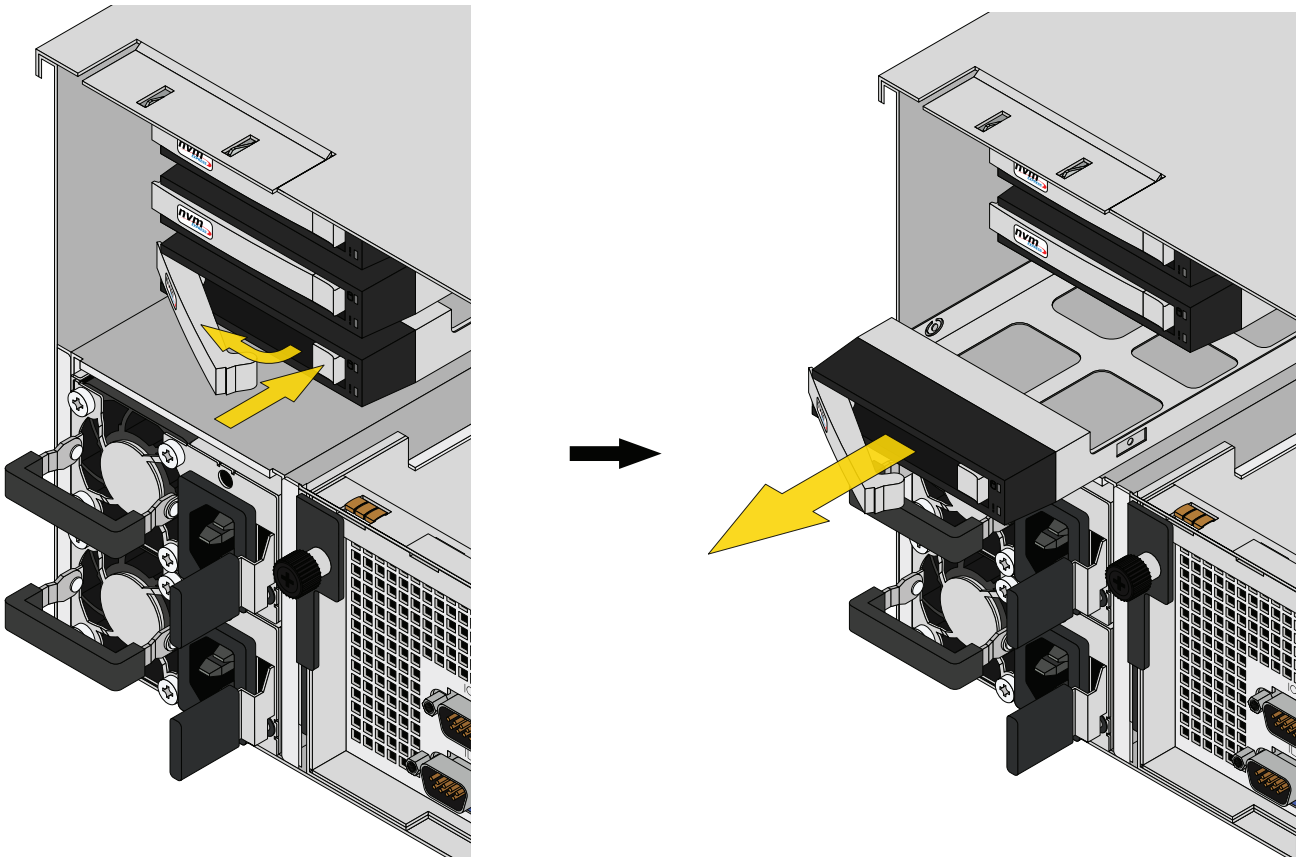


10.6 Remove NVMe Rear Drives and Fan

Pull the fan's locking bar down, press down on the silver release tab, and then pull the fan away from the system.

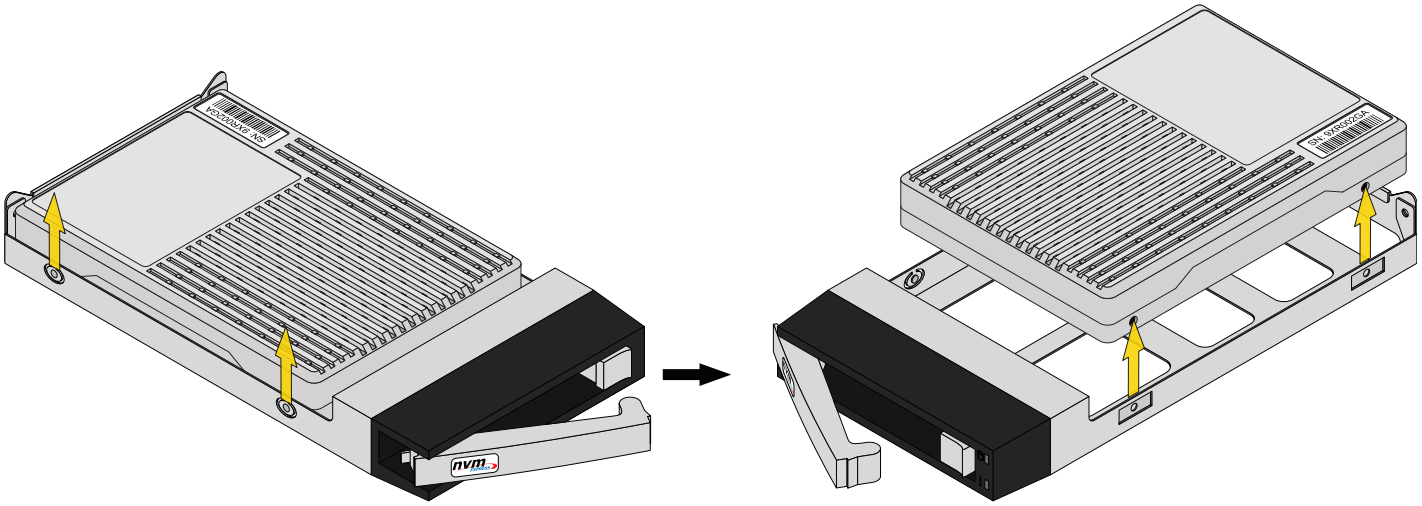
To remove a rear drive, press the locking arm release on the left side of the tray. Gently open the arm until it stops, then pull the tray out from the system.



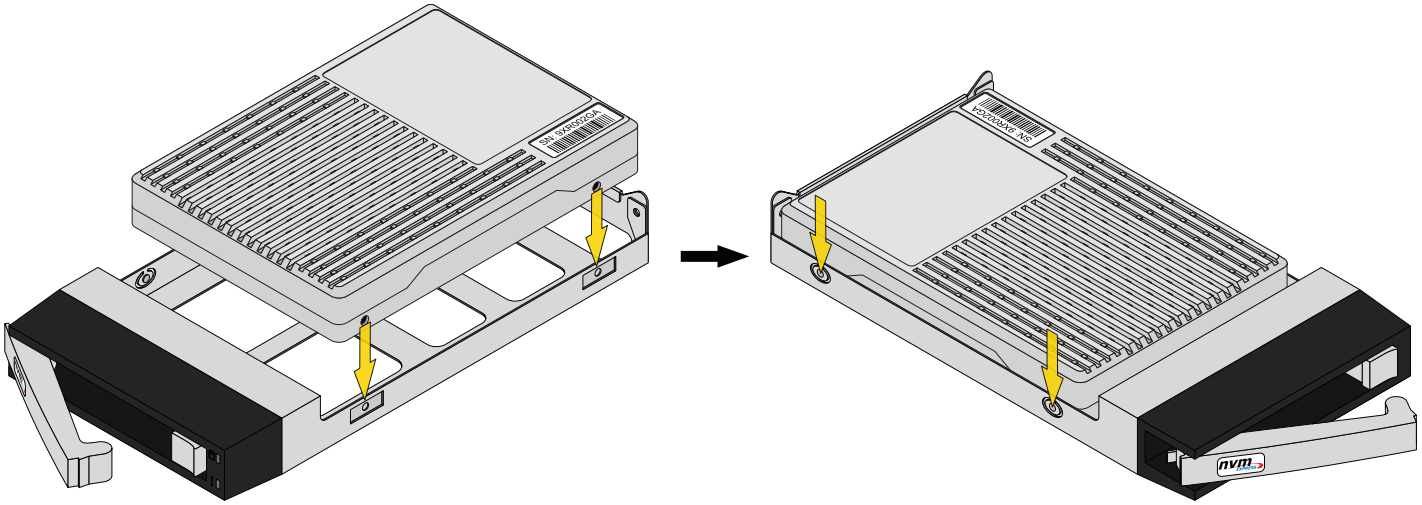


10.7 Replace Rear NVMe Drive

Push the side attached to the flexible pegs from underneath the tray, then lift the drive out.



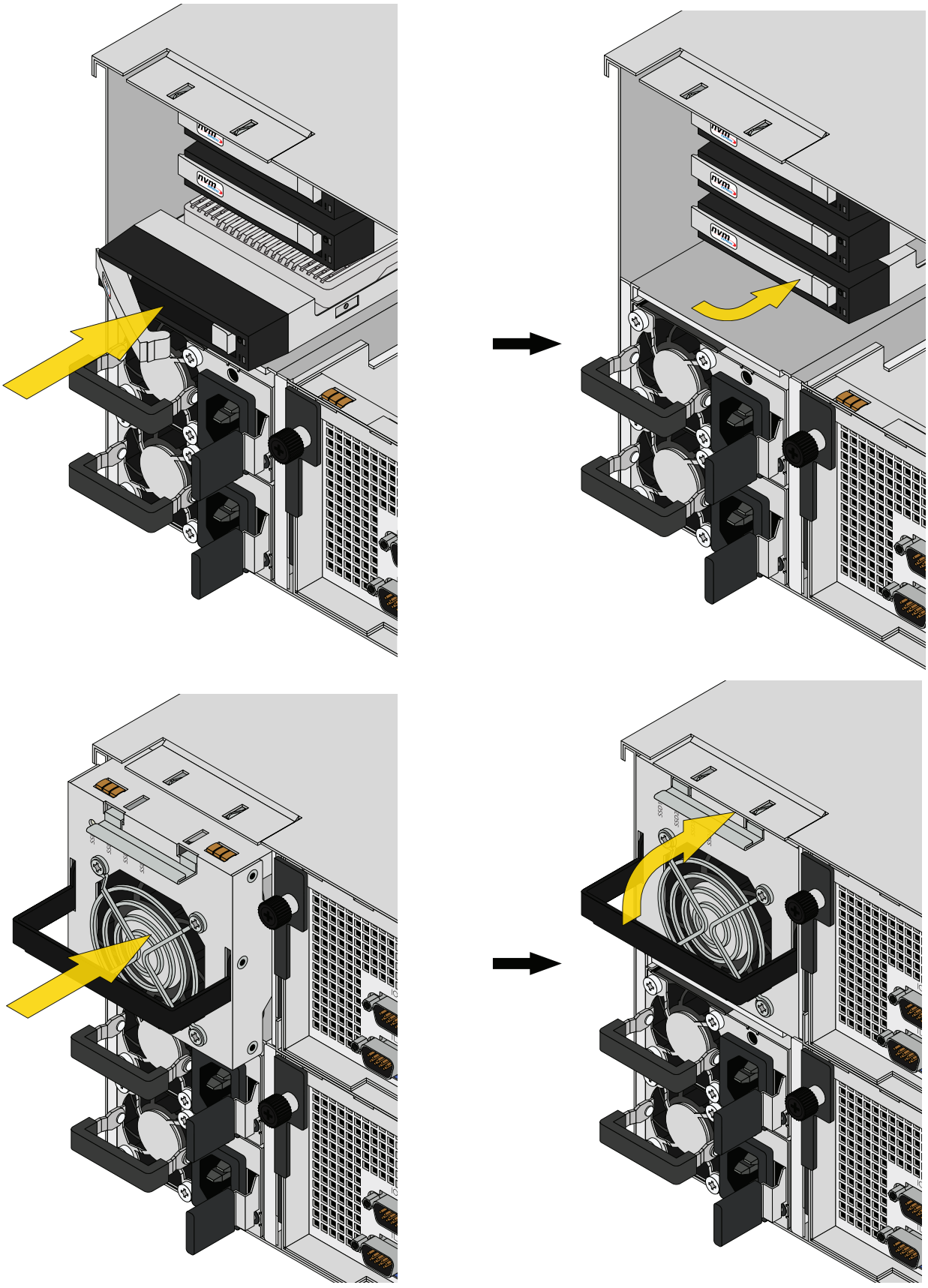
To install a new drive, ensure the drive connectors point out the back of the tray and push the drive side screw holes into the fixed retention pegs on one side of the tray. Push the other side of the drive down into the flexible retention pegs to secure the drive.



10.8 Install Rear NVMe Rear Drives and Fan

Align the drive assembly with an empty slot on the system and push it in until the locking arm begins to swing closed. Gently close the arm to fully seat the tray and lock it into the system.

Fully seat the fan into the empty slot and push the locking arm up to secure it to the system.



11 Additional Resources

The TrueNAS Documentation Hub has complete software configuration and usage instructions. Click **Guide** in the TrueNAS web interface or go directly to:

https://www.truenas.com/docs

Additional hardware guides and articles are in the Documentation Hub's Hardware section:

https://www.truenas.com/docs/hardware

The TrueNAS Forums provide opportunities to interact with other TrueNAS users and discuss their configurations:

https://forums.truenas.com/

12 Contact Us

Having issues? Please contact TrueNAS Enterprise Support to ensure a smooth resolution.

Contact Method	Contact Options
Web	https://www.truenas.com/support
Email	support@truenas.com
Telephone	Monday-Friday, 6:00AM to 6:00PM Pacific Standard Time: • US-only toll-free: **1-855-473-7449** option 2 • Local and international: **1-408-943-4100** option 2
Telephone	Telephone After Hours (24x7 Gold Level Support only): • US-only toll-free: **1-855-499-5131** • International: **1-408-878-3140** (International calling rates will apply)
Address	iXsystems, Inc. dba TrueNAS - 541 Division St, Campbell, CA 95008, USA