NEXSAN UNITY NV10000 Storage System Quick Start Guide

NEXSAN

Firmware Version 7.0

This document provides installation steps for racking, cabling, and setting up the Nexsan UNITY NV10000 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 UNITY NV10000, and one or more Unity Storage Expansions, depending on your configuration. Check to ensure 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 UNITY NV10000 are shown in these diagrams:

Front view (bezel removed)

Rear view

Item	Name	Description
A	Power button	
B	Status LEDs	See page 6 of this guide for LED indication descriptions.
C	Drive bays	Twenty-four 2.5" Hot-swappable NVMe drive bays.
1	Fan assembly	Five 8-cm mid-mounted cooling fans and four 4-cm exhaust fans.
2	Power supply unit	2,000W Titanium level power supply (redundant in device).
3	Dedicated IPMI LAN port	Intelligent Platform Management Interface, for remote access, monitoring, and management.
4	USB 3.0 ports (2)	Can support USB-enabled devices such as keyboard, mouse, USB/SATA DVD drive, or flash drive.
5	VGA port	For VGA display or monitor.
6	Storage connectivity	Quad-port SAS-3 controller with HD Mini-SAS connectors.
7	Internal cooling fan vents (2)	Positioned over rear chassis for optimal cooling.
8	Serial port	For configuration, diagnostics, and emergency maintenance access.
9	Dual RJ45 10GbE LAN Ports	• Left port: Management Interface (nx99) • Right port: Primary data network interface (nx0) (If additional NIC HBA is available, both interfaces are nx99)
10	PCIE 3.0x16 slots (2), Optional host connectivity	Can be used to support the following Network Interface Card (NIC) and Fibre Channel (FC) connections: • Dual port 16G/32G FC • Dual port 40G NIC • Single and Dual port 100G NIC

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.

2 Unpack the UNITY NV10000

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

Do NOT lift the UNITY NV10000 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.

UNITY NV10000 package contents

- One Unity 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)
- Up to twenty-four NVMe SSD drives. (Check that the components included in your shipment correspond to your packing slip.)
- Four SAS cables, HD Mini SAS to HD Mini SAS. (May be optional, check shipment components and packing slip.)
- Two power cords
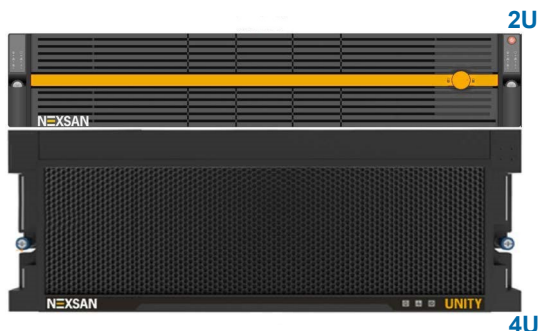- One electrostatic discharge (ESD) wrist strap

3 Rack the UNITY NV10000

> ⚠️ **CAUTION:** Physical installation requires two people.
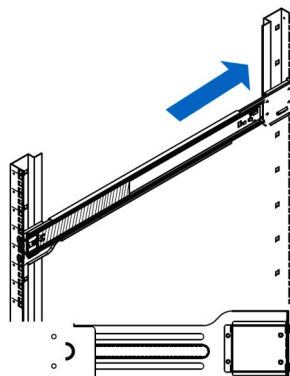
Example rack positions for components:

- UNITY NV10000 on top, Unity Storage Expansion below
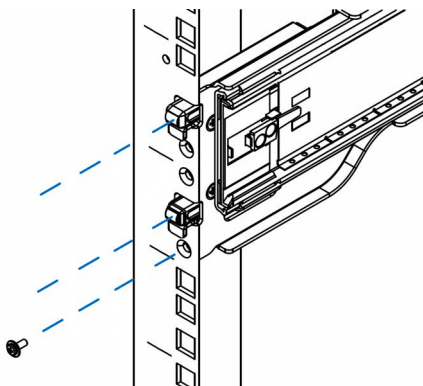
Example of UNITY NV10000 with U2G460

▶ 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.
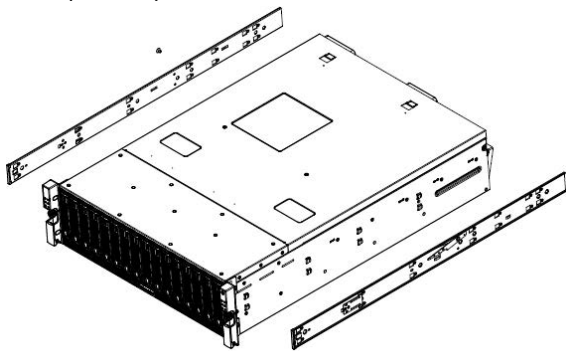

C Screw the rails to the rack using the mounting screws provided.

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.

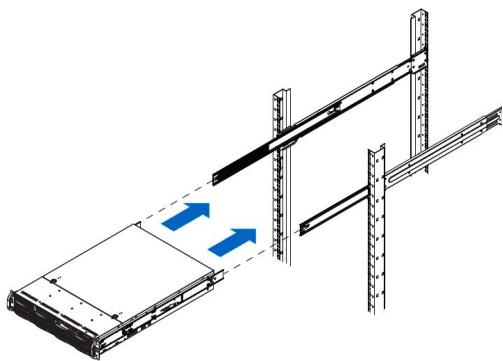**D** If desired, secure the chassis with screws.

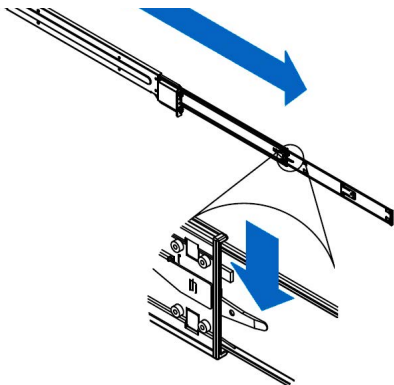**E** Repeat steps A-D for the other inner rail.

▶ Step 3: Install the UNITY NV10000 on the rack

A Lift the UNITY NV10000 chassis from each side—not from the front and back.

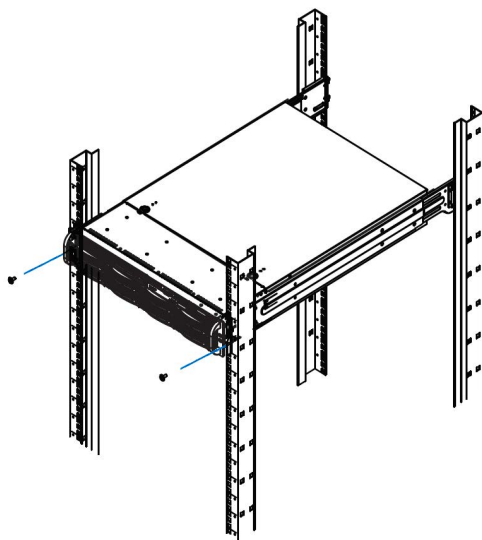**B** Line up the inner-chassis rails with the front of the outer-rack rails.

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 UNITY NV10000 completely into the rack; you should hear the locking tabs click into position.

E Tighten the thumbscrews that hold the front of the UNITY NV10000 to the rack.

▶ Step 4: Install the NVMe 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:

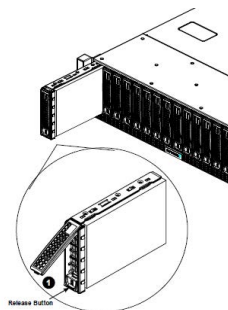- Install the NVMe SSDs in the slots as indicated on the label on the drives.

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 Expansion included in your Unity shipment.

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

5 Connect the UNITY NV10000

This section describes the steps for connecting the network and power cables, and for connecting a Unity Storage Expansion(s) to the UNITY NV10000.

▶ Step 1: Connect network cable to IPMI

A For remote access, monitoring and hardware management, plug an Ethernet cable into the dedicated IPMI LAN port, on back panel top left.

B Repeat this step on the second controller.

For controller connectivity with the Unity Storage System, see *Step 5: Connect to Unity Storage Expansions*.

▶ Step 2: Connect peripherals & monitor

A Connect input devices such as keyboard and mouse using the USB ports.

B If required connect monitor to VGA port.

▶ Step 3: Connect the network cables

A For management access on the nx99 interface, plug an Ethernet cable into the on-board **LEFT** port on controller 1(bottom), as shown.

B For data access on nx0, plug an Ethernet cable into the **RIGHT** Ethernet port (or if using an add-on Ethernet HBA, at minimum the leftmost port must be connected).
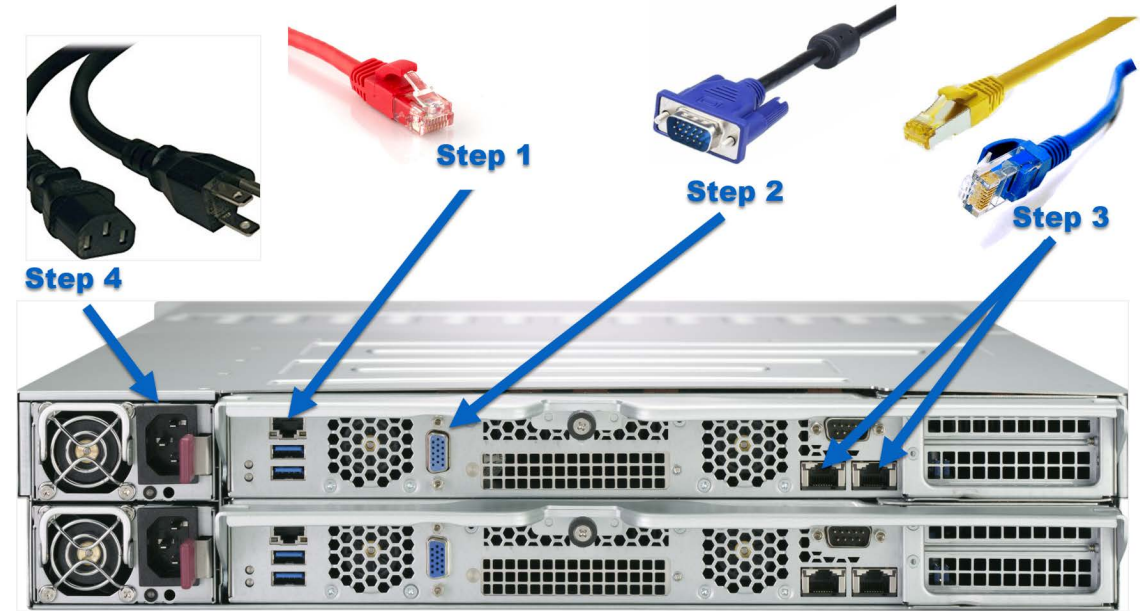
C Repeat this step on the second controller.

▶ Step 4: Connect your power supply

A Each UNITY NV10000 PSU must be connected to your storage rack's source of power, for continuous power and controller connectivity.

B 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.

connections diagram

▶ Step 5: Connect to Unity Storage Expansions

The UNITY NV10000 can connect to one direct Unity Storage Expansion, or with multiple expansions connected to each directly attached Unity Storage Expansion.

If you are adding multiple Unity Storage Expansions, power them on from last to first.

A Cross-connect from the Add-on SAS OUT ports on each storage system controller to the SAS IN ports on the first expansion controllers, as shown in *UNITY NV10000 connected to U2G460(x2)* on *page 5*.
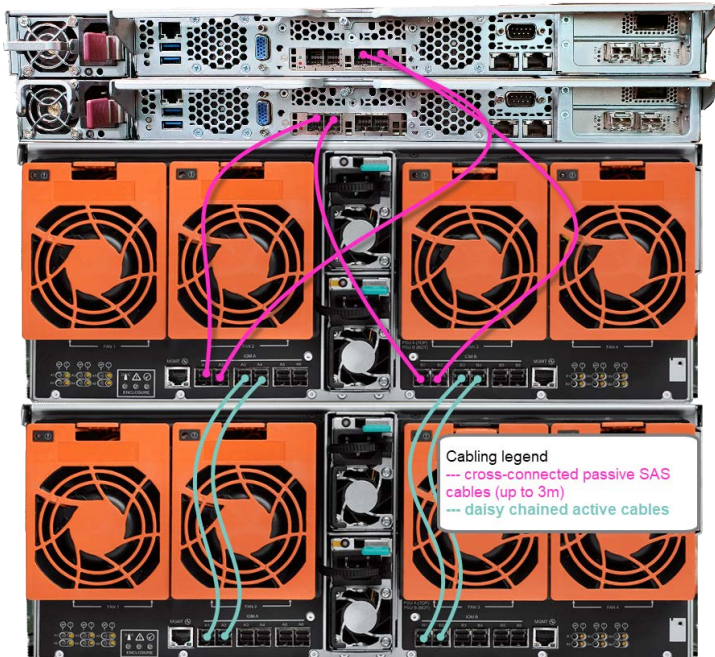
⚠️ **CAUTION:** Do not connect to the Unity Storage Expansion from the on-board SAS ports on the UNITY NV10000.

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

For details about connections and about cascading to more Unity Storage Expansions, please see the

Nexsan Unity Storage Expansion Reference Guide at www.nexsan.com/

NOTE: The Unity Storage System is hot pluggable: Once in service, powering down is not normally required to add a Unity Storage Expansion.
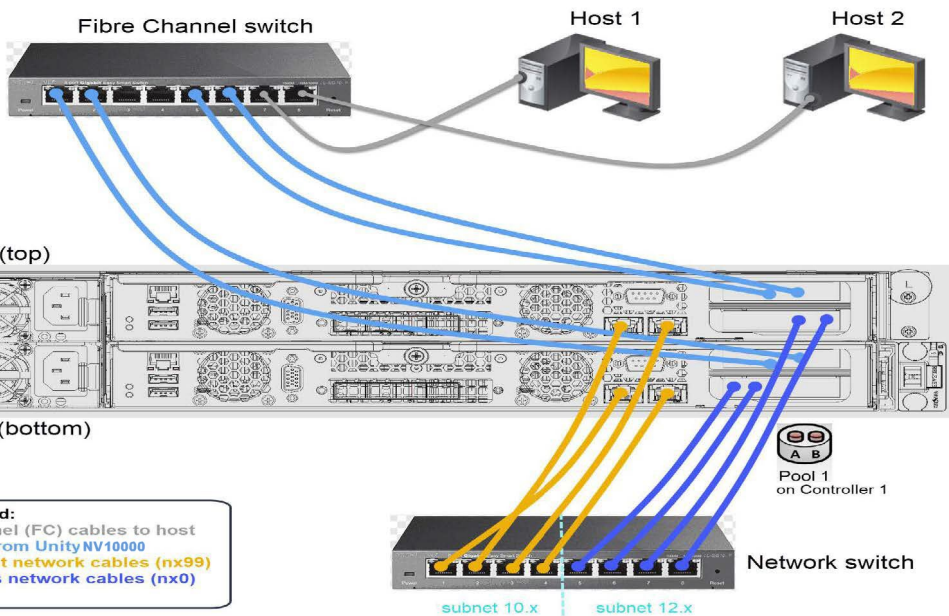
UNITY NV10000 connected to U2G460(x2)

Cabling legend
--- cross-connected passive SAS cables (up to 3m)
--- daisy chained active cables

▶ Step 6: Connect to hosts

Under the required LUN (Logical Unit Number) mask configuration, when connecting the UNITY NV10000 to a Fibre Channel switch, each host has at least one connection to that switch, creating multiple paths to the LUN. For a given LUN, all the paths on the owning controller are optimized and all the paths on the other controller are non-optimized.

File systems can be accessed from the virtual network interface, bound to the owning controller dynamically.

Cabling legend:
-- Fibre Channel (FC) cables to host
-- FC cables from Unity NV10000
-- Management network cables (nx99)
-- Data access network cables (nx0)

subnet 10.x   subnet 12.x

6   Power on Unity components

Power on the Unity components in this sequence:

- Power on your Unity Storage Expansion.
- Power on the UNITY NV10000.

IMPORTANT: 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

A 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 UNITY NV10000

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

B Verify that the power LEDs ⚡ on the top and bottom 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 carriers LEDs are illuminated in green.

E If all LEDs indicate normal operation status, reattach the front bezel to the UNITY NV10000 main unit:

   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 to 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.
	NIC1 Indicates network activity on the LAN1 port when flashing.
	NIC2 Indicates network activity on the LAN2 port when flashing.

LED	Indication
	Power fail Indicates 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 that 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 > Documents & Downloads).

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 (Command Line Interface.

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 UNITY NV10000 using input devices, see *Step 2: Connect peripherals & monitor* on page 4.

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 UNITY NV10000

▶ Start the initial setup

A Open Google Chrome.

B In the address bar, type the UNITY NV10000 Management Virtual IP address in the browser address bar 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 UNITY NV10000 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 Verify 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 Verify 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.
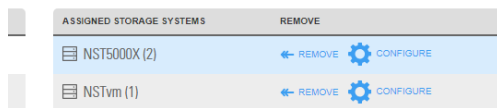
▶ Step 3: Configure IPMI settings

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 dedicated IPMI GbE LAN port on the back top left of each controller of the Unity Storage System enclosure. Enter IP addresses for Controller 1, Controller 2, and the IP Subnet and IPMI Gateway.

E Enter and confirm the IPMI password.

F 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 UNITY NV10000.

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.

- 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 Step 2.
- 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 basic 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 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 Nexsan storage enclosures on the rack.
- Situate the rack so that full air flow at both the front and the rear of Nexsan storage enclosures 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 Nexsan storage enclosures 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

- 2U enclosure height
- The rack must have square holes
- Maximum distances: 30" (800 mm)
- Height: 3.5"   89 mm
- Width: 17.2"   437 mm
- Depth: 25.6"   650 mm
- Weight: 67 lbs   30.4 kg (no drives installed)
              114 lbs   51.7 kg (all drives installed)

Power requirements
- AC Input:
  - 1100W Output @ 100-127V, 12-15A, 50-60Hz.
  - 1200W Output @ 200-240V, 7-8.5A, 50-60Hz
- DC Output:
  - 1100W: +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.