Cluster management with System Manager

ONTAP 9

NetApp
December 01, 2021

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Administration overview with System Manager

The topics in this section show you how to manage your cluster with ONTAP System Manager in ONTAP 9.7 and later releases.

If you are using the classic System Manager (available only in ONTAP 9.7 and earlier), see this content:

- System Manager Classic (ONTAP 9.0 to 9.7)

ONTAP System Manager is a graphical management interface that enables you to use a web browser to manage storage systems and storage objects (such as disks, volumes, and storage tiers) and perform common management tasks related to storage systems.

Using the System Manager Dashboard, you can view at-a-glance information about important alerts and notifications, the efficiency and capacity of storage tiers and volumes, the nodes that are available in a cluster, the status of the nodes in an HA pair, the most active applications and objects, and the performance metrics of a cluster or a node.

With System Manager you can perform many common tasks, such as the following:

- Create a cluster, configure a network, and set up support details for the cluster.
- Configure and manage storage objects, such as disks, local tiers, volumes, qtrees, and quotas.
- Configure protocols, such as SMB and NFS, and provision file sharing.
- Configure protocols such as FC, FCoE, NVMe, and iSCSI for block access.
- Create and configure network components, such as subnets, broadcast domains, data and management interfaces, and interface groups.
- Set up and manage mirroring and vaulting relationships.
- Perform cluster management, storage node management, and storage virtual machine (storage VM) management operations.
- Create and configure storage VMs, manage storage objects associated with storage VMs, and manage storage VM services.
- Monitor and manage high-availability (HA) configurations in a cluster.
- Configure service processors to remotely log in, manage, monitor, and administer the node, regardless of the state of the node.

System Manager terminology

System Manager uses different terminology than the CLI for some ONTAP key functionality.

- **Local tier** – a set of physical solid-state drives or hard-disk drives you store your data on. You might know these as aggregates. In fact, if you use the ONTAP CLI, you will still see the term *aggregate* used to represent a local tier.
- **Cloud tier** – storage in the cloud used by ONTAP when you want to have some of your data off premises for one of several reasons. If you are thinking of the cloud part of a FabricPool, you've already figured it out. And if you are using a StorageGRID system, your cloud might not be off premises at all. (A cloud like experience on premises is called a *private cloud*.)

- **Storage VM** – a virtual machine running within ONTAP that provides storage and data services to your clients. You might know this as an *SVM* or a *vserver*.
- **Network interface** - an address and properties assigned to a physical network port. You might know this as a *logical interface (LIF)*.
- **Pause** - an action that halts operations. Before ONTAP 9.8, you might have referred to *quiesce* in other versions of System Manager.

Enable new features by adding license keys

Some ONTAP features are enabled by license keys. You can add license keys using ONTAP System Manager.

Beginning with ONTAP 9.10.1, you use System Manager to install a NetApp License File to enable multiple licensed features all at once. Using a NetApp License File simplifies license installation because you no longer have to add separate feature license keys. You download the NetApp License File from the NetApp Support Site.

If you already have license keys for some features and you are upgrading to ONTAP 9.10.1, you can continue to use those license keys.

Steps

1. Click **Cluster > Settings**.
2. Under **License**, click →.
3. Click **Browse** to locate and select the NetApp License File you downloaded.
4. If you have license keys you want to add, select **Use 28-character license keys** and enter the keys.

View and submit support cases

Starting with ONTAP 9.9.1, you can view support cases from Active IQ associated with the cluster. You can also copy cluster details that you need to submit a new support case on the NetApp Support Site.

When working with ONTAP 9.9.1, to receive alerts about firmware updates, you must be registered with Active IQ Unified Manager. Refer to Active IQ Unified Manager documentation resources.

Steps

1. In System Manager, select **Support**.

   A list of open support cases associated with this cluster is displayed.

2. Click on the following links to perform procedures:
   - **Case Number**: See details about the case.
   - **Go to NetApp Support Site**: Navigate to the **My AutoSupport** page on the NetApp Support Site to view knowledge base articles or submit a new support case.
   - **View My Cases**: Navigate to the **My Cases** page on the NetApp Support Site.
   - **View Cluster Details**: View and copy information you will need when you submit a new case.

Monitor risks

Beginning with ONTAP 9.10.0, you can use System Manager to monitor the risks reported by Active IQ Digital Advisor. Beginning with ONTAP 9.10.1, you can use System Manager to also acknowledge the risks.

NetApp Active IQ Digital Advisor reports opportunities to reduce risk and improve the performance and efficiency of your storage environment. With System Manager, you can learn about risks reported by Active IQ and receive actionable intelligence that helps you administer storage and achieve higher availability, improved security, and better storage performance.

Link to your Active IQ account

To receive information about risks from Active IQ, you should first link to your Active IQ account from System Manager.

Steps

1. In System Manager, click **Cluster > Settings**.
2. Under **Active IQ Registration**, click **Register**.
3. Enter your credentials for Active IQ.
4. After your credentials are authenticated, click **Confirm to link Active IQ with System Manager**.

View the number of risks

Beginning with ONTAP 9.10.0, you can view from the dashboard in System Manager the number of risks reported by Active IQ.

Before you begin

You must establish a connection from System Manager to your Active IQ account. Refer to Link to your Active IQ account.

Steps

1. In System Manager, click **Dashboard**.
2. In the **Health** section, view the number of reported risks.

> You can view more detailed information about each risk by clicking the message showing the number of risks. See View details of risks.

View details of risks

Beginning with ONTAP 9.10.0, you can view from System Manager how the risks reported by Active IQ are categorized by impact areas. You can also view detailed information about each reported risk, its potential impact on your system, and corrective actions you can take.

Before you begin

You must establish a connection from System Manager to your Active IQ account. Refer to Link to your Active IQ account.

Steps

1. Click **Events > All Events**.
2. In the **Overview** section, under **Active IQ Suggestions**, view the number of risks in each impact area category. The risk categories include:
    - Performance & efficiency
    - Availability & protection
    - Capacity
    - Configuration
    - Security
3. Click on the **Active IQ Suggestions** tab to view information about each risk, including the following:
    - Level of impact to your System
    - Category of the risk
    - Nodes that are affected
    - Type of mitigation needed
    - Corrective actions you can take

Acknowledge risks

Beginning with ONTAP 9.10.1, you can use System Manager to acknowledge any of the open risks.

Steps

1. In System Manager, display the list of risks by performing the procedure in View details of risks.
2. Click on the risk name of an open risk that you want to acknowledge.
3. Enter information into the following fields:
    - Reminder (date)
    - Justification
    - Comments
4. Click **Acknowledge**.

After you acknowledge a risk, it takes a few minutes for the change to be reflected in the list of Active IQ suggestions.

Unacknowledge risks

Beginning with ONTAP 9.10.1, you can use System Manager to unacknowledge any risk that was previously acknowledged.

Steps

1. In System Manager, display the list of risks by performing the procedure in View details of risks.
2. Click on the risk name of an acknowledged risk that you want to unacknowledge.
3. Enter information into the following fields:
    - Justification
    - Comments

4. Click **Unacknowledge**.

> After you unacknowledge a risk, it takes a few minutes for the change to be reflected in the list of Active IQ suggestions.

View hardware configurations to determine problems

With ONTAP 9.8 and later, you can use System Manager to view the configuration of AFF hardware on your network and determine if problems might arise.

Before you Start

For ONTAP 9.8, System Manager provides a *preview* of the capability to view AFF hardware configurations. Starting with ONTAP 9.9.1, you can view all AFF hardware configurations.

Steps

To view AFF hardware configurations, perform the following steps:

1. In System Manager, select **Cluster > Hardware**.
2. Hover your mouse over components to view status and other details.

   You can view various types of information:

   - Information about controllers
   - Information about disk shelves
   - Information about storage switches

Information about controllers

You can view the following:

Nodes:

- Rear views are displayed.
- Models with an internal disk shelf also show the disk layout in the front view.
- You can view the following platform models:

If your system is running…	Then you can view…
ONTAP 9.8	C190, A220, A300, A400, and A700
ONTAP 9.9.1	C190, A220, A250, A300, A320, A400, A700, A700s, A800, FAS500f

Ports:

- Console ports are not shown.
- A port is red if it is down.
- The status of a port and other details are shown when you hover over the port.

FRUs:

Information about FRUs appears only when the state of a FRU is non-optimal.

- Failed PSUs in nodes or chassis.
- High temperatures detected in nodes.
- Failed fans on the nodes or chassis.

Adapter cards:

- Cards with defined part number fields are shown in the slots if external cards has been inserted.
- Ports on cards are shown.
- Certain cards are shown with specific images of the cards. If the card is not in the list of supported part numbers, then a generic graphic is displayed.

Information about disk shelves

You can view the following:

Disk shelves:

- Front and rear views are displayed.
- You can view the following disk shelf models:

If your system is running…	Then you can view…
ONTAP 9.8	DS4243, DS4486, DS212C, DS2246, DS224C, and NS224
ONTAP 9.9.1	All supported disk shelf models

Shelf ports:

- Port status is displayed.
- Remote port information is shown if the port is connected.

Shelf FRUs:

- PSU failure information is shown.

Information about storage switches

- The display shows switches that act as storage switches used to connect shelves to nodes.
- Starting with 9.9.1, System Manager displays information about a switch that acts as both a storage switch and a cluster, which can also be shared between nodes of an HA pair.
- You can view the following storage switch models:

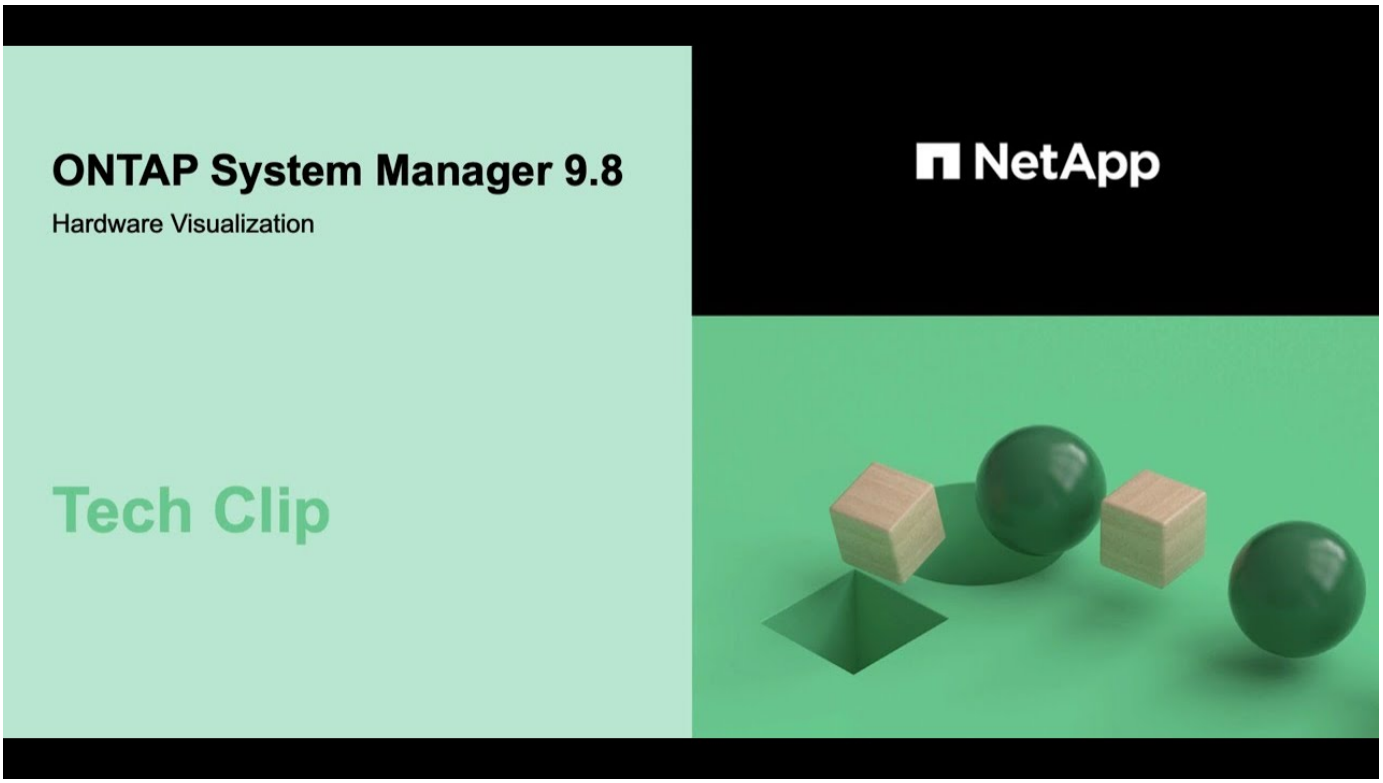
If your system is running…	Then you can view…
ONTAP 9.8	Cisco Nexus 3232C Switch

If your system is running…	Then you can view…
ONTAP 9.9.1	Cisco Nexus 3232C Switch Cisco Nexus 9336C-FX2 Switch

- You can view the following:
  - **Storage switch** information includes switch name, IP address, serial number, SNMP version, and system version.
  - **Storage switch port** information includes identity name, identity index, state, and other details, including remote connection.

ONTAP System Manager 9.8 Hardware Visualization video

The hardware visualization feature enables users to quickly visualize hardware status and any potential connection issues.



Add disks to a local tier (Add capacity to aggregate)

You can increase the size of an existing aggregate (local tier) by adding capacity disks.

Steps

1. Click **(Return to classic version)**.
2. Click **Hardware and Diagnostics > Aggregates**.
3. Select the aggregate to which you want to add capacity disks, and then click **Actions > Add Capacity**.

   You should add disks that are of the same size as the other disks in the aggregate.

4. Click **Switch to the new experience**.
5. Click **Storage > Tiers** to verify the size of the new aggregate.

Manage nodes

Reboot, shut down, take over, and give back nodes

You should switch a node's workload to its HA partner (takeover) before rebooting or shutting down the node.

Steps

1. Click **Cluster > Overview**.
2. Under **Nodes**, click ⋮.
3. Click the node and select the desired action.

Add nodes to cluster

You can increase the size and capabilities of your cluster by adding new nodes.

Before you Start

You should have already cabled the new nodes to the cluster.

There are separate processes for working with System Manager in ONTAP 9.7 or ONTAP 9.8.

- Adding nodes to a cluster with System Manager 9.7
- Adding nodes to a cluster with System Manager 9.8

Adding nodes to a cluster with System Manager 9.7

Steps

1. Click **(Return to classic version)**.
2. Click **Configurations > Cluster Expansion**.

   System Manager automatically discovers the new nodes.
3. Click **Switch to the new experience**.
4. Click **Cluster > Overview** to view the new nodes.

Adding nodes to a cluster with System Manager 9.8

Steps

1. Select **Cluster > Overview**.

   The new controllers are shown as nodes connected to the cluster network but are not in the cluster.
2. Click **Add**.
   - The nodes are added into the cluster.
   - Storage is allocated implicitly.