NEXSAN UNITY4400 Storage System
Quick Start Guide

NEXSAN

Firmware Version 6.0

This document provides installation steps for racking, cabling, and setting up the Nexsan UNITY4400 Storage System and cabling all Nexsan storage components for power and data/host connectivity. For additional documentation please visit http://helper.nexsansupport.com/unt_support.html
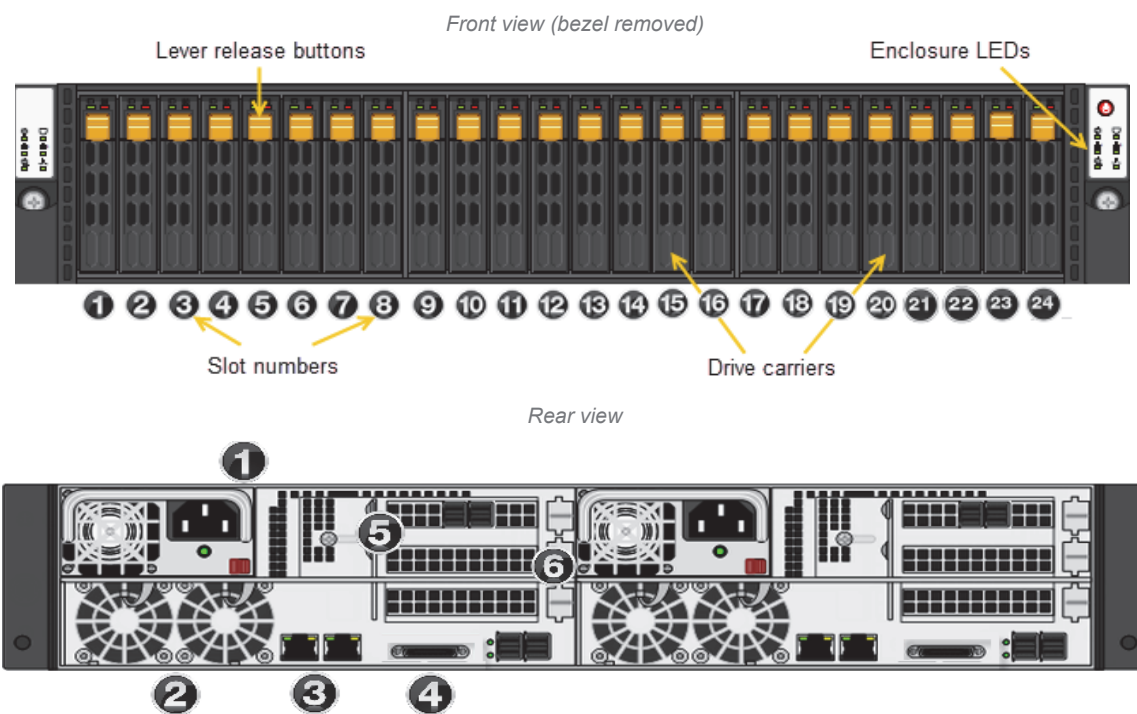
Taking delivery

Your Unity shipment includes the UNITY4400, and one or more Unity Storage Expansions, depending on your configuration. Check to ensure that no damage has been sustained to the packaging in transit. If anything appears to be damaged, you should file a damage claim with your reseller.

Hardware overview

The main components of the UNITY4400 are shown in these diagrams:

Front view (bezel removed)

Rear view

Item	Name	Description
1	Power supply unit	1200W Redundant Power Supplies with PMBus
2	Fan assembly	4x 80mm and 4x 40mm PWM cooling fans Redundant cooling
3	On-board 10GbE LAN ports (2 per node)	• Right port: Primary data network interface (nx0 - optional) • Left port: Management Interface (nx99) and IPMI interface **NOTE:** If using a 1GbE port for the management interface, these ports will be used for data, with the left port still being used for the IPMI interface.
4	KVM connections	USB, VGA, and Serial connections for remote console access to the Unity Storage System
5	Storage connectivity	Dual-port SAS PCIe to HD Mini-SAS (Serial Attached SCSI) HBA (host bus adapter)
6	Optional host connectivity (up to two):	You can use these slots for additional host connections, which can be any of these supported NICs: • 10GbE dual-port HBA with RJ-45 interfaces • 10GbE dual-port HBA with SFP+ optical interfaces • 8Gb FC dual-port HBA • 16Gb FC dual-port HBA • 1GbE quad-port HBA with RJ-45 interfaces • 1GbE dual-port HBA with RJ-45 interfaces

1 Prepare for installation

A Carefully read safety notices on *page 8*.

B Ensure ahead of time that you have a suitable rack; see *Rack and enclosure specifications* on *page 8*.

C Ensure that you have a Phillips screwdriver.

D Have someone assist you during installation.

> ⚠️ **CAUTION:** Acclimate new disk drives to room temperature for two hours before you install them.

UNITY4400 package contents

- One UNITY4400 Storage System (with front bezel)
  - 2 outer-rack rail assemblies (inner-chassis rails are already installed)
  - 4 mounting screws with 4 washers to attach outer-rack rails to the rack (1 on the front and 1 on the back for both the left and right rail assemblies)
  - 2 long screws to secure the chassis to the rack from the front (attached to the chassis)
- FASTier SSD and HDD drives. (Check that the components included in your shipment correspond to your packing slip.)
- Four SAS cables (HD Mini SAS to HD Mini SAS)
- Two power cables
- Two KVM leads
- One electrostatic discharge (ESD) wrist strap

2 Unpack the UNITY4400

A Remove all the components from the packaging. Reach under the chassis to pull it free from the foam insert.

Do NOT lift the UNITY4400 chassis from its packaging using the controller handles or attached rails.

B Place the components on an anti-static surface until you are ready to use them.
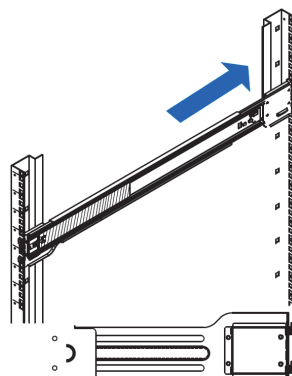
3 Rack the UNITY4400

> ⚠️ **CAUTION:** Physical installation requires two people.

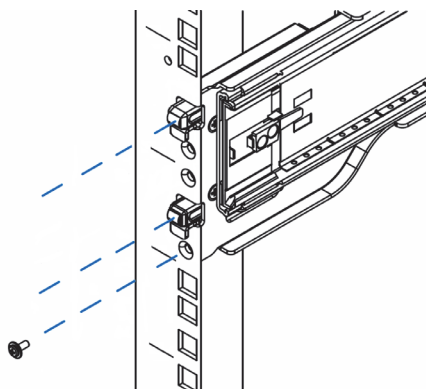### ▶ Step 1: Install the outer-rack rails on the rack

A Attach the **RIGHT** and **LEFT** outer-rack rails to the rack by inserting the hooks included on the rails into the holes provided on the rack.

The hooks should be located in the BOTTOM holes of the rack units selected.

B Extend rail assemblies to fit the depth of the rack. Pull on the rear of the assembly until the hooks reach the back of the rack.
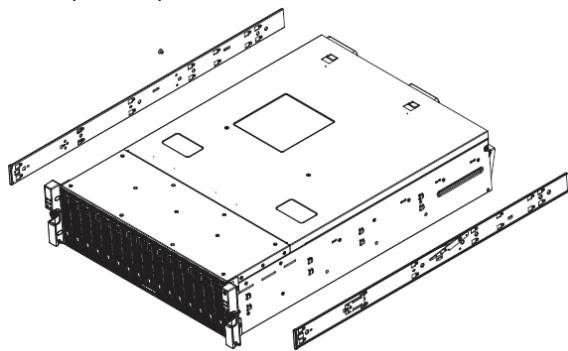

C Screw the rails to the rack using the mounting screws provided.

The screws should be secured in the BOTTOM hole of each of the rails.

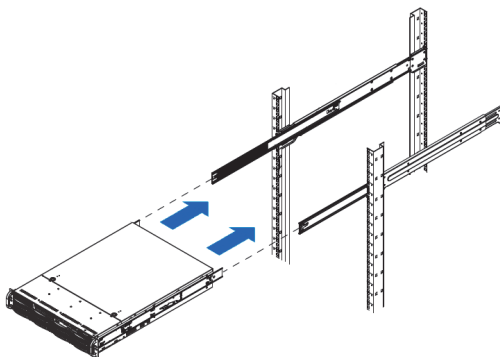### ▶ Step 2: Install the inner chassis rails on the chassis (if necessary)

A Extend the inner rail toward the front of the rail assembly as far as possible, then depress the locking tab to pull it completely out.

B Place the inner rail on the side of the chassis aligning the hooks of the chassis with the rail extension holes.

C Slide the extension toward the front of the chassis.

D If desired, secure the chassis with screws.
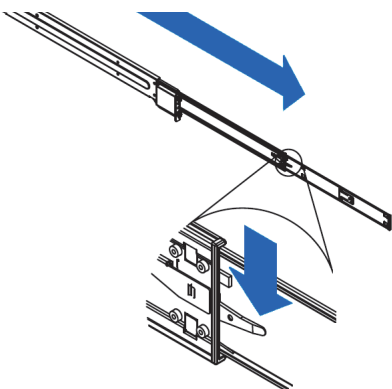
E Repeat steps A-D for the other inner rail.

▶ Step 3: Install the UNITY4400 on the rack

A Lift the UNITY4400 chassis from each side—not from the front and back.

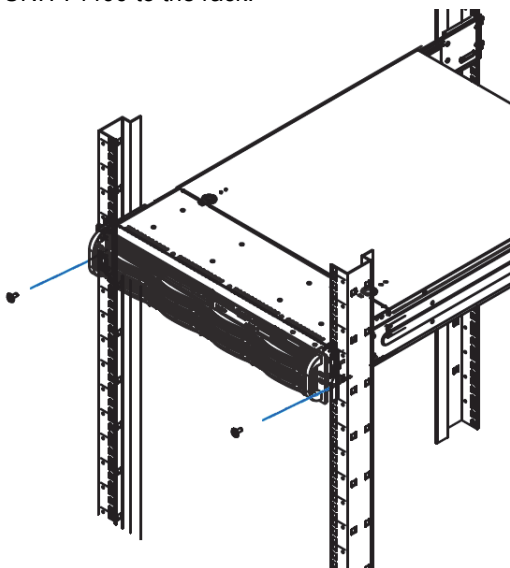**B** Line up the inner-chassis rails with the front of the outer-rack rails.

C Slide the inner-chassis rails into the outer-rack rails, keeping the pressure even on both sides; you have to depress the locking tabs as you insert them.

D Push the UNITY4400 completely into the rack; you should hear the locking tabs click into position.

E Tighten the thumbscrews that hold the front of the UNITY4400 to the rack.

▶ **Step 4: Install the disk drives and FASTier SSDs**

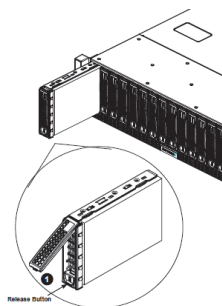⚠ **CAUTION:** Put on the ESD wrist strap before starting:

  A Slip the wrist loop over your hand (left or right), then tighten the loop against your wrist.

  B Attach the clip end of the anti-static wrist strap to a properly grounded metal surface.

Installation order:

1 Install the FASTier SSDs in the slot as indicated on the label on the drive.

2 Install the disk drives in any order in the remaining slots.

To install the drives:

A Slide the release button on the front of the drive carrier and open the handle.

B Insert the hard-drive carrier into the drive bay until the carrier contacts the backplane.

C Close the hard-drive carrier handle to lock the drive in place.

D Repeat these steps for each drive.

4 Install the Unity Storage Expansion

Unpack and install any Unity Storage Expansions included in your Unity shipment.

For detailed instructions, refer to the appropriate *Nexsan Unity Storage Expansion Quick Start Guide* included in the Unity packaging.

5 Connect the UNITY4400

This section describes the steps for connecting the network, power, and KVM cables, and for connecting a Nexsan Unity Storage Expansion(s) to the UNITY4400.

NOTE: The Unity Storage System is hot pluggable: It is not necessary to power down the system to add Unity Storage Expansions.

▶ **Step 1: Connect the network cables**

A For management access on the nx99 interface as well as the IPMI interface, plug an Ethernet cable into the on-board **LEFT** port.

B For data access on nx0, plug appropriate cables into the network interface cards.

C Repeat these steps on the second controller.

▶ **Step 2: Connect your power supply**

Each UNITY4400 PSU must be connected to your storage rack's source of power, for continuous power and controller connectivity. Using the two supplied

power cords, connect each PSU to main power, making sure to fold down the power cord retaining clip over each one.

A Connect the power cables.

B Using the two supplied power cords, connect each PSU to A/C power.

▶ Step 3: Connect the KVM dongles

- Plug in the included KVM cable into the KVM port on the back of each controller box.

▶ Step 4: Connect to Unity Storage Expansion (if applicable)

You can connect up to three of any type of Unity 2.0 or later Storage Expansion (except the UNITY2200X). If you have more than one Unity Storage Expansion, connect the remaining units in parallel.
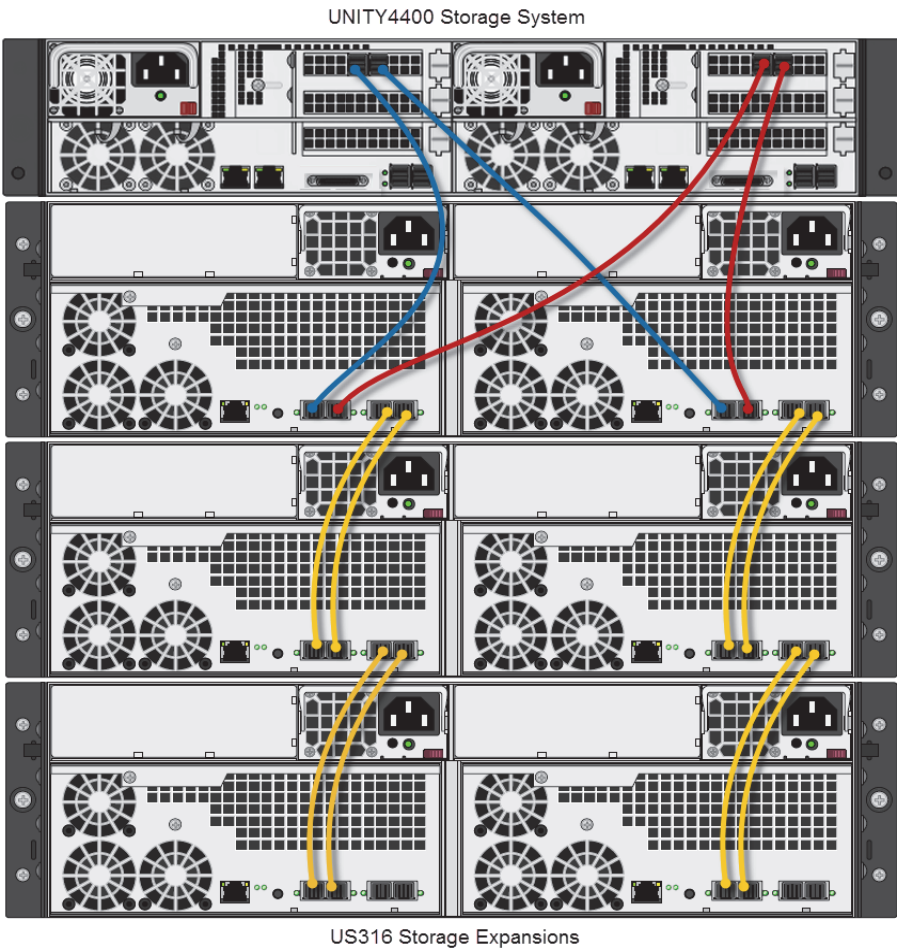
A Cross-connect, as shown below, from opposite controllers on the Unity Storage System so that in the event of the failure of one controller, the other nodes in the array can remain in service.

B Connect any additional storage expansions using the daisy chain method, also as shown.

> ⚠ **CAUTION:** Do not connect to the Unity Storage Expansion from the on-board SAS ports on the UNITY4400.

For detailed connection steps, refer to the *Nexsan Unity Storage Expansion Reference Guide* at www.nexsan.com/ (see Support > Unity > Documentation and Online Help).
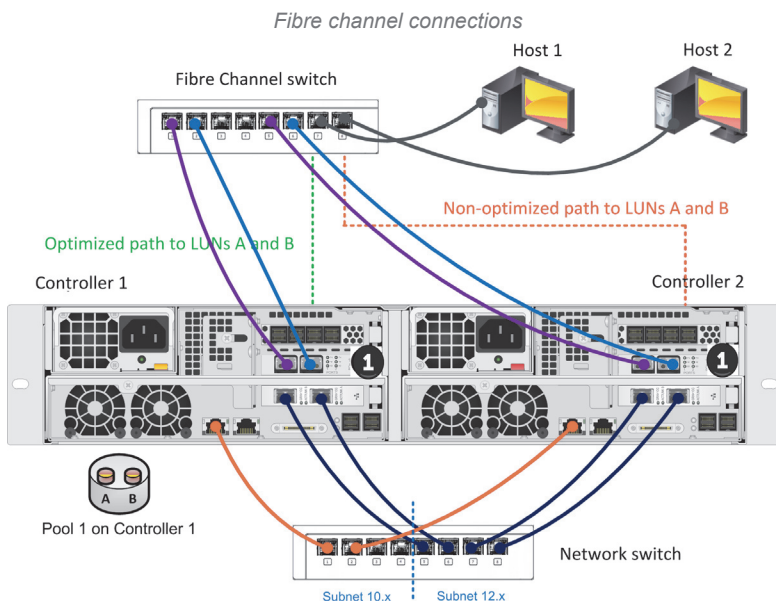
UNITY4400 Storage System

US316 Storage Expansions

▶ Step 5: (Optional) Connect to a Fibre Channel host

Under the required LUN mask configuration, when connecting the UNITY4400 to a Fibre Channel switch, each host has at least one connection to each controller using a port on the switch.

One port on each controller is the optimized path for data connectivity and the other is the non-optimized path. For a given LUN, all the paths on the owning controller are optimized and all the paths on the other controller are non-optimized.

- Connect a Fibre Channel cable from that same host to one of the Fibre Channel HBA ports (1) on the back of the second UNITY4400 controller. See *Fibre channel connections*

Fibre channel connections

6 Power on Unity components

Power on the Unity components in this sequence:

A Power on your Unity Storage Expansions.

B Power on UNITY4400.

NOTE: If a drive carrier activity LED does not light up, check to make sure the corresponding drive is properly seated in the chassis.

▶ Step 1: Power on your Unity Storage Expansion

- Press and hold the power button located on the right front panel of the chassis until the power LED lights up.

▶ Step 2: Power on the UNITY4400

A Press and hold the power button located on the right front panel of the chassis until the power LED lights up.

B Verify that the power LEDs on the left and right front control panels are illuminated to ensure that the controller nodes are receiving power and the power modules are functioning properly.

C Verify that the heartbeat LED is blinking yellow in 2-3 second intervals.

D Verify that the drive carrier LEDs are illuminated in green.

E If all LEDs indicate normal operation status, reattach the front bezel to the UNITY4400 Storage System:

a Remove the bezel from its packaging.

b Hook the left end of the bezel onto the chassis.

c Fit the free end of the bezel onto the chassis.

d Turn the key lock at the right end of the bezel to the lock position to secure the bezel to the chassis.

7 Monitor the Unity Storage System

This section describes the front panel LEDs that help you monitor the Nexsan Unity Storage System.

Control panel LEDs

The two control panels located on the front left and right sides of the Unity system have several LEDs. These LEDs provide you with critical information related to the corresponding node.

If the Fan fail LED or Power fail LED illuminates, replace the component as described in the *Nexsan Unity Storage Expansion Reference Guide*.

LED	Indication
	Power Indicates power is being supplied to the system's power supply module. This LED is illuminated when the system is operating.
	Heartbeat This is a Controller heartbeat LED and indicates that power is being supplied to the Controller.

LED	Indication
	NIC1 Indicates network activity on the LAN1 port when flashing.
	NIC2 Indicates network activity on the LAN2 port when flashing.
	Power fail Indicates that a power supply module has failed. The second power supply module takes the load and keeps the system running, but the failed module should be replaced as soon as possible. This LED should be off when the system is operating normally.
	Fan fail When flashing, this LED indicates a fan failure. When illuminated continuously, this LED indicates an overheated condition, which may be caused by cables obstructing the airflow in the system or the ambient room temperature being too high. Check the routing of the cables and make sure all fans are connected and operating normally. You should also check to make sure that the chassis covers are installed. This LED remains flashing or illuminated as long as the error condition exists.

Drive carrier LEDs

Each drive carrier has two LEDs. If a drive fails, replace the drive as described in the *Nexsan Unity Storage Expansion Reference Guide* at www.nexsan.com/ (see Support > Unity > Documentation and Online Help).

LED	Indication
Green	• A steady green LED indicates the drive is powered on. • If this LED is not lit, the drive is not getting power. • If this LED is flashing, the drive is being accessed (read or write).
Red	• A steady red LED indicates a drive failure.

8 Configure the Management Interface (nx99)

Configure network settings for the management interface (nx99): using the nxadmin CLI.

NOTE: It is strongly recommended to configure the management interface (nx99) on a different subnet from the primary data network interface (nx0). In a flat network environment, it is acceptable to configure both interfaces on the same subnet.

▶ Configure the management interface (nx99) using the nxadmin CLI

A Connect to the UNITY4400 via KVM (console). See *Step 3: Connect the KVM dongles*.

B When connected, type `nxadmin` to log on.

C Type the default nxadmin password: **PASSWORD** (all upper-case).

D Type `setip`.

E Type IP addresses for the management interface; use the Tab key to navigate between fields.

NOTE: Do not set the network settings for the primary data network interface (nx0); you configure this interface in the Unity System Configuration wizard.

F Tab to the **<Validate>** option and press **Enter**.

G Once validation completes, tab to the **<OK>** option and press Enter.

9 Set Up the UNITY4400

▶ Start the initial setup

A Open a supported Web browser, such as Google Chrome or Internet Explorer.

B In the address bar, type the UNITY4400 Management Virtual IP address and press **ENTER**.

C Read the terms of the license agreement.

D Click the **I accept the terms of the license agreement** check box and click the **Next** button to continue.

▶ Set the password for the Unity Administrator

The UNITY4400 is shipped with the built-in Unity Administrator account, **nxadmin**.

- Enter the new password and retype it to confirm, then click the **Set Password** button.

The **Unity System Configuration wizard** opens.

▶ Step 1: Configure Unity System properties

Enter the Unity System information.

A Enter a **Unity System Name**.

B Optionally, select a **Server Time Zone**.

C Optionally, select **Unity CallHome** settings.

D Click the **Next** button to continue.

▶ Step 2: Configure network settings

A Enter IP addresses for the Primary Data Network Interface (nx0).

In the examples shown, with the exception of the subnet mask, the last digit of the network addresses increments from 0 to 10 (or 190 to 200). This practice is a useful standard if you need to manage multiple systems.

B Set the Management Interface (nx99) IP addresses, ideally on a separate subnet.

NOTE: It is strongly recommended to configure the two management interfaces on separate subnets. In a flat network environment, it is acceptable to configure both interfaces on the same subnet.

C Set the Gateway and DNS addresses for all network interfaces.

NOTE: The Default Gateway address should be in the same domain as the Primary Data Network (nx0).

D Click the **Next** button to continue.

▶ Step 3: Configure IPMI settings

This step prompts you to configure the Intelligent Platform Management Interface (IPMI) settings. To enable IPMI for Unity, you must connect a network cable to the second on-board 1 Gb LAN port at the back of each controller on the Unity Storage System enclosure. This second LAN port is located at the bottom of each controller, closest to the bottom of the controller box.

A Enter IP addresses for Controller 1, Controller 2, and the IP Subnet and IPMI Gateway.

B Enter and confirm the IPMI password.

C Click the **Next** button to continue.

▶ Step 4: Allocate storage

This step prompts you to allocate RAID storage.

A Click **Allocate** to assign the storage system to the UNITY4400.

B Click **Configure** to specify RAID settings. Recommended RAID set levels, number of RAID sets, hot spares, and volume names are preconfigured.

C Click the **Apply** button to apply the RAID settings and then repeat for the second controller.

D Click the **Next** button to continue.

▶ Step 5: Verifying configuration settings

In this step, review the summary of the settings you have set up.

- To change a configuration setting, click the step identifier at the top of the System Configuration wizard panel to go back to a specific step. For example, if you want to change the Unity System name, click the Step 2 icon.
- To finalize the Unity Storage System setup, click **Create**.

▶ Step 6: Applying configuration settings

The System Configuration wizard applies your settings, displaying the progress as the wizard configures Unity.

- When Unity System configuration is complete, you can open the **Add Storage Pool** wizard, OR
- Click **No I'm finished** to close the wizard.

Unity opens and displays the dashboard, where you can view **Cluster Status**, **Events**, **Storage System** statistics, **Storage Pools**, **File Systems**, and **LUNs**.

▶ What's next

Please see the *Unity Setup Guide* included with your Unity System for setup instructions for:

- Authentication
- Adding a storage pool, file system and LUN
- Mounting an iSCSI LUN on a Windows client
- Mapping a CIFS file system to a Windows client

⚠ Safety notices

- This equipment must be installed and operated in compliance with local laws and regulations.
- Ensure that the ambient temperature at the installation site is between 5°C (41°F) and 30°C (86°F). If the temperature at the site is not actively regulated, ensure that daily and seasonal temperature changes will not result in the ambient temperature going outside these limits.
- Always fully stabilize racks with wall anchors or stabilizing legs, or both, before mounting the Nexsan storage system or any other components on the rack.
- Situate the rack so that full air flow at both the front and the rear of the Nexsan storage system is possible.
- Ensure that the floor beneath the mounting rack has enough load-bearing capacity to support the rack and all mounted components.

- Always fully secure all rack-mounting hardware when installing the Nexsan storage unit in a rack. Insufficient rack-mount support may allow the unit to fall onto other rack-mounted hardware or onto the floor, potentially damaging equipment or causing injury to nearby personnel.

Rack and enclosure specifications

Rail kit mounting

- 2U enclosure height
- The rack must have square holes
- Maximum distances: 30" (800 mm)

Enclosure dimensions

- Height: 3.5"   88 mm
- Width: 17.2"   437 mm
- Depth: 25.25"   641 mm
- Weight: 67 lbs   30.4 kg (no drives installed)
            114 lbs   51.7 kg (all drives installed)

Power requirements

Power supply:
- AC Input:
  - 1000W Output @ 100-127V, 12-15A, 50-60Hz
  - 1200W Output @ 200-240V, 7-8.5A, 50-60Hz
- DC Output:
  - 1000W: +12V/83A; +5Vsb/4A
  - 1200W: +12V/100A, +5Vsb/4A
- Power consumption: varies depending on the number and size of drives, running fans, and room temperature