TrueNAS® ES24 Basic Setup Guide

Version 1.12

Contents

1 Introduction

The TrueNAS ES24 is a 4U, 24-bay, SAS3 (12 Gb/s) expansion shelf with dual expansion controllers and redundant power supplies.

Review the safety considerations and hardware requirements before installing an ES24 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 ES24 in a rack:

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

2 ES24 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, **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:

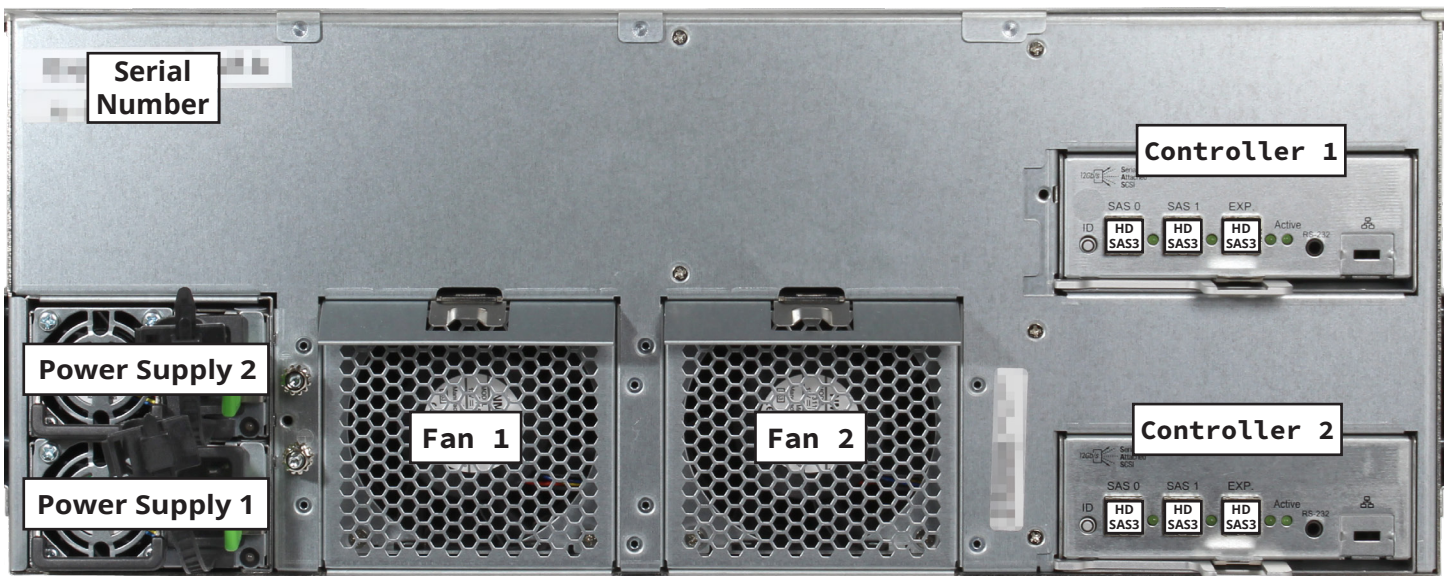|	
	ES24 Expansion Shelf
	Set of rackmount rails. The rails have a specific front end, identified by a label visible on the left above. The front ends of the rails must be installed facing the front of the rack.
	A total of 24 populated or empty "airbaffle" drive trays. Trays must be installed in all bays to maintain proper airflow for cooling.
	Two 3-meter Mini SAS HD to Mini SAS HD cables
	One Serial Cable
	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.
	Hardware for system racking.

2.1 Front Indicators

The ES24 has buttons/lights for power, alarm mute, locate ID, and fault. The fault light activates during the initial power-on self-test (POST) or when the TrueNAS software generates an alert.

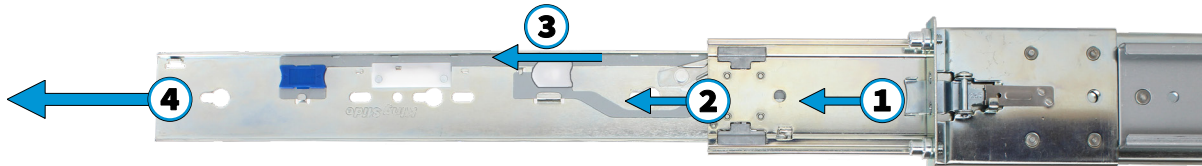| Light / Button	Color and Indication
⏻	Blue: System On
🔇	N/A
ID	Blue: Locate ID active
⚠	Amber: Fault / Alert

2.2 Rear Components and Ports
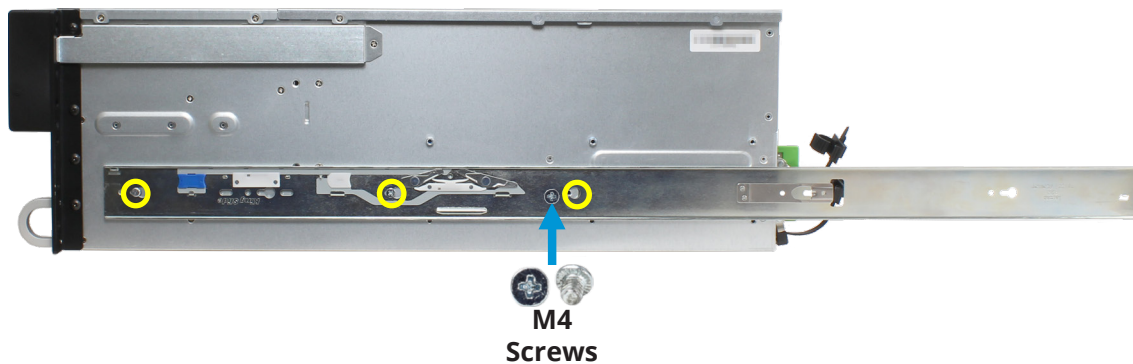
3 Rack the System

3.1 Separate the Cabinet Rails from the Rack Rails

Extend the inner rack rail until it locks in place (**1**). Slide out the cabinet rail until it stops (**2**). Remove the cabinet rail by sliding the white release tab away from the inner rack rail (**3**), then pull the cabinet rail free (**4**).
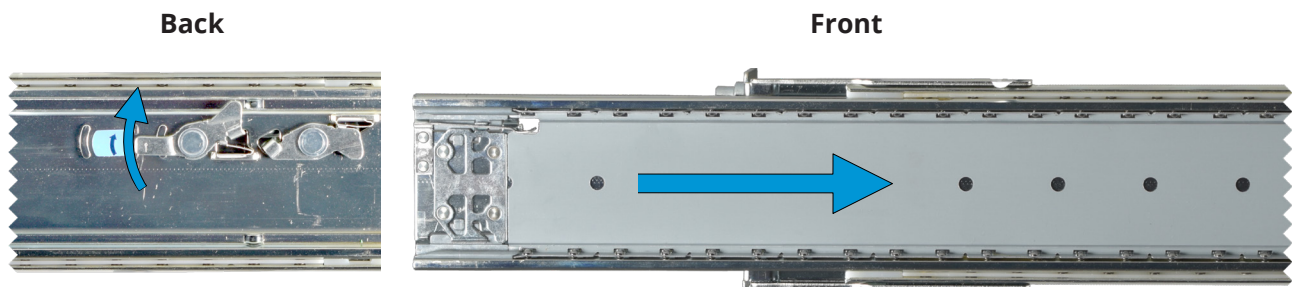

3.2 Mount the Chassis Rails

The cabinet rails are mounted on both sides of the system cabinet. Align the cabinet rail key holes with the three posts on the side of the chassis and slide the rail until the post is secured in the key holes lot of the rail.

M4 Screws

Align the rail hole with the screw hole and secure the rail with one M 4x4 L screw. Repeat this process to mount and secure the second cabinet rail on the other side.

3.3 Mount the Rack Rails

A TrueNAS ES24 requires 4U of vertical rack space. The rack rails install in the bottom 2U of the total 4U height. You must unlock and retract the inner rack rail before installing it in the rack. Rotate the release lever on the back of the inner rail, then push the inner rail towards the back of the rail assembly until it stops.
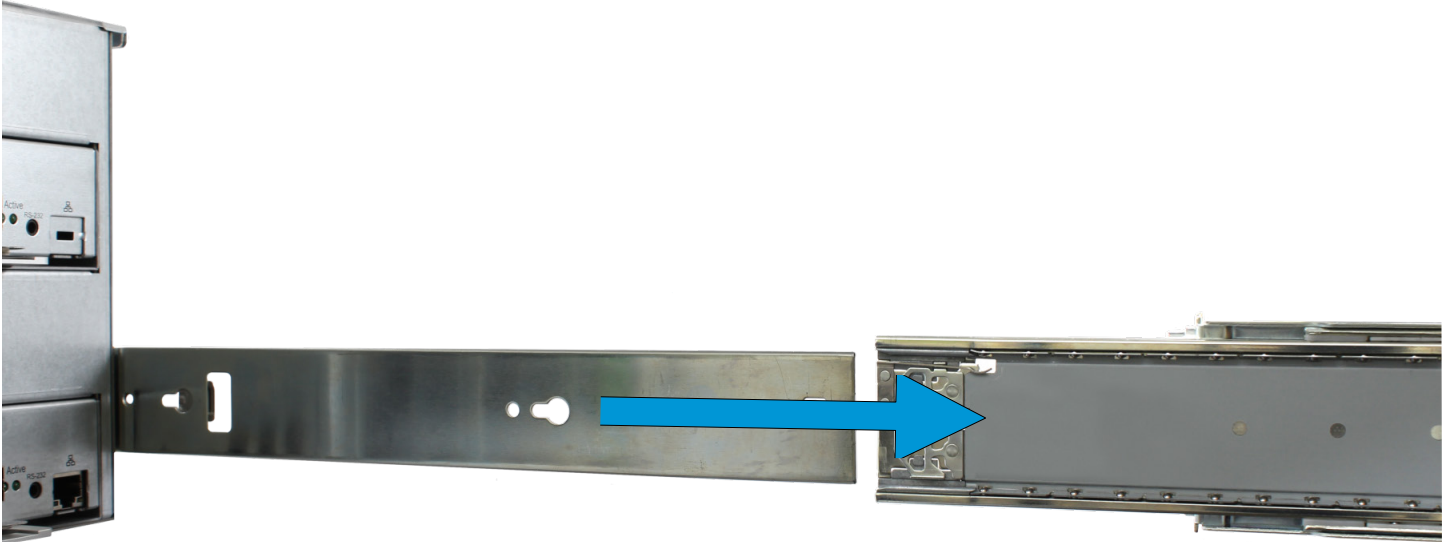
Back **Front**

Place the rail in the rack. Ensure the rail front end points toward the front of the rack. Align the pins with the mounting holes, then push the pins into the holes until the latch clicks. At the rear of the rail, align the pins with the holes, then swing the latch handle out and extend the rail rearwards until the pins are fully seated in the rack holes. Release the latch to lock it in place. Repeat the process for the second rack rail.

3.4 Mount the System in the Rack

Warning: The ES24 requires two people to safely lift in and out of a rack. Do not install drives until after you mount the ES24 in the rack. Remove all drives before taking the ES24 out of the rack.

Extend both inner rails outwards from the rack until they lock in place. Align the cabinet rails with the inner rack rails and slide them into the rack rails until they are fully seated.

After you secure both cassis rails in the rack rails, gently push the ES24 until it stops halfway in. Slide the blue release tabs on both chassis rails towards the front of the system and slide the unit into the rack.

Long M5 Screws

SECURE THE ES24 TO the rack on both sides with long M5 screws.

4 Install Drives

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

To add a new drive into an empty tray, place the tray on a flat survace and push the hard drive into the tray. Make sure the connector is at the rear of the tray.

Each drive bay in the chassis has two indicator lights to the right of the tray. The upper light is blue when the drive is active or a hot spare. The lower light is solid red if a fault has occurred.
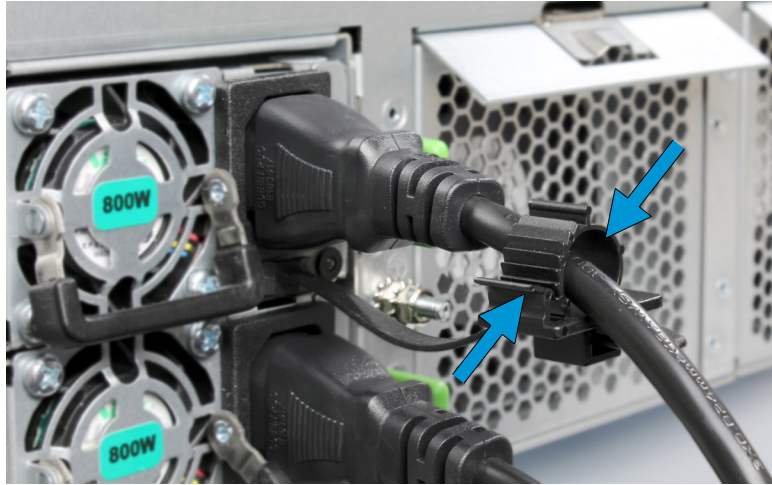
Press the silver button on the drive tray to open the latch. Carefully slide the tray into a drive bay until the right side of the latch touches the metal front edge of the chassis, then gently swing the latch closed until it clicks into place.

All drive bays must be filled to maintain proper air flow for cooling. If fewer than 24 drives are connected, place filler blanks in the empty bays.

5 Connect Power Cables

Do not plug the power cords into a power outlet yet. Connect a power cord to the back of one power supply. Place the cord in the plastic clamp and press the tab into the latch to lock it in place. Repeat the process for the second power supply and cord.

5.1 Program Power Loss Mode

You can program the ES24 automatically restart if you lose and then regain power. By default, if the ES24 loses power, it does not automatically start when power restores. You must press the power button to turn the system on. However, you can set the ES24 to restart automatically when power restores to the system.

To activate this mode, quickly press the power button three times.

The power button blinks to indicate the current mode. When it blinks quickly, the system automatically starts when power restores. When the button blinks slowly, you must manually power on the system after power loss. To test the current setting, disconnect the power, wait a few moments, and plug the system back in.
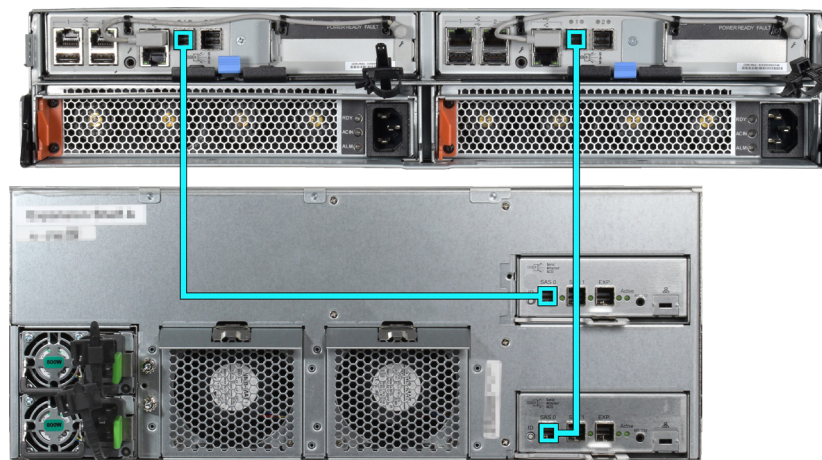
6 Connect SAS Cables

Plug the ES24 power cords into power outlets. **Wait two minutes for the drives to start.** The ES24 is compatible with several TrueNAS systems. Typical SAS cable connections for up to two ES24 expansion shelves on 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 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.
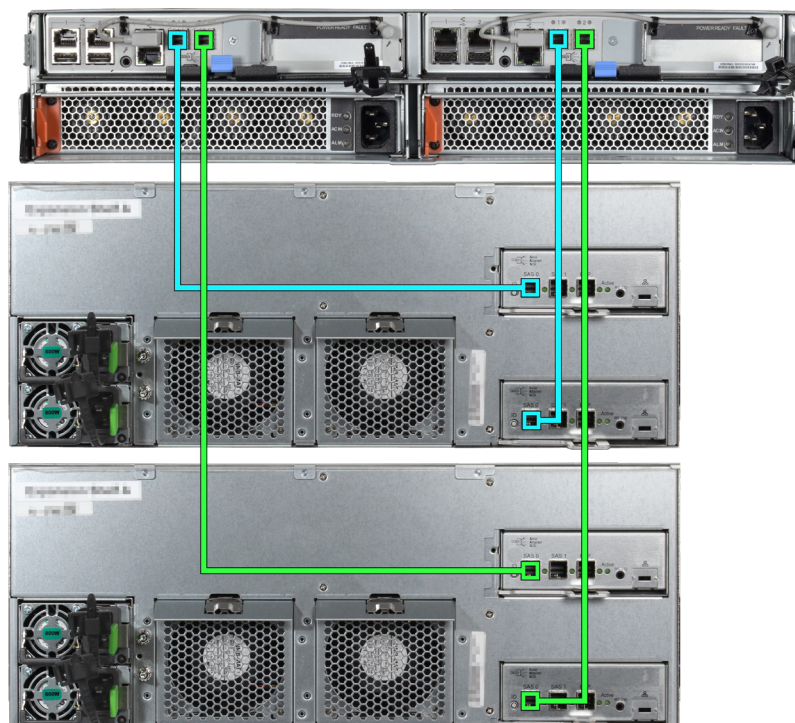
Warning: When setting up SAS connections, please adhere to the wiring example below. Connecting expansion shelves incorrectly causes errors. Never cable a single controller to different expanders on the same shelf

6.1 X-Series

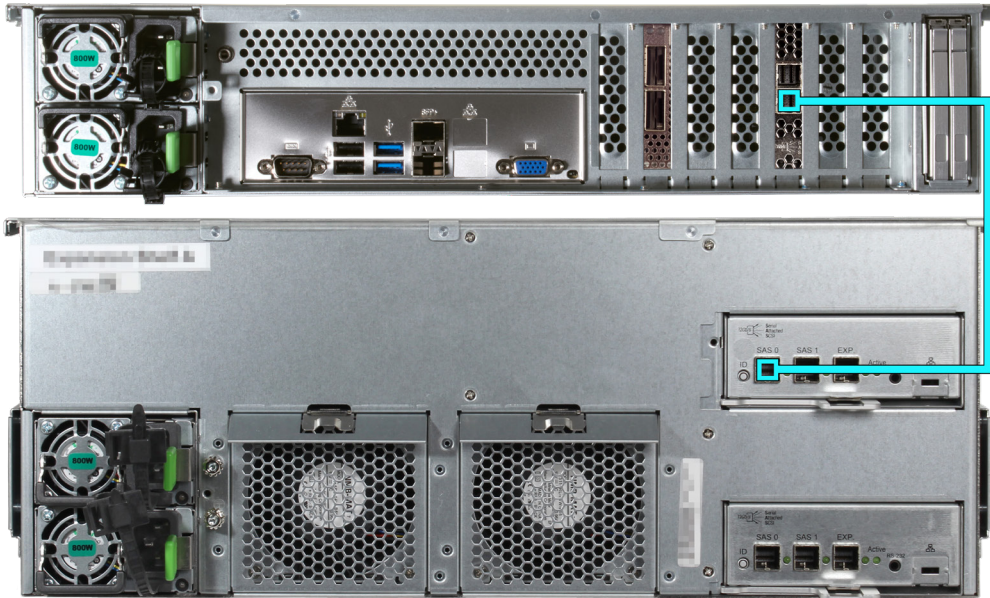X-Series with a single ES24 Expansion Shelf
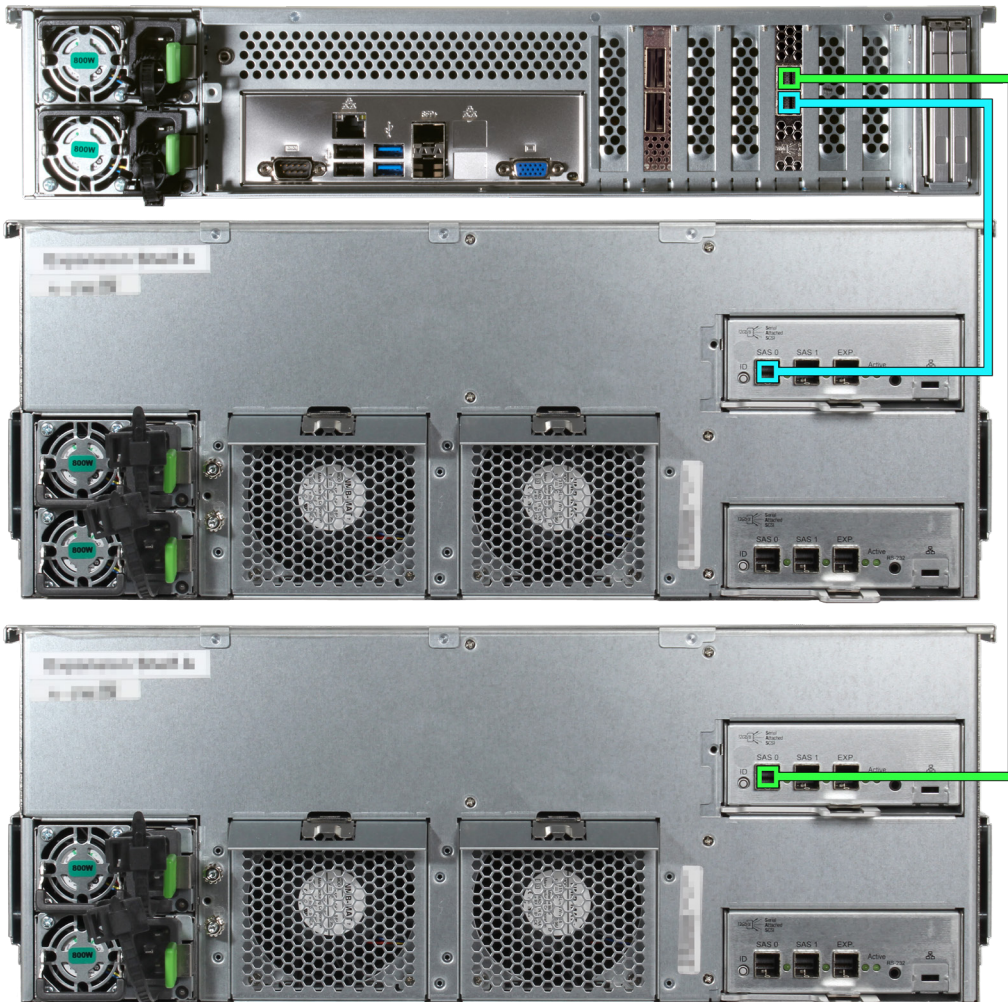

X-Series with two ES24 Expansion Shelves

6.2 R-Series

6.2.1 R20
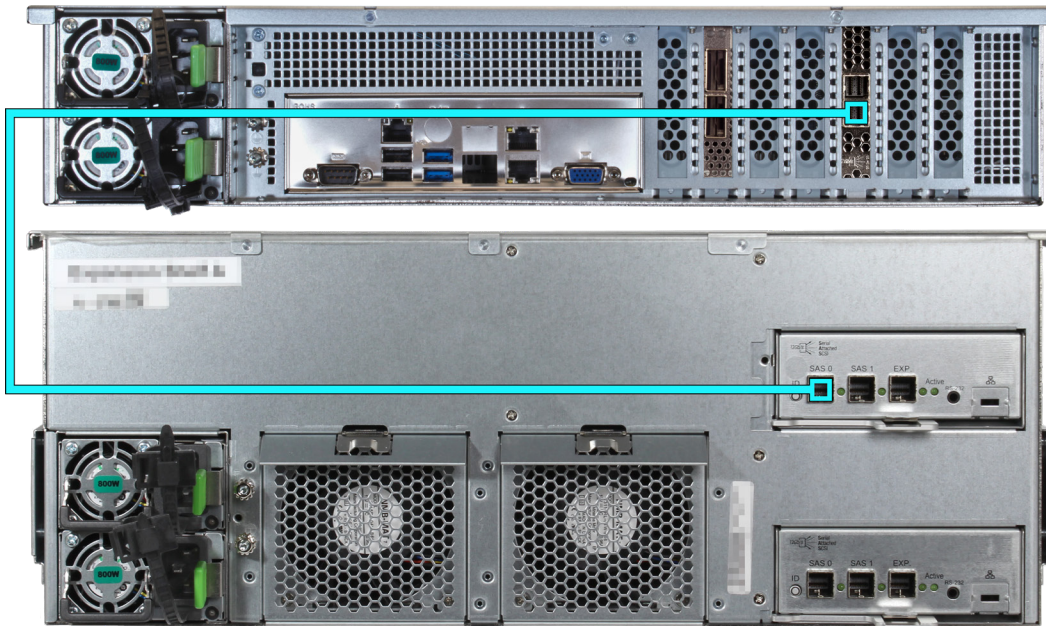
R20 with a single ES24 Expansion Shelf

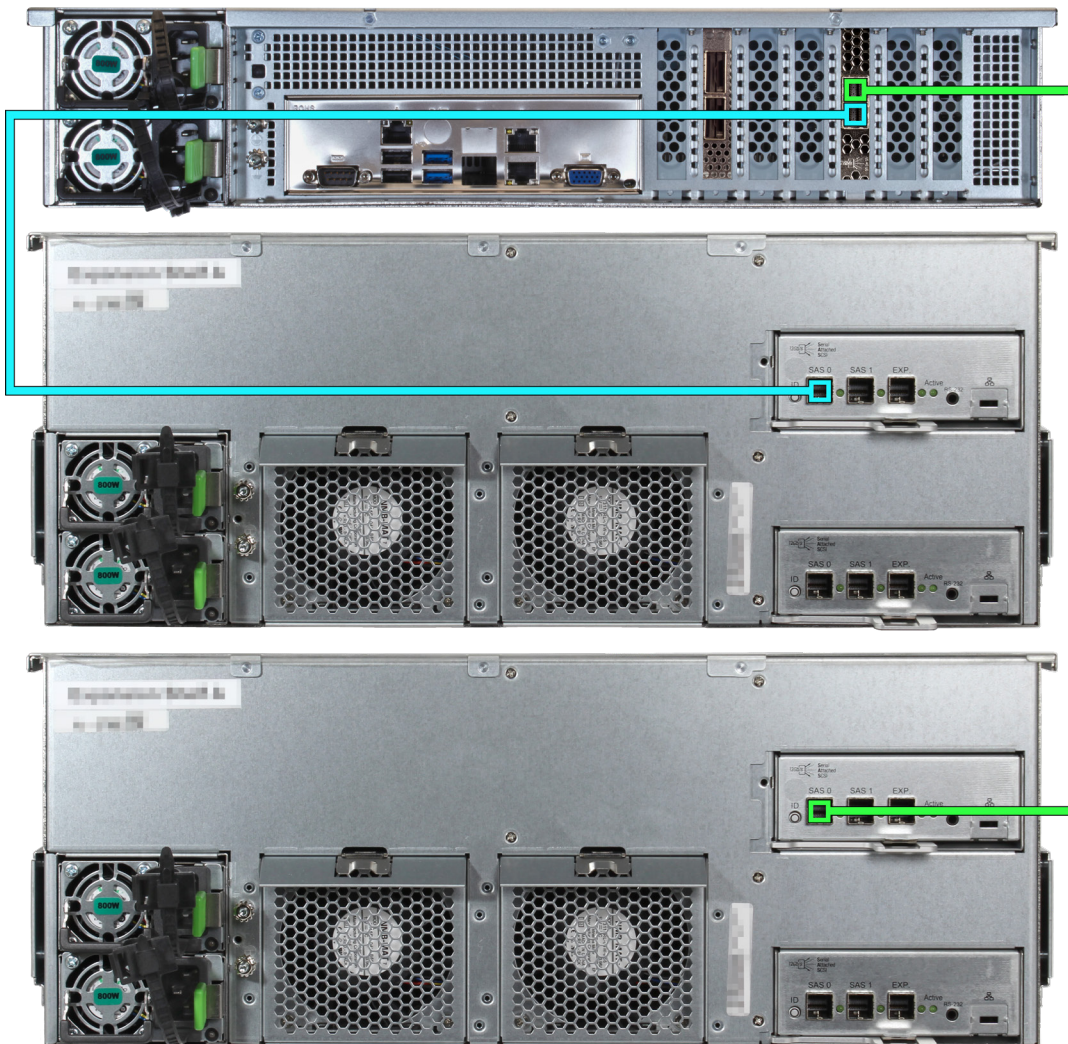R20 with two ES24 Expansion Shelves

6.2.2 R40
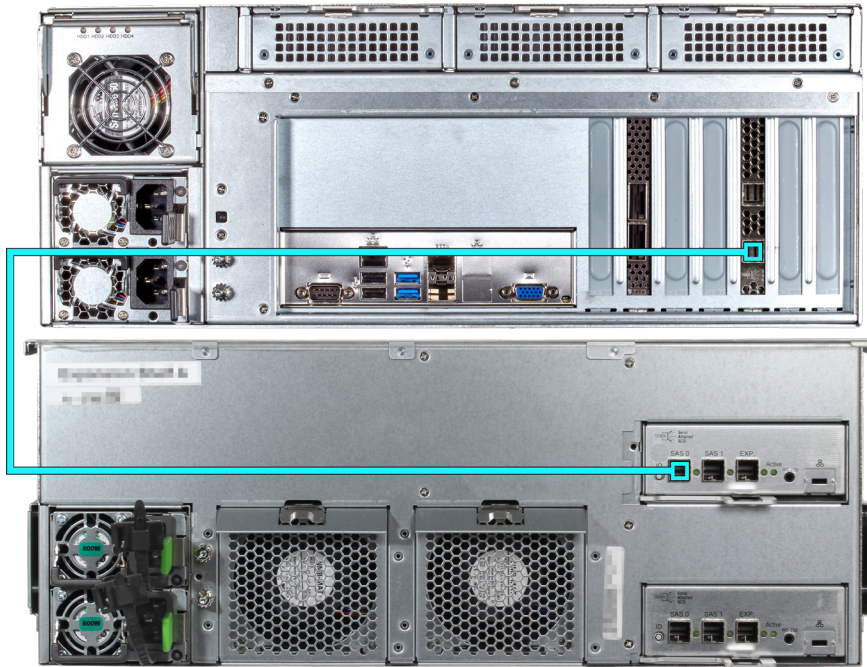
R40 with a single ES24 Expansion Shelf

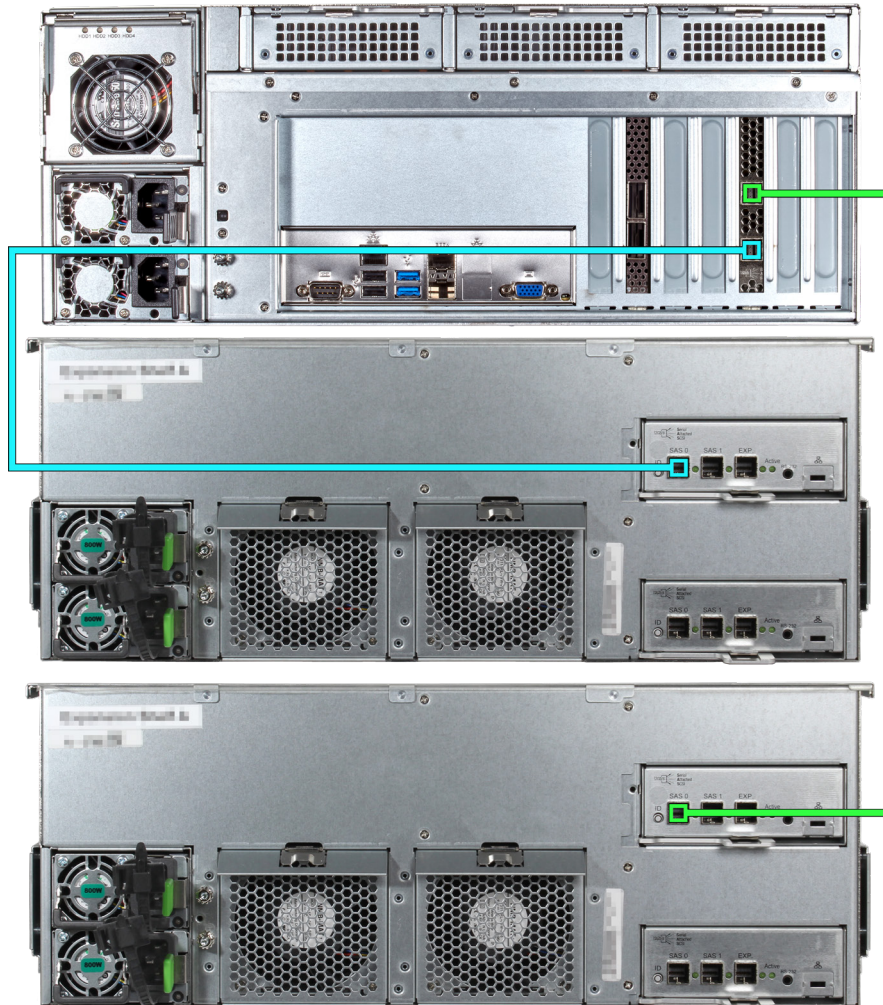R40 with two ES24 Expansion Shelves

6.2.3 R50

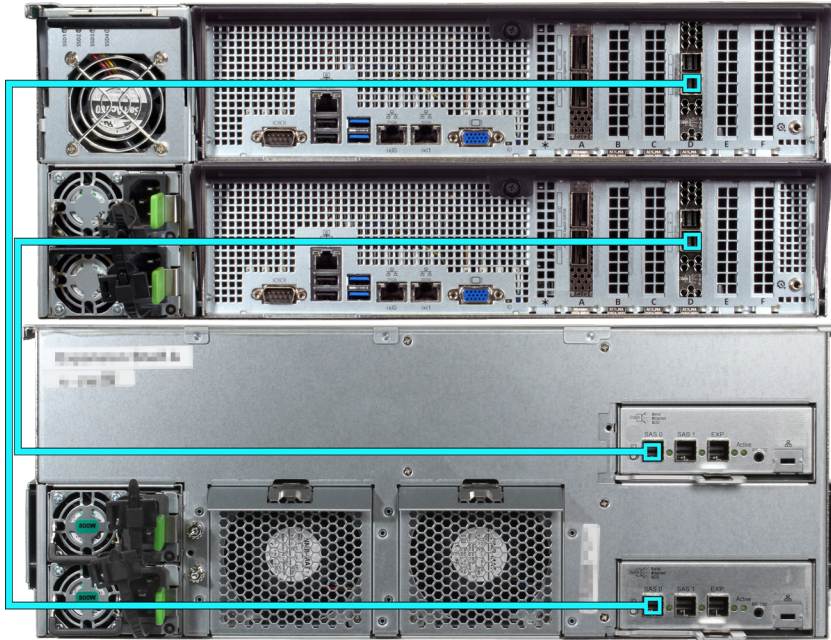R50 with a single ES24 Expansion Shelf
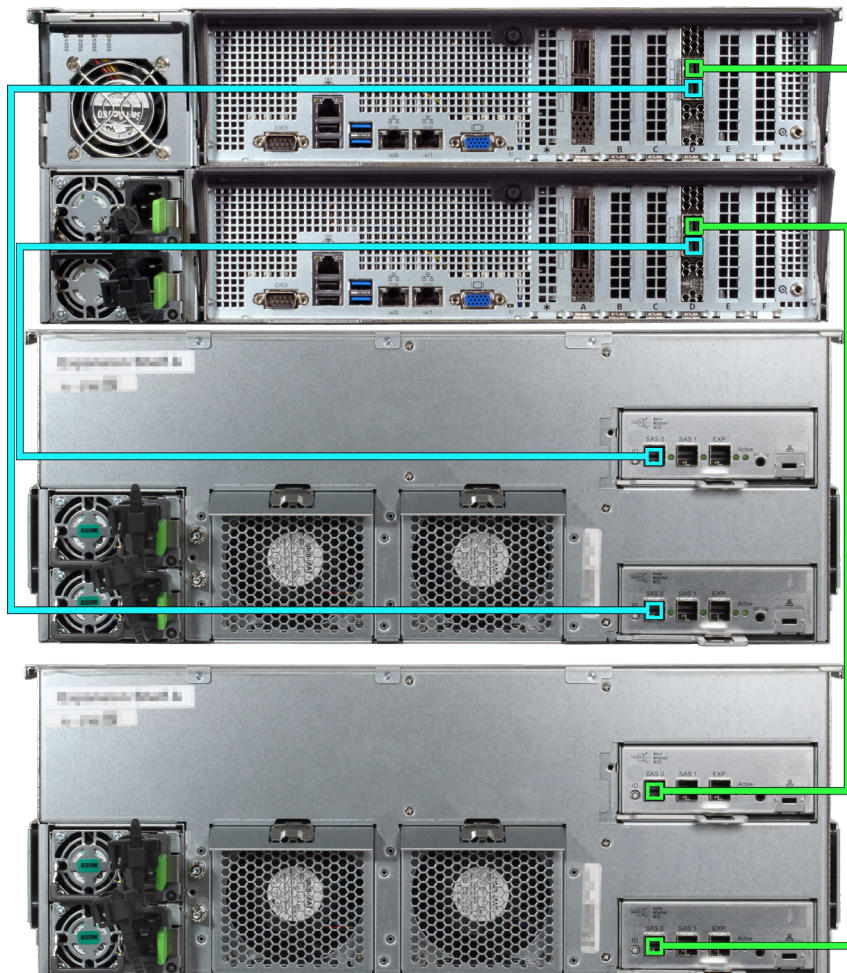

R50 with two ES24 Expansion Shelves

6.3 M-Series

6.3.1 M40

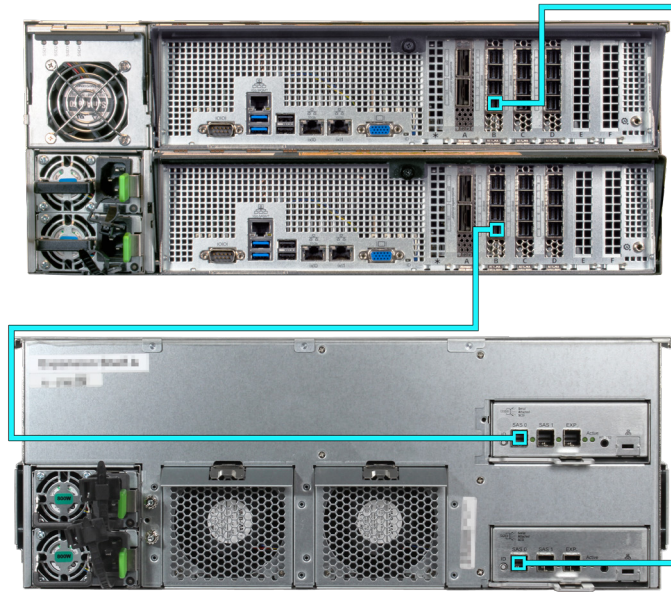M40 with a single ES24 Expansion Shelf

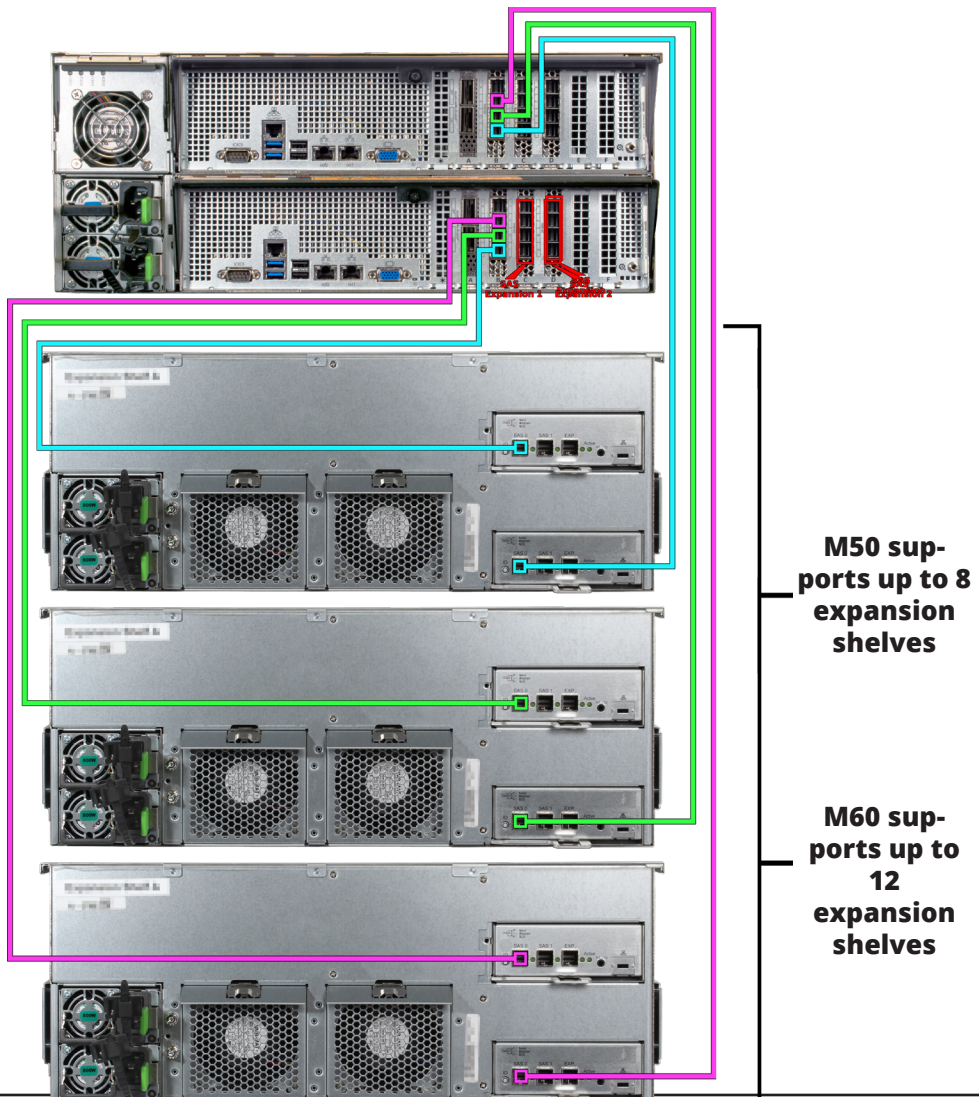

M40 with two ES24 Expansion Shelves

6.3.2 M50 and M60

M50 with a single ES24 Expansion Shelf

M50/M60 with three ES24 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.

M50 supports up to 8 expansion shelves

M60 supports up to 12 expansion shelves

7 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/

8 Contacting iXsystems

For assistance, please contact iX Support:

Contact Method	Contact Options
Web	https://support.ixsystems.com
Email	support@iXsystems.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)