Dell EMC Virtual Storage Integrator (VSI) for VMware vSphere Client

Version 8.2

Product Guide

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DELLEMC

CONTENTS

CHAPTER 1

Introduction

This chapter includes the following topics:

About this document

This document provides instructions to deploy and unregister the Dell EMC Virtual Storage Integrator (VSI) for VMware vSphere Client plug-in. It also includes information about provisioning, monitoring, managing, and viewing datastores using the VSI plug-in.

Audience

This solution is designed for VMware administrators who manage VMFS storage through the vSphere Client interface.

After the VMware administrator has planned and implemented the storage environment, the VMware administrator sets up the VMware virtual environment and deploys the Dell EMC VSI for VMware vSphere Client. This software enables VMware administrators to provision and manage datastores, virtual machines on the supported Dell EMC storage systems without the direct involvement of the storage administrator.

(i) **Note:** VSI 8.x versions do not support the vSphere Web Client (Flash).

Scope

This document provides information about how to deploy, unregister, and use the Dell EMC VSI for VMware vSphere Client.

Related Documentation

The following documents contain additional information and are available on Dell EMC Online Support:

- Dell EMC VSI for VMware vSphere Client Release Notes
- Dell EMC storage system documentation

Product Overview

The Dell EMC Virtual Storage Integrator (VSI) for VMware vSphere Client is a plug-in for VMware vCenter. It enables administrators to view, provision, monitor, and manage datastores on Dell EMC storage systems from the vCenter. VSI supports Unity, VMAX All Flash, PowerMax, and XtremIO storage systems.

The user interface for VSI provides communication and access to the storage systems. You can perform the following tasks for the respective storage systems with VSI:

- VMAX All Flash/PowerMax support:
  - Storage System and Storage Group Administration
  - Provisioning VMFS Datastores
  - View VMFS Datastores
  - RDM creation on VMAX All Flash/PowerMax
  - View VM disk information for VMAX All Flash/PowerMax
  - VMAX All Flash/PowerMax Host Best Practices
- XtremIO support:
  - Storage System Administration

- Provisioning VMFS Datastores
- Viewing VMFS Datastore Details
- Increase VMFS Datastore capacity
- RDM creation on XtremIO
- Edit XtremIO Datastore Properties
- View VM disk information for XtremIO
- XtremIO Host Best Practices
- Unity support:
  - Storage System Administration
  - Storage Pool Administration
  - Provisioning VMFS Datastores
  - Viewing VMFS Datastores
  - Provisioning NFS Datastores
  - Viewing NFS Datastores
  - Increase NFS and VMFS Datastore capacity
  - RDM creation on Unity
  - Edit VMFS and NFS Datastore Properties
  - View VM disk information for Unity
  - NAS Server Administration
  - Unity Host Best Practices
- Users/User Group Administration

(i) Note: VSI 8.x versions support the vSphere Client (HTML5) only and do not yet include all the features in the previous versions of VSI 7.x. Therefore, you may run VSI 8.x and 7.x in the same VMware environment if the arrays and operating systems are supported.

Dell EMC Simple Support Matrix lists supported versions of Dell EMC storage systems and software.

The following figure depicts the architecture of a typical deployment of VSI plug-in for VMware vSphere Client:

Figure 1 VSI deployment architecture
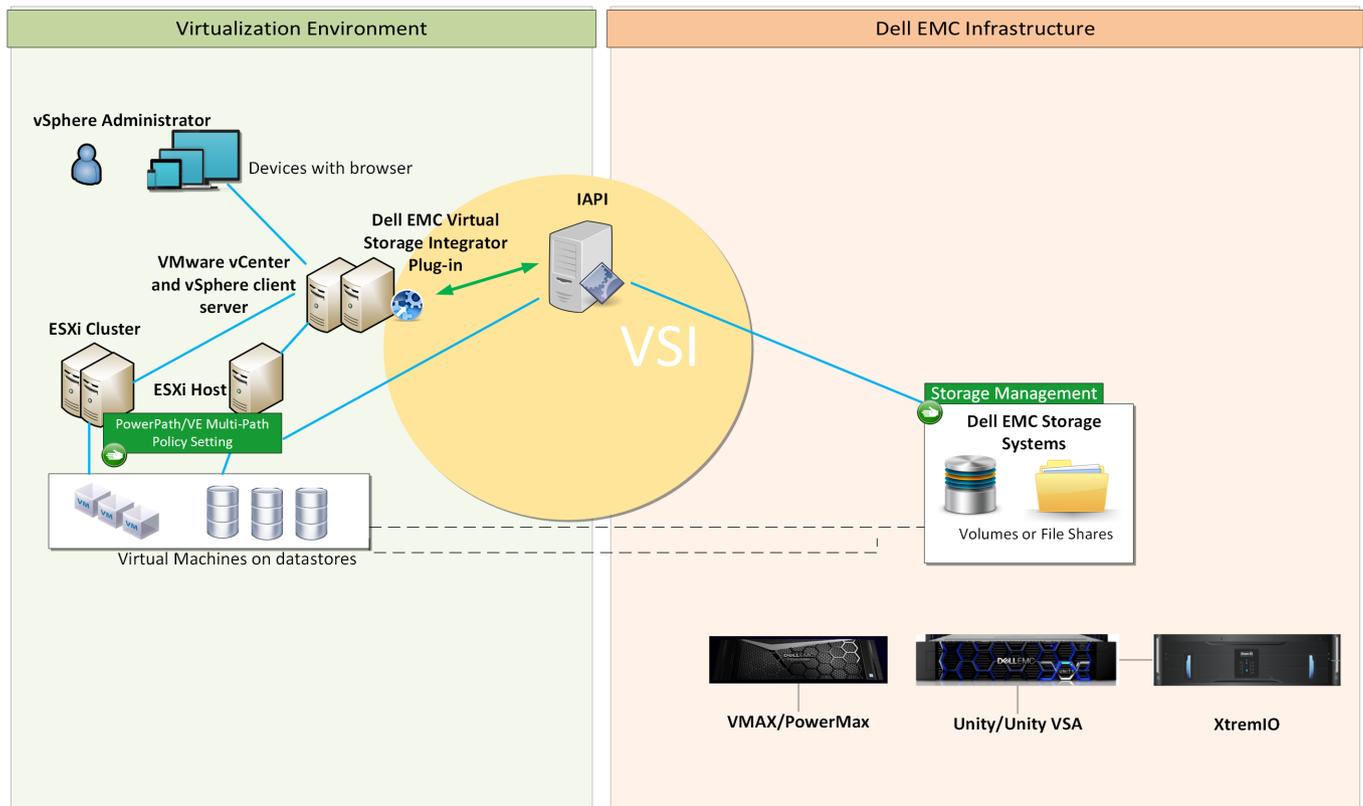
Dell EMC Storage System Requirements

Learn about Dell EMC storage systems that are supported with VSI and related system requirements.

The Dell EMC Simple Support Matrix provides the supported storage system version numbers for this release. To obtain the required software contact Dell EMC Customer Support.

Table 1 Dell EMC storage system requirements

Dell EMC storage system	Requirements
Dell EMC VMAX All Flash and PowerMax	• At least one masking view to the vCenter host and/or cluster has been created. • An array is connected to the vCenter host using FC. • A supported PowerMaxOS release and Unisphere for PowerMax 9.x are installed.
Dell EMC XtremIO	• A supported Dell EMC XtremIO version is installed. • One or more initiator groups exist. • FC connection exists between the ESX/ESXi host and the array.

Table 1 Dell EMC storage system requirements (continued)

Dell EMC storage system	Requirements
	• XMS is configured for the Dell EMC XtremIO array. • Dell EMC XtremIO Block maximum LUN size is 64 TB and minimum is 2 GB.
Dell EMC Unity and UnityVSA	• A supported Dell EMC Unity OE software version is installed. • Network ports are configured. • Network connectivity exists between the Dell EMC Unity and EXS/ESXi servers. • Dell EMC Unity Block maximum LUN size is 64 TB and minimum LUN size is 10 GB. • A storage pool is created. • For NFS provisioning, NAS Server must be configured.

CHAPTER 2

Deploying and Unregistering VSI Plug-in

This chapter includes the following topics:

Overview

This chapter provides instructions on how to deploy the VSI plug-in.

Change from Flash based to HTML5

This release supports HTML5 vSphere Client only. It does not support the vSphere Web Client (Flash), as VMware is deprecating the vSphere Web Client in the upcoming releases.

Software prerequisites

This topic provides information about the software prerequisites for the VSI plug-in.

Prerequisites

The following are list of software prerequisites for the VSI plug-in:

- vCenter version 6.5u2 or higher.
- ESXi host version 6.5 or higher.

This version of VSI supports multiple vCenters including Linked Mode and Enhanced Linked Mode.

(i) | **Note:** Upgrade from 7.x to 8.x version is not supported.

Upgrade VSI Plug-in

You can upgrade the VSI plug-in using either DockerHub or package.

Upgrade VSI Plug-in using DockerHub

Use the procedure in this topic to upgrade the VSI plug-in using DockerHub.

Before you begin

Log out of the vCenter before upgrading the plug-in.

Procedure

1. Log in to the IAPI VM through SSH.

2. Stop the current IAPI container. Use the following command:

   ```
   docker stop iapi
   ```

3. Pull the latest IAPI/VSI image from DockerHub:

   ```
   docker pull dellemc/vsi
   ```

4. You can also perform the following optional steps:

   a. Back up the previous IAPI container. Use the following commands:

      a.
      ```
      docker rename iapi iapi-before-upgrade
      ```

      b.
      ```
      docker update --restart=no iapi-before-upgrade
      ```

b. Back up the IAPI database. Use the following command:

```
docker cp vsidb:/data/appendonly.aof <OUTPUT_DIRECTORY>
```

c. Backup the existing VSI plug-in. Use the following command:

```
cp /opt/files/vsi-plugin.zip <OUTPUT_DIRECTORY>
```

d. Backup existing SSL certificates. Use the following command:

```
docker cp iapi:/etc/ssl/certs/java/cacerts <OUTPUT_DIRECTORY>
```

e. All the back up files in the previous steps can be restored after the container upgrade by copying the files to the new container. For example, `docker cp <OUTPUT_DIRECTORY>`

5. Upgrade the VSI plug-in.

- To register the VSI plug-in without SSL verification, use the following command:

```
python3 /opt/scripts/register_extension.py -ignoressl true
```

- To see other options for using SSL certificate verification during registration, use the following command:

```
python3 register_extension.py  -h
```

(i) Note: After upgrade, the SSL is not enabled by default. To enable SSL, see Change settings in application.conf of the IAPI container.

6. Refresh the VSI plug-in:

- If you have a current vCenter already open, logout and log back in to refresh the plug-in. Or
- If you do not have a vCenter open, log in to the vSphere Client, log out, and log back in to refresh the plug-in.

Upgrade VSI using Package

Use the procedure in this topic to upgrade VSI 8.0 to VSI 8.1 version.

Before you begin

You must log out of the vCenter before upgrading the plug-in.

Procedure

1. Download the VSI 8.1 upgrade.tar package from Dell EMC Support Site or DockerHub.
2. Copy the upgrade package to `/tmp` folder of the IAPI server.

   To copy the upgrade file, use the following command:

```
scp iapi-vsi-upgrade.tar root@<IAPI server>:/tmp
```

(i) Note: If SSH is enabled, the default password is `root`.

3. Change the directory to `/tmp` folder.

4. Extract the upgrade package. Use the following command:

```
tar -xf/tmp/<iapi-vsi-upgrade.tar>
```

(i) Note: The upgrade package contains the .tar file, the upgrade script, and the docker image.

5. Run the upgrade script. Use the following command:

```
./upgrade_iapi.sh --upgrade <iapi-vsi-upgrade.tar.gz>
```

The upgrade script backs up and renames the VSI 8.0 docker image, lay down the new docker image. The script also restores the necessary files to a backup folder. An example for the folder name, `<iapi-before-upgrade-20190412194829>`

(i) Note: You can also restore the application.conf and SSL certificates after the completion of upgrade. Use the restore command with the .tar file that resides in the backup folder:

```
./upgrade_iapi.sh --restore ./<20190412194829.tar>
```

6. To upgrade the VSI plug-in, use the following command:

```
python3 /opt/scripts/register_extension.py -ignoressl true
```

(i) Note: After upgrade, the SSL is not enabled by default. To enable SSL, see Change settings in application.conf of the IAPI container.

7. Refresh the VSI plug-in:
   - If you have a current vCenter already open, logout and log back in to refresh the plug-in. Or
   - If you do not have a vCenter open, log in to the vSphere Client, log out, and log back in to refresh the plug-in.

Deploying the VSI Plug-in

This section provides instructions on how to deploy VSI.

Before you begin

Before you deploy the VSI plug-in, install the VMware vSphere client, using the VMware documentation at www.vmware.com.

The required environment and system requirements are listed on the Dell EMC Simple Support Matrix.

About this task

You must have administrator privileges to deploy the OVA file to the vCenter.

Procedure

1. Log in to the vCenter through the VMware vSphere Client (HTML5).

2. Click **Menu** > **Hosts and Clusters**.

3. Right-click the vCenter, host, or cluster and select **Deploy OVF Template**.

   The **Deploy OVF Template** wizard is displayed.

4. On the **Select template** tab, enter the URL to download the OVA file from the Internet or browse to a location accessible from your local drive and click **NEXT**.

5. On the **Select name and folder** tab, enter a name for the virtual machine and select a folder to place it and click **NEXT**.

6. On the **Select a compute resource** tab, select a cluster or a host to deploy the OVA file and click **NEXT**.

7. On the **Review details** tab, verify that the OVA information is correct and click **NEXT**.

8. On the**Accept license agreements** tab, click **Accept** and click **NEXT**.

9. On the **Select storage** tab, select an appropriate virtual disk format and VM storage policy. To deploy the OVA file, select the datastore and click **NEXT**.

10. On the **Select networks** tab, select the destination network and click **NEXT**.

11. On the **Customize template** tab, enter the values for **Networking properties** and **VSI Registration**.

    Networking Properties has five settings, enter the values for:

    - **Default Gateway**

    - **DNS**

    - **Network 1 IP Address**

    - **Network 1 Netmask**

    - **NTP servers**

    VSI Registration has four settings, enter the values for:

    - **Enable SSH**
      (i) Note: You can select the checkbox to enable the SSH on IAPI Server.

    - **vCenter Host**
      (i) Note:
      - You can deploy the plug-in to multiple vCenters by providing the vCenter Host names (FQDN name or IP address) separated by commas. However, the vCenter credentials must be the same for each vCenter.

      - The vCenters must belong to a single SSO domain. Invalid vCenter entries might corrupt the vCenters list in plug-in view.

    - **vCenter Administrator Username**

    - **vCenter Administrator Password**

    Click **NEXT**.

12. On the **Ready to complete** tab, verify that all the information is correct and click **Finish**.

    The deployment of the OVF package on the destination datastore begins and the progress is displayed under **Recent Tasks**.

13. Once the OVF template is deployed, power on the IAPI server by clicking the green play button or right-click the IAPI server **Power** > **Power On**.

Results

The Dell EMC VSI plug-in is deployed and displayed under **Menu** in the vCenter.

(i) **Note:** You may have to log off from vSphere Client and login.

Default Port Assignment

Review the default port assignment for VMAX All Flash, PowerMax storage system.

The default port assignments for communication on the VMAX All Flash and PowerMax storage system are as shown in the following table:

Table 2 Default Port Assignment

System	Request Type	Source	Destination	Default Port
Dell EMC VMAX All Flash and PowerMax	VSI/IAPI requests sent to REST API of Unisphere for PowerMax	VSI/IAPI	REST API	8443 (HTTPS)

Unregistering the VSI plug-in

This section provides instructions to unregister the VSI plug-in from VMware vSphere Client.

Before you begin

- You must power off the IAPI server first to unregister the VSI plug-in.
- You must have administrator privileges to unregister the VSI plug-in.

(i) **Note:** Unregistering the VSI plug-in using the UI is not supported in this version, hence the plug-in needs to be cleared from the backend. To clear the plug-in from the backend, you must first unregister/clear the plug-in from Managed Object Base (MOB). After the plug-in is unregistered, clear the residual plug-in files and restart the vCenter UI services.

About this task

To unregister the VSI plug-in, follow the steps in this section.

Procedure

1. Using a browser, navigate to vCenter using IP or FQDN name in the following format:

   `https:/<fqdn>or<ip>/mob`

2. Login to the vCenter with an administrator username and password.

   The MOB page is displayed.

3. Click **Content** under **Properties**.

4. Click **ExtensionManager**.

   The extension manager page is displayed.

5. Click **UnregisterExtension** under **Methods**.

6. Enter the VSI plug-in string `com.dellemc.vsi.plugin` in the **extensionKey** field.

7. To unregister the VSI plug-in, click **Invoke Method**.

   The **Method Invocation Result: void** is displayed and the VSI plug-in is now unregistered.

8. Clear the residual plug-in files. To clear the residual plug-in files, login to the vCenter using SSH (PuTTY).

9. Open PuTTY, enter the **Host Name (or IP address)** of the vCenter Server where the VSI plug-in is deployed and select the connection type as SSH and click **Open**.

10. Login with root/administrator credentials.

11. Remove the plug-in folder using the following command:

    - For Linux:

    ```
    rm -rf /etc/vmware/vsphere-ui/vc-packages/vsphere-client-serenity/
    com.dellemc.vsi.plugin
    ```

    - For Windows:

    ```
    rmdir C:\ProgramData\VMware\vCenterServer\cfg\vsphere-client\vc-
    packages\vsphere-client-serenity/com.dellemc.vsi.plugin /s
    ```

    The folder is now removed and the residual plug-in files are cleared.

12. Restart the vCenter UI services.

    To clear any cache content of the plug-in, you must stop the services first and start it by using the following commands:
    To stop the UI services use: `service-control --stop vsphere-ui`

    To start the UI services use: `service-control --start vsphere-ui`

Results

The VSI plug-in is now unregistered and the residual files are cleared.

CHAPTER 3

Dell EMC VSI

This chapter includes the following topics:

Dell EMC VSI Dashboard

This section provides information about the Dell EMC VSI dashboard.

Login to the VMware vSphere Client and click **Menu** > **Dell EMC VSI**. The dashboard displays the information about the status for each of the following panels/windows, if applicable:

- **Integration Services**
- **Plugin Setup**
- **Storage Groups**
- **Storage Pool Capacity**
- **XtremIO Cluster Capacity**

Integration Services

The Integration Services panel displays the server IP address and connection status of the virtual machine/IAPI server. It also displays the version and last setup date and time.

Plugin Setup

The Plugin Setup panel displays the registered vCenters and storage systems.

(i) Note: You can register vCenters and Storage Systems from this panel/window by clicking the **+** (add) icon.

Storage Groups

The Storage Groups panel displays the name and storage system details.

(i) Note: You can click **View All** to view all the storage groups registered in the VSI plug-in.

Storage Pool Capacity

The Storage Pool Capacity panel displays the name, storage system, and the used capacity of storage pools.

(i) Note: You can click **View All** to view all the storage pools registered in the VSI plug-in.

XtremIO Cluster Capacity

The XtremIO Cluster Capacity panel displays the name and used capacity of XtremIO clusters.

(i) Note: You can click **View All** to view all the XtremIO clusters registered in the VSI plug-in.

Register vCenter Servers

This section provides information about how to register vCenter servers to the Dell EMC VSI plug-in.

Before you begin

You must have administrator privileges to register vCenter servers to the plug-in.

Procedure

1. Login to the VMware vSphere Client.
2. Click **Menu** > **Dell EMC VSI**.

   (i) Note: You can also click **Dell EMC VSI** from the home page on the left side.

3. On the Dell EMC VSI page, click **vCenter Servers** on the left side.

4. On the **vCenter Servers** page, click the **+** (add) icon.

   (i) **Note:** In case of linked mode, the **+** (add) icon is enabled only if there are any unregistered vCenters from the set of vCenters in the linked mode.

   The **Register vCenter Server** dialog box is displayed.

   (i) **Note:** You can also click **Dashboard** and click the **+** symbol next to **vCenters** in the **Plugin Setup** panel/window. The **Register vCenter Server** dialog box is displayed.

5. Enter the **Username** and **Password**.

6. Select the vCenter that you want to register and click **REGISTER**.

   (i) **Note:** You can select multiple vCenters (only in case of linked mode) by selecting the check boxes.

Results

The selected vCenters are now registered to the plug-in.

Unregister vCenter Servers

This section provides information about how to unregister the vCenter servers from the Dell EMC VSI plug-in.

Before you begin

You must have administrator privileges to unregister vCenter servers from the VSI plug-in.

Procedure

1. Login to the VMware vSphere Client.

2. Click **Menu** > **Dell EMC VSI**.

3. On the Dell EMC VSI page, click **vCenter Servers** on the left side.

   The **vCenter Servers** page is displayed and it displays all the registered vCenter servers.

4. Select the vCenter that you want to unregister and click the **X** icon to delete the vCenter.

   The **Unregister vCenter Server(s)** dialog box is displayed.

   (i) **Note:** You can select multiple vCenters by selecting the check boxes.

5. Click **UNREGISTER**.

Results

The selected vCenter(s) are now unregistered.

CHAPTER 4

Managing VMAX All Flash/PowerMax Storage System with VSI

This chapter includes the following topics:

Introduction

This chapter provides information about managing VMAX All Flash and PowerMax storage systems and storage groups.

You can register, unregister, and view storage systems from the **Storage Systems** page. You can provision datastores on a VMAX All Flash/PowerMax storage system.

Similarly, you can register, unregister, and view storage groups from **Storage Groups** page. You can also add/delete user access to VMAX All Flash/PowerMax storage system and VSI. You can assign usage limits to the users who have access to the VMAX All Flash/PowerMax storage system.

You can create RDMs and view VM disk information for VMAX All Flash/PowerMax storage system. You can also apply host best practices to your VMAX All Flash/PowerMax storage system to set preferred values to the settings.

Register VMAX All Flash/PowerMax Storage System

Use the procedure in this topic to register VMAX All Flash/PowerMax storage system to the VSI plug-in.

Before you begin

You must have administrator privileges to register VMAX All Flash/PowerMax storage system. You can also register with read-only privileges, but you can only view the VMAX All Flash/PowerMax storage system properties and cannot provision.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Dell EMC VSI**.

3. Click **Storage Systems** on the left side.

   The **Storage Systems** page is displayed. It displays all the storage systems that are registered to VSI.

4. On the **Storage Systems** page, click the **+** (add) icon.

   The **Register Storage System** dialog box is displayed.

5. To register the VMAX All Flash/PowerMax storage system, follow the on-screen step by step process:

   On the **Type and Connection Settings** page, select or enter the values for following parameters:

   - **Storage System Type**
   - **Unisphere Host Name/IP**
   - **Port**: 8443 is the default.
   - **Unisphere Username**
   - **Unisphere Password**

   Once all the values are specified, the **NEXT** button is enabled. Click **NEXT**.

6. On **Storage Systems to Register** page, select the VMAX All Flash/PowerMax storage systems from the list and click **NEXT**.

   (i) Note: VSI displays only the local arrays and does not display remote arrays.

7. On the **Storage Groups** page, the discovered storage groups are displayed. Select the storage groups from the list and click **NEXT**.

   (i) Note: The **Storage Groups** page is optional, you can proceed with registration and add storage group after the registration of the storage system.

8. On the **Storage Access** page, all the users/groups along with their role/privileges are displayed. To grant access to the storage group, select the user/group and click **NEXT**.

   (i) Note: You can select multiple users with different roles/privileges and grant them access to all the storage groups selected in the previous step.

9. On the **Ready to Register** page, review the details of the VMAX All Flash/PowerMax storage systems, storage groups, and storage access and click **FINISH**.

Results

The VMAX All Flash/PowerMax storage system is now registered and displayed on the **Storage Systems** page.

(i) Note: You can expand the storage system and click **Details** to view the storage system details such as Name, Model, Type, Operating System Version, IP address, Owner, and Physical Capacity. To view the details of the registered storage groups, click **Storage Groups**.

Unregister VMAX All Flash/PowerMax Storage System

Use the procedure in this topic to unregister VMAX All Flash/PowerMax storage system.

Before you begin

To unregister the storage system, you must be the owner of the storage system.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Dell EMC VSI**.

3. Click **Storage Systems** on the left side.

   The **Storage Systems** page is displayed. It displays all the storage systems that are registered to VSI.

4. Select the storage system that you want to unregister and click **X** (delete) icon.

   The **Unregister Storage System** dialog box is displayed.

   (i) Note: You can select multiple storage systems by selecting the check boxes.

5. Click **UNREGISTER**.

   (i) Note: The storage groups that are associated with the storage system are also unregistered.

Results

The storage system is successfully unregistered from VSI.

View VMAX All Flash/PowerMax Storage System

Use the procedure in this topic to view VMAX All Flash/PowerMax Storage system.

Before you begin

Procedure

1. Login to the VMware vSphere Client.

2. Click **Menu** > **Dell EMC VSI**.

3. Click **Storage Systems** on the left side.

   The **Storage Systems** page is displayed. The page displays all the storage systems that are registered to the plug-in.

4. To view the **Details** of the storage system, click the **>** icon.

   The **Details** tab provides the following information:

   - **Name**
   - **Model**
   - **Type**
   - **OS Version**
   - **IP Address**
   - **Owner**

   It also displays the **Physical Capacity** of the storage system.

5. To view the details of registered storage groups, click **Storage Groups** tab.

Register Storage Group

Use the procedure in this topic to register storage group to the VSI plug-in.

Before you begin

You must be the owner of VMAX All Flash/PowerMax storage system to register a storage group.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Dell EMC VSI**.

3. Select **Storage Groups** on the left side.

   The **Storage Groups** page is displayed.

4. To add/register storage groups to the VMAX All Flash/PowerMax storage systems, click **+** (add) icon.

   The **Register Storage Group** dialog box is displayed.

5. Select the storage system that you want to register its storage group to VSI and click **NEXT**.

6. Select the storage group that you want to register to VSI and click **NEXT**.

   (i) Note: You can select multiple storage groups by selecting the check boxes.

7. Select the users or groups that you want to grant access to the storage group. Click **NEXT**.

8. On **Ready to Register** page, review the storage system and storage access details and click **FINISH**.

Results

The storage group is now registered to VSI and displayed on the **Storage Groups** page.

Unregister Storage Group

Use the procedure in this topic to unregister storage group from VSI.

Before you begin

- You must be the owner of the VMAX All Flash/PowerMax array to unregister a storage group.
- You can only unregister the storage groups, to delete the storage group you must use Unisphere or Solutions Enabler.

Procedure

1. Log in to the VMware vSphere Client.
2. Click **Menu** > **Dell EMC VSI**.
3. Click **Storage Groups** on the left side.

   The **Storage Groups** page is displayed and it displays all the storage groups that are registered.

4. Select the storage group from the **Storage Groups** page.
5. Click **X** (delete) icon to unregister.

   The **Unregister Storage Group** dialog box is displayed.

6. Click **UNREGISTER**.

Results

The storage group is successfully unregistered from VSI.

View Storage Group

Use the procedure in this topic to view storage group registered in the VSI plug-in.

Procedure

1. Login to the VMware vSphere Client.
2. Click **Menu** > **Dell EMC VSI**.
3. Click **Storage Groups** on the left side.

   The **Storage Groups** is displayed and displays all the storage groups registered.

4. To view the **Details**, click the **>** icon.

   The **Details** tab displays the following information:

   - **Name**
   - **Storage System**
   - **SRP**
   - **Service Level**
   - **Compression**
   - **Compression Ratio**
   - **Deduplication**

5. To view the details of users/groups that have access to the storage group, click **Storage Access** tab. You can add or delete users/groups from the **Storage Access** tab.

Create VMFS Datastores on a VMAX All Flash/PowerMax Storage System

Use the procedure in this topic to create VMFS datastores on a VMAX All Flash/PowerMax storage system.

Before you begin

- A masking view to the host(s) must exist before provisioning.

- Only VMFS 6 is supported in this release. VMFS 5 is not supported.

- The required privileges must be provided for the current logged in user. To provide the privileges see Provide Privileges for Current Logged in User for Datastore Provisioning on page 69

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Hosts and Clusters**.

3. Right-click a datacenter, cluster, or host and select **Dell EMC VSI Actions** > **New Datastore**.

   The **Create Datastore on Dell EMC Storage** dialog box is displayed.

4. To create the datastore, select the **Type** of datastore as **VMFS** and select the **Version** 6 from the drop-down. Optionally, you can also create multiple datastores by selecting the checkbox for **Create multiple datastores**.

   (i) Note: VSI 8.1 removed the user/group storage limitations implemented in VSI 8.0. If an environment is upgraded to VSI 8.2 directly from 8.0, any storage groups still present on the array can be removed if desired. The storage groups will be named *VSI_xxxx_xxxxxx_<storage_group_name>*. In order to delete the groups, first remove the volumes. It is unnecessary to remove the groups, however, as they no longer serve any purpose and will not cause a problem.

5. Click **NEXT**.

6. Do one of the following and click **NEXT**:

   - If you have chosen to create multiple datastores, enter the number of datastores you want to create, base name, and digits for name suffix. Click **NEXT**.

   - If you have not chosen to create multiple datastores, on the **Datastore Settings** tab, enter the **Name** of the datastore and verify the location of the datastore. Click **NEXT**.

7. On the **Storage System Selection** tab, select the VMAX All Flash/PowerMax storage system from the list of registered storage systems. Click **NEXT**.

8. On the **Storage Settings** tab, select the storage settings for the datastore to be created. Click **NEXT**.

   (i) Note:

   - Only storage groups the user has access to and associated with all hosts in the selected location are available for selection.

   - The capacity of the datastore being created must not exceed the user limits for the user logged in (If there are limits set on that user).

9. On the **Ready to Complete** tab, verify the settings before creating the datastore and then click **FINISH**.

Results

The new datastore is created and is displayed under the **Datastores** tab for the particular datacenter, cluster, or host.

VMAX All Flash/PowerMax Host Best Practices

Use the procedure in this topic to view and apply best practices to host.

Before you begin

Must be a registered vCenter user to apply host best practices.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Hosts and Clusters**.

3. Right-click on a host and select **Dell EMC VSI Actions** > **Apply Host Best Practices**.

    To apply host best practices, you can select datacenter, folder, cluster, or host level. If you apply the best practices at datacenter/cluster/folder level, the changes are applied to all the connected hosts within a datacenter/cluster/folder.

4. To view the advanced settings for VMAX All Flash/PowerMax storage system, select the host and click **Configure** > **Dell EMC VSI** > **Host Best Practices**.

5. Select **Advanced settings for Array Type: PowerMax/VMAX** to manage host settings for PowerMax/VMAX.

    The panel displays the list of settings and the values for each of the settings from the host. The settings with warning icon do not meet the best practices.

    (i) Note: Hover over the warning icon to view the preferred value. Select the setting and the description of the setting is displayed.

6. VSI enables you to set the value to a preferred value. To set the preferred values, click **Edit**. The **Apply Advanced Settings for PowerMax/VMAX** wizard is displayed. It displays the preferred values for each setting.

7. Select the checkbox for the settings that does not match the preferred values and click **SAVE**.

Results

The host settings are now set to the preferred values.

Create RDMs on VMAX All Flash/PowerMax Storage System

Use the procedure in this topic to create RDMs on VMAX All Flash/PowerMax Storage system.

Before you begin

*   A virtual machine must be created.

*   A masking view to the host must exist before provisioning.

*   The required privileges must be provided for the current logged in user. To provide the privileges see Provide Privileges for Current Logged in User for RDM Provisioning on page 68.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **VMs and Templates**.

3. Select a VM, click **Configure** > **Dell EMC VSI** > **Disks on Dell EMC**.

4. Click **+ CREATE RDM**.

   The **Create RDM Disk on Dell EMC storage** dialog box is displayed.
   (i) Note: RDM creation is supported only for VMs based on VMFS datastores.

5. On the **Hard Disk Settings** tab, select the hard disk settings to create the RDMs.

   Select the values for the following settings:

   - **Location**
     (i) Note: You cannot select the value for **Location** in this release, it is auto-set to
        `Share with the virtual machine.`

   - **Compatibility Mode**
     (i) Note: If the compatibility mode is selected as virtual, the setting **Disk Mode** will be
        enabled. Select the value for **Disk Mode**.

   - **Shares**

   - **Limit IOPs**

   - **Virtual Device Nodes**

   Click **NEXT**.

6. On the **Storage System** tab, select the VMAX All Flash/PowerMax storage system that you
   want to use to create the RDMs. Click **NEXT**.

7. On the **Storage Settings** tab, select the values for:

   - **Capacity**
     (i) Note:

        - The capacity must not exceed the user limits for the user logged in (If there are
          limits set on that user).

        - The minimum capacity is 10 GB and the maximum capacity is 65536 GB.

   - **Storage Groups**
     (i) Note: The storage groups available for selection are associated with the ESXi hosts
        that is hosting the VM and the user has access to.

   Click **NEXT**.

8. On the **Ready to Complete** tab, review your selections and click **FINISH**.

   The progress of RDM creation is displayed in the **Recent Tasks** panel and when completed
   an RDM disk is successfully created. To view the RDM details, click **Configure** > **Dell EMC
   VSI** > **Disks on Dell EMC** and select the RDM disk that you created.
   (i) Note: The RDM creation task is submitted to the vCenter and the RDM data must be
      collected from vCenter after the completion of the task. Hence there may be a delay in
      displaying the details after RDM creation.

View Storage Details for RDMs

Use the procedure in this topic to view storage details for RDMs.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **VMs and Templates**.

3. Select a VM, click **Configure** > **Dell EMC VSI** > **Disks on Dell EMC**, and select an RDM disk from the list displayed.

Results

The storage details for the selected RDM disk is displayed.

Dell EMC PowerMax Usage Limits

Learn about Dell EMC PowerMax usage limits in this topic.

vCenter users that register the Dell EMC PowerMax storage system can set the usage limits on vCenter users or groups.

vCenter users can set the following usage limits:

- Unlimited/No Limit

- Maximum number of volumes

- Maximum total capacity

- Maximum volume size

By default, all the limits for every user/group are unlimited. vCenter users can also view the current usage metrics for the following:

- Maximum number of volumes

- Maximum total capacity

vCenter users are prevented from performing actions (Create Datastore, Create RDM, and Increase Datastore capacity) that might put the user over the specified limit.

View Usage Limits

Use the procedure in this topic to view the PowerMax/VMAX usage limits.

Before you begin

- A PowerMax/VMAX storage system must be registered.

- To set limits to a user/group, the user/group must be granted access to the registered PowerMax/VMAX storage system.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Dell EMC VSI**.

3. Click **Users/Groups** on the left side.

   The **Users/Groups** page is displayed. It displays the list of all users/groups that have access to the Dell EMC storage systems.

4. To view the existing usage limits for vCenter users or groups, select a user/group from the list displayed.

5. Select the **PowerMax/VMAX Usage** tab to display the usage limits for the selected user/group.

   The limits and usage for all the PowerMax storage system the user/group has access to is displayed.

Set Usage Limits

Use the procedure in this topic to set or modify the usage limits for a vCenter user/group.

Before you begin

- A PowerMax/VMAX storage system must be registered.
- To set limits to a user/group, the user/group must be granted access to the registered PowerMax/VMAX storage system.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Dell EMC VSI**.

3. Click **Users/Groups** on the left side.

   The **Users/Groups** page is displayed. It displays the list of all users/groups that have access to the Dell EMC storage systems.

4. To set or edit the usage limits, click the **edit (pencil)** icon.

   The **Edit User/Group** page is displayed. It displays all the PowerMax/VMAX storage systems registered.

5. To set the usage limits for a specific array, click the **PowerMax/VMAX** tab. Click the **edit (pencil)** icon in each column to set the limit.

   You can set limits for the following:

   - Maximum Device Capacity
   - Maximum # of Devices
   - Maximum Total Capacity

   (i) Note:

   - When you set or edit the usage limits, click the green tick mark for each limit to save the changes made or the red X mark to discard the changes.

   - You can also set usage limits for all the PowerMax/VMAX storage systems at once using **Edit limits for all**.

6. Click **SAVE**, the user limits are successfully set.

   (i) Note:

   - To set a limit to unlimited, set the limit to 0.

   - The usage limits can be set only at a group or user level for a given PowerMax/VMAX storage system. If there are limits set on a group for PowerMax/VMAX storage system, no limits for that storage system can be set on the users who belong to that group and vice-versa. The group limits are enforced considering the combined usage of the users in that group.

Increase VMFS Datastore Capacity

Use the procedure in this topic to increase the VMFS datastore capacity.

Before you begin

Only the users with privileges in vCenter to configure datastores and have access to the datastore storage can increase its capacity.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Storage**.

3. Select the VMFS datastore, click **Configure** > **Dell EMC VSI** > **Storage**.

4. In the **Capacity** panel, click **INCREASE** .

   You can also right-click the VMFS datastore and select **Dell EMC VSI Actions** > **Increase Datastore Capacity** to change the capacity of the VMFS datastore. The **Increase Datastore Capacity** wizard is displayed.

5. In the **Increase Datastore Capacity** wizard, increase the capacity in GB or TB and click **SAVE**.

   (i) Note: The capacity must not exceed the user limits (if any limits set for that user).

CHAPTER 5

Managing XtremIO Storage System with VSI

This chapter includes the following topics:

Introduction

This chapter provides information about managing the XtremIO storage systems.

You can register, unregister, and view XtremIO storage systems from **Storage Systems** page.

You can create RDMs and view VM disk information for XtremIO storage system. You can also apply host best practices to your XtremIO storage system to set preferred values to the settings.

Register XtremIO Storage System

Use the procedure in this topic to register XtremIO storage system to the VSI plug-in.

Before you begin

- You must have administrator privileges to register storage system to the plug-in.
- Non-admin user who has host level privileges can also register storage systems to the plug-in.

Procedure

1. Log in to the VMware vSphere Client.
2. Click **Menu** > **Dell EMC VSI**.
3. Click **Storage Systems** on the left side.

   The **Storage Systems** page is displayed.

4. To register an XtremIO storage system, click **+** (add) icon.

   The **Register Storage System** dialog box is displayed.

5. To register an XtremIO storage system, follow the on-screen step by step process.

   On the **Type and Connection Settings** tab, enter the values for following parameters:

   - **Storage System Type**
   - **XMS Host Name/IP**
     ⓘ Note: Host name and IP address both are supported.

   - **XMS Username**
   - **XMS Password**

   Once all the values are specified, the **NEXT** button is enabled. Click **NEXT**.

6. On the **Storage Systems to Register** tab, select the XtremIO storage system that you want to register and click **NEXT**.

   ⓘ Note: You can select multiple XtremIO storage systems by selecting the check boxes. Click **NEXT**.

7. The **Storage Access** tab displays all the vCenter users/groups. You can select the users/ groups from the list to grant them access to an XtremIO storage system. Click **NEXT**.

   ⓘ Note:

   - It is optional to grant permissions for users/groups during registration. You can also provide access after the storage system registration.
   - You can select multiple users/groups by selecting the check boxes.

8. On the **Ready to Register** tab, review the settings and click **FINISH**.

Results

The XtremIO storage system is registered and displayed on the **Storage Systems** page.

Unregister XtremIO Storage System

Use the procedure in this topic to unregister XtremIO storage system.

Before you begin

Only the owner of the storage system can unregister XtremIO storage system.

(i) Note: An administrator cannot unregister a storage system that is registered by a non-admin user.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Dell EMC VSI**.

3. Click **Storage Systems** on the left side.

   The **Storage Systems** page is displayed. It displays all the registered storage systems.

4. Select the storage system that you want to unregister from VSI and click **X** (delete) icon.

   The **Unregister Storage System** dialog box is displayed.

5. Click **UNREGISTER**.

Results

The XtremIO storage system is successfully unregistered.

(i) Note: Multiple XtremIO storage systems can be selected and unregistered.

View XtremIO Storage System

Use the procedure in this topic to view XtremIO storage system details.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Dell EMC VSI**.

3. Click **Storage Systems** on the left side.

   The **Storage Systems** page is displayed. It displays all the registered storage systems.

4. To view details of the storage system, select the XtremIO storage system and click the **>** icon.

   The **Details** tab displays the following information:

   - **Name**
   - **Model**
   - **ID**
   - **Connect Status**
   - **Management Ip**
   - **Owner**

- **XMS Version**

It also displays **Physical Capacity** and **Volume Capacity** of the XtremIO storage system.

5. To view all the users/groups having access to the XtremIO storage system, click **User Access** tab.

   (i) Note: You can add users/groups by clicking **+** (add) icon and grant the access. You can also revoke grant permission for users/groups by clicking **X** (delete) icon.

Create VMFS Datastores on XtremIO Storage System

Use the procedure in this topic to create VMFS datastores on XtremIO storage system.

Before you begin

- The user creating the datastore must be assigned host level role, as it enables the user to have datastore privileges from the vCenter.
- The user must be in the **User Access** list for the particular registered XtremIO cluster. It enables the user to have access to create datastores.

Procedure

1. Log in to the VMware vSphere Client.
2. Click **Menu** > **Hosts and Clusters**.
3. Right-click a datacenter, cluster, folder, or host and select **Dell EMC VSI Actions** > **New Datastore**.

   The **Create Datastore on Dell EMC Storage** dialog box is displayed.
4. To create the datastore, select the **Type** of datastore as **VMFS** and select the **Version** 6 from the drop-down.

   (i) Note: Optionally you can also create multiple datastores by selecting the checkbox for **Create multiple datastores**. You can create a maximum of 10 datastores at one time.

5. Click **NEXT**.
6. On the **Datastore Settings** page, enter the **Name** of the datastore and verify the location of the datastore. Click **NEXT**.
7. On the **Storage System Selection** page, select the XtremIO storage system from the list of registered storage systems. Click **NEXT**.

   (i) Note: Only registered storage systems with status **Connected** are displayed.

8. On the **Initiator Group Selection** page, select the initiator group and click **NEXT**.

   (i) Note: You can select multiple initiator groups.

9. On the **Storage Settings** page, select the storage settings and click **NEXT**.
10. On the **Ready to Complete** page, verify the settings before creating the datastore and then click **FINISH**.

Results

The new datastore is created and is displayed under the **Datastores** tab for the particular datacenter, cluster, folder, or host.

Edit VMFS Datastore Properties

Use the procedure in this topic to edit VMFS datastore properties.

Before you begin

- Ensure that the XtremIO storage system used by the VMFS datastore has been registered.

Procedure

1. Log in to the VMware vSphere Client.
2. Click **Menu** > **Storage**.
3. Select the VMFS datastore, click **Configure** > **Dell EMC VSI** > **Storage**.

   You can edit the following properties:

   - Capacity
   - Data Reduction
   - Alerts

4. To increase the capacity, click **INCREASE** in the **Capacity** panel.

   You can also right-click the VMFS datastore and select **Dell EMC VSI Actions** > **Increase Datastore Capacity** to change the capacity of the VMFS datastore.

5. To refresh the Data Reduction, click **REFRESH** in the **Data Reduction** panel.

   The Data Reduction is refreshed and displays the updated information.

6. To enable or disable alerts, click **EDIT** in the **Alerts** panel.

   The **Alerts** dialog is displayed. Enable or disable the alert settings and click **SAVE** to save your settings.

XtremIO Host Best Practices

Use the procedure in this topic to apply the best practice to ESXi host.

Before you begin

- Must be a registered vCenter user to apply host best practices.
- Ensure that the XtremIO storage system is connected to the host you want to apply host best practices.

Procedure

1. Log in to the VMware vSphere Client.
2. Click **Menu** > **Hosts and Clusters**.
3. Right-click on a host and select **Dell EMC VSI Actions** > **Apply Host Best Practices**.

   To apply host best practices, you can select datacenter, folder, cluster, or host level. If you apply the best practices at datacenter/cluster/folder level, the changes are applied to all the connected hosts within a datacenter/cluster/folder.

4. To view the advanced settings for XtremIO storage system, select the host and click **Configure** > **Dell EMC VSI** > **Host Best Practices**.

5. Select **Advanced settings for Array Type: XtremIO** to manage host settings for XtremIO.

The panel displays the list of settings and the values for each of the settings from the host. The settings with warning icon do not meet the best practices.

(i) **Note:** Hover over the warning icon to view the preferred value. Select the setting and the description of the setting is displayed.

6. VSI enables you to set the value to a preferred value. To set the preferred values, click **Edit**. The **Apply Advanced Settings for XtremIO** wizard is displayed. It displays the preferred values for each setting.

   There are two functions of host settings:

   - ESXi settings: It is applied to host as global value. It does not affect existing LUN properties. It is applied to LUN that is created after applying the settings.

   - LUN settings: It is applied to all existing XtremIO LUNs on the host. Applying LUN setting does not affect LUN which is mounted after apply.

7. Select the checkbox for the settings that does not match the preferred values and click **SAVE**.

Results

The host settings are now set to the preferred values.

(i) **Note:** For `MaxHWTransferSize`

- If no XtremIO storage system is registered to the VSI plug-in, the option for `MaxHWTransferSize` is not displayed.

- If only XtremIO X1 is registered, the preferred value is 256.

- If only XtremIO X2 is registered, the preferred value is 4096.

- If both XtremIO X1 and X2 are registered, the preferred value is 4096.

Create RDMs on XtremIO Storage System

Use the procedure in this topic to create RDMs on XtremIO storage system.

Before you begin

- A virtual machine must be created.

- The user creating the volume must be assigned host level role, as it enables the user to have volume privileges from the vCenter.

- The user must be in the **User Access** list for the particular registered XtremIO cluster. It enables the user to have access to create volumes.

- The required privileges must be provided for the current logged in user. To provide the privileges see

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **VMs and Templates**.

3. Select a VM, click **Configure** > **Dell EMC VSI** > **Disks on Dell EMC**.

4. Click **+ CREATE RDM**.

   The **Create RDM Disk on Dell EMC storage** dialog box is displayed.

(i) **Note:** RDM creation is supported only for VMs based on VMFS datastores.

5. On the **Hard Disk Settings** tab, select the hard disk settings to create the RDMs.

   Select the values for the following settings:

   - **Location**
     (i) **Note:** You cannot select the value for **Location** in this release, it is auto-set to `Share with the virtual machine`.

   - **Compatibility Mode**
     (i) **Note:** If the compatibility mode is selected as virtual, the setting **Disk Mode** will be enabled. Select the value for **Disk Mode**.

   - **Shares**

   - **Limit IOPs**

   - **Virtual Device Nodes**

   Click **NEXT**.

6. On the **Storage System** tab, select the XtremIO storage system that you want to use to create the RDMs. Click **NEXT**.

7. On the **Storage Settings** tab, select the values for:

   - **Capacity**
     (i) **Note:** The minimum capacity is 10 GB and the maximum capacity is 65536 GB.

   - **Logical Block Size**

   - **Alignment Offset**

   - Choose to enable either of the following alerts:

     ▪ **Small IO Alerts**

     ▪ **Unaligned IO Alerts**

     ▪ **VAAI TP Alerts**

   Click **NEXT**.

8. On the **Initiators Groups** tab, select one or more initiator groups from the list. Click **NEXT**.

9. On the **Ready to Complete** tab, review your selections and click **FINISH**.

   The progress of RDM creation is displayed in the **Recent Tasks** panel and when completed an RDM disk is successfully created. To view the RDM details, click **Configure** > **Dell EMC VSI** > **Disks on Dell EMC** and select the RDM disk that you created.
   (i) **Note:** The RDM creation task is submitted to the vCenter and the RDM data must be collected from vCenter after the completion of the task. Hence there may be a delay in displaying the details after RDM creation.

CHAPTER 6

Managing Unity Storage System with VSI

This chapter includes the following topics:

Introduction

This chapter provides information about managing Unity storage system, Unity storage pools, and Unity NAS Servers.

You can register, unregister, and view Unity storage systems. Similarly you can register, unregister, and view details of the Unity storage pools and Unity NAS Servers.

You can create RDMs and view VM disk information for Unity storage system. You can also apply host best practices to your Unity storage system to set preferred values to the settings.

Register Unity Storage System

Use the procedure in this section to register Unity storage system to the VSI plug-in.

Before you begin

- You cannot add storage pools and NAS Servers without registering Unity storage array.

- Non-admin user who has host level privileges can also register storage systems to the plug-in.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Dell EMC VSI**.

3. Click **Storage Systems** on the left side.

   The **Storage Systems** page is displayed.

4. To register the Unity storage system, click **+** (add) icon.

   The **Register Storage System** wizard is displayed.

5. To register the Unity storage system, follow the on-screen step by step process.

   On the **Type and Connection Settings** tab, enter the values for following parameters:

   - **Storage System Type**: Select Unity storage system from the drop-down list.

   - **Unisphere Host Name/IP**
     ⓘ Note: Host name and IP address both are supported.

   - **Unisphere Username**

   - **Unisphere Password**

   Once all the values are specified, the **NEXT** button is enabled. Click **NEXT**.

6. On the **Storage Pools** tab, select the storage pools that you want to register and click **NEXT**.

   ⓘ Note:
   - You can select multiple storage pools by selecting the check boxes.
   - Storage pool selection can be also done post the storage system registration.

7. On the **NAS Servers** tab, select the NAS Servers you want to register and click **NEXT**.

   ⓘ Note:
   - You can select multiple NAS servers by selecting the check boxes.

- NAS server selection can be also done post the storage system registration.

8. On the **Storage Access** tab, select the users/groups from the list of all the vCenter users/groups displayed. Click **NEXT**. The selected users/groups are granted access to the Unity storage pools and Unity NAS Servers.

   (i) Note:

   - The **Storage Access** tab is enabled only if you select storage pool or a NAS Server. This tab is not displayed in the wizard if you do not select any storage pool or a NAS Server.

     You can select multiple users/groups by selecting the check boxes.

9. On the **Ready to Register** tab, review the settings and click **FINISH**.

Results

The Unity storage system is registered and displayed on the **Storage Systems** page.

Unregister Unity Storage System

Use the procedure in this topic to unregister Unity storage system from the VSI plug-in.

Before you begin

Only a storage owner for the particular Unity storage system can unregister.

Procedure

1. Log in to VMware vSphere Client.
2. Click **Menu** > **Dell EMC VSI**.
3. Click **Storage Systems** on the left side.

   The **Storage Systems** page is displayed and it displays all the registered storage systems.

4. Select the Unity storage system that you want to unregister and the **X** (delete) icon is enabled.

   (i) Note: You can select multiple Unity storage systems by selecting the check boxes.

5. Click **X** icon and **Unregister Storage System** page is displayed.
6. To unregister the Unity storage system from the plug-in, click **UNREGISTER** .

   (i) Note: The storage pools and NAS Servers that are associated with the Unity storage system are also removed.

Results

The Unity storage system is successfully unregistered.

View Unity Storage System Details

Use the procedure in this topic to view the details of Unity storage system.

Procedure

1. Log in to VMware vSphere Client.
2. Click **Menu** > **Dell EMC VSI**.

3. Click **Storage Systems** on the left side.

   The **Storage Systems** page is displayed and it displays all the registered storage systems.

4. Select the Unity storage system that you want to view and click the **>** icon.

   The **Details** tab displays the following information:

   - **Name**
   - **Model**
   - **Serial Number**
   - **Software Version**
   - **IP Address**
   - **Owner**

   It also displays **Storage System Capacity** and **VSI usable Capacity** of the Unity storage system.

5. Click **Storage Pools** tab, it displays all the registered storage pools that are accessible to the VSI plug-in.

   (i) Note: You can add storage pools by clicking **+** icon and you can also delete the storage pools by clicking **X** icon from the **Storage Pools** tab.

6. Click **NAS Servers** tab, it displays all the registered NAS servers that are accessible to the VSI plug-in.

   (i) Note: You can add NAS Servers by clicking **+** icon and you can also delete the NAS Servers by clicking **X** icon from the **NAS Servers** tab.

Register Unity Storage Pool

Use the procedure in this topic to register Unity storage pool to the VSI plug-in.

Before you begin

- You cannot add Unity storage pool without registering Unity Storage System.
- Only storage owners can add storage pools from the particular owned Unity storage system

Procedure

1. Log in to VMware vSphere Client.
2. Click **Menu** > **Dell EMC VSI**.
3. Click **Unity Storage Pools** on the left side. The **Unity Storage Pools** page is displayed and it displays all the registered Unity storage pools.
4. Click **+** (add) icon, the **Register Unity Pools** dialog box is displayed.
5. On the **Storage Systems** tab, select the unity storage system to register its Unity pools to VSI. Click **NEXT**.

   (i) Note: You can select multiple Unity storage systems by selecting them from the list of storage system displayed.

6. On the **Select Unity pools** tab, select the Unity pool and click **NEXT**.

   (i) Note: You can select multiple Unity storage pools by selecting them from the list of storage pools displayed.

7. On the **Storage Access** tab, select the users or groups to give them access to the Unity storage pool. Click **NEXT**.

8. On the **Ready to Register** tab, review the Unity pools and storage access details and click **FINISH**.

Results

The Unity pool is now registered to the plug-in and displayed under **Unity Storage Pools** page.

Unregister Unity Storage Pools

Use the procedure in this topic to unregister the Unity storage pool.

Before you begin

Only a storage owner who registered the particular Unity storage system can unregister the storage pools for that storage system.

Procedure

1. Log in to VMware vSphere Client.

2. Click **Menu** > **Dell EMC VSI**.

3. Click **Unity Storage Pools** on the left side.

   The **Unity Storage Pools** page is displayed. It displays all the registered Unity storage pools.

4. Select the Unity storage pool that you want to unregister.

   (i) Note: You can select multiple Unity storage pools by selecting them from the list of storage pools displayed.

5. Click the **X** (delete) icon.

   The **Unregister Unity Pool(s)** page is displayed.

6. To unregister the Unity storage pools, click **UNREGISTER** .

Results

The Unity storage pools are successfully unregistered from the plug-in.

View Unity Storage Pool Details

Use the procedure in this topic to view Unity storage pool details.

Procedure

1. Log in to VMware vSphere Client.

2. Click **Menu** > **Dell EMC VSI**.

3. Click **Unity Storage Pools** on the left side. The **Unity Storage Pools** page is displayed and it displays all the registered Unity storage pools.

4. Select the Unity storage pool that you want to view and click the **>** icon.

   The **Details** tab displays the following information:

   • **Name**

   • **Description**

   • **Size**

- **Free**

- **Used**

- **Subscription**

- **Fast Cache**

- **Snapshot Auto-Delete**

- **Snapshot Used**

It also displays the **Pool Capacity** bar which provides the used capacity and free capacity information.

5. Click **Storage Access** tab, it displays the Users/Groups who have access to the Unity storage pool.

You can add more Users/Groups to the Unity storage pool or delete Users/Groups from the Unity storage pool by clicking **+** (add) and **X** (delete) icons.

Register NAS Servers

Use the procedure in this topic to register NAS servers to the VSI plug-in.

Before you begin

Unity storage system must be registered.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Dell EMC VSI**.

3. Click **Unity NAS Servers** on the left side. The **Unity NAS Servers** page is displayed and it displays all the registered Unity NAS Servers.

4. Click **+** (add) icon, the **Register Unity NAS Servers** dialog box is displayed.

5. On the **Storage Systems** tab, select the unity storage system to register its Unity NAS Servers to VSI. Click **NEXT**.

   (i) Note: You can select multiple Unity storage systems by selecting them from the list of storage system displayed.

6. On the **Select NAS Servers** tab, select the NAS Servers you want to register to VSI and click **NEXT**.

   (i) Note: You can select multiple NAS servers by selecting them from the list displayed.

7. On the **Storage Access** tab, select the users or groups to give them access to NAS Servers. Click **NEXT**.

8. On the **Ready to Register** tab, review the selected Unity NAS Servers and storage access details and click **FINISH**.

Results

The Unity NAS Servers are registered and displayed on the **Unity NAS Servers** page.

Unregister Unity NAS Servers

Use the procedure in this topic to unregister the Unity NAS Servers.

Before you begin

Only a storage owner who registered the NAS Servers can unregister them for that storage system.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Dell EMC VSI**.

3. Click **Unity NAS Servers** on the left side.

    The **Unity NAS Servers** page is displayed. It displays all the registered Unity NAS Servers.

4. Select the Unity NAS Server that you want to unregister.

    (i) Note: You can select multiple Unity NAS Servers by selecting them from the list displayed.

5. Click the **X** (delete) icon.

    The **Unregister Unity NAS Servers** page is displayed.

6. To unregister the Unity NAS Servers, click **UNREGISTER** .

Results

The Unity NAS Servers are successfully unregistered from the plug-in.

View Unity NAS Server Details

Use the procedure in this topic to view Unity NAS Server details.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Dell EMC VSI**.

3. Click **Unity NAS Servers** on the left side. The **Unity NAS Servers** page is displayed and it displays all the registered Unity NAS Servers.

4. Select the Unity NAS Server that you want to view and click the **>** icon.

    The **Details** tab displays the following information:

    *   **Name**
    *   **Health Status**
    *   **SP**
    *   **Async Replication Type**
    *   **Sync Replication Type**
    *   **Tenant**
    *   **Storage System**
    *   **Pool**
    *   **Protocols**

- **Owner**

5. Click **Storage Access** tab, it displays the Users/Groups who have access to the NAS servers.

   You can add more Users/Groups to the Unity storage pool or delete Users/Groups from the Unity storage pool by clicking **+** (add) and **X** (delete) icons.

Create VMFS Datastores on Unity Storage System

Use the procedure in this topic to create VMFS datastores on Unity storage system.

Before you begin

- You must have enough vCenter privileges to create datastores.
- You must have access to the storage pool.
- vSphere must be added in the access list of Unisphere.

(i) Note: A vCenter/Host must be registered on the Unisphere UI.

Procedure

1. Log in to the VMware vSphere Client.
2. Click **Menu** > **Hosts and Clusters**.
3. Right-click a datacenter, cluster, folder, or host and select **Dell EMC VSI Actions** > **New Datastore**.

   The **Create Datastore on Dell EMC Storage** dialog box is displayed.
4. To create the datastore, select the **Type** of datastore as **VMFS** and select the **Version** from drop-down as 6.

   (i) Note: Optionally you can also create multiple datastores by selecting the checkbox for **Create multiple datastores**. You can create a maximum of 10 datastores at one time.

5. Click **NEXT**.
6. If you have not chosen to create multiple datastores, on the **Datastore Settings** tab, enter the **Name** of the datastore and verify the location of the datastore. Click **NEXT**.

   If you have chosen to create multiple datastores, enter the number of datastores you want to create, base name, and digits for name suffix. Click **NEXT**.
   (i) Note: The **Name** of the datastore should be valid. It can include alphanumeric characters, space, hyphen, underscore, open, and close parenthesis. No other characters are valid.

7. On the **Storage System Selection** tab, select the Unity storage system from the list of registered storage systems. Click **NEXT**.

   (i) Note: Only registered storage systems with status **Connected** are displayed.

8. On the **Storage Settings** tab, select the storage settings and click **NEXT**.

   (i) Note: The **Data Reduction** and **Advanced Deduplication** properties are supported only for All Flash Unity storage systems.

9. On the **Ready to Complete** tab, verify the settings before creating the datastore and then click **FINISH**.

Results

The new datastore is created and is displayed under the **Datastores** tab for the particular datacenter, cluster, folder, or host.

Create NFS Datastores on Unity Storage System

Use the procedure in this topic to create NFS datastores on Unity storage system.

Before you begin

- You must have the required vCenter privileges to create datastores.

- You must have access to the storage pools and NAS servers.

- vSphere must be added in the access list of Unisphere.

(i) **Note:** A vCenter/Host must be registered on the Unisphere UI.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Hosts and Clusters**.

3. Right-click a datacenter, cluster, folder, or host and select **Dell EMC VSI Actions** > **New Datastore**.

   The **Create Datastore on Dell EMC Storage** dialog box is displayed.

4. To create the datastore, select the **Type** of datastore as **NFS** and select the **Version** from the drop-down. Click **NEXT**.

5. On the **Datastore Settings** tab, enter the **Name** of the datastore and verify the location of the datastore. Click **NEXT**.

6. On the **Storage System Selection** tab, select the Unity storage system from the list of registered storage systems. Click **NEXT**.

7. On the **Storage Settings** tab, select the storage settings and click **NEXT**.

   (i) **Note:** The NAS servers available for selection in the drop-down are the NAS servers that user has been granted access to. If the user has not been granted access to a NAS server, an error banner is displayed.

8. On the **Host Access** tab, select the hosts that you want to access the datastore, and select the access mode.

   (i) **Note:** You can set the access mode for each host individually or the same for all selected hosts. The default access mode must be set to **No Access** to prevent other hosts from accessing the datastore.

9. On the **Ready to Complete** tab, verify the settings before creating the datastore and click **FINISH**.

Results

The new NFS datastore is created and is displayed under the **Datastores** tab for the particular datacenter, cluster, or host.

View NFS/VMFS Datastore Storage Details

Use the procedure in this topic to view the storage details of an NFS/VMFS datastore.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Storage**.

3. Select the NFS/VMFS datastore that you want to view, click **Configure** > **Dell EMC VSI** > **Storage**.

   The storage details for the NFS/VMFS datastore is displayed.

Edit VMFS Datastore Properties

Use the procedure in this topic to edit the VMFS datastore properties.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Storage**.

3. Select the VMFS datastore, click **Configure** > **Dell EMC VSI** > **Storage**.

   For VMFS datastore, you can edit the following properties:

   - Capacity
   - Data Reduction
   - FAST VP
   - Host IO Limit
   - SP Owner

4. To increase the datastore capacity, click **INCREASE** in the capacity panel.

   (i) Note: You can also right-click the VMFS datastore and select **Dell EMC VSI Actions** > **Increase Datastore Capacity** to change the capacity of the VMFS datastore.

5. To edit the Data Reduction, click **EDIT** in the **Data Reduction** panel.

   The **Edit Data Reduction** wizard is displayed. To enable or disable Data Reduction, select or deselect the **Data Reduction** checkbox. You can choose to enable **Advanced Deduplication** when **Data Reduction** is enabled. Click **SAVE** to save your settings.

6. To edit FAST VP, click **EDIT** in the FAST VP panel.

   The **FAST VP** wizard is displayed. Select a **Tiering Policy** and click **SAVE**.

7. To edit Host IO Limit, click **EDIT** in the Host IO Limit panel.

   The **Host IO Limit** wizard is displayed. Select a limit and click **SAVE**.

8. To edit SP Owner, click **EDIT** in the SP Owner panel.

   The **SP Owner** wizard is displayed. Select an SP Owner and click **SAVE**.

Edit NFS Datastore Properties

Use the procedure in this topic to edit the NFS datastore properties.

Procedure

1. Log in to the VMware vSphere Client.
2. Click **Menu** > **Storage**.
3. Select the NFS datastore, click **Configure** > **Dell EMC VSI** > **Storage**.

   For NFS datastore, you can edit the following properties:

   - Capacity
   - Data Reduction
   - FAST VP

4. To increase the datastore capacity, click **INCREASE** in the capacity panel.

   (i) **Note:** You can also right-click the NFS datastore and select **Dell EMC VSI Actions** > **Increase Datastore Capacity** to change the capacity of the NFS datastore.

5. To edit the Data Reduction, click **EDIT** in the **Data Reduction** panel.

   The **Edit Data Reduction** wizard is displayed. To enable or disable Data Reduction, select or deselect the **Data Reduction** checkbox. You can choose to enable **Advanced Deduplication** when **Data Reduction** is enabled. Click **SAVE** to save your settings.

6. To edit FAST VP, click **EDIT** in the FAST VP panel.

   The **FAST VP** wizard is displayed. Select a **Tiering Policy** and click **SAVE**.

Manage Access and Connectivity for NFS datastores

Use the procedure in this topic to manage host connectivity and access mode for NFS datastores.

Procedure

1. Log in to the VMware vSphere Client.
2. Select **Menu** > **Storage**.
3. Select the NFS datastore that you want to manage, click **Configure** > **Dell EMC VSI** > **Access and Connectivity**.
4. To mount the NFS datastore to additional hosts, click the **+** (add) icon.

   The "Mount Datastore to Additional Hosts" dialog box is displayed.

5. Select the hosts from the list displayed to mount the NFS datastore. Select the access mode for each host individually or set the access mode for all selected hosts.

6. To edit the access mode for existing hosts , select the hosts and click edit (pencil) icon.

   The **Edit Access Mode** dialog box is displayed.

7. Select the access mode for each host or set for all selected hosts. Click **SAVE**.

8. To change the default access mode, click **EDIT** in the **Default Access Mode** panel. Select the default access mode and click **SAVE**.

9. To unmount the NFS datastore from hosts, select the hosts and click **X** (delete) icon.

   The **Unmount Datastore** dialog box is displayed.

10. Confirm the hosts that are selected and click **UNMOUNT** to continue.

   The datastore is now successfully unmounted from the selected hosts.

Unity Host Best Practices

Use the procedure in this topic to view and apply best practices to host.

Before you begin

Must be a registered vCenter user to apply host best practices.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Hosts and Clusters**.

3. Right-click on a host and select **Dell EMC VSI Actions** > **Apply Host Best Practices**.

   To apply host best practices, you can select datacenter, folder, cluster, or host level. If you apply the best practices at datacenter/cluster/folder level, the changes are applied to all the connected hosts within a datacenter/cluster/folder.

4. To view the advanced settings for Unity storage system, select the host and click **Configure** > **Dell EMC VSI** > **Host Best Practices**.

5. Select **Advanced settings for Array Type: Unity** to manage host settings for Unity.

   The panel displays the list of settings and the values for each of the settings from the host. The settings with warning icon do not meet the best practices.

   (i) Note: Hover over the warning icon to view the preferred value. Select the setting and the description of the setting is displayed.

6. VSI enables you to set the value to a preferred value. To set the preferred values, click **Edit**. The **Apply Advanced Settings for Unity** wizard is displayed. It displays the preferred values for each setting.

7. Select the checkbox for the settings that does not match the preferred values and click **SAVE**.

Results

The host settings are now set to the preferred values.

Create RDMs on Unity Storage System

Use the procedure in this topic to create RDMs on Unity storage system.

Before you begin

- A virtual machine must be created.

- You must have enough vCenter privileges to create volumes.

- You must have access to the storage pool.

- vSphere must be added in the access list of Unisphere.

- The required privileges must be provided for the current logged in user. To provide the privileges see Provide Privileges for Current Logged in User for RDM Provisioning on page 68.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **VMs and Templates**.

3. Select a VM, click **Configure** > **Dell EMC VSI** > **Disks on Dell EMC**.

4. Click **+ CREATE RDM**.

   The **Create RDM Disk on Dell EMC storage** dialog box is displayed.

   (i) Note: RDM creation is supported only for VMs based on VMFS datastores.

5. On the **Hard Disk Settings** tab, select the hard disk settings to create the RDMs.

   Select the values for the following settings:

   - **Location**
     (i) Note: You cannot select the value for **Location** in this release, it is auto-set to
     `Share with the virtual machine.`

   - **Compatibility Mode**
     (i) Note: If the compatibility mode is selected as virtual, the setting **Disk Mode** will be
     enabled. Select the value for **Disk Mode**.

   - **Shares**

   - **Limit IOPs**

   - **Virtual Device Nodes**

   Click **NEXT**.

6. On the **Storage System** tab, select the Unity storage system that you want to use to create the RDMs. Click **NEXT**.

7. On the **Storage Settings** tab, select the values for:

   - **Storage Pool**

   - **Capacity**
     (i) Note: The minimum capacity is 10 GB and the maximum capacity is 65536 GB.

   - **Tiering Policy**

   - Choose to enable either of the following:

     - **Thin**

     - **Data Reduction**
       (i) Note:

       – You can enable data reduction with or without **Advanced Deduplication**.

       – Data Reduction is available for Unity 4.5 and All Flash pools.

8. On the **Ready to Complete** tab, review your selections and click **FINISH**.

   The progress of RDM creation is displayed in the **Recent Tasks** panel and when completed an RDM disk is successfully created. To view the RDM details, click **Configure** > **Dell EMC VSI** > **Disks on Dell EMC** and select the RDM disk that you created.

   (i) Note: The RDM creation task is submitted to the vCenter and the RDM data must be collected from vCenter after the completion of the task. Hence there may be a delay in displaying the details after RDM creation.

View Storage Details for RDMs

Use the procedure in this topic to view storage details for RDMs.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **VMs and Templates**.

3. Select a VM, click **Configure** > **Dell EMC VSI** > **Disks on Dell EMC**, and select an RDM disk from the list displayed.

Results

The storage details for the selected RDM disk is displayed.

CHAPTER 7

Using VSI to Manage Users/Groups

This chapter includes the following topics:

Introduction

This chapter provides information about managing vCenter users/groups and how to grant them access to Dell EMC storage systems.

You can perform the add, edit, and view operations from the **Users/Groups** page.

Add Users/Groups

Use the procedure in this topic to add users/groups and grant them access to storage.

Before you begin

- A vCenter user who registers a storage system, becomes the owner and controls access to the storage system and its storage.
- vCenter users who have privileges to create datastores can create datastores on the storage systems they have been granted access to.
- A vCenter user can view storage system details that are associated with a datastore without being granted access.

Procedure

1. Log in to VMware vSphere Client.

2. Click **Menu** > **Dell EMC VSI**.

3. Click **Users/Groups** on the left side. The **Users/Groups** page is displayed. It displays the vCenter administrator name and list of all users/groups that have access to the Dell EMC storage systems.

   (i) Note: The vCenter administrator name is displayed even if the administrator has not registered any storage systems or been granted access to them.

4. Click **+** icon, the **Add User/Group** dialog box is displayed.

   It displays all the available vCenter users/groups created on the vCenter server client.

5. To grant access to the users/groups, select the **User/Group** and the storage system.

   (i) Note:
   - Only the storage systems that are registered by you are listed for selection.
   - You can select multiples users/groups by selecting the checkbox.

6. Click **ADD**.

   The users/groups are added and displayed on the **Users/Groups** page.

Results

The users/groups are granted access to the storage system. The users/groups are displayed under or removed from the **Users/Groups** page.

Edit Users/Groups

Use the procedure in this topic to edit a user's or group's access to the Dell EMC storage systems.

Procedure

1. Log in to VMware vSphere Client.

2. Click **Menu** > **Dell EMC VSI**.

3. Click **Users/Groups** on the left side. The **Users/Groups** page is displayed. It displays the vCenter administrator name and list of all users/groups that have access to the Dell EMC storage systems.

   (i) Note: The vCenter administrator name is displayed even if the administrator has not registered any storage systems or been granted access to them.

4. Select the user or group you want to edit.

5. Click the edit icon (pencil).

   The **Edit User/Group** dialog box is displayed.

6. To grant access, select the storage system or the storage resources. To remove access, uncheck the storage resources.

   (i) Note:
   - Only the storage systems that are registered by you are listed for selection/deselection.
   - You can select/deselect multiples users/groups by selecting the checkbox.

7. Click **SAVE**.

Results

The users/groups are accordingly displayed or removed from the **Users/Groups** and **User Access/Storage Access** page.

View User/Group

Use the procedure in this topic to view the user/group details.

Procedure

1. Log in to VMware vSphere Client.

2. Click **Menu** > **Dell EMC VSI**.

3. Click **Users/Groups** on the left side.

   The **Users/Groups** page is displayed, it displays list of all users/groups that have access to the Dell EMC storage systems.

4. Select the user or group that you want to view.

   The **Users/Groups** page displays **Summary** and **Details** of the selected user/group. The **Summary** tab displays the number of storage systems the user/group has access to out of the total number of storage systems registered in the VSI plug-in.

5. To view the details, click **Details** tab, it displays each storage system details along with the storage group or storage pool details.

CHAPTER 8

SSL Certificate Management

This chapter includes the following topics:

IAPI SSL Certificate Management

This topic provides information about the IAPI SSL certificate management.

IAPI SSL certificates are exported to the truststore as part of the ova deployment. For more information about how to deploy ova file, see Deploying the VSI Plug-in on page 14.

Register VSI Plug-in using SSL

This topic provides information about how to register the VSI plug-in using SSL.

Procedure

1. Deploy the ova file, see Deploying the VSI Plug-in on page 14 for steps to deploy the ova file.

2. Select the **Enable SSH** checkbox.

   (i) Note: Do not enter values for **vCenter Host, vCenter Administrator Username and vCenter Administrator Password**.

3. **Power On** the IAPI virtual machine.

4. Import the vCenter SSL certificates to IAPI VM.

   (i) Note: You can also register the VSI plug-in without importing the vCenter SSL certificates. You can import them to IAPI VM at any given point.

5. Login to IAPI server through SSH and run the following command:

   ```
   python3 /opt/scripts/register_extension.py -vcenter <vcenterIp> -
   username <vcenterUsername> -password <vcenterPassword> -alias<alias
   name given to the vcenter certificate while importing the certificate>
   ```

   The **Dell EMC VSI** plug-in is registered.

6. To view the VSI plug-in, login to the vCenter and the **Dell EMC VSI** plug-in is displayed under **Menu**.

Register VSI Plug-in without SSL

This topic provides information about how to register the VSI plug-in without using SSL.

Procedure

1. Deploy the ova file, see Deploying the VSI Plug-in on page 14 for steps to deploy the ova file.

2. Login to IAPI server through SSH.

3. **Power On** the IAPI server and run the following command:

   ```
   python3 /opt/scripts/register_extension.py -ignoressl True
   ```

   The **Dell EMC VSI** is registered.

4. To view the VSI plug-in, login to the vCenter and the **Dell EMC VSI** plug-in is displayed under **Menu**.

Import vCenter SSL Certificates

This topic provides information about how to import vCenter SSL certificates.

Before you begin

vCenter certificates should be imported to IAPI truststore with both IP and FQDN aliases for users/groups to work without any error.

(i) **Note:** In case of linked mode, you must import certificates for all linked vCenters and PSC (Platform Service Controller).

Procedure

1. Login to the IAPI server SSH and access the IAPI docker container.

   Use the following commands:

   ```
   root@photon [ ~ ]# docker exec -it iapi bash
   ```

2. Install the wget utility and download the root certificates from each vCenter.

   Use the following commands:

   ```
   root@photon [ ~ ]# apt-get install wget

   root@photon [ ~ ]# wget https://<vCenterHost>/certs/download.zip --no-
   check-certificate
   ```

3. Extract the zip file.

4. Import the Linux-based, X.509, root certificate for your vCenter. For example, after you unzip the file, the certificate to import will look like certs/lin/e65bea3e.0

   To import, use the following command:

   ```
   keytool -storepass changeit -import -alias <vCenter IP or UUID> -file /
   certs/lin/<certificate to be imported> -keystore ${JAVA_HOME}/jre/lib/
   security/cacerts
   ```

5. Restart the IAPI to reestablish vCenter connections using SSL.

   Use the following commands:

   ```
   exit
   docker restart iapi
   ```

Import SSL certificates to IAPI from the Storage Systems

Use the procedure in this topic to import SSL certificates to IAPI from the storage systems.

Procedure

1. To import SSL certificates from Unity, VMAX All Flash/PowerMax, and XtremIO storage systems, use the following command:

```
keytool -import -alias <server_name> -keystore ${JAVA_HOME}/jre/lib/
security/cacerts -file <exported_cert_file>
```

(i) **Note:** The alias name must be IP/FQDN being used for exporting certificates from storage system management interfaces (XMS/Unisphere).

Change settings in application.conf of the IAPI container

Use this topic to change the settings in application.conf of the IAPI container.

Before you begin

To enable SSL, you must set the following flags to *FailOnUntrusted* in IAPI application.conf:

- *ssl.verification.vcenter*
- *ssl.verification.xtremio*
- *ssl.verification.powermax/vmax*
- *ssl.verification.unity*

(i) **Note:** The default value for these flags is *WarnOnUntrusted* and must be set to *FailOnUntrusted* to enable SSL.

Procedure

1. Login to the IAPI server through SSH and access the IAPI Docker container.

   Use the following command:

   ```
   root@photon [ ~ ]# docker exec -it iapi bash
   ```

2. Edit the **application.conf** file, in `/opt/iapi/conf/` folder.

3. Change the settings in **application.conf**. For example, comment these settings to disable SSL Certificate Validation in IAPI.

   Use the following commands:

   ```
   root@photon [ ~ ]# sed -i 's/ssl.truststore.path = \/etc\/ssl\/certs\/
   java\/cacerts/#ssl.truststore.path = \/etc\/ssl\/certs\/java\/
   cacerts/g' application.conf

   root@photon [ ~ ]# sed -i 's/ssl.truststore.passphrase = changeit/
   #ssl.truststore.passphrase/g' application.conf
   ```

4. Restart IAPI container to apply the Configuration changes.

Use the following commands:

```
root@photon [ ~ ]# exit
root@photon [ ~ ]# docker restart iapi
```

Reference Topics

This chapter includes all the reference topics used in this document:

Provide Privileges for Current Logged in User for RDM Provisioning

This topic provides information about providing the required privileges to the current logged in user for RDM provisioning.

Before you begin

• A virtual machine must be created.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Administration** > **Access Controls** > **Roles**.

3. Click **+** to add new role. The **New Role** wizard is displayed.

4. Select **Virtual Machine** from the list of roles and select the privilege **Configure Raw device** for the VM. Click **NEXT**.

   (i) Note: To view all the privileges for VM, click **See more privileges**.

   The **Configure Raw device** privilege allows the user to add or remove a raw disk mapping or SCSI pass through device. Setting this privilege overrides any other privilege for modifying raw devices, including connection states.

5. On the next screen, provide the **Role name**, **Description** and click **FINISH**.

   The privilege for the virtual machine is successfully added.

6. Similarly, select **Host** from the list of roles and select the privilege **Storage partition configuration** for the host. Click **NEXT**.

   (i) Note: To view all the privileges for host, click **See more privileges**.

   The **Storage partition configuration** privilege allows VMFS datastore and diagnostic partition management. Users with this privilege can scan for new storage devices and manage iSCSI.

7. On the next screen, provide the **Role name**, **Description** and click **FINISH**.

   The privilege for the host is successfully added.

8. You must grant the role for the current user on the specific managed objects (the target VM and the target host) in vSphere.

   a. For target host, click **Menu** > **Hosts and Clusters** and right-click the target host and click **Add Permission**. The **Add Permission** wizard is displayed. Specify the user and the role having the **Storage partition configuration** privilege and click **OK**.

   b. For target VM, click **Menu** > **VMs and Templates** and right-click the target VM and click **Add Permission**. The **Add Permission** wizard is displayed. Specify the user and the role having the **Configure Raw device** privilege and click **OK**.

Results

The user has all the required privileges for RDM provisioning.

Provide Privileges for Current Logged in User for Datastore Provisioning

This topic provides information about providing the required privileges to the current logged in user for datastore provisioning.

Procedure

1. Log in to the VMware vSphere Client.

2. Click **Menu** > **Administration** > **Access Controls** > **Roles**.

3. Click **+** to add new role. The **New Role** wizard is displayed.

4. Select **Host** from the list of roles and select the privilege **Storage partition configuration** for the host. Click **NEXT**.

   (i) **Note:** To view all the privileges for host, click **See more privileges**.

   The **Storage partition configuration** privilege allows VMFS datastore and diagnostic partition management. Users with this privilege can scan for new storage devices and manage iSCSI.

5. On the next screen, provide the **Role name**, **Description** and click **FINISH**.

   The privilege for the host is successfully added.

Results

The user has the required privileges for datastore provisioning.