Cluster management with System Manager

ONTAP 9

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Administration overview with System Manager

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.

The procedures in this section help you manage your cluster with System Manager in ONTAP 9.7 and later releases.

- Beginning with ONTAP 9.8, System Manager is no longer available as an executable file and is included with ONTAP software as a web service, enabled by default, and accessible by using a browser.
- The name of System Manager has changed beginning with ONTAP 9.6. In ONTAP 9.5 and earlier it was called OnCommand System Manager. Beginning with ONTAP 9.6 and later, it is called System Manager.
- If you are using the classic System Manager (available only in ONTAP 9.7 and earlier), refer to System Manager Classic (ONTAP 9.0 to 9.7)

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.

Use System Manager to access a cluster

If you prefer to use a graphic interface instead of the command-line interface (CLI) for accessing and managing a cluster, you can do so by using System Manager, which is included with ONTAP as a web service, is enabled by default, and is accessible by using a browser.

Beginning with ONTAP 9.12.1, System Manager is fully integrated with BlueXP.

With BlueXP, you can manage your hybrid multicloud infrastructure from a single control plane while retaining the familiar System Manager dashboard.

See System Manager integration with BlueXP.

What you'll need

- You must have a cluster user account that is configured with the "admin" role and the "http" and "console" application types.
- You must have enabled cookies and site data in the browser.

About this task

You can use a cluster management network interface (LIF) or node management network interface (LIF) to access System Manager. For uninterrupted access to System Manager, you should use a cluster management network interface (LIF).

Steps

1. Point the web browser to the IP address of the cluster management network interface:
   - If you are using IPv4: **`https://cluster-mgmt-LIF`**
   - If you are using IPv6: **`https://[cluster-mgmt-LIF]`**

     

     Only HTTPS is supported for browser access of System Manager.

   If the cluster uses a self-signed digital certificate, the browser might display a warning indicating that the certificate is not trusted. You can either acknowledge the risk to continue the access or install a Certificate

Authority (CA) signed digital certificate on the cluster for server authentication.

2. **Optional:** If you have configured an access banner by using the CLI, then read the message that is displayed in the **Warning** dialog box, and choose the required option to proceed.

   This option is not supported on systems on which Security Assertion Markup Language (SAML) authentication is enabled.

   - If you do not want to continue, click **Cancel**, and close the browser.
   - If you want to continue, click **OK** to navigate to the System Manager login page.

3. Log in to System Manager by using your cluster administrator credentials.

   Beginning with ONTAP 9.11.1, when you log in to System Manager, you can specify the locale. The locale specifies certain localization settings, such as language, currency, time and date format, and similar settings. For ONTAP 9.10.1 and earlier, the locale for System Manager is detected from the browser. To change the locale for System Manager, you have to change the locale of the browser.

4. **Optional**: Beginning with ONTAP 9.12.1, you can specify your preference for the appearance of System Manager:
   a. In the upper right corner of System Manager, click to manage user options.
   b. Position the **System Theme** toggle switch to your preference:

Toggle position	Appearance setting
(left)	Light theme (Light background with dark text)
OS (center)	Default to the theme preference that was set for the operating system's applications (usually the theme setting for the browser that is used to access System Manager).
(right)	Dark theme (Dark background with light text)

Related information

Managing access to web services

Accessing a node's log, core dump, and MIB files by using a web browser

Enable new features by adding license keys

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

Beginning 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.
Beginning with ONTAP 9.10.1, you can enable telemetry logging, which helps support personnel troubleshoot problems.

ⓘ 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.

Enable telemetry logging

Beginning with ONTAP 9.10.1, you can use System Manager to enable telemetry logging. When telemetry logging is allowed, messages that are logged by System Manager are given a specific telemetry identifier that indicates the exact process that triggered the message. All messages that are issued relating to that process have the same identifier, which consists of the name of the operational workflow and a number (for example "add-volume-1941290").

If you experience performance problems, you can enable telemetry logging, which allows support personnel to more easily identify the specific process for which a message was issued. When telemetry identifiers are added to the messages, the log file is only slightly enlarged.

Steps

1. In System Manager, select **Cluster > Settings**.
2. In **UI Settings** section, click the check box for **Allow telemetry logging**.

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.

Gain insights to help optimize your system

With System Manager, you can view insights that help you optimize your system.

About this task

Beginning with ONTAP 9.11.0, you can view insights in System Manager that help you optimize the capacity and security compliance of your system.

Beginning with ONTAP 9.11.1, you can view additional insights that help you optimize the capacity, security compliance, and configuration of your system.

Based on best practices, these insights are displayed on one page from which you can initiate immediate actions to optimize your system.

View optimization insights

Steps

1. In System Manager, click **Insights** in the left-hand navigation column.

   The **Insights** page shows groups of insights. Each group of insights might contain one or more insights. The following groups are displayed:

   - Needs your attention
   - Remediate risks
   - Optimize your storage

2. (Optional) Filter the insights that are displayed by clicking these buttons in the upper-right corner of the page:

   -  Displays the security-related insights.
   -  Displays the capacity-related insights.
   -  Displays the configuration-related insights.
   -  Displays all of the insights.

Respond to insights to optimize your system

In System Manager, you can respond to insights by either dismissing them, exploring different ways to remediate the problems, or initiating the process to fix the problems.

Steps

1. In System Manager, click **Insights** in the left-hand navigation column.

2. Hover over an insight to reveal the buttons to perform the following actions:
   - **Dismiss**: Remove the insight from the view. To “undismiss” the insight, refer to Customize the settings for insights.
   - **Explore**: Find out various ways to remediate the problem mentioned in the insight. This button appears only if there is more than one method of remediation.
   - **Fix**: Initiate the process of remediating the problem mentioned in the insight. You will be asked to confirm whether you want to take the action needed to apply the fix.

Some of these actions can be initiated from other pages in System Manager, but the **Insights** page helps you streamline your day-to-day tasks by allowing you to initiate these action from this one page.

Customize the settings for insights

You can customize which insights you will notified about in System Manager.

Steps

1. In System Manager, click **Insights** in the left-hand navigation column.
2. In the upper-right corner of the page, click ⋮, then select **Settings**.
3. On the **Settings** page, ensure there is a check in the check boxes next to the insights you want to be notified about. If you previously dismissed an insight, you can “undismiss” it by ensuring a check is in its check box.
4. Click **Save**.

Export the insights as a PDF file

You can export all applicable insights as a PDF file.

Steps

1. In System Manager, click **Insights** in the left-hand navigation column.
2. In the upper-right corner of the page, click ⋮, then select **Export**.

View hardware configurations to determine problems

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

Steps

To view 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
3. Beginning with ONTAP 9.12.1, you can view cabling information in System Manager. Click the **Show Cables** check box to view cabling, then hover over a cable to view its connectivity information.
    - Information about cabling

Information about controllers

You can view the following:

Nodes

Nodes:

- Front and 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 use System Manager to view…
ONTAP 9.8	A220, A300, A400, A700, and C190 (Only a *preview* of this feature is available.)
ONTAP 9.9.1	A220, A250, A300, A320, A400, A700, A700s, A800, C190, and FAS500f
ONTAP 9.10.1	A220, A250, A300, A320, A400, A700, A700s, A800, A900, C190, and FAS500f.
ONTAP 9.11.1 or later	A220, A250, A300, A320, A400, A700, A700s, A800, A900, C190, FAS2720, FAS2750, FAS500F, FAS8300, FAS8700, FAS9000, and FAS9500

Ports

Ports:

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

  Notes:

  - For ONTAP 9.10.1 and earlier, SAS ports are displayed in red when they are disabled.
  - Beginning with 9.11.1, SAS ports are highlighted in red only if they are in an error state or if a cabled port that is being used goes offline. The ports are shown in white if they are offline and uncabled.

FRUs

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

Adapter cards:

- Cards with defined part number fields are shown in the slots if external cards have 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

Disk shelves:

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

If your system is running…	Then you can use System Manager to view…
ONTAP 9.8	DS4243, DS4486, DS212C, DS2246, DS224C, and NS224
ONTAP 9.9.1 and later	All non-EOS and non-EOA shelves

Shelf ports

Shelf ports:

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

Shelf FRUs

Shelf FRUs:

- PSU failure information is shown.

Information about storage switches

You can view the following:

Storage switches

Storage switches:

- The display shows switches that act as storage switches used to connect shelves to nodes.
- Beginning with ONTAP 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.
- The following information is displayed:
  - Switch name
  - IP address
  - Serial number
  - SNMP version
  - System version
- You can view the following storage switch models:

If your system is running…	Then you can use System Manager to view…
ONTAP 9.8	Cisco Nexus 3232C Switch
ONTAP 9.9.1 and 9.10.1	Cisco Nexus 3232C Switch Cisco Nexus 9336C-FX2 Switch
ONTAP 9.11.1 or later	Cisco Nexus 3232C Switch Cisco Nexus 9336C-FX2 Switch Mellanox SN2100 Switch

Storage switch ports

Storage switch ports

- The following information is displayed:
  - Identity name
  - Identity index
  - State
  - Remote connection
  - Other details

Information about cabling

Beginning with ONTAP 9.12.1, you can view the following cabling information:

- **Cabling** between controllers, switches, and shelves when no storage bridges are used.
- **Connectivity** that shows the IDs and MAC addresses of the ports on either end of the cable.

Manage nodes

Reboot, take over, and give back nodes

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

> You cannot shut down (halt) a node using System Manager; you must use CLI commands. Also, if the node is halted, you need to use CLI commands to bring it back online. See Start or stop a node overview.

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 (ONTAP 9.7)
- Adding nodes to a cluster with System Manager (ONTAP 9.8)

Adding nodes to a cluster with System Manager (ONTAP 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 (ONTAP 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.

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