# TrueNAS® ES12 Expansion Shelf Basic Setup Guide

December 2017 Edition
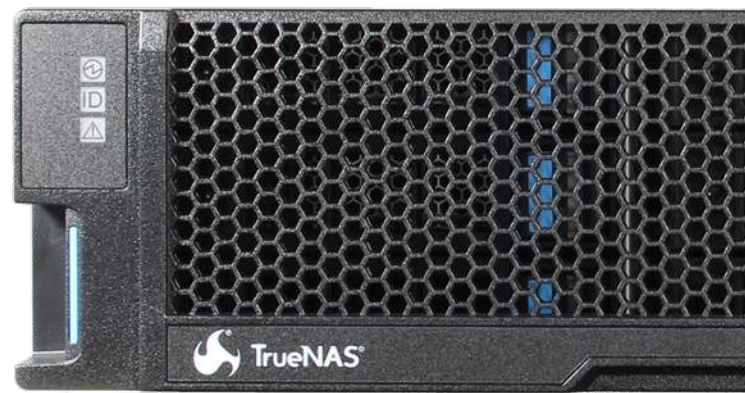
# 1 ES12 Expansion Shelf

The TrueNAS® ES12 is 2U, 12-bay, SAS3 (12 Gb/s) expansion shelf with dual expansion modules and redundant power supplies.

**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:

| | |
|---|---|
|  ES12 Expansion Shelf |  ES12 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. |  A total of 12 populated or empty "air baffle" drive trays. Trays must be installed in all bays to maintain proper airflow for cooling. Up to ten drive trays are packed in a cardboard tray. Additional drive trays are packed with the accessory kit. |
|  Accessory kit with 2 IEC C13 to NEMA 5-15P power cords, 2 IEC C14 to C14 cords, and a set of velcro cable ties |  Two 3-meter Mini SAS HD to Mini SAS HD cables |

## 1.1  Become Familiar With the ES12 System

The ES12 has front panel indicators for power, locate ID, and fault.  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 (https://support.ixsystems.com/truenasguide/tn_options.html#alert).



Ready (Green) ———
Locate ID (Blue) —
Fault (Amber) ———
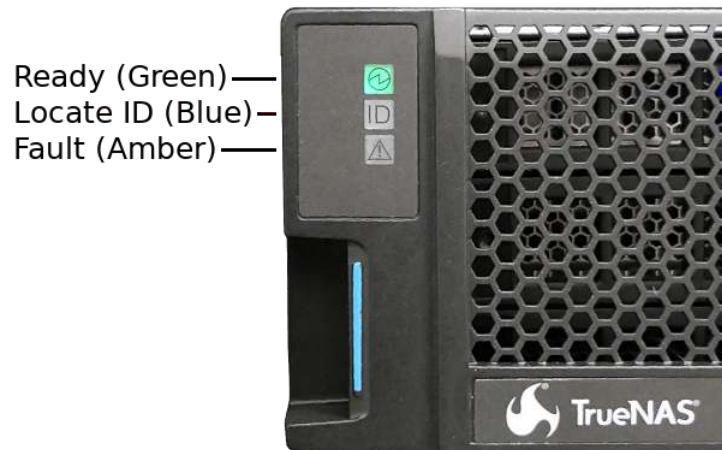
The ES12 contains two expansion modules in a side-by-side configuration.  The connectors and features on each module are:

| |
|---|
| 1-3: HD Mini SAS3 connectors (T1-T3) |
| 4: Debug port (TrueNAS® internal use only) |
| 5: Redundant power supplies |

### Expansion Module 1                    Expansion Module 2
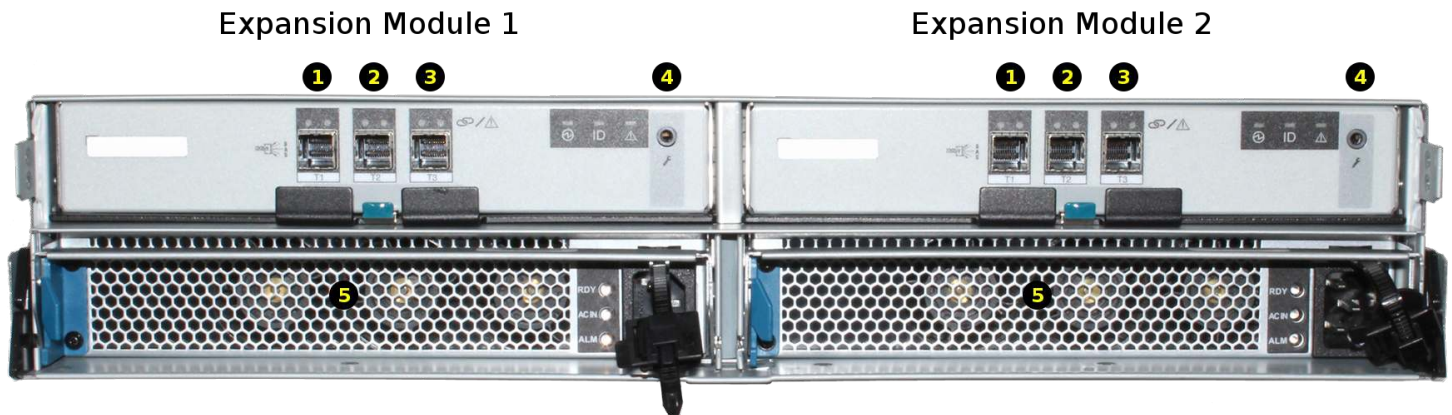
## 1.2  Rail Kit Assembly

On racks that are 30 inches deep or less, proceed to rail spring installation below.

Racks from 31 to 36 inches deep require installation of the included rail extenders. For these deeper racks, install cage nuts on the outside rear of the rack. **The tabs on the cage nuts must be horizontal as shown**. Using the included bolts, install the rail extender inside the rear of the rack. Repeat the process for the second extender, which is a mirror image of the first.

Rear of Rack
Viewed from Inside

Installed Extender
Viewed from Inside
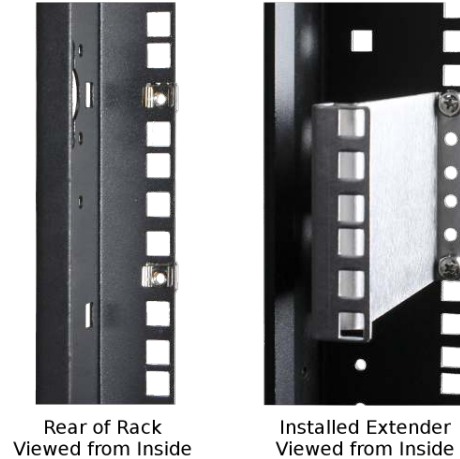
Install a spring on the silver posts in the side of each rail.

Open the clamp latches on the ends of each rail.  Place the rail in the rack with the front end toward the front of the rack, aligning the pins on both ends of the rail with the mounting holes in the rack.  Swing the clamp latch closed to hold the rail in place. Use two of the supplied screws to secure the back end of the rail in place. Repeat the process for the second rail.

**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.

Carefully place the chassis onto the rails mounted in the rack.  Push the chassis in until the ears are flush with the front of the rack. Use two of the supplied screws to secure each ear to the rack.

## 1.3 Install Drive Trays

Drive trays are used to mount drives in the chassis. Each drive tray has a status LED which is blue when active or amber if a fault has occurred.

A tray must be placed in each drive bay to maintain proper airflow for cooling. If fewer than twelve drives are connected, empty "air baffle" trays must be placed in the empty bays.

A standard drive tray installation order simplifies support and is strongly recommended:

- SSD drives for SLOG, if present
- SSD drives for L2ARC, if present
- Hard drives or SSD drives for data storage
- Air baffle filler trays to fill any remaining empty bays

Install the first drive tray in the top 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 down to the next row and start again with the left bay.

This example shows the proper order for a SLOG SSD, an L2ARC SSD, eight hard drives, and two empty air baffle trays.



To load an individual drive tray into a bay, press the blue button to open the latch. Carefully slide the tray into a drive bay until the left side of the latch touches the metal front edge of the chassis, then gently swing the latch closed until it clicks into place.
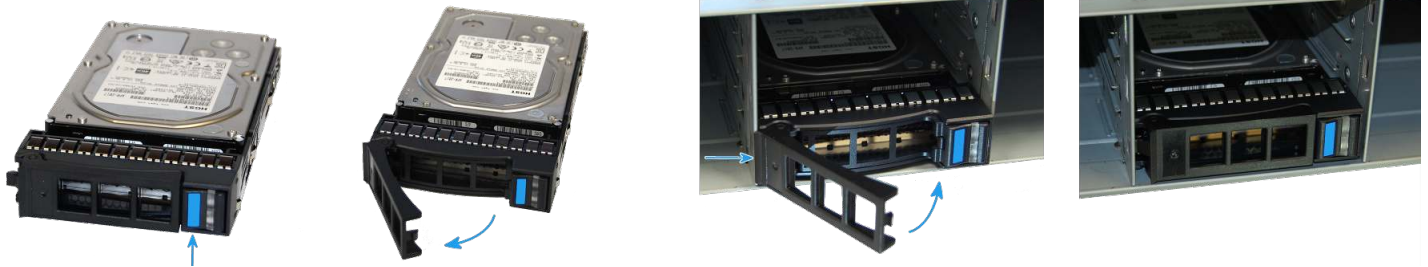
## 1.4  Connect Power Cords

**Do not plug the power cords into a power outlet yet.** Connect a power cord to the back of one power supply. 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.
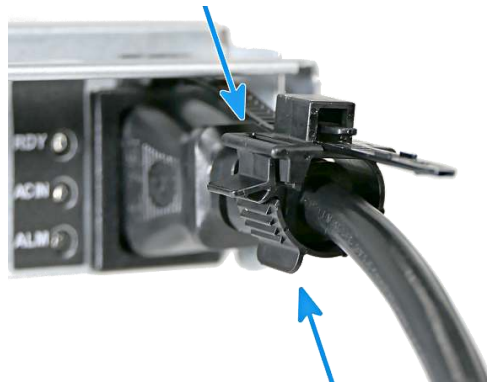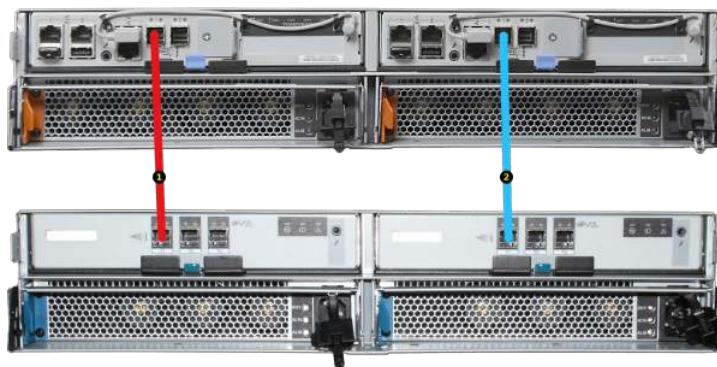
## 1.5 Connect SAS Cables

Shut down and power off the TrueNAS® X series. Remove the X series power cables from the power outlets.

Plug the ES12 power cords into power outlets. **Wait two minutes for the drives to start.**

Connect an SAS cable from the ES12 expander module 1 T1 connector to the X series node 1 SAS 1 connector (cable #1 in photo).

If the X series has a second node for HA (High Availability), connect a second SAS cable from the ES12 expander module 2 to the X series node 2 SAS 1 connector (cable #2 in photo).



A second ES12 can also be connected to the X series. Connect the first ES12 as shown above. Then connect the second ES12, running SAS cables from the ES12 T1 connectors to the SAS 2 connectors on the X series.
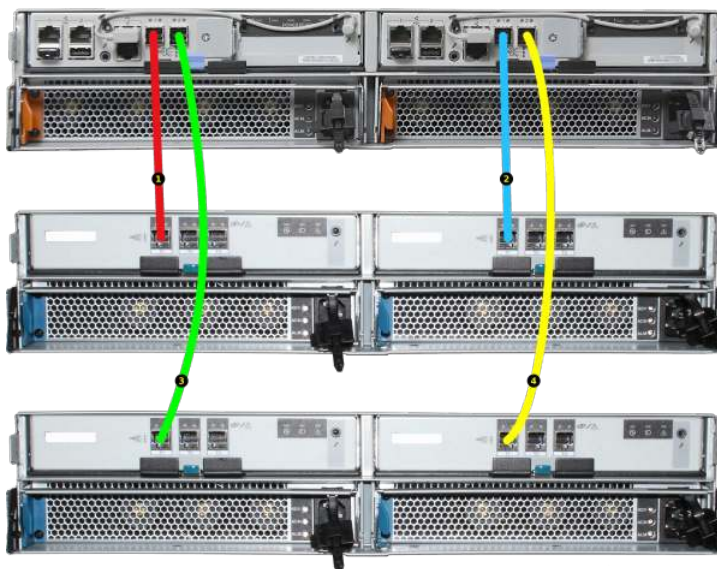


## 1.6 Use with the ES60 Expansion Shelf (X20 Only)

The X20 supports using an ES60 Expansion Shelf in combination with the ES12. Connect the ES60 to the X20 SAS 1 ports, and connect the ES12 to the X20 SAS 2 ports.
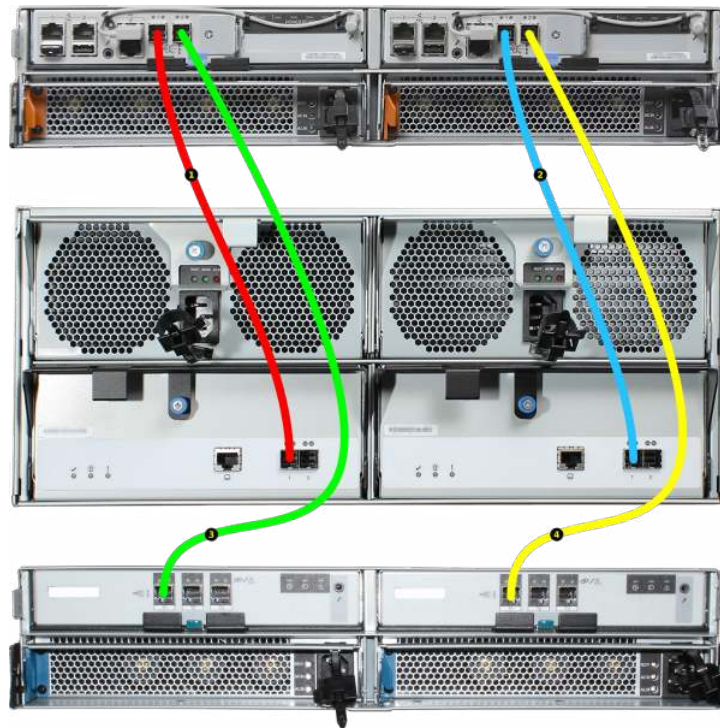
After all SAS cables have been connected, plug the X series power cords into power outlets.

## 1.7 Install Bezel (Optional)

The included bezel is not required for operation. If desired, install the bezel by aligning it with the pins on the bezel ears and pressing it into place.

# 2 User Guide

The TrueNAS® User Guide with complete configuration instructions is available by clicking *Guide* in the TrueNAS® user interface or at https://support.ixsystems.com/truenasguide/truenas.html.

# 3 Contacting iXsystems

For assistance, please contact iX Support:

| Contact Method | Contact Options |
|---|---|
| Web | https://support.ixsystems.com |
| Email | support@iXsystems.com |
| Telephone | Monday - Friday, 8:00AM to 5:00PM Pacific Standard Time:<br>• 1 (855) 473-7449 option 2 (US-only toll-free)<br>• 1 (408) 943-4100 option 2 (local and international) |
| Telephone | After Hours (24x7 Gold Level Support only):<br>• 1 (855) 499-5131 (US-only toll-free)<br>• 1 (678) 835-6101 (local and international) |