

Dell EMC Virtual Appliance Manager

Version 9.0

Installation Guide

Rev 02

February 2020

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Preface

As part of an effort to improve its product lines, Dell EMC periodically releases revisions of its software and hardware. Therefore, some functions described in this document might not be supported by all versions of the software or hardware currently in use. The product release notes provide the most up-to-date information on product features.

Contact your Dell EMC representative if a product does not function properly or does not function as described in this document.

 **Note:** This document was accurate at publication time. New versions of this document might be released on Dell EMC Online Support (<https://support.emc.com>). Check to ensure that you are using the latest version of this document.

Purpose

This document describes how to install:

- Solutions Enabler Virtual Appliance
- Unisphere for PowerMax Virtual Appliance
- VASA Provider Virtual Appliance

Audience

This document is intended for customers who are installing Virtual Appliance (vApp) Manager.


Related documentation


The following Dell EMC publications provide additional information related to vApp Manager:


- *Dell EMC Solutions Enabler Installation Guide*
- *Dell EMC Unisphere for PowerMax Installation Guide*
- *Dell EMC Unisphere for PowerMax Release Notes*
- *Dell EMC Solutions Enabler Release Notes*
- *Dell EMC VASA Provider Release Notes*

Special notice conventions used in this document


Dell EMC uses the following conventions for special notices:

 **DANGER** Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

 **WARNING** Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

 **CAUTION** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

 **NOTICE** Addresses practices not related to personal injury.

 **Note:** Presents information that is important, but not hazard-related.

Typographical conventions

Dell EMC uses the following type style conventions in this document:

Table 1 Typographical conventions used in this content

Bold	Used for names of interface elements, such as names of windows, dialog boxes, buttons, fields, tab names, key names, and menu paths (what the user specifically selects or clicks)
<i>Italic</i>	Used for full titles of publications referenced in text
Monospace	Used for: <ul style="list-style-type: none"> • System code • System output, such as an error message or script • Pathnames, filenames, prompts, and syntax • Commands and options
<i>Monospace italic</i>	Used for variables
Monospace bold	Used for user input
[]	Square brackets enclose optional values
	Vertical bar indicates alternate selections - the bar means “or”
{ }	Braces enclose content that the user must specify, such as x or y or z
...	Ellipses indicate nonessential information omitted from the example

Where to get help

Dell EMC support, product, and licensing information can be obtained as follows:

Product information

For documentation, release notes, software updates, or information about Dell EMC products, go to Dell EMC Online Support at <https://support.emc.com>.

Technical support

To open a service request through the Dell EMC Online Support (<https://support.emc.com>) site, you must have a valid support agreement. Contact your Dell EMC sales representative for details about obtaining a valid support agreement or to answer any questions about your account.

eLicensing support

To activate your entitlements and obtain your VMAX license files, visit the Service Center on Dell EMC Online Support (<https://support.EMC.com>), as directed on your License Authorization Code (LAC) letter emailed to you.

- For help with missing or incorrect entitlements after activation (that is, expected functionality remains unavailable because it is not licensed), contact your Dell EMC Account Representative or Authorized Reseller.
- For help with any errors applying license files through Solutions Enabler, contact the Dell EMC Customer Support Center.
- If you are missing a LAC letter, or require further instructions on activating your licenses through the Online Support site, contact Dell EMC's worldwide Licensing team at licensing@emc.com or call:
 - North America, Latin America, APJK, Australia, New Zealand: SVC4EMC (800-782-4362) and follow the voice prompts.
 - EMEA: +353 (0) 21 4879862 and follow the voice prompts.

Your comments

Your suggestions help us improve the accuracy, organization, and overall quality of the documentation. Send your comments and feedback to: VMAXContentFeedback@emc.com

Revision history

The following table lists the revision history of this document.

Table 2 Revision history

Revision	Date	Description
01	March 2018	First release of Dell EMC Virtual Appliance Manager Installation Guide, Version 9.0
02	February 2020	Updates to Chapter 4, Installing the VASA Virtual Appliance.

CHAPTER 1

Overview

This chapter provides an overview of the Virtual Appliance Installation Guide. Topics include:

- [Overview](#)14

Overview

Virtual Appliance (vApp) Manager provides the ability to manage and configure the storage environment. vApp Manager supports:

- Solutions Enabler
- Unisphere for PowerMax
- VASA Provider
- Guest OS
- Embedded Management

This guide provides installation information for Solutions Enabler, Unisphere for PowerMax, and VASA Provider Virtual Appliance instances. The Guest OS and Embedded Management Virtual Appliances are pre-installed at the factory.

CHAPTER 2

Installing the Solutions Enabler Virtual Appliance

This chapter explains how to install the Solutions Enabler Virtual Appliance in a VMware infrastructure environment. Topics include:

- [Introduction](#)..... 16
- [Before you begin](#)..... 17
- [Installing the Virtual Appliance directly to ESX Server](#)..... 17
- [Installing the Virtual Appliance through vCenter Server](#)..... 20
- [Installing the Virtual Appliance using the OVF Tool](#)..... 23
- [Launching vApp Manager](#)..... 25
- [Updating the Solutions Enabler Virtual Appliance](#)..... 25
- [Deleting the Solutions Enabler Virtual Appliance](#)..... 26

Introduction

The Solutions Enabler Virtual Appliance is a VMware ESX Server virtual machine that provides all the components you need to manage the storage environment using the `storsrvd` daemon and Solutions Enabler network client access. Components include:

- Dell EMC Solutions Enabler 9.0 (used only as a SYMAPI server for Solutions Enabler client access)
- Linux operating system (SUSE 11 SP3 JeOS)
- SMI-S Provider 9.0

Also, the Solutions Enabler Virtual Appliance includes a browser-based console, Dell EMC vApp Manager for Solutions Enabler, to configure the storage environment. vApp Manager enables you to perform the following configuration tasks:

- Monitor the application status
- Start and stop selected daemons
- Download persistent data
- Configure the `nethost` file (required for client access)
- Discover storage arrays
- Modify options and daemon options
- Add array-based and host-based license keys
- Run a limited set of Solutions Enabler CLI commands
- Configure ESX Server host and gatekeeper devices
- Launch Unisphere for PowerMax (available only in Unisphere versions of the appliance console)
- Configure iSCSI initiator and map iSCSI gatekeeper devices
- Configure another NIC card (optional)
- Download SYMAPI debug logs
- Import a CA-signed certificate for web browsers
- Import a custom certificate for `storsrvd` daemon
- Check disk usage
- Restart the appliance
- Configure `symavoid` entries
- Load array-based eLicenses
- Enable SSH
- Configure LDAP
- Manager users
- Reset the hostname
- Update the `etc/hosts` file

For information about using vApp Manager, see its online help.

 **Note:** Root login is not supported on the SUSE 11 virtual machine.

Before you begin

About this task

Before you begin to install the Solutions Enabler Virtual Appliance, be sure to complete the tasks that are listed in this section:

Procedure

1. Verify that you are installing the latest version of the appliance by checking the Dell EMC Support website for updates.
2. Verify that the client is running:
 - VMware vSphere Client
 - Any of the following browsers with cookies and JavaScript enabled:
 - Internet Explorer 9.0 through 11.0 (Desktop only)
 - Firefox 30 or later
 - Chrome 21.0.1180 or later

Browsers should have Flash Player 11.2 plug-in installed. If the browser has an older version of Flash Player, you are prompted to download the latest version when you start the web console.

3. Verify that VMware ESX Server meets the following minimum requirements:
 - Version 4.0 or later
 - Dual disk, 16 GB of disk space and another 5 GB (expandable) disk space
 - 2 GB memory
 - One CPU

Installing the Virtual Appliance directly to ESX Server

This section describes how to install the Solutions Enabler Virtual Appliance directly to the ESX Server virtual machine.

Note: When deploying the Virtual Appliance using the command line through the OVF, or while adding an ESX Server virtual machine in vApp Manager, ensure that the ESX Server virtual machine name is specified with the same case as it is registered in the DNS, otherwise the operation fails.

Step 1: Import the Virtual Appliance

About this task

To import the Virtual Appliance:

Procedure

1. Download the OVF archive file (*.ova) containing the installation program from Dell EMC Support to a temporary directory.
2. Start the vSphere Client and log in to the ESX Server virtual machine on which you are installing the appliance.

3. Click **Ignore** in the security warning message.
4. From the **File** menu, select **Deploy OVF Template**.
5. Browse to the OVF archive file, which is located in the temporary directory you created earlier. Select the OVF archive file with the suffix `*vappxxx_xxx_OVF10.ova`.
6. Click **Next**.
7. On the **Details** page, verify the details about the appliance and click **Next**.
8. On the **End User License Agreement** page, select **Accept all license agreements** and click **Next**.
9. On the **Name and Location** page, specify a name for the appliance and click **Next**.
10. If a resource pool is available, the **Resource Pool** page is displayed. Select the resource pool of the choice and click **Next**. Otherwise, the **Resource Pool** page is skipped.
11. On the **Datastore** page, select the datastore of the choice and click **Next**.
12. On the **Disk Format** page, select the format in which to store the virtual machine virtual disks and click **Next**.
13. On the **Network Mapping** page, map the source network to the appropriate destination network.
14. On the **Ready to Complete** page, verify the information and click **Finish**.
15. In the Completed Successfully message, click **Close**.
16. Continue with [Step 2: Select gatekeepers](#) on page 19 next.

Installing the Virtual Appliance through an ESXi vSphere web client (6.5 and later)

About this task

To install the Virtual Appliance:

Procedure

1. Start the ESXi web client and log in to the ESX Server virtual machine on which you are installing the appliance.
2. From the **Navigator** panel, select **Host > Create/Register VM**
The **New virtual machine** window is displayed.
3. From the **Select creation type** window, select **Deploy a virtual machine from an OVF or OVA file**.
4. Click **Next**.
The **Select OVF and VMDK files** window is displayed.
5. Type a name for the virtual machine and select the OVF or OVA file to deploy.
6. Click **Next**.
7. The **Select storage** window is displayed.
Select the datastore from the list that is provided and click **Next**.
8. The **License agreement** window is displayed.
Read and accept the license agreement.
9. Click **Next**.
10. The **Deployment options** window is displayed.
Select deployment options and click **Next**.

11. The **Additional settings** window is displayed.
Type the requested **Application** and **Network Properties** information and click **Next**.
12. The **Ready to complete** window is displayed.
Review the details and click **Finish** to deploy the virtual machine.

Step 2: Select gatekeepers

Present uniquely defined gatekeepers by way of raw device mappings (RDM). For instructions, refer to the appropriate VMware documentation.

Solutions Enabler manages storage arrays through gatekeeper devices that are mapped to the virtual appliance as RDM pass-through devices. The management is done through Dell EMC proprietary commands using SCSI 3B/3C write/read commands. For every call, a WRITE command is issued to send the request, and then a READ command to get the results.

Note: Gatekeepers can be added using vApp Manager. For ESX V4.0 and earlier, vApp Manager does not allow more than 14 gatekeeper volumes to be added to the virtual appliance. Trying to add more than 14 gatekeepers returns an error message. For detailed information, refer to vApp Manager online help.

Continue with [Step 3: Power on and configure the Virtual Appliance](#) on page 19 .

Step 3: Power on and configure the Virtual Appliance

About this task

To power on and configure the Virtual Appliance:

Procedure

1. On the **Summary** page of the Virtual Infrastructure Client, click **Power On**.
2. Click the **Console** tab and watch as the appliance starts up.
3. At the following prompts, type static IP configuration information:

```
Please select your static network configuration.
For IPv4: Enter 1
For IPv6: Enter 2
Enter your choice [1]/2:
```

Please enter static IP configuration:

- IP Address []:
Type the address that is assigned to the appliance, and then type **y** when asked to Confirm [y]/n and continue with the configuration.
- **Note:** The virtual appliance uses this IP address to query the DNS Server and get its hostname. Therefore, you must ensure that the IP address has a hostname mapping in the DNS Server.
- Netmask []:
Type the mask of the network on which the appliance will be running, and then type **y** when asked to Confirm [y]/n and continue with the configuration.
- Gateway []:
Type the gateway address to the network on which the appliance will be running, and then type **y** when asked to Confirm [y]/n and continue with the configuration.

- DNS1 []:
Type the first DNS server address, and then type **y** when asked to Confirm [y]/n and continue with the configuration.
- DNS2 []:
Type the second DNS server address, and then type **y** when asked to Confirm [y]/n and continue with the configuration.
- Is a proxy server necessary to reach the Internet? y/n [n]:
A [**y**]es response enables you to specify the IP address of the proxy server and the port.

The network is configured at this point.

4. At the following prompt, specify whether you want to set the time zone:

```
Do you want to set the time zone? y/[n] :
```

A [**n**]o response continues the configuration. If you select this option, you can use the appliance console to specify the time zone at a later time.

A [**y**]es response produces the following series of prompts that enable you to set the time zone:

- Please select a continent or ocean
Type the number that corresponds to the time zone location and press **Enter**.
- Please select a country
Type the number that corresponds to the country-specific time zone you want to set and press **Enter**.
- Please select one of the following time zone regions
Type the number that corresponds to regional time zone you want to set and press **Enter**.

The time zone is now set.

5. At the following prompt, specify whether you want to type the host ESX Server information:

```
Do you want to set the host ESX Server y/[n]? :
```

- A **n** response continues the configuration. If you select this option, you can use the Configuration Manager to type the host ESX Server details at a later time. For instructions, refer to the Configuration Manager's online help.
- A **y** response prompts you for the ESX Server hostname. In which case, you should type the fully qualified hostname of the ESX Server and press **Enter**.
When prompted for the root password, type the root password of the ESX Server and confirm it by typing it again.

A Welcome screen displays. You have now finished installing the Solutions Enabler Virtual Appliance.

6. Continue with [Launching vApp Manager](#) on page 25.

Installing the Virtual Appliance through vCenter Server

This section describes how to install the Solutions Enabler Virtual Appliance through vCenter Server 4.0 and later.

Step 1: Import and configure the Virtual Appliance

About this task

To import and configure the Virtual Appliance:

Procedure

1. Download the OVF archive file (*.ova) containing the installation program from Dell EMC Support to a temporary directory.
2. Start the vSphere Client and log in to the vCenter Infrastructure Server through which you are installing the Virtual Appliance.
3. Click **Ignore** in the security warning message.
4. From the navigation tree, select the ESX Server virtual machine on which you are installing the Virtual Appliance.
5. From the **File** menu, select **Deploy OVF Template**.
6. Browse to the OVF archive file, which is located in the temporary directory you created earlier. Select the OVF archive file with the suffix *vapp_OVF10.ova.
7. Click **Next**.
8. On the **Details** page, verify the details about the appliance and click **Next**.
9. On the **End User License Agreement** page, select **Accept all license agreements** and click **Next**.
10. On the **Name and Location** page, specify a name for the appliance and click **Next**. It is recommended that you name the appliance with the same fully qualified hostname of the Virtual Appliance.
11. Select the host/cluster to run the Virtual Appliance.
12. If a resource pool is available, the **Resource Pool** page is displayed. Select the resource pool of your choice and click **Next**. Otherwise, the **Resource Pool** page is skipped.
13. On the **Datastore** page, select the datastore of your choice and click **Next**.
14. On the **Network Mapping** page, map the source network to the appropriate destination network.
15. Customize the software solution for this installation by doing the following:
 - a. Provide valid values for the following OVF properties:
 - IP Address
 - Netmask
 - Gateway
 - DNS Server 1
 - DNS Server 2



Note:

The Virtual Appliance uses this IP address to query the DNS server and get its hostname. Therefore, you must ensure that the IP address has a hostname mapping in the DNS server.

- b. Optionally, provide or select valid values for the following OVF properties:

- **Proxy Server:** Type the IP address of the proxy server and port. For example:
ProxyServer-IP:Port

- **ESX Server Name:** Type the fully qualified ESX Server hostname.
 - **ESX Server Password:** Type the ESX Server password in base64 encryption format.
16. On the **Ready to Complete** page, verify the information and click **Finish**.
 17. In the Completed Successfully message, click **Close**.
 18. Continue with [Step 2: Select gatekeepers](#) on page 23 next.

Installing the Virtual Appliance through a vCenter Server vSphere web client (6.5 and later)

About this task

To install the Virtual Appliance:

Procedure

1. Start the vSphere web client and log in to the vCenter Server instance on which you are installing the appliance.
2. From the **Navigator** panel, right-click the vCenter Server instance name and select **Deploy OVF Template**.
The **Deploy OVF Template** window is displayed.
3. From the **Select template** window, select **Local file** and click **Browse**.
Browse to the file and click **Next**.
4. The **Select name and location** window is displayed.
Type a name for the OVF and select a deployment location.
5. Click **Next**.
6. The **Select a resource** window is displayed.
Select where to run the deployment template from the list that is provided in the **Browse** tab and click **Next**.
7. The **Review details** window is displayed.
Verify the template details and click **Next**.
8. The **Accept license agreements** window is displayed.
Read and accept the license agreement.
9. Click **Next**.
10. The **Select storage** window is displayed.
Populate the **Select virtual disk format** and **VM storage policy** options from the drop-down boxes. In the **Datastores** tab, select the location to store the files from the deployed template and click **Next**.
11. The **Select networks** window is displayed.
Select a destination network for each source network from the drop-down list. From the **IP Allocation Settings** panel, select the **IP protocol** from the drop-down list and click **Next**.
12. The **Customize template** window is displayed.
Type the requested information and click **Next**.
13. The **Ready to complete** window is displayed.
Review the details and click **Finish**.

Step 2: Select gatekeepers

Procedure

1. Select gatekeepers as described in [Step 2: Select gatekeepers](#) on page 19.
You can configure the Virtual Appliance to add two gatekeeper devices per storage array when it firsts boots. For instructions, see [Step 10](#).
2. Continue with [Step 3: Power on the Virtual Appliance](#) on page 23 next.

Step 3: Power on the Virtual Appliance

About this task

To power on and configure the Virtual Appliance:

Procedure

1. On the **Summary** page of the Virtual Infrastructure Client, click **Power On**.
2. Click the **Console** tab and observe the appliance starting up.
A **Welcome** screen is displayed. You have now finished installing the Solutions Enabler Virtual Appliance.
3. Continue with [Launching vApp Manager](#) on page 25.

Installing the Virtual Appliance using the OVF Tool

Solutions Enabler Virtual Appliance can be installed through the command line from any Linux host. This section explains how to install the Virtual Appliance using the OVF Tool.

To install Solutions Enabler Virtual Appliance using the OVF Tool, the following applications and tools are required:

- vCenter Server 4.0 and later
- ESX Server 4.0 and later, managed by vCenter Server 4.x
- OVF Tool 1.0 and later



Note:

Refer to the appropriate documentation for installing vCenter Server and the VMware OVF Tool.

These steps describe how to install the Virtual Appliance using the OVF Tool:

1. Install and set up vCenter Server.
2. Add the ESX Server virtual machine to the vCenter Server data center.
3. Install the VMware OVF Tool on a Linux host.
4. Move the Solutions Enabler Virtual Appliance kit to the Linux host.
5. Run the `ovftool` command with the necessary command line switches. For more information about using the command, see [Using the ovftool command](#) on page 24.
6. The Solutions Enabler Virtual Appliance is installed and powered on automatically.
7. Continue with [Launching vApp Manager](#) on page 25.

Using the ovftool command

The `ovftool` command has the following syntax:

```
/usr/bin/ovftool --acceptAllEulas --overwrite --powerOffTarget
--powerOn --prop:ipAddress=<IP-ADDRESS> --prop:netmask=<NETMASK>
--prop:gateway=<GATEWAY> --prop:dns1=<DNS1> --prop:dns2=<DNS2>
--prop:timezone=<TIMEZONE> --prop:esxServer=<ESX-SERVER>
--prop:encr yRootPasswd=<ROOT-PASSWORD> --name=<VM-DISPLAYNAME>
--datastore=<DATASTORE> --net:Network\ 1=<VM Network Port Group>
--net:Network\ 2=<VM Network Port Group> <OVA-FILE>
vi://Administrator:<vCenter-admin-passwd>@<vCenter-Server>/<DataCenter-Name>/host/<esx-server-name>
```

Where:

<IP-ADDRESS>	IP address of the Virtual Appliance.
<NETMASK>	Netmask of the Virtual Appliance.
<GATEWAY>	Gateway.
<DNS1>	IP of DNS Server1.
<DNS2>	IP of DNS Server2.
<TIMEZONE>	Time zone setting. (Optional)
<ESX-SERVER>	Fully qualified hostname of ESX Server. (Optional)
<ROOT-PASSWORD>	Root password of ESX Server in base64 encrypted format. (Optional)
<VM-DISPLAYNAME>	VM Displayname. To automatically add gatekeeper devices during the Virtual Appliance boot, VM Displayname must be the same as the fully qualified hostname of the Virtual Appliance.
<DATASTORE>	Name of the datastore that is attached to ESX Server. Required only if more than one datastore is attached to ESX Server.
<VM Network Port Group>	VM network port group. If both NIC cards must be in different networks, and then the VM Network port group must be different.
<OVA-FILE>	Absolute path of the ova file.

<vCenter-Server>	Name of the vCenter Server instance.
<vCenter-admin-passwd>	vCenter Server administrator password.
<esx-server-name>	ESX Server name as shown in vCenter Server.

Launching vApp Manager

About this task

After the vApp is deployed, complete the following the steps to launch vApp Manager:

Procedure

1. Type one of the following URLs in a browser:

```
https://appliance_ip:5480
```

or

```
https://appliance_host_name:5480
```

2. On the log in panel, type `seconfig` for both the **User Name** and **Password**, and then click **Login**.

Note: You are required to change the password from vApp Manager on first login. Also, vApp Manager can be configured to use LDAP for user authentication. For more information about LDAP, see the vApp Manager online help.

Updating the Solutions Enabler Virtual Appliance

Periodically, Dell EMC releases security patches and hot-fixes for the Solutions Enabler Virtual Appliance. These patches and hot-fixes are available on the Dell EMC Support website, in ISO images.

Updating from an ISO image

About this task

This procedure explains how to upgrade the virtual appliance to V9.0.

The following requirement applies in instances where SRDF Metro vWitness is configured: If you are performing a HYPERMAX OS upgrade that includes an eManagement Solutions Enabler upgrade, ensure that you upgrade the Solutions Enabler vApp before upgrading the eManagement Solutions Enabler version. The Solutions Enabler version of the vApp, which runs the vWitness lock service (`storvwlsd`), must be the same or higher than the Solutions Enabler version of the eManagement vApp, which runs the vWitness manager service (`storvwmd`).

To update an existing Virtual Appliance from an ISO image:

Procedure

1. Upload the ISO image into the ESX Server using the VI client:

- a. Login to the ESX Server using the VI client.
 - b. Select the ESX Server on the left panel.
 - c. Select the **Configuration** tab on the right panel.
 - d. Select **Hardware > Storage** to list the datastores that are connected to the ESX Server.
 - e. Right-click the data store and select **Browse Datastore**.
The **Datastore Browser** window displays.
 - f. Upload the appliance update ISO file.
 - g. Exit the dialog box.
2. Mount the ISO image on the virtual appliance CD drive:
 - a. Right-click the virtual appliance and select **Edit Settings**.
 - b. On the **Hardware** tab, select **CD/DVD Drive 1**.
 - c. In the right panel, select **Datastore ISO File**, and click **Browse** to locate the ISO image in the data store.
 - d. Select **Device Status > Connected**.
 - e. Click **OK** to exit the dialog box.
 3. Update the appliance:
 - a. On the **Console** tab, go to the virtual appliance console.
 - b. Use the Move Up/Down keys and select **Appliance Update**.
 - c. Press **Enter** to perform the update.

**Note:**

Use the welcome screens of the vApp and the vApp Manager to confirm that your virtual appliance has been updated correctly.

Deleting the Solutions Enabler Virtual Appliance

About this task

To delete the Solutions Enabler Virtual Appliance:

Procedure

1. In the vApp Manager interface, back up the persistent data.
2. In the VMware management interface, power off the appliance.
3. Right-click the appliance and select **Delete from Disk**.
4. Click **Yes** in the confirmation message.

CHAPTER 3

Installing the Unisphere for PowerMax Virtual Appliance

This chapter explains how to install the Unisphere for PowerMax Virtual Appliance in a VMware infrastructure environment. Topics include:

- [Introduction](#).....28
- [Before you begin](#)..... 29
- [Installing the Virtual Appliance directly on ESX Server](#)..... 29
- [Installing the Virtual Appliance through vCenter Server](#)..... 35
- [Installing the Virtual Appliance using the OVF Tool](#).....38
- [Launching Unisphere or the vApp Manager](#)..... 42
- [Upgrading the Unisphere Virtual Appliance using an ISO image](#)..... 43
- [Reconfiguring the Virtual Appliance IP address](#)..... 45
- [Deleting the Unisphere for PowerMax Virtual Appliance](#).....47
- [Backing up and restoring the performance database](#)..... 47
- [Installing licenses](#).....49

Introduction

The Unisphere for PowerMax Virtual Appliance is a VMware ESX Server virtual machine that provides the components you need to manage the PowerMax environment using the `storsrvd` daemon and Solutions Enabler network client access. Components include:

- Dell EMC Unisphere for PowerMax 9.0
- Dell EMC Solutions Enabler 9.0 (solely intended as a SYMAPI server for Solutions Enabler client access)
- Linux operating system (SUSE 11 SP3)
Logging in as root is not supported on SUSE 11 SP3 virtual machines.
- SMI-S Provider 9.0, including EMC Common Object Manager (ECOM)

Also, the appliances include a browser-based console to configure the storage environment. The Unisphere for PowerMax vApp Manager enables you to perform configuration tasks not available in the appliances directly. Using this console, you can perform the following tasks:

- Launch Unisphere
- Monitor the application status
- Start and stop selected daemons
- Download persistent data
- Configure the nethost file (required for client access)
- Discover storage systems
- Modify options and daemon options
- Add host-based license keys
- Run a limited set of Solutions Enabler CLI commands
- Configure ESX Server host and gatekeeper volumes
- Load PowerMax-based eLicenses
- Configure LDAP
- Configure iSCSI initiator and map iSCSI gatekeeper volumes
- Configure another NIC card (optional)
- Download SYMAPI debug logs
- Import a CA-signed certificate for web browser
- Import a custom certificate for `storsrvd` daemon
- Check disk usage
- Clear temporary files
- Restart the appliance
- Configure symavoid entries
- Enable SSH
- Manage users
- Reset the hostname
- Update the `/etc/hosts` file

For more information, see the Unisphere for PowerMax vApp Manager online help.

Before you begin

Before you begin to install the Unisphere for PowerMax Virtual Appliance, carry out the tasks in this section.

- Verify that you are installing the latest version of the appliance by checking the Dell EMC Support website for updates.
- Verify that the client is running:
 - VMware vSphere client
 - One of the following browsers with cookies and Javascript enabled:
 - Internet Explorer 9.0 through 11.0 (Desktop only)
 - Firefox 30 or later
 - Chrome 21.0.1180 or later
- Verify that the virtual machine is not running shared memory or resources.
- Verify that the VMware ESX Server virtual machine meets the following minimum requirements:

Table 3 Unisphere for PowerMax Virtual Appliance VMware ESX Server requirements

ESX Server component	Requirement
Processor	Dual-core or two CPUs
ESX Server version	4.0 or later
Disk space	120 GB
Memory	16 GB for exclusive use by Unisphere for PowerMax

Note: If you are upgrading to version 9.0, the available memory is checked as part of the upgrade operation. If the requirement is not met, the upgrade is canceled.

Installing the Virtual Appliance directly on ESX Server

About this task

This section describes how to install the Unisphere for PowerMax Virtual Appliance directly on the ESX Server virtual machine.

Step 2 has three configuration options, depending on the Virtual Appliance network connection:

- IPv4 only—[Step 2A: Powering on and configuring the Virtual Appliance \(IPv4 only\)](#) on page 31
Use this option if the DNS server does not support IPv6 hostnames. And if the DNS server and ESX Server virtual machine is configured on an IPv4-only network.
- IPv6 only—[Step 2B: Powering on and configuring the Virtual Appliance \(IPv6 only\)](#) on page 32
Use this configuration if the network configuration for the Virtual Appliance is IPv6 only. The Virtual Appliance is not able to communicate with an IPv4 host unless IPv6 packets are encapsulated inside IPv6 packets using tunneling.
- Dual stack—[Step 2C: Powering on and configuring the Virtual Appliance \(Dual stack\)](#) on page 33

Use this configuration if the system is configured for both IPv4 and IPv6. The system supports both formats but IPv6 addresses are used for configuring the vApp Manager, SMAS and storsrvd. An IPv4 address is used only for reaching the IPv4 DNS server and ESX Server virtual machine.

Step 1: Installing the Virtual Appliance

About this task

To install the Virtual Appliance:

Procedure

1. On the Dell EMC Support website:
 - a. Click **Support By Product** in the main navigation bar.
 - b. In the **Find a Product** box, type `Unisphere for PowerMax` and click the arrow.
 - c. Locate the appropriate kit and download the OVF archive file (*.ova) containing the installation program to a temporary directory: `Unisphere for PowerMax Virtual Appliance` file name:
`univmaxpa900_x_suse11_x86_64_vappxxx_xxx_OVF10.ova` Where `x` in `900_x` represents the build number. That number varies depending on when the software was built.
2. Start the vSphere Client and log in to the ESX Server virtual machine on which you want to install the appliance.
3. Click **Ignore** in the security warning message.
4. Select **File > Deploy OVF Template**.
5. Browse to the OVF archive file, which is located in the temporary directory you created earlier. Select the OVF archive file with the suffix `*vappxxx_xxx_OVF10.ova`.
6. Click **Next**.
7. On the **OVF Template Details** page, verify the details about the appliance and click **Next**.
8. On the **End User License Agreement** page, select **Accept** and click **Next**.
9. On the **Name and Location** page, specify a name for the appliance and click **Next**.
10. On the **Storage** page, configure the storage options available and click **Next**.
11. On the **Disk Format** page, select the format in which to store the virtual machine virtual drives and click **Next**.
12. On the **Network Mapping** page, select the network that you want the Virtual Appliance to use and click **Next**.
13. On the **Ready to Complete** page:
 - a. Verify the information.
 - b. (Optional) Select **Power on after deployment**.
 - c. Click **Finish**.
14. In the **Completed Successfully** message, click **Close**.

Installing the Virtual Appliance through an ESXi vSphere web client (6.5 and later)

About this task

To install the Virtual Appliance:

Procedure

1. Start the ESXi web client and log in to the ESX Server virtual machine on which you are installing the appliance.
2. From the **Navigator** panel, select **Host > Create/Register VM**
The **New virtual machine** window is displayed.
3. From the **Select creation type** window, select **Deploy a virtual machine from an OVF or OVA file**.
4. Click **Next**.
The **Select OVF and VMDK files** window is displayed.
5. Type a name for the virtual machine and select the OVF or OVA file to deploy.
6. Click **Next**.
7. The **Select storage** window is displayed.
Select the datastore from the list that is provided and click **Next**.
8. The **License agreement** window is displayed.
Read and accept the license agreement.
9. Click **Next**.
10. The **Deployment options** window is displayed.
Select deployment options and click **Next**.
11. The **Additional settings** window is displayed.
Type the requested **Application** and **Network Properties** information and click **Next**.
12. The **Ready to complete** window is displayed.
Review the details and click **Finish** to deploy the virtual machine.

Step 2A: Powering on and configuring the Virtual Appliance (IPv4 only)

About this task

When configuring a Virtual Appliance, for each prompt, type the information that is requested, press **Enter**, and then confirm that the information you entered is correct.

To power on and configure the IPv4-only Virtual Appliance:

Procedure

1. On the **Summary** page of the Virtual Infrastructure Client, click **Power On**.
2. Click the **Console** tab and observe the appliance starting up.
3. When prompted to do so, configure an IPv4 IP address:

```
Please select your static network configuration.  
For IPv4: Enter 1  
For IPv6: Enter 2  
Enter your choice [1]/2:
```

Enter 1 (for IPv4). The following information is requested:

- IP Address []:

Type the address that is assigned to the appliance and then type **y** to continue the configuration.

The Virtual Appliance uses this IP address to query the DNS server and get its hostname. Therefore, you must ensure that the IP address has a hostname mapping in the DNS server.

- Netmask []:

Type the mask of the network on which the appliance is located and then type **y** to continue the configuration.

- Gateway []:

Type the gateway address to the network on which the appliance is located and then type **y** to continue the configuration.

- DNS1 []:

Type the IP address of the first DNS server and then type **y** to continue the configuration.

- DNS2 []:

Type the IP address of the second DNS server and then type **y** to continue the configuration.

- Is a proxy server necessary to reach the internet? y/n [n]:

Type **y** to configure a proxy server. For each of the following prompts, type the information that is requested, press **Enter**:

– ProxyServer []:

Type the IP address of the proxy server and press **Enter**.

– ProxyPort []:

Type the proxy port and press **Enter**.

Type **n** to continue the configuration without configuring a proxy server.

- Do you want to set the timezone? y/[n]:

Type **y** to set the time zone. For each of the prompts, type the information that is requested, press **Enter**.

- Do you want to set host esx server? y/[n]:

Type **y** to set the ESX Server virtual machine. For each of the prompts, type the information that is requested, press **Enter**.

You have now finished installing the Unisphere Virtual Appliance.

4. Continue with **Step 3: Adding gatekeepers**.

Step 2B: Powering on and configuring the Virtual Appliance (IPv6 only)

About this task

When configuring a Virtual Appliance, for each prompt, type the information that is requested, press **Enter**, and then confirm that the information you entered is correct.

In an IPv6-only configuration, any DNS configured has IPv6 addresses. If you want to use one or more DNS servers with IPv4 addresses, see [Step 2C: Powering on and configuring the Virtual Appliance \(Dual stack\)](#) on page 33.

To power on and configure the IPv6-only Virtual Appliance:

Procedure

1. On the **Summary** page of the Virtual Infrastructure Client, click **Power On**.

2. Click the **Console** tab and observe the appliance starting up.
3. When prompted to do so, configure an IPv6 IP address:

```
Please select your static network configuration.
For IPv4: Enter 1
For IPv6: Enter 2
Enter your choice [1]/2:
```

Enter 2 (for IPv6). The following information is requested:

- IP Address []:

Type the IPv6 address that is assigned to the appliance.

The Virtual Appliance uses this IP address to query the DNS server and get its hostname. Therefore, you must ensure that the IP address has a hostname mapping in the DNS server.

- Prefix []:

Type the prefix length of the network on which the appliance is located.

- Gateway []:


Type the gateway address to the network on which the appliance is located.

- DNS1 []:

Type the IPv4 or IPv6 address of the first DNS server of the network on which the appliance is located.

- DNS2 []:

Optional: Type the IPv4 or IPv6 address of the second DNS server of the network on which the appliance is located.

 **Note:** If neither of the configured DNS values are IPv4, the vApp is configured with a pure IPv6 network configuration. You cannot revert to a dual-stack network configuration later.

You have now finished installing the Unisphere Virtual Appliance.

4. Continue with [Step 3: Adding gatekeepers](#) on page 35.

Step 2C: Powering on and configuring the Virtual Appliance (Dual stack)

About this task

When configuring a Virtual Appliance, for each prompt, type the information that is requested, press Enter, and then confirm that the information you entered is correct.

In a dual stack configuration, one or more of the DNS servers that are configured has an IPv4 address. If you want to use only DNS servers with IPv6 addresses, see [Step 2B: Powering on and configuring the Virtual Appliance \(IPv6 only\)](#) on page 32.

To power on and configure the dual stack Virtual Appliance:

Procedure

1. On the **Summary** page of the Virtual Infrastructure Client, click **Power On**.
2. Click the **Console** tab and observe the appliance starting up.

3. When prompted to do so, specify whether you want to configure an IPv4 or an IPv6 IP address:

```
Please select your static network configuration.
For IPv4: Enter 1
For IPv6: Enter 2
Enter your choice [1]/2:
```

Enter 2 (for IPv6). The following information is requested:

- **Does your DNS server configured supports IPv6 hostnames? y/[n]:**
To continue, type **y**. If you type **n**, configuration cancels.
 - **IP Address []:**
Type the IPv6 address that is assigned to the appliance.
The Virtual Appliance uses this IP address to query the DNS server and get its hostname. Therefore, you must ensure that the IP address has a hostname mapping in the DNS server.
 - **Prefix []:**
Type the prefix length of the network on which the appliance is located.
 - **Gateway []:**
Type the gateway address to the network on which the appliance is located.
 - **DNS1 []:**
Type the IPv6 address of the first DNS server of the network on which the appliance is located.
 - **DNS2 []:**
Optional: Type the IPv6 address of the second DNS server of the network on which the appliance is located.
- You have now finished installing the Unisphere Virtual Appliance.

4. If you entered an IPv4 IP address for one or more DNS servers, you are prompted to specify more IPv4 configuration information for those DNS servers:

- **IPv4 Address []:**
Type the IPv4 address that is assigned to the appliance.
The Virtual Appliance uses this IP address to query the DNS server and get its hostname. Therefore, you must ensure that the IP address has a hostname mapping in the DNS server.
- **Netmask []:**
Type the mask of the network on which the appliance is located.
- **Gateway []:**
Type the gateway address to the network on which the appliance is located.
- **Is a proxy server necessary to reach the internet? y/n [n]:**
Type **y** to specify the IP address of the proxy server and the port.
Type **n** to continue the configuration without configuring a proxy server.
- **Optional: ESX Server Name []:**
Type the fully qualified ESX Server hostname.

- *Optional: ESX Server Password []:*

Type the ESX Server virtual machine password in base64 encryption format.

You have now finished installing the Unisphere Virtual Appliance.

5. Continue with **Step 3: Adding gatekeepers**.

Step 3: Adding gatekeepers

About this task

Solution Enabler manages storage arrays through gatekeeper volumes that are mapped to the Virtual Appliance as RDM pass-through volumes. Management is through Dell EMC proprietary commands using SCSI 3B and 3C WRITE and READ commands. For every call, a WRITE command is issued to send the request, and then a READ command is issued to get the results.

Unisphere for PowerMax requires gatekeepers. For specific recommendations on the number of gatekeepers that are required for all array configurations, see the Dell EMC Knowledge Base Article Number 000458145 available on the [Dell EMC Support](#) website. To power on and configure the dual stack Virtual Appliance:

Procedure

1. Use either of the following methods to add gatekeeper volumes:
 - Add them through vApp Manager. For instructions, see the vApp Manager online help.
 - ⓘ **Note:** After adding gatekeepers through vApp Manager, restart the SMC daemon through the vApp Manager.
 - ⓘ **Note:** For ESX 4.0 and earlier, vApp Manager does not permit you to add more than 14 gatekeeper volumes to the Virtual Appliance. Trying to add more than 14 gatekeepers returns an error message.
 - Present them as raw device mapping (RDM) volumes through the vSphere client. For instructions, see the appropriate VMware documentation.
2. Continue with [Launching Unisphere or the vApp Manager](#) on page 42.

Installing the Virtual Appliance through vCenter Server

About this task

This section describes how to install the Virtual Appliance through vCenter Server 4.0 and later.

Step 1: Configuring the Virtual Appliance

About this task

To configure the Virtual Appliance:

Procedure

1. On the Dell EMC Support website:
 - a. Click **Support By Product** in the main navigation bar.
 - b. In the **Find a Product** field, type **Unisphere for PowerMax** and click the arrow.
 - c. Locate the appropriate kit and download the OVF archive file (*.ova) containing the installation program to a temporary directory: Unisphere for PowerMax Virtual Appliance
file name: univmaxpa900_x_suse11_x86_64_vapp_OVF10.ova

 **Note:**

In the file name above, the x in 900_x represents the build number. That number varies based on when the software was built.

2. Start the vSphere Client and log in to the vCenter Infrastructure Server through which you want to install the Virtual Appliance.
3. Click **Ignore** in the security warning message.
4. From the navigation tree, select the ESX Server virtual machine on which you want to install the Virtual Appliance.
5. Select **File > Deploy OVF Template**.
6. Browse to the OVF archive file, which is located in the temporary directory you created earlier. Select the OVF archive file with the suffix `*vapp_OVF10.ova`.
7. Click **Next**.
8. On the **OVF Template Details** page, verify the details about the appliance and click **Next**.
9. On the **End User License Agreement** page, select **Accept** and click **Next**.
10. On the **Name and Location** page, specify a name for the appliance and click **Next**.
11. If the resource pool is available, select it; otherwise, continue this procedure.
12. If more than one datastore is attached to the ESX Server virtual machine, select the datastore for the appliance; otherwise, continue this procedure.
13. On the **Network Mapping** page, select the network that you want the Virtual Appliance to use and click **Next**.
14. On the **Storage** page, configure the storage options that are presented and click **Next**.
15. On the **Disk Format** page, configure the disk format options that are presented and click **Next**.
16. On the **Properties** page, provide valid values for and confirm the following OVF properties:

IP Address

Type the IPv4 or IPv6 address to assign to eth0.

Netmask or Prefix

Type the netmask (IPv4 only) or prefix (IPv6 only) of the network on which the Virtual Appliance is located.

Gateway

Type the gateway address to the network on which the appliance is located.

IPv4 Address for dual stack [Optional]

IPv4 address for dual stack.

IPv4 Netmask for dual stack [Optional]

IPv4 netmask address for dual stack.

IPv4 Gateway for dual stack [Optional]

IPv4 gateway for address for dual stack.

DNS Server 1

Type the DNS address of the network on which the appliance is located.

DNS Server 2

Optional: Type the DNS address of the network on which the appliance is located.

Timezone

Optional: Select the appropriate time zone.

Proxy Server

Optional: Type the IP address of the proxy server and port. For example:

`proxy_server_IP:port_number`

Optional: ESX Server Name

Type the fully qualified ESX Server hostname.

Optional: ESX Server Password

Type the ESX Server virtual machine password in base64 encryption format.

Ignore the Network Properties section that is displayed in vSphere 5.0 and later. Click **Next**.

17. On the **Ready to Complete** page, verify the information and click **Finish**.
18. In the **Completed Successfully** dialog box, click **Close**.

Installing the Virtual Appliance through a vCenter Server vSphere web client (6.5 and later)

About this task

To install the Virtual Appliance:

Procedure

1. Start the vSphere web client and log in to the vCenter Server instance on which you are installing the appliance.
2. From the **Navigator** panel, right-click the vCenter Server instance name and select **Deploy OVF Template**.
The **Deploy OVF Template** window is displayed.
3. From the **Select template** window, select **Local file** and click **Browse**.
Browse to the file and click **Next**.
4. The **Select name and location** window is displayed.
Type a name for the OVF and select a deployment location.
5. Click **Next**.
6. The **Select a resource** window is displayed.
Select where to run the deployment template from the list that is provided in the **Browse** tab and click **Next**.
7. The **Review details** window is displayed.
Verify the template details and click **Next**.
8. The **Accept license agreements** window is displayed.
Read and accept the license agreement.
9. Click **Next**.
10. The **Select storage** window is displayed.
Populate the **Select virtual disk format** and **VM storage policy** options from the drop-down boxes. In the **Datastores** tab, select the location to store the files from the deployed template and click **Next**.
11. The **Select networks** window is displayed.

Select a destination network for each source network from the drop-down list. From the **IP Allocation Settings** panel, select the **IP protocol** from the drop-down list and click **Next**.

12. The **Customize template** window is displayed.
Type the requested information and click **Next**.
13. The **Ready to complete** window is displayed.
Review the details and click **Finish**.

Step 2: Powering on the Virtual Appliance

About this task

To power on the Virtual Appliance:

Procedure

1. On the **Summary** page of the Virtual Infrastructure Client, click **Power On**.
2. Click the **Console** tab and observe the appliance starting up.
A **Welcome** screen opens. You have now finished installing the Virtual Appliance.
3. Continue with [Step 3: Selecting gatekeepers](#) on page 38.

Step 3: Selecting gatekeepers

About this task

Select gatekeepers as described in [Step 3: Adding gatekeepers](#) on page 35.

Installing the Virtual Appliance using the OVF Tool

About this task

You can install the Virtual Appliance through the command line from any Windows or Linux host. This section explains how to install the Virtual Appliance using the OVF Tool.

To install the Virtual Appliance using the OVF Tool, the following appliances and tools are required:

- vCenter Server 4.0 or a later release
- ESX Server 4.0 or a later release that is managed by vCenter Server 4.x
- VMware OVF Tool 1.0 or a later release

Refer to the appropriate documentation for installing vCenter Server and VMware OVF Tool.

To install the Virtual Appliance using the OVF Tool:

Note: When deploying the Virtual Appliance using the command line through OVF or while adding an ESX Server virtual machine in vApp Manager, specify the ESX Server virtual machine name using the same letter case used when it was registered in the DNS. Otherwise, the deployment fails.

Procedure

1. Install and set up the vCenter Server instance.
2. Add the ESX Server virtual machine to the vCenter Server data center.
3. Install VMware OVF Tool on a Windows or Linux host.
4. Move the Unisphere for PowerMax Virtual Appliance kit to the same Linux host.
5. Run the `ovftool` command with necessary command line switches.

For more information about using the command, see [Using the OVF Tool](#) on page 39. Unisphere for PowerMax Virtual Appliance is installed and powered on automatically.

6. Add gatekeepers.
7. Continue with [Launching Unisphere or the vApp Manager](#) on page 42.

Using the OVF Tool

About this task

When deploying an IPv4-only or IPv6-only network configuration, the OVF Tool has the following syntax:

```
ovftool --acceptAllEulas --overwrite --powerOffTarget --powerOn
--prop:ipAddress=<IP-ADDRESS>
--prop:netmask_or_prefix=<NETMASK-OR-PREFIX>
--prop:gateway=<GATEWAY> --prop:dns1=<DNS1> --prop:dns2=<DNS2>
--prop:timezone=<TIMEZONE> --prop:esxServer=<ESX-SERVER-NAME>
--prop:encryRootPasswd=<ROOT-PASSWORD> --name=<VAPP-NAME>
--datastore=<DATASTORE> --net:Network\ 1=VM\ Network
--net:Network\ 2=VM\ Network --network=VM\ Network <OVA-FILE>
vi://<VCENTER ADMIN ACCOUNT>:<VCENTER-ADMIN-PASSWORD>@
<VCENTER-HOST>/host/<ESX-SERVER-NAME>
```

When deploying a dual-stack network configuration, the OVF Tool has the following syntax:

```
ovftool --acceptAllEulas --overwrite --powerOffTarget --powerOn
--prop:ipAddress=<IP-ADDRESS>
--prop:netmask_or_prefix=<NETMASK-OR-PREFIX>
--prop:gateway=<GATEWAY> --prop:ipv4_address=<IPV4-ADDRESS>
--prop:ipv4_gateway=<IPV4-GATEWAY>
--prop:ipv4_netmask=<IPV4-NETMASK> --prop:dns1=<DNS1>
--prop:dns2=<DNS2> --prop:timezone=<TIMEZONE>
--prop:esxServer=<ESX-SERVER-NAME>
--prop:encryRootPasswd=<ROOT-PASSWORD> --name=<VAPP-NAME>
--datastore=<DATASTORE> --net:Network\ 1=VM\ Network
--net:Network\ 2=VM\ Network --network=VM\ Network <OVA-FILE>
vi://<VCENTER ADMIN ACCOUNT>:<VCENTER-ADMIN-PASSWORD>@
<VCENTER-HOST>/host/<ESX-SERVER-NAME>
```

Parameter	Description
IP-ADDRESS	IP address of the Virtual Appliance.
NETMASK-OR-PREFIX	Netmask or prefix of the Virtual Appliance.
GATEWAY	Gateway.
IPV4-ADDRESS	IPv4 address (dual stack only).
IPV4-GATEWAY	IPv4 address of the gateway (dual stack only).
IPV4-NETMASK	IPv4 netmask (dual stack only).
DNS1	IP address of DNS server 1.
DNS2	IP address of DNS server 2.
TIMEZONE	Time zone setting. (Optional)

Parameter	Description
ESX-SERVER	Fully qualified hostname of the ESX Server virtual machine. (Optional)
ROOT-PASSWORD	Root password of the ESX Server virtual machine in base64 encrypted format. (Optional)
VAPP-NAME	VM Displayname To automatically add gatekeeper volumes during Virtual Appliance boot, VM Displayname must be the same as the fully qualified hostname of the Virtual Appliance.
DATASTORE	Name of the datastore that is attached to the ESX Server virtual machine. Required only if more than one datastore is attached to the ESX Server virtual machine.
OVA-FILE	Absolute path of the ova file.
VCENTER-HOST	Name of the vCenter Server instance.
VCENTER-ADMIN-PASSWORD	vCenter Server Administrator password.
ESX-SERVER-NAME	ESX Server name as displayed in vCenter Server.

Example 1 Examples

The following command is an example for an IPv4 configuration:

```
/usr/bin/ovftool --acceptAllEulas --overwrite --powerOffTarget
--powerOn --prop:ipAddress=192.0.2.1
--prop:netmask_or_prefix=255.255.252.0
--prop:gateway=198.51.100.1 --prop:dns1=203.0.113.1
--prop:dns2=203.0.113.2 --prop:timezone=America/New_York
--prop:esxServer=api4194.example.com
--prop:encryRootPasswd=XXXXXXXXXX --name=SE_ipv4_99.example.com
--datastore=api4134_local --net:Network\ 1=VM\ Network
--net:Network\ 2=VM\ Network --network=VM\
Network univmaxpa900_108_suse11_x86_64_vapp_OVF10.ova
vi://XXXX: XXXXXXXXXXXX @API4195/"vApp Build"/host/api4134.example.com
```

The following command is an example for an IPv6 configuration:

```
/usr/bin/ovftool --acceptAllEulas --overwrite --powerOffTarget
--powerOn --prop:ipAddress=2001:DB8:0:0:0:0:1:1
--prop:netmask_or_prefix=64 --prop:gateway=2001:DB8:1:0:0:0:1
--prop:dns1=2001:DB8:1:1:0:0:0:1 --prop:dns2=2001:DB8:1:1:0:0:0:2
--prop:timezone=America/New_York
--prop:esxServer=api4194.example.com
--prop:encryRootPasswd= XXXXXXXXXXXX --name=SE_ipv6_1001.example.com
--datastore=api4134_local --net:Network\ 1=VM\ Network
--net:Network\ 2=VM\ Network --network=VM\
```


Example 1 Examples (continued)

```
Network univmaxpa900_108_suse11_x86_64_vapp_OVF10.ova
vi://XXXX: XXXXXXXXXXXX @API4195/"vApp Build"/host/api4134.example.com
```

The following command is an example for a dual stack configuration:

```
/usr/bin/ovftool --acceptAllEulas --overwrite --powerOffTarget
--powerOn --prop:ipAddress=2001:DB8:0:0:0:0:1:2
--prop:netmask_or_prefix=64 --prop:gateway=2001:DB8:1:0:0:0:0:2
--prop:dns1=2001:DB8:1:1:0:0:0:1 --prop:ipv4_address=192.0.2.2
--prop:ipv4gateway=198.51.100.2 --prop:ipv4_netmask=255.255.252.0
--prop:dns2=2001:DB8:1:1:0:0:0:2 --prop:timezone=America/New_York
--prop:esxServer=api4194.example.com
--prop:encryRootPasswd= XXXXXXXXXXXX
--name=SE_ipv6_1001.example.com --datastore=api4134_local
--net:Network\ 1=VM\ Network --net:Network\ 2=VM\ Network
--network=VM\ Network
```

Launching Unisphere or the vApp Manager

About this task

After you have installed the appliance, you can either launch Unisphere for PowerMax or the vApp Manager, and/or connect to the API server through the Solutions Enabler client.

Launching Unisphere

About this task

To launch Unisphere:

Procedure

1. Type one of the following URLs in a browser:

```
https://appliance_IP:unisphere_port_number  
or
```

```
https://appliance_host_name:unisphere_port_number
```

The Unisphere port number is configured during installation. The default HTTPS port number is 8443.

If the host IP address is an IPv6 address, surround the IP address with square brackets, for example:

```
https://[2001:db8:ffff:ffff:ffff:ffff:ffff:ffff]:8443
```

If the host IP address is an IPv4 address, type the IP address as normal, for example:

```
https://198.51.100.255:8443
```

2. At the login window, type the Unisphere Initial Setup User username and password, and click **Login**.

The default username for the Unisphere Initial Setup User is `smc` and the default password is `smc`.

Launching the vApp Manager

About this task

To launch the vApp Manager:

Procedure

1. Type one of the following URLs in a browser:

- `https://appliance_IP:unisphere_port_number`
- `https://appliance_host_name:unisphere_port_number`

The default Unisphere port number is 5480.

If the host IP address is an IPv6 address, surround the IP address with square brackets, for example:

```
https://[2001:db8:ffff:ffff:ffff:ffff:ffff:ffff]:5480
```

If the host IP address is an IPv4 address, type the IP address as normal, for example:

```
https://198.51.100.255:5480
```

For either of the URLs above, the browser is redirected, as shown in the following table.

Original URL	Redirected URL
<code>https:// appliance_IP:unisphere_port_ number</code>	<code>https:// appliance_IP:unisphere_port_ number/vappmgr/#/login</code>
<code>https:// appliance_host_name:unisphere_por t_number</code>	<code>https:// appliance_IP:unisphere_port_ number/vappmgr/#/login</code>

- On the log in panel, type **seconfig** for both the User and Password, and then click **Login**.

The vApp Manager opens. For more information, see the vApp Manager online help.

Note: The first time you log in, you must change your password. Also, App Manager can be configured to use LDAP for user authentication. When LDAP is already configured from Unisphere for PowerMax, LDAP users must be added to vApp Manager as an admin. This process requires logging in to vApp Manager before disabling the local directory from Unisphere for PowerMax. Unisphere for PowerMax local users are not visible in vApp Manager.

Connecting to the API server

About this task

For instructions on connecting to the API server, refer to the *Dell EMC Solutions Enabler Installation Guide*.

Setting the storevntd daemon to start automatically

About this task

To set the `storevntd` daemon to start automatically:

Procedure

- On the vApp Manager dashboard, select **Manage > Daemons**.
- In the **Daemons** column, locate the `storevntd` daemon.
- Ensure that **Automatic** is displayed in the **Startup Type** column. That is, the daemon is configured to start automatically.

Upgrading the Unisphere Virtual Appliance using an ISO image

About this task

Periodically, Dell EMC releases Virtual Appliances with security patches and hotfixes for the Virtual Appliance. These patches and hotfixes are available on the Dell EMC Support website as ISO files. If you are running Unisphere for VMAX 8.4.0, or later, you can download and use an ISO upgrade file.

From:	To:	Complete:
Unisphere VMAX 8.4.0 or a later release	Unisphere for PowerMax 9.0	<p>Step 1: Downloading the ISO upgrade file.</p> <p>Step 2: Uploading the ISO upgrade file to the datastore.</p> <p>Step 3: Mounting the ISO image.</p>

From:	To:	Complete:
		Step 4: Completing the upgrade.

Before you begin

Ensure that ESX Server minimum hardware requirements for the version to which you are upgrading are met before commencing the upgrade procedure. The available memory is checked as part of the upgrade operation and if the requirements are not met, the upgrade is canceled.

For more information about ESX Server hardware requirements for Unisphere for PowerMax Virtual Appliance, see [Table 3](#) on page 29.

Step 1: Downloading the ISO upgrade file

Procedure

1. Navigate to the Dell EMC Support website.
2. Locate and download the following file:

UNIVMAX900_x_se900_x_vapp_upgrade_x86_64.iso

In the file name above, x in UNIVMAX900_x and the x in se900_x represent software build numbers. Those numbers vary based on when the software was built.

Step 2: Uploading the ISO upgrade file to the datastore

About this task

After the download is completed, upload the ISO file to the ESX Server virtual machine using the VI client.

Procedure

1. Using the VI client, log in to the ESX Server virtual machine.
2. In the left pane, select the ESX Server virtual machine.
3. In the right pane, select the **Configuration** tab.
4. To list the datastores that are connected to the ESX Server virtual machine, select **Hardware > Storage**.
5. Right-click the datastore and select **Browse Datastore**.
The **Datastore Browser** window opens.
6. Click **Upload files**.
The **Upload Items** dialog box opens.
7. Navigate to where you saved the ISO upgrade file, select the file, and click **Open**.
The **Upload/Download Operation** dialog box opens.
8. Click **Yes** to accept the warning.

Step 3: Mounting the ISO image

About this task

Procedure

1. Right-click the Virtual Appliance and select **Edit Settings**.

2. On the **Hardware** tab, select **CD/DVD Drive 1**.
3. In the right pane, select **Datastore ISO File** and click **Browse**.
4. Browse to the location of the ISO file on the datastore and select the file.
5. Verify under **Device Status**, that the **Connect at power on** check box is selected and click **OK**.

Step 4: Completing the upgrade

About this task

Procedure

1. Restart the Guest by selecting **Power On Guest**.
2. On the **Console** tab, go to the Virtual Appliance console.
3. In the lower section of the screen, select **Appliance Update** from the list of options.
4. Press the **Enter** key to start the upgrade. After the upgrade has been completed, the console screen opens.

Reconfiguring the Virtual Appliance IP address

About this task

You can reconfigure only the network configuration that is selected when the Virtual Appliance was first installed.

For example, if you initially set up an IPv6-only configuration, you can reconfigure the IPv6 network parameters but you cannot change it to a dual-stack configuration.

You can:

- Reconfigure a Virtual Appliance with an IPv4 address configuration
- Reconfigure a Virtual Appliance on an IPv6-only address configured vApp
- Reconfigure a Virtual Appliance on a dual-stack configured vApp

Reconfiguring a Virtual Appliance with an IPv4 address configuration

Procedure

1. Log in to the vSphere client and go to the Virtual Appliance console.
2. Use the **Move Up** and **Move Down** keys to select **Configure IP** and press **Enter**.
3. At the following prompt, type **y** and press **Enter** to configure the static IP address:

```
Do you want to configure static IP address?
```

The following series of prompts enable you to reconfigure your network:

- IP Address []:

Type a valid IP address and press the **Enter** key.

The Virtual Appliance uses this IP address to query the DNS server and get its hostname. Therefore, you must ensure that the IP address has hostname mapping on the DNS server.

- Netmask []:

Type the mask of the network on which the appliance is located and press the **Enter** key.

- Gateway []:

Type the gateway address to the network on which the appliance is located and press the **Enter** key.

- DNS1 []:
Type the first DNS server address and press the **Enter** key.
- DNS2 []:
Type the second DNS server address and press the **Enter** key.
- Is a proxy server necessary to reach the internet? y/[n]:
Type **y** to specify the IP address of the proxy server and the port.
Type **n** to continue the configuration without specifying a proxy server.
- Are the above mentioned parameters correct? [y]/n:
Type **y** to reconfigure the Virtual Appliance IP address and return to the console.
Type **n** to go back and change your responses.

Reconfiguring a Virtual Appliance on an IPv6-only address configured vApp

Procedure

1. Log in to the vSphere client and go to the Virtual Appliance console.
2. Use the **Move Up/Move Down** keys to select **Configure IP** and press **Enter**.
3. The following series of prompts enable you to reconfigure your network:
 - IP Address [current_ip_address]:
Type a valid IPv6 address and press the **Enter** key.
 - Prefix [current_prefix]:
Type the prefix of the network on which the appliance is located and press the **Enter** key.
 - Gateway [current_gateway]:
Type the gateway address to the network on which the appliance is located and press the **Enter** key.
 - DNS1 [current_dns_1]:
Type the first DNS server address and press the **Enter** key.
 - DNS2 [current_dns_2]:
Type the second DNS server address and press the **Enter** key.

Reconfiguring a Virtual Appliance on a dual-stack configured vApp

Procedure

1. Log in to the vSphere client and go to the Virtual Appliance console.
2. Use the **Move Up/Move Down** keys to select **Configure IP** and press **Enter**.
3. The following series of prompts enable you to reconfigure your network:
 - IP Address [current_ip_address]:
Type a valid IPv6 address and press the **Enter** key.
 - Prefix [current_prefix]:
Type the prefix of the network on which the appliance is located and press the **Enter** key.

- Gateway [current_gateway]:
Type the gateway address to the network on which the appliance is located and press the **Enter** key.
- DNS1 [current_dns_1]:
Type the first DNS server address and press the **Enter** key.
- DNS2 [current_dns_2]:
Type the second DNS server address and press the **Enter** key.
- IPv4 Address [current_ipv4_address]:
Type the IPv4 address and press the **Enter** key.
- Netmask [current_netmask]:
Type the netmask of to the network on which the appliance is located and press the **Enter** key.
- Gateway for IPv4 [current_ipv4_gateway]:
Type the IPv4 gateway address and press the **Enter** key.

Deleting the Unisphere for PowerMax Virtual Appliance

About this task

To delete the Unisphere for PowerMax Virtual Appliance:

Procedure

1. (Optional) If you plan to restore Unisphere and Solutions Enabler persistent data, back up the persistent data in the Unisphere for PowerMax Virtual Appliance console.
2. (Optional) If you plan to restore the performance database, back up the database according to [Backing up and restoring the performance database](#) on page 47.
3. In the VMware management interface, power off the appliance.
4. Right-click the appliance and select **Delete From Disk**.
5. Click **Yes** in the confirmation message.

Backing up and restoring the performance database

About this task

You can transfer performance database files between the appliance and another host for file backup and restoration. There is no facility in the appliance user interface to perform this process. However, when you are logged in to the system with the `vappadmin` user account, you can transfer these files.

The `vappadmin` user account is limited to performing the following commands for transferring database files:

- `passwd`—Changes the login password.
- `sftp`—Transfers database backup files into the appliance from another host, or out of the appliance to another host.
- `df`—Checks disk usage.
- `manage_spa_db_backup.sh`—Moves files between the backup location and staging location, and lists and cleans backup and staging locations.

Backing up performance database files to another host

About this task

From the system console, perform the following steps:

Procedure

1. Log in to the vApp Manager (https://host_name:port_number) and start the database backup process as described in the Unisphere online help.
2. Log in to the system using the vappadmin user account. The first time that you log in, use the default password `vappadmin`. After you are logged in, change the password by running the `passwd` command, which prompts for the old and new passwords.
3. View the backup files in the backup location:

```
manage_spa_db_backup.sh -list -backup
```
4. Move the backup files from the backup location to the staging location:

```
manage_spa_db_backup.sh -stage
```

This operation moves the files from the backup area to the staging area (the home directory for the vappadmin user account).
5. View the backup files in the staging location:

```
manage_spa_db_backup.sh -list -staging
```
6. Transfer the backup file copies out of the appliance to the backup host. Use the following `sftp` command to access the backup host and then transfer any files ending in `.dat`:

```
sftp user_name@fully_qualified_host_name
```

Restoring performance database files from another host

About this task

From the system console, perform the following steps:

Procedure

1. Log in to the system using the vappadmin user account.

The first time that you log in, use the default password `vappadmin`. After you have logged in, change the password by running the `passwd` command which prompts for the old and new passwords.
2. Check for available disk space: `df -h`.
3. Transfer the backup file copies from the backup host to the appliance. Use the following `sftp` command to access the backup host and then transfer any files ending in `.dat`: `sftp user_name@fully_qualified_host_name`
4. View the backup files in the staging location: `manage_spa_db_backup.sh -list -staging`
5. Move the backup files from the staging location to the backup location: `manage_spa_db_backup.sh -restore`
6. Log in to Unisphere (https://host_name:port_number) and start the database restore process, as described in the Unisphere online help.
7. After the restoration has been completed and backup files are no longer needed, clean the backup and staging locations: `manage_spa_db_backup.sh -clean -all`

Installing licenses

About this task

This section shows how to install array-based and host-based licenses, using the Virtual Appliance.

For more information about licensing, see the *Dell EMC Solutions Enabler Installation Guide*.

Installing array-based licenses

About this task

Array-based licenses are used to license features on arrays running Enginuity 5875 or later. These licenses are stored on the storage array.

Before starting this procedure, verify that the gatekeepers have been added and that the `symcfg discover` command has been run from the **Command Execution** tab.

To install array-based licenses:

Procedure

1. Open the vApp Manager.
2. Select **Manage > Licenses**.
3. In the **eLicensing** panel, click **Add License File** to open the **Add eLicensing License** wizard.
4. In the **Upload License** panel, select **Symmetrix Based License**.
5. Click **Browse** and go to the required license file.
6. Select the license file and click **Open**.
7. Click **Upload**.

 **Note:** If a file other than .lic is selected, an error message is displayed:

```
Invalid File Format. Please select a lic file for upload.
```

8. Click **Next**.
9. In the **Add Symmetrix License** panel, select the storage array on which to install the license file, and click **Next**.

Installing host-based licenses

About this task

Host-based licenses are used mainly to license features on arrays running Enginuity versions earlier than 5875. The only exception is the TimeFinder license, which is a host-based license, regardless of code level.

To install host-based licenses:

Procedure

1. Open the vApp Manager.
2. Select **Manage > Licenses**.
3. Type the license key (requires four characters per input box) in the **SE Licensing** panel and click **Add**.

CHAPTER 4

Installing the VASA Virtual Appliance

This chapter explains how to install the VASA Virtual Appliance in a VMware infrastructure environment. Topics include:

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Introduction

Virtual Volumes (vVols) are devices that are used to store application data, virtual machine configuration, swap space, and memory state. vVols provide storage arrays with visibility at a virtual drive level and enables them to fulfill the application storage requirements. vVols offer you more granular control and increased scale beyond the previous limit of 256 logical unit numbers (LUNs) per ESXi host.


VASA (vSphere APIs for Storage Awareness) is the framework responsible for storage orchestration between VMware vSphere™ components and the storage array.

The VASA Provider is delivered as a Virtual Appliance or vApp which orchestrates the life cycle of vVols and their derivatives: snapshots, clones, and fast-clones. It also provides storage topology, capabilities, and status information to the vCenter™ and the ESXi hosts. Contained within the Virtual Appliance is a browser-based GUI console that is called vApp Manager for VASA Provider. The console can be used to perform VASA Provider-specific management and configuration tasks that are not handled by VMware workflows, Unisphere for PowerMax, or Solutions Enabler CLI.


Dell EMC PowerMax VASA Provider 9.0 supports the VASA 2.0 protocol and PowerMax and VMAX All Flash arrays running the PowerMaxOS 5978 release or later.

Before you begin

The current version of Dell EMC PowerMax VASA Provider has the following system requirements:

- The VASA Provider Virtual Appliance requires two virtual drives with a minimum size of 10 GB and 15 GB each.
- Configuration requires 4 GB of RAM and two virtual central processing units (vCPU).
- To host its database, Dell EMC PowerMax VASA Provider needs a raw device-mapping (RDM) device (for PowerMax and VMAX arrays only). The recommended size is 4 GB.
- A minimum of VMware vSphere 6.0 or later is required.
- Protocol endpoints are supported only through ACLX-enabled ports.
- A redundant TCP/IP network is required.
- A minimum of five gatekeepers are required to be mapped to the Virtual Appliance.
 **Note:** The number of gatekeepers must be increased for multiple concurrent operations.
- A SnapVX license on the array is required to support Snapshot operations.

The Solutions Enabler instance that is embedded inside the VASA Provider vApp virtual machine is solely for Dell EMC PowerMax VASA Provider.

-  **Note:** It is necessary to reinitialize the lock box after a configuration change, see SFA [539983](#) for more information.

Deploy and configure the Virtual Appliance

About this task

To deploy and configure the Virtual Appliance:

Procedure

1. Download the OVF archive file (*.ova) containing the installation program from Dell EMC Support to a temporary directory.
2. Start the vSphere Client and log in to the vCenter Server instance through which you install the Virtual Appliance.
3. From the navigation tree, select the ESXi host on which you install the Virtual Appliance.
4. Right-click the ESXi host and select **Deploy OVF Template**.
5. Browse to the OVF archive file, which is located in the temporary directory you created earlier. Select the OVF archive file and click **Next**.
6. On the **Review details** page, verify the details about the appliance and click **Next**.
7. On the **Accept License Agreements** page, select **Accept** and click **Next**.
8. On the **Name and Location** page, specify a name and location for the appliance and click **Next**.
9. On the **Disk Format**, select the format in which to store the virtual machine virtual drives and click **Next**.
10. On the **Network Mapping** page, select the networks that the deployed template should use and click **Next**.
11. On the **Customize template** page, provide valid values for the following OVF Tool properties and then click **Next**:
 - a.
 - IP Address
 - Netmask
 - Gateway
 - DNS Server 1
 - DNS Server 2



Note:

The Virtual Appliance uses the IP address to query the DNS server and get its hostname. Therefore, you must ensure that the IP address has a hostname mapping in the DNS server. The VASA protocol does not work correctly without a properly configured DNS service.

- b. Optionally, provide or select valid values for the following OVF properties:
 - **Proxy Server:** Enter the IP address of the proxy server and port. For example:
ProxyServer-IP:Port
 - **ESXi Server Name:** Enter the fully qualified ESXi hostname.
 - **ESXi Server Password:** Enter the ESXi password in base64 encryption format.
12. On the **Ready to Complete** page, verify the information and click **Finish**.



Note: The **Target** setting on the **Ready to Complete** page must be the same as the **ESXi Server Name** value.

13. When the **Completed Successfully** message is displayed, click **Close**.

Launching vApp Manager

About this task

After the vApp is deployed, use the following steps to launch vApp Manager:

Procedure

1. Type one of the following URLs in a browser:

```
https://appliance_ip:5480
```

or

```
https://appliance_host_name:5480
```

2. On the log in panel, type `vpconfig` for both the **User Name** and **Password**, and then click **Login**.



Note:

You are required to change your password from vApp Manager on first login. Also, vApp Manager can be configured to use LDAP for user authentication. For more information, see the vApp Manager online help.

Adding an ESXi server

About this task

Fibre Channel gatekeeper mapping features are unavailable until an ESXi server is attached to the appliance. The ESXi host on which the virtual machine is deployed is detected initially. To attach to a different ESXi server, the current ESXi host must be removed (see "Removing an ESXi server" section) and the new ESXi host added manually. Then select new gatekeeper devices to map (see the "Mapping Fibre Channel gatekeeper devices" section).

Procedure

1. Log into the vApp Manager and select **Manage > Gatekeepers**.

This view shows the unmapped and mapped Fibre Channel gatekeeper devices. If there is no ESXi server attached to the appliance, no devices display. All gatekeeper configuration features are unavailable until an ESXi server is added.

2. Click **Add ESX**, and type the following:
 - Server name (fully qualified server name)
 - ESXi server user name
 - ESXi server password
 - Re-enter ESXi server password
3. Click **Add**.

Results

The ESXi server name displays next to the text **Host ESX Attached**:

Adding an array

About this task

You can add an array that the vApp Manager will be managing to the ESXi server to create devices available for mapping.

Procedure

1. Log into the vApp Manager and select **Manage > Gatekeepers**.
2. Next to the Host ESXi name, click **Add Array**.
3. The **Select Array** dialog opens. Select the radio button next to the desired array ID and then click **Add Array**.

The **Devices attached to the Host ESXi** list shows the devices that are available for mapping to the Virtual Appliance machine.

Mapping Fibre Channel gatekeeper devices

Before you begin

If no ESXi server is attached to the appliance, then mapping features are unavailable. See [Adding an ESXi server](#).

Fibre Channel gatekeeper devices are mapped to the appliance through the ESXi server attached to the appliance. If no ESXi server is attached to the appliance, this tab allows for adding a server.

Procedure

1. Log into the vApp Manager and select **Manage > Gatekeepers**.
This view shows the unmapped and mapped Fibre Channel gatekeeper devices.
2. In the **Gatekeeper devices attached to the Host ESX** list, click the checkbox next to the device(s) you want to map and then click **Map Gatekeepers**.

Mounting the database LUN

About this task

Dell EMC PowerMax VASA Provider requires that a separate TDEV device is mapped to host the database. The recommended size is 4 GB.

Procedure

1. Log into the vApp Manager and select **Manage > Gatekeepers**.
2. In the **Gatekeeper devices attached to the Host ESX** list, select the device and click **Map Gatekeepers**.

The device is moved from the **Devices attached to the Host ESX** list to the **Devices attached to Virtual Appliance Host** list.

3. In the **Devices attached to Virtual Appliance Host** list, select the device and click **MountDB**.

An information dialog confirms that the device has been successfully mounted.

Viewing Dell EMC PowerMax VASA Provider configuration

Procedure

1. Log into vApp Manager and select **Configure > VP Configuration**.

The following settings are displayed:

VP log file size (MB)

Default value is 64.

VP log level

Default value is `DEBUG`.

Number of log files to be retained


Default value is 10.

Max concurrent connections per session

Default value is 4.

Retain VP certificate

Default value is `False`.

 **Note:** For self-signed certificates on multiple vCenters this setting needs to be set to `True`.

SYMAPI debug log


Default value is `Disabled`.

2. To update a configuration value, select a new value and click **Set**.
After updating a configuration value, you must restart ECOM.

Registering Dell EMC PowerMax VASA Provider with the vSphere Web Client

About this task

The default Dell EMC PowerMax VASA Provider credentials for registration are `admin` for user name and `#1Password` for password. In the interests of security Dell EMC recommends changing the default values. The default registration credentials can be changed by going to `https://appliance_IP:5989/ecomconfig` and selecting **Change Password**.


 **Note:** Dell EMC recommends that users don't change other options within the ECOMConfig portal.

Procedure


1. From the **Navigator** panel of the VMware vSphere Web Client for vCenter, select the vCenter in the **Hosts and Clusters** view.
2. In the **Manage** tab, select **Storage Providers** and click on the + symbol.

The **New Storage Provider** dialog opens.

3. Fill out the name, user name, password and URL and click **OK**.

 **Note:** The VASA Provider URL is `https://vApp_host_name:5989/vasa-providers.xml`

4. Click **Yes** in the **Security Alert** dialog box that asks if you want to trust the host.
5. To verify the registration, refresh the view in the vSphere Web Client. The Dell EMC PowerMax VASA Provider and its details should be listed.

 **Note:** Users need to rescan from vCenter to discover the newly created storage containers.

Accessing Dell EMC PowerMax VASA Provider using SSH

Before you begin


The default user name and password for logging into Dell EMC PowerMax VASA Provider through SSH is `cseadmin`.

Procedure

1. Log into the vApp Manager and select **Configure > Host**.
2. If the link displays as **Disable SSH**, then the SSH port is already in the enabled state, otherwise, click **Enable SSH** to enable the SSH port.

Upgrading Dell EMC PowerMax VASA Provider

About this task

 **Note:** This procedure applies when upgrading the Dell EMC PowerMax VASA Provider from the previous release to the current release.

Procedure

1. Take a snapshot of the vApp before beginning the upgrade. This can be used to restore the vApp if the upgrade procedure fails.
2. Upload the ISO image into the ESXi Server Datastore on which Dell EMC PowerMax VASA Provider is deployed.
3. Start the vSphere Client and log into the vCenter Infrastructure Server through which you will be upgrading the virtual appliance.
4. On the lefthand menu click on **Data Store** and select the ESXi Datastore.
5. Click on **Manage** from the top menu and navigate to the files.
6. Click on the upload icon on the right-hand side to upload the ISO update file.
7. To mount the ISO image on the virtual appliance's CD drive, right-click the virtual appliance and select **Edit Settings**.
8. On the **Virtual Hardware** tab, select CD/DVD Drive 1.
9. From the drop-down menu, select **Datastore ISO File** and click **Browse** to locate the ISO image in the data store.
10. Click **OK** to exit the dialog box.
11. Go to the **Console** tab of the virtual appliance and using the Move Up/Down keys select **Appliance Update**.
12. Press Enter to perform the update.

The update will take a few minutes, after which the virtual appliance will reboot and the screen will show the main console of the latest version.

Note: You can use the welcome screens of the virtual appliance and vApp Manager to confirm that Dell EMC PowerMax VASA Provider has been updated correctly.

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