**ES24F Basic Setup Guide**
**Version History**

| Version | Editors | Changes | Publish Date & Locations |
|---|---|---|---|
| 25111 | Linzi Moore | Added EU compliance information | |
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# TrueNAS® ES24F Basic Setup Guide

v.25111

# Contents

# 1 Introduction

The TrueNAS ES24F is a 2U expansion shelf with 24 2.5" drive bays, SAS3 (12 Gb/s), 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

> 🔥 **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.

### 1.1.2 Handling the System

We recommend at least two people lift a TrueNAS system.

> 🔥 **Warning**
>
> Never attempt to lift a TrueNAS system loaded with drives! Install the system in a rack before adding drives. Remove drives before unracking 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.

## 1.2 Requirements and Specifications

We recommend these tools when installing a TrueNAS ES24F in a rack:

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

## ES24F Specifications

| ES24F Specifications | |
|---|---|
| Dimensions (H x W x L) | 3.5 in x 19 in x 20.5 in    (89 mm x 482.6 mm x 520.7 mm) |
| Length with Chassis Rail | 24.3 in    (617.22mm) |
| Net Weight (Fully Loaded) | 50 lbs    (23 kg) |
| Operating Temperature | 32°F - 95°F    (0°C - 35°C) |
| Non-Operating Temperature | -4°F - 158°F    (-20°C - 70°C) |
| Operating Humidity (non-condensing) | 5% - 95% |
| Supply Voltage | 100-127~/7A    50-60 Hz<br>or<br>200-240V~,3.5A    50-60 Hz |

## Certifications

**TrueNAS**

**MODEL NAME:**
TrueNAS ES24F

**VOLTAGE:**
100-127V~/7.0A
200-240V~/3.5A (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.

CAN ICES-3 (A) / NMB-3 (A)

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

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

The TrueNAS ES24F 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 ES24F 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.

## 2  ES24F 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 TrueNAS Support immediately at support@truenas.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:

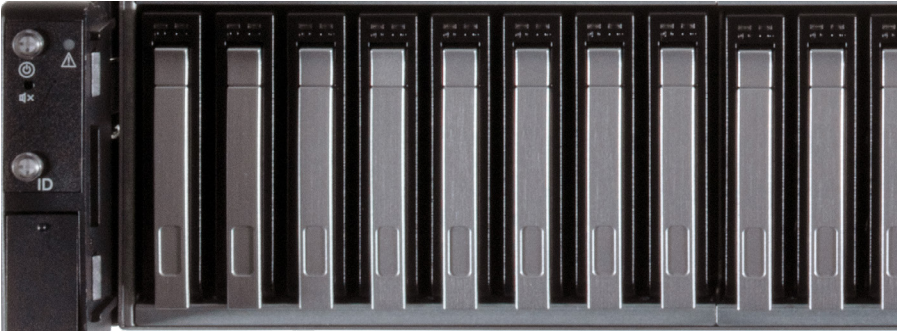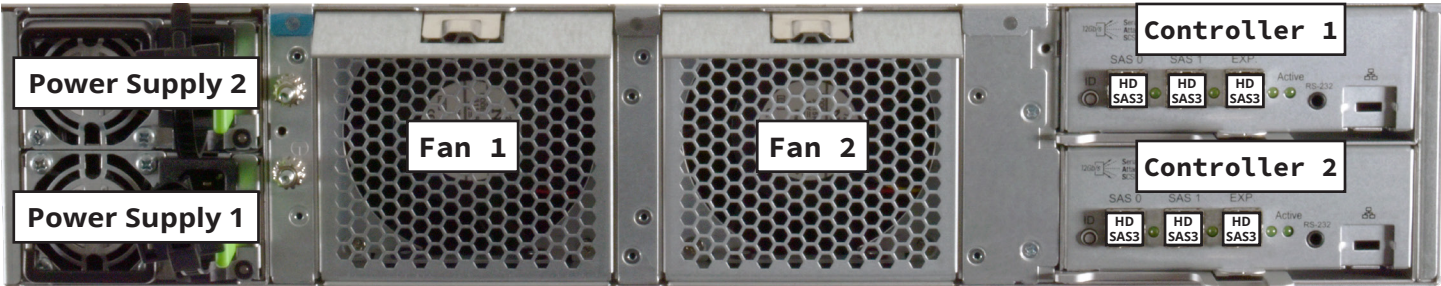| | |
|---|---|
|  | ES24F Expansion Shelf |
|  | Set of rackmount rails with hardware. Kit includes 2 short, 2 standard, and 2 long M4 screws |
|  | Up to 24 populated 2.5" drive trays, depending on the purchase. Air baffles are installed in any remaining drive bays. |
|  | Two 3-meter Mini SAS HD to Mini SAS HD cables. |
|  | DB9 to 3.5mm 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. |

## 2.1  Front Indicators

The ES24F 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

The ES24F requires an EIA-310 compliant rack. To properly install the rack rails, the vertical rack posts need to be spaced between **23" - 35.75" (584mm-908mm)** apart.

## 3.1  Install the Chassis Rails

Each rail has two components, the outer rack rail and the inner chassis rail. To protect it during shipping, the chassis rail is inserted into the rack rail and must be removed before attaching to a system. Slide the chassis rail forward until the metal catch stops it in place. Push in the catch and continue to slide the chassis rail forward until it is free of the rack rail.



**PUSH**

**SLIDE**

Align the chassis rail end stamped "FRONT" with the front of the ES24F. Fit the rail keyholes over the system mounting pegs and slide it into place. Use one of the included short M4 screws to secure the rail to the system.
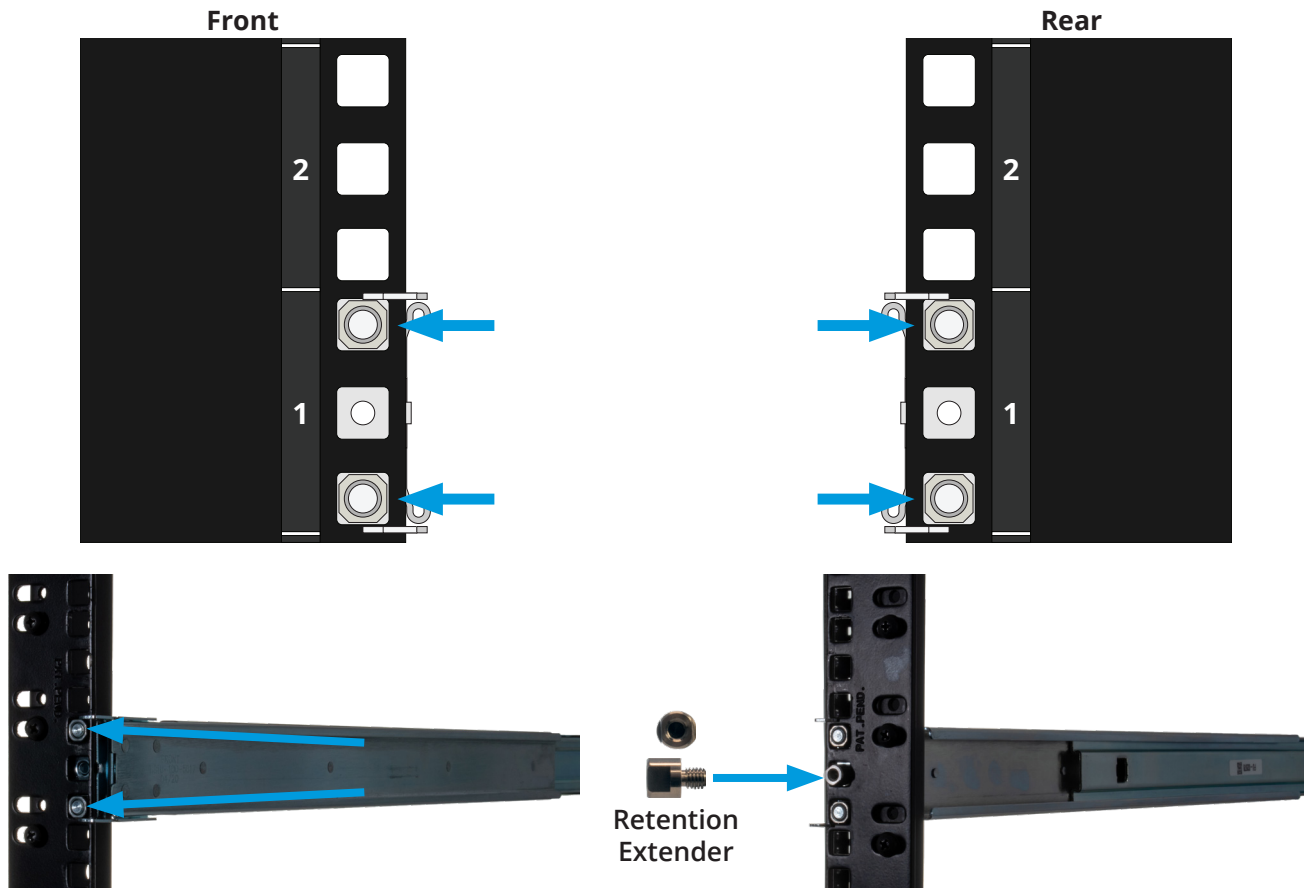


**Short M4
Screw**

Repeat this procedure to attach the second chassis rail to the other side of the system.
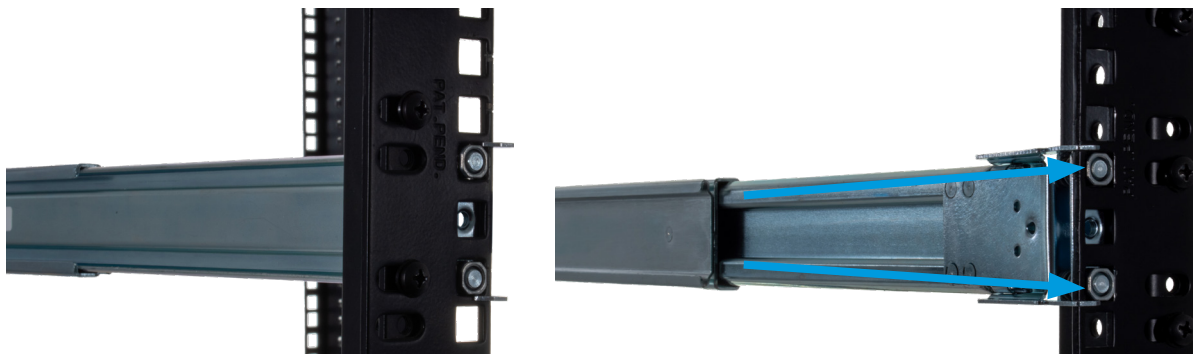
## 3.2  Install the Rack Rails

Ensure the rack has enough space for the system. The ES24F needs 2U of space for both the system and rack rails. The rack rails install into the bottom 1U of reserved space.

Align the rail end stamped "FRONT" with the front of the rack. Face the "FRONT" text inside the rack so the chassis rails can slide into the rack rails. Align the rail front pegs with top and bottom holes in the bottom 1U and push the rail into the holes until the spring latch locks the rail in place.

The rail kit includes two optional retention screw hole extenders you can screw into the middle rail attach point.

**Front**            **Rear**



**Retention Extender**

After you install the front of the rail, extend the back of the rack rail towards the equivalent attach points on the rear rack post. Make sure the rail remains level from front to back. Repeat this process to install the other rack rail.
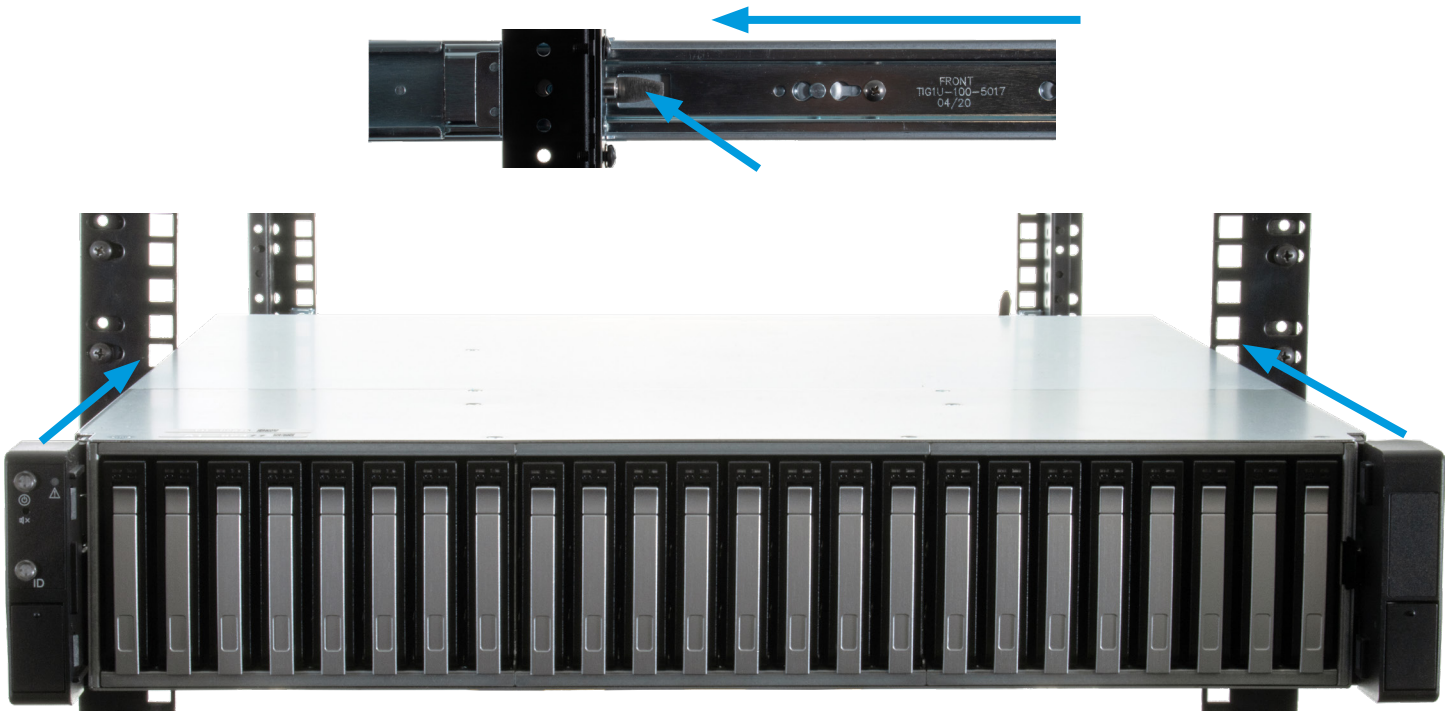
## 3.3  Mount the System in the Rack

> **🔥 Warning**
>
> The ES24F requires two people to safely lift in and out of a rack. Do not install drives until after you mount the ES24F in the rack. Remove all drives before taking the ES24F out of the rack.

Align the chassis rails with the rack rails. Slide the ends of the chassis rails into the rack rails and push the system forward until the metal safety catches click into place. Squeeze the safety catches against the sides of the system and slide the ES24F into the rack.
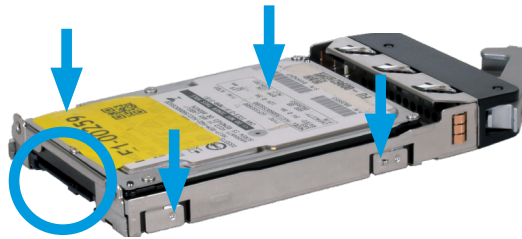


The rail kit includes additional M4 screws that can be used to secure the system to the rack rails.
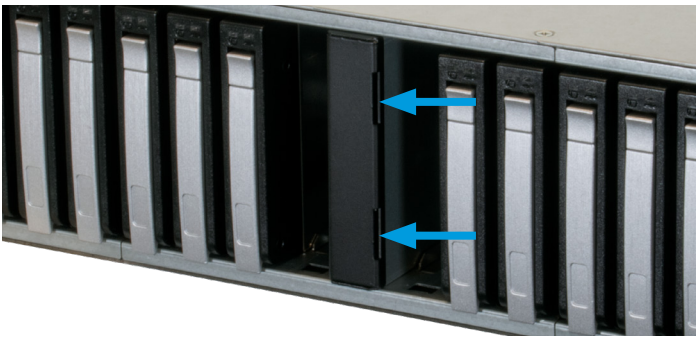
# 4 Install Drives

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 insert a drive in a tray, face the drive connectors toward the rear of the tray and align the side screw holes with the tray retention pegs. Push the drive side screw holes into the fixed retention pegs. Then, push the drive into the flexible retention pegs until it clicks.

To remove a drive, push on the drive from the bottom of the tray to pop it out from the flexible retention pegs.
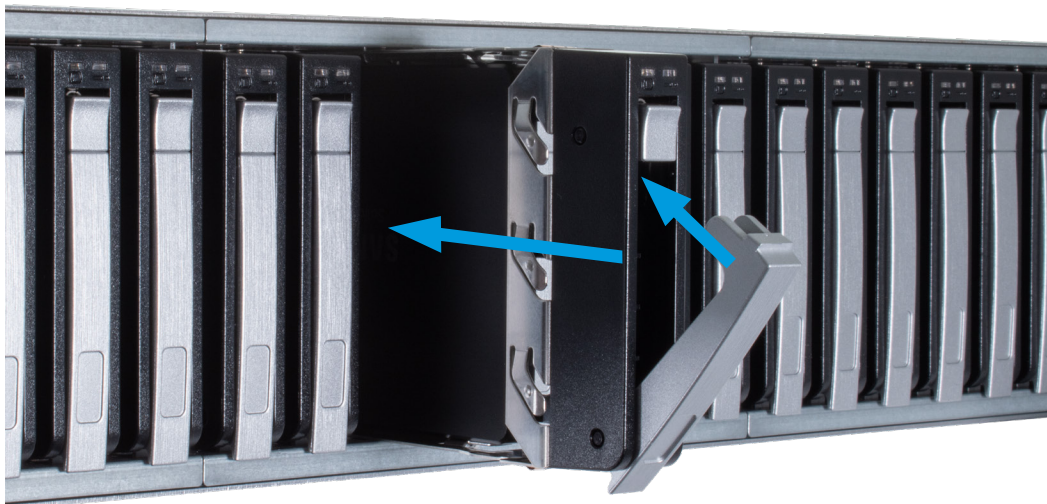


If you purchased fewer than 24 drives with the system, the system has air baffles installed in all remaining drive tray slots. To install new drive trays in the system, remove a baffle by inserting a flathead screwdriver in the baffle grooves, then gently push the baffle out. For proper airflow, we recommend you keep all baffles in place unless you are installing new drives.



Each drive tray has two indicator lights for status and fault. The status light is blue when the drive is active or a hot spare. The fault light is solid red when the drive has an error or an active identify command.
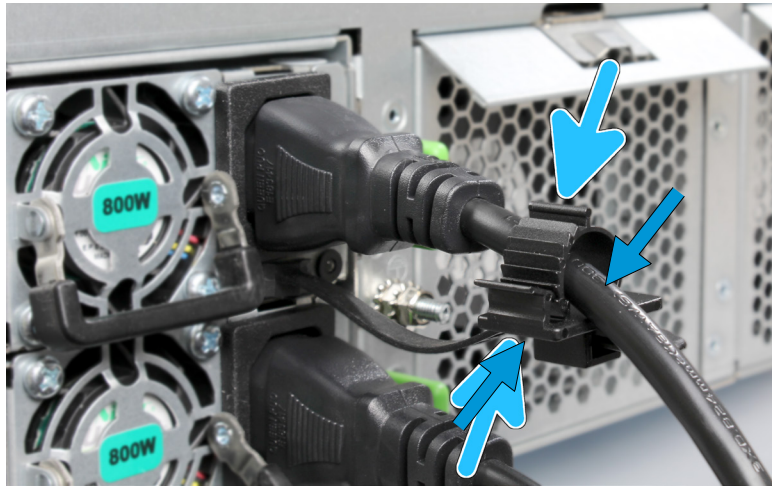
Press the button on the drive tray to open the latch. Carefully slide the tray into a drive bay until the latch begins to close. Gently push the latch closed until it clicks into place in the chassis.



To remove a drive tray, press the button to open the latch, then gently swing the latch open and pull the tray out.

# 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

The ES24F can be programmed to automatically restart if the power input has been lost and subsequently restored. By default, if the ES24F 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 ES24F 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 Storage Expansion

Plug the ES24F power cords into power outlets. **Wait two minutes for the drives to start.**

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 IOM/expander. 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.
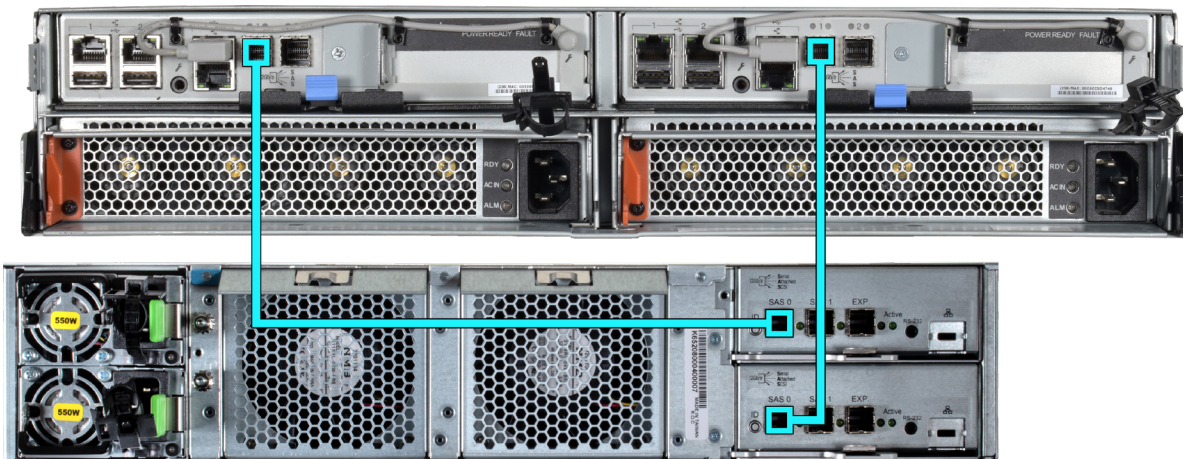
If your TrueNAS system has HA, reboot or failover after connecting SAS cables to sync drives between controllers.
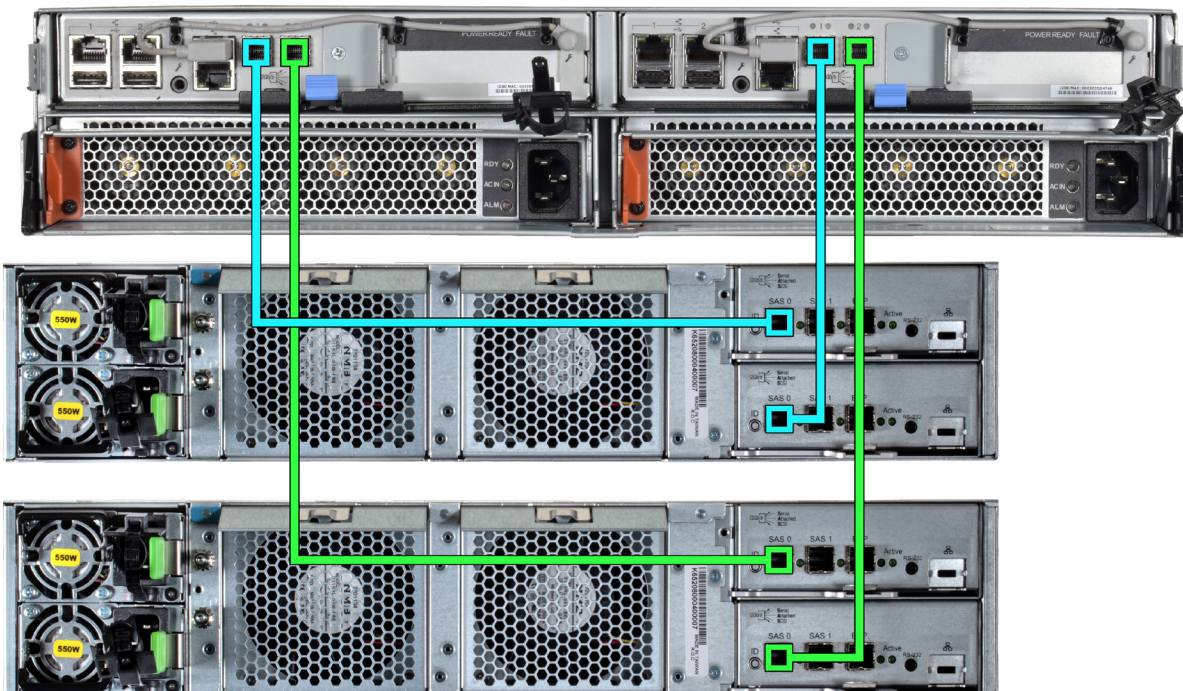
> ⊙ **Important**
>
> When setting up SAS connections, please adhere to the wiring example below. Connecting expansion shelves incorrectly causes errors. Never cable a single controller to different expanders on the same shelf.

## 6.1 X-Series

X-Series with a single ES24F Expansion Shelf



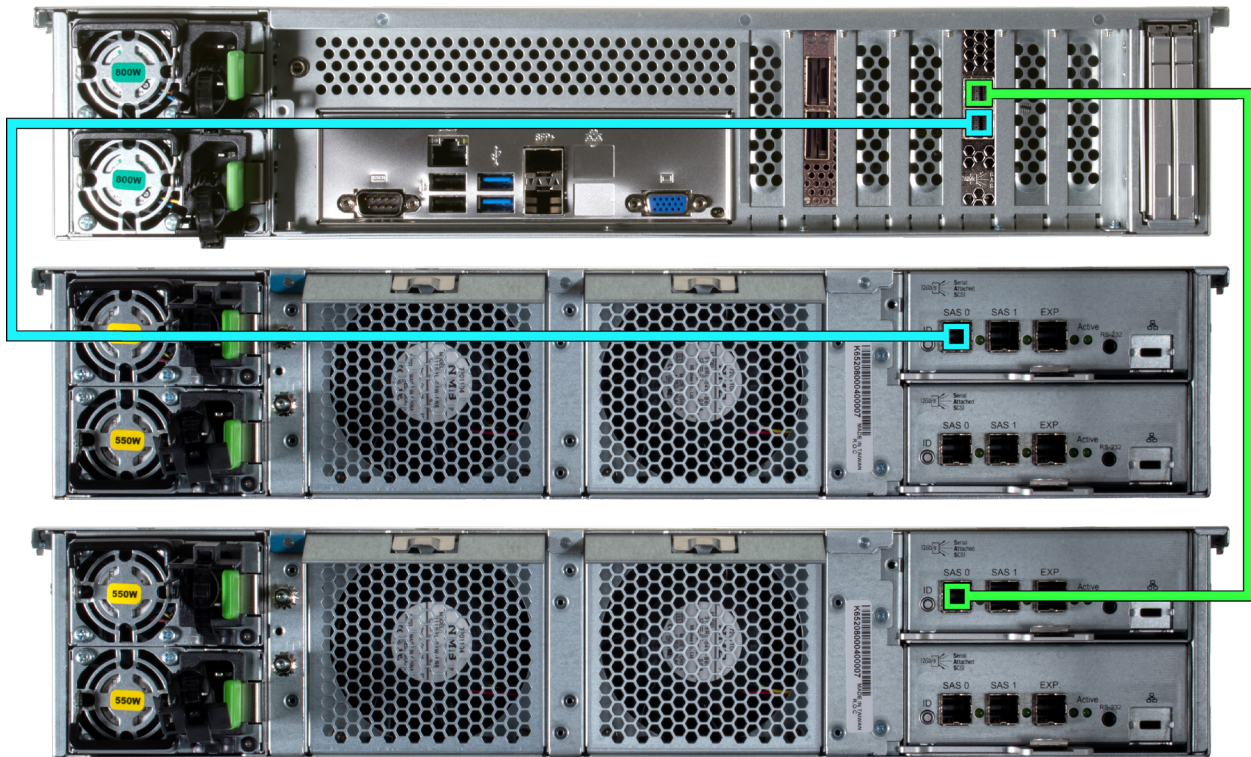X-Series with two ES24F Expansion Shelves

## 6.2 R-Series

### 6.2.1 R20

R20 with a single ES24F Expansion Shelf



R20 with two ES24F Expansion Shelves
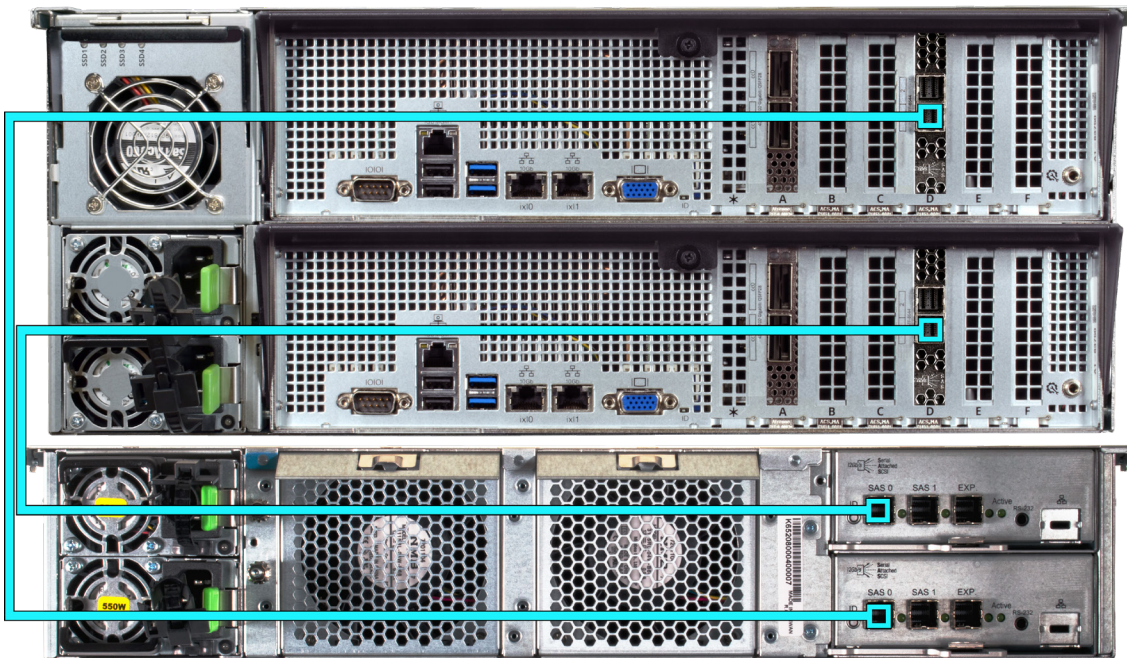
## 6.2.2 R40

R40 with a single ES24F Expansion Shelf



R40 with two ES24F Expansion Shelves

## 6.3  M-Series

### 6.3.1  M40

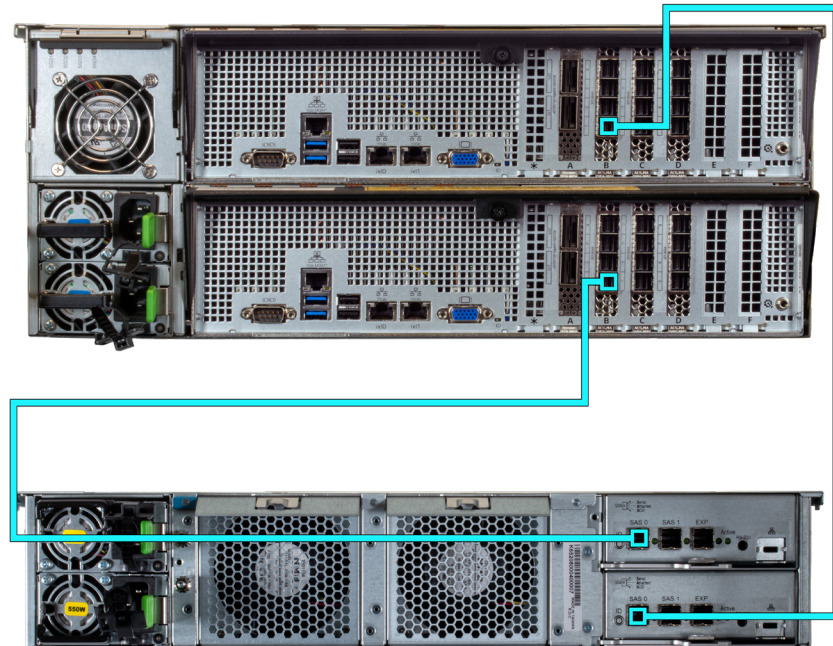M40 with a single ES24F Expansion Shelf


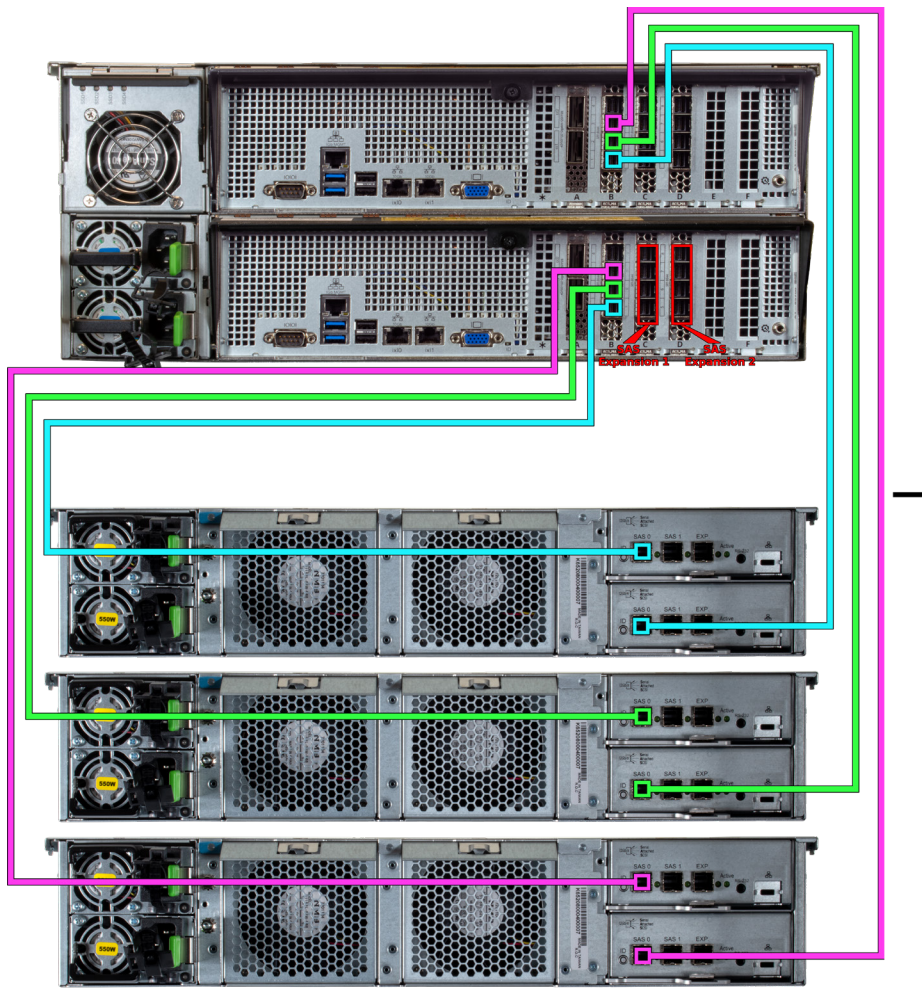
M40 with two ES24F Expansion Shelves

## 6.3.2  M50 and M60

M50/M60 with a single ES24F Expansion Shelf



M50/M60 with three ES24F 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[1]

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

https://www.truenas.com/docs/hardware[2]

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

https://forums.truenas.com/ [3]

# 8 Contacting iXsystems

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

| Contact Method | Contact Options |
|---|---|
| Web | https://www.truenas.com/support [4] |
| Email | support@truenas.com |
| Telephone | Monday-Friday, 6:00AM to 6:00PM Pacific Standard Time:<br>• US-only toll-free: **1-855-473-7449** option 2<br>• Local and international: **1-408-943-4100** option 2 |
| Telephone | Telephone After Hours (24x7 Gold Level Support only):<br>• US-only toll-free: **1-855-499-5131**<br>• International: **1-408-878-3140** (International calling rates will apply) |
| Address | iXsystems, Inc. dba TrueNAS - 541 Division St, Campbell, CA 95008, USA |