TrueNAS® ES60 Expansion Shelf Basic Setup Guide

Version 1.4

Note: The ES60 replaces the previous E60 expansion shelf. The E60 reached end of life (EOL) on May 17, 2017, but will continue to be supported until May 17, 2022.

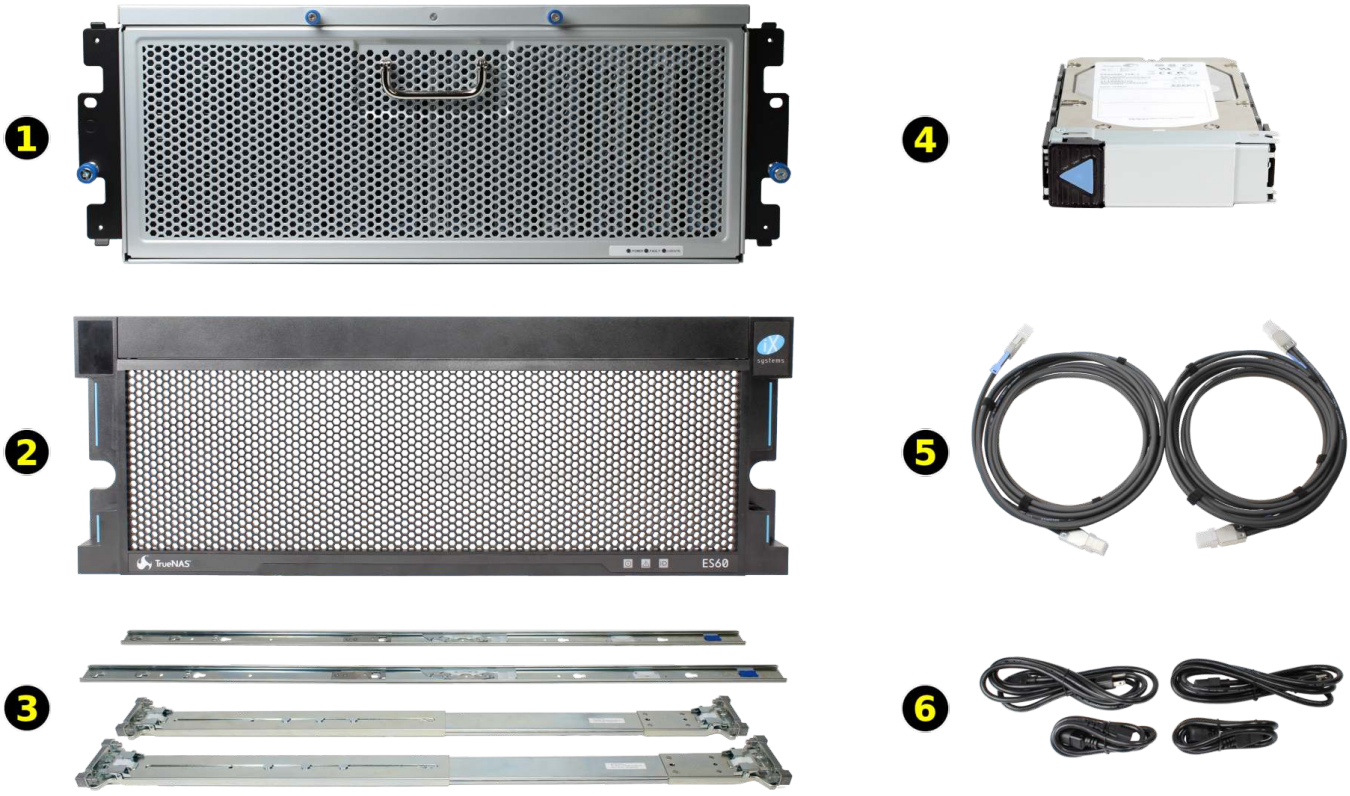
1 ES60 Expansion Shelf

The TrueNAS® ES60 Expansion Shelf is a 4U, 60-bay storage expansion unit designed specifically for use with TrueNAS® Unified Storage Arrays.

Note: 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 or side of each chassis for easy reference.

Carefully unpack the shipping boxes and locate these components:



- ES60 Expansion Shelf (#1)
- ES60 Bezel (#2)
- Rail kit with mounting hardware (#3)
- Up to 60 drive trays with installed hard drives, shipped separately (#4)
- Two 3-meter Mini SAS HD to Mini SAS HD cables (#5)
- Two IEC C13 to NEMA 5-15P power cords with two IEC C14 to C14 power cords (#6)

1.1 Become Familiar With the ES60

Indicators on the front panel show power, fault, and locate ID. The fault indicator is on during the initial power-on self-test (POST) or when the TrueNAS® software has issued an alert. See the Alert section in the Additional Options chapter of the TrueNAS® User Guide (https://www.ixsystems.com/documentation/truenas).

Front panel indicators:

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

- Power supply (#1)
- Power indicator (#2)
- Alarm indicator (#3)
- Locate ID (#4)
- Management port (#5, not used)
- HD Mini SAS3 connectors (#6, #7)

1.2 Rail Kit Assembly

1.2.1 Separate Cabinet Rails from Rack Rails

Each rack rail includes an inner cabinet rail that must be removed. 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.

1.2.2 Mount Cabinet Rails

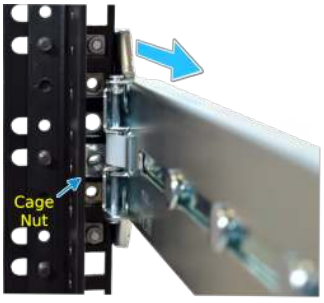
The cabinet rails are mounted on each side of the system. Align the cabinet rail keyholes with the posts on the side of the chassis. Slide the rail toward the rear of the system until the metal tab clicks and secures the rail in place. Repeat this process on the other side.

1.2.3 Mount Rack Rails

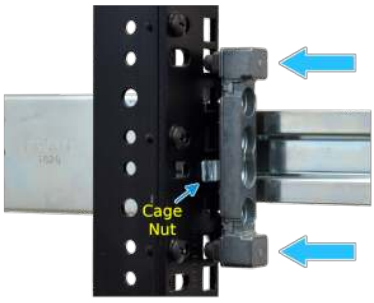
The ES60 occupies 4U of rack space. The rails are mounted in the center 2U of that space.

Cage nuts for racks with square and round holes are included. Install four cage nuts inside the rack, two where the rails attach to the front of the rack, and two at the rear. Align each cage nut with the others, both front to back and left to right. The cage nuts provide an attachment point inside the rack for the rail screws.

The rail ends are stamped *Front* and *Rear*. Place one rail in the rack with the *Front* stamp at the front facing outward. The *Rear* stamp goes at the back of the rack. Align the pins on both rail ends with the mounting holes in the rack. 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.



Attach Rear



Attach Front

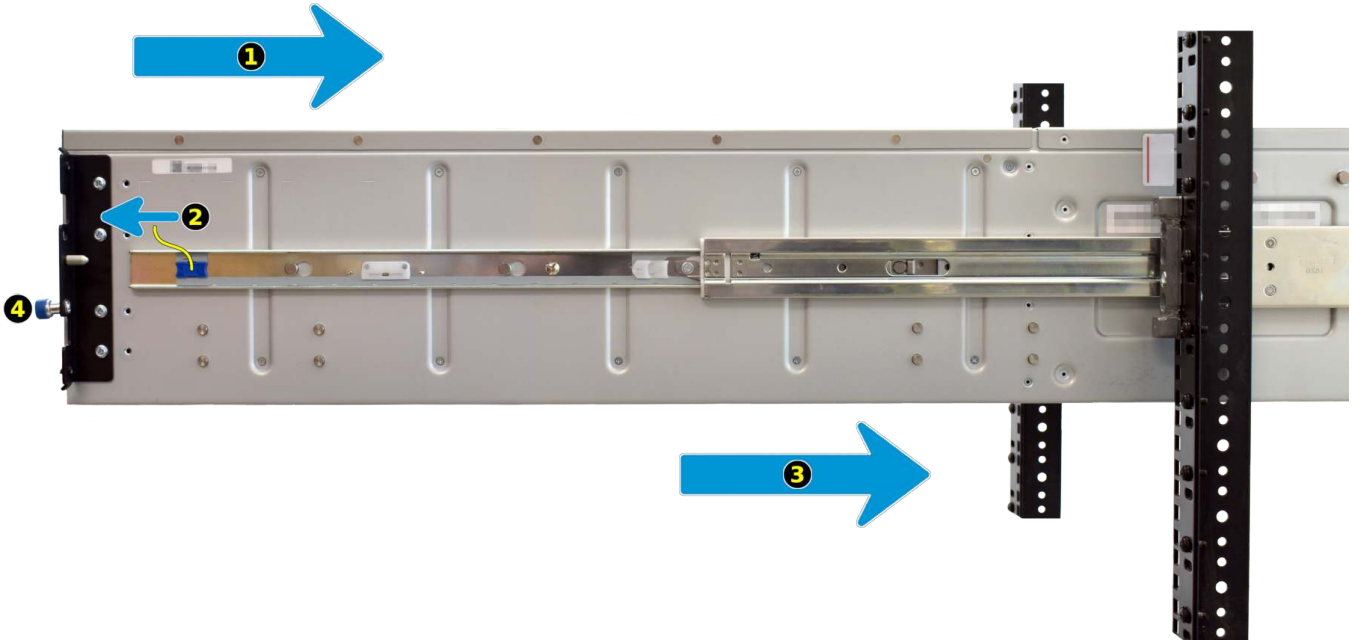
Install Screws

1.3 Mount Unit in the Rack

Caution: Two people are required to safely lift the chassis for rack installation or removal. Do not install drives until after the chassis has been installed in the rack, and remove all drives before removing the chassis from 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 forward into the rack rails until the unit stops (#1). Locate the blue tabs on the inside of the cabinet rails. Slide the tabs toward the front of the ES60 and hold them in place (#2). Push the chassis into the rack until the ears are flush with the front of the rack (#3). The thumbscrews on the ears are used to secure the unit in the rack after drive trays have been installed (#4).



1.4 Drive Tray Installation

Do not install the drives until the chassis has been installed in the rack.

1.4.1 Remove Top Cover

Slide the unit out on the rails. Unscrew the cover screws to unlock the top cover. Slide the top cover forward, then lift it off.

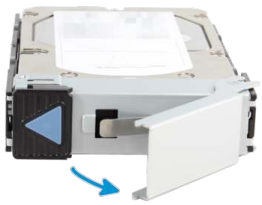
1.4.2 Install Drive Trays

Drive trays are used to mount drives in the array.

A standard drive tray installation order simplifies support and is strongly recommended: 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 remaining drive trays to the right across the row. After a row is filled with drives, move back to the next row and start again with the left bay. A label on the front left of the lid shows the preferred order of drives.

Slide the tray button left to open the latch. Carefully lower the drive tray into a drive bay until the latch begins to move into place. Push the latch down until it locks into place.



For proper airflow and cooling, the entire first row of drive trays must be installed. The top cover must also be in place when the unit is on.

1.5 ES60 Cable Management Arm

The included cable management arm (CMA) is not required for operation. If desired, the CMA can be used to help organize the ES60 power and data cables.

The tabs along the side of the flex housing can be unclipped from the top, the bottom, or removed entirely.

1.5.1 Install the Cable Management Arm

Locate the two posts on the left rear side of the ES60. Align the holes on the CMA chassis bracket with the posts on the chassis. Slide the cable management arm forward and pull the lever on the latch upward 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, allowing the flex housing to 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 already attached to 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, allowing the flex housing to expand enough to fit over the bracket pins. Press the flex housing firmly into the bracket until the holes seat on the pins.

Completed Cable Management Arm assembly:

Power and data cables are routed through the flex housing. The tabs can be opened or removed to allow access or space for cable ends. Leave some slack in the cables at both ends to allow for movement of the arm and chassis.

1.6 Connect Power Cords

Do not plug the power cords into a power outlet yet. 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. Plug both power cords into a outlets. This turns on the ES60. **Wait two minutes for the drives to start.**

Service and management ports are not used during normal operation. Do not connect anything to them.

If the TrueNAS® system is already in operation, the expansion shelf can be powered on at any time.

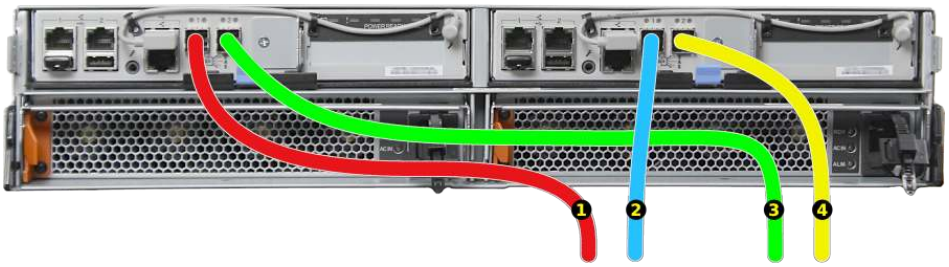
1.7 Connect SAS Cables

The TrueNAS® system can remain on while the expansion shelf is connected.

The ES60 is compatible with several TrueNAS® systems. Typical SAS cable connections for one or two ES60 expansion shelves to TrueNAS® High Availability (HA) systems are shown here. When a TrueNAS® unit with only a single storage controller is used, only cables #1 and #3 are connected.

X-Series

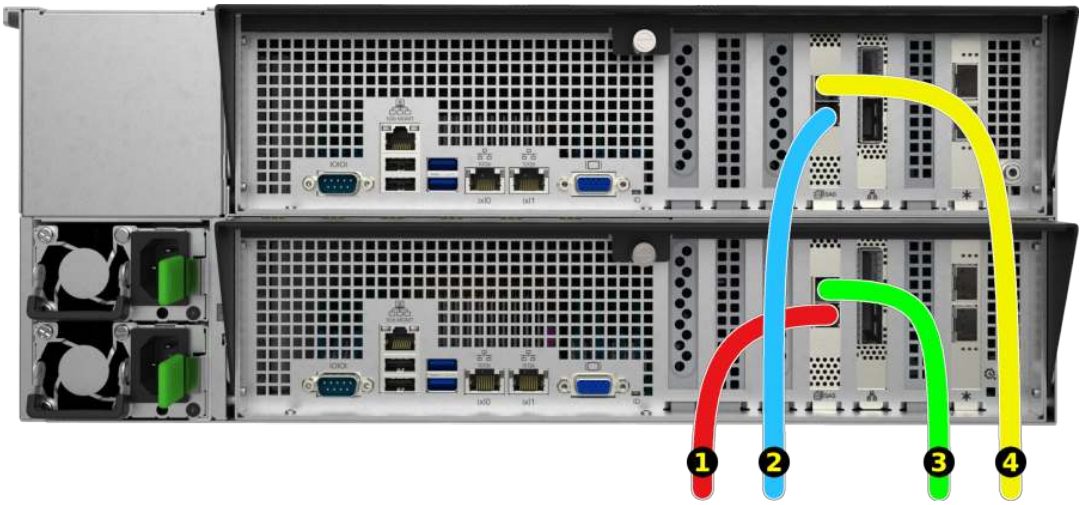
The X20 supports a single ES60 expansion shelf. The ES60 must be connected to the first SAS ports (cables #1 and #2). An additional ES12 or ES24 expansion shelf can be connected to the second SAS ports with cables #3 and #4.



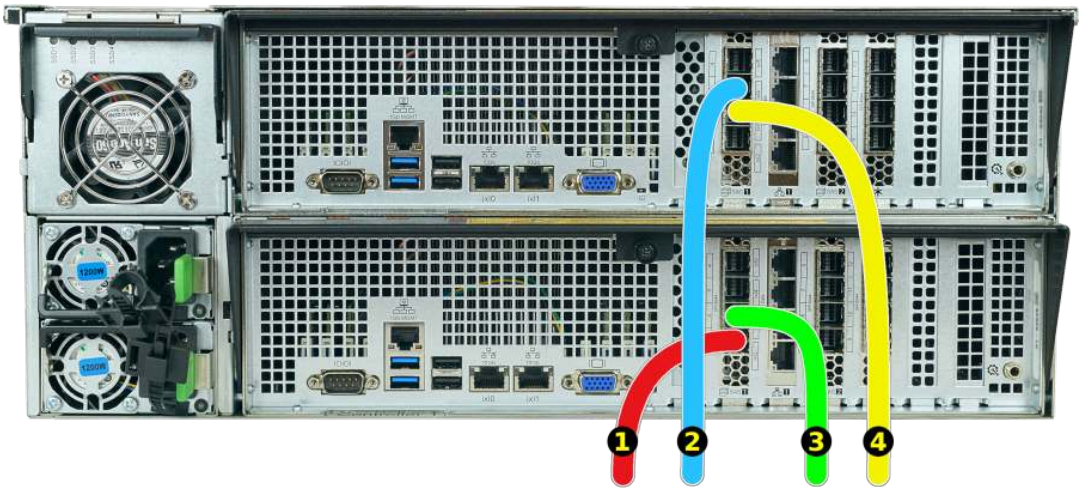
M-Series

The TrueNAS® M-Series supports multiple ES60 expansion shelves, which can be combined with other TrueNAS® expansion shelves.

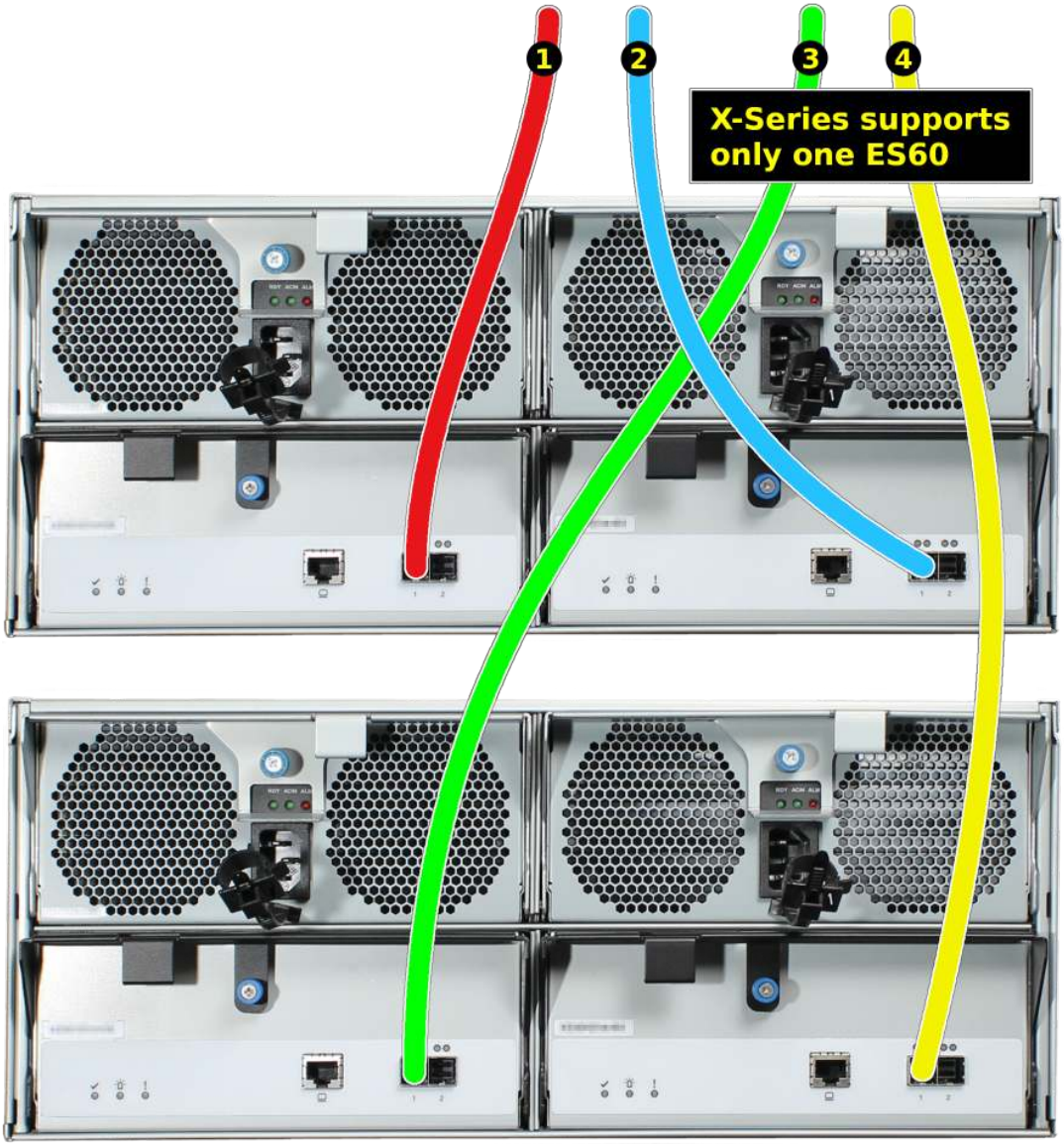
M40



M50



The SAS cables connect to the *1* ports on the ES60 expansion shelves.



- Connect cable #1 to the first ES60, expansion controller 1 SAS 1 port.
- Connect cable #2 to the first ES60, expansion controller 2 SAS 1 port.

If a second ES60 is present (not supported on the X-series):

- Connect cable #3 to the second ES60, expansion controller 1 SAS 1 port.
- Connect cable #4 to the second ES60, expansion controller 2 SAS 1 port.

1.8 Install Bezel (Optional)

The included bezel is not required for operation.

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.

1.9 User Guide

The TrueNAS® User Guide with complete configuration instructions is available by clicking *Guide* in the TrueNAS® web interface or going directly to https://www.ixsystems.com/documentation/truenas/.

2 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: 855-473-7449 option 2 • Local and international: 408-943-4100 option 2
Telephone	After Hours (24x7 Gold Level Support only): • US-only toll-free: 855-499-5131 • International: 408-878-3140 (international calling rates will apply)