TrueNAS® M-Series Unified Storage Array Basic Setup Guide

Version 3.31

Contents

TrueNAS® units are carefully packed and shipped with trusted carriers to arrive in perfect condition. If there is any shipping damage or any parts are missing, please take photos and contact iXsystems support immediately at **support@ixsystems.com** or 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.

1 Become Familiar with the M-Series

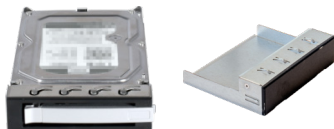The TrueNAS M-Series Unified Storage Array is a 4U, 24-bay, hybrid data storage array.

	M-Series Unified Storage Array
	Bezel
	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.
	Up to 24 drive trays or air baffles, depending on the number of drives purchased with the system.
	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
	DB9 to 3.5mm serial cable
	Hardware for mounting the system in a rack
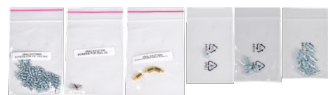
1.1 Unified Chassis Design

The 3rd Generation TrueNAS M-Series systems have a unified chassis design that allows customers to upgrade them with more powerful controllers. Customers can upgrade an M30 to an M40, or an M50 to an M60. Speak with an iXsystems Sales or Support Representative for more information.

1.2 Front Panel Indicators

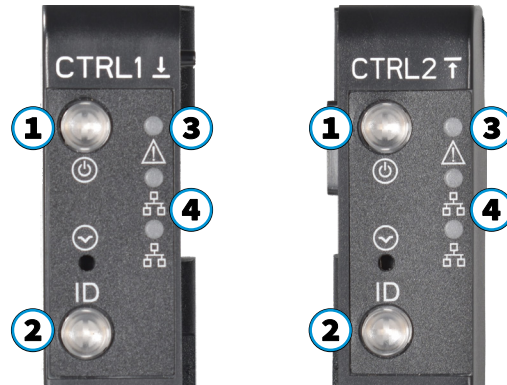The front "ears" have indicators for power **(1)**, locate ID **(2)**, fault **(3)**, and network activity **(4)**. The fault indicator is on during the initial power-on self-test (POST) and off during operation. It also turns on if TrueNAS OS issues an alert. For details about software alerts and how to configure them, see https://www.truenas.com/docs/core/system/alert/ on the TrueNAS Documentation Hub.

The M-Series includes one or two TrueNAS controllers in an over-and-under configuration.

1.3 M-Series Back Panel

1. NVMe drive bays with fan and indicators. NVMe bays are active on all M-Series models **except the M30**.
2. Power supplies 1 (bottom slot) and 2 (top slot)
3. IPMI Password sticker
4. Serial port
5. 1Gb Ethernet Out of Band Management port and USB 3.0 ports
6. USB 2.0 ports
7. 10Gb Ethernet ports
8. VGA monitor port
9. ID indicator
10. Expansion slots * (see section **"1.4 M-Series Expansion Slots"**)
11. TrueNAS controller management port
12. TrueNAS controller serial number

1.4 M-Series Expansion Slots

Expansion slots on the M-Series are reserved for specific cards or internal use:

	Slot A	Slot B	Slot C	Slot D	Slot E	Slot F
M30	NIC or FC	N/A	NTB	N/A	Internal SAS	Secondary NIC
M40	NIC	N/A	NTB	External SAS	Internal SAS	x4 NVMe Riser, NIC2, or FC
M50	NIC1	External SAS1	NIC2 or FC	External SAS2	NTB	Internal SAS
M60	NIC1	External SAS1	External SAS3, NIC2, or FC	External SAS2	NTB	Internal SAS

1.4.1 M30 Controller Expansion Slots
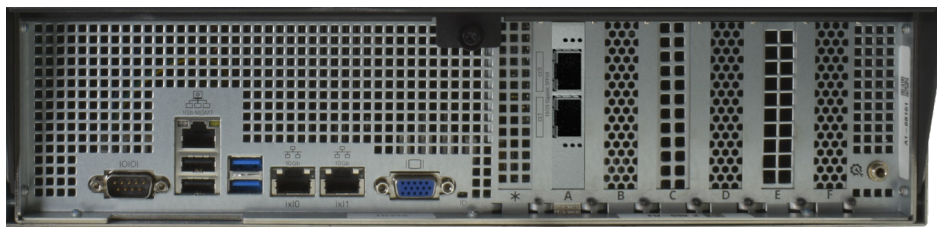
1.4.2 M40 Controller Expansion Slots
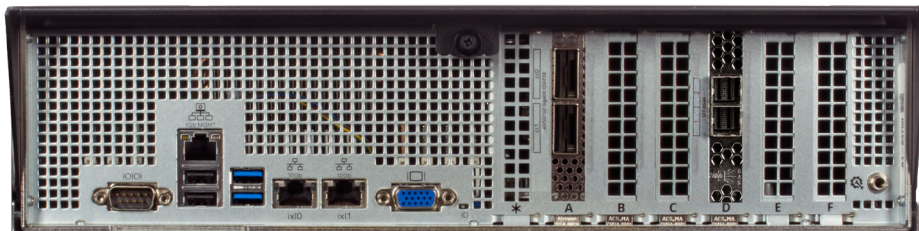
1.4.3 M50 Controller Expansion Slots

1.4.4 M60 Controller Expansion Slots

2 Prerequisites

There are a few considerations to make before handling or installing an M-Series system in a rack.
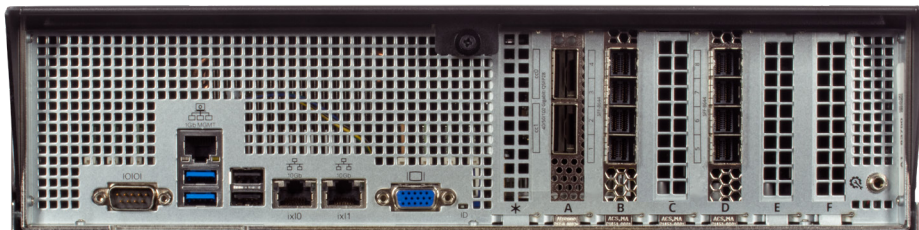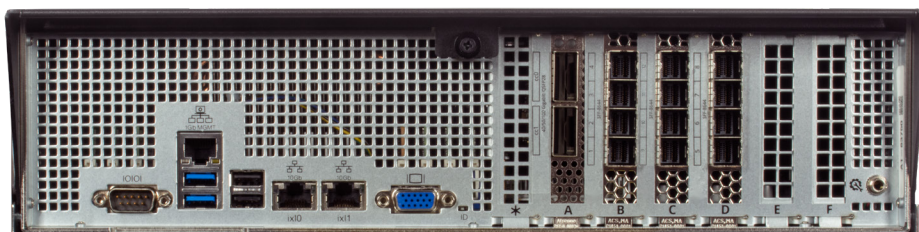
2.1 Handling

The M-Series system weighs 75 lbs empty. **Always team-lift the system!** A fully-populated system's total weight is over 110 lbs. When removing a fully-populated system from a rack, remove the drives before de-racking the enclosure.

When handling rails, system components, or drives, avoid forcing movement if a piece seems stuck! We recommend gently removing it and checking for pinched cables or obstructing material before installing it again. Installing a controller, drive, or component with excessive force can damage the system.

2.2 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:

1. Turn off the system and remove power cables before opening the case or touching internal components.
2. 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.
3. 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.
4. Store all system components in anti-static bags.

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

3 M-Series Rail Kit Assembly

At a minimum, an M-Series requires 4U of space in an EIA-310 compliant rack that is 27" (686mm) deep, frame to frame. You will need to space the vertical rack posts between 26" (660.4mm) and 36" (914.4mm) apart to install the rails properly.

You will need a Philips head screwdriver to attach the rails and secure the system to a rack. A measuring tape and a level may be helpful when racking the system.

3.1 Separate Cabinet Rails from Rack Rails

Each rack rail includes an inner cabinet rail that you must remove. Extend the cabinet rail as shown below until the white release tab is exposed. Slide the white release tab to the right to release the cabinet rail. Remove the cabinet rail from the rack rail. Repeat the process for the second rail.


3.2 Mount Cabinet Rails

The cabinet rails mount on each side of the system. Align the cabinet rail keyholes with the posts on the side of the chassis. Slide the rail towards the system's rear until the metal tab clicks and secures them in place. Fasten the rail to the system with three M4x3.2mm screws. Repeat this process on the other side.
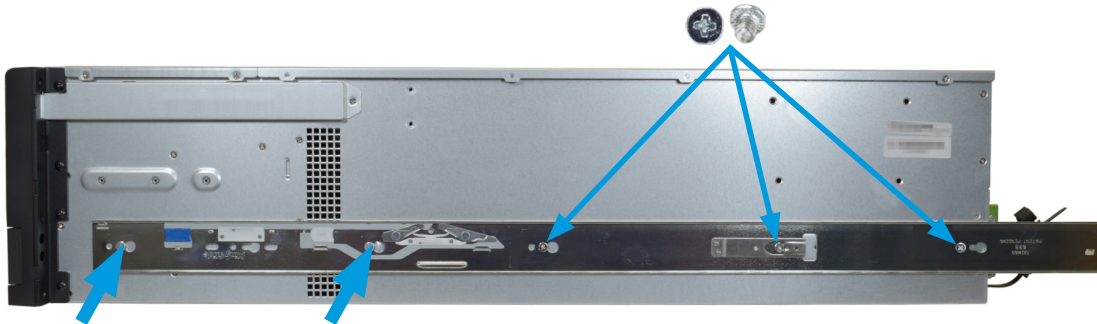

3.3 Mount the Rack Rails

The rack rails are installed in the bottom 2U of the total 4U of reserved rack space.

The inner rack rail must be unlocked and retracted before installing the rail in the rack. Rotate the release lever on the back of the inner rail clockwise as shown on the arrow label (**1**). Push the inner rail towards the back of the rail assembly until it stops (**2**).
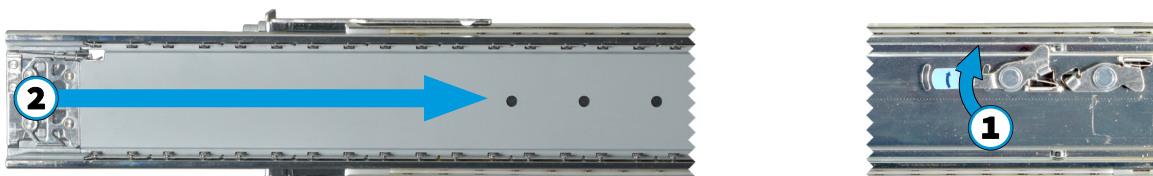
Place the rail in the rack with the front end towards the front of the rack, aligning the pins with the mounting holes in the front of the rack. Push the pins into the holes until the latch clicks.

At the rear end of the rail, align the pins with the rack holes, making sure the rail is level. Swing the gray latch handle outwards (**1**) and pull it to extend the rail rearwards until the rail pins are fully seated in the rack holes (**2**). Release the latch to allow it to lock in place. Repeat the process for the second rack rail.

Front   **Rear**
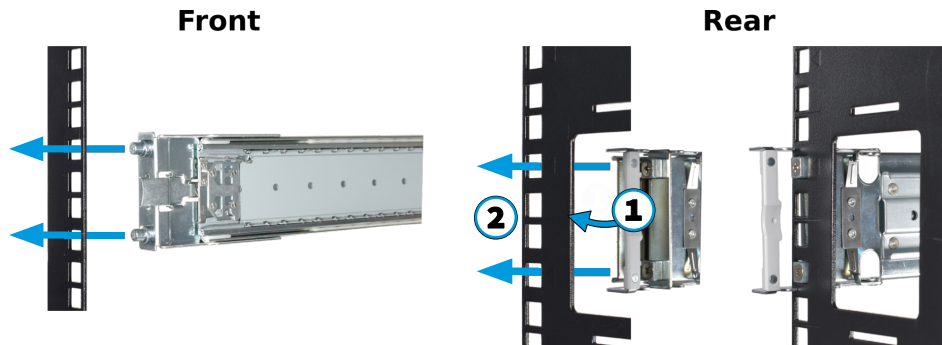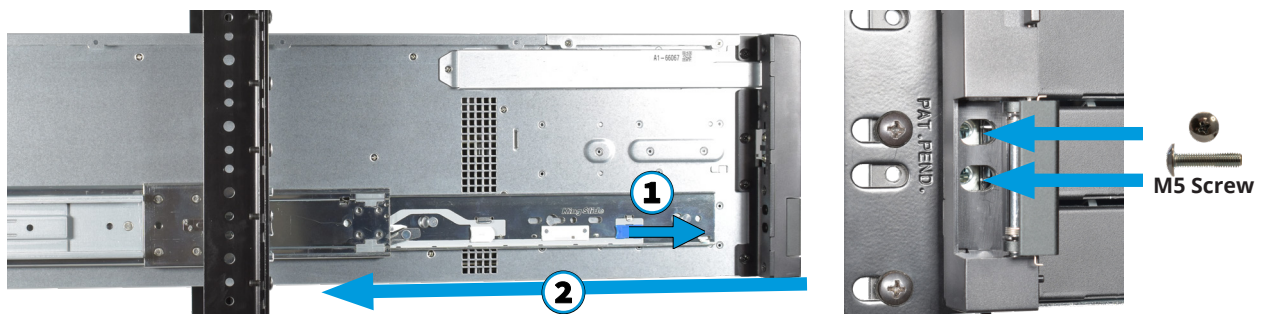

3.4 Mount the Unit in the Rack

Caution: This system requires two people to safely lift it for rack installation or removal. Do not install drives until after installing the chassis in the rack, and remove all drives before removing the chassis from the rack.

Extend both inner rack 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.

When both cabinet rails are secured in the rack rails, gently push the chassis until it stops half way in.

Slide the blue release tabs on both cabinet rails towards the front of the system (**1**) while pushing the unit into the rack. Push the chassis into the rack until it is flush with the front of the rack (**2**).


M5 Screw

To anchor the unit in the rack, insert a long M5 screw through the retention port on each ear. The screw hole is behind a small door on each ear.

4 Install Drive Trays

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

Place the tray on a flat surface (**1**). Mount the hard drive by aligning the drive connectors to the rear of the tray and pushing the drive screw holes into place with the drive tray pegs (**2**).
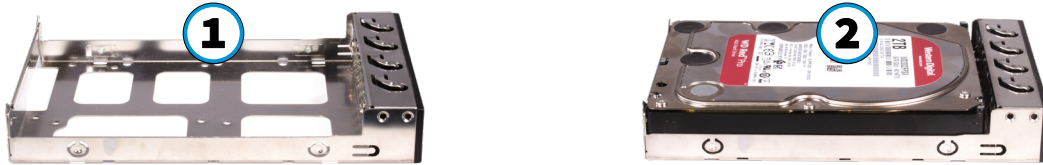
To maintain proper air flow, baffles are added to systems with fewer than 24 drive trays. When installing a new drive, insert a flathead screwdriver in the baffle groove and gently pull to remove the baffle.

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.

We strongly recommend a standard drive tray installation order to simplify support:

• SSD drives for write cache (W), if present
• SSD drives for read cache (R), if present
• Hard drives or SSD drives for data storage
• Air baffle filler trays to fill any remaining empty bays

Install the first drive in the top left bay. Install the next drive to the right of the first. Install remaining drives to the right across the row. After a row is filled, move down to the next row and start again with the left bay.

5 Cabling

With the system racked and drives installed, start connecting cables to the back of the system. **Do not plug the power cords into a power outlet yet.**

If any TrueNAS expansion shelves are connected to the M-Series, power on the expansion shelves and wait at least two minutes before connecting power cables to the M-Series.

5.1 Expansion Shelves

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 your SAS connections, please adhere to the wiring examples in this guide. Connecting expansion shelves incorrectly will cause errors. Never cable a single controller to different expanders on the same expansion shelf.

The guide included with an iXsystems Expansion Shelf has instructions for SAS connections. This example shows a typical M60 connection to a pair of iXsystems ES60 expansion shelves. Detailed connection diagrams are also available in the TrueNAS SAS Connections Guide. Note: The M30 does not support expansion shelves.
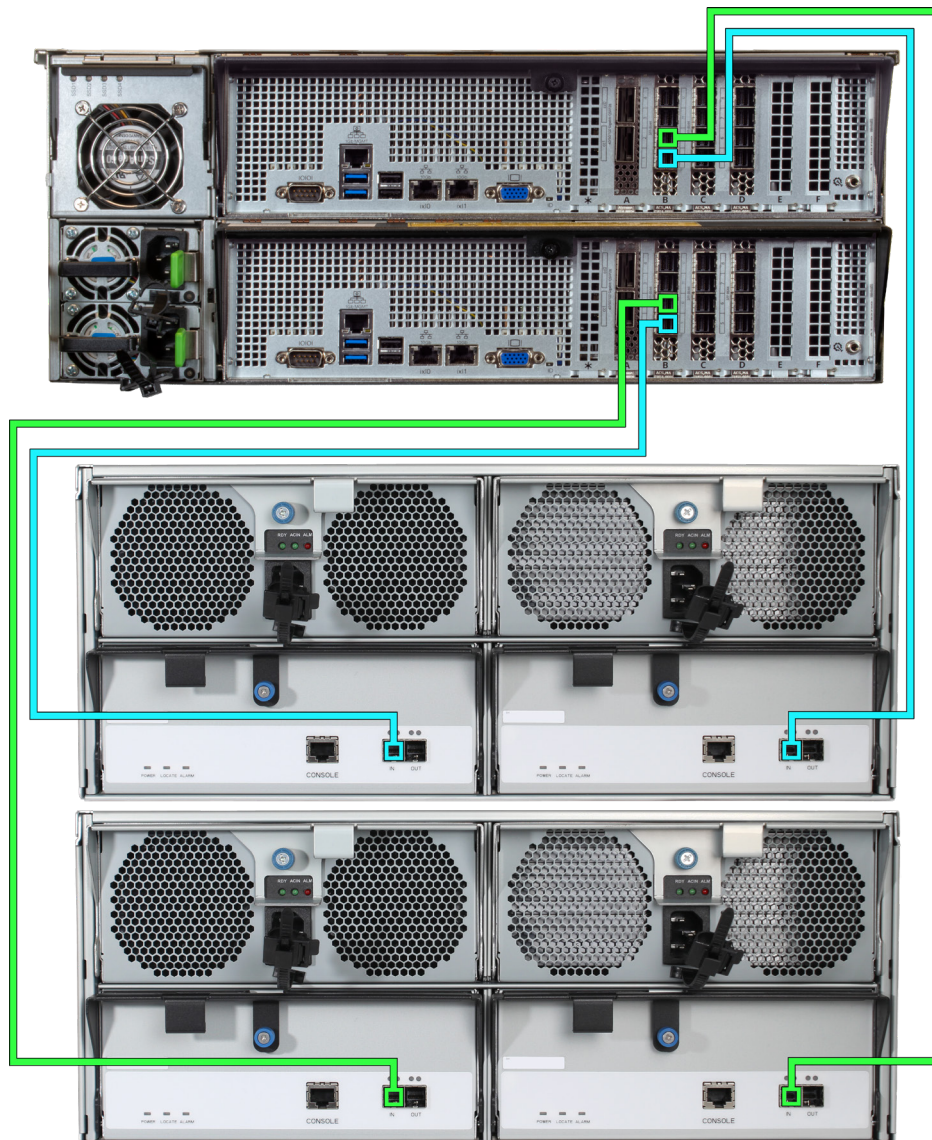
5.2 Network Cables

Connect network cables before powering on the M-Series System. Cable specifications and requirements vary by configuration, so they are not included with the system. It is also recommended to connect network cables from the local switch or management network to the Out-of-Band (OOB) IPMI management port on each TrueNAS Controller. Refer to the network port labels in section **"1.2 Front Panel Indicators" on page 2** as needed. Network ports are preconfigured to customer specifications before shipment.

5.3 Power Cord

Connect a power cord to the back of one power supply, pressing it into the plastic clamp and pressing on the tab to lock it in place. Repeat the process for the second power supply and cord.
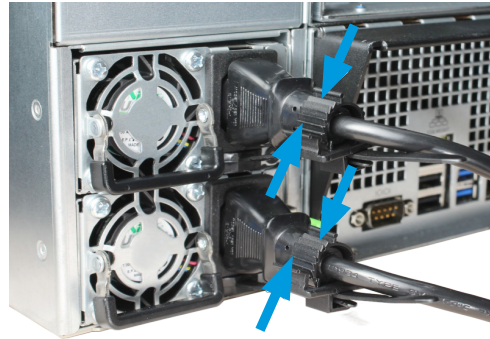
After both power cords have been connected to the M-Series, they can be plugged in to power outlets. The system is configured to automatically power on when connected to a power outlet. This design ensures that the M-Series automatically turns back on when power is restored after a power failure.

6 Install Bezel (Optional)

The included bezel is not required for operation. To attach the bezel, slide the right side of the bezel into the attachment points on the right ear (**1**). Push the left side of the bezel into the left ear latch until it locks in place (**2**).
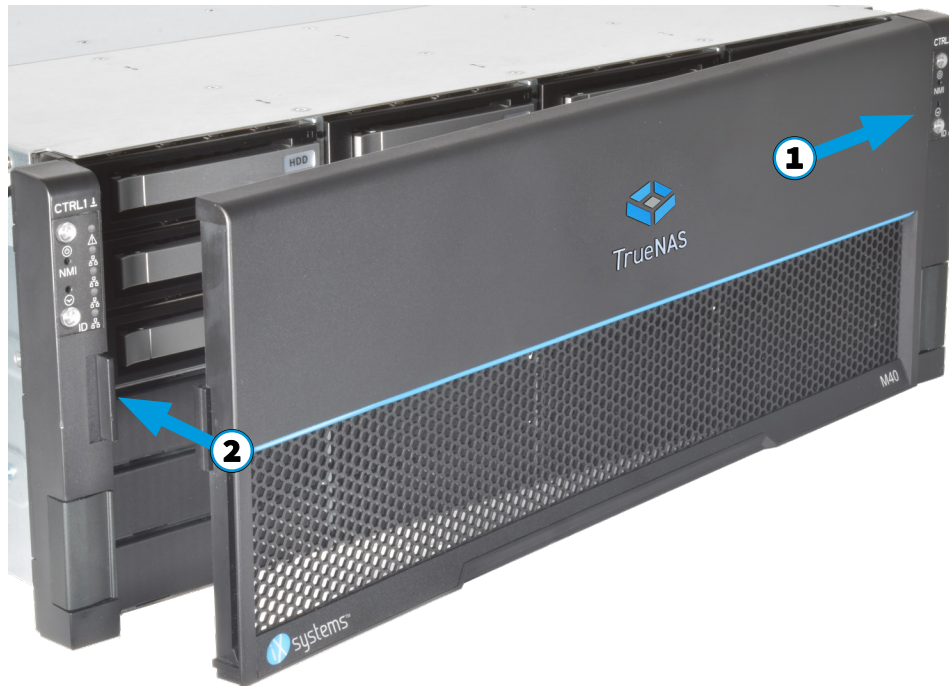
To remove the bezel, push the left ear release tab away from the bezel to release. Swing the bezel out to remove.

7 TrueNAS Controller Installation and Removal

Warning: To avoid the potential for data loss, iXsystems must be contacted **before** replacing a controller or upgrading to High Availability. See section "10 Contacting iXsystems" on page 14.

To avoid data loss in an NVDIMM SLOG, TrueNAS controllers must be properly shut down and powered off before they are removed from the chassis.

7.1 Adding a Second TrueNAS Controller

M-Series systems with only one TrueNAS controller have an internal shipping brace that must be removed before adding a second TrueNAS controller.

Remove the cover plate thumbscrew (**1**) and controller slot cover (**2**).


Remove the retention screw (**1**) and take the brace (**2**) out of the chassis. Put the retention screw back in (**1**). Confirm there are no obstructions in the TrueNAS controller slot, then continue installing the TrueNAS controller.
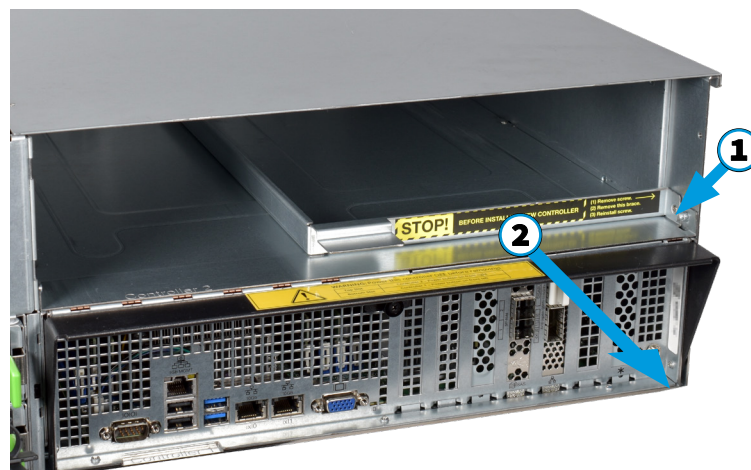
7.2 TrueNAS Controller Installation

Use both hands to lift and carry the TrueNAS controller from the bottom only. Insert the TrueNAS controller into the chassis. **Press only on the bottom, sides, or handle of the TrueNAS controller,** sliding it into the chassis until it stops (**1**). Lift the black release handle to lock the TrueNAS controller in place (**2**). Tighten the thumb screw to lock the handle.
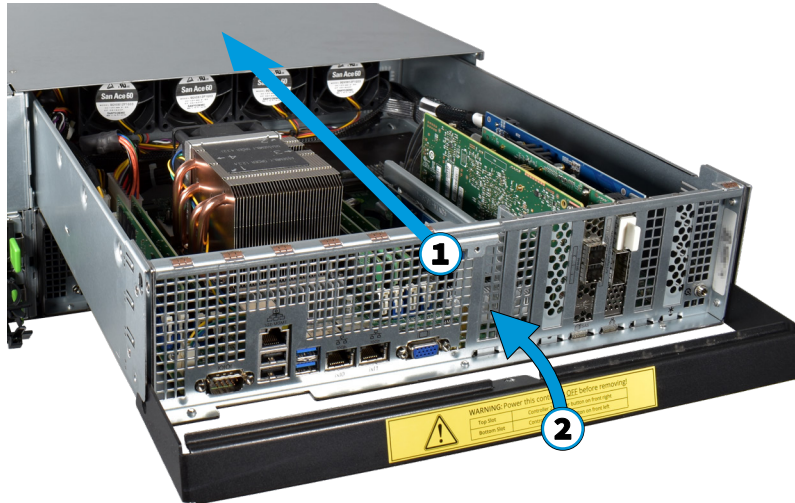
7.3 TrueNAS Controller Removal

Unlock the TrueNAS controller handle by turning the thumb screw counter clockwise until it releases the handle (**1**). **Do not pull or press on any portion of the TrueNAS controller except the black release handle.** Pull the black release handle down (**2**) to release the TrueNAS controller. Use both hands to **grasp the TrueNAS controller only by the sides, bottom, or handle.** Slide the TrueNAS controller out of the chassis (**3**).
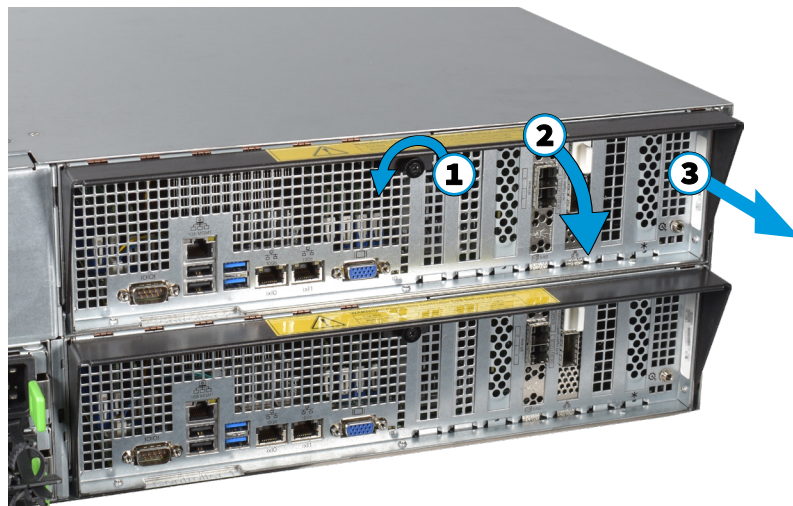
8 Booting the System

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.

After plugging the power cords into outlets, the M-Series powers on and begin booting into TrueNAS. The boot process can take some time.

When booted, the system console displays the IP address of the TrueNAS M-Series graphical web interface. This address is typically preconfigured according to customer guidelines or is automatically generated with DHCP. This example shows *192.168.100.231*:

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

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

8.1 Default Credentials

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

```
Username:    root
Password:    abcd1234
```

After logging in with these default credentials, change the `root` account password to a new, stronger password before storing any sensitive data.

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 M-Series Out of Band Management guide:
https://www.truenas.com/docs/hardware/mseries/mseriesoobm/

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9 Additional Resources

The TrueNAS Documentation Hub has complete software configuration and usage instructions. It is available by clicking **Guide** in the TrueNAS web interface or going directly to:

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

Additional hardware guides and articles are available in the Hardware section of the Documentation Hub:

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

The TrueNAS Community forums provide an opportunity to interact with other TrueNAS users and to discuss their configurations. The forums are available at:

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

10 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)