

# TrueNAS® ES60 Basic Setup Guide

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Version 1.94



# Contents

<b>1 Introduction</b> .....	<b>1</b>
1.1 Safety .....	1
1.1.1 Static Discharge .....	1
1.1.2 Handling the System .....	1
2.1 Requirements .....	1
<b>2 ES60 Components</b> .....	<b>2</b>
2.1 Front Indicators .....	3
2.2 Rear Components and Ports .....	3
<b>3 Assemble Rail Kit</b> .....	<b>4</b>
3.1 Install Chassis Rails .....	4
3.2 Install Rack Rails .....	4
3.4 Mount the Unit in the Rack .....	5
<b>4 Install Drives</b> .....	<b>6</b>
4.1 Remove Top Cover .....	6
4.2 Install Drive Trays .....	7
<b>5 Install Cable Management Arm (Optional)</b> .....	<b>8</b>
<b>6 Connect Power Cables</b> .....	<b>10</b>
<b>7 Connect SAS Cables</b> .....	<b>11</b>
7.1 X-Series .....	11
7.2 R-Series .....	12
7.2.1 R20 .....	12
7.2.2 R40 .....	13
7.2.3 R50 .....	14
7.3 M-Series .....	15
7.3.1 M40 .....	15
7.3.2 M50 and M60 .....	16
<b>8 Install Bezel (Optional)</b> .....	<b>17</b>
<b>9 Additional Resources</b> .....	<b>17</b>
<b>10 Contact iXsystems</b> .....	<b>17</b>

# 1 Introduction

The TrueNAS ES60 is a 4U, 60-bay expansion shelf. It has redundant power supplies and two storage controllers.

Review the safety considerations and hardware requirements before installing an ES60 into a rack.

## 1.1 Safety

### 1.1.1 Static Discharge

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. Using an ESD dissipative mat can also help protect the internal components.
- Touch the metal chassis with your bare hand to dissipate static electricity in your body before touching any internal components, including components not yet installed in the system. Using an anti-static wristband and grounding cable is another option.
- Store all system components in anti-static bags.

You can find more preventative tips and details about ESD at <https://www.wikihow.com/Ground-Yourself-to-Avoid-Destroying-a-Computer-with-Electrostatic-Discharge>.

### 1.1.2 Handling the System

We recommend at least two people lift a TrueNAS system.

Never attempt to lift a TrueNAS system loaded with drives! Install the system in a rack before adding drives.

Remove drives before de-racking 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 whenever possible.

This document uses “left” and “right” according to your perspective when facing the front of a system or rack.

## 2.1 Requirements

We recommend these tools when installing a TrueNAS ES60 in a rack:

- #2 Phillips head screw driver
- Flat head screw driver
- Tape measure
- Level

## 2 ES60 Components

TrueNAS units are carefully packed and shipped with trusted carriers to arrive in perfect condition. If there is any shipping damage or missing parts, please take photos and contact iXsystems support immediately at [support@ixsystems.com](mailto:support@ixsystems.com), 1-855-GREP4-iX (1-855-473-7449), or 1-408-943-4100.

Please locate and record the hardware serial numbers on the back of each chassis for quick reference.

Carefully unpack the shipping boxes and locate these components:

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ES60 Expansion Shelf



ES60 Bezel



Set of rackmount rails.



Up to 60 drive trays with installed hard drives shipped separately.



Two 3-meter Mini SAS HD to Mini SAS HD cables.



Accessory kit with 2 IEC C13 to NEMA 5-15P power cords, 2 IEC C13 to C14 cords, and a set of velcro cable ties.

## 2.1 Front Indicators

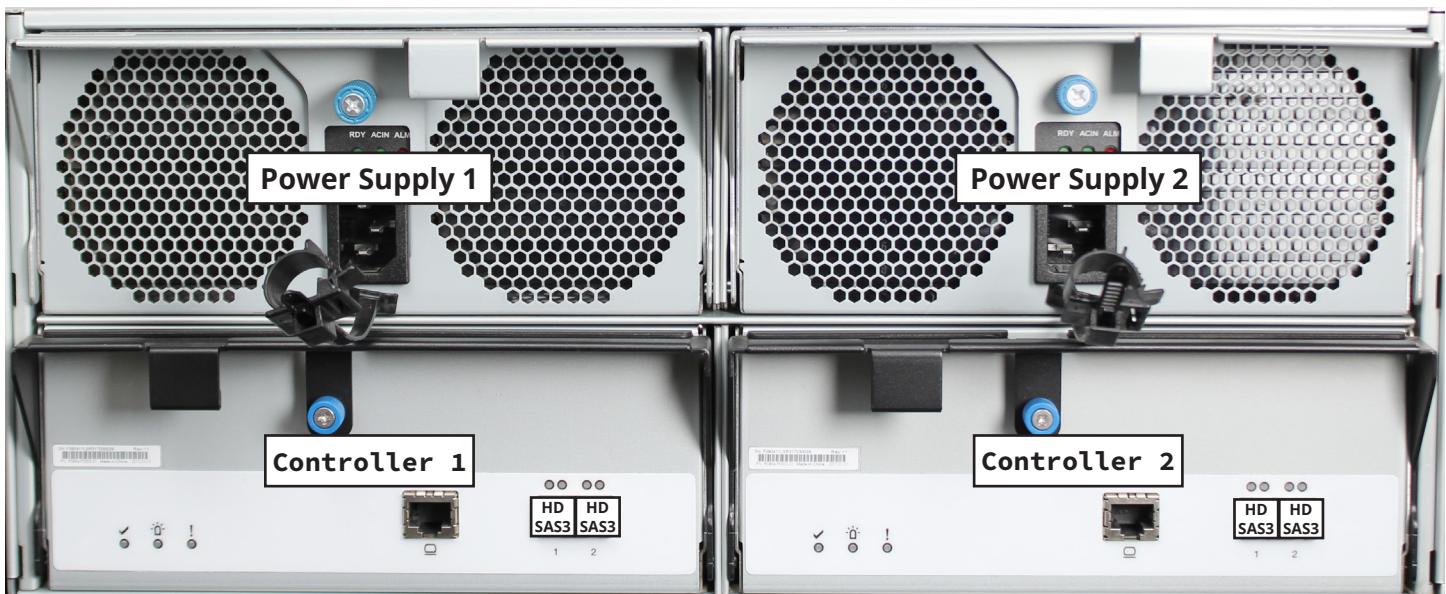
The ES60 has front panel indicators for power, fault, and locate ID.

Light	Color and Indication
(I)	Green: System on
⚠	Red: Fault / Alert
ID	Amber: Locate ID active



## 2.2 Rear Components and Ports

The ES60 has two expansion controllers in a side-by-side configuration.



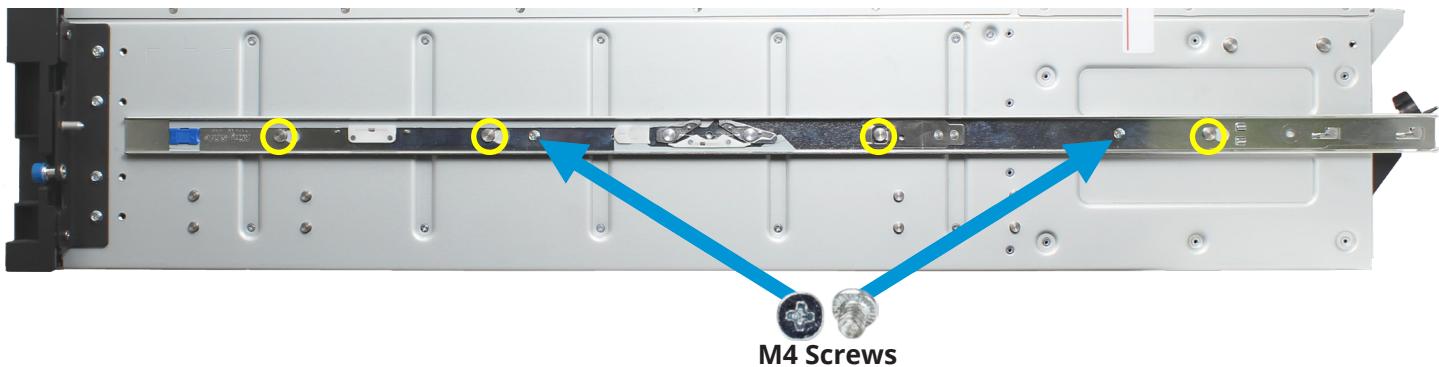
## 3 Assemble Rail Kit

### 3.1 Install Chassis Rails

Each rack rail has an inner chassis rail you must remove. Extend the chassis rail until you see the white release tab. Push the release tab and remove the chassis rail from the rack rail. Repeat the process for the second rail.



The chassis rails mount on each side of the system. Align the chassis rail keyholes with the posts on the side of the chassis. Slide the rail towards the system rear until the metal tab clicks and locks the rail in place. Secure the rail to the chassis using the low-profile M4 screws. Repeat this process on the other side.



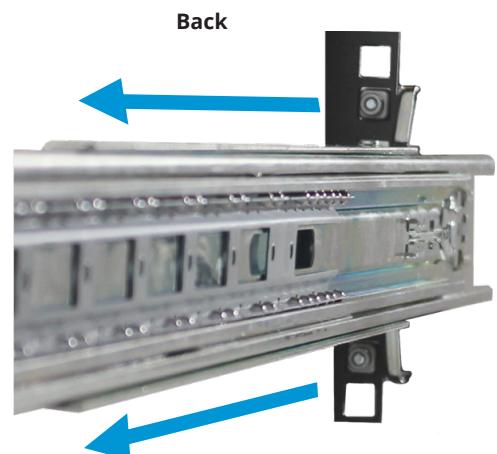
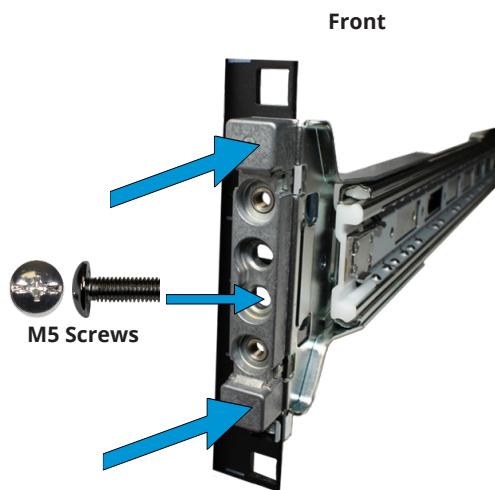
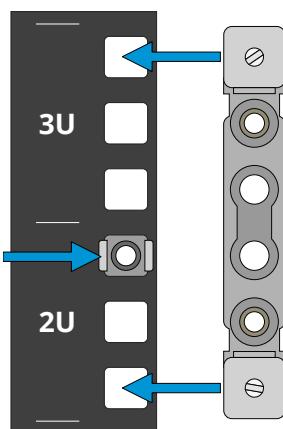
### 3.2 Install Rack Rails

The ES60 occupies 4U of rack space. The rails mount in the center 2U of that space.

The accessory kit includes cage nuts (for square and round-hole racks), which provide attachment points for rail screws. Install a cage nut in the 4th hole from the top in the center 2U of rack space. Repeat for all four posts.

The rail ends are stamped "Front" and "Rear". Place one rail in the rack with the "Front" stamp at the front facing outwards. The "Rear" stamp goes at the back. Align the pins on both rail ends with the rack mounting holes. Make sure the cage nuts line up with the rail holes. Push the pins into the rack holes until they lock in place. Use the provided screws to secure the rails to the cage nuts.

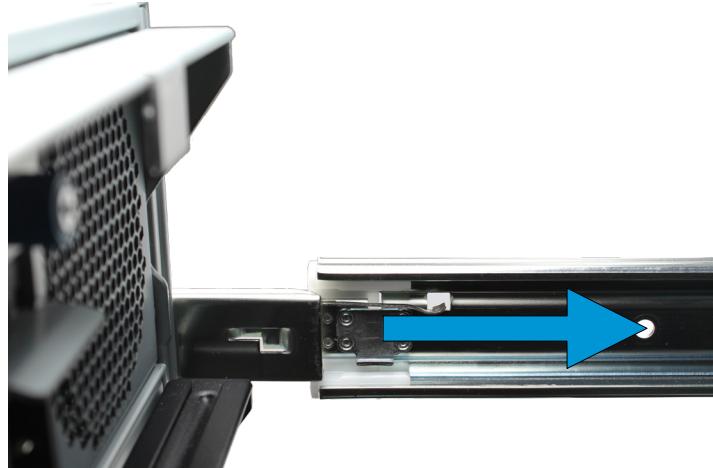
Cage Nut Placement and Rail Alignment



### 3.4 Mount the Unit in the Rack

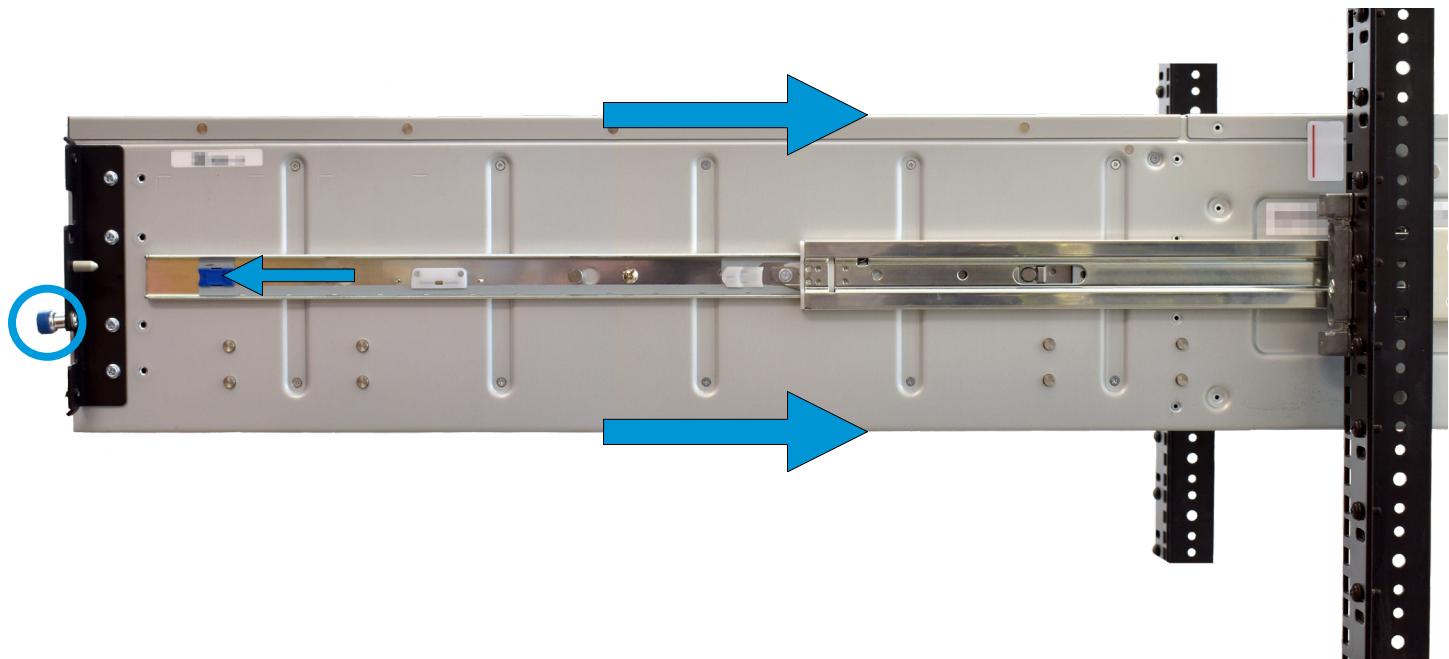
**Warning:** The ES60 requires two people to safely lift in and out of a rack. Do not install drives until after you mount the ES60 in the rack. Remove all drives before taking the ES60 out of the rack.

Lift the ES60 with attached cabinet rails and align the cabinet rails with the inside front of the rack rails.



Carefully slide the ES60 into the rack rails until it stops. Locate the blue tabs on the inside of the cabinet rails. Slide the tabs towards the front of the ES60 and hold them in place, then push the chassis into the rack.

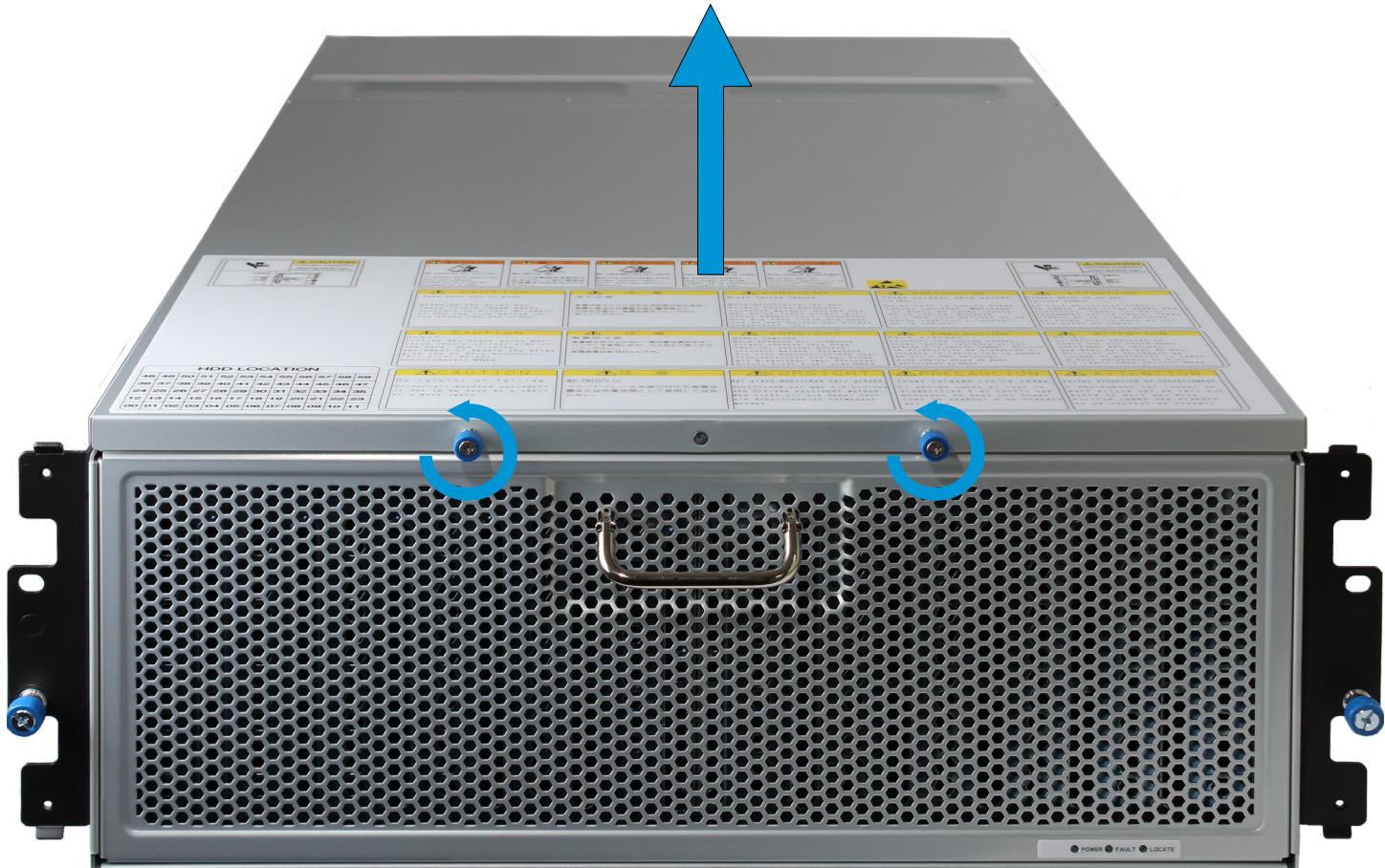
Use the thumbscrews on the ears are to secure the ES60 in the rack after installing drive trays



## 4 Install Drives

### 4.1 Remove Top Cover

Slide the ES60 out on the rails. Unscrew the cover screws to unlock the top cover, then slide it toward the system front and lift it off.



## 4.2 Install Drive Trays

TrueNAS systems only support qualified hard drives and SSDs. Contact iX Support if you need more drives or replacements or if drives are improperly installed in trays. Adding unqualified drives to the system voids the warranty.

To add a new drive to an empty tray, place the tray on a flat surface and push the hard drive into the tray. Make sure the connector is at the rear of the tray. Secure the drive to the tray with four HDD screws.



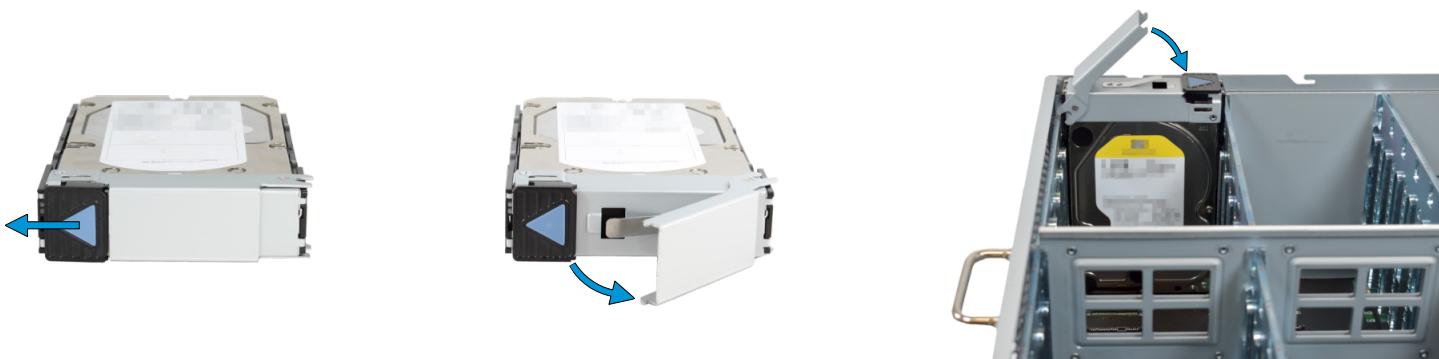
Each drive tray has LEDs that denote its current status.

Drive Tray LED's	
Color	Status
Solid Green	Normal
Blinking Amber	Identify Active
Solid Amber	Fault / Error

We recommend using a standard drive tray installation order to simplify support. Install SSD drives for SLOG first, if present. Follow this with SSD drives for L2ARC, if present, then hard drives or SSD drives for data storage.

Install the first drive tray in the front left drive bay. Install the next drive tray to the right of the first. Install the remaining drive trays to the right across the row. After filling a row with drives, move to the next row and start again at the left bay. A label on the front left of the lid shows the preferred drive order.

Slide the tray button according to the arrow to open the latch. Carefully lower the drive tray into a drive bay until the latch starts closing, then push the latch down until it locks.



You must install the top cover and the entire first row of drive trays for proper air flow and cooling.

## 5 Install Cable Management Arm (Optional)

The optional Cable Management Arm (CMA) helps organize the ES60 power and data cables.

**Note:** You can only use the Cable Management Arm if your rackmount rail depth is between 27.5" and 31".



You can unclip the tabs on the flex housing from the top and the bottom. Or you can remove them entirely.



The ES60 has two attachment posts on the left rear side for the CMA. You can pull the ES60 slightly out of the rack to make the posts more accessible. Align the holes on the CMA chassis bracket with the posts. Slide the CMA onto the posts and pull the lever on the latch upwards to lock the bracket into place.



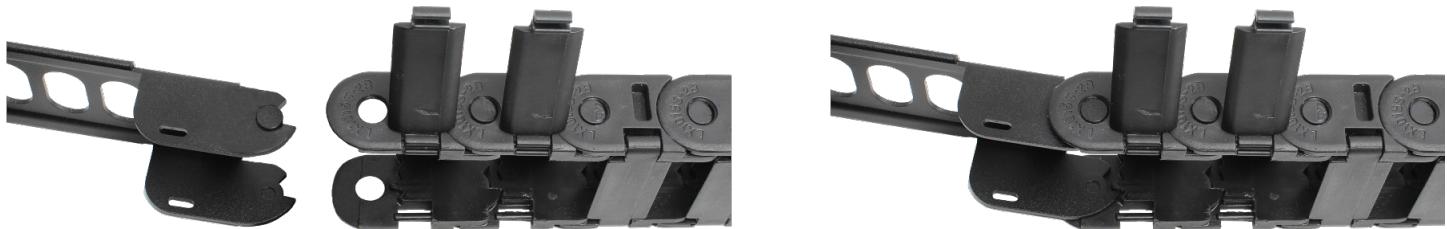
Locate the end of the flex housing with exposed pins. Unclip and open the two tabs closest to the end so the flex housing can compress enough to fit into the bracket holes. Press the flex housing firmly into the bracket until the pins seat in the holes.



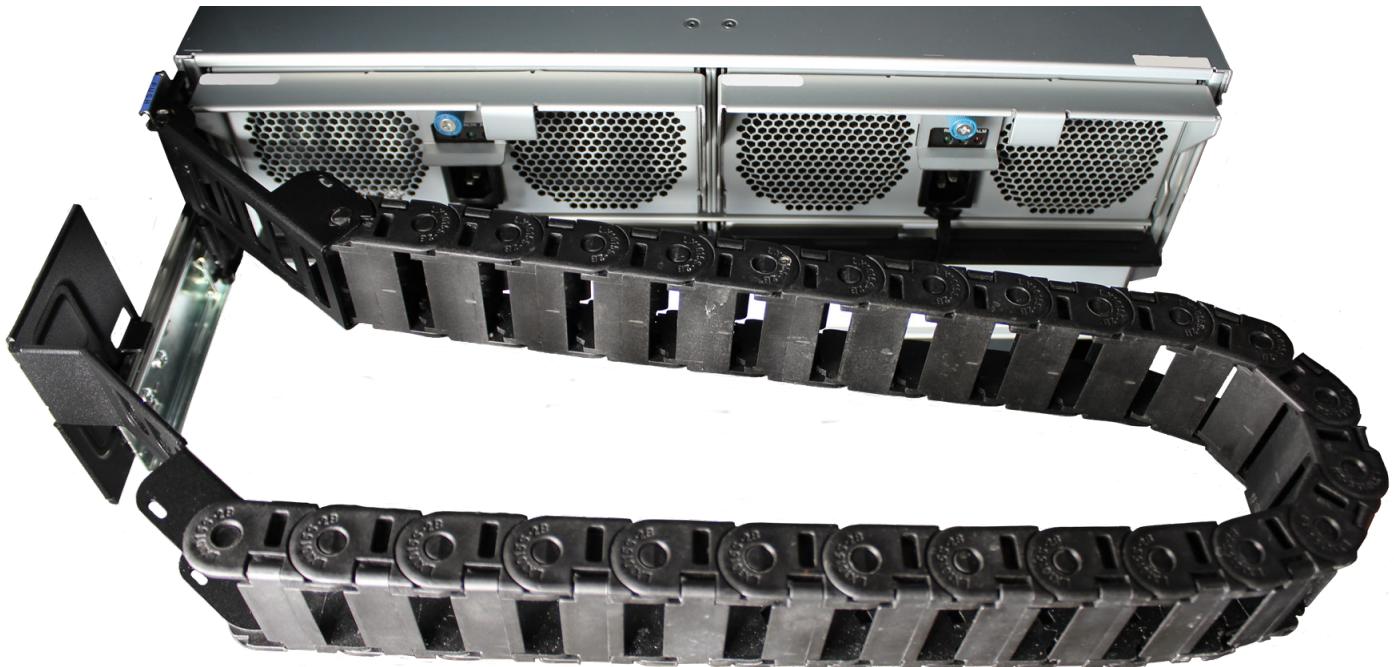
Remove the two screws from the side of the CMA rail bracket. Align the screw holes with the holes in the rear of the left cabinet rail and attach the bracket to the rail with the screws.



Locate the end of the flex housing with exposed holes. Unclip and open the two tabs closest to the end so the flex housing can expand enough to fit over the bracket pins. Press the flex housing firmly into the bracket until the holes seat on the pins.



**Completed CMA Assembly**



Power and data cables route through the flex housing. You can open or remove the tabs to allow access or space for cable ends. Leave some slack in the cables at both ends to allow arm and chassis movement.

## 6 Connect Power Cables

**Do not plug the power cords into a power outlet yet.**

Connect a power cable to the back of one power supply. Squeeze it into the plastic clamp and press on the tab to lock it in place. Repeat the process for the second power supply and cord. Plug both power cords into outlets. The ES60 will turn on.

**Wait two minutes for the drives to start.**



**Note:** Do not connect cables to the Service or Management ports. The ES60 does not use them during operation.

## 7 Connect SAS Cables

Plug the ES60 power cords into power outlets. **Wait two minutes for the drives to start.** The ES60 is compatible with several TrueNAS systems. Typical SAS cable connections for connecting one or two ES60 units to TrueNAS High Availability (HA) systems are shown here.

To set up SAS between your TrueNAS system and expansion shelves, cable the first port on the first TrueNAS controller to the first port on the first expansion shelf controller. High Availability (HA) systems require another cable from the first port on the second TrueNAS controller to the first port on the second expansion shelf controller.

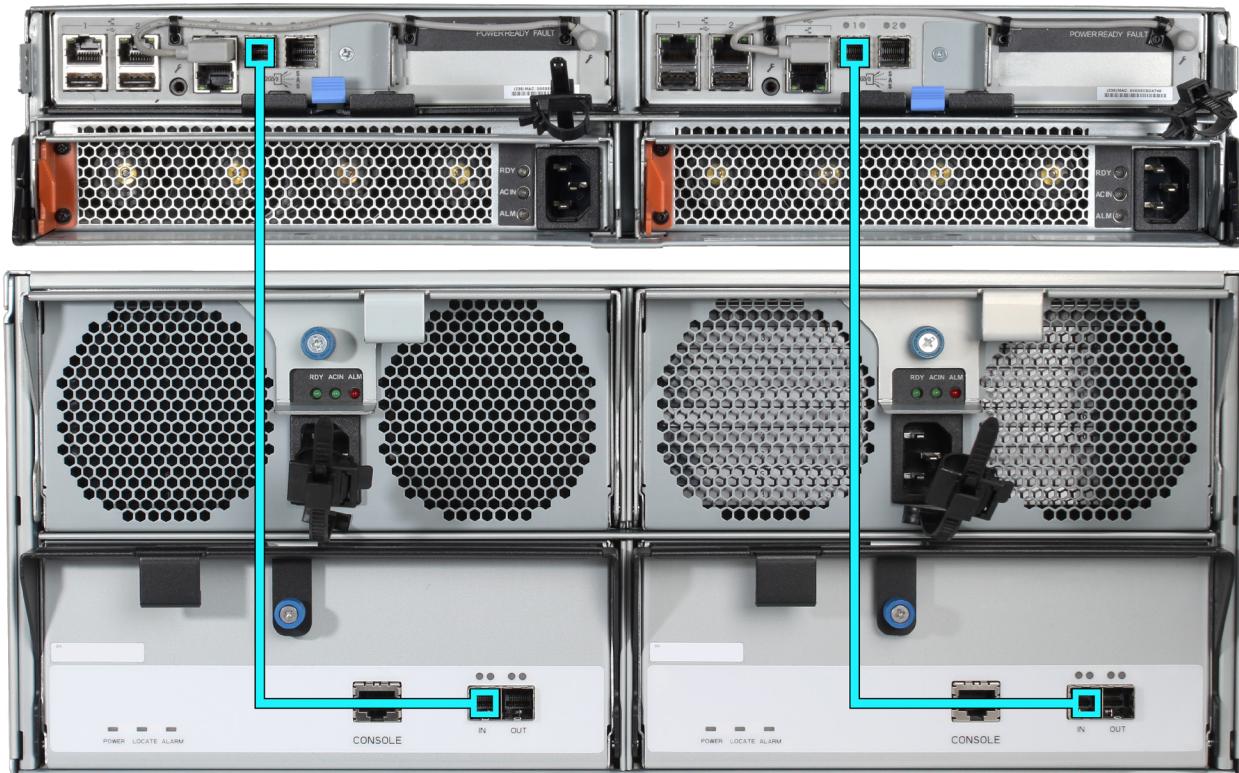
We do not recommend other cabling configurations. Contact iX Support if you need other cabling methods.

If your TrueNAS system has HA, reboot or failover after connecting SAS cables to sync drives between controllers.

**Warning:** When setting up SAS connections, please adhere to the wiring examples below. Connecting expansion shelves incorrectly causes errors. Never cable a single controller to different expanders on the same shelf.

### 7.1 X-Series

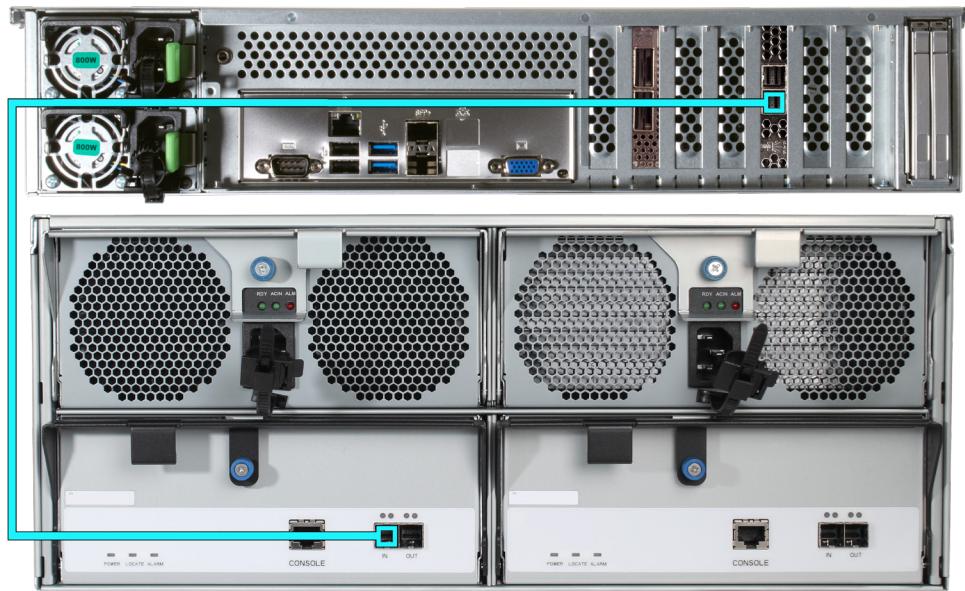
X20 with one ES60 Expansion Shelf



## 7.2 R-Series

### 7.2.1 R20

R20 with a single ES60 Expansion Shelf



R20 with two ES60 Expansion Shelves



## 7.2.2 R40

R40 with a single ES60 Expansion Shelf

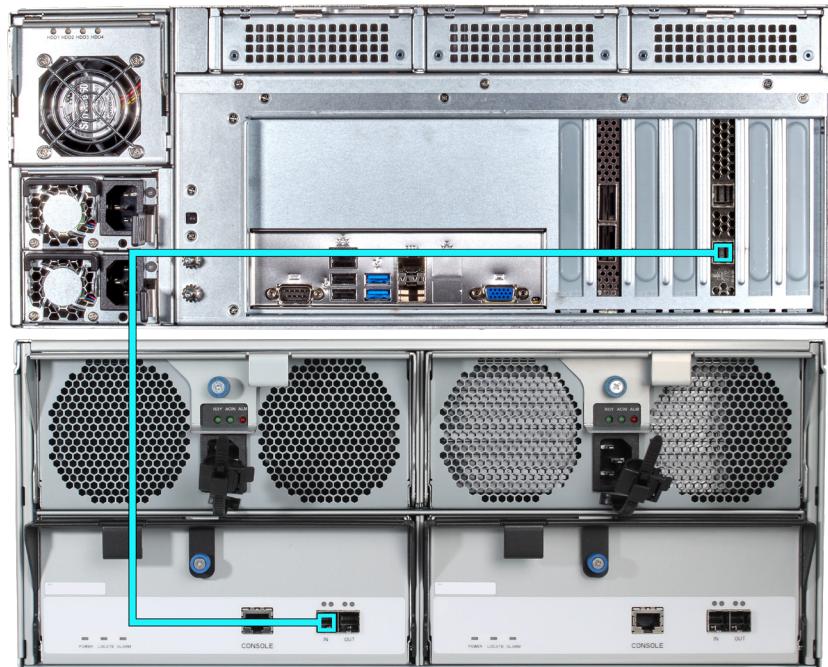


R40 with two ES60 Expansion Shelves

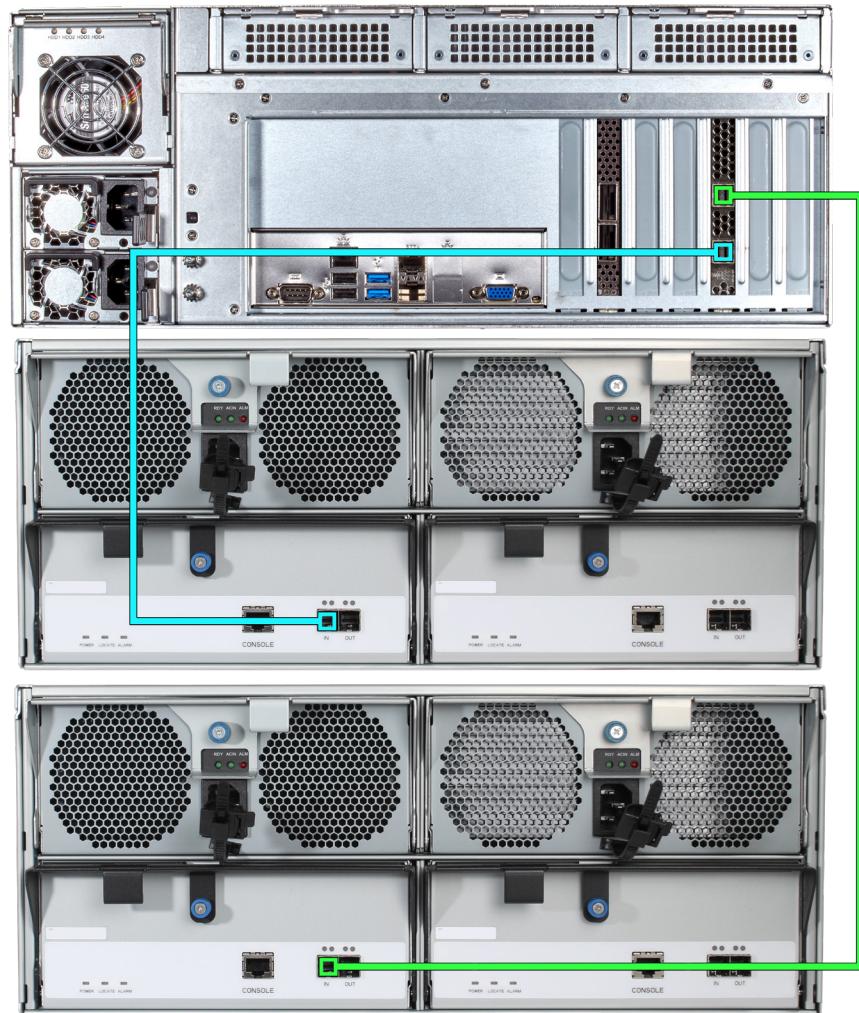


### 7.2.3 R50

R50 with a single ES60 Expansion Shelf



R50 with two ES60 Expansion Shelves



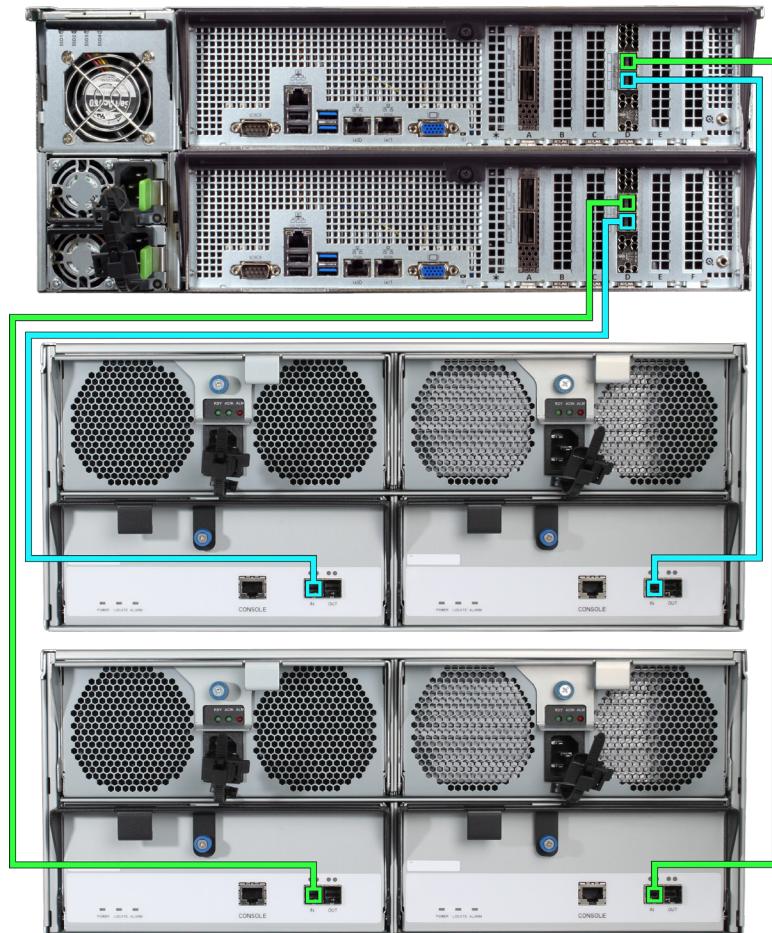
## 7.3 M-Series

### 7.3.1 M40

M40 with a single ES60 Expansion Shelf

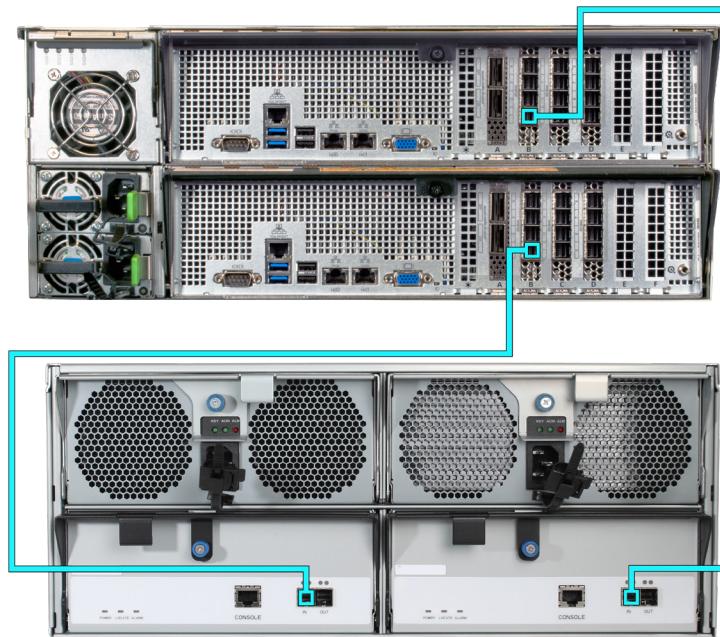


M40 with two ES60 Expansion Shelves

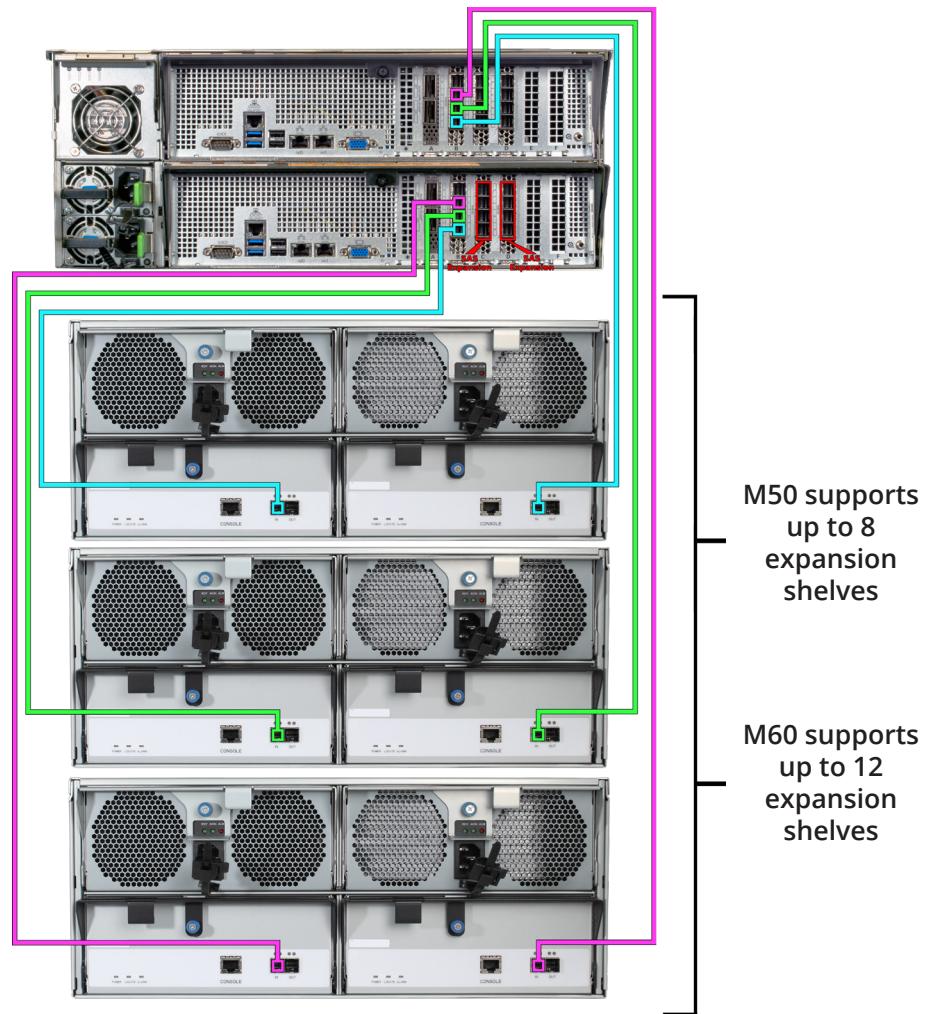


### 7.3.2 M50 and M60

M50/M60 with a single ES60 Expansion Shelf



M50/M60 with three ES60 Expansion Shelves. The M50 can support up to 8 total Expansion Shelves with the use of additional SAS cards. The M60 can support up to 12 total Expansion Shelves with the use of additional SAS cards.



## 8 Install Bezel (Optional)

Line up the screw holes on the back of the bezel with the screw holes on the ears of the ES60. Install one upper screw from the back side of the left ES60 ear, then install a lower screw from the back of the right ES60 ear. Install the remaining two screws following the same diagonal pattern.

## 9 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 Community forums provide opportunities to interact with other TrueNAS users and discuss their configurations:

<https://www.truenas.com/community/>

## 10 Contact iXsystems

For assistance, please contact iX Support:

Contact Method	Contact Options
Web	<a href="https://support.ixsystems.com">https://support.ixsystems.com</a>
Email	<a href="mailto:support@ixsystems.com">support@ixsystems.com</a>
Telephone	Monday-Friday, 6:00AM to 6:00PM Pacific Standard Time: • US-only toll-free: <b>1-855-473-7449</b> option 2 • Local and international: <b>1-408-943-4100</b> option 2
Telephone	Telephone After Hours (24x7 Gold Level Support only): • US-only toll-free: <b>1-855-499-5131</b> • International: <b>1-408-878-3140</b> (International calling rates will apply)

## **Notes:**