



NEXSAN HIGH-DENSITY STORAGE BEAST™ and E-Series™

Nexsan RAID Storage Plugin
for VMware vCenter
User Guide

Part number: D6200052 Rev: A

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About this document

This user guide provides procedures for monitoring, configuration, provisioning, and maintenance of Nexsan Storage Systems using the Nexsan RAID Storage Plugin for VMware vCenter.

Note While Nexsan makes every effort to ensure the accuracy of technical documentation, screen images and procedures may change after publication. In case of discrepancy, please check for the latest updates on the [Nexsan Support Web site](#). Also, refer to the latest Release Notes for known and resolved issues and workarounds.

Conventions

Here is a list of text conventions used in this document:

Convention	Description
<u>underlined</u> blue	Cross-references, hyperlinks, URLs, and email addresses.
boldface	Text that refers to labels on the physical unit or interactive items in the graphical user interface (GUI).
monospace	Text that is displayed in the command-line interface (CLI) or text that refers to file or directory names.
monospace bold	Text strings that must be entered by the user in the command-line interface or in text fields in the graphical user interface (GUI).
<i>italics</i>	System messages and non-interactive items in the graphical user interface (GUI) References to Software User Guides

Notes, tips, cautions, and warnings

Note Notes contain important information, present alternative procedures, or call attention to certain items.

Tip Tips contain handy information for end-users, such as other ways to perform an action.



CAUTION: In hardware manuals, cautions alert the user to items or situations which may cause damage to the unit or result in mild injury to the user, or both. In software manuals, cautions alerts the user to situations which may cause data corruption or data loss.



WARNING: Warnings alert the user to items or situations which may result in severe injury or death to the user.

Contacting Nexsan

For questions about Nexsan products, please visit the [Nexsan support](#) Web page, and the E-Series and BEAST [Documents and Downloads](#) page. If you are unable to find the answer to your question there, please see our contact information below.

Service and support

Nexsan's Technical Services Group provides worldwide assistance with installation, configuration, software support, warranty, and repair for all Nexsan products. A variety of service and support programs are available to provide you with the level of coverage and availability your operation requires.

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Units 33–35 Parker Centre
Mansfield Road
Derby, DE21 4SZ
United Kingdom

E-Series/BEAST support:

https://helper.nexsansupport.com/esr_support

Related documents

The following Nexsan product manuals contain related information:

- Nexsan High-Density Storage User Guide
- Nexsan E-Series™ Snapshots and Replication User Guide
- Nexsan Multipathing Best Practices Guide
- Nexsan RAID Storage Plugin for VMware vCenter User Guide
- VMware Best Practices Guide
- Nexsan E32V™ and Nexsan E18™/E18V™ RAID Storage Units Installation Guide
- Nexsan E32V™ and Nexsan E18™/E18V™ RAID Storage Units FRU Removal and Replacement Guide
- Nexsan E32XV™ and Nexsan E18X™/E18XV™ RAID Storage Expansion Units Installation Guide
- Nexsan E32XV™ and Nexsan E18X™/E18XV™ RAID Storage Expansion Units FRU Removal and Replacement Guide
- Nexsan E60™/E60V™/E60VT™/E60P™ and Nexsan E48™/E48V™/E48VT™/E48P™ RAID Storage Units Installation Guide
- Nexsan E60™/E60V™/E60VT™/E60P™ and Nexsan E48™/E48V™/E48VT™/E48P™ RAID Storage Units FRU Removal and Replacement Guide
- Nexsan E60X™/E60XV™ and Nexsan E48X™/E48XV™ RAID Storage Units Installation Guide
- Nexsan E60X™/E60XV™ and Nexsan E48X™/E48XV™ RAID Storage Units FRU Removal and Replacement Guide

Chapter 1

Introduction

The Nexsan RAID Storage Plugin for VMware vCenter enables monitoring, configuration, provisioning, and maintenance of Nexsan Storage Systems, and integrates Nexsan Storage with VMware vSphere.

The plugin is also intended to enable vCenter administrators to understand relationships between VMware infrastructure – ESX hosts and clusters, datastores and virtual machines – and Nexsan Storage Systems, Nexsan Volumes, and Storage Pools, particularly where these systems are handled by different teams.

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Features at a glance

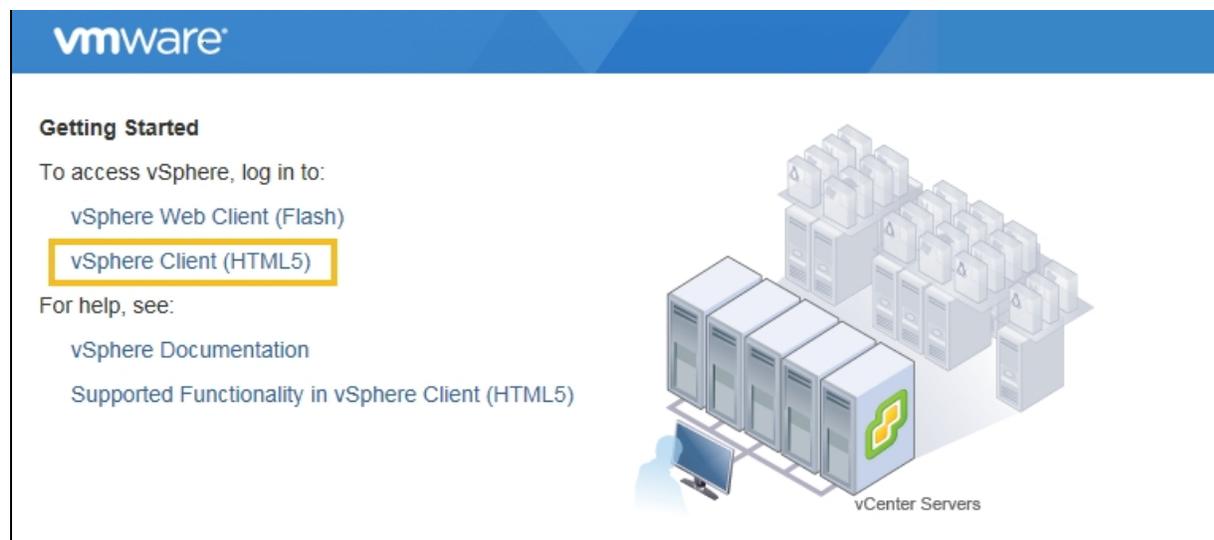
The Nexsan RAID Storage Plugin for VMware vCenter:

- Integrates Nexsan E-Series and BEAST storage into vSphere infrastructure management
- Shows the relationships between vSphere hosts and datastores and Nexsan Storage Systems and volumes
- Provides reporting of Nexsan Storage System health, warnings, and I/O performance
- Displays Nexsan event logs and system settings within vSphere
- Enables direct provisioning of new storage into managed VMware infrastructure
- Manages Nexsan Storage Systems, volumes and datastores, and physical disks

Once the plugin is added to vCenter, you'll find links to **Nexsan Storage**, where you can view and manage Nexsan Storage Systems. See "The Nexsan Storage workspace" ([page 11](#))

The Nexsan RAID Storage Plugin for VMware vCenter supports all Nexsan E-Series and BEAST systems, and VMware vCenter Server v. 6.0 and VMware vCenter Server v. 6.5.

Note Nexsan recommends using the Nexsan Storage plugin with the vSphere Client (HTML5) user interface, but the vSphere Flash Client is also supported. vSphere 6.0 supports only the Flash Client. Procedures and illustrations in this document generally reflect the vSphere Client (HTML5) user interface.

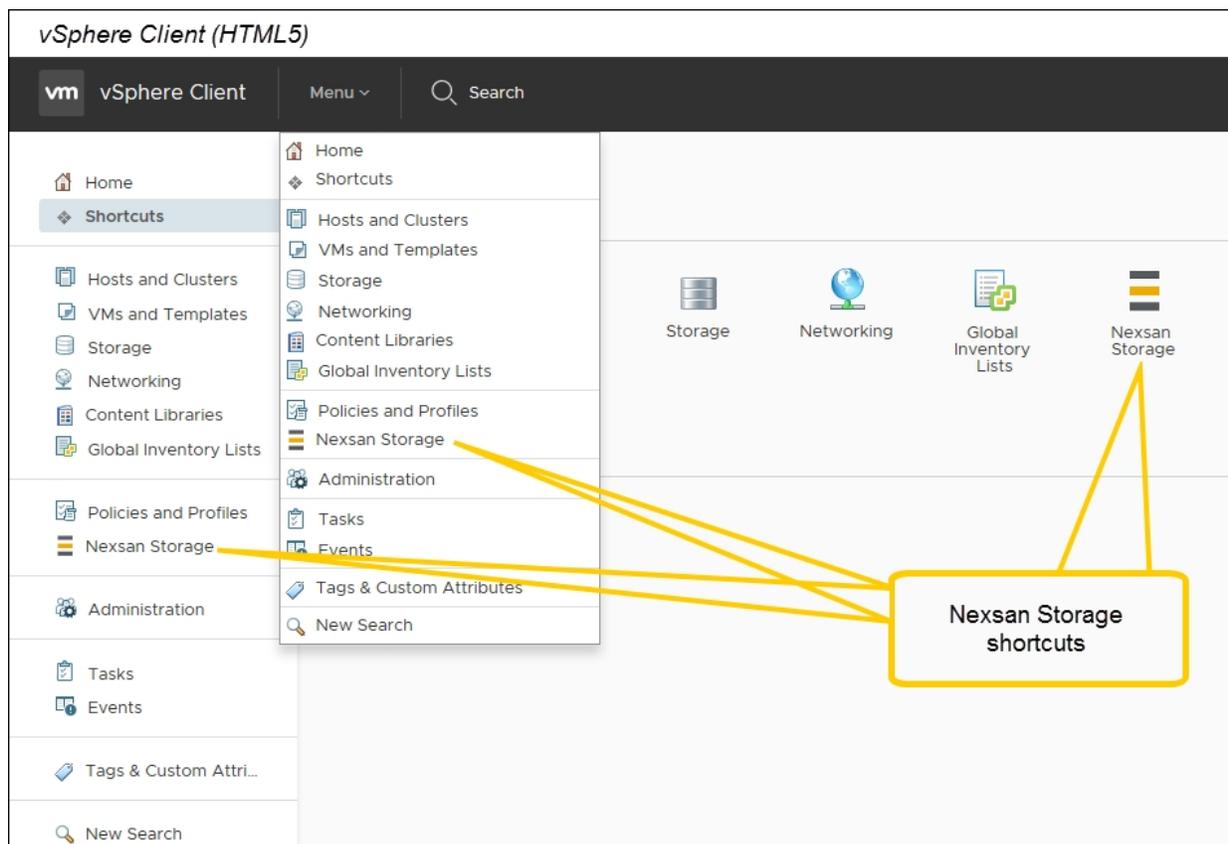


The Nexsan Storage workspace

The **Nexsan Storage** workspace provides an overview of provisioned **Nexsan Storage Systems** and **Nexsan Volumes** and VMware Datastores.

You can use the **Options**, **Add System**, and **Refresh** buttons to [change monitoring options](#), [add Nexsan Storage Systems](#), and to [refresh the workspace](#).

You can also follow links to added systems and volumes, and view details such as status, capacity, IP address, model, and firmware.



► To open the Nexsan Storage workspace:

1. Log in to a vSphere client.
2. Do any of the following:
 - In the Object Navigator, select **Nexsan Storage**.
 - On the vSphere toolbar,
 - Select **Menu** (HTML5) / **Home** (Flash) to open the menu.
 - Select **Nexsan Storage**.
 - In the **Shortcuts** workspace (HTML5) / **Home** workspace (Flash), select **Nexsan Storage**.

Here's an example of a Nexsan Storage workspace, populated with [Nexsan Storage Systems](#) and [Nexsan Volumes](#) and VMware datastores. To add your first Nexsan Storage System, see "Adding a Nexsan Storage System to vSphere" ([page 18](#))

Section	Field	Description
Nexsan Storage Systems		Provides links to Nexsan Storage Systems added to vCenter, their statuses, capacities, IP addresses, and the associated Nexsan model and firmware.
	System	The model name of the Nexsan Storage System
	Status	The system status: Healthy, Fault, or Unknown
	Capacity	System storage capacity and number of drives
	IP Address	The IP addresses of the system.
	Firmware	The Nexsan firmware version
Nexsan Volumes / Datastores		Provides links to each configured Nexsan Volume workspace, health status, number of hosts and paths, system name, and related storage pool and datastore and datastore status
	Volume	Names and links for configured volumes
	Status	The status of configured volumes

1

Section	Field	Description
	Hosts	The number of assigned hosts
	Paths	The number of connected paths
	System	The name of the associated system
	Storage Pool	The associated storage pool / array
	Datastore	Any associated datastore
	Status	The status of the datastore

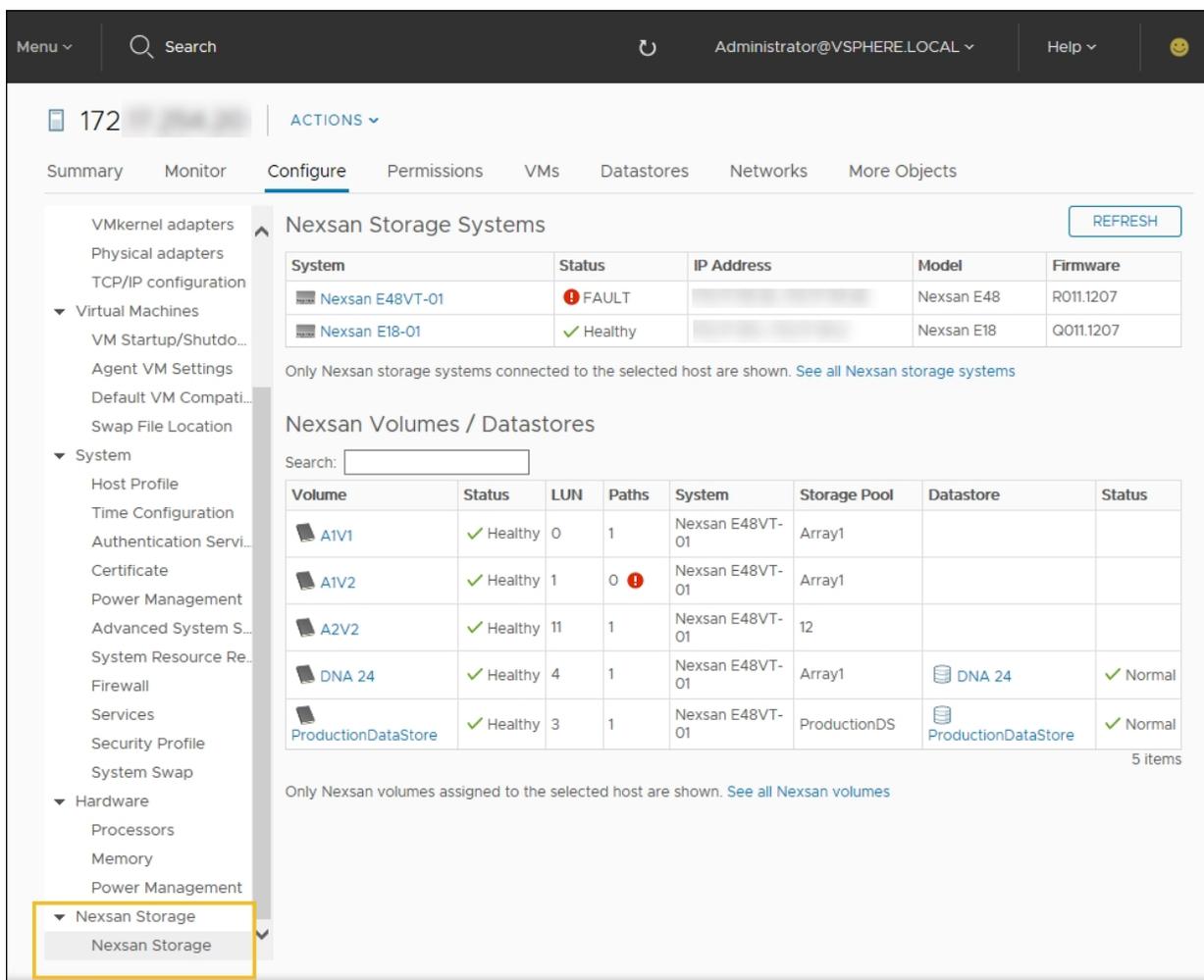
Next, see "Adding a Nexsan Storage System to vSphere" ([page 18](#))

Context-sensitive entry points to Nexsan Storage

The plugin also provides context-sensitive entry points to Nexsan Storage from the vSphere workspace. Here are some examples:

Hosts and Clusters workspace

1. Select the **Configure** tab.
2. From the Object Navigator, select **Nexsan Storage**.



1

- Select **Hosts and Clusters > Datastores**:

Name	Status	Type	Datastore Clu...	Capacity	Free
datastore14	✓ Normal	VMFS 5		74.5 GB	26.28 GB
Datastore14b	✓ Normal	VMFS 6		2.59 TB	2.05 TB
DS3	✓ Normal	VMFS 6		2.81 TB	1.81 TB

- Select **More Objects**, then the **Nexsan Systems** or **Nexsan Volumes** tab.

Volume Name	Status	System	Capacity
A1V1	Normal	UKSupportE48VT-01	10.0 TB
A1V2	Normal	UKSupportE48VT-01	5.84 TB
A2V1	Normal	UKSupportE48VT-01	10.0 TB
A2V2	Normal	UKSupportE48VT-01	5.84 TB

Storage workspace

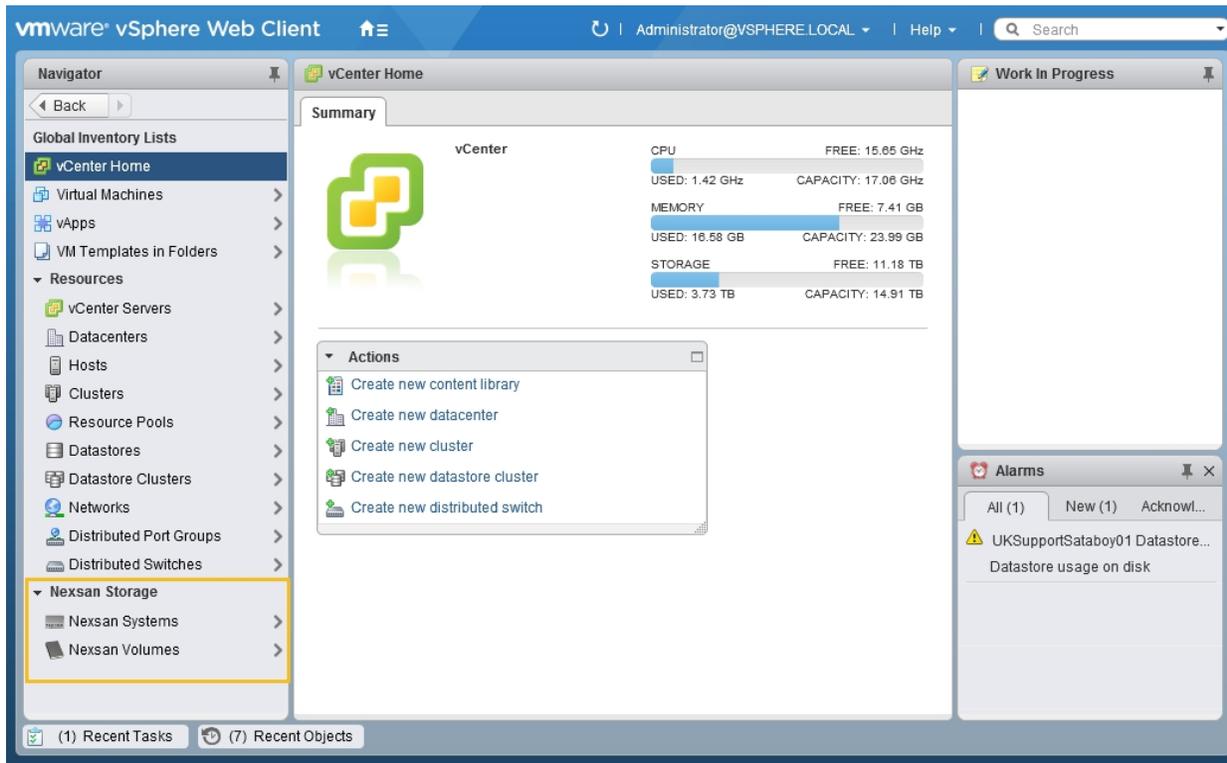
- Select **Configure > Nexsan Storage**:

Volume	Status	System	Storage Pool
DNA 24	✓ Normal	Nexsan E48VT-01	Array1

1

Global Inventory Lists workspace

In the Object Navigator, select **Resources > Nexsan Storage**.



Chapter 2

Configuring the plugin

This chapter includes the following topics to help you configure the plugin:

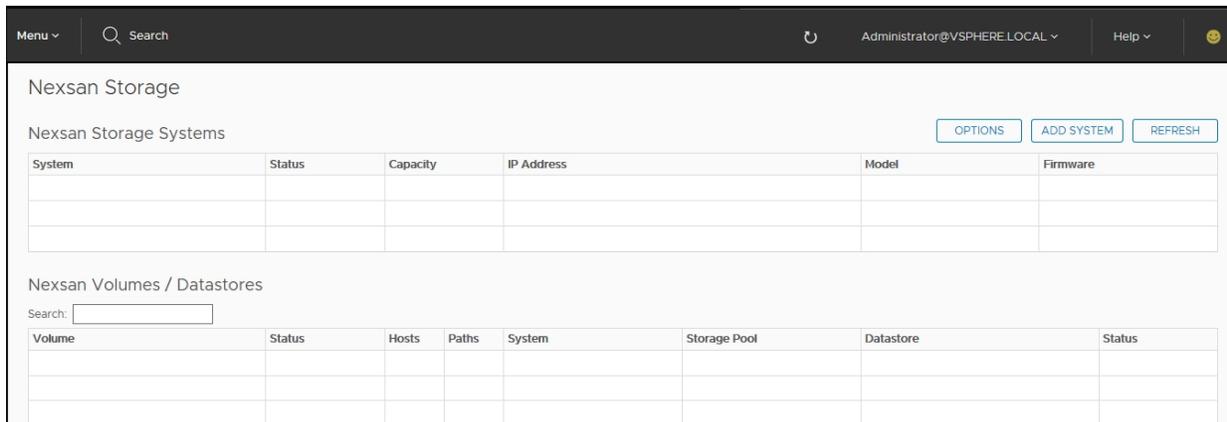
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Adding a Nexsan Storage System to vSphere

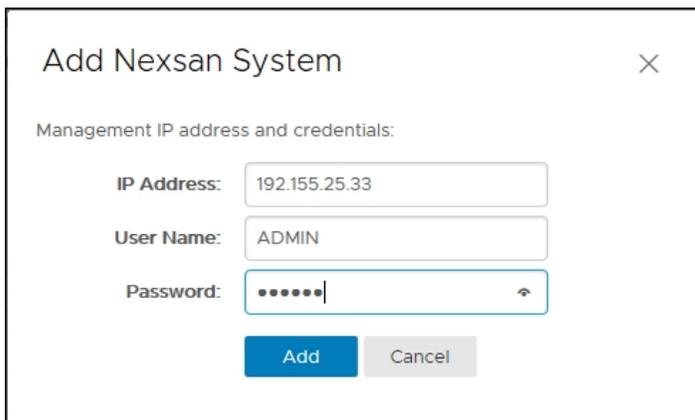
Use this procedure for details about adding your first Nexsan Storage System to vSphere.

▶ **To add a Nexsan Storage System:**

1. [Open the Nexsan Storage workspace.](#)



2. Click **Add System**.
3. In the **Add Nexsan System** window, enter the IP address and password for the new system.



Note If you want to view Nexsan Storage in both vSphere clients, repeat this procedure in the second client.



4. Click **Refresh** to display the new system. See "Refreshing workspaces" ([page 22](#))

The screenshot shows the 'Nexsan Storage Systems' section of the vCenter interface. At the top right, there are three buttons: 'OPTIONS', 'ADD SYSTEM', and 'REFRESH'. The 'REFRESH' button is highlighted with a yellow box. Below the buttons is a table with the following data:

System	Status	Capacity	IP Address	Model	Firmware
Nexsan Beast#1	✓ Normal	113.92 TB	192.155.25.33	Nexsan BEAST	S011.1303.rc1

Below the table is a section for 'Nexsan Volumes / Datastores' with a search box and another table with columns: Volume, Status, Hosts, Paths, System, Storage Pool, Datastore, and Status.

5. To monitor the system creation progress and related VMware activities, expand the **Recent Tasks** pane at the bottom of the **Nexsan Storage System** workspace.

The screenshot shows the 'Recent Tasks' pane with two tasks listed:

Task Name	Target	Status	Initiator	Queued For
Add Nexsan system	172.155.25.33	✓ Completed	VSPHERE.LOCAL\Administrator	66 ms
Remove Nexsan system	172.155.25.33	✓ Completed	VSPHERE.LOCAL\Administrator	36 ms

At the bottom left, there is a filter dropdown menu set to 'All'.

Opening a Nexsan Storage System

- ▶ **To open a Nexsan Storage System:**
- In the [Nexsan Storage workspace](#), click a link in the **System** column.

The screenshot shows the 'Nexsan Storage System' workspace. The 'Nexsan Storage Systems' table is visible, with the first row highlighted in yellow:

System	Status	Capacity	IP Address
Nexsan Beast#1	✓ Normal	113.92 TB	192.155.25.33

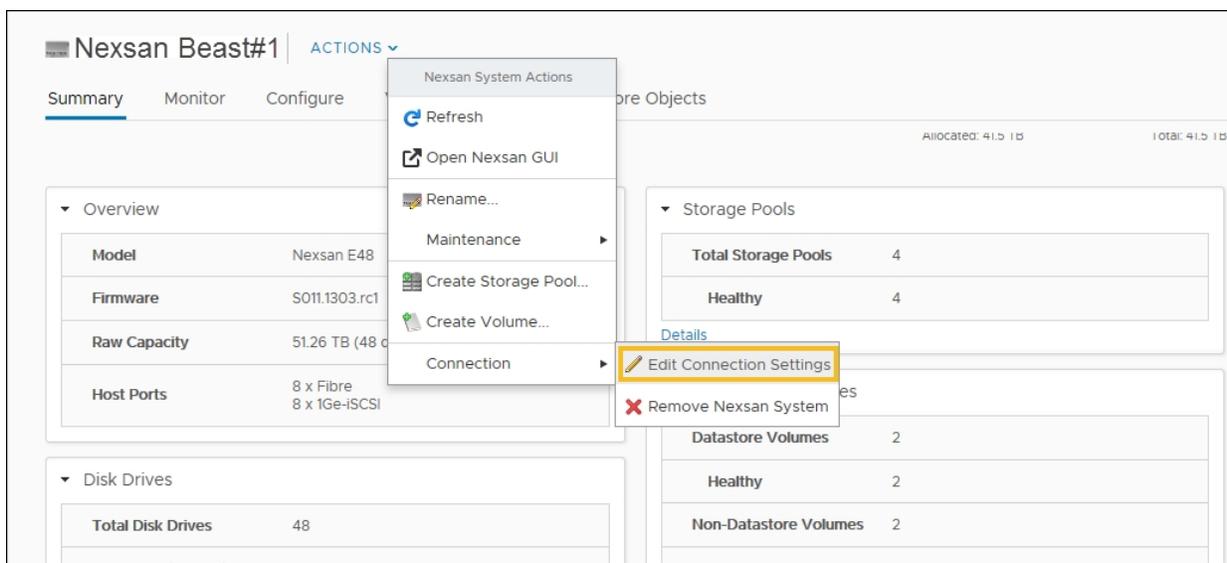
The Nexsan Storage System opens. See "The Nexsan Storage System workspace" ([page 28](#))

Editing Connection Settings

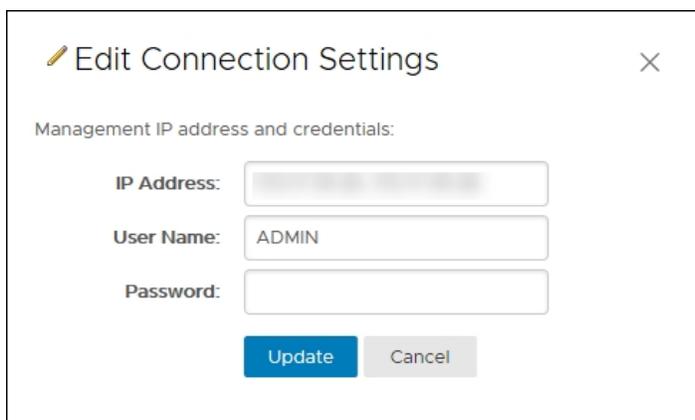
Use this procedure for help about changing user credentials required to access the E-Series or BEAST Nexsan Storage System the plugin connects to. Without proper authentication, system status fields display as **Unknown**.

▶ **To edit connection settings:**

1. [Open a Nexsan Storage System workspace.](#)
2. Select **Actions > Connection > Edit Connection Settings**.



3. Make any necessary changes to the **User Name** and **Password** in the **Edit Connection Settings** window.



4. After you've made your changes, click **Update**.
5. Verify your changes in the **Recent Tasks** pane at the bottom of the workspace.

Removing a Nexsan Storage System from vSphere

Use this procedure for help with removing a Nexsan Storage System from vSphere.

► **To remove a Nexsan Storage System from vSphere:**

1. [Open a Nexsan Storage System workspace](#) that you plan to remove.
2. Select **Actions > Connection > Remove Nexsan System**.

The screenshot shows the vSphere interface for a Nexsan storage system named 'Nexsan Beast#1'. The 'ACTIONS' dropdown menu is open, and the 'Connection' sub-menu is selected, highlighting the 'Remove Nexsan System' option. The interface displays various system details:

- Summary:** Model: Nexsan BEAST, URL: http://172.17.118.90, Status: Fault (red exclamation mark), Updated: 29-Dec-2017 14:44:20.
- Overview Table:**

Model	Nexsan E48
Firmware	R011.1207
Raw Capacity	96.02 TB (48 disks)
Host Ports	4 x 10Ge-iSCSI 4 x 1Ge-iSCSI
- Disk Drives Table:**

Total Disk Drives	48
Healthy (Pooled)	46
Healthy (Spare)	1
Healthy (Unused)	1
- Storage Pools Table:**

Raw Capacity	Free: 300 GB
Allocated: 109.12 TB	Total: 113.92 TB
Pooled Capacity	Free: 5.21 TB
Allocated: 25.69 TB	Total: 30.9 TB
- Volumes / Datastores Table:**

Non-Datastore Volumes	6
Healthy	6

3. In the **Remove Nexsan System** window, click **Remove**.

The 'Remove Nexsan System' dialog box is shown, asking for confirmation to remove the system from the inventory. The system name is 'Nexsan BEAST#1'. There are 'Remove' and 'Cancel' buttons.

4. Check **Recent Tasks** to confirm that the system has been removed.

Task Name	Target	Status	Initiator	Queued For
Add Nexsan system	172. [redacted]	✓ Completed	VSPHERE.LOCAL\Administrator	66 ms
Remove Nexsan system	172. [redacted]	✓ Completed	VSPHERE.LOCAL\Administrator	36 ms

Refreshing workspaces

In cases where your changes do not automatically update, and in team environments, use the methods in this topic for help with manually refreshing data changes in the vSphere workspaces and Nexsan Storage workspaces.

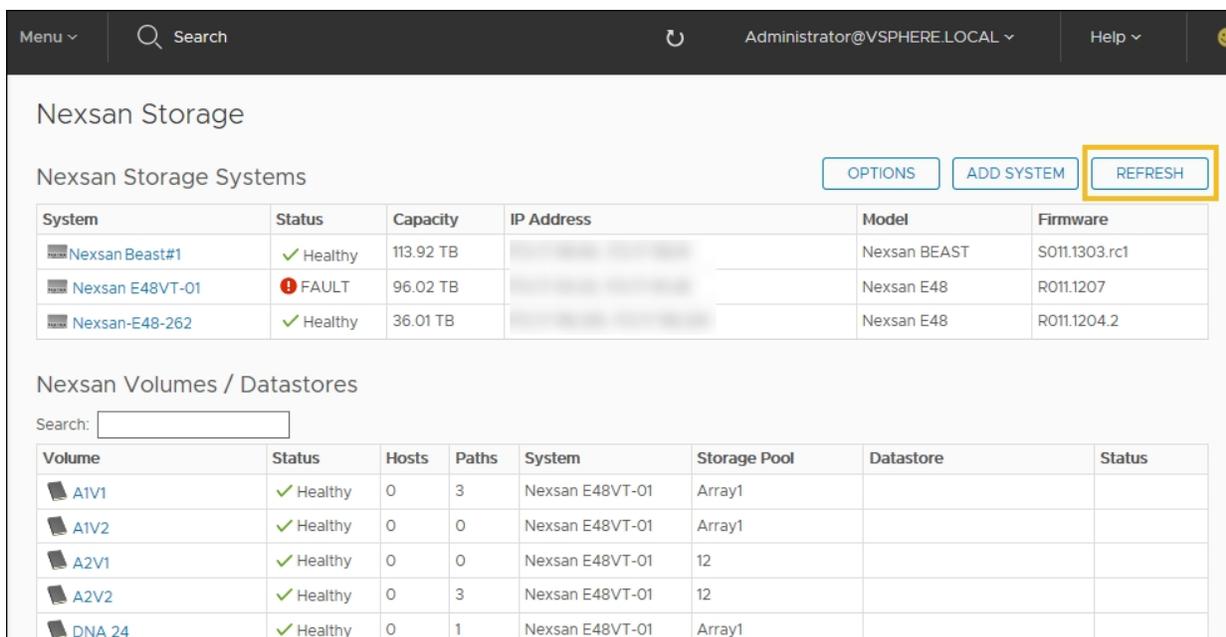
▶ **To refresh the vSphere Client:**

- Click the **Refresh** icon  on the vSphere toolbar to refresh the entire vSphere Client view.

Note In vSphere it is sometimes necessary to force a refresh by switching your view to another location, such as another workspace or tab, and then return to the original location to view your updates.

▶ **To refresh the Nexsan Storage workspace:**

- Click the **Refresh** button at the top right of the main **Nexsan Storage** workspace to display newly added storage systems or changes made by other users.

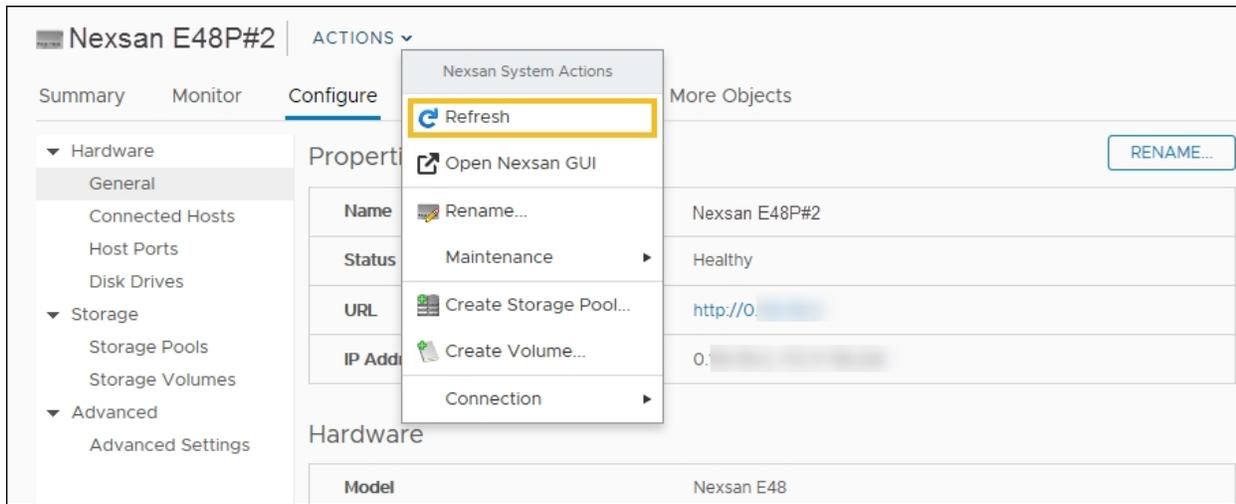


The screenshot shows the 'Nexsan Storage' workspace. At the top right, there are three buttons: 'OPTIONS', 'ADD SYSTEM', and 'REFRESH'. The 'REFRESH' button is highlighted with a yellow border. Below the buttons is a table of 'Nexsan Storage Systems' with columns for System, Status, Capacity, IP Address, Model, and Firmware. Below that is a section for 'Nexsan Volumes / Datastores' with a search bar and a table listing volumes like A1V1, A1V2, A2V1, A2V2, and DNA 24.

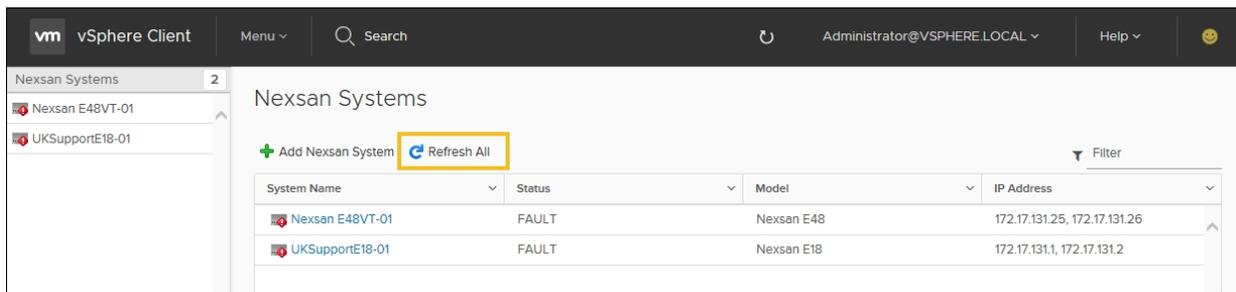
System	Status	Capacity	IP Address	Model	Firmware
Nexsan Beast#1	✓ Healthy	113.92 TB	[redacted]	Nexsan BEAST	S011.1303.rc1
Nexsan E48VT-01	! FAULT	96.02 TB	[redacted]	Nexsan E48	R011.1207
Nexsan-E48-262	✓ Healthy	36.01 TB	[redacted]	Nexsan E48	R011.1204.2

Volume	Status	Hosts	Paths	System	Storage Pool	Datastore	Status
A1V1	✓ Healthy	0	3	Nexsan E48VT-01	Array1		
A1V2	✓ Healthy	0	0	Nexsan E48VT-01	Array1		
A2V1	✓ Healthy	0	0	Nexsan E48VT-01	12		
A2V2	✓ Healthy	0	3	Nexsan E48VT-01	12		
DNA 24	✓ Healthy	0	1	Nexsan E48VT-01	Array1		

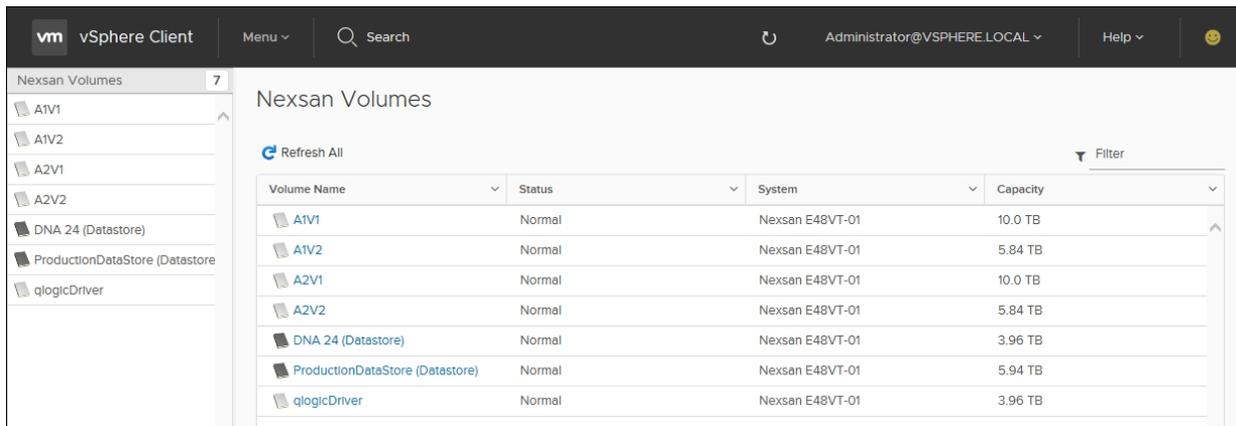
- In other Nexsan Storage plugin windows, click **Actions > Refresh**.



- In **Global Inventory Lists > Nexsan Systems**, click **Refresh All**



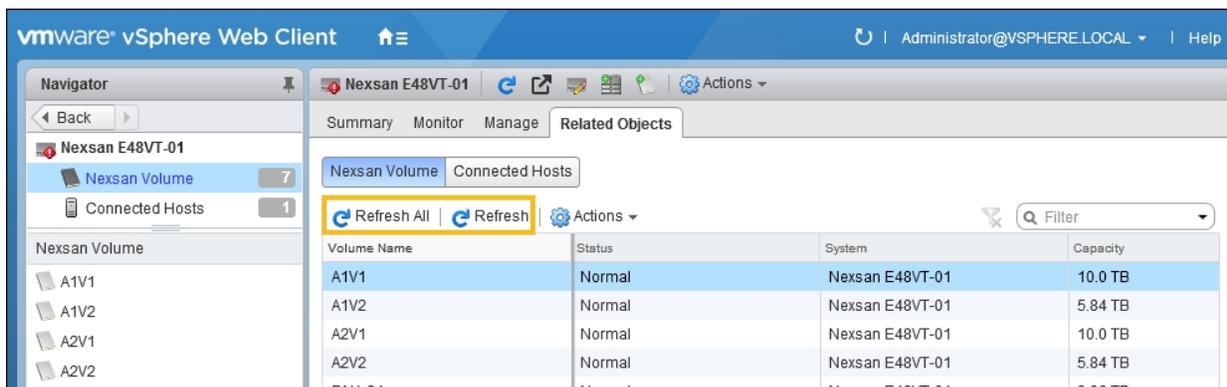
- In **Global Inventory Lists > Volumes**, click **Refresh All**



Refresh All: Global Inventory Lists and Related Objects

The vSphere Client Flash interface includes **Refresh All** in addition to a **Refresh** (selected objects) option for **Nexsan Systems** and **Nexsan Volumes**.

1. In **Global Inventory Lists**, click **Nexsan Systems** or **Nexsan Volumes**.
2. In any **Nexsan Storage System** or **Nexsan Volume** view, click **Related Objects**.



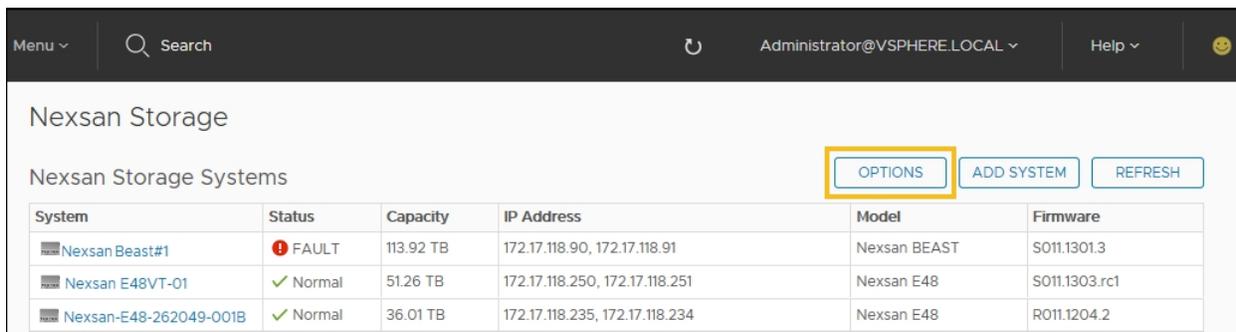
Changing monitoring options

Use the Nexsan options page to change monitoring options for:

- Nexsan Storage change events
- VMware infrastructure change events
- The inactivity timeout for monitoring

▶ **To change monitoring options:**

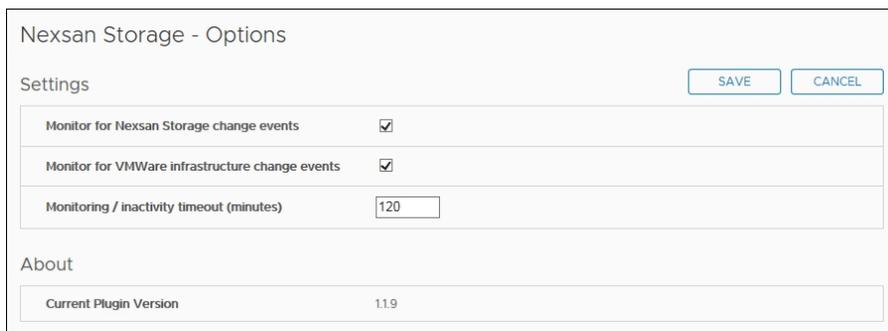
1. [Open a Nexsan Storage System workspace.](#)
2. Click **Options**.



System	Status	Capacity	IP Address	Model	Firmware
Nexsan Beast#1	FAULT	113.92 TB	172.17.118.90, 172.17.118.91	Nexsan BEAST	S011.1301.3
Nexsan E48VT-01	Normal	51.26 TB	172.17.118.250, 172.17.118.251	Nexsan E48	S011.1303.rc1
Nexsan-E48-262049-001B	Normal	36.01 TB	172.17.118.235, 172.17.118.234	Nexsan E48	R011.1204.2

3. Update any of these settings:

- Disable or enable monitoring of Nexsan Storage change events
- Disable or enable monitoring of VMware infrastructure change events
- Change the duration of the monitoring inactivity timeout



Nexsan Storage - Options

Settings SAVE CANCEL

Monitor for Nexsan Storage change events

Monitor for VMWare infrastructure change events

Monitoring / inactivity timeout (minutes)

About

Current Plugin Version 1.19

4. After you've made your changes, click **Save**.

Chapter 3

Nexsan Storage Systems

This chapter contains the following topics, providing details about using Nexsan Storage Systems:

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The Nexsan Storage System workspace

The **Nexsan Storage System** workspace provides a system summary, [Actions menu](#), and [tab bar](#).

The **Summary** tab provides a direct link to the [Nexsan GUI](#), information about and links to system hardware, **Storage Pools**, **Disk Drives**, and **Volumes / Datastores**. See also "Managing Nexsan Storage" ([page 51](#))

Here are some details about the workspace summary tab:

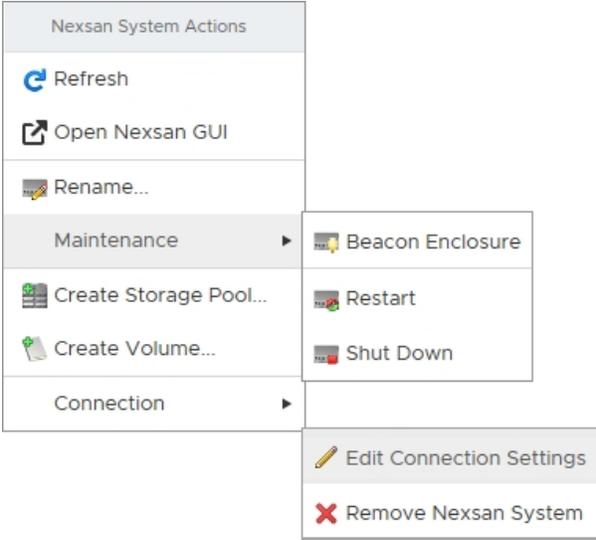
Section	Field	Description
Overview		Displays model name, firmware, raw capacity, and the number and types of host ports
	Model	The model name of the Nexsan Storage System
	Firmware	The current Nexsan firmware version
	Raw Capacity	System storage capacity and number of drives
	Host Ports	The number and type of host ports used
Storage Pools		Displays the number of Storage Pools, including pool health status, and provides a link to the Storage Pools page
	Total Storage Pools	Displays all deployed storage pools



Section	Field	Description
	Healthy	Displays the number of healthy pools
	Failed	Displays the number of failed storage pools, if applicable
	Details	Directly opens the Storage Pools page
Disk Drives		Displays total disk drives, the health status and number of pooled and unused drives, and provides a link to the Disk Drives page
	Total Disk Drives	Displays the total number of drives
	Healthy/ Unhealthy (Pooled)	Displays the health status and number of drives assigned to a storage pool
	Healthy/ Unhealthy (Unused)	Displays the health status and number of drives not assigned to a storage pool
	Details	Directly opens the Disk Drives page
Volumes / Datastores		Displays total number of volumes with or without VMware datastores and their health status, and provides a link to the Volumes / Datastores tab page
	Non-Datastore Volumes	Displays the number of volumes without associated VMware datastores
	Healthy/Unhealthy	Displays the number and health status of volumes without associated VMware datastores
	Datastore Volumes	Displays the number of volumes with VMware datastores, if applicable
	Healthy/Unhealthy	Displays the number and health status of volumes with VMware datastores, if applicable
	Details	Directly opens the Volumes / Datastores tab page

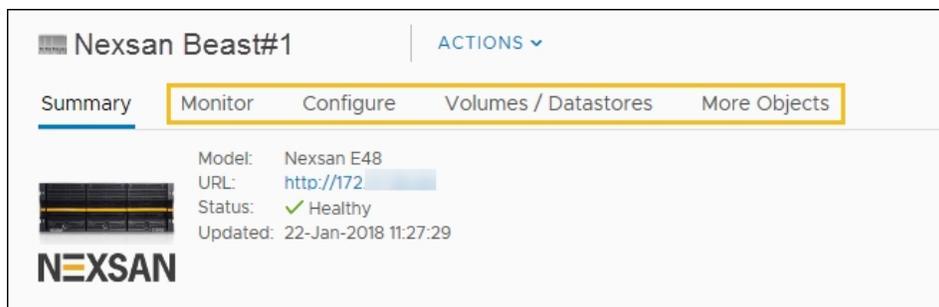
Nexsan Storage System Actions

Here are the commands and related topics for the **Actions** menu:

Menu commands	Related topics
	<p>"Refreshing workspaces" (page 22)</p> <p>"Accessing the Nexsan GUI" (page 31)</p> <p>"Renaming a Nexsan Storage System" (page 87)</p> <p>Maintenance</p> <ul style="list-style-type: none"> "Setting a beacon on an enclosure" (page 92) "Restarting a Nexsan Storage System" (page 88) "Shutting down a Nexsan Storage System" (page 90) <p>"Creating a Storage Pool / Array" (page 54)</p> <p>"Creating a Nexsan Volume and datastore" (page 65)</p> <p>Connection</p> <ul style="list-style-type: none"> "Editing Connection Settings" (page 20) "Removing a Nexsan Storage System from vSphere" (page 21)

Nexsan Storage System tab bar

- On the tab bar, you can click [Monitor](#), [Configure](#) (Manage in the Flash GUI), [Volumes / Datastores](#), or [More Objects](#) (shows **Nexsan Volumes** and **Connected Hosts**).



Related topics

- "Opening a Nexsan Storage System" ([page 19](#))
- "Monitoring Nexsan Storage Systems" ([page 33](#))
- "Managing Nexsan Storage" ([page 51](#))
- "The Nexsan Volumes / Datastores tab" ([page 38](#))
- "Viewing connected hosts" ([page 83](#))

Accessing the Nexsan GUI

The Nexsan GUI provides operations not currently available in the Nexsan RAID Storage Plugin for VMware vCenter. For details, please see the *Nexsan High-Density Storage User Guide*.

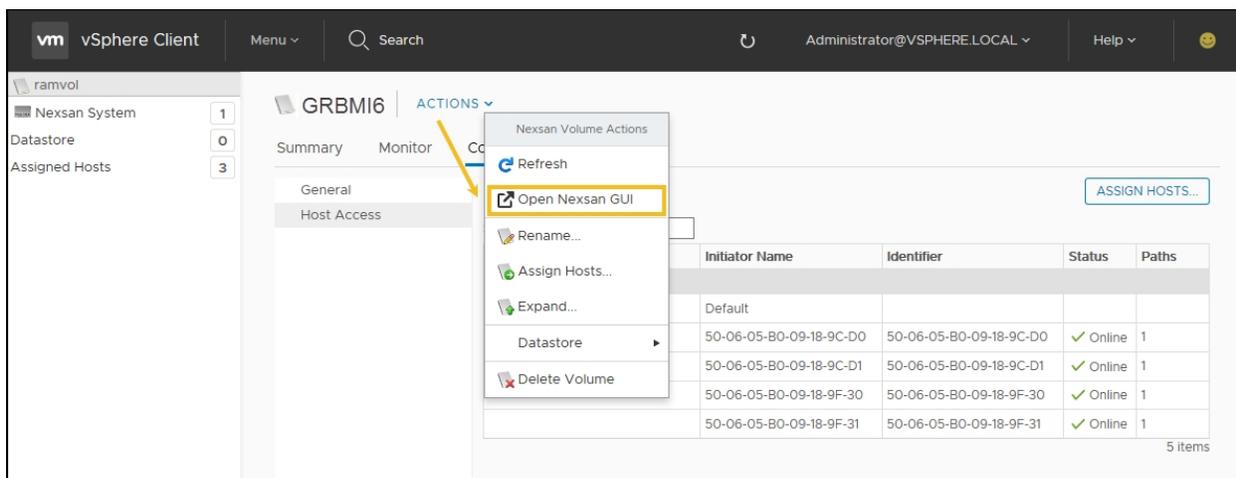
You can open the Nexsan GUI Web interface from:

- the **Actions** menus
- the **URL** in the **Nexsan Storage System Summary** workspace

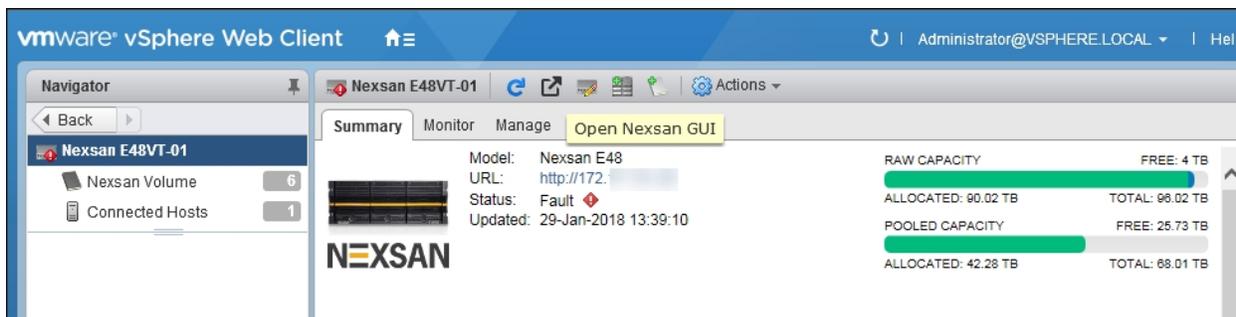
From the Actions menu

▶ To open the Nexsan GUI:

1. [Open a Nexsan Storage System workspace.](#)
2. Select **Actions > Open Nexsan GUI**.

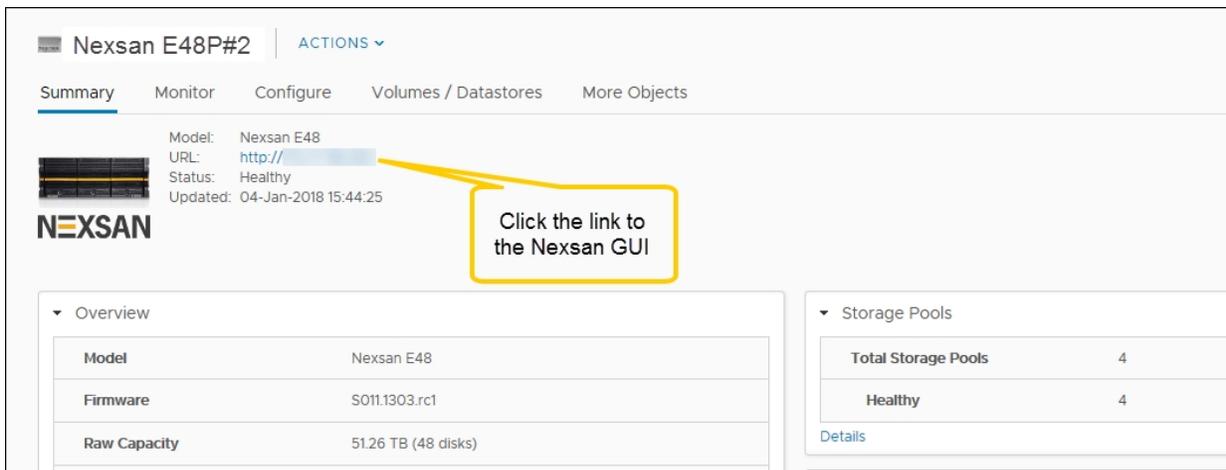


Alternatively, in the vSphere Client Flash interface, click the **Nexsan GUI** icon  on the toolbar:



From the Nexsan Storage System Summary workspace

1. [Open a Nexsan Storage System workspace.](#)
2. On the **Summary** tab, click the link to the **URL**:



Monitoring Nexsan Storage Systems

This section provides the following topics, providing details about monitoring Nexsan Storage Systems:

- Viewing systems issues and alarms 34
- Viewing tasks and events 36
- Viewing system I/O performance data 37

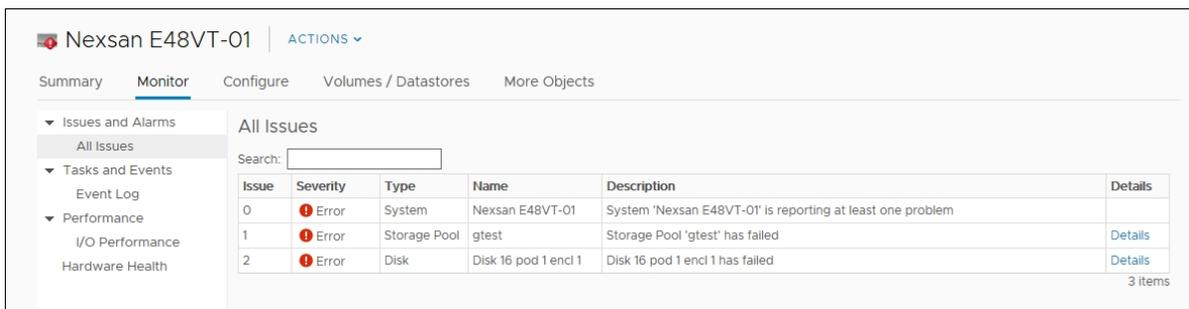


Viewing systems issues and alarms

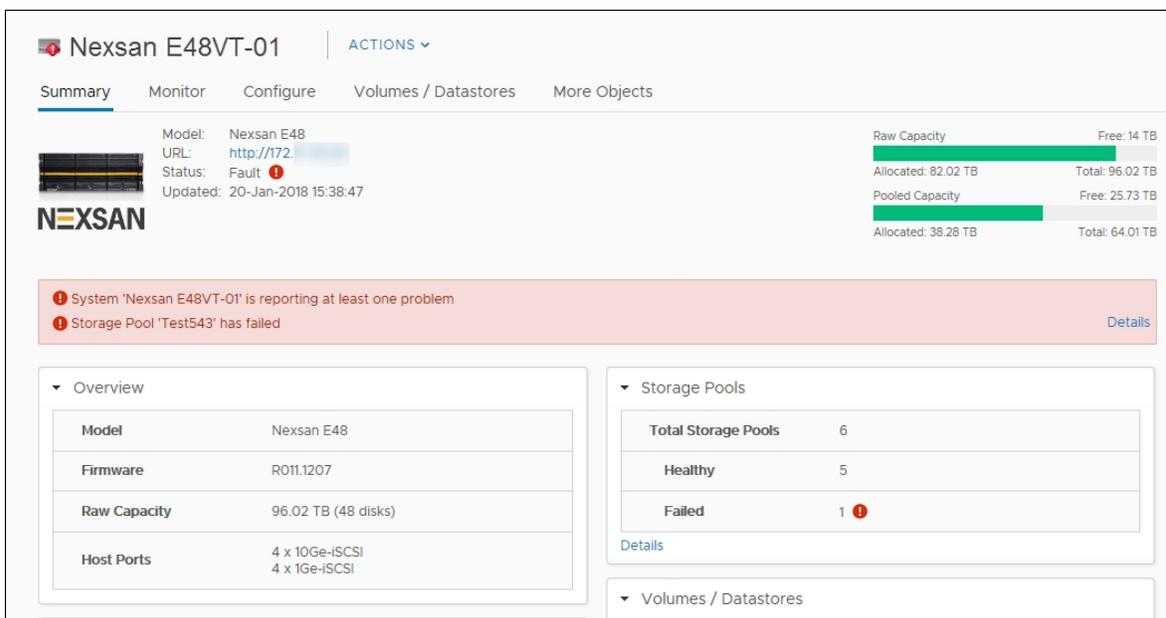
Use this procedure for help with viewing issues and alarms for Nexsan Storage Systems.

► **To view issues and alarms:**

1. [Open the Nexsan Storage System](#) that you want to monitor.
2. On the tab bar, select **Monitor**. The initial view shows **Issues and Alarms > All Issues**:



3. Click **Details**. In the example here, a **Storage Pool** has failed. When a fault is detected, the **Summary** page shows fault status on the system icon and status line, and an additional section highlighting the issue.



4. In **Storage Pools**, click **Details** to display the workspace.

Nexsan E48VT-01 | ACTIONS

Summary Monitor **Configure** Volumes / Datastores More Objects

Hardware
General
Connected Hosts
Host Ports
Disk Drives

Storage
Storage Pools
Storage Volumes

Advanced
Advanced Settings

Storage Pools

Search:

CREATE VOLUME... RENAME... DELETE

Name	Status	Capacity	Volumes	Disks	Type
12	✓ Healthy	20 TB	0	12	RAID6
Array #4	✓ Healthy	4 TB	1	2	RAID0
Array1	✓ Healthy	20 TB	3	12	RAID6
gtest	! Fault	4 TB	0	2	RAID0
ProductionDS	✓ Healthy	6 TB	1	6	RAID1
testcb	✓ Healthy	4 TB	0	3	RAID5
testcb	✓ Healthy	4 TB	0	4	RAID1
NL-SAS disks (Encl 0)	✓ Healthy			1	

9 items

5. Select the affected item to display details.

Nexsan E48VT-01 | ACTIONS

Summary Monitor **Configure** Volumes / Datastores More Objects

Hardware
General
Connected Hosts
Host Ports
Disk Drives

Storage
Storage Pools
Storage Volumes

Advanced
Advanced Settings

Storage Pools

Search:

CREATE VOLUME... RENAME... DELETE

Name	Status	Capacity	Volumes	Disks	Type
12	✓ Healthy	20 TB	2	12	RAID6
Array1	✓ Healthy	20 TB	2	12	RAID6
ProductionDS	✓ Healthy	6 TB	1	6	RAID1
test321	✓ Healthy	10 TB	0	6	RAID5
Test543	! Fault	4 TB	0	2	RAID0
testcb	✓ Healthy	4 TB	0	4	RAID1
NL-SAS disks (Encl 0)	✓ Healthy			6	
NL-SAS disks (Encl 1)	✓ Healthy			1	

8 items

Details | Disk Drives | Volumes

Name: Test543
Status: Fault !
Capacity: 4 TB
Type: RAID0
Volumes: 0
Disks: 2

6. Click the **Details**, **Disk Drives**, and **Volumes** tabs for more details:

Details | **Disk Drives** | Volumes

Location	Status	Usage	Capacity	Type
Disk 15 pod 1 encl 1	✓ Healthy	Assigned	2 TB	SAS



Viewing tasks and events

Use this procedure for help with viewing tasks and events for Nexsan Storage Systems.

► **To view tasks and events:**

1. [Open the Nexsan Storage System](#) you want to monitor.
2. On the tab bar, select **Monitor**.
3. Under **Tasks and Events**, select **Event Log**.

Time	Severity	Source	Event
23-Jan-2018 12:28:25	Information	C1	Tuning for RAID set 8 started
23-Jan-2018 12:28:25	Information	C1	Initial Tuning for RAID set 8 completed
23-Jan-2018 12:28:16	Information	C1	Created volume 6 (72D64FD8) on RAID set 8, 3956.4GB
23-Jan-2018 12:28:03	Information	C1	Initial Tuning for RAID set 8 started
23-Jan-2018 12:28:03	Information	C1	Created RAID set 8 (Quick); RAID level 0 with chunk size of 128 Kbytes using 2 disks enclosure 0 disks 1:15,1:16 (init:1179981 sync:333)
23-Jan-2018 12:28:03	Information	C1	Created volume 241 (72D64FEC) on RAID set 8, 40.0GB
23-Jan-2018 12:28:03	Information	C1	Created volume 242 (72D64FEB) on RAID set 8, 4.2GB
23-Jan-2018 10:07:46	Warning	C0	iscsi_comProcessKeys: TargetName mismatch iqn.1999-02.com.nexsan:p0:nxs-b01-000:05ff0121 : iqn.1999-02.com.nexsan:p0:nxs-b01-000:03e3166e
23-Jan-2018 00:26:54	Information	C1	Tuning for RAID set 5 completed
22-Jan-2018 22:29:13	Information	C0	Deleted volume #7 (72D76AD8) from RAID set 7

The **Event Log** table shows information such as **Time**, **Severity**, **Source**, and an **Event** description.

Use the instant **search** feature to locate specific messages quickly.

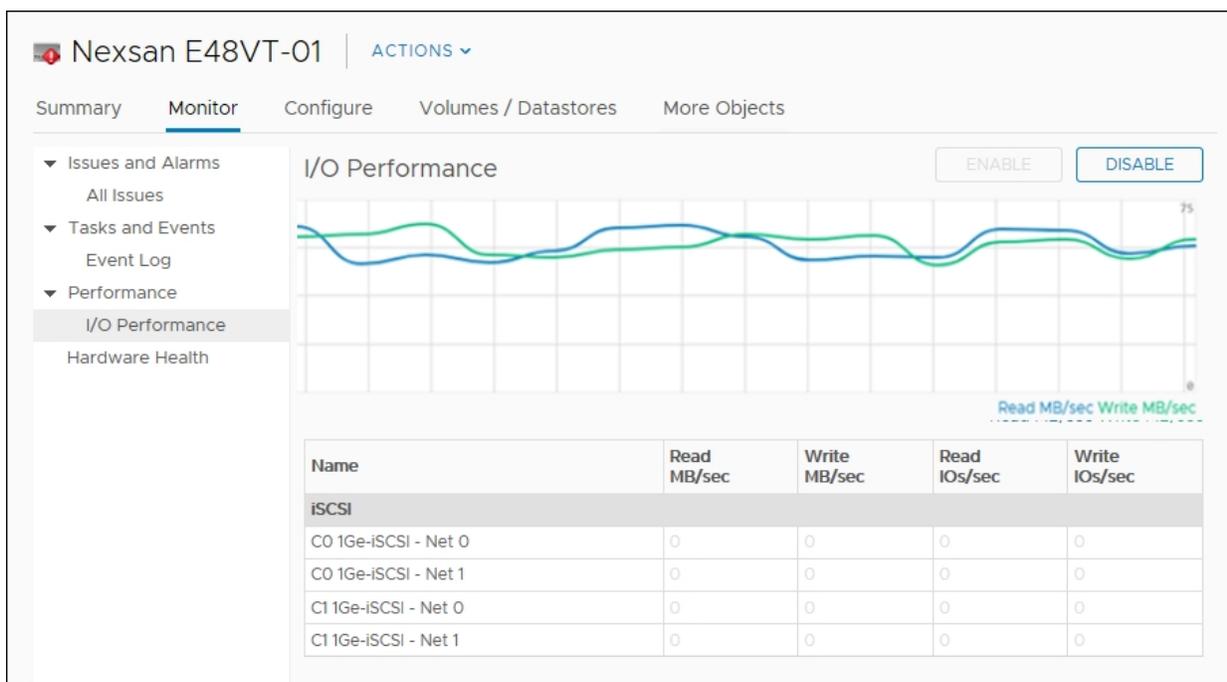
Time	Severity	Source	Event
09-Jan-2018 10:31:35	Error	C0	Array 3: disk 10 pod 1 (L4) failed
09-Jan-2018 10:31:35	Error	C0	Disk 10 pod 1 failed (sn: K5GXX4A)
09-Jan-2018 10:31:35	Warning	C0	Failing disk 10 pod 1 by user request
09-Jan-2018 10:01:38	Warning	C0	iscsi_comProcessKeys: TargetName mismatch iqn.1999-02.com.nexsan:p0:nxs-b01-000:05ff0121 : iqn.1999-02.com.nexsan:p0:nxs-b01-000:03e3166e
08-Jan-2018 10:34:51	Warning	C0	iscsi_comProcessKeys: TargetName mismatch iqn.1999-02.com.nexsan:p0:nxs-b01-000:05ff0121 : iqn.1999-02.com.nexsan:p0:nxs-b01-000:03e3166e
29-Dec-2017 20:24:29	Information	C0	Surface scan for RAID set 3 has finished
29-Dec-2017 16:00:48	Information	C0	Surface scan for RAID set 3 has started
29-Dec-2017 10:45:33	Warning	C0	iscsi_comProcessKeys: TargetName mismatch iqn.1999-02.com.nexsan:p0:nxs-b01-000:05ff0121 : iqn.1999-02.com.nexsan:p0:nxs-b01-000:03e3166e
27-Dec-2017 17:32:43	System	C0	ISP8242 [0]: ISP Address State Change
27-Dec-2017 17:32:43	System	C1	ISP8242 [0]: ISP Address State Change
27-Dec-2017 17:32:27	System	C1	ISP8242 [0]: ISP Link Up 00066802

Viewing system I/O performance data

The **I/O performance data** page provides live graphical monitoring of Nexsan Storage Systems and Nexsan Volumes. See also "Viewing I/O performance data for volumes" ([page 49](#))

▶ **To monitor I/O Performance for a Nexsan Storage System:**

1. [Open a Nexsan Storage System workspace.](#)
2. On the tab bar, select **Monitor**.
3. Select **I/O Performance**.
4. Click **Enable**. The window displays live I/O throughput to the system in **Read MB/sec** and **Write MB/sec**.



The Nexsan Volumes / Datastores tab

The **Nexsan Volumes / Datastores** tab displays all [Nexsan Volumes](#) and any related **datastores**¹ on the current Nexsan Storage System, and provides buttons for [Create a Nexsan Volume](#), [Creating a datastore](#), [Renaming a Nexsan Volume](#), and [Deleting a Nexsan Volume](#). The Storage Volumes grid includes:

- Volume Name and Status
- Capacity
- Storage Pool (array)
- Datastore
- Datastore status

► **To open the Nexsan Volumes / Datastores tab:**

1. [Open a Nexsan Storage System](#).
2. On the tab bar, select **Volumes / Datastores**.

The screenshot shows the 'Nexsan E48VT-01' interface with the 'Volumes / Datastores' tab selected. The 'Storage Volumes' section contains a search bar and buttons for 'CREATE VOLUME...', 'CREATE DATASTORE...', 'RENAME...', and 'DELETE'. Below is a table of storage volumes:

Volume	Status	Capacity	Storage Pool	Datastore	Status
A1V1	✓ Healthy	10 TB	Array1		
A1V2	✓ Healthy	5.84 TB	Array1		
A3V1	✓ Healthy	3.96 TB	Array1	DNA 24	✓ Normal
ProductionDataStore	✓ Healthy	5.94 TB	ProductionDS	ProductionDataStore	✓ Normal
qllogicDriver	✓ Healthy	3.96 TB	Array #4		

5 items

3. Optionally, click **Create Volume** if you need to [create a Nexsan Volume](#).
4. Select a volume to perform any of these tasks:
 - [Creating a datastore](#)
 - [Renaming a datastore](#)
 - [Renaming a Nexsan Volume](#)
 - [Deleting a Nexsan Volume](#)

¹In VMware, datastores are virtual containers similar to file systems, designed to contain storage devices. Datastores contain structures used to store virtual machines and hidden details about each storage device. Datastores can also store VM templates, ISO images, and floppy images. See <https://pubs.vmware.com>

Opening the Storage Volumes page

Use this procedure for help with opening the **Storage Volumes** page.

► **To open the Storage Volumes page:**

1. [Open a Nexsan Storage System](#).
2. On the tab bar, select **Configure (Manage in Flash)**.

Nexsan E48VT-01 | ACTIONS ▾

Summary Monitor **Configure** Volumes / Datastores More Objects

Hardware
 General
 Connected Hosts
 Host Ports
 Disk Drives
 Storage
 Storage Pools
 Storage Volumes
 Advanced
 Advanced Settings

Storage Volumes

Search:

CREATE DATASTORE... RENAME... DELETE

Volume	Status	Capacity	Storage Pool	Datastore	Status
A1V1	✓ Healthy	10 TB	Array1		
A1V2	✓ Healthy	5.84 TB	Array1		
A3V1	✓ Healthy	3.96 TB	Array1	DNA 24	✓ Normal
ProductionDataStore	✓ Healthy	5.94 TB	ProductionDS	ProductionDataStore	✓ Normal
qllogicDriver	✓ Healthy	3.96 TB	Array #4		

5 items

3. Select **Storage Volumes**.

For details about this page, see "The Nexsan Volumes / Datastores tab" ([page 38](#)).

Managing Storage Pools

The **Storage Pools** workspace features:

- Details about all **storage pools** (Nexsan **arrays**¹) on the current Nexsan Storage System
- Buttons to [Create a Storage Pool / Array](#), [Create a Nexsan Volume and datastore](#), [Rename a Nexsan Volume](#), and [Delete a Nexsan Volume](#).

The **Storage Pools** grid displays:

- Storage pool (array) name
- Status (Healthy or Fault)
- Capacity
- Number of volumes in the pool
- Number of disks in the pool
- Storage pool type (Array type)

▶ **To open the Storage Pools page:**

1. [Open a Nexsan Storage System](#).
2. On the tab bar, select **Configure** (**Manage** in Flash).
3. Select **Storage Pools**.

The screenshot shows the 'Configure' tab for 'Storage Pools'. The left sidebar has a tree view with 'Storage Pools' selected. The main content area has a search bar and buttons for 'CREATE POOL...', 'CREATE VOLUME...', 'RENAME...', and 'DELETE'. Below these is a table with the following data:

Name	Status	Capacity	Volumes	Disks	Type
Storage Pool 1	✓ Healthy	4 TB	0	3	RAID5
Storage Pool 3	✓ Healthy	20 TB	3	12	RAID6
Storage Pool 4	✓ Healthy	4 TB	1	2	RAID0
Storage Pool 5	✓ Healthy	4 TB	0	4	RAID1
Storage Pool 6	✓ Healthy	6 TB	1	6	RAID1
Storage Pool 7	✓ Healthy	20 TB	1	12	RAID6
Storage Pool 8	! Fault	4 TB	0	2	RAID0
NL-SAS disks (Encl 0)	✓ Healthy			1	

9 items

¹In Nexsan storage terms, an array is a linked group of one or more physical, independent hard disk drives. In VMware, a storage pool is equivalent to an array. See also “RAID”.

4. Select a storage pool to view information in the **Details**, **Disk Drives**, and **Volumes** tabs below the grid.
5. Optionally, you can:
 - Click **Create Pool** to create a storage pool. See "Creating a Storage Pool / Array" ([page 54](#))
 - Click **Create Volume** to create a volume. See "Creating a Nexsan Volume and datastore" ([page 65](#))
6. Select a volume to perform either of the following actions:
 - Rename a volume. See "Renaming a Nexsan Volume" ([page 68](#))
 - Delete a volume. See "Deleting a Nexsan Volume" ([page 70](#))

The Disk Drives page

The **Disk Drives** page features a **Hot Spare** command and lists drives, health and usage statuses, associated storage pool, capacities, and types. See also "Adding a hot spare disk" ([page 61](#))

► **To open the Disk Drives page:**

1. [Open a Nexsan Storage System](#).
2. Select **Configure (Manage in Flash) > Disk Drives** to display details.

Nexsan E48VT-01 | ACTIONS ▾

Summary Monitor **Configure** Volumes / Datastores More Objects

Hardware
 General
 Connected Hosts
 Host Ports
Disk Drives
 Storage
 Storage Pools
 Storage Volumes
 Advanced
 Advanced Settings

Disk Drives

Search: HOT SPARE

Location	Status	Usage	Storage Pool	Capacity	Type
Disk 9 pod 1 encl 1	✓ Healthy	Assigned	test321	2 TB	SAS
Disk 10 pod 1 encl 1	✓ Healthy	Assigned	test321	2 TB	SAS
Disk 11 pod 1 encl 1	✓ Healthy	Assigned	test321	2 TB	SAS
Disk 12 pod 1 encl 1	✓ Healthy	Assigned	test321	2 TB	SAS
Disk 13 pod 1 encl 1	✓ Healthy	Assigned	test321	2 TB	SAS
Disk 14 pod 1 encl 1	✓ Healthy	Assigned	test321	2 TB	SAS
Disk 15 pod 1 encl 1	✓ Healthy	Assigned	Test543	2 TB	SAS
Disk 16 pod 1 encl 1	✓ Healthy	Unused		2 TB	SAS

48 items

3. Select a disk to display details such as manufacturer, model, firmware, and serial number.

Disk 1 pod 1	✓ Healthy	Assigned	Array #1	2 TB	SATA
Disk 2 pod 1	✓ Healthy	Assigned	Array #1	2 TB	SATA
Disk 3 pod 1	✓ Healthy	Assigned	Array #1	2 TB	SATA

18 items

Details

Location: Disk 1 pod 0
 Status: Healthy
 Usage: Assigned
 Storage Pool: Array #1
 Capacity: 2 TB
 Type: SATA
 Speed: 7200 RPM
 Manufacturer: Hitachi
 Model: HUA722020ALA330
 Firmware: JKAOA3MA
 Serial Number: JK1130YAHS5TNT

Chapter 4

Nexsan Volumes

This section provides the following topics for help with understanding Nexsan Volumes:

The Nexsan Volumes workspace	44
Opening a Nexsan Volume	45
Opening a Storage Pool / Array from a Nexsan Volume	47
Monitoring Nexsan Volumes	48
Viewing issues and alarms with volumes	49
Viewing tasks and events for volumes	49
Viewing I/O performance data for volumes	49

The Nexsan Volumes workspace

The **Nexsan Volumes** workspace **Summary** tab displays data about capacity, type, system name, health, snapshots, datastores, and links to volumes and datastores. See "Working with Nexsan Volumes" ([page 64](#))

In this topic:

Nexsan Volume Summary

[Opening a Nexsan Volume](#)

[Nexsan Volume Actions](#)

[Nexsan Volumes tab bar](#)

Here is a typical **Volume Summary**:

Section	Field	Description
Details		Displays Volume capacity, number of storage pools, LUNs, serial number, and WWN
	Capacity	The total amount of disk space a disk can hold
	<ul style="list-style-type: none"> Used/Allocated 	Used and allocated disk space
	<ul style="list-style-type: none"> Maximum 	Maximum useable space, including used space and allocated space
	Storage pool	The number of storage pools (arrays) in the volume



Section	Field	Description
	LUN	The LUN number assigned to the volume
	Serial Number	The volume serial number
	WWN	The world wide name identifier of the volume
Datstore		The associated VMware datstore name, status, and capacity or free space (if applicable)
Nexsan System		Displays the Nexsan Storage System name. Also provides a link to the Nexsan Storage System workspace
Assigned Hosts		Displays assigned hosts, status, and paths for the volume, and provides a link to the Assigned Hosts page

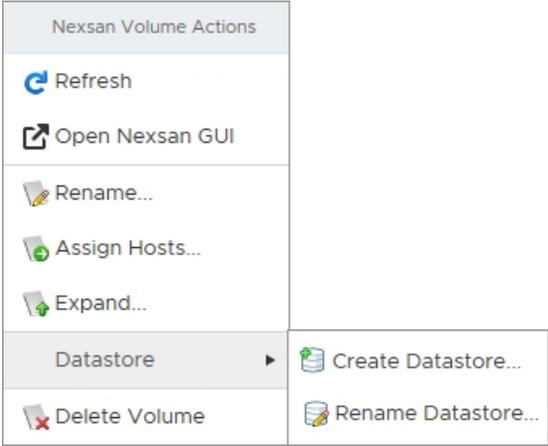
Opening a Nexsan Volume

► To open a Nexsan Volume:

1. [Open the Nexsan Storage System](#) containing the volume.
2. Under **Nexsan Volumes / Datstores**, click a **Volume** link to open its workspace.

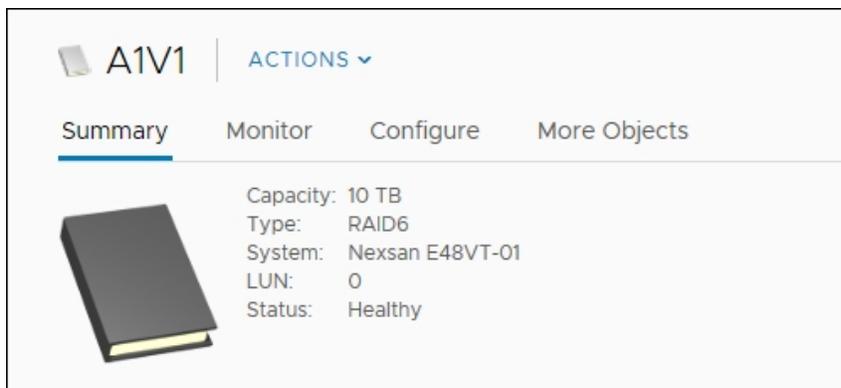
Nexsan Volume Actions

Here are the commands and procedures for the **Nexsan Volume Actions** menu:

Menu commands	Related procedures
	<p>"Refreshing workspaces" (page 22)</p> <p>"Accessing the Nexsan GUI" (page 31)</p> <p>"Renaming a Nexsan Volume" (page 68)</p> <p>"Assigning a host to a Nexsan Volume" (page 76)</p> <p>"Expanding a Nexsan Volume" (page 69)</p> <p>Datstore</p> <ul style="list-style-type: none"> ● "Creating a datstore" (page 71) ● "Renaming a datstore" (page 73) <p>"Deleting a Nexsan Volume" (page 70)</p>

Nexsan Volumes tab bar

In any **Volume** workspace, you can also click the **Monitor** tab, **Configure** tab (**Manage** in Flash), or **More Objects** tab.



See also

- "Monitoring Nexsan Volumes" ([page 48](#))
- "Renaming a Nexsan Volume" ([page 68](#))
- "Expanding a Nexsan Volume" ([page 69](#))
- "Adding a Nexsan Storage System to vSphere" ([page 18](#))
- "Viewing hosts assigned to Nexsan Volumes" ([page 81](#))

Opening a Storage Pool / Array from a Nexsan Volume

Use this procedure for help with opening a Storage Pool / Array from a Nexsan Volume.

► **To open the Storage Pool / Array:**

1. [Open a Nexsan Volume](#).
2. Click a link to a **Storage Pool**.

The screenshot shows the vSphere interface for a storage pool named 'Array1'. The top navigation bar includes 'Menu', 'Search', 'Administrator@VSPHERE.LOCAL', and 'Help'. The main content area is titled 'A1V1' and has tabs for 'Summary', 'Monitor', 'Configure', and 'More Objects'. The 'Summary' tab is active, displaying a storage pool icon and the following details:

- Capacity: 10 TB
- Type: RAID6
- System: Nexsan E48VT-01
- LUN: 0
- Status: Healthy

A progress bar shows 'Capacity' (10 TB), 'Allocated: 10 TB', 'Used: 10 TB', and 'Maximum: 10 TB'. Below the summary are three expandable sections:

- Details:** A table with columns for property and value. The 'Storage Pool' row is highlighted with a yellow box and contains the value 'Array1'. Other rows include Capacity (10 TB), Used (10 TB), Maximum (10 TB), LUN (0), Serial Number (716F2AF0), and WWN (6000402003E0166E716F2AF00000000).
- Datstore:** A table with columns for Datstore, Status, Capacity, and Free. It shows 'No datstore found'.
- Nexsan System:** A table with columns for System, Status, and Model. It shows 'Nexsan E48VT-01' with a 'Healthy' status and 'Nexsan E48' model.
- Assigned Hosts:** A table with columns for Host, Status, and Paths. It shows 'No hosts assigned'.

The **Storage Pools** page opens.

The screenshot shows the 'Storage Pools' configuration page in vSphere. The top navigation bar includes 'Summary', 'Monitor', 'Configure', 'Volumes / Datstores', and 'More Objects'. The 'Configure' tab is active. On the left is a navigation tree with categories: Hardware (General, Connected Hosts, Host Ports, Disk Drives), Storage (Storage Pools, Storage Volumes), and Advanced (Advanced Settings). The 'Storage Pools' category is selected. The main content area is titled 'Storage Pools' and features a search box and buttons for 'CREATE POOL...', 'CREATE VOLUME...', 'RENAME...', and 'DELETE'. Below these is a table listing storage pools:

Name	Status	Capacity	Volumes	Disks	Type
Storage Pool 1	✓ Healthy	4 TB	0	3	RAID5
Storage Pool 3	✓ Healthy	20 TB	3	12	RAID6
Storage Pool 4	✓ Healthy	4 TB	1	2	RAID0
Storage Pool 5	✓ Healthy	4 TB	0	4	RAID1
Storage Pool 6	✓ Healthy	6 TB	1	6	RAID1
Storage Pool 7	✓ Healthy	20 TB	1	12	RAID6
Storage Pool 8	! Fault	4 TB	0	2	RAID0
NL-SAS disks (Encl 0)	✓ Healthy			1	

At the bottom right of the table, it says '9 items'.

Monitoring Nexsan Volumes

This section provides the following topics for help with monitoring Nexsan Volumes:

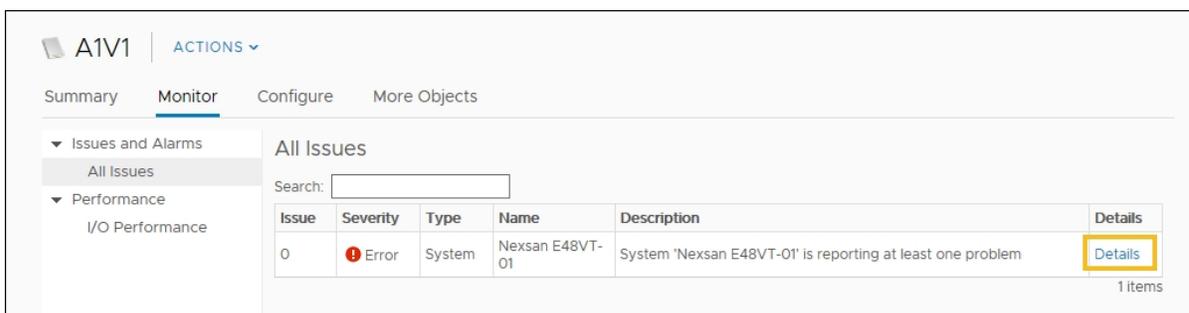
Viewing issues and alarms with volumes	49
Viewing tasks and events for volumes	49
Viewing I/O performance data for volumes	49

Viewing issues and alarms with volumes

Use this procedure for help with viewing issues and alarms for Nexsan Volumes.

► **To view issues and alarms:**

1. [Open a Nexsan Volume](#) you want to monitor.
2. On the tab bar, select **Monitor**. The initial view lists any issues under **Issues and Alarms**. Click the **Details** link for more information.



Viewing tasks and events for volumes

See "Viewing tasks and events" ([page 36](#))

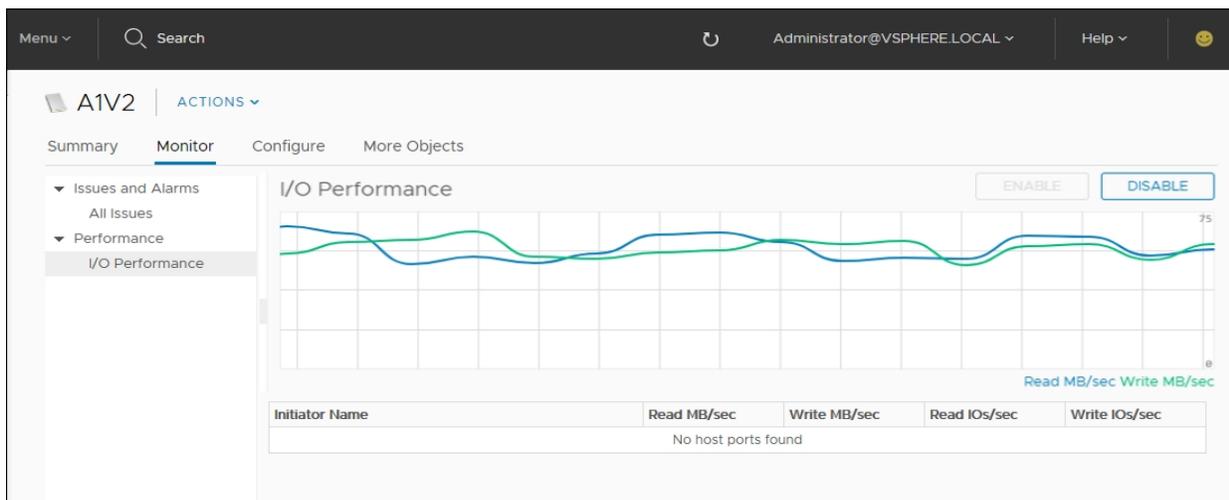
Viewing I/O performance data for volumes

The **I/O performance data** page provides live graphical monitoring of Nexsan Storage Systems and Nexsan Volumes. See also "Viewing system I/O performance data" ([page 37](#))

► **To monitor I/O Performance data for a Nexsan Volume:**

1. [Open a Nexsan Volume](#).
2. On the tab bar, select **Monitor**.
3. Select **I/O Performance**.

- 4. Click **Enable**. The window displays live I/O throughput to the system in **Read MB/sec** and **Write MB/sec**.



Chapter 5

Managing Nexsan Storage

This chapter provides the following sections and topics for help with managing Nexsan Storage:

Accessing Storage Pools	52
Creating a Storage Pool / Array	54
Renaming a Storage Pool / Array	57
Deleting a Storage Pool / Array	59
Adding a hot spare disk	61
Removing a hot spare disk	62
Working with Nexsan Volumes	64
Working with hosts	75
Renaming a Nexsan Storage System	87
Restarting a Nexsan Storage System	88
Shutting down a Nexsan Storage System	90
Setting a beacon on an enclosure	92

Accessing Storage Pools

Use this procedure for help with accessing Storage Pools (Nexsan arrays).

▶ **To access Storage Pools:**

1. [Open a Nexsan Storage System](#).
2. Select **Storage Pools > Details** to display a list of pools and their statuses, capacities, and the number of related volumes, disks, and their RAID types.

Nexsan E48VT-01 | ACTIONS ▾

Summary Monitor **Configure** Volumes / Datastores More Objects

Hardware
 General
 Connected Hosts
 Host Ports
 Disk Drives
 Storage
 Storage Pools
 Storage Volumes
 Advanced
 Advanced Settings

Storage Pools

CREATE POOL...
 CREATE VOLUME... RENAME... DELETE

Name	Status	Capacity	Volumes	Disks	Type
Storage Pool 1	✓ Healthy	20 TB	2	12	RAID6
Storage Pool 3	✓ Healthy	4 TB	1	2	RAID0
Storage Pool 4	✓ Healthy	20 TB	2	12	RAID6
Storage Pool 5	✓ Healthy	6 TB	1	6	RAID1
Storage Pool 6	✓ Healthy	10 TB	0	6	RAID5
Storage Pool 7	✓ Healthy	4 TB	0	3	RAID5
Storage Pool 8	✓ Healthy	4 TB	0	4	RAID1
<i>NL-SAS disks (Encl 0)</i>	✓ Healthy			1	

10 items

3. Select any pool in the list for **Details**, as well as information about associated **Disk Drives** and **Volumes**.

Storage Pools

Search:

CREATE POOL...
CREATE VOLUME...
RENAME...
DELETE

Name	Status	Capacity	Volumes	Disks	Type
Storage Pool 1	✓ Healthy	20 TB	2	12	RAID6
Storage Pool 3	✓ Healthy	4 TB	1	2	RAID0
Storage Pool 4	✓ Healthy	20 TB	2	12	RAID6
Storage Pool 5	✓ Healthy	6 TB	1	6	RAID1
Storage Pool 6	✓ Healthy	10 TB	0	6	RAID5
Storage Pool 7	✓ Healthy	4 TB	0	3	RAID5
Storage Pool 8	✓ Healthy	4 TB	0	4	RAID1
<i>NL-SAS disks (Encl 0)</i>	✓ Healthy			1	

10 items

Details

Disk Drives

Volumes

Location	Status	Usage	Capacity	Type
Disk 15 pod 1	✓ Healthy	Assigned	2 TB	SAS
Disk 16 pod 1	✓ Healthy	Assigned	2 TB	SAS

Creating a Storage Pool / Array

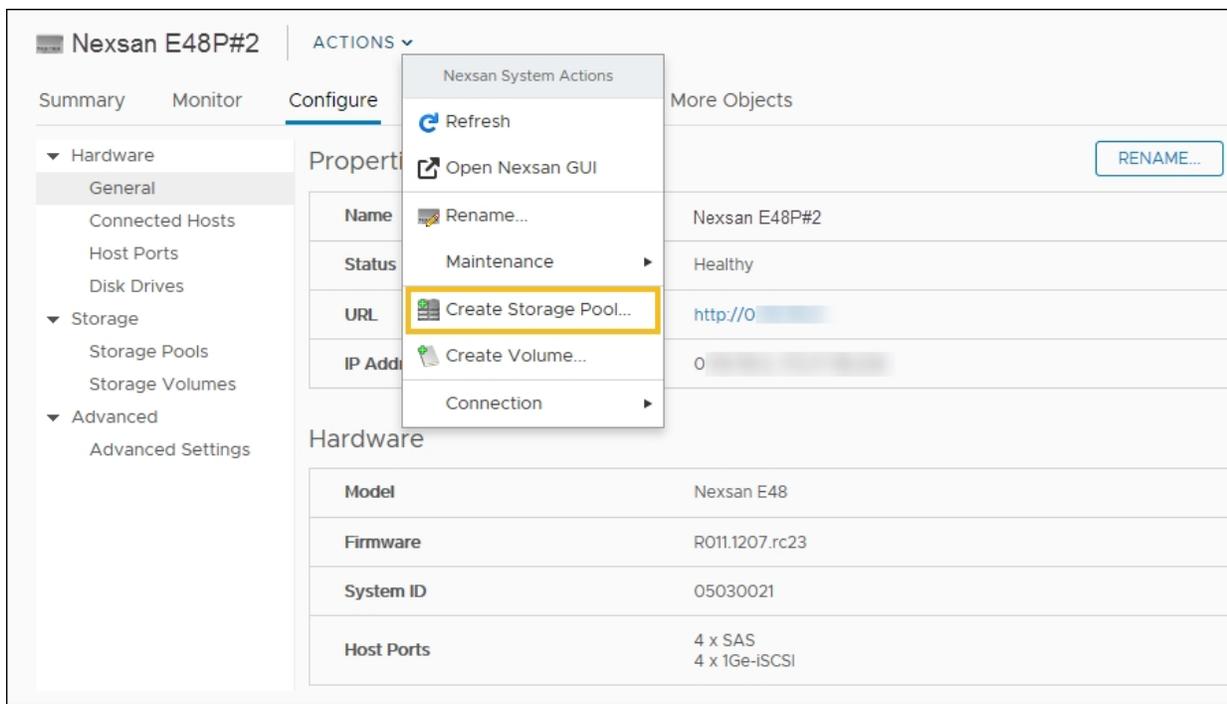
Use these steps for help with creating a Storage Pool / Array.

Prerequisite

- Ensure that sufficient unassigned disks are available for the new storage pool. See "The Disk Drives page" ([page 42](#))

▶ To create a Storage Pool / Array:

1. [Open the Nexsan Storage System workspace.](#)
2. Select **Actions > Create Storage Pool**.



Alternatively, select the **Configure** tab (**Manage in Flash**), then click **Storage Pools > Create Pool**.

The screenshot shows the Nexsan E48P#2 management interface. The 'Configure' tab is active, and the 'Storage Pools' section is selected in the left sidebar. The main content area displays a table of storage pools with columns for Name, Status, Capacity, Volumes, Disks, and Type. A yellow box highlights the 'CREATE POOL...' button in the top right corner of the main content area. A yellow arrow points from the 'Storage Pools' tab in the sidebar to the 'CREATE POOL...' button.

Name	Status	Capacity	Volumes	Disks	Type
Array #2	✓ Healthy	6.5 TB	3	14	RAID5
Array #3	✓ Healthy	6.5 TB	1	14	RAID5
Array #4	✓ Healthy	3.9 TB	1	14	RAID5
Array #5	✓ Healthy	14 TB	1	15	RAID5
SAS disks	✓ Healthy			1	
SATA disks	✓ Healthy			2	

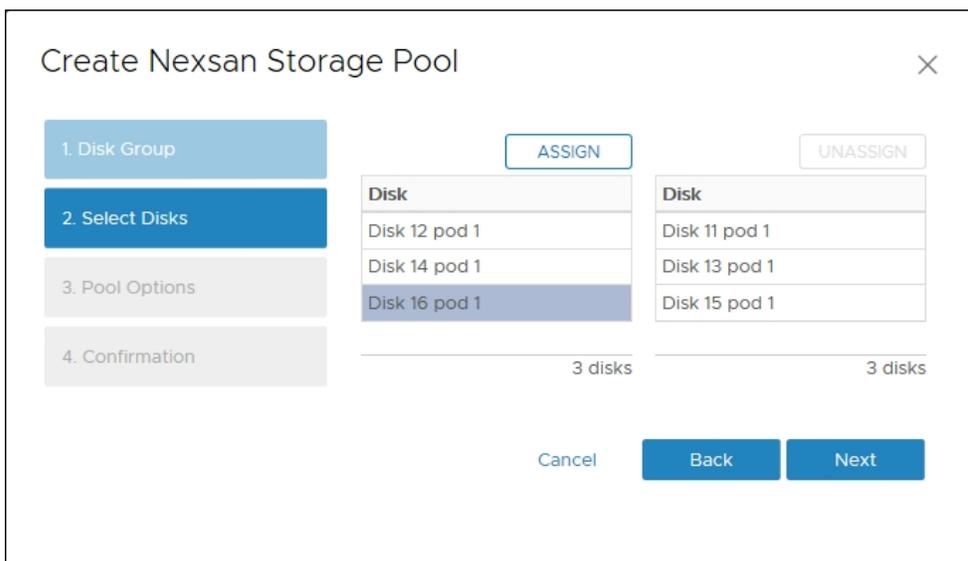
The **Create Nexsan Storage Pool** wizard opens.

3. Select the **Disk Group** you want to use and click **Next**.

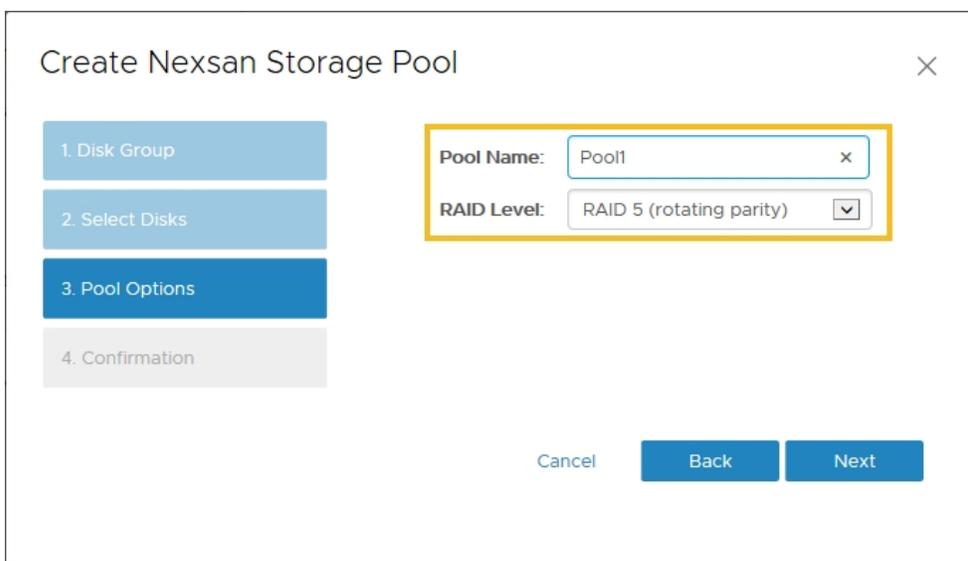
The screenshot shows the 'Create Nexsan Storage Pool' wizard. The '1. Disk Group' step is selected in the left sidebar. The main content area shows a table with columns for Name and Disks. The table lists two disk groups: 'NL-SAS disks (Encl 0)' with 6 disks and 'NL-SAS disks (Encl 1)' with 1 disk. The 'Next' button is highlighted in blue.

Name	Disks
NL-SAS disks (Encl 0)	6
NL-SAS disks (Encl 1)	1

4. Select the disks you want to use, click **Assign**, and then click **Next**.



5. Enter a **Pool Name**, select a **RAID level**, and click **Next**.



6. In the **Confirmation** window, review your changes and click **Finish**.

- To monitor the pool creation progress and related VMware activities, expand the **Recent Tasks** pane at the bottom of the **Storage Pools** workspace.

Recent Tasks		Alarms			
Task Name	Target	Status	Initiator	Queued For	
Create storage pool	172.172.172.172	✓ Completed	VSPHERE.LOCAL\Administrator	66 ms	

All

Next, you'll need to [create a Nexsan Volume and datastore](#) for the pool.

Renaming a Storage Pool / Array

Use this procedure for help with renaming a Storage Pool / Array.

► To rename a Storage Pool / Array:

- [Open the Nexsan Storage System workspace](#) with the storage pool you need to rename.
- Under **Storage Pools**, click **Details**. Alternatively, on the tab bar select **Configure (Manage in Flash)**, and then select **Storage Pools**.

The screenshot shows the configuration page for a storage pool named 'Nexsan Beast#1'. The page includes a navigation bar with 'Menu', 'Search', 'Administrator@VSPHERE.LOCAL', and 'Help'. The main content area has tabs for 'Summary', 'Monitor', 'Configure', 'Volumes / Datastores', and 'More Objects'. The 'Summary' tab is active, displaying the following information:

- Model: Nexsan E48
- URL: <http://172.172.172.172>
- Status: Healthy
- Updated: 18-Jan-2018 10:17:09

Capacity information is shown with progress bars:

- Raw Capacity: Free: 14 TB, Allocated: 82.02 TB, Total: 96.02 TB
- Pooled Capacity: Free: 25.73 TB, Allocated: 38.28 TB, Total: 64.01 TB

The 'Overview' section lists:

- Model: Nexsan E48
- Firmware: R011.1207
- Raw Capacity: 96.02 TB (48 disks)
- Host Ports: 4 x 10Ge-iSCSI, 4 x 1Ge-iSCSI

The 'Storage Pools' section shows:

- Total Storage Pools: 6
- Healthy: 6
- Failed: 0

A yellow arrow points to the 'Details' link in the Storage Pools section.

- In the **Storage Pools** workspace, select the pool you want to rename and click **Rename**.

Storage Pools

Search:

CREATE POOL... CREATE VOLUME... **RENAME...** DELETE

Name	Status	Capacity	Volumes	Disks	Type
Storage Pool 1	✓ Healthy	20 TB	2	12	RAID6
Storage Pool 3	✓ Healthy	4 TB	1	2	RAID0
Storage Pool 4	✓ Healthy	20 TB	3	12	RAID6
Storage Pool 5	! Fault	4 TB	0	2	RAID0
Storage Pool 6	✓ Healthy	6 TB	1	6	RAID1
Storage Pool 7	✓ Healthy	10 TB	0	6	RAID5
Storage Pool 8	✓ Healthy	4 TB	0	3	RAID5
NL-SAS disks (Encl 0)	✓ Healthy	4 TB	0	4	RAID1

10 items

Details | Disk Drives | Volumes

Name: Storage Pool 7
 Status: Healthy
 Capacity: 10 TB
 Type: RAID5
 Volumes: 0
 Disks: 6

- In the **Rename Nexsan Storage Pool** window, first review your selection and when you are ready click **Rename**.

Rename Nexsan Storage Pool

Enter the new name for the storage pool:

Pool Name:

System: Nexsan E48VT-01

Pool Type: 4 TB, 2-disk RAID0

Rename Cancel

- Click **Actions > Refresh**.
- Review the **Recent Tasks** pane to confirm that the storage pool has been renamed.

5

Deleting a Storage Pool / Array

Use this procedure for help with deleting a Storage Pool / Array.

Prerequisite

- You must [delete any associated volumes](#) before you can delete a Storage Pool / Array.

▶ To delete a Storage Pool / Array:

- [Open the Nexsan Storage System workspace](#) with the storage pool you want to delete.
- Under **Storage Pools**, click **Details**. Alternatively, on the tab bar select **Configure (Manage in Flash)**, and then select **Storage Pools**.

The screenshot displays the 'Nexsan Beast#1' workspace. At the top, there is a navigation bar with 'Menu', 'Search', 'Administrator@VSPHERE.LOCAL', and 'Help'. Below this, the workspace title 'Nexsan Beast#1' is shown with an 'ACTIONS' dropdown. The main content area has tabs for 'Summary', 'Monitor', 'Configure', 'Volumes / Datastores', and 'More Objects'. The 'Summary' tab is active, showing a Nexsan logo and system details: Model: Nexsan E48, URL: http://172, Status: Healthy, Updated: 18-Jan-2018 10:17:09. Capacity information is shown with progress bars: Raw Capacity (Free: 14 TB, Allocated: 82.02 TB, Total: 96.02 TB) and Pooled Capacity (Free: 25.73 TB, Allocated: 38.28 TB, Total: 64.01 TB). Below this, there are two expandable sections: 'Overview' and 'Storage Pools'. The 'Storage Pools' section shows a table with 6 total storage pools, all healthy, and 0 failed. A yellow arrow points to the 'Details' link for the storage pools.

- In the **Storage Pools** workspace, select the pool you want to delete, and view the **Details** pane to confirm that there are no associated volumes. If there are volumes associated with the pool, see "Deleting a Nexsan Volume" ([page 70](#)).

The screenshot shows the 'Storage Pools' workspace. At the top, there is a table listing storage pools:

Storage Pool 7	✓ Healthy	10 TB	0	6	RAID5
Storage Pool 8	✓ Healthy	4 TB	0	3	RAID5
NL-SAS disks (Encl 0)	✓ Healthy	4 TB	0	4	RAID1

Below the table, there are tabs for 'Details', 'Disk Drives', and 'Volumes'. The 'Details' tab is selected, showing the following information for 'Storage Pool 7':

- Name: Storage Pool 7
- Status: Healthy
- Capacity: 10 TB
- Type: RAID5
- Volumes: 0
- Disks: 6

4. Click **Delete**.

Storage Pools

Search:

CREATE POOL... CREATE VOLUME... RENAME... DELETE

Name	Status	Capacity	Volumes	Disks	Type
Storage Pool 1	✓ Healthy	20 TB	2	12	RAID6
Storage Pool 3	✓ Healthy	4 TB	1	2	RAID0
Storage Pool 4	✓ Healthy	20 TB	3	12	RAID6
Storage Pool 5	! Fault	4 TB	0	2	RAID0
Storage Pool 6	✓ Healthy	6 TB	1	6	RAID1
Storage Pool 7	✓ Healthy	10 TB	0	6	RAID5
Storage Pool 8	✓ Healthy	4 TB	0	3	RAID5
NL-SAS disks (Encl 0)	✓ Healthy	4 TB	0	4	RAID1

10 items

5. In the **Delete Nexsan Storage Pool** window, review your selection and click **Delete**.

Delete Nexsan Storage Pool

Delete storage pool?

Pool Name: Storage Pool 7
System: Nexsan E48VT-01
Pool Type: 10 TB, 6-disk RAID5

Delete Cancel

6. Click **Actions > Refresh**.

7. Review the **Recent Tasks** pane to confirm that the storage pool has been deleted.

5

Adding a hot spare disk

Use this procedure for help with adding a **hot spare**¹ disk.

Prerequisite

- Make sure you have an unused disk available before you begin this procedure.

▶ To add a hot spare disk:

1. [Open the Nexsan Storage System workspace](#) where you want to add the hot spare.
2. Select **Configure > Disk Drives**.

Location	Status	Usage	Storage Pool	Capacity	Type
Disk 9 pod 1 enc 1	✓ Healthy	Assigned	test321	2 TB	SAS
Disk 10 pod 1 enc 1	✓ Healthy	Assigned	test321	2 TB	SAS
Disk 11 pod 1 enc 1	✓ Healthy	Assigned	test321	2 TB	SAS
Disk 12 pod 1 enc 1	✓ Healthy	Assigned	test321	2 TB	SAS
Disk 13 pod 1 enc 1	✓ Healthy	Assigned	test321	2 TB	SAS
Disk 14 pod 1 enc 1	✓ Healthy	Assigned	test321	2 TB	SAS
Disk 15 pod 1 enc 1	✓ Healthy	Assigned	Test543	2 TB	SAS
Disk 16 pod 1 enc 1	✓ Healthy	Unused		2 TB	SAS

3. Select an available **Unused** disk and click **Hot Spare**.
4. In the **Hot Spare** window, click **Add Spare**.

Hot Spare

Hot spares are used automatically to replace a failed disk of the same class.

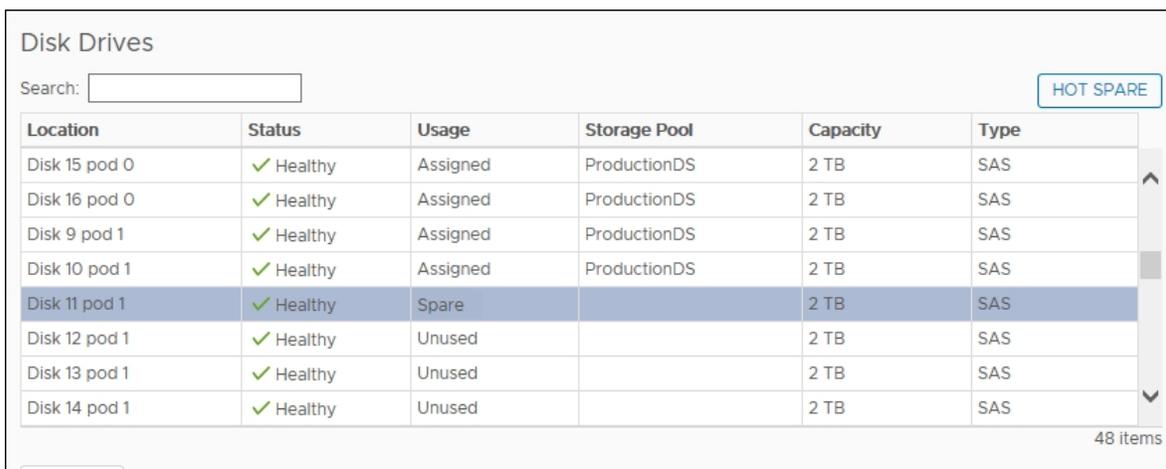
System: Nexsan E48VT-01
Disk: Disk 16 pod 1 enc 1
Hot Spare: No

Add Spare **Cancel**

¹A spare disk in a RAID array designated as "hot standby", available to replace a failed disk without requiring a system shutdown.

Removing a hot spare disk

5. Click **Actions > Refresh** to display the hot spare disk status.



Location	Status	Usage	Storage Pool	Capacity	Type
Disk 15 pod 0	✓ Healthy	Assigned	ProductionDS	2 TB	SAS
Disk 16 pod 0	✓ Healthy	Assigned	ProductionDS	2 TB	SAS
Disk 9 pod 1	✓ Healthy	Assigned	ProductionDS	2 TB	SAS
Disk 10 pod 1	✓ Healthy	Assigned	ProductionDS	2 TB	SAS
Disk 11 pod 1	✓ Healthy	Spare		2 TB	SAS
Disk 12 pod 1	✓ Healthy	Unused		2 TB	SAS
Disk 13 pod 1	✓ Healthy	Unused		2 TB	SAS
Disk 14 pod 1	✓ Healthy	Unused		2 TB	SAS

48 items

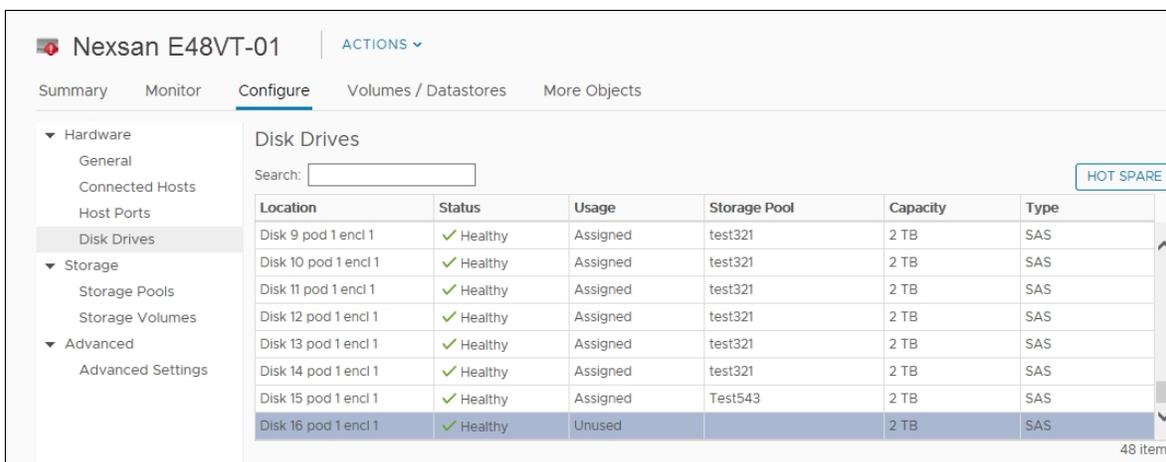
6. Review the **Recent Tasks** pane to confirm.

Removing a hot spare disk

Use this procedure for help with removing a **hot spare**¹ disk.

► To remove a hot spare disk:

1. [Open the Nexsan Storage System workspace](#) where you want to remove the hot spare.
2. Select **Configure > Disk Drives**.



Location	Status	Usage	Storage Pool	Capacity	Type
Disk 9 pod 1 enc 1	✓ Healthy	Assigned	test321	2 TB	SAS
Disk 10 pod 1 enc 1	✓ Healthy	Assigned	test321	2 TB	SAS
Disk 11 pod 1 enc 1	✓ Healthy	Assigned	test321	2 TB	SAS
Disk 12 pod 1 enc 1	✓ Healthy	Assigned	test321	2 TB	SAS
Disk 13 pod 1 enc 1	✓ Healthy	Assigned	test321	2 TB	SAS
Disk 14 pod 1 enc 1	✓ Healthy	Assigned	test321	2 TB	SAS
Disk 15 pod 1 enc 1	✓ Healthy	Assigned	Test543	2 TB	SAS
Disk 16 pod 1 enc 1	✓ Healthy	Unused		2 TB	SAS

48 items

¹A spare disk in a RAID array designated as "hot standby", available to replace a failed disk without requiring a system shutdown.

3. Select a disk labeled as **Spare** in the **Usage** column, and click **Hot Spare**.

Disk Drives

Search:

HOT SPARE

Location	Status	Usage	Storage Pool	Capacity	Type
Disk 15 pod 0	✓ Healthy	Assigned	ProductionDS	2 TB	SAS
Disk 16 pod 0	✓ Healthy	Assigned	ProductionDS	2 TB	SAS
Disk 9 pod 1	✓ Healthy	Assigned	ProductionDS	2 TB	SAS
Disk 10 pod 1	✓ Healthy	Assigned	ProductionDS	2 TB	SAS
Disk 11 pod 1	✓ Healthy	Spare		2 TB	SAS
Disk 12 pod 1	✓ Healthy	Unused		2 TB	SAS
Disk 13 pod 1	✓ Healthy	Unused		2 TB	SAS
Disk 14 pod 1	✓ Healthy	Unused		2 TB	SAS

48 items

4. In the **Hot Spare** window, click **Remove Spare**.

Hot Spare ✕

Hot spares are used automatically to replace a failed disk of the same class.

System: Nexsan E48VT-01

Disk: Disk 11 pod 1

Hot Spare: Yes

Remove Spare
Cancel

5. Click **Actions > Refresh** to display the updated disk status.

Working with Nexsan Volumes

This section provides the following topics for help with working with Nexsan Volumes:

Creating a Nexsan Volume and datastore	65
Renaming a Nexsan Volume	68
Expanding a Nexsan Volume	69
Deleting a Nexsan Volume	70
Creating a datastore	71
Renaming a datastore	73
Identifying volumes associated with a datastore	74

Creating a Nexsan Volume and datastore

Use these steps for help with creating a Nexsan Volume and VMware datastore.

The Create Nexsan Volume wizard

Creating a volume with the wizard used in this procedure follows these basic steps:

1. Creating the volume.
2. Assigning a host (or hosts).
3. Creating a datastore.

Each step in the wizard requires the previous one, but the second and third steps can be done later. If it suits your needs, you can create only the volume, create the volume and assign it to a host, or do everything at once.

See also:

- "Assigning a host to a Nexsan Volume" ([page 76](#))
- "Creating a datastore" ([page 71](#))

Prerequisite

- Before you begin, make sure the storage pool (array) you plan to assign to the volume has enough available disk space. See "The Disk Drives page" ([page 42](#)).

► To create a Nexsan Volume and VMware datastore:

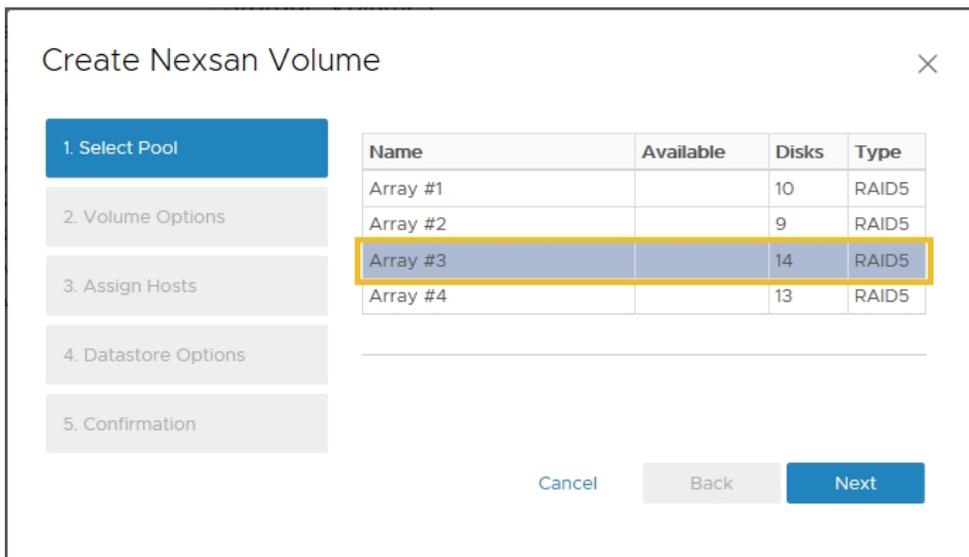
1. [Open the Nexsan Storage System workspace.](#)
2. On the tab bar, select **Volumes / Datastores**.
3. Click **Create Volume**.

The screenshot shows the 'Storage Volumes' configuration page in the Nexsan Storage System interface. The page includes a search bar, a 'CREATE VOLUME...' button, and a table of existing volumes. The table has columns for Volume, Status, Capacity, Storage Pool, Datastore, and Status.

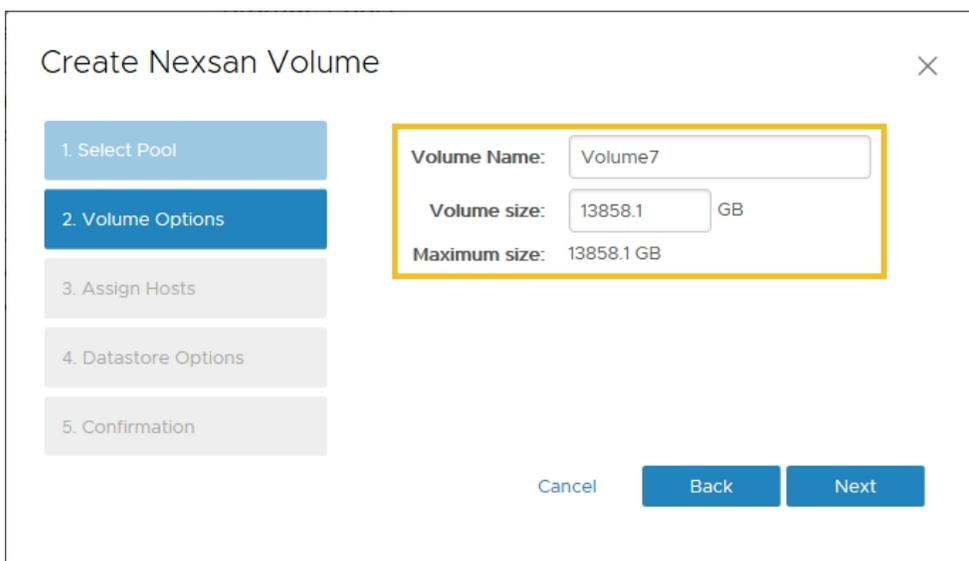
Volume	Status	Capacity	Storage Pool	Datastore	Status
A1V1	✓ Healthy	10 TB	Array1		
A1V2	✓ Healthy	5.84 TB	Array1		
A2V1	✓ Healthy	10 TB	12		
A2V2	✓ Healthy	5.84 TB	12		
ProductionDataStore	✓ Healthy	5.94 TB	ProductionDS		

5 items

- In the **Create Nexsan Volume** wizard, select the **Storage Pool (Array)** you want to assign to the volume and click **Next**.



- Enter a **Volume Name** and **Volume Size**, and click **Next**.



5

6. Select an unassigned host, then click **Assign > Next**.

Note You can skip this step and assign a host later, but assigning a host to a volume is necessary before you can add a datastore.

The screenshot shows the 'Create Nexsan Volume' dialog box with the 'Assign Hosts' step selected. A yellow box highlights the host selection area, which includes a table with columns for 'Host Name', 'Assign', and 'Unassign'. One host with IP '172.' is selected. Below the table, it indicates '0 hosts' on both sides. At the bottom, there are 'Cancel', 'Back', and 'Next' buttons.

7. Do either of the following:
- Type a name to create a new VMware datastore (requires that a host be assigned. See the previous step.) Click **Next**.
 - To skip creating a datastore, leave the **Create Datastore** check box unchecked and click **Next**.

The screenshot shows the 'Create Nexsan Volume' dialog box with the 'Datastore Options' step selected. A yellow box highlights the 'Create Datastore' checkbox (which is checked) and the 'Datastore Name' text box containing 'VM datastore'. At the bottom, there are 'Cancel', 'Back', and 'Next' buttons.

8. In the **Confirmation** window, review your changes and click **Finish**.

- In **Recent Tasks**, confirm that the volume is created. Volume creation is complete only when all VMware subtasks are complete.

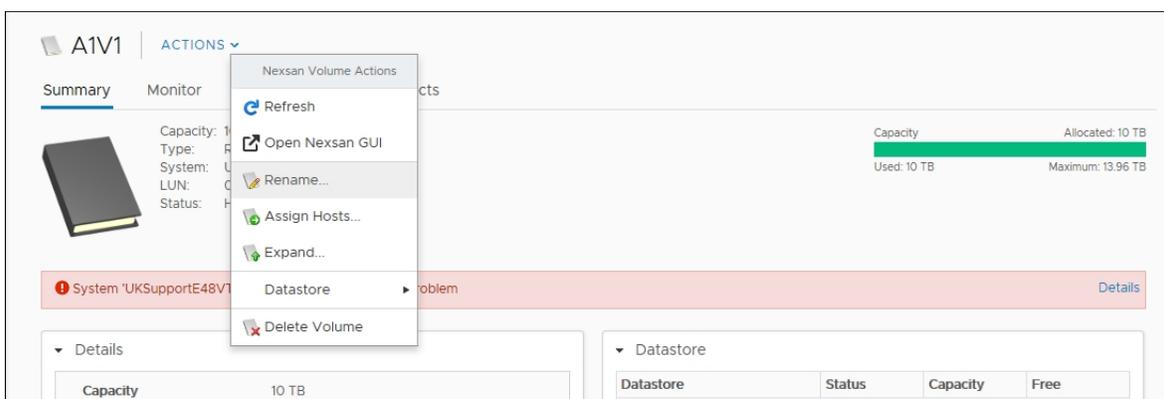
Recent Tasks		Alarms			
Task Name	Target	Status	Initiator	Queued For	
Create VMFS datastore	172.	✓ Completed	VSPHERE.LOCAL\Administrator	15 ms	
Rescan VMFS	172.	✓ Completed	VSPHERE.LOCAL\Administrator	12 ms	
Rescan all HBAs	172.	✓ Completed	VSPHERE.LOCAL\Administrator	17 ms	
Create Nexsan volume	172.	✓ Completed	VSPHERE.LOCAL\Administrator	82 ms	

Renaming a Nexsan Volume

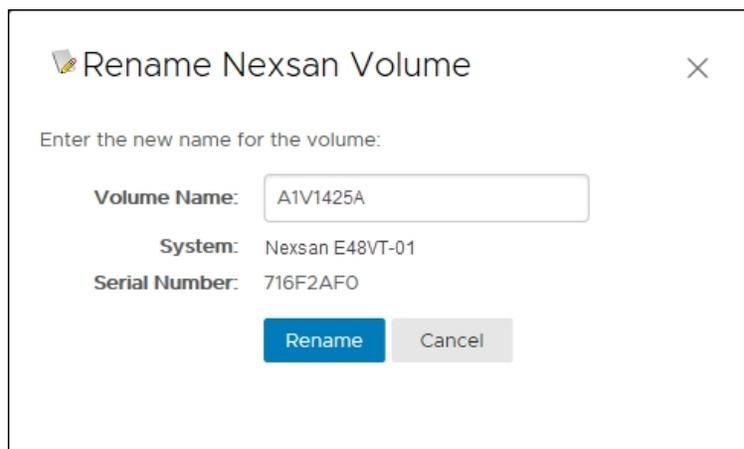
Use this procedure for help with renaming a Nexsan Volume.

▶ **To rename a Nexsan Volume:**

- Open the **Nexsan Volume** you want to rename.
- Click **Actions > Rename**.



- Enter a new volume name.



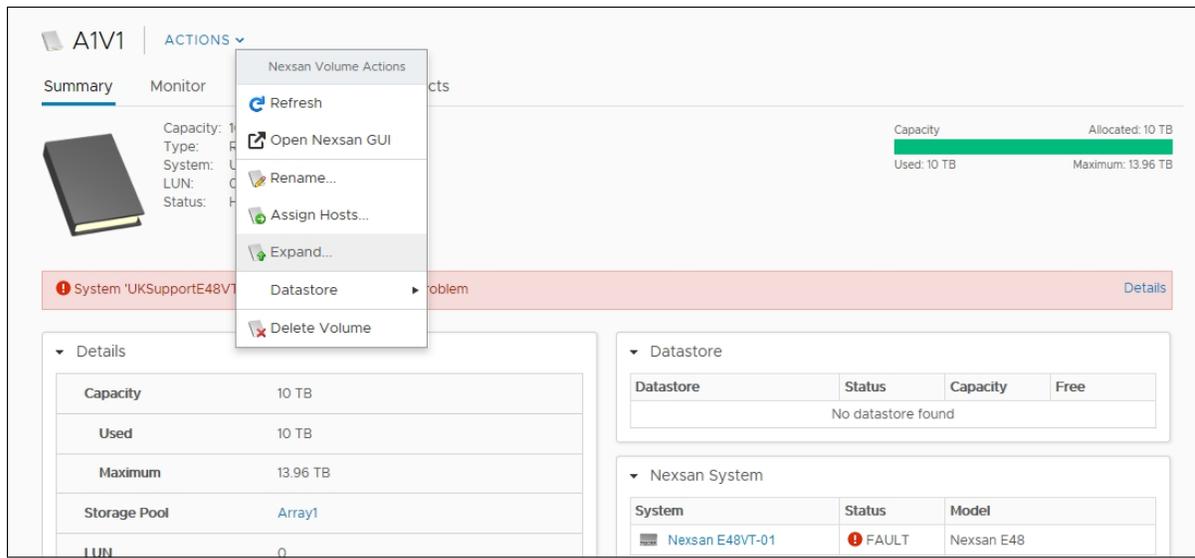
4. Click **Rename**.
5. View **Recent Tasks** to confirm that the process has completed.

Expanding a Nexsan Volume

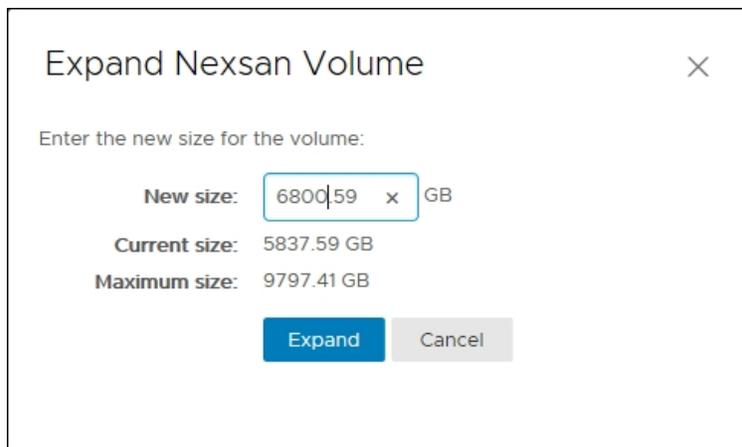
Use this procedure for help with expanding a Nexsan Volume and any associated datastore using available storage pool space.

▶ To expand a Nexsan Volume:

1. [Open the Nexsan Volume](#) you want to expand.
2. Click **Actions > Expand**.



3. Enter a new size for the volume.



4. Click **Expand**.
5. View **Recent Tasks** to confirm that the process has completed. Volume expansion is only marked as completed once all subtasks have finished.

Deleting a Nexsan Volume

Use this procedure to cleanly unmount a Nexsan Volume and any associated datastore.



CAUTION: LOSS OF DATA

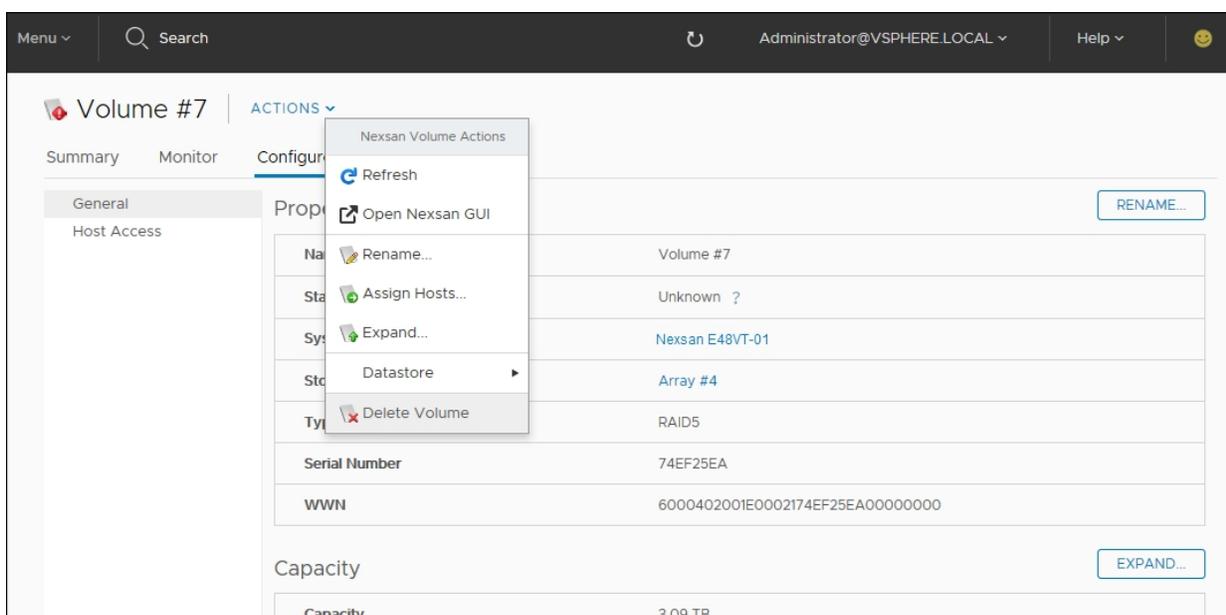
Before you complete this procedure, ensure that the data is either replicated elsewhere or no longer required.

Prerequisite

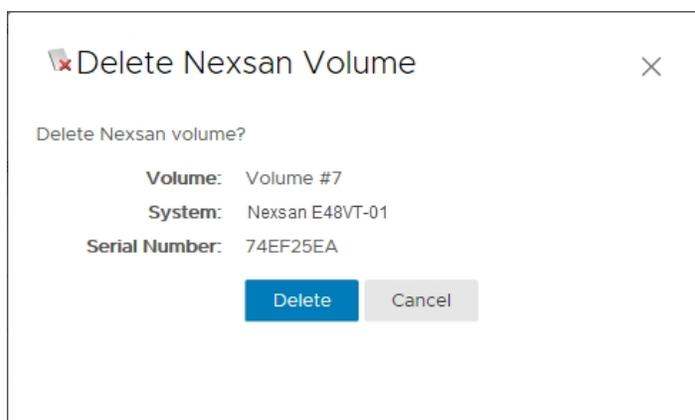
- Remove any associated virtual machines before you delete a Nexsan Volume. Otherwise deletion will be blocked.

▶ To delete a Nexsan Volume:

1. [Open the Nexsan Volume](#) you want to delete.
2. In the **Volume** window, select **Actions > Delete Volume**.



3. In the **Delete Nexsan Volume** window, confirm that you have the right volume, and click **Delete**.



4. View **Recent Tasks** to confirm that the process has completed. Volume deletion is only marked as completed once all subtasks have finished. For example:

Recent Tasks		Alarms			
Task Name	Target	Status	Initiator	Queued For	
Remove datastore	DNA 24	✓ Completed	VSPHERE.LOCAL\Administrator	12 ms	
Delete Nexsan volume	172.	✓ Completed	VSPHERE.LOCAL\Administrator	37 ms	

Creating a datastore

Use this procedure for help with adding a **datastore**¹ to a Nexsan Volume if not already done so when the volume was created. See *also*: "Creating a Nexsan Volume and datastore" ([page 65](#)).

Prerequisite

- The volume must be assigned to the VMware host to have a datastore assigned to it.

See "Assigning a host to a Nexsan Volume" ([page 76](#))

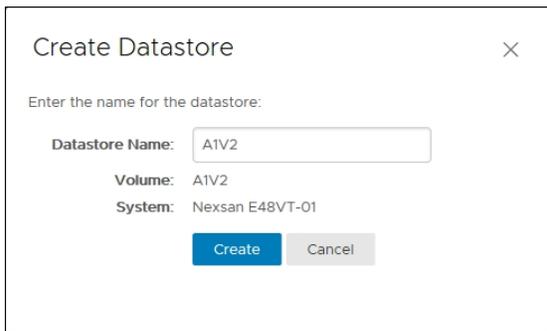
► To create a datastore:

1. [Open a Nexsan Storage System workspace.](#)
2. Select **Volumes / Datastores** from the tab bar. (Alternatively, you can select a volume and then select **Actions > Create Datastore.**)
3. Select the volume you want to add the datastore to.

Nexsan E48VT-01 ACTIONS						
Summary		Monitor	Configure	Volumes / Datastores	More Objects	
Storage Volumes						CREATE VOLUME...
Search: <input type="text"/>						CREATE DATASTORE... RENAME... DELETE
Volume	Status	Capacity	Storage Pool	Datastore	Status	
A1V1	✓ Healthy	10 TB	Array1			
A1V2	✓ Healthy	5.84 TB	Array1			
A3V1	✓ Healthy	3.96 TB	Array1	DNA 24	✓ Normal	
ProductionDataStore	✓ Healthy	5.94 TB	ProductionDS	ProductionDataStore	✓ Normal	
qlogicDriver	✓ Healthy	3.96 TB	Array #4			
						5 items

¹In VMware, datastores are virtual containers similar to file systems, designed to contain storage devices. Datastores contain structures used to store virtual machines and hidden details about each storage device. Datastores can also store VM templates, ISO images, and floppy images. See <https://pubs.vmware.com>

4. Click **Create Datastore**.



5. In the **Create Datastore** window, enter a datastore name and click **Create**.

6. Review the **Related Tasks** pane to confirm that the datastore has been created.

Recent Tasks		Alarms				
Task Name	Target	Status	Initiator	Queued For	Start Time	
Create VMFS datastore	172.17.254.20	✓ Completed	VSPHERE.LOCALVA...	32 ms	02/14/2018 4:52:00 PM	
Rescan VMFS	172.17.254.20	✓ Completed	VSPHERE.LOCALVA...	11 ms	02/14/2018 4:50:03 PM	

The new datastore also displays with the volume in the [Nexsan Storage System](#) and [Nexsan Volumes](#) workspaces.

Renaming a datastore

Use this procedure for help with renaming a datastore.

► **To rename a datastore:**

1. [Open a Nexsan Storage System workspace.](#)
2. On the tab bar, select **Volumes / Datastores**

Nexsan E48VT-01 | ACTIONS ▾

Summary Monitor Configure **Volumes / Datastores** More Objects

Storage Volumes CREATE VOLUME...

Search:

RENAME DATASTORE... RENAME... DELETE

Volume	Status	Capacity	Storage Pool	Datastore	Status
A1V1	✓ Healthy	10 TB	Array1		
A1V2	✓ Healthy	5.84 TB	Array1		
A3V1	✓ Healthy	3.96 TB	Array1	DNA 24	✓ Normal
ProductionDataStore	✓ Healthy	5.94 TB	ProductionDS	ProductionDataStore	✓ Normal
qllogicDriver	✓ Healthy	3.96 TB	Array #4		

5 items

3. Select the volume with the datastore that you want to rename.
4. Click **Rename Datastore**.

Rename Datastore ×

Enter the new name for the datastore:

Datastore Name:

Volume: A3V1

System: Nexsan E48VT-01

Rename Cancel

5. In the **Rename Datastore** window, enter a datastore name and click **Rename**.
6. Review the **Related Tasks** pane to confirm that datastore has been renamed.

Identifying volumes associated with a datastore

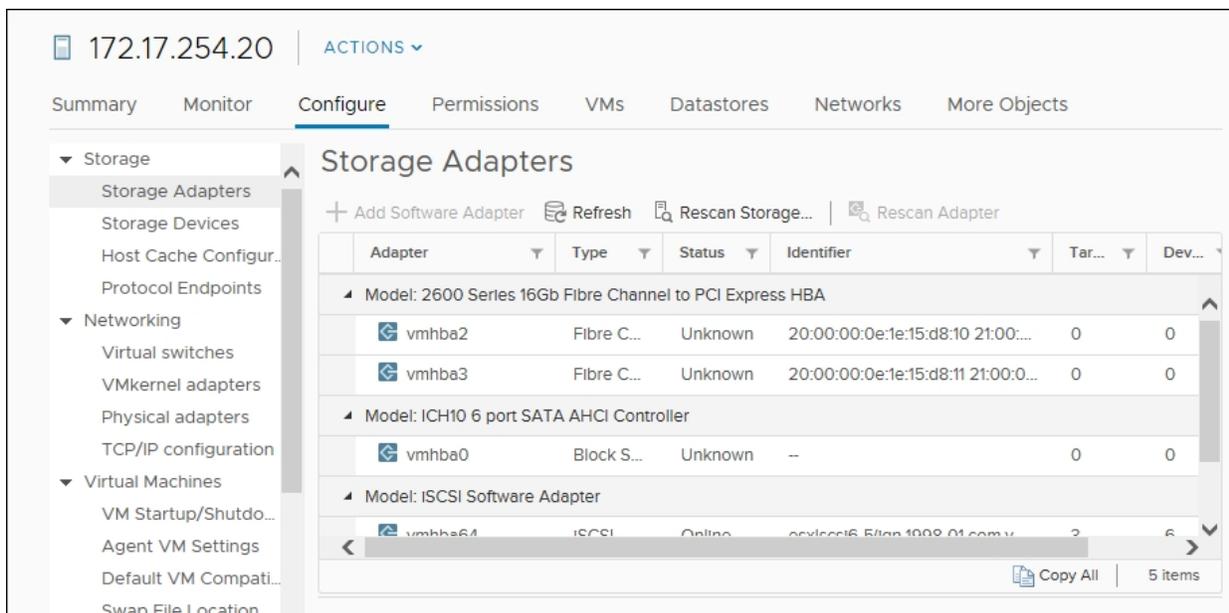
Use this procedure for help with identifying Nexsan Volumes associated with a VMware datastore starting from the VMware **Hosts and Clusters** workspace.

Prerequisite

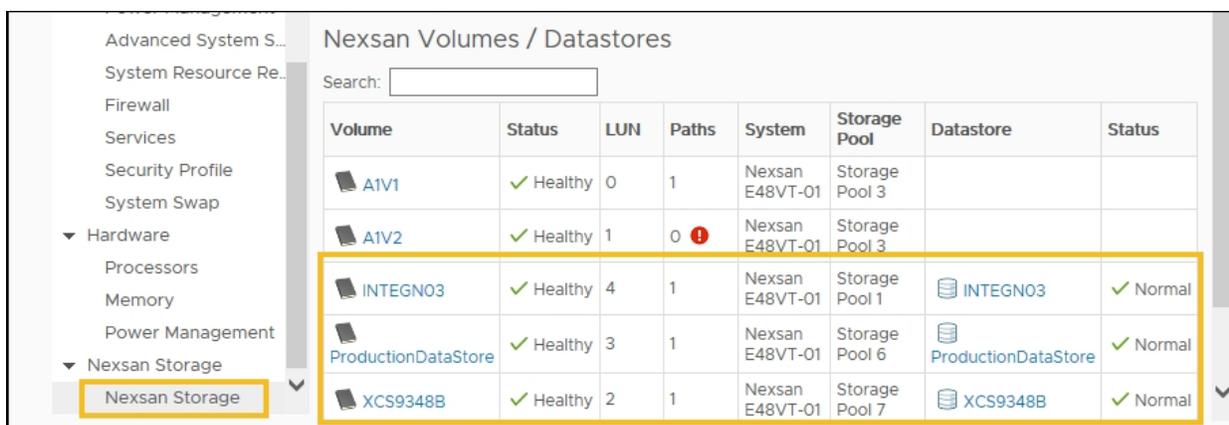
- You'll need to know the name of the datastore that you want to find volumes for.

▶ **To identify Nexsan Volumes associated with a VMware datastore:**

- Open the vSphere client **Hosts and Clusters** workspace.
- On the tab bar, select **Configure**.



- In the navigation pane, select **Nexsan Storage**. Volumes and associated datastores display.



5

Working with hosts

This section provides the following topics for help with working hosts:

Assigning a host to a Nexsan Volume	76
Unassigning a host	79
Viewing hosts assigned to Nexsan Volumes	81
Viewing connected hosts	83
Renaming an initiator	84
Deleting an initiator	85

Assigning a host to a Nexsan Volume

Use this procedure for help with assigning a **host**¹ to a Nexsan Volume. The **Assign Hosts** window displays unassigned **initiator**² names and identifiers.

A volume must be assigned to a host running ESXi to be able to create or access a VMware datastore on it.

► **To assign a host to a Nexsan Volume:**

1. [Open a Nexsan Volume](#).
2. Under **Assigned Hosts**, click **Details**.

The screenshot displays the management interface for a Nexsan volume. At the top, the volume is identified as 'A1V1'. Key details include: Capacity: 10 TB, Type: RAID6, System: Nexsan E48VT-01, LUN: 0, and Status: Healthy. A progress bar shows 10 TB used out of a 10 TB maximum. A red warning banner indicates a system problem. The 'Assigned Hosts' table lists one host with IP 172.17.254.20 and a 'Normal' status. A yellow arrow points to the 'Details' link for this host.

Capacity	10 TB
Used	10 TB
Maximum	10 TB
Storage Pool	Storage Pool 3
LUN	0
Serial Number	716F2AF0
WWN	6000402003E0166E716F2AF000000000

System	Status	Model
Nexsan E48VT-01	FAULT	Nexsan E48

Host	Status	Paths
172.17.254.20	Normal	1

¹A physical computer, server, or other device which accesses the volumes in a Nexsan Storage System. The host can be connected to the Nexsan Storage System with a Fibre Channel connection, an iSCSI connection, or a SAS connection. A VMware host computer runs virtual machines.

²In storage networks, initiators are typically software or hardware Fibre Channel, iSCSI, or SAS adapters accessing information on disk storage systems, the targets.

3. Click **Assign Hosts**. Unassigned initiators display, grouped by VMware host. Unmanaged initiators are listed under **Other**.

Assign Hosts ✕

Search:

UNASSIGN

Initiator Name	Identifier	Status	Paths
172.17.254.20			
iqn.1998-01.com.vmware:5a004e3e-da9e-788-8-5f5d-00259052dee0-4ab16e18	iqn.1998-01.com.vmware:5a004e3e-da9e-788-8-5f5d-00259052dee0-4ab16e18	✓ Online	1
{Other}			

6 items

Search:

ASSIGN

Initiator Name	Identifier	Status	Paths
{Other}			
iqn.2017-09.suse:19190	iqn.2017-09.suse:19190		

1 items

Apply
Cancel

4. Select the **Initiator** you need, and click **Assign**.
5. Check **Recent Tasks** to confirm that the operation has completed.

After you assign a host to a Nexsan Volume with a datastore, you can follow the **Assign Hosts** link from the **Volume** workspace.

▼ **Assigned Hosts**

Host	Status	Paths
172.17.254.20	✓ Normal	1

[Details](#)



6. Click the link to the **Assigned Host** to open the VMware **Hosts and Clusters** workspace.

172.

CPU FREE: 15.57 GHz
 USED: 1.50 GHz CAPACITY: 17.08 GHz

MEMORY FREE: 6.75 GB
 USED: 17.24 GB CAPACITY: 23.99 GB

STORAGE FREE: 7.59 TB
 USED: 7.31 TB CAPACITY: 14.90 TB

Hypervisor: VMware ESXi, 6.5.0, 5969303
 Model: Supercrino X8DTS
 Processor Type: Intel(R) Xeon(R) CPU E5506 @ 2.13GHz
 Logical Processors: 8
 NICs: 4
 Virtual Machines: 9

State: Connected
 Uptime: 62 days

Hardware

Configuration

Tags

Assigned Tag	Category	Description
This list is empty.		

 Assign... Remove...

Custom Attributes

Attribute	Value
AutoDeploy.Ma...	

 Edit...

Related Objects

Cluster
DRSCluster

Update Manager Compliance

Status
--

 Scan ... Detailed Status

Unassigning a host

Use this procedure for help with unassigning a host from a Nexsan Volume.



CAUTION: Before you begin, make sure the host being removed does not have any virtual machines running on the volume.

▶ **To unassign a host from a volume:**

1. [Open the Nexsan Volume](#) you want to unassign host access for.
2. Select **Configure > Host Access**.
3. Click **Assign Hosts**.

CSXMI6 | ACTIONS ▾

Summary Monitor **Configure** More Objects

General
Host Access

Host Access ASSIGN HOSTS...

Search:

Host	Initiator Name	Identifier	Status	Paths
172. [redacted]	iqn.1998-01.com.vmware:5a004e3e-da9e-7888-5f5d-00259052dee0-4ab16e18	iqn.1998-01.com.vmware:5a004e3e-da9e-7888-5f5d-00259052dee0-4ab16e18	✓ Online	1

1 items

4. Select an assigned host and click **Assign Hosts**. The **Assigned Hosts** window opens.

Assign Hosts ✕

Search: UNASSIGN

Initiator Name	Identifier	Status	Paths
{Other}			
50-00-62-B2-00-65-42-C0	50-00-62-B2-00-65-42-C0	✓ Online	1

1 items

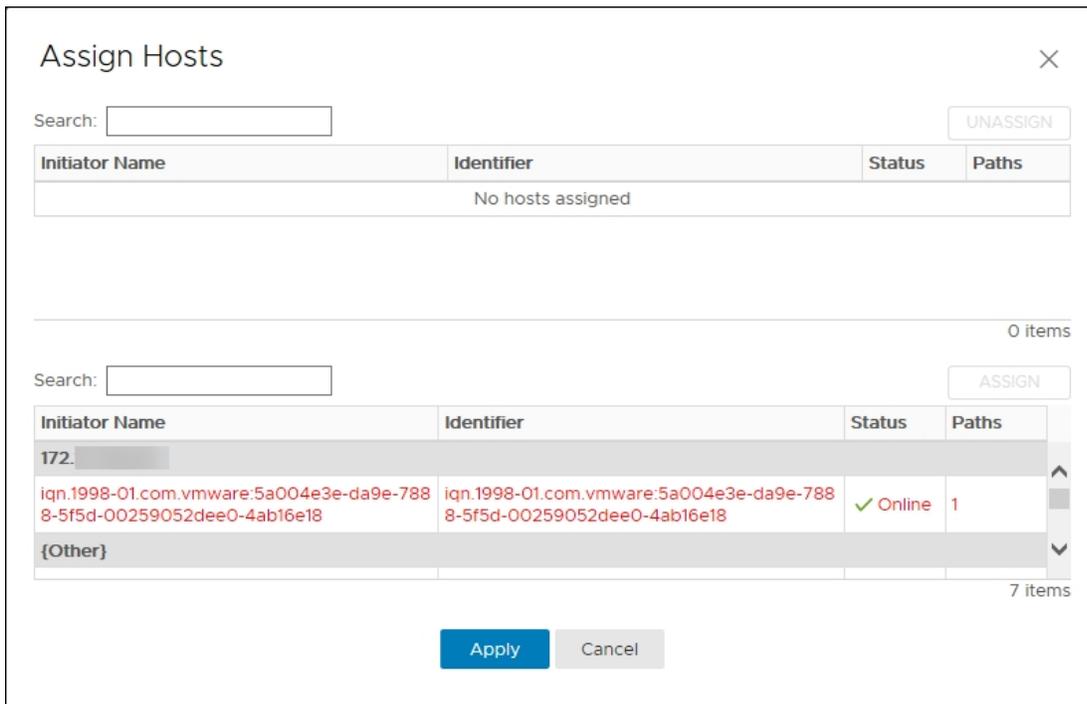
Search: ASSIGN

Initiator Name	Identifier	Status	Paths
172.17.254.20			
iqn.1998-01.com.vmware:5a004e3e-da9e-7888-5f5d-00259052dee0-4ab16e18	iqn.1998-01.com.vmware:5a004e3e-da9e-7888-5f5d-00259052dee0-4ab16e18	✓ Online	1
{Other}			

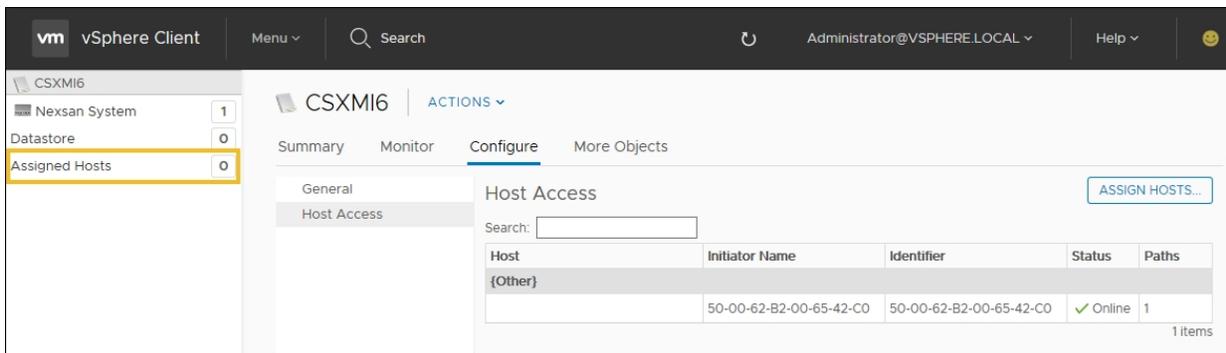
8 items

Apply
Cancel

- Click **Unassign**, then **Apply**. The unassigned host initiator appears in red text in the bottom area of the window.



- Click **Actions > Refresh**. The Assigned Hosts should now update.



- Review the **Recent Tasks** pane to confirm.

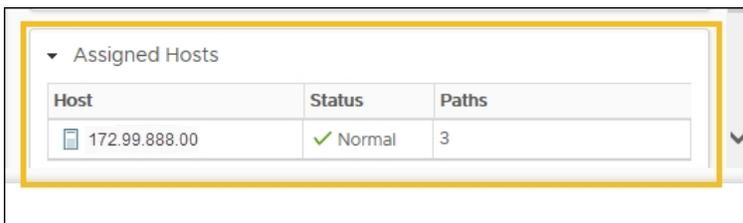
5

Viewing hosts assigned to Nexsan Volumes

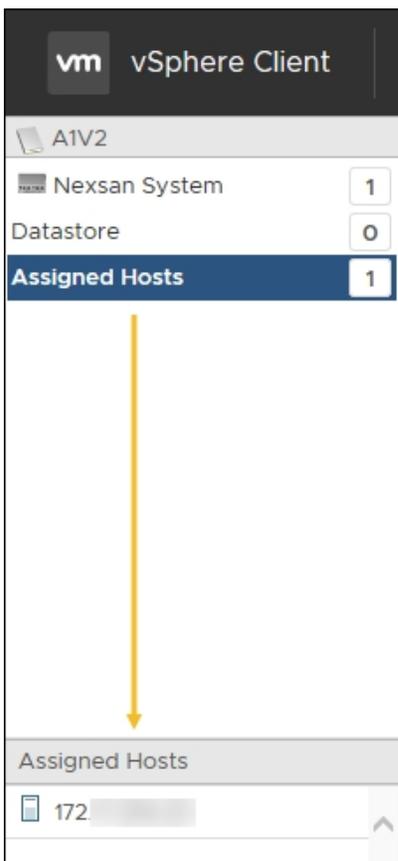
Use this procedure for help with viewing hosts assigned to Nexsan Volumes. If no hosts are currently assigned, see "Assigning a host to a Nexsan Volume" ([page 76](#)).

► **To view hosts assigned to Nexsan Volumes:**

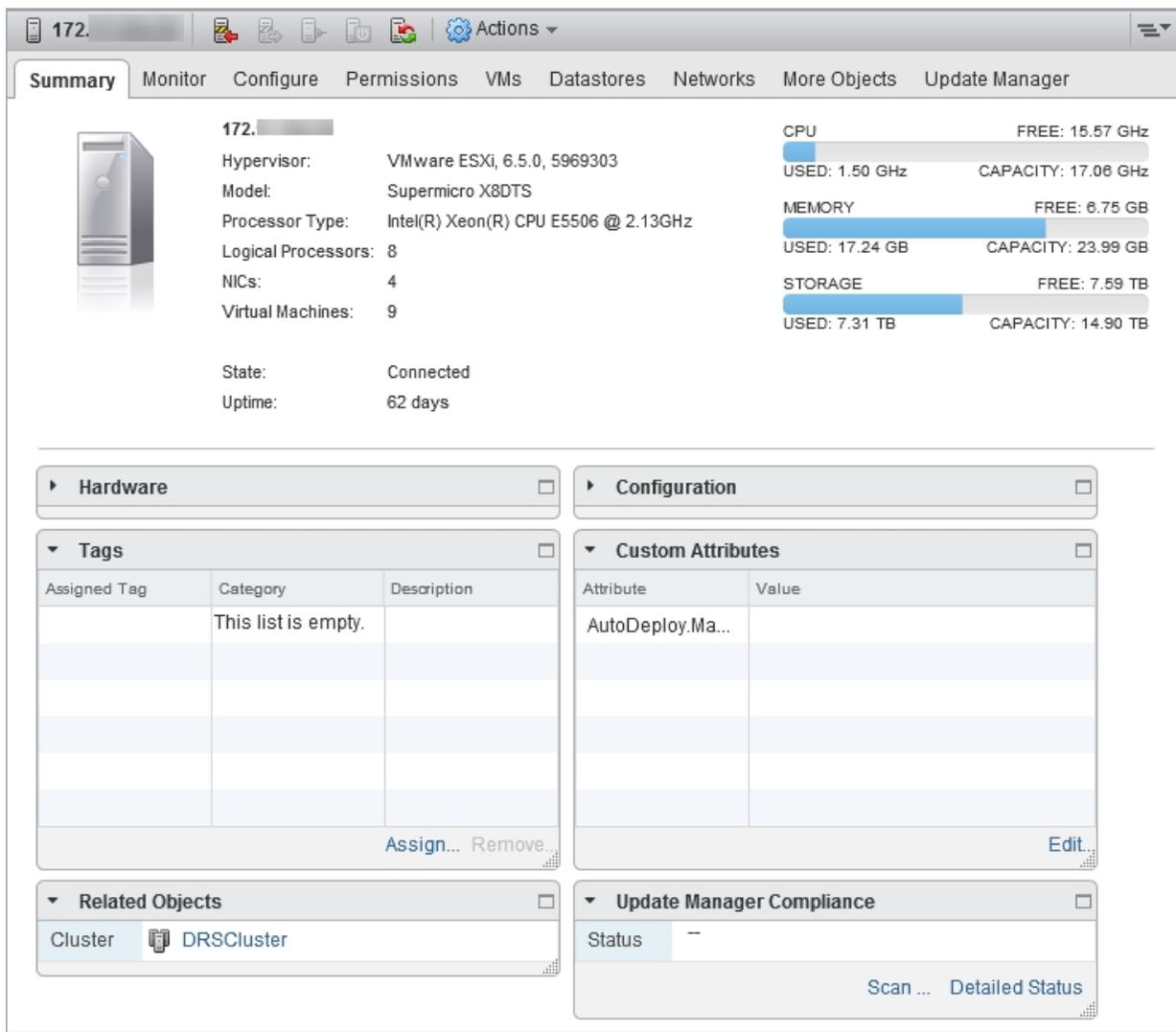
1. [Open the Volume](#) you want to view host assignments for. View **Assigned Hosts, status, and paths** in the bottom right section of the **Volume** workspace.



2. Click **Assigned Hosts** in the object navigator (top left). The Assigned Host appears bottom left.



3. Click the URL to the **Assigned Host** to open the vSphere **Hosts and Clusters** workspace (see image next page).



Viewing connected hosts

Use this procedure for help with viewing connected hosts.

► **To view hosts connected to a Nexsan Storage System:**

1. [Open a Nexsan Storage System workspace.](#)
2. Select **Configure > Connected Hosts**.

The screenshot shows the 'Connected Hosts' configuration page for a Nexsan E48P#2 storage system. The page has a navigation menu on the left with options like Hardware, Storage, and Advanced. The main content area is titled 'Connected Hosts' and features a search bar and two buttons: 'RENAME...' and 'DELETE'. Below these is a table listing connected hosts.

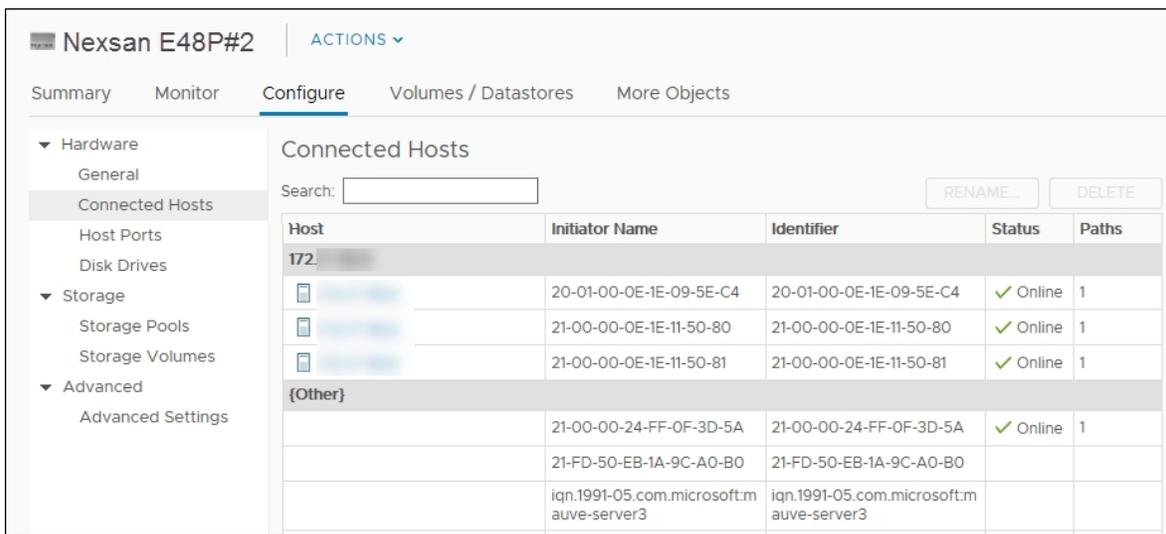
Host	Initiator Name	Identifier	Status	Paths
172.172.172.172				
[Icon]	20-01-00-0E-1E-09-5E-C4	20-01-00-0E-1E-09-5E-C4	✓ Online	1
[Icon]	21-00-00-0E-1E-11-50-80	21-00-00-0E-1E-11-50-80	✓ Online	1
[Icon]	21-00-00-0E-1E-11-50-81	21-00-00-0E-1E-11-50-81	✓ Online	1
{Other}				
	21-00-00-24-FF-0F-3D-5A	21-00-00-24-FF-0F-3D-5A	✓ Online	1
	21-FD-50-EB-1A-9C-A0-B0	21-FD-50-EB-1A-9C-A0-B0		
	iqn.1991-05.com.microsoft:m auve-server3	iqn.1991-05.com.microsoft:m auve-server3		

Renaming an initiator

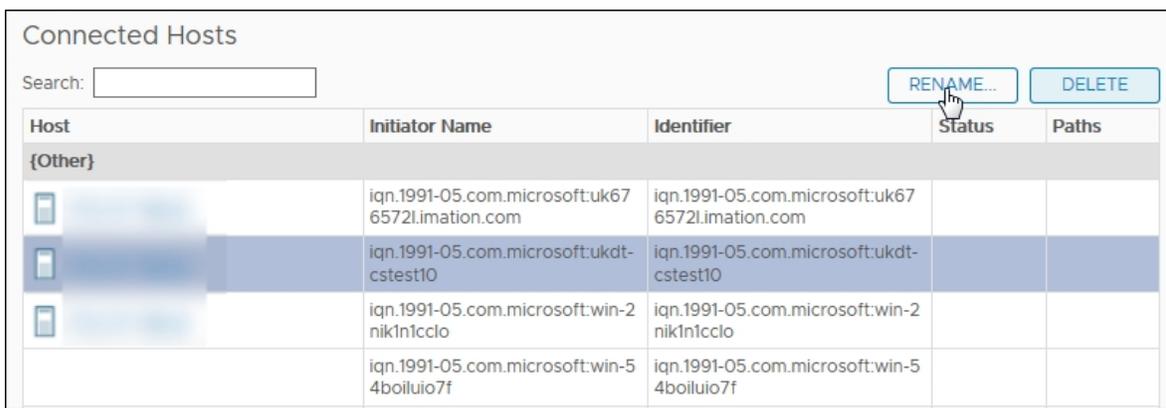
Use this procedure for help with renaming an initiator.

► **To rename an initiator:**

1. [Open the Nexsan Storage System workspace.](#)
2. Select **Configure > Connected Hosts**.



3. Select the initiator you want to rename (select the **Initiator Name** or another part of the row, but not the link to the host).



4. Click **Rename**.

- In the **Rename Initiator** window, enter a new name.

- Click **Actions > Refresh**.
- Review the **Recent Tasks** pane to confirm.

Deleting an initiator

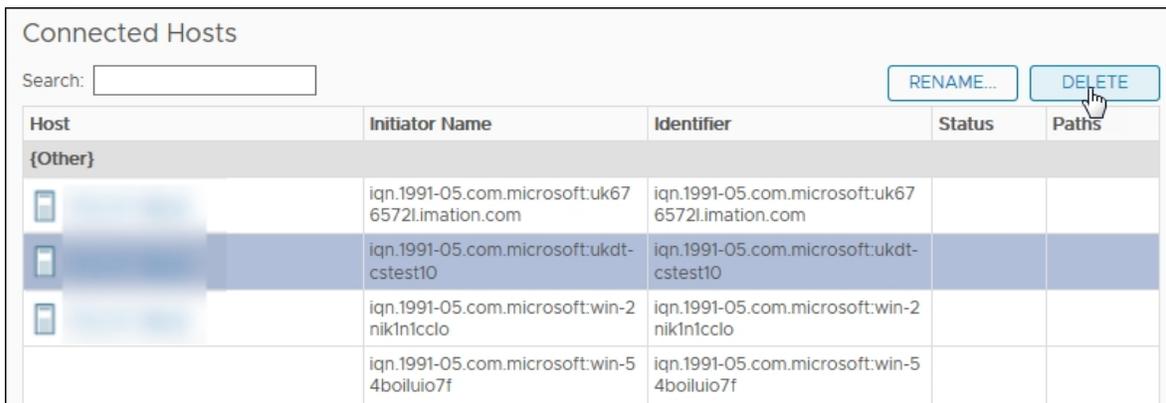
Use this procedure for help with deleting an initiator.

► To delete an initiator:

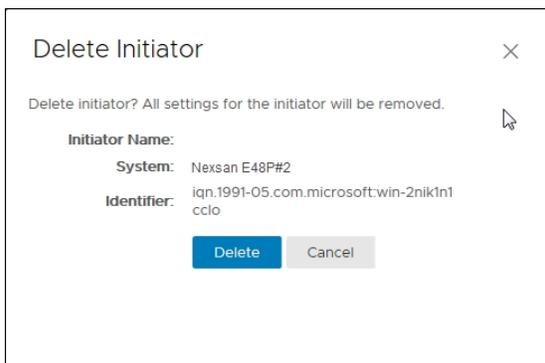
- [Open the Nexsan Storage System workspace.](#)
- Select **Configure > Connected Hosts**.

Host	Initiator Name	Identifier	Status	Paths
172.17.118.8				
	20-01-00-0E-1E-09-5E-C4	20-01-00-0E-1E-09-5E-C4	✓ Online	1
	21-00-00-0E-1E-11-50-80	21-00-00-0E-1E-11-50-80	✓ Online	1
	21-00-00-0E-1E-11-50-81	21-00-00-0E-1E-11-50-81	✓ Online	1
{Other}				
	21-00-00-24-FF-0F-3D-5A	21-00-00-24-FF-0F-3D-5A	✓ Online	1
	21-FD-50-EB-1A-9C-A0-B0	21-FD-50-EB-1A-9C-A0-B0		
	iqn.1991-05.com.microsoft:m auve-server3	iqn.1991-05.com.microsoft:m auve-server3		

3. Select the initiator you want to delete (select the **Initiator Name** or another part of the row, but not the link to the host).



4. Click **Delete**.
5. In the **Delete Initiator** window, verify your choice and click **Delete**.



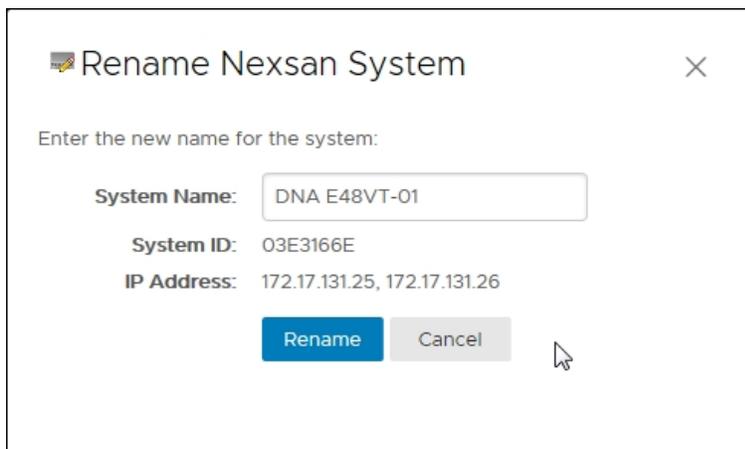
6. Click **Actions > Refresh**.
7. Review the **Recent Tasks** pane to confirm.

Renaming a Nexsan Storage System

Use this procedure for help with renaming a Nexsan Storage System.

► **To rename a Nexsan Storage System:**

1. [Open the Nexsan Storage System workspace](#) you want to rename.
2. Click **Actions > Rename**.
3. Enter a new **System Name**.



Rename Nexsan System

Enter the new name for the system:

System Name: DNA E48VT-01

System ID: 03E3166E

IP Address: 172.17.131.25, 172.17.131.26

Rename Cancel

4. Click **Rename**.
5. Click **Actions > Refresh**.
6. Review the **Recent Tasks** pane to confirm.

Restarting a Nexsan Storage System

Use this procedure for help with restarting a Nexsan Storage System from the plugin.



CAUTION: Ensure that this action is performed during a maintenance window so that no data is lost while the storage system is restarting.

▶ To restart a Nexsan Storage System:

1. [Open a Nexsan Storage System workspace.](#)
2. Select **Actions > Maintenance > Restart.**

The screenshot shows the Nexsan management console for a system named 'Nexsan Beast#1'. The system status is 'Fault' with a red warning icon. A red banner at the bottom indicates 'System 'NexsanBeast#1' is reporting at least 1 Disk 38 has failed'. The 'ACTIONS' menu is open, and the 'Maintenance' sub-menu is selected, with the 'Restart' option highlighted by a yellow box. The interface also displays system details such as Model (Nexsan BEAST), URL (http://172.17.118.90), and various capacity metrics.

Overview	
Model	Nexsan BEAST
Firmware	S011.1301.3
Raw Capacity	113.92 TB (60 disks)
Host Ports	8 x 10Ge-iSCSI 8 x 1Ge-iSCSI

Storage Pools	
Total Storage Pools	4
Healthy	4

Volumes / Datastores	
Datastore Volumes	1
Healthy	1
Non-Datastore Volumes	5

3. In the **Restart Nexsan System** window, select **Hot Restart**, **Rolling Restart**, or **System Reboot**.

- **Hot Restart:** For dual-controller units with certain configurations, this allows you to restart the RAID Controllers without losing host connectivity or data transfer capability. During a hot restart, each RAID Controller reboots individually.

For a hot restart to be performed, both RAID Controllers must be fully operational and have the same firmware version, and the system must be in a mode that supports controller failover (**Active-Active** or **All Ports All LUNs**). If one or more of these conditions is not met, and on single-controller units, the **Hot Restart** option is grayed out.

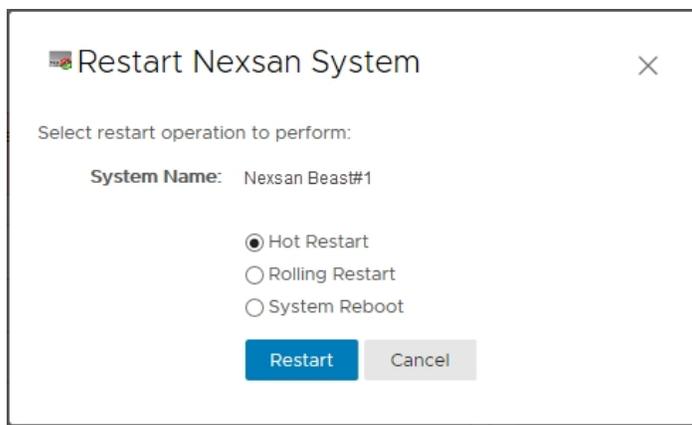
Note System settings requiring a reboot will not be applied by a hot restart.

- **Rolling Restart:** For dual-controller units with certain configurations, this allows you to restart the RAID Controllers with only a brief loss of host connectivity and data transfer capability. During a rolling restart, each RAID Controller reboots individually.

For a rolling restart to be performed, both RAID Controllers must be fully operational and have the same firmware version, and the system must be in a mode that supports controller failover (**Active-Active** or **All Ports All LUNs**). If one or more of these conditions is not met, and on single-controller units, the **Rolling Restart** option is grayed out.

Tip In order to avoid host connection timeout during a rolling restart, disk timeouts for all hardware and virtual servers should be set to 150 seconds or more.

- **System Reboot** (default): This option executes a full restart of the system. While the system is rebooting, the unit is offline, and arrays and volumes are inaccessible. Therefore, hosts should be safely shut down or disconnected before performing a **System Reboot**. After the system has finished rebooting, the arrays and volumes are once again accessible and hosts can be restarted or reconnected.



4. Click **Restart**.

Shutting down a Nexsan Storage System

Use this procedure to shut down a Nexsan Storage System from the plugin.



CAUTION: Physical access is required to restart the system.

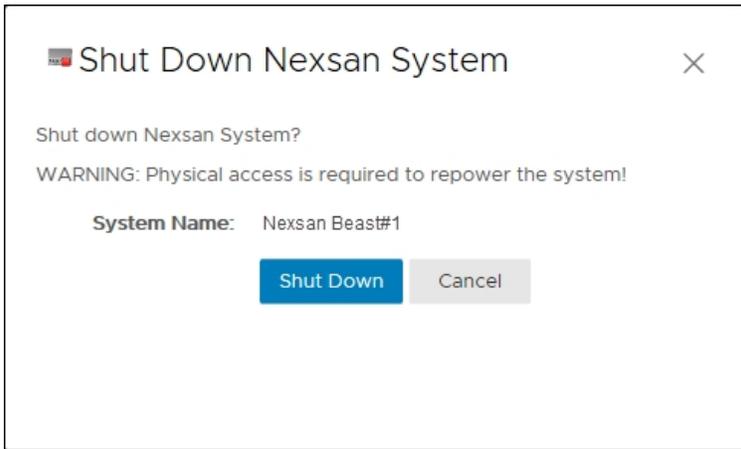
Ensure that this action is performed during a maintenance window, so that no data can be lost during the shutdown period.

► **To shut down the system:**

1. [Open a Nexsan Storage System workspace.](#)
2. Select **Actions > Maintenance > Shut Down.**

The screenshot shows the Nexsan management console for a system named 'Nexsan Beast#1'. The system status is 'Fault' with a red warning icon. A red banner at the top indicates 'System 'Mauve Beast#1' is reporting at least 1 Disk 38 has failed'. The 'ACTIONS' menu is open, showing 'Maintenance' selected, with 'Shut Down' highlighted in a yellow box. The interface includes sections for Overview (Model: Nexsan BEAST, Firmware: S011.1301.3, Raw Capacity: 113.92 TB), Storage Pools (Total: 4, Healthy: 4), and Disk Drives (Total: 60). Capacity bars show Raw Capacity (Free: 300 GB, Allocated: 109.12 TB, Total: 113.92 TB) and Pooled Capacity (Free: 5.21 TB, Allocated: 25.69 TB, Total: 30.9 TB).

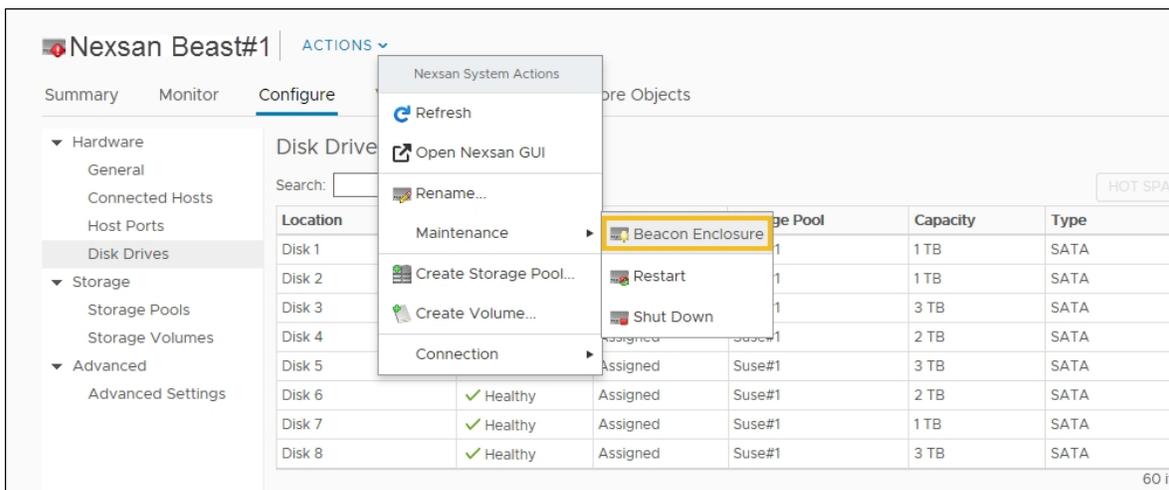
3. In the **Shut Down Nexsan System** window, click **Shut Down**.



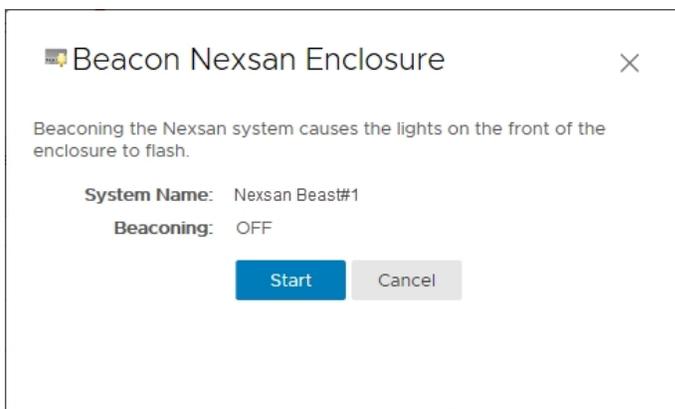
Setting a beacon on an enclosure

Use this procedure for help with setting a beacon on an enclosure to help locate it in a rack.

- ▶ **To set a beacon to an enclosure:**
- 1. [Open a Nexsan Storage System workspace.](#)
- 2. Select **Actions > Maintenance > Beacon Enclosure.**



- 3. In the **Beacon Nexsan Enclosure** window, click **Start**.



- 4. Review **Recent Tasks** to confirm.

Glossary

1

10Gb Ethernet

A 10 gigabit per second (Gb/s) Ethernet connection using either fiber-optic cables or twisted-pair copper wires.

10Gb iSCSI

An iSCSI connection that runs on a 10Gb Ethernet network.

10GbE

See “10Gb Ethernet” and “10Gb iSCSI”.

A

Active Directory

Microsoft’s directory service, used by all supported Windows operating systems. Abbreviated “AD”.

All Ports All LUNs (APAL) mode

A system mode for Nexsan storage systems. In this mode, the entire system operates as a single node. The volumes can be mapped to any or all ports on both RAID controllers. When a controller fails, the ports on that controller become inaccessible. However, if the volumes are mapped to ports on the other controller as well (which requires the host to be configured for multipathing), they remain accessible to the

host, which sees the storage become active through its second path.

array

In Nexsan storage terms, an array is a linked group of one or more physical, independent hard disk drives. In VMware, a storage pool is equivalent to an array. See also “RAID”.

B

bit

The smallest unit of digital data, representing a 0 or a 1. Abbreviated “b”.

boot drive

The device from which a computer’s operating system is loaded. Typically, an internal hard disk drive (or one of several partitions on such a drive) is used for this purpose, but any attached storage device—such as an optical disc drive, a USB flash drive, or other attached storage—can be used.

byte

A unit of data that is 8 bits long. Often used for alphanumeric characters. Abbreviated “B”.

C

Controller

See RAID Controller

D

Datstore

In VMware, datstores are virtual containers similar to file systems, designed to contain storage devices. Datstores contain structures used to store virtual machines and hidden details about each storage device. Datstores can also store VM templates, ISO images, and floppy images. See <https://pubs.vmware.com>

DNS

See “Domain Name System”.

Domain Name System

A program or computer server that implements a name-service protocol. It maps a human-recognizable identifier to a system-internal, often numeric, identification or addressing component (usually an IP address).

E

E-Series

The series of Nexsan units that includes the Nexsan E18, E48, and E60 storage units (and their V and VT variants), the Nexsan E32V, the Nexsan E18X, E48X, and E60X expansion units (and their XV variants), and the Nexsan E32XV. Nexsan E-Series units feature Active Drawer Technology, Anti-Vibration Design, and CoolDrive Technology.

Ethernet

A system for connecting a number of computer systems to form a local area network (LAN), with protocols to control the passing of information and to avoid simultaneous transmission by two or more systems. Supports data transfer rates of 10, 100, 1,000, and 10,000 megabits per second (Mb/s). 10, 100, and 1,000Mb/s networks are often referred to as 10BASE-T, 100BASE-T, and 1000BASE-T, respectively. 10,000Mb/s networks are usually referred to as 10Gb Ethernet or 10GbE.

F

failover

The capability of a system to switch over automatically to a redundant or standby system upon the failure or abnormal termination of the previously active system. In Nexsan storage systems, failover describes one RAID controller taking over the host connections and RAID set control of the other RAID Controller when that controller fails.

Fibre Channel

A gigabit (Gb) speed network technology primarily used for storage networking and the current standard connection type for storage area networks (SANs). Despite its name, Fibre Channel signaling can run on both twisted-pair copper wire and fibre-optic cables.

Fibre Channel port

Any entity that actively communicates over a Fibre Channel network. Usually implemented in a device such as disk storage or a Fibre Channel switch. Depending on the system, the Fibre Channel ports on Nexsan Storage Expansions can support 2Gb/s, 4Gb/s, or 8Gb/s connections.

Fibre Channel switch

A network switch compatible with the Fibre Channel protocol. Allows the creation of a Fibre Channel network, which is currently the core component of most storage area networks (SANs).

firmware

Small, fixed software applications, stored in read-only memory (ROM) or programmable read-only memory (PROM), that internally control various electronic devices. In Nexsan E-Series, and SATABeast/SASBeast storage systems, each RAID controller is loaded with firmware to control its functionality. Occasionally, this firmware must be updated using the Update Firmware page in the graphical user interface.

frame

A data packet on an Ethernet or Fiber Channel link. Each frame encapsulates a piece of data with sender and destination information, along with a data integrity check routine. Normal frames can contain data up to 1,500 bytes in length. Jumbo frames can contain larger data payloads (9,000 bytes on Nexsan storage systems) and are supported on 1Gb/s and 10Gb/s Ethernet (10GbE) networks. Jumbo frames are typically used to boost performance of iSCSI traffic.

G

GB

Gigabyte. Approximately one billion (1,000,000,000) bytes. Used to describe the storage capacity of hard disk drives. A gigabyte is usually computed as 10^9 (1,000,000,000) bytes, but can also be computed as 2^{30} (1,073,741,824) bytes (often called a “binary gigabyte” and abbreviated GiB).

GB/s

Gigabytes (GB) per second. Used to describe the speed of network data transmission. 1 GB/s is eight times faster than 1Gb/s.

GiB

A binary gigabyte, computed as 2^{30} (1,073,741,824) bytes. See “GB”.

gigabit interface converter

A standard for transceivers, commonly used with Gigabit (Gb) Ethernet and Fiber Channel, with a hot-swappable electrical interface. Gigabit interface converter ports can support a wide range of physical media, from copper to optical fiber, at lengths of up to hundreds of kilometers.

graphical user interface

A type of user interface that allows users to interact with electronic devices using images rather than text commands. Nexsan storage units use a graphical user interface for system configuration.

GUI

See “graphical user interface”.

H

host

A physical computer, server, or other device which accesses the volumes in a Nexsan Storage System. The host can be connected to the Nexsan Storage System with a Fibre Channel connection, an iSCSI connection, or a SAS connection. A VMware host computer runs virtual machines.

hot spare

A spare disk in a RAID array designated as “hot standby”, available to replace a failed disk without requiring a system shutdown.

HTTPS

(HTTP Secure) Communications protocol for secure communication over a computer network, with especially wide deployment on the Internet. Technically, it is not a protocol in itself; rather, it is the result of simply layering the Hypertext Transfer Protocol (HTTP) on top of the SSL/TLS protocol, thus adding the security capabilities of SSL/TLS to standard HTTP communications.

I

I/O

Input/Output. The communication between an information processing system (such as a computer or a Nexsan storage system’s RAID controller), and the outside world (either an operator or another information processing system). Inputs are the signals or data received by the system, and outputs are the signals or data sent from it.

IP address

Internet Protocol address. A numerical label assigned to each device (such as a computer, printer, or Nexsan storage unit) on a computer network that uses TCP/IP for communication.

IP Configuration Tool

One of six Nexsan Storage Tools. Allows users to configure the IP address of a Nexsan storage system on the local subnet.

iSCSI

Internet Small Computer System Interface. A transport protocol that provides for the SCSI protocol to be carried over a TCP/IP network.

iSCSI initiator

In storage networks, initiators are typically software or hardware Fibre Channel, iSCSI, or SAS adapters accessing information on disk storage systems, the targets.

J

jumbo frame

See “frame”.

K

KB

Kilobyte. Approximately one thousand (1,000) bytes. Used to describe the storage capacity of hard disk drives and the stripe size in RAID5. A kilobyte is usually computed as 10^3 (1,000) bytes, but can also be computed as 2^{10} (1,024) bytes (often called a “binary kilobyte” and abbreviated KiB).

Kbit

Kilobit. Approximately one thousand (1,000) bits.

KiB

A binary kilobyte. Computed as 2^{10} (1,024) bytes. See “KB”.

L

load balance policy

In multipathing, a set of instructions for the multipathing software to follow in order to ensure that I/O transfers through host paths are

optimally routed and that no one path gets overloaded with data.

logical unit

See “volume”.

LUN

Logical Unit Number. An identification scheme for storage disks that supports a small number of logical units. On Nexsan storage systems, LUNs are assigned to volumes and are addressed as LUN 0 through 254.

M

MB

Megabyte. Approximately one million (1,000,000) bytes. Used to describe the storage capacity of hard disk drives. A megabyte is usually computed as 10^6 (1,000,000) bytes, but can also be computed as 2^{20} (1,048,576) bytes (often called a “binary megabyte” and abbreviated MiB).

MB/s

Megabytes (MByte) per second. Used to describe the speed of network data transmission. 1 MB/s is eight times faster than 1Mb/s.

Mbit

Megabit. Approximately one million (1,000,000) bits.

Mbit/s

Megabits (Mb) per second. Used to describe the speed of network data transmission.

MiB

A binary megabyte. Computed as 2^{20} (1,048,576) bytes. See MByte.

multipathing

A means of presenting volumes to a particular host or hosts via redundant data paths. The intent is to maintain I/O in the event of a path failure. Multipathing may also be used to increase performance. If not configured properly, multipathing may lead to data corruption, as an

operating system may not inherently realize that the redundant paths are of the same volume and thus could treat them as different volumes.

reboot

To restart a computer or computerized electronic device. See also system reboot.

P

PSC

Platform Services Controller (PSC) "is a component of the VMware Cloud Infrastructure Suite. PSC deals with identity management for administrators and applications that interact with the vSphere platform." See <http://docs.vmware.com>

R

RAID

Redundant Array of Independent Disks. A system using multiple hard drives organized into a single logical unit for the sharing or replication of data in order to increase data integrity, fault-tolerance, and throughput. Also referred to as a RAID set. RAID is organized into RAID levels, which describe their architecture and configuration.

RAID Controller

A hardware device, software program, or combination of the two which manages the physical disk drives in a RAID and presents them as a single logical unit to attached devices. The RAID Controllers in Nexsan storage units are hardware modules. Nexsan RAID Controllers also provide connections for system administration and configuration.

RDM

RDM is "a mapping file in a separate VMFS volume that acts as a proxy for a raw physical storage device. The RDM allows a virtual machine to directly access and use the storage device. The RDM contains metadata for managing and redirecting disk access to the physical device." See About Raw Device Mapping, in <http://docs.vmware.com>

S

SAS

Serial Attached SCSI. A serial version of the SCSI interface. A point-to-point architecture that uses a disk controller with four or more channels that operate simultaneously. Each full-duplex channel, known as a SAS port, transfers data at 1.5Gb/s, 3Gb/s, or 6Gb/s in each direction. SAS also supports Serial ATA (SATA) drives, which can be mixed with SAS drives in a variety of configurations.

SATA

Serial Advanced Technology Attachment. A connection standard for fixed and removable hard disk drives.

SCSI

Small Computer System Interface. A collection of standards and proposed standards for input/output (I/O) communication, primarily intended for connecting storage subsystems or devices to hosts.

Storage Pool

See "Array"

T

TB

Terabyte. Approximately one trillion (1,000,000,000,000) bytes. Used to describe the storage capacity of hard disk drives. A terabyte is usually computed as 10^{12} (1,000,000,000,000) bytes, but can also be computed as 2^{40} (1,099,511,627,776) bytes (often called a "binary terabyte" and abbreviated TiB).

TiB

A binary terabyte. Computed as 2^{40} (1,099,511,627,776) bytes. See TB.

V

VAAI

vStorage APIs for Array Integration is a plugin that provides hardware acceleration in VMware ESX/ESXi environments.

vCSA

The vCenter Server Appliance is a preconfigured Linux virtual machine, which is optimized for running VMware vCenter Server® and the associated services on Linux. See <http://docs.vmware.com>

VMFS

Virtual machine file system, a clustered file system used by VMware vSphere to store virtual machine disk images and snapshots.

volume

An area of usable storage that is addressed as a single unit as if it were a separate, physical disk drive. Volumes can exist on a single disk drive or on a RAID that spans multiple disk drives.

W

WWN

A World Wide Name (WWN) "or World Wide Identifier (WWID) is a unique identifier used in storage technologies including Fibre Channel, Advanced Technology Attachment (ATA) or Serial Attached SCSI (SAS)." See <http://www.wikipedia.org>



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