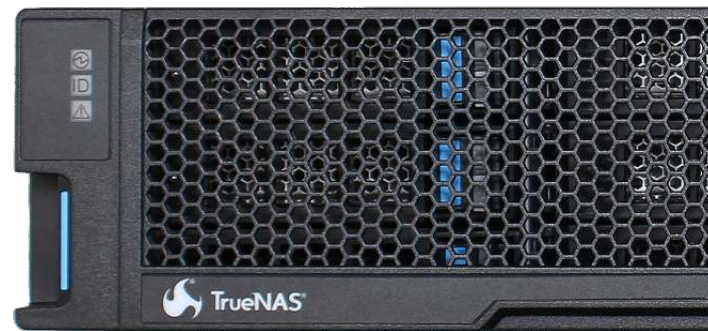


TrueNAS[®] X-Series Unified Storage Array Basic Setup Guide

Version 1.3



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1 X-Series Unified Storage Array

The TrueNAS® X-Series Unified Storage Array is a 2U, 12-bay, hybrid unified data storage array.

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 **855-GREP4-iX** (855-473-7449) or 408-943-4100.

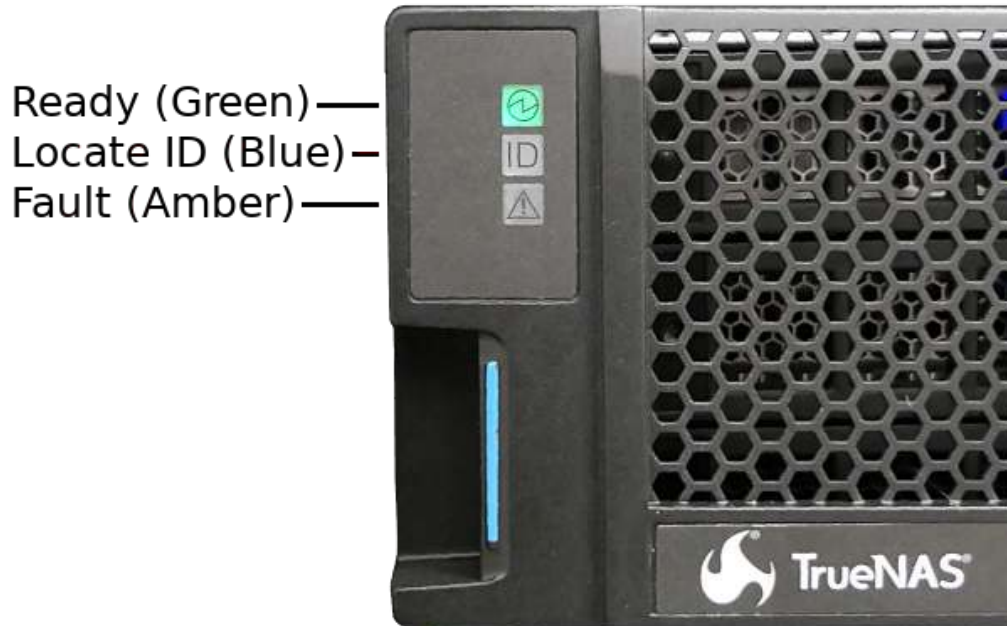
Please locate and record the hardware serial numbers on the back or side of each chassis for easy reference.

Carefully unpack the shipping boxes and locate these components:

 <p>X-Series Unified Storage Array</p>	 <p>X-Series Bezel</p>
 <p>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.</p>	 <p>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.</p>
 <p>Accessory kit with 2 IEC C13 to NEMA 5-15P power cords, 2 IEC C14 to C14 cords, and velcro cable ties</p>	 <p>Black USB to 3.5mm, 3.3V serial cable and rail extenders for racks over 30” deep</p>

1.1 Become Familiar With the X-Series System

The X-Series 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. See the Alert section in the Additional Options chapter of the TrueNAS® [User Guide](https://www.ixsystems.com/documentation/truenas) (<https://www.ixsystems.com/documentation/truenas>).



The X-Series has one or two storage controllers in a side-by-side configuration.

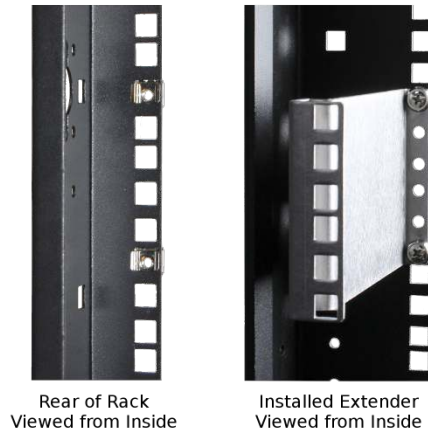


1,2: Gigabit Ethernet connectors	7,8: HDmini SAS3 connectors 1 and 2
3: USB device (reserved, <i>do not remove</i>)	9: PCIe x8 expansion port
4: USB 2.0 connector	10: System console port (reserved)
5: Out-of-Band (OOB) serial port (3.5mm)	11: MAC address label
6: Out-of-Band Management Ethernet connector	12, 13: Redundant power supplies

1.2 Rail Kit Assembly

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

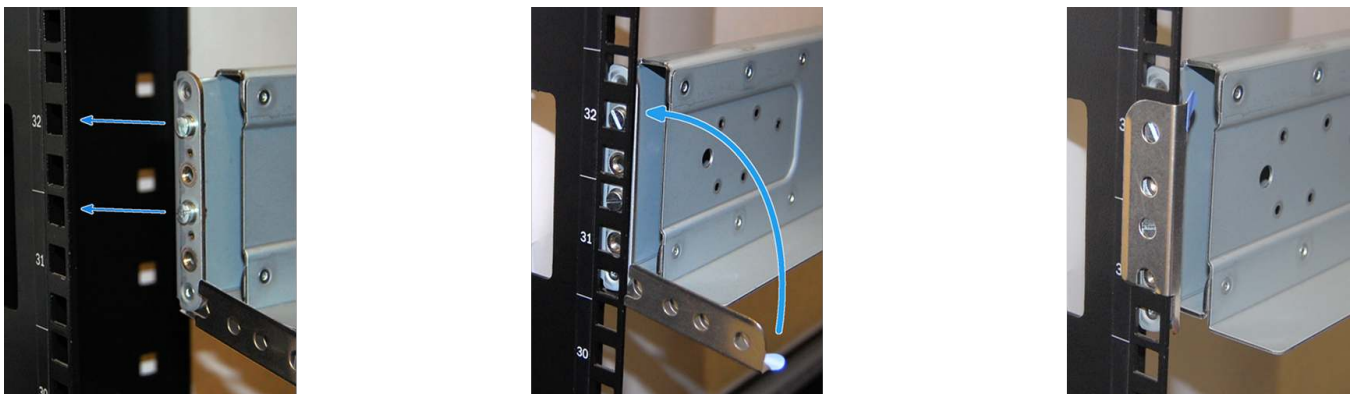
Racks from 31 to 36 inches deep require installation of the included rail extenders. For these deeper racks, install cage nuts on the outside rear of the rack. **The tabs on the cage nuts must be horizontal as shown.** Using the included bolts, install the rail extender inside the rear of the rack. Repeat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



If not already present, 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, amber if a fault has occurred, or solid blue and blinking amber if the drive is a hot spare.

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 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 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 write cache (W) SSD, a read cache (R) 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 Expansion Shelves

Refer to the installation instructions included with expansion shelves for details on connecting them.

1.5 Connect Network Cables

Note: Network cables vary by configuration and are not included. Please contact *ix Support* (page 11) with any questions.

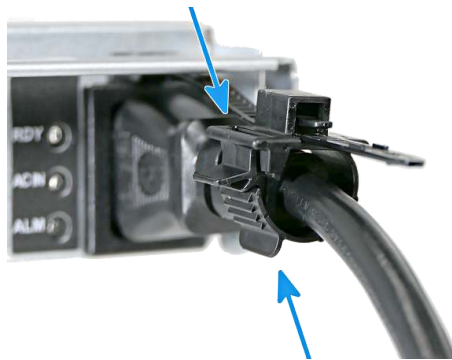
Connect network cables to the Ethernet ports and Out-of-Band (OOB) management port before attempting to power on and configure the X-Series for the first time.

The Out-of-Band (OOB) management port on the X-Series must be connected to a shielded Ethernet cable.

1.6 Connect Power Cords

If any TrueNAS® expansion shelves are connected to the X-Series, power them on first, then wait at least two minutes before connecting power cables to the X-Series.

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.



After both power cords have been connected to the X-Series, they can be plugged into power outlets. The system is configured to automatically power on when connected to a power outlet. This design ensures that the X-Series comes back on when power is restored after a power failure.

If remote physical power disconnection is desired, the X-Series can be connected to a remotely-managed PDU (Power Distribution Unit).

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.

1.8 Discover Out-of-Band Management IP Address

A functioning Out-of-Band Ethernet port IP address is required for remote support. Immediately configuring the OOB IP address and testing the network connection is strongly recommended. Several methods are available to determine the IP address currently assigned to the X-Series Out-of-Band management interface.

1.8.1 Preset

If the system was preconfigured by iXsystems, the Out-of-Band management interfaces have already been configured with the IP addresses requested by the user.

Otherwise, the Out-of-Band management IP addresses are set by default to static addresses:

Storage controller 1: *192.168.100.100*, subnet mask *255.255.255.0*

Storage controller 2 (if present): *192.168.100.101*, subnet mask *255.255.255.0*

1.8.2 DHCP

If the Out-of-Band management IP address has been configured to be assigned by DHCP, the IP address assigned by the DHCP server can be determined by checking the local DHCP server logs for the MAC addresses on the back panel of each X-Series storage controller, #11 on [Figure 1.1](#).

The local DHCP server can also be configured to provide a fixed IP address for the X-Series Out-of-Band management by using the MAC address.

1.8.3 Serial Cable

The Out-of-Band management IP address can be identified or changed by temporarily connecting the black USB serial cable to the Out-of-Band serial port, #5 on [Figure 1.1](#). Connect the USB end of the black cable to a laptop or desktop computer running serial terminal software.

Do not use the serial port for any purpose except checking the initial X-Series Out-of-Band management IP address or setting that address to be obtained by a different method. **After use, disconnect the black USB serial cable from the X-Series.**

Warning: The black USB serial cable is only for use with the Out-of-Band serial port on the X-Series. Do not attempt to use it with any other equipment.

1.8.3.1 Out-of-Band Serial Terminal Communication Settings

Serial Port Device Names

The name of the serial port varies with operating systems. These are some typical examples: Windows: COM4, macOS: `/dev/tty.usbserialxynnn`, FreeBSD: `/dev/cuaU0`, Linux: `/dev/ttyUSB0`.

Serial Port Communication Parameters

Set the serial terminal program to use the appropriate port with these parameters: *38400 baud, 8 data bits, 1 stop bit, no parity, no flow control*. Log in to the serial console with:

Username: **sysadmin** Password: **superuser**

The current Out-of-Band management IP address is displayed with:

```
ifconfig eth0 | grep 'inet addr'
    inet addr:10.20.1.227 Bcast:10.20.1.255 Mask:255.255.254.0
```

The current Out-of-Band network configuration settings are displayed with:

```
ipmitool -H 127.0.0.1 -U admin -P admin lan print
```

The Out-of-Band management system can be set to obtain an IP address from DHCP with:

```
ipmitool -H 127.0.0.1 -U admin -P admin lan set 1 ipsrc dhcp
```

The Out-of-Band management system can be set to use a static IP address and netmask. This example shows setting the IP address to *192.168.100.100* with a netmask of *255.255.255.0*, and a default gateway of *192.168.100.1*:

```
ipmitool -H 127.0.0.1 -U admin -P admin lan set 1 ipsrc static
ipmitool -H 127.0.0.1 -U admin -P admin lan set 1 ipaddr 192.168.100.10
ipmitool -H 127.0.0.1 -U admin -P admin lan set 1 netmask 255.255.255.0
ipmitool -H 127.0.0.1 -U admin -P admin lan set 1 defgw ipaddr 192.168.100.1
```

Log out of the Out-of-Band management system by typing `exit` and pressing `Enter`. **After use, disconnect the black USB serial cable from the X-Series.**

1.9 Connect to the X-Series Console

1.9.1 With IPMI

Note: The IPMITool remote management utility must be installed on the laptop or desktop computer used to manage the X-Series remotely, and that computer must have access to the same network as the X-Series. FreeBSD, macOS, and Linux have package systems which can be used to install [IPMITool](https://sourceforge.net/projects/ipmitool/) (<https://sourceforge.net/projects/ipmitool/>). For Windows, a simple option is to install IPMITool through [Cygwin](https://www.cygwin.com/) (<https://www.cygwin.com/>).

Warning: Only use IPMITool for remote IPMI management on the X-Series. Other IPMI utilities may not work correctly or even damage the X-Series system.

When the Out-of-Band management IP address has been determined, the X-Series console is accessible through IPMI. In this example, *192.168.100.100* is the IP address assigned to the Out-of-Band management interface:

```
ipmitool -I lanplus -H 192.168.100.100 -U admin -a sol activate
```

Enter **admin** for the password, and the X-Series console is connected.

Tip: When a Serial Over LAN connection is already in use, `SOL on another session` is displayed when a laptop or desktop computer attempts to connect. The Serial Over LAN system can be reset from the remote laptop or desktop computer with:

```
ipmitool -H 192.168.100.100 -U admin bmc reset cold
```

Enter **admin** for the password, and the Serial Over LAN system is reset. Repeat the `sol activate` command above to connect.

The Serial Over LAN system can also be reset with the Out-of-Band serial port by attaching the black USB serial cable, connecting with a serial terminal program, and logging in as shown in [Serial Cable](#) (page 7). Then use

```
ifconfig eth0
```

to view the IP address of the `eth0` network interface. Use the IP address, shown as *eth0ipaddress* in this example, in the reset command:

```
ipmitool -H eth0ipaddress -U admin bmc reset cold
```

Enter **admin** for the password, and the Serial Over LAN system is reset. Log out of the system with `exit` and disconnect the black USB serial cable from the X-Series system.

Tip: The Out-of-Band console password can be changed by attaching the black USB serial cable, connecting with a serial terminal program, and logging in as shown in [Serial Cable](#) (page 7). Then give this command to set the new password, shown as *newpassword* in this example:

```
ipmitool -H 127.0.0.1 -U admin -P admin user set password 2 newpassword
```

Log out of the system with `exit` and disconnect the black USB serial cable from the X-Series system.

Proceed to [Using the X-Series Console](#) (page 11).

1.9.2 With the Serial Cable

The X-Series console can be directly connected to a serial terminal program by temporarily disconnecting the gray serial cable from the system console serial port, #10 on [Figure 1.1](#), and temporarily connecting the black USB serial cable to that port.

Connect the USB end of the black USB serial cable to a laptop or desktop computer running serial terminal software. See [Out-of-Band Serial Terminal Communication Settings](#) (page 7) for the serial device name. Set the terminal software to:

115200 baud, 8 data bits, 1 stop bit, no parity, no flow control

Wait two minutes after the X-Series has been connected to power, then press `Enter` to display the console menu. Find the message starting with `The web user interface is at:` and write down the IP address shown. **After viewing the X-Series console, disconnect the black USB serial cable and reconnect the gray System Management cable** to the system serial console port, #10 on [Figure 1.1](#).

1.10 Using the X-Series Console

The X-Series console has two modes: SES (SCSI Enclosure Services) mode, and the standard x86 console mode.

If `ESM A =>` is displayed, the X-Series is in SES mode. Switch to the X86 console mode by typing these characters:

```
$%^0
```

Press `Enter` twice after typing the characters. The normal x86 console is displayed.

To switch back to the SES console, type these characters:

```
$%^2
```

1.11 Perform TrueNAS® Initial Software Configuration

The console displays the IP address of the TrueNAS® X-Series graphical web interface, `192.168.100.231` in this example:

```
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.

1.12 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: <ul style="list-style-type: none">• 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): <ul style="list-style-type: none">• US-only toll-free: 855-499-5131• International: 408-878-3140 (international calling rates will apply)