NetApp

Manage arrays

E-Series Systems

NetApp
May 30, 2022

Table of Contents

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Array management overview

Use the Add/Discover feature to find and add the storage arrays you want to manage in the Storage plugin for vCenter. From the Manage page, you can also rename, remove, and provide new passwords for these discovered arrays.

Considerations for discovering arrays

For the plugin to display and manage storage resources, you must discover the storage arrays you want to manage in your organization's network. You can discover and then add a single array or multiple arrays.

Multiple storage arrays

If you choose to discover multiple arrays, you enter a network IP address range and then the system attempts individual connections to each IP address in that range. Any storage array successfully reached appears in the plugin and you can then add them to your management domain.

Single storage array

If you choose to discover a single array, you enter the single IP address for one of the controllers in the storage array and then add that array to your management domain.

> (i) The plugin discovers and displays only the single IP address or IP address within a range assigned to a controller. If there are alternate controllers or IP addresses assigned to these controllers that fall outside of this single IP address or IP address range, then the plugin will not discover or display them. However, once you add the storage array, all associated IP addresses will be discovered and displayed in the Manage view.

User credentials

You must supply the administrator password for each storage array you want to add.

Certificates

As part of the discovery process, the system verifies that the discovered storage arrays are using certificates by a trusted source. The system uses two types of certificate-based authentication for all connections that it establishes with the with the browser:

- **Trusted certificates** — You might need to install additional trusted certificates supplied by the Certificate Authority if one or both controller certificates are expired, revoked, or missing a certificate in its chain.

- **Self-signed certificates** — Arrays can also use self-signed certificates. If you attempt to discover arrays without importing signed certificates, the plugin provides an additional step that allows you to accept the self-signed certificate. The storage array's self-signed certificate will be marked as trusted and the storage array will be added to the plugin. If you do not trust the connections to the storage array, select **Cancel** and validate the storage array's security certificate strategy before adding the storage array to the plugin.

Storage array status

When you open the Storage Plugin for vCenter, communication with each storage array is established and the status for each storage array is displayed.

From the **Manage - All** page, you can view the status of the storage array and the status of the storage array connection.

Status	Indicates
Optimal	The storage array is in an optimal state. There are no certificate issues and the password is valid.
Invalid Password	An invalid storage array password was provided.
Untrusted Certificate	One or more connections with the storage array is untrusted because the HTTPS certificate is either self-signed and has not been imported, or the certificate is CA-signed and the root and intermediate CA certificates have not been imported.
Needs Attention	There is a problem with the storage array that requires your intervention to correct it.
Lockdown	The storage array is in a locked-down state.
Unknown	The storage array has never been contacted. This can happen when the plugin is starting up and has not yet made contact with the storage array, or the storage array is offline and has never been contacted since the plugin was started.
Offline	The plugin had previously contacted the storage array, but now has lost all connection to it.

Plugin interface compared to System Manager

You can use Storage Plugin for vCenter for basic operating tasks on your storage array; however, there might be times when you need to launch System Manager to perform tasks not available in the plugin.

System Manager is an embedded application on the storage array's controller, which is connected to the network through an Ethernet management port. System Manager includes all array-based functions.

The following table helps you decide whether you can use the plugin interface or the System Manager interface for a particular storage array task.

Function	Plugin interface	System Manager interface
Batch operations on groups of multiple storage arrays	Yes	No. Operations are performed on a single array.
Upgrades for the SANtricity OS firmware	Yes. One or more arrays in a batch operation.	Yes. Single array only.
Import settings from one array to multiple arrays	Yes	No

Function	Plugin interface	System Manager interface
Host and host cluster management (create, assign volumes, update, and delete)	Yes	Yes
Pools and volume group management (create, update, enable security, and delete)	Yes	Yes
Volume management (create, resize, update, and delete)	Yes	Yes
SSD Cache management (create, update, and delete)	Yes	Yes
Mirroring and snapshot management	No	Yes
Hardware management (view controller status, configure port connections, take controller offline, enable hot spares, erase drives, etc.)	No	Yes
Manage alerts (email, SNMP, and syslog)	No	Yes
Security key management	No	Yes
Certificate management for controllers	No	Yes
Access management for controllers (LDAP, SAML, etc.)	No	Yes
AutoSupport management	No	Yes

Discover storage arrays

To display and manage storage resources in the Storage Plugin for vCenter, you must discover the IP addresses of arrays in your network.

Before you begin

- You must know the network IP addresses (or range of addresses) of the array controllers.
- The storage arrays must be correctly set up and configured.
- Storage array passwords must be set up using System Manager's Access Management tile.

About this task

Array discovery is a multi-step procedure:

- Step 1: Enter network addresses for discovery
- Step 2: Resolve untrusted certificates during discovery
- Step 3: Provide passwords

Step 1: Enter network addresses for discovery

As the first step to discovering storage arrays, you enter a single IP address or a range of IP addresses to search across the local sub-network. The Add/Discover feature opens a wizard that guides you through the process of discovery.

Steps

1. From the **Manage** page, select **Add/Discover**.

   The Enter Network Address Range dialog box appears.

2. Do one of the following:

   - To discover one array, select the **Discover a single storage array** radio button, and then enter the IP address for one of the controllers in the storage array.

   - To discover multiple storage arrays, select the **Discover all storage arrays within a network range** radio button, and then enter the starting network address and ending network address to search across your local sub-network.

3. Click **Start Discovery**.

   As the discovery process begins, the dialog box displays the storage arrays as they are discovered. The discovery process might take several minutes to complete.

   > ⓘ If no manageable arrays are discovered, verify that the storage arrays are properly connected to your network and their assigned addresses are within range. Click **New Discovery Parameters** to return to the Add/Discover page.

4. Select the checkbox next to any storage array that you want to add to your management domain.

   The system performs a credential check on each array you are adding to the management domain. You might need to resolve any issues with untrusted certificates before proceeding.

5. Click **Next** to proceed to the next step in the wizard.

6. If the storage arrays have valid certificates, go to Step 3: Provide passwords. If any storage arrays do not have valid certificates, the Resolve Self-Signed Certificates dialog box appears; go to Step 2: Resolve untrusted certificates during discovery. If you want to import CA-signed certificates, cancel out of the discovery dialogs and go to Import certificates for arrays.

Step 2: Resolve untrusted certificates during discovery

If necessary, you must resolve any certificate issues before proceeding with the discovery process.

During discovery, if any storage arrays show an "Untrusted Certificates" status, the Resolve Self-Signed Certificates dialog box appears. You can resolve untrusted certificates in this dialog, or you can import CA certificates (see Import certificates for arrays).

Steps

1. If the Resolve Self-Signed Certificates dialog box opens, review the information displayed for the untrusted certificates. For more information, you can also click the ellipses at the far end of the table and select **View** from the pop-up menu.

2. Do one of the following:

   - If you trust the connections to the discovered storage arrays, click **Next** and then click **Yes** to confirm

and continue to the next card in the wizard. The self-signed certificates will be marked as trusted and the storage arrays will be added to the plugin.

- If you do not trust the connections to the storage arrays, select **Cancel** and validate each storage array's security certificate strategy before adding any of them to the plugin.

Step 3: Provide passwords

As the last step for discovery, you must enter the passwords for the storage arrays that you want to add to your management domain.

Steps

1. Optionally, if you have previously configured groups for the arrays, you can use the drop-down to select a group for the discovered arrays.

2. For each discovered array, enter its admin password in the fields.

3. Click **Finish**.

> (i)   It can take several minutes for the system to connect to the specified storage arrays.

Result

The storage arrays are added to your management domain and associated with the selected group (if specified).

> (i)   You can use the Launch option to open the browser-based System Manager for one or more storage arrays when you want to perform management operations.

Rename storage array

You can change the storage array's name displayed on the Manage page of the Storage Plugin for vCenter.

Steps

1. From the **Manage** page, select the checkbox to the left of the storage array name.

2. Select the ellipses at the far right of the row, and then select **Rename storage array** from the pop-up menu.

3. Enter the new name and click **Save**.

Change storage array passwords

You can update the passwords used for viewing and accessing storage arrays in the Storage Plugin for vCenter.

Before you begin

You must know the current password for the storage array, which is set in System Manager.

About this task

In this task, you enter the current password for a storage array so you can access it in the plugin. This might be necessary if the array password was changed in System Manager.

Steps

1. From the **Manage** page, select one or more storage arrays.

2. Select **Uncommon Tasks › Provide storage array passwords**.

3. Enter the password or passwords for each storage array, and then click **Save**.

Remove storage arrays

You can remove one or more storage arrays if you no longer want to manage it from the Storage Plugin for vCenter.

About this task

You cannot access any of the storage arrays you remove. You can, however, establish a connection to any of the removed storage arrays by pointing a browser directly to its IP address or host name.

Removing a storage array does not affect the storage array or its data in any way. If a storage array is accidentally removed, it can be added again.

Steps

1. From the **Manage** page, select one or more storage arrays that you want to remove.

2. Select **Uncommon Tasks › Remove storage arrays**.

   The storage array is removed from all the views in the plugin interface.

Launch System Manager

To manage a single array, use the Launch option to open SANtricity System Manager in a new browser window.

System Manager is an embedded application on the storage array's controller, which is connected to the network through an Ethernet management port. System Manager includes all array-based functions. To access System Manager, you must have an out-of-band connection to a network management client with a web browser.

Steps

1. From the **Manage** page, select one or more storage arrays that you want to manage.

2. Click **Launch**.

   The system opens a new tab in the browser, and then displays the System Manager login page.

3. Enter your username and password, and then click **Log in**.