TrueNAS® R50 Basic Setup Guide

3rd Generation

Version 3.0

Contents

1 Introduction

The 3rd Generation R50 is a 4U Hybrid Storage Array with 48 3.5” HDD bays, four 2.5” NVMe drive bays, redundant power supplies, and a single, modular TrueNAS controller.

Your system comes with the TrueNAS operating system preloaded.

Review the safety considerations and hardware requirements before installing an R-Series system 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 an R-Series system.

> Never attempt to lift an R-Series system loaded with drives! Install the system in a rack before adding drives, and 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.

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

1.2 Requirements

We recommend these tools when installing an R-Series system in a rack:

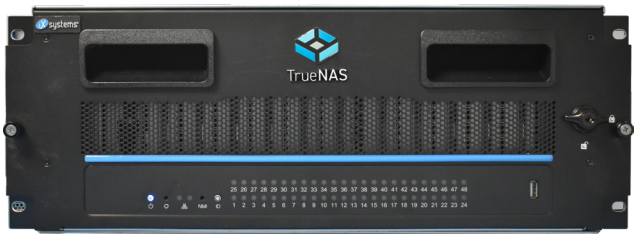
- #2 Philips head screwdriver
- Flat head screwdriver
- Tape measure
- Level
- 16 standard M5 cage nuts (typically provided with square-hole racks)

2 R50 Components

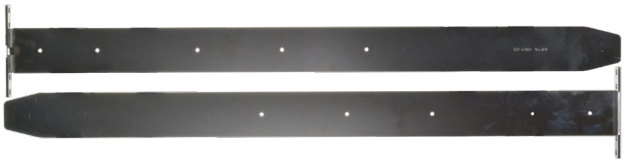
TrueNAS units are carefully packed and shipped with trusted carriers to arrive in perfect condition.
If there is any shipping damage or missing parts, please take photos and contact iXsystems support immediately at support@ixsystems.com, **1-855-GREP4-iX (1-855-473-7449)**, or **1-408-943-4100**.

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

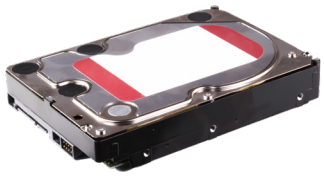
Carefully unpack the shipping boxes and locate these components:



R50 Hybrid Storage Array



Rail Kit:
- 2 Fixed rackmount rails
- 12 M5 × 15mm screws



Up to 48 hard drives, depending on the purchase (shipped separately)

4 NVMe drive trays with up to 4 drives installed

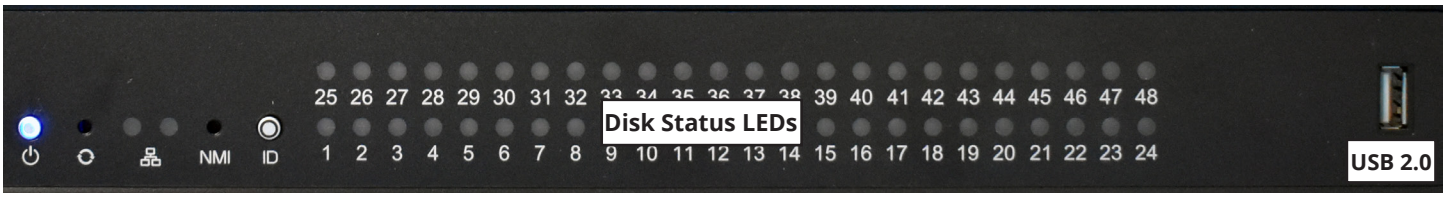
Accessory Kit:
- 2 IEC C13 to NEMA 5-15P power cords
- 2 IEC C13 to C14 cords
- 2 M5 Screws
- 1 Velcro cable tie set
- 1 Drawer Key

Racking Hardware:
- 2 Assist rails with
- 8 M5 × 10mm screws
- 2 Extended ear bracket
- 4 M5 × 20mm racking screws

2.1 Front Ports and Indicators

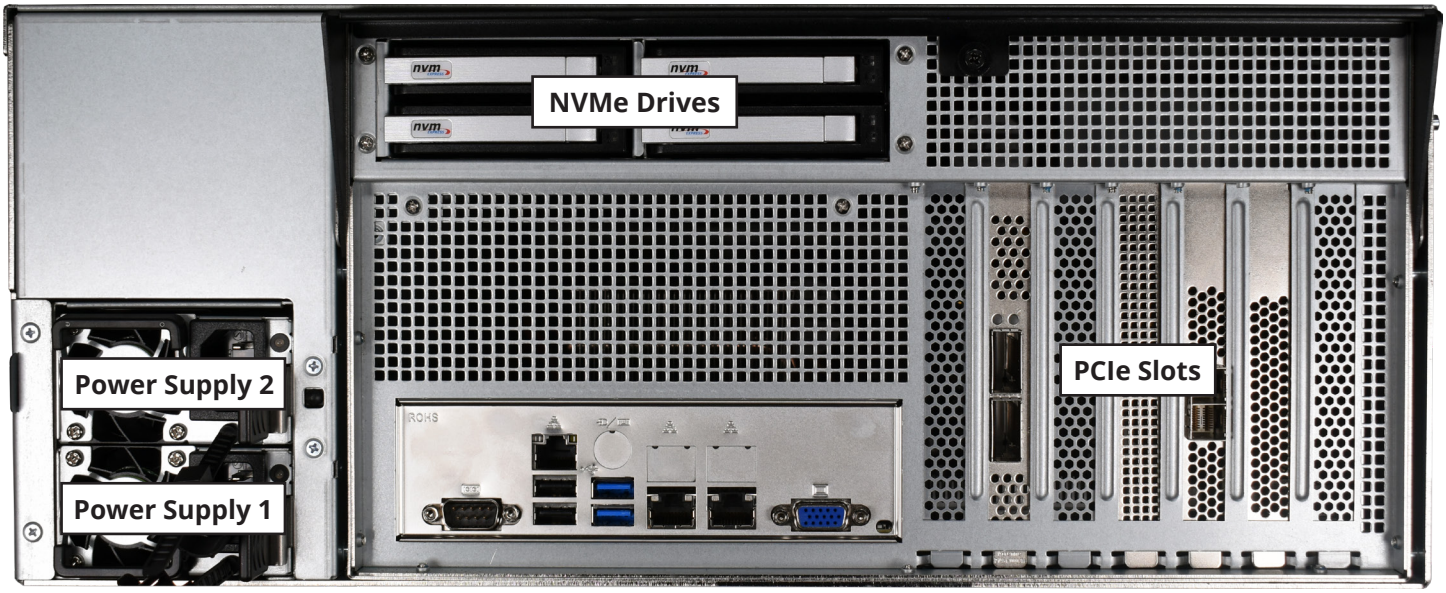
The R50 front panel has buttons and indicators to help control the system. It also has one USB 2.0 port.

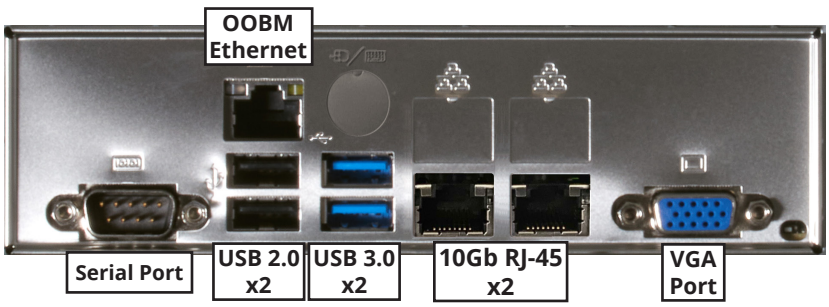
The fault indicator is on during the initial power-on self-test (POST) and turns off during normal operation. It turns on if the TrueNAS software issues an alert.



Light / Button	Color and Indication
⏻	Blue: System On
↻	N/A: Reset Button
ID	Blue: Locate ID Active
⚠	Green: Fault / Alert
品	Amber: Link Active

2.2 Rear Components and Ports





3 Racking the R50

The R50 requires 4U of rack space and has a built-in rail system that provides access to the drive drawer.

The assist rails require another 1U of rack space underneath the R50.

> You need 16 standard M5 cage nuts to rack the R50 in a standard square-hole rack.

3.1 Rack Requirements

The R50 requires an EIA-310-compliant rack. The front and rear rack posts can have a four-inch (101.6mm) tolerance in four different depth configurations. See section “3.4 Adjust the Rail Sleeve”.

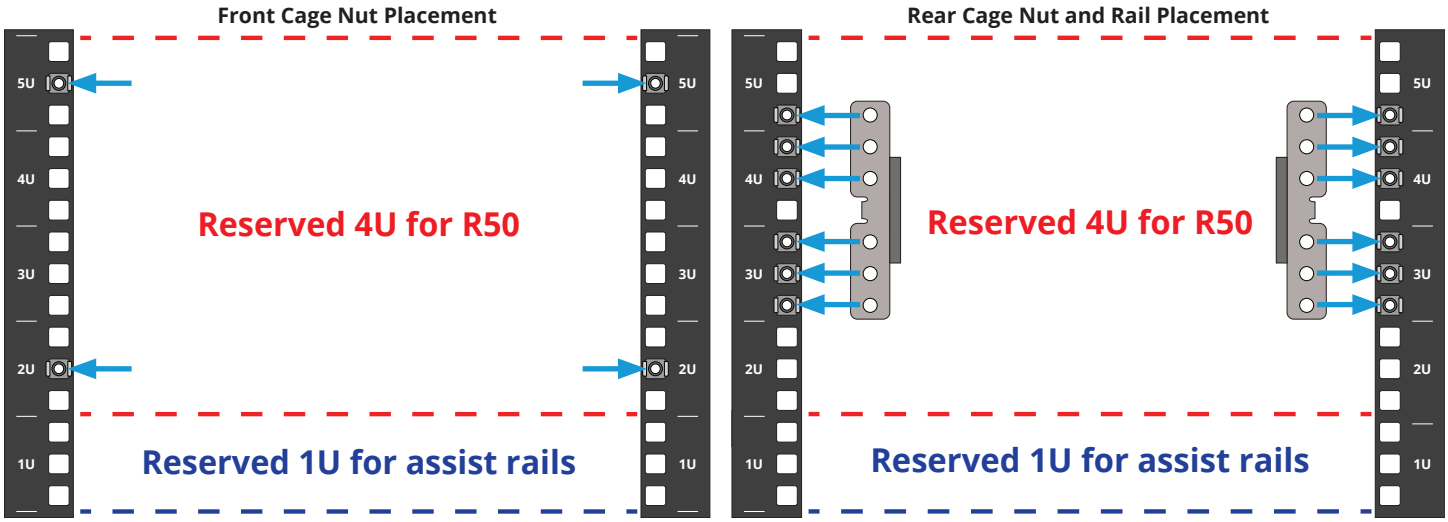
3.2 Install Cage Nuts

Cage nuts attach to holes in the rack posts, with the nut on the inside of the rack and “wings” pointed horizontally.

Attach four cage nuts in the rack front posts, two on each side. Place the first cage nut in the **middle of the top 1U** of the reserved 4U of rack space. Place the second cage nut **in the middle of the bottom 1U** of the reserved 4U of rack space. Place the remaining two cage nuts in the same points on the other front rack post.

You need **six** cage nuts for each rear rack rail (**twelve total**).

Starting from the **topmost** attach-point in the reserved 4U of rack space, **skip the first two attach points** and place cage nuts in the **next three descending attach-points**. **Skip one attach-point**, then place the last three cage nuts in the **next three descending attach-points**. Repeat for the other rear rack rail.

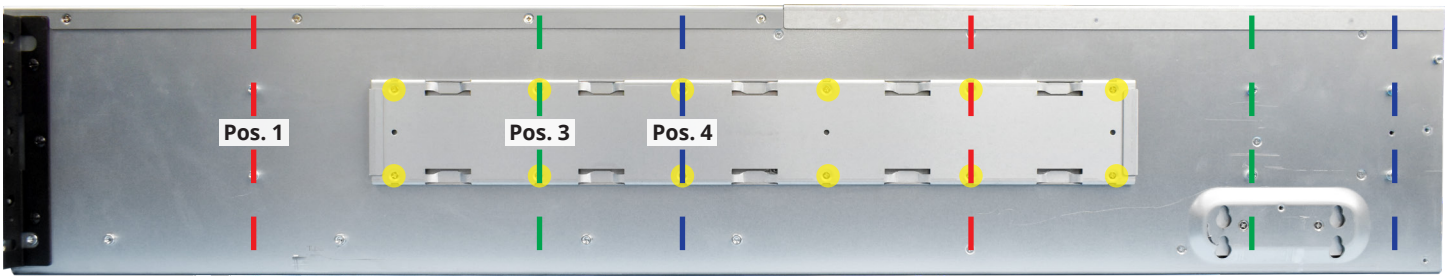


3.3 Install the Rack Rails

Remove the rack rails from the system. Fit a rail over the cage nuts on one rear rack post (the tab fits into the empty slot between the cage nuts) and use six **M5 × 15mm screws** to secure it to the rack. Repeat for the other rail.

3.4 Adjust the Rail Sleeve

The rail sleeve uses position 2 by default. To adjust it, remove the 12 screws (yellow circles) and move the sleeve to the position that accommodates your rack depth (see table).



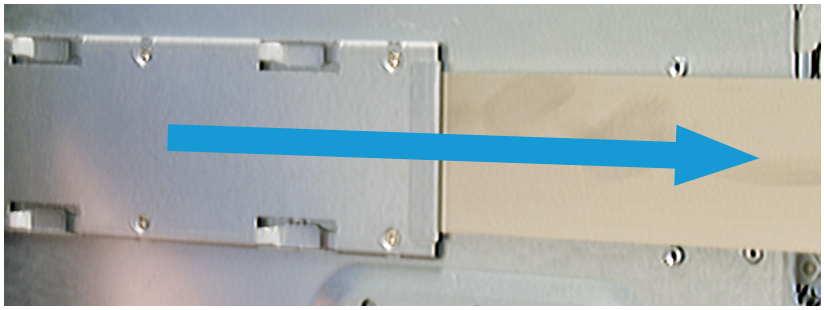
Position	Depth w/ Standard Ears	Depth with 40mm Optional Extended Ears
1	27.5″ - 32″	27″ - 30 3/8″
2 (pictured)	28 13/16″ - 35 11/16″	27.5″ - 34 1/8″
3	32.5″ - 43 1/8″	30 15/16″ - 37.5″
4	36 1/4″ - 43 1/8″	34 5/8″ - 41.5″

3.5 Install the Assist Rails

At the front rack post, install an assist rail front tab into the middle space of the bottom 1U, then use two of the **M5 × 10mm screws** to secure it to the rack. Extend the assist rail to the rear rack post and use two more screws to secure it. Tighten the four bolts inside the assist rail to set the length. Repeat for the other rail.

3.6 Mount the R50 in the Rack

Two people should lift the R50. Set the system onto the assist rails and align the rail sleeves with the rails. Slide the system forward until it is flush with the front of the rack.



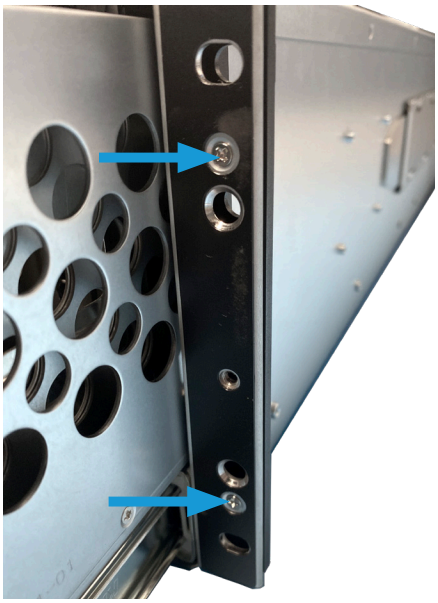
3.7 Attach the Extended Ear Brackets (Optional)

The 3rd gen R50 is longer than previous models, so it ships with extended ear brackets to secure it in short racks.

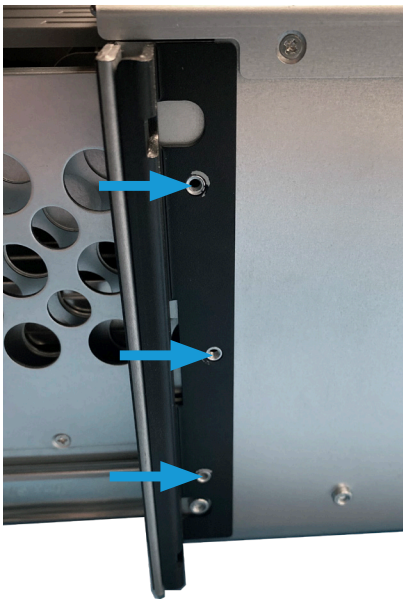
If your rack is too short, remove the five screws (two on the front, three on the side) holding each ear bracket on the R50. Remove both ear brackets from the chassis and replace them with the extended ear brackets.

Secure the extended ear brackets to the chassis using the same five screws the standard ear brackets used.

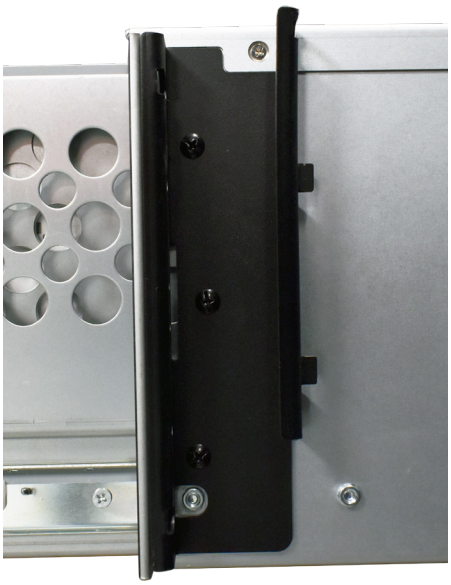
Front Screws



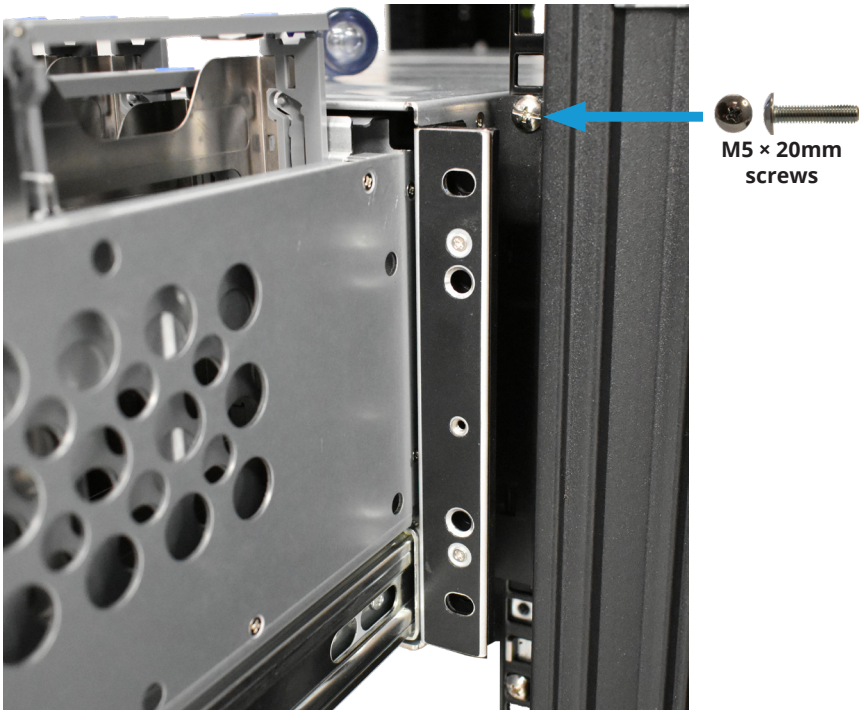
Side Screws



Extended Ear Bracket



Use four **M5 × 20mm screws** to secure each chassis ear bracket to the rack.



Once you mount the system in the rack, uninstall the assist rails from the rack.

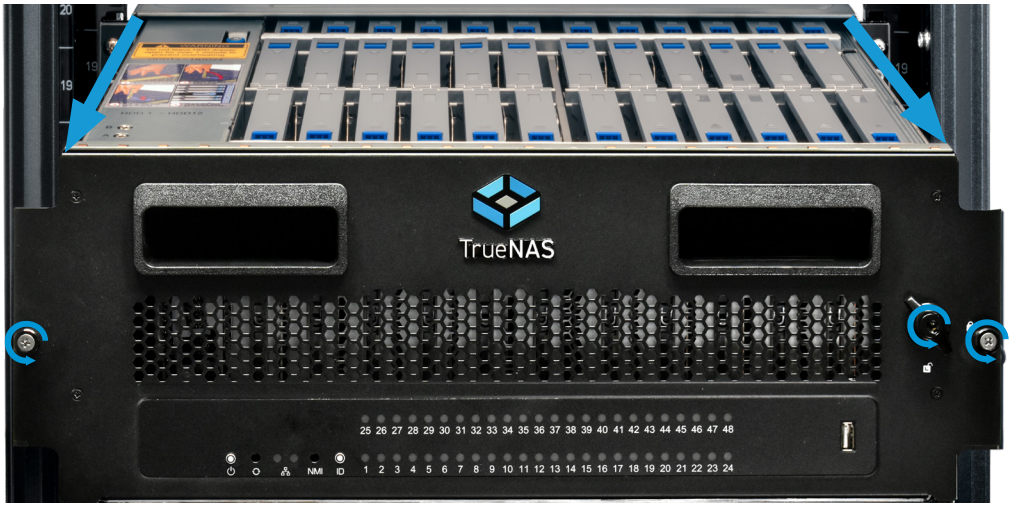
4 Managing Drives

The R50 drive drawer sits on internal rails and slides out of the system. Hard drives install into the drawer without drive trays. The NVMe drives are on the back of the system, and use removable trays to mount drives in the system.

4.1 Open the Drive Drawer

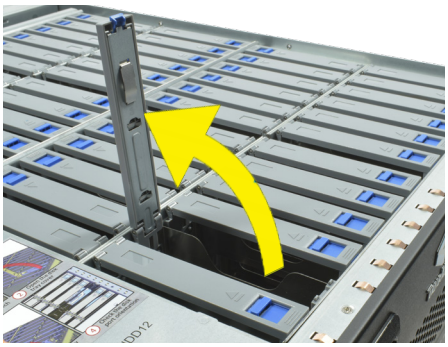
Unlock the front and loosen the captive thumbscrews, then use the handles to pull the drawer out.

> **Warning:** To prevent overheating, do not open the drawer for more than 1 minute with the system running.



4.2 Install Hard Drives

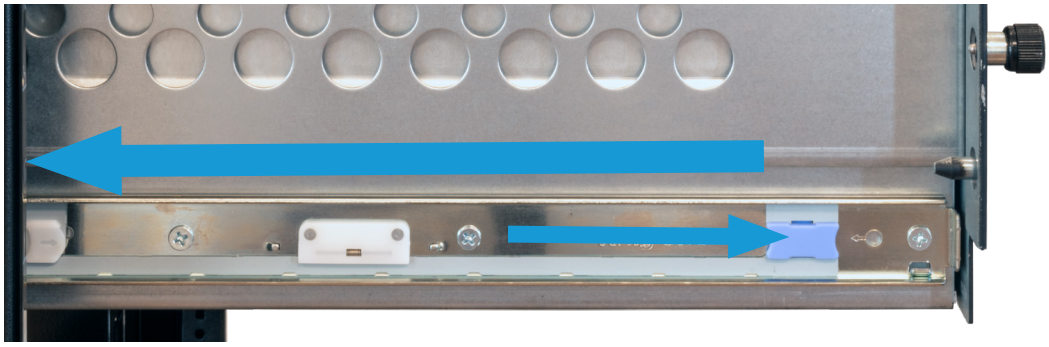
Push the blue release tab on a slot cover and lift. Gently grasp the inner tray and pull it up until it locks into place.



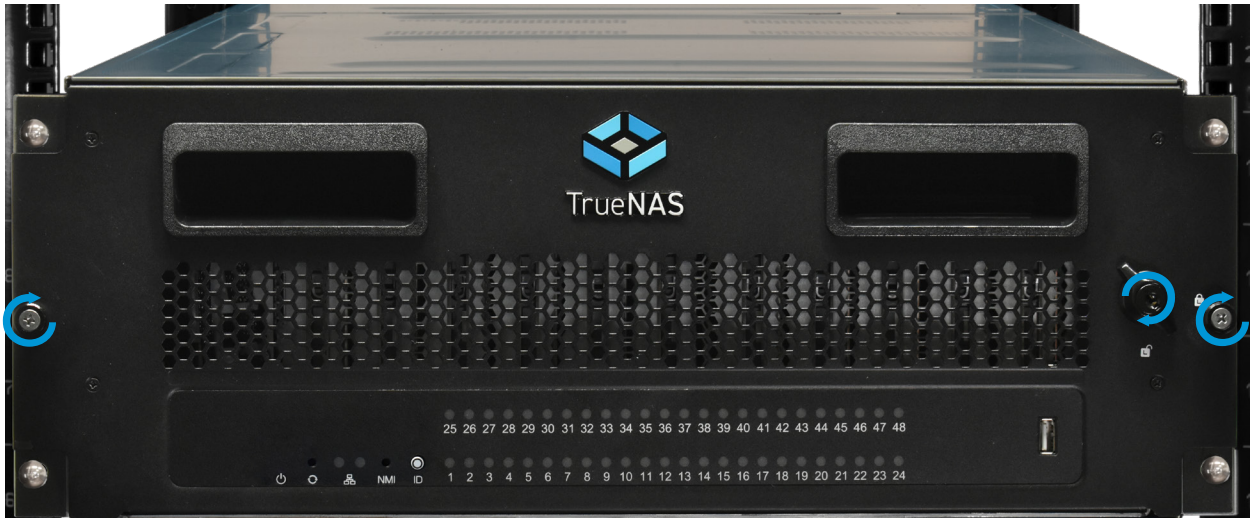
The R50 is certified to use WD Helium drives only. Align a hard drive with the connectors facing downwards into the system, then slide the drive into the slot. Squeeze the plastic release tabs on each side of the tray, then push the tray downwards to install the hard drive into the system. Close the slot cover and make sure it locks.

4.3 Close the Drive Drawer

Pull the blue release catches on each rail toward you, then push the drawer into the system.



To secure the drive bay and prevent it from accidentally opening, tighten the captive thumbscrews on the front of the system. You can also use the included key to lock the drive drawer and prevent unauthorized access.



4.4 Remove NVMe Trays

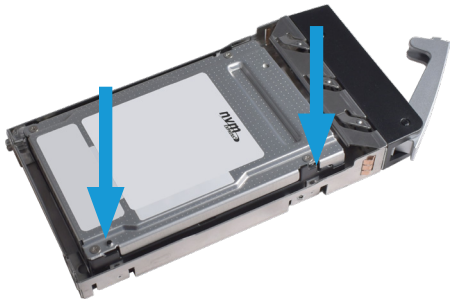
> NVMe drives are hot-swappable, but the R50 won't add the drive until after a power cycle.

To remove an NVMe tray, press the release catch and gently pull the tray until it is out of the system.

4.5 Install NVMe Drives

To remove an NVMe drive, push on it from underneath until it pops out of the side retention pegs. You may have to gently bend the tabs opposite the posts to get the drive out.

To install an NVMe drive, align the drive connectors with the back of the tray. Push the drive side screw holes into the fixed pegs on the tray, then push the drive onto the flexible pegs until it locks into place.



4.6 Install NVMe Trays

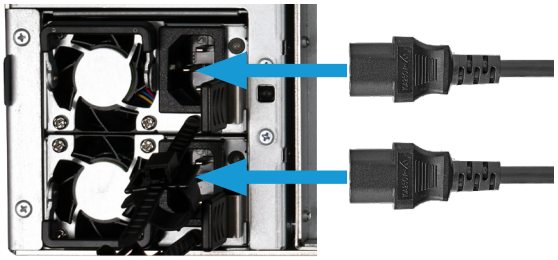
To install an NVMe tray, push the tray into an empty slot, then close the release catch.

5 Cabling an R-Series System

Refer to the rear panel descriptions for each R-Series system in this guide for port identification. We recommend connecting the Out of Band Management port and a monitor and keyboard for the first boot so you can configure the system and view the initial TrueNAS web interface IP address. After connecting all other ports, plug in both power cables. Each system has retention clips that can prevent accidentally unplugging the system.

Your system is equipped with the optimal BIOS and IPMI firmware out of the box.
DO NOT UPGRADE your system's BIOS and IPMI firmware.

We recommend that IPMI be on a separate and secure network without Internet access.
Please contact support if you need to upgrade your system's BIOS or IPMI firmware.

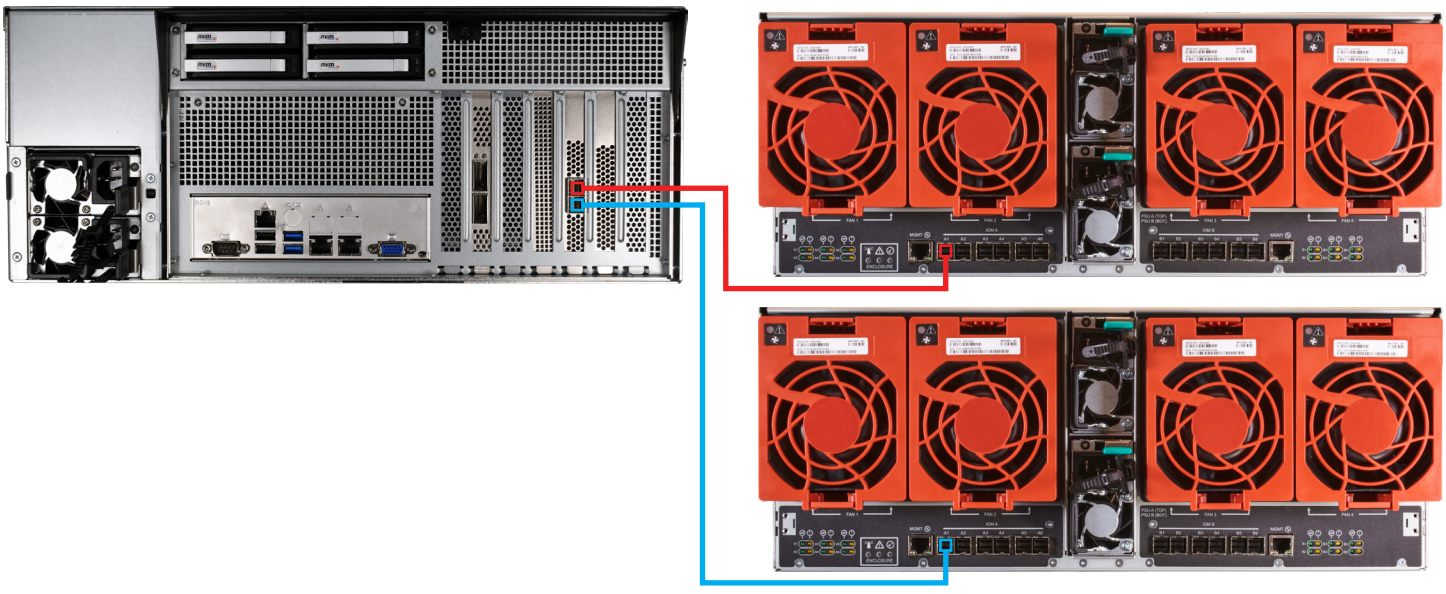


5.1 SAS Connections

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.

When purchased with a SAS expansion card, the R50 can connect to two Expansion Shelves.
This diagram shows an R50 connected to two iXsystems ES102s:



6 Connecting to the TrueNAS Web Interface

Powering on the system and allowing it to boot to the system console will display the IP address of the TrueNAS R-Series graphical web interface, *192.168.100.231* in this example:

```
The web user interface is at: http://192.168.100.231
```

The TrueNAS web interface uses default credentials for first-time logins:

Username: *root*
Password: *abcd1234*

After logging in, you can change the root account password in **Account > Users** to increase system security.

When more than one TrueNAS device is connected to the network, mDNS can experience name conflicts. Give each TrueNAS device a unique hostname like *truenas1.local* and *truenas2.local* to avoid this problem. The hostname is changed in **Network > Global Configuration > Hostname** in the TrueNAS web interface.

Out of band logins have separate credentials from the TrueNAS web interface. The credentials are randomized and attached to the back of the TrueNAS chassis. For more details, see https://www.truenas.com/docs/sb-327.

For additional details about out of band management, see the R-Series Out of Band Management guide: https://www.truenas.com/docs/hardware/rseries/rseriesoobm/

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)

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