



Cisco Virtual Switch Update Manager Release 2.x Getting Started Guide for Cisco Nexus 1000V

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CHAPTER 1

Overview

This chapter contains the following sections:

- [Information About Cisco Virtual Switch Update Manager, on page 1](#)
- [Information About Cisco Nexus 1000V, on page 2](#)
- [Cisco Nexus 1000V Components, on page 2](#)
- [Workflow for Installing Cisco Nexus 1000V, on page 5](#)

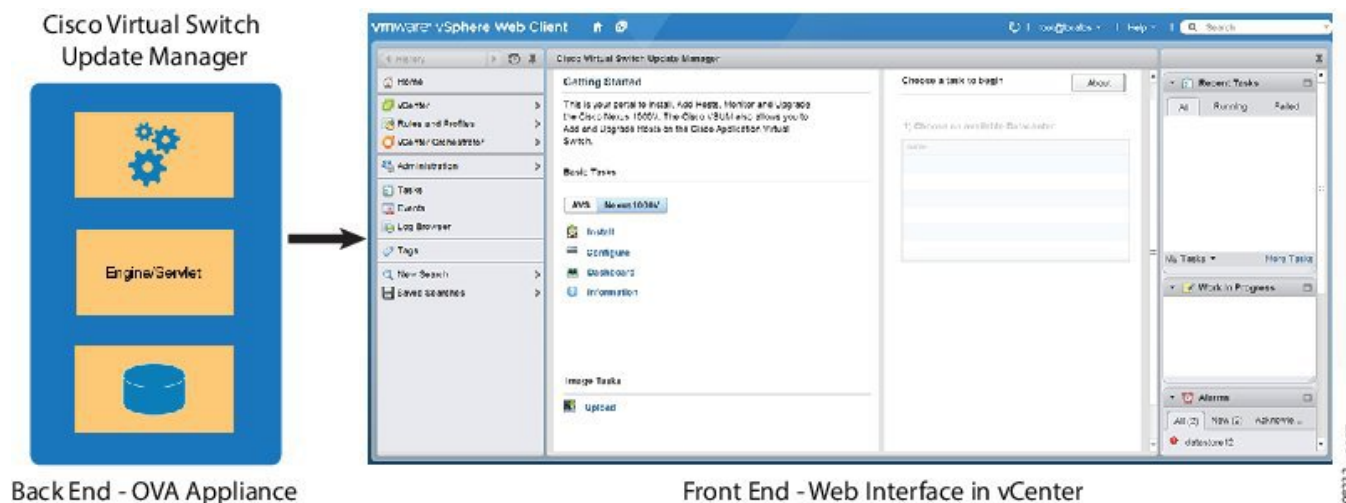
Information About Cisco Virtual Switch Update Manager

Cisco Virtual Switch Update Manager (Cisco VSUM) enables you to dynamically upload the Cisco Nexus 1000V image files and then install, upgrade, and monitor Cisco Nexus 1000V for VMware vSphere. It also allows you to migrate hosts to the Cisco Nexus 1000V, using the VMware vSphere Web Client.

Cisco VSUM enables you to do the following:

- Upload the Cisco Nexus 1000V image file to the Cisco VSUM repository.
- Install the Cisco Nexus 1000V switch.
- Migrate the VMware vSwitch and VMware vSphere Distributed Switch (VDS) to the Cisco Nexus 1000V.
- Monitor the Cisco Nexus 1000V.
- Upgrade the Cisco Nexus 1000V and hosts from an earlier version to the latest version.
- Install the Cisco Nexus 1000V license.
- View the health of the virtual machines in your data center using the Dashboard—Cisco Nexus 1000V.

Figure 1: Cisco VSUM



Information About Cisco Nexus 1000V

The Cisco Nexus 1000V is a distributed virtual switch solution that is fully integrated within the VMware virtual infrastructure, including VMware vCenter, for the virtualization administrator. This solution offloads the configuration of the virtual switch and port groups to the network administrator to enforce a consistent data center network policy.

The Cisco Nexus 1000V is compatible with any upstream physical access layer switch that is compliant with the Ethernet standard, including the Catalyst 6500 series switch, Cisco Nexus switches, and switches from other network vendors. The Cisco Nexus 1000V is compatible with any server hardware that is listed in the [VMware Hardware Compatibility List \(HCL\)](#).



Note We recommend that you monitor and install the patch files for the VMware ESXi host software.

Cisco Nexus 1000V Components

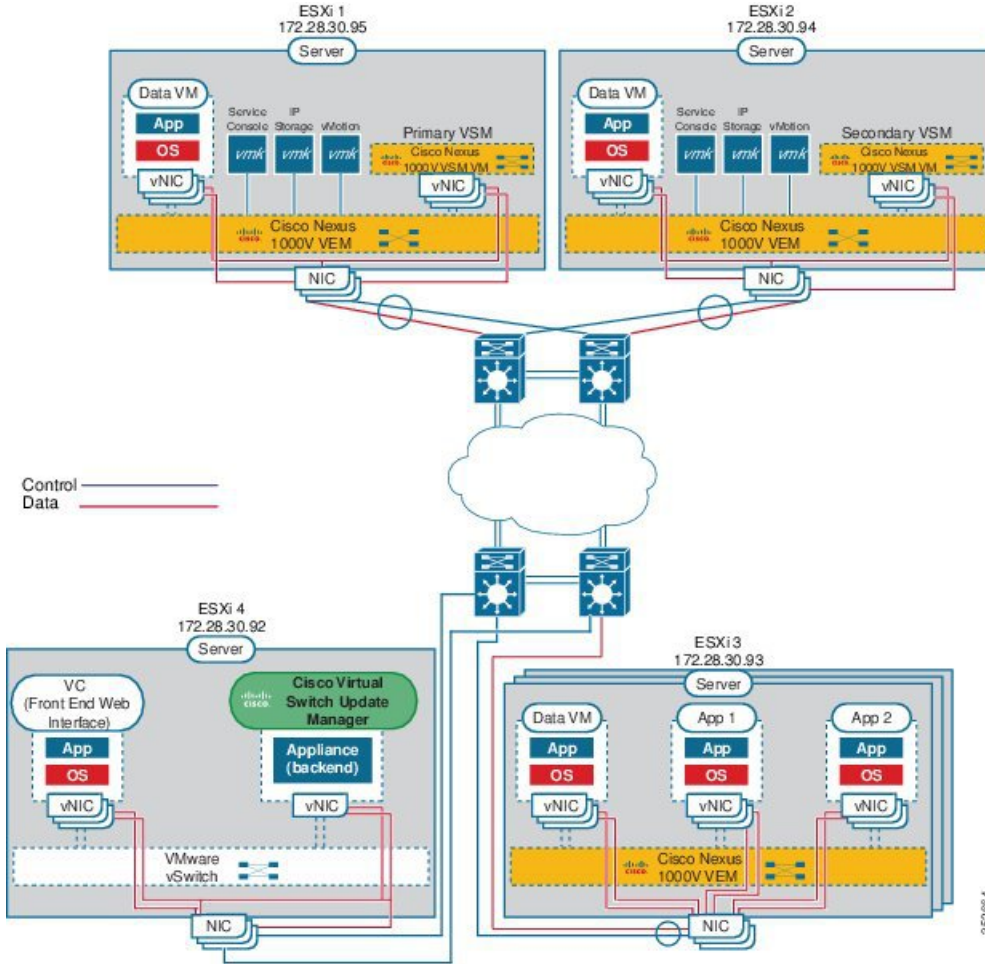
The Cisco Nexus 1000V switch has the following components:

- Virtual Supervisor Module (VSM)—The control plane of the switch and a VM that runs Cisco NX-OS.
- Virtual Ethernet Module (VEM)—A virtual line card that is embedded in each VMware vSphere (ESXi) host. The VEM is partly inside the kernel of the hypervisor and partly in a user-world process, called the VEM Agent.

The following figure shows the relationship between the VSM, VEMs, and other Cisco Nexus 1000V components.

Layer 3 is the preferred method of communication between the VSM and the VEMs. The following figure shows an example of a Layer 3 topology. The software for the primary VSM is installed on ESXi 1, and the software for the secondary VSM is installed on ESXi 2.

Figure 2: Layer 3 Installation Diagram for Installing Cisco Nexus 1000V Using Cisco VSUM



Information About the Cisco Nexus 1000V Virtual Supervisor Module

The Virtual Supervisor Module (VSM) is the control plane of the Cisco Nexus 1000V. It is deployed as a virtual machine.

You can install the VSM in either a standalone or active/standby high-availability (HA) pair. We recommend that you install two VSMs in an active-standby configuration for high availability.

VSM and VEM collectively represent the Cisco Nexus 1000V.

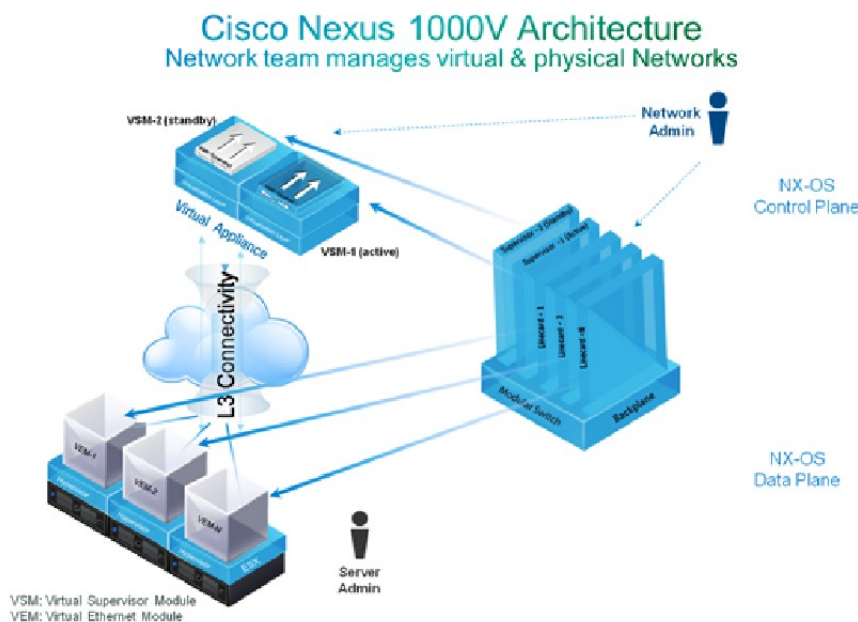
The VSM uses an external network fabric to communicate with the VEMs. The VSM runs the control plane protocols and configures the state of each VEM, but it never forwards packets. The physical NICs on the VEM server are the uplinks to the external fabric. VEMs switch traffic between the local virtual Ethernet ports that are connected to the VM vNICs but do not switch traffic to other VEMs. Instead, a source VEM switches packets to the uplinks that the external fabric delivers to the target VEM.

A single Cisco Nexus 1000V instance, including dual-redundant VSMS and managed VEMs, forms a switch domain. Each Cisco Nexus 1000V domain within a VMware vCenter Server must be distinguished by a unique integer called the domain identifier.

See the *Cisco Nexus 1000V Resource Availability Reference* for information about scale limits.

The Cisco Nexus 1000V architecture is shown in the following figure.

Figure 3: Cisco Nexus 1000V Architecture



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Information About the Virtual Ethernet Module

Each hypervisor is embedded with one VEM that replaces the virtual switch by performing the following functions:

- Advanced networking and security
- Switching between directly attached VMs
- Uplinking to the rest of the network



Note Only one version of the VEM can be installed on an ESX/ESXi host at any time.



Note Cisco Nexus 1000V VEM does not support ESXi custom TCP/IP stack and control traffic through the custom TCP/IP stack.

In the Cisco Nexus 1000V, the traffic is switched between VMs locally at each VEM instance. Each VEM also interconnects the local VM with the rest of the network through the upstream access-layer network switch (blade, top-of-rack, end-of-row, and so forth). The VSM runs the control plane protocols and configures the state of each VEM accordingly, but it never forwards packets.

In the Cisco Nexus 1000V, the module slots are for the primary module 1 and secondary module 2. Either module can act as active or standby. The first server or host is automatically assigned to module 3. The network interface card (NIC) ports are 3/1 and 3/2 (vmmnic0 and vmmnic1 on the ESX/ESXi host). The ports to which the virtual NIC interfaces connect are virtual ports on the Cisco Nexus 1000V where they are assigned with a global number.

Workflow for Installing Cisco Nexus 1000V

Installing Cisco Nexus 1000V using Cisco VSUM consists of the following steps:

-
- Step 1** Installing Cisco VSUM.
See [Installing Cisco VSUM, on page 11](#).
 - Step 2** Uploading the Cisco Nexus 1000V image file.
See [Uploading the Cisco Nexus 1000V Image File, on page 26](#).
 - Step 3** Installing Cisco Nexus 1000V VSM.
See [Installing the Cisco Nexus 1000V Using Cisco VSUM, on page 28](#).
 - Step 4** Migrating hosts to Cisco Nexus 1000V.
See [Migrating Hosts to the Cisco Nexus 1000V Using Cisco VSUM, on page 39](#).
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CHAPTER 2

Installing Cisco Virtual Switch Update Manager

This chapter contains the following sections:

- [Information About Cisco Virtual Switch Update Manager](#), on page 7
- [Compatibility Information for Cisco VSUM](#), on page 8
- [System Requirements for Cisco VSUM](#), on page 10
- [Prerequisites](#), on page 10
- [Verifying the Authenticity of the Cisco-Signed Image \(Optional\)](#), on page 10
- [Installing Cisco VSUM](#), on page 11
- [About the Cisco VSUM GUI](#), on page 20
- [Upgrading Cisco VSUM](#), on page 21
- [Replacing Cisco VSUM—Linux vCenter Appliance](#), on page 23
- [Replacing Cisco VSUM—Windows vCenter Server](#), on page 24

Information About Cisco Virtual Switch Update Manager

Cisco VSUM is a virtual appliance in the data center and is registered as a plug-in to the VMware vCenter Server. The Cisco VSUM user interface is an integral part of the VMware vSphere Web Client.

Benefits of Cisco VSUM

The Cisco VSUM GUI enables you to do the following:

- Upload Cisco Nexus 1000V image files.
- Install, migrate, monitor, and upgrade:
 - VSMs in high availability (HA) or standalone mode.
 - VEMs on ESX/ESXi hosts.

Guidelines for Installing Cisco VSUM

Cisco VSUM software is available on [VSUM download page](#) on Cisco.com.



Note The download location and the software are the same for the Cisco Nexus 1000V and the Cisco AVS.

We recommend that the Cisco VSUM VMNICs be connected to the management network of the network infrastructure for the data center. This allows Cisco VSUM to access the vCenter and the hosts.

**Note**

When you have multiple Cisco AVS associated to different vCenters, you need to deploy Cisco VSUM on all vCenters associated with the multi-Cisco AVS infrastructure. You should have the same number of vCenters and VSUM deployments.

Compatibility Information for Cisco VSUM

The following table lists the compatibility information for Cisco VSUM.

Table 1: Version Compatibility for Cisco VSUM for Cisco Nexus 1000V

Minimum Required Cisco Nexus 1000V Release for Various Features	VMware vCenter Server Version (Includes Patches and Updates)	VMware Software Release Version (Includes Patches and Updates)
<p>Cisco Virtual Switch Update Manager supports installations of the following releases:</p> <ul style="list-style-type: none"> • Release 5.2(1)SV3(3.1) • Release 5.2(1)SV3(2.8) • Release 5.2(1)SV3(2.5) • Release 5.2(1)SV3(2.1) • Release 5.2(1)SV3(1.15) • Release 5.2(1)SV3(1.10) • Release 5.2(1)SV3(1.6) • Release 5.2(1)SV3(1.5b) • Release 5.2(1)SV3(1.5a) • Release 5.2(1)SV3(1.4) • Release 5.2(1)SV3(1.3) • Release 5.2(1)SV3(1.2) • Release 5.2(1)SV3(1.1) • Release 4.2(1)SV2(2.3) • Release 4.2(1)SV2(2.2) • Release 4.2(1)SV2(1.1a) • Release 4.2(1)SV1(5.2b) <p>Cisco VSUM supports migration from Release 4.2(1)SV1(5.1) and later.</p> <p>Cisco VSUM supports upgrades from Release 4.2(1)SV1(4b) and later.</p> <p>Cisco VSUM supports the monitoring functionality from Release 4.2(1)SV2(1.1) and later.</p>	<p>6.5a</p> <p>6.0</p> <p>5.5</p> <p>5.1</p> <p>Note If you are using Cisco VSUM 2.1 or an earlier release and want to upgrade to vCenter 6.5a, you must upgrade to Cisco VSUM 2.1.1 or later and then upgrade vCenter.</p> <p>Note If you are using Cisco VSUM 1.5.2 or an earlier release and want to upgrade vCenter to 6.0, you must upgrade to Cisco VSUM 1.5.3 or later and then upgrade vCenter.</p>	<p>ESXi 6.5a</p> <p>ESXi 6.0</p> <p>ESXi 5.5</p> <p>ESXi 5.1</p> <p>ESXi 5.0</p> <p>ESXi 4.1</p>

See the *Cisco Nexus 1000V and VMware Compatibility Information* for more information about compatibility for the Cisco Nexus 1000V.

System Requirements for Cisco VSUM

- VMware vSphere Web Client 5.1, 5.5, 6.0, or 6.5a.
- All the web-based GUI client requirements as required by the VMware vSphere Web Client.
- The memory requirement is 4 GB RAM.
- The CPU requirement is 2.
- The disk space requirement is 80 GB.

Prerequisites

Cisco VSUM has the following prerequisites:

- You have installed the VMware Enterprise Plus license on the hosts.
- You have installed the vCenter Server 5.1, 5.5, 6.0, or 6.5a with the Web Client.
- You have administrative credentials for the vCenter Server.
- You have a username, IP address, subnet mask, and gateway IP address for deploying the Cisco VSUM OVA.
- Cisco VSUM has IP connectivity on port 443 to all ESXi hosts.
- Ports 80 and 443 are open in the vCenter to communicate with the host.
- The IP address used for deploying the OVA can communicate with the IP address of the vCenter Server. Port 8443 is open for communication between Cisco VSUM and vCenter.

Verifying the Authenticity of the Cisco-Signed Image (Optional)

Before you install the Nexus1000v-vsum.2.x-pkg.zip image, you have the option to validate its authenticity. In the zip file, there is a signature.txt file that contains an SHA-512 signature and an executable script that can be used to verify the authenticity of the Nexus1000v-vsum.2.x-pkg.zip image.



Note Verifying the authenticity of an image is optional. You can still install the image without validating its authenticity.

Before you begin

You must be running a Linux machine with the following utilities installed:

- openssl
- base64

Step 1 Copy the following files to a directory on the Linux machine:

- Nexus1000v-vsum.2.x-pkg.zip image
- signature.txt file
- cisco_n1k_image_validation_v_2_x script

Step 2 Ensure that the script is executable.

```
chmod 755 cisco_n1k_image_validation_v_2_x
```

Step 3 Run the script.

```
./cisco_n1k_image_validation_v_2_x -s signature.txt Nexus1000v-vsum.2.x-pkg.zip
```

Step 4 Check the output. If the validation succeeds, the following message displays:

```
Authenticity of Cisco-signed image Nexus1000v-vsum.2.x-pkg.zip has been successfully verified!
```

Installing Cisco VSUM

You can install the Cisco VSUM OVA using the following steps.

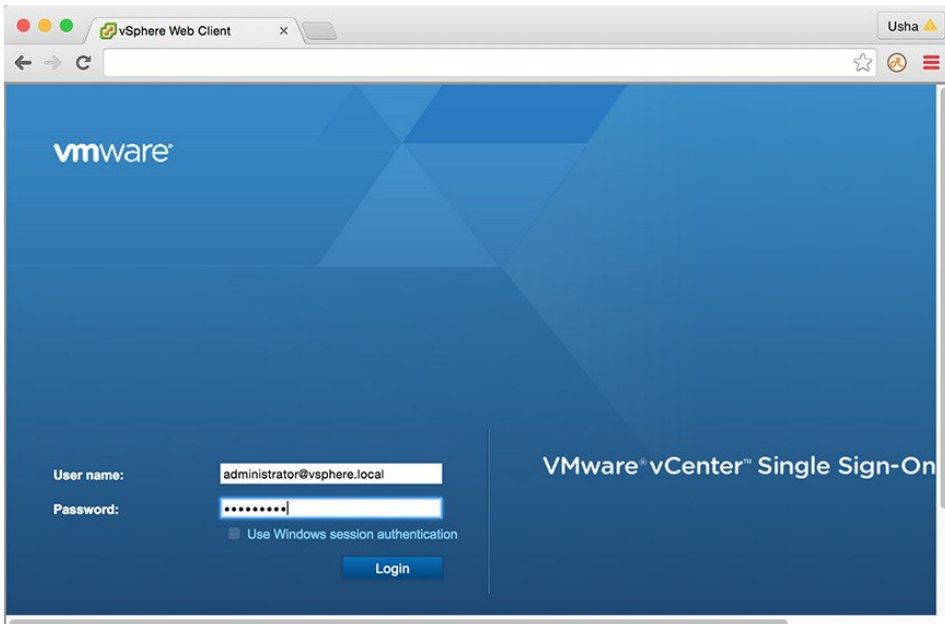
Before you begin

- Ensure that the Cisco VSUM OVA image is available in the file system.
- Ensure that you have the IP address, subnet mask, gateway IP address, domain name, DNS server, and vCenter IP address and credentials for deploying the OVA.

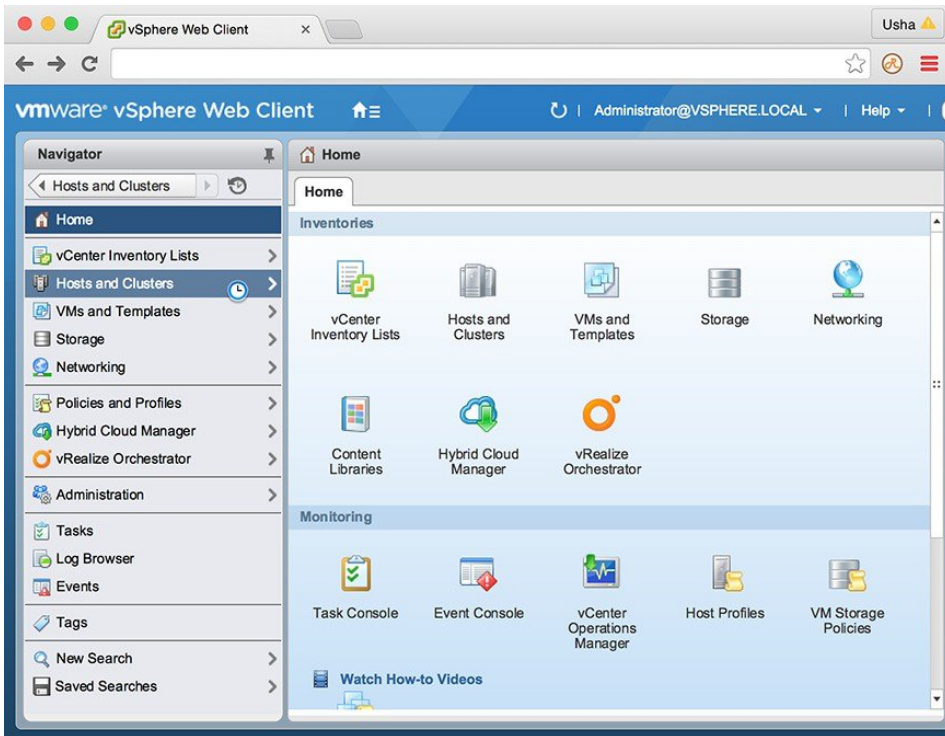


Note When you install Cisco VSUM, you must use the same credentials that you use to install the thick client.

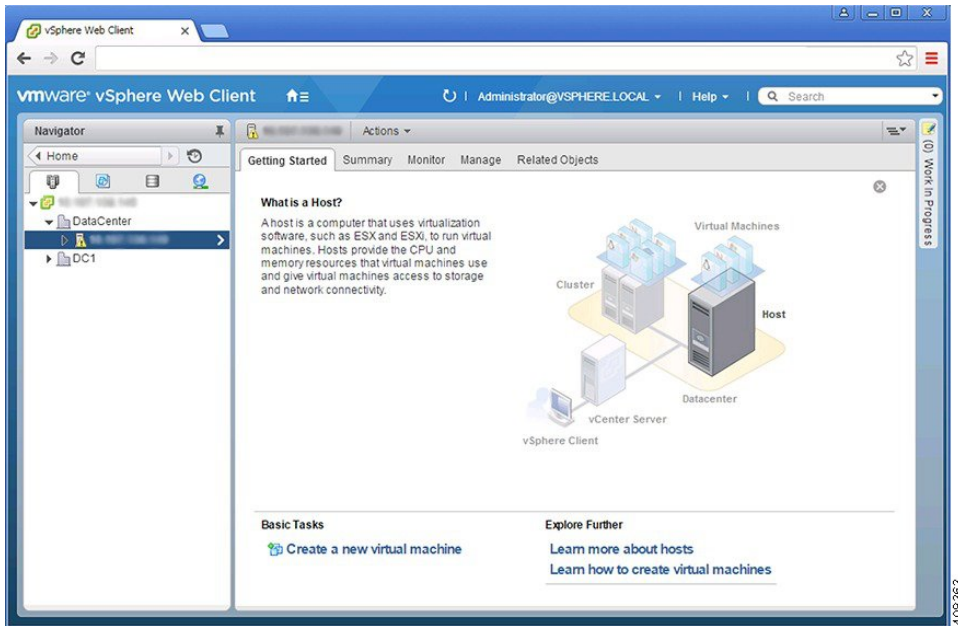
Step 1 Log in to the VMware vSphere Web Client.



Step 2 Choose Hosts and Clusters.

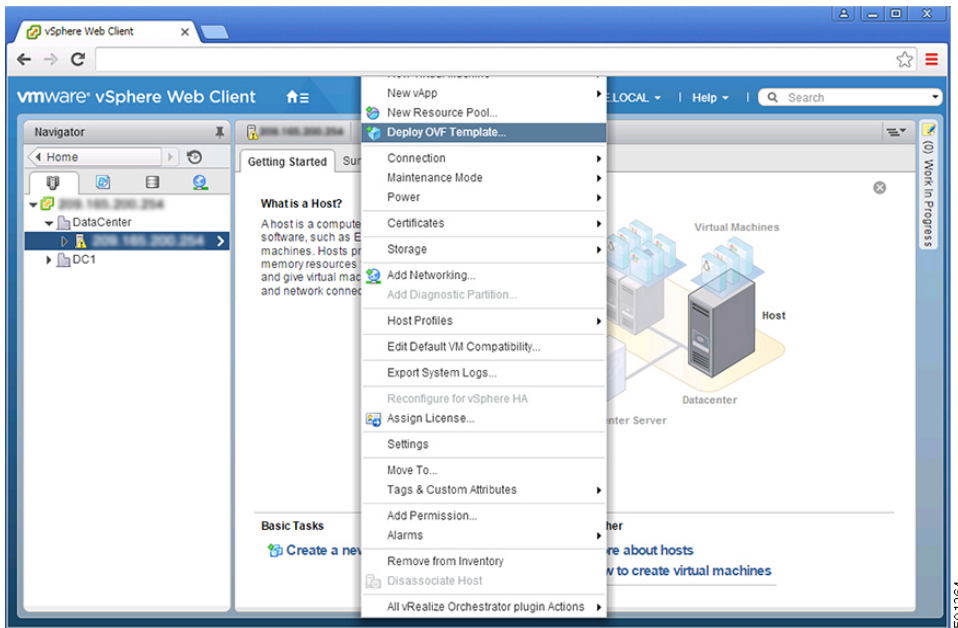


Step 3 Choose the host on which to deploy the Cisco VSUM OVA.



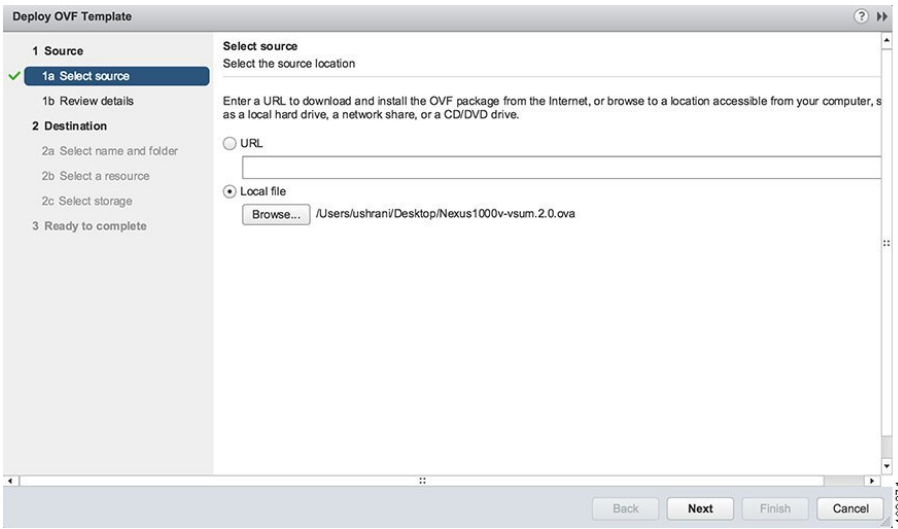
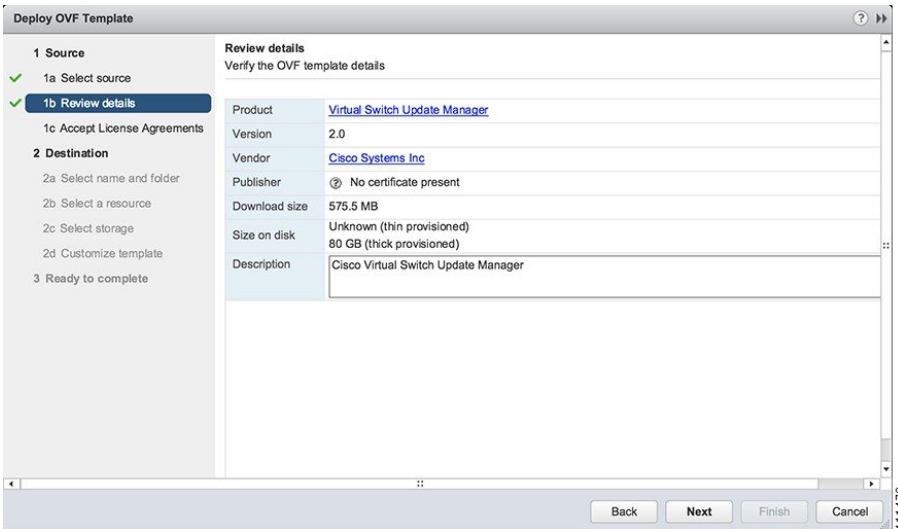
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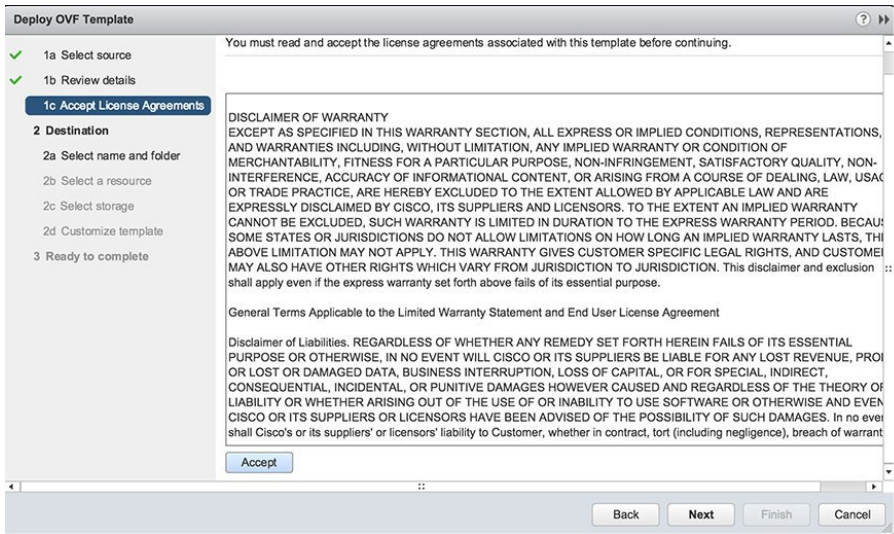
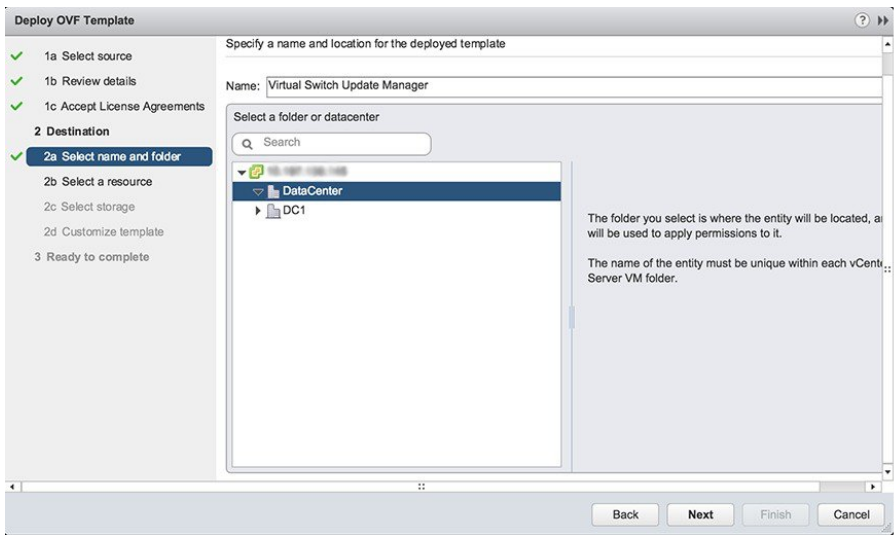
Step 4 From the **Actions** menu, choose **Deploy OVF Template**.

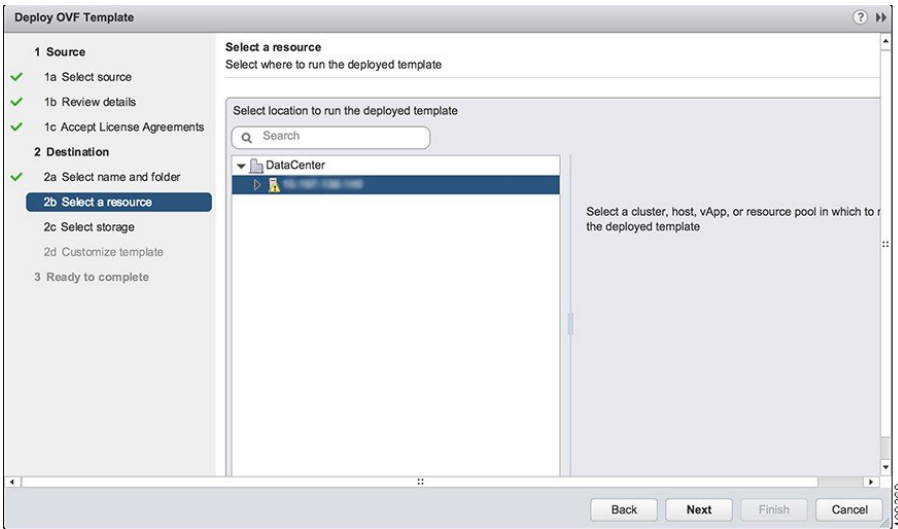
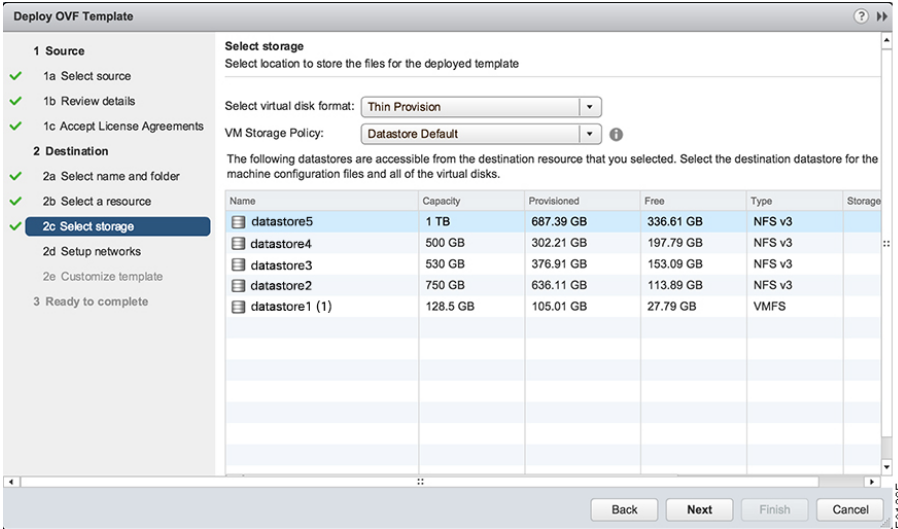


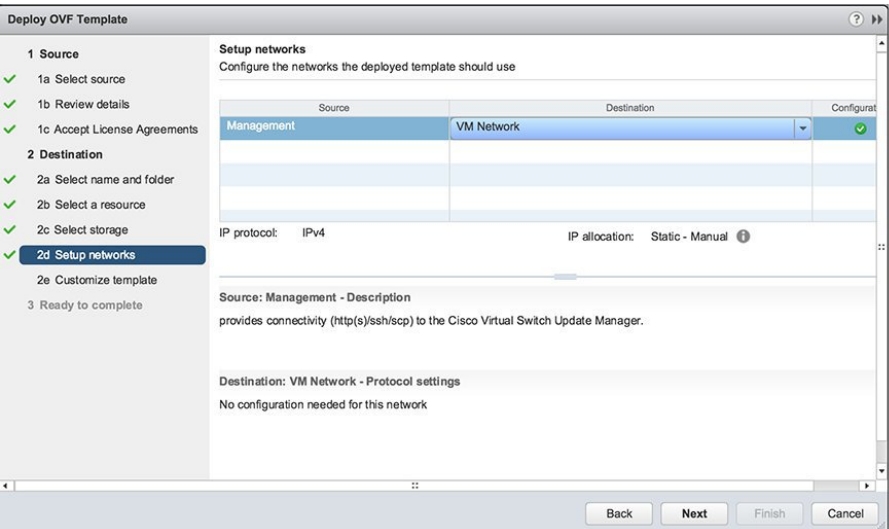
501264

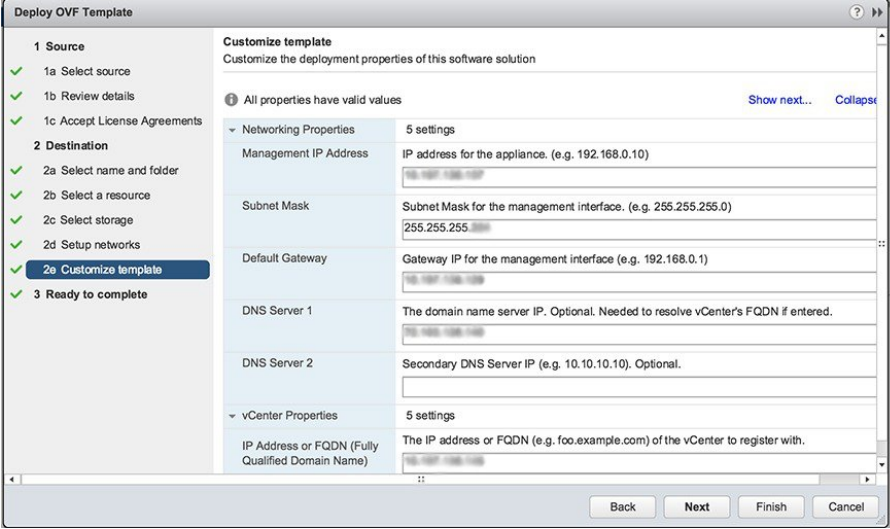
Step 5 In the **Deploy OVF Template** wizard, complete the information as described in the following table.

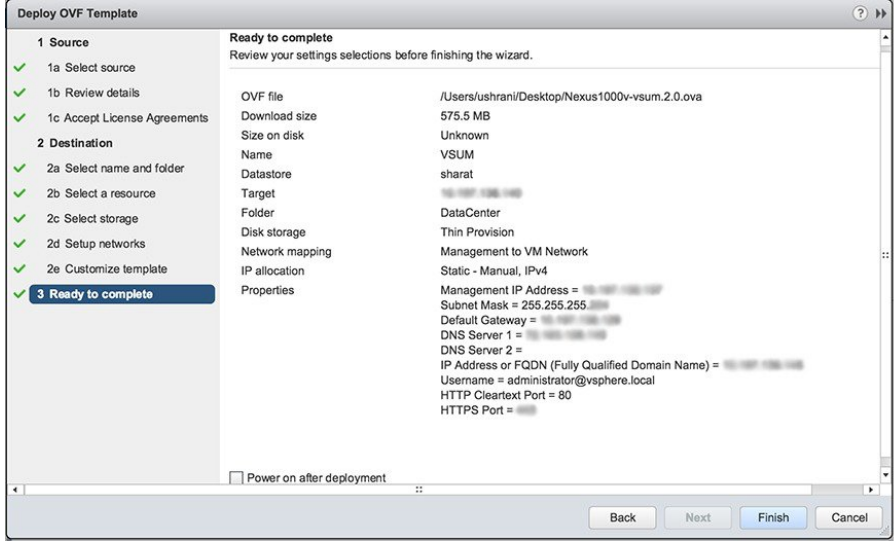
Pane	Action
<p>1a Select source</p>	<p>Choose the Cisco VSUM OVA.</p> 
<p>1b Review details</p>	<p>Review the details.</p> 

Pane	Action
<p>1c Accept License Agreements</p>	<p>Review the agreement and click Accept.</p> 
<p>2a Select name and folder</p>	<p>Enter a name and choose a location for the appliance.</p> 

Pane	Action																																				
<p>2b Select a resource</p>	<p>Choose the host or cluster to run the OVA template.</p> 																																				
<p>2c Select storage</p>	<p>Choose the data store for the VM.</p> <p>Choose either Thin provisioned format or Thick provisioned format to store the VM virtual disks.</p> <p>We recommend that you store the VM virtual disks in the Thick provisioned format.</p>  <table border="1" data-bbox="730 1228 1388 1522"> <thead> <tr> <th>Name</th> <th>Capacity</th> <th>Provisioned</th> <th>Free</th> <th>Type</th> <th>Storage</th> </tr> </thead> <tbody> <tr> <td>datastore5</td> <td>1 TB</td> <td>687.39 GB</td> <td>336.61 GB</td> <td>NFS v3</td> <td></td> </tr> <tr> <td>datastore4</td> <td>500 GB</td> <td>302.21 GB</td> <td>197.79 GB</td> <td>NFS v3</td> <td></td> </tr> <tr> <td>datastore3</td> <td>530 GB</td> <td>378.91 GB</td> <td>153.09 GB</td> <td>NFS v3</td> <td></td> </tr> <tr> <td>datastore2</td> <td>750 GB</td> <td>636.11 GB</td> <td>113.89 GB</td> <td>NFS v3</td> <td></td> </tr> <tr> <td>datastore1 (1)</td> <td>128.5 GB</td> <td>105.01 GB</td> <td>27.79 GB</td> <td>VMFS</td> <td></td> </tr> </tbody> </table>	Name	Capacity	Provisioned	Free	Type	Storage	datastore5	1 TB	687.39 GB	336.61 GB	NFS v3		datastore4	500 GB	302.21 GB	197.79 GB	NFS v3		datastore3	530 GB	378.91 GB	153.09 GB	NFS v3		datastore2	750 GB	636.11 GB	113.89 GB	NFS v3		datastore1 (1)	128.5 GB	105.01 GB	27.79 GB	VMFS	
Name	Capacity	Provisioned	Free	Type	Storage																																
datastore5	1 TB	687.39 GB	336.61 GB	NFS v3																																	
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datastore2	750 GB	636.11 GB	113.89 GB	NFS v3																																	
datastore1 (1)	128.5 GB	105.01 GB	27.79 GB	VMFS																																	

Pane	Action
<p>2d Setup networks</p>	<p>Choose the destination network for the VM that is reachable from the vCenter Server.</p>  <p>The screenshot shows the 'Deploy OVF Template' wizard in the 'Setup networks' step. On the left, a progress list includes: 1 Source (1a Select source, 1b Review details, 1c Accept License Agreements), 2 Destination (2a Select name and folder, 2b Select a resource, 2c Select storage, 2d Setup networks - selected), 2e Customize template, and 3 Ready to complete. The main window title is 'Deploy OVF Template'. The 'Setup networks' section is titled 'Configure the networks the deployed template should use'. It contains a table with columns 'Source', 'Destination', and 'Configurat'. The first row shows 'Management' as the source and 'VM Network' as the destination, with a green checkmark in the 'Configurat' column. Below the table, 'IP protocol' is set to 'IPv4' and 'IP allocation' is 'Static - Manual'. The 'Source' description is 'Management - Description provides connectivity (http(s)/ssh/scp) to the Cisco Virtual Switch Update Manager.' The 'Destination' description is 'VM Network - Protocol settings No configuration needed for this network'. At the bottom, there are 'Back', 'Next', 'Finish', and 'Cancel' buttons.</p>

Pane	Action
2e Customize template	<p>Provide the following information:</p> <ul style="list-style-type: none"> • Management IP address • Subnet mask • Gateway IP address • DNS server IP address • DNS entry to resolve the fully qualified domain name (FQDN) • vCenter IP or FQDN • vCenter username • vCenter password • HTTP cleartext port and HTTPS port 

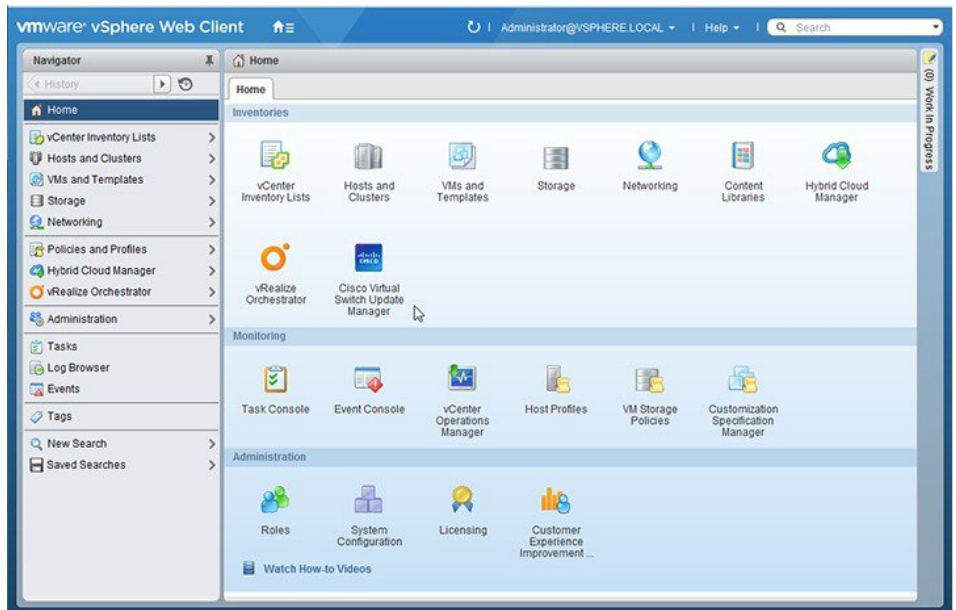
Pane	Action
3 Ready to complete	<p>Review the deployment settings.</p> <p>Caution Any discrepancies can cause VM booting issues. Carefully review the IP address, subnet mask, gateway information, and vCenter credentials.</p> 

Step 6 Click **Finish**.

Step 7 After Cisco VSUM deploys successfully, click **Close**.

Step 8 Power on the Cisco VSUM VM.

It might take 5 minutes for Cisco VSUM to be installed and registered as a vSphere Web Client plug-in.



If the Web Client session was open during the installation, you must log out and log in again to view the Cisco VSUM plug-in.

About the Cisco VSUM GUI

Cisco VSUM is a virtual appliance that is registered as a plug-in to the VMware vCenter Server.

The Cisco VSUM is a GUI that you use to upload the Cisco Nexus 1000V image files and then install, migrate, monitor, and upgrade the VSMs in high availability (HA) or standalone mode and the VEMs on ESX/ESXi hosts.

Figure 4: VMware vSphere Web Client—Home Page

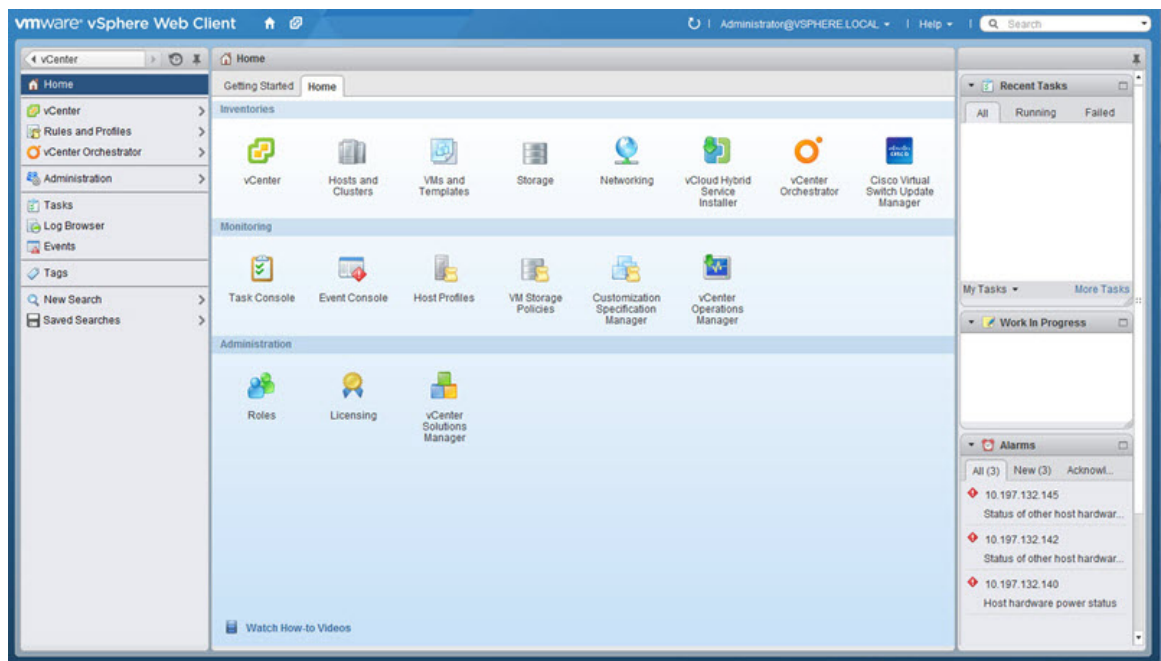
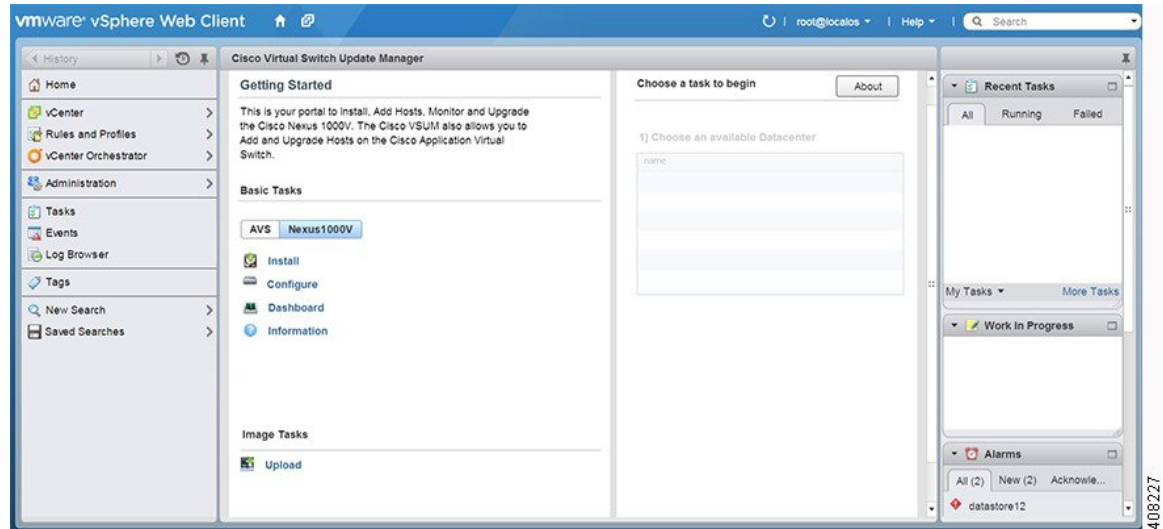


Figure 5: Cisco VSUM—Home Page



Upgrading Cisco VSUM

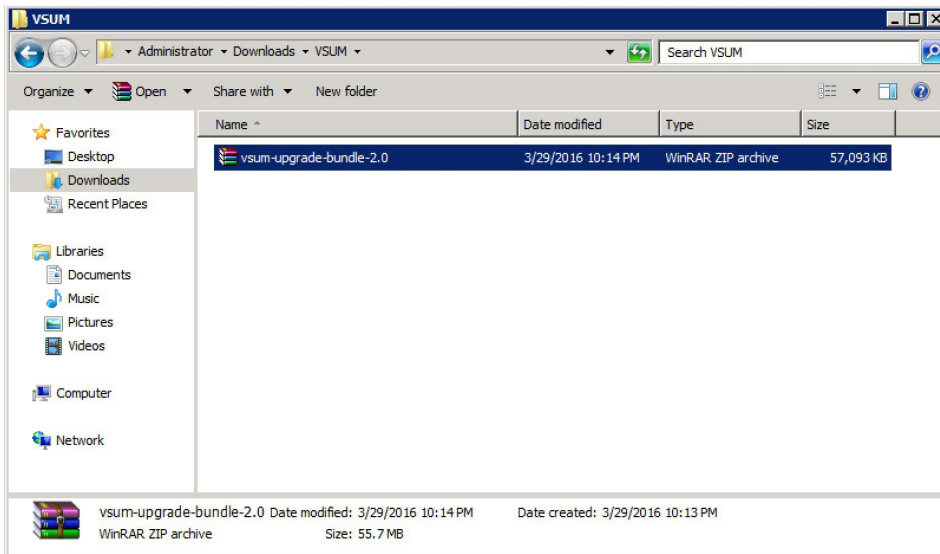
Step 1 Log in to Cisco VSUM as the root user.

The default Cisco VSUM username is **root** and the default Cisco VSUM password is **cisco**.

Example:

```
login as: root
root@192.0.2.9's password
root@localhost ~]#
```

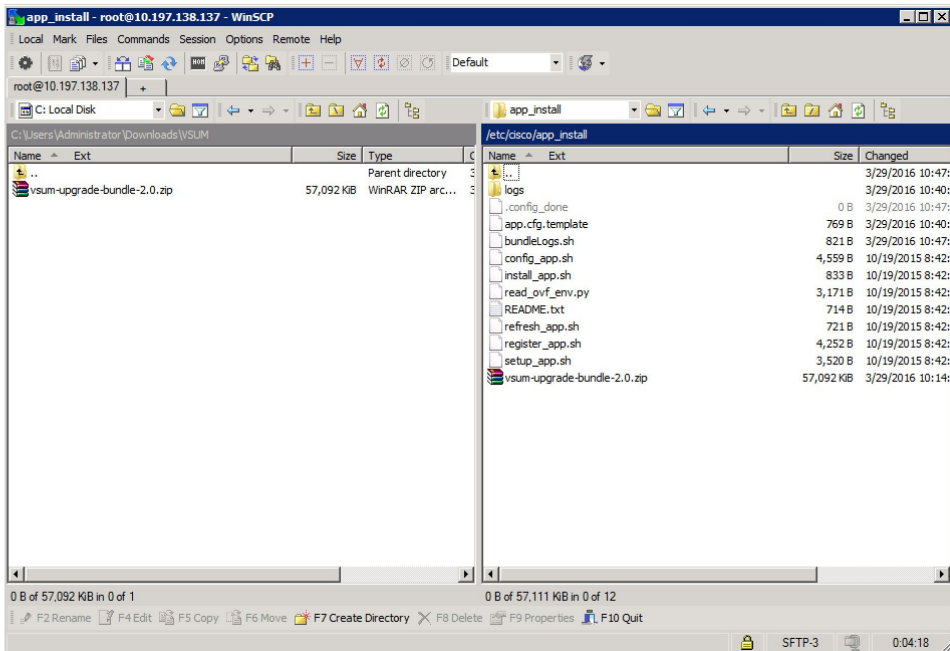
Step 2 Download from Cisco.com the zipped folder containing the upgrade file for the version of Cisco VSUM that you want to local storage.



The zipped folder can be found on the [Cisco VSUM Download Software](#) page.

Note The upgrade folder name is `vsum-upgrade-bundle-2.x.zip`. That is, the folder name is `vsum-upgrade-bundle-2.0.zip` for VSUM 2.0 (as seen in the screen capture above), `vsum-upgrade-bundle-2.1.zip` for VSUM 2.1, or `vsum-upgrade-bundle-2.1.1.zip` for VSUM 2.1.1.

Step 3 Copy the downloaded zipped upgrade folder to this Cisco VSUM path: `/etc/cisco/app_install`.



Step 4 From the Cisco VSUM location `/etc/cisco/app_install`, unzip the copied upgrade folder.

Note The following example uses VSUM 2.0; be sure to use the upgrade file for the release you want to upgrade to.

Example:

```
[root@localhost app_install]# unzip vsum-upgrade-bundle-2.0.zip
Archive:  vsum-upgrade-bundle-2.0.zip
  inflating: bash-4.1.2-15.el6_5.2.x86_64.rpm
  inflating: driver.py
  extracting: patch.zip
  inflating: upgradeVsumTo2_0.sh
  inflating: README_UPGRADE
```

Step 5 Upgrade Cisco VSUM by completing the following steps:

- a) From the Cisco VSUM location `/etc/cisco/app_install`, enter the `ls` command.

Note The following example uses VSUM 2.0; be sure to use the upgrade file for the release you want to upgrade to.

Example:

```
[root@localhost app_install]# ls
app.cfg.template          driver.py      README.txt    register_app.sh
bash-4.1.2-15.el6_5.2.x86_64.rpm  install_app.sh  README_UPGRADE  setup_app.sh
bundleLogs.sh            logs          read_ovf_env.py  upgradeVsumTo2_0.sh
config_app.sh            patch.zip     refresh_app.sh  vsum-upgrade-bundle-2.0.zip
[root@localhost app_install]#
[root@localhost app_install]#
[root@localhost app_install]# ./upgradeVsumTo2_0.sh administrator@vsphere.local Sfish@123
```

- b) Examine the output of the `ls` and make sure that an `.sh` file is present
- c) If an `.sh` file is present, upgrade Cisco VSUM by entering the following command: `./upgrade-file-name.sh <vCenter-username> <vCenter-password>`

Note If the `.sh` file is not present, contact Cisco Customer Support.

Example:

```
././upgradeVsumTo2_<x>.sh <vCenter-username> <vCenter-password>
```

Note The vCenter username and password credentials are for the vCenter with which Cisco VSUM is associated.

What to do next

Wait until the upgrade is complete. You can then log back into vCenter and use the upgraded Cisco VSUM.

If the VMware vSphere Web Client session was open during the upgrade, you must log out and log in again to view the Cisco VSUM plug-in.

Replacing Cisco VSUM—Linux vCenter Appliance

Use this procedure to replace an existing Cisco VSUM in the VMware vSphere Web Client.

Before you begin

Power off the current Cisco VSUM before you begin this procedure.

Step 1 Power off the current active Cisco VSUM VM.

Step 2 Enter `https://VCIP/mob` and log in with the default credentials.

- Step 3** In a web browser, choose **Content > Extension Manager > UnregisterExtension**.
- Step 4** Enter **com.cisco.n1kv** and click **Invoke method**.
- Step 5** Enter the following command:
- ```
rm -rf /var/lib/vmware/vsphere-client/vc-packages/vsphere-client-serenity/com.cisco.n1kv-2.x/
```
- Note** This command is applicable if you use the vCenter 5.1 or vCenter 5.5 versions.
- If you use vCenter 6.0 or vCenter 6.5a, the folder is *etc/vmware/vsphere-client/vc-packages/vsphere-client-serenity/com.cisco*. In this case, the command is **rm -rf /etc/vmware/vsphere-client/vc-packages/vsphere-client-serenity/com.cisco.n1kv-2.x/**
- Step 6** Enter the following command:
- ```
/etc/init.d/vsphere-client restart
```
- Step 7** Install the new version of the Cisco VSUM VM.
- Step 8** After Cisco VSUM is successfully deployed, log in to the VMware vSphere Web Client to view the Cisco VSUM plug-in.

Replacing Cisco VSUM—Windows vCenter Server

Use this procedure to replace an existing Cisco VSUM in the VMware vSphere Web Client.

Before you begin

Power off the current Cisco VSUM before you begin this procedure.

- Step 1** Power off the current active Cisco VSUM VM.
- Step 2** Enter `https://VCIP/mob` and log in with the default credentials.
- Step 3** In a web browser, choose **Content > Extension Manager > UnregisterExtension**.
- Step 4** Enter **com.cisco.n1kv** and click **Invoke method**.
- Step 5** Choose **Start > Run > services.msc**.
- Step 6** Right-click the VMware vSphere Web Client and click **stop**.
- Step 7** From the `C:\ProgramData\VMware\VMware vSphere Web Client\vc-packages\vsphere-client-serenity` directory, delete the **com.cisco.n1kv** folder.
- Note** The directory is applicable if you use vCenter 5.1 or vCenter 5.5.
- If you use vCenter 6.0 or vCenter 6.5a, the directory is `C:\ProgramData\VMware\VMware vCenter Server\cfg\vsphere-client\vc-packages\vsphere-client`
- Step 8** Choose **Start > Run > type service.msc**.
- Step 9** Right-click the VMware vSphere Web Client and click **Start**.
- Step 10** Install the new version of the Cisco VSUM VM.
- Step 11** After Cisco VSUM is successfully deployed, log in to the VMware vSphere Web Client to view the Cisco VSUM plug-in.



CHAPTER 3

Installing Cisco Nexus 1000V Using Cisco VSUM

This chapter contains the following sections:

- [Information About Installing Cisco Nexus 1000V Using Cisco VSUM, on page 25](#)
- [About the Virtual Switch Image File Upload Utility, on page 25](#)
- [Uploading the Cisco Nexus 1000V Image File, on page 26](#)
- [Prerequisites for Installing the Cisco Nexus 1000V Using Cisco VSUM, on page 27](#)
- [Guidelines and Limitations for Installing Cisco Nexus 1000V Using Cisco VSUM, on page 27](#)
- [Installing the Cisco Nexus 1000V Using Cisco VSUM, on page 28](#)
- [Managing the Cisco Nexus 1000V Image Files in the Cisco VSUM Repository, on page 33](#)

Information About Installing Cisco Nexus 1000V Using Cisco VSUM

The Cisco VSUM is the GUI that you use to install the VSMs in high availability (HA) or standalone mode and the VEMs on ESX/ESXi hosts. The Cisco VSUM GUI is an integral part of the VMware vSphere Web Client and can only be accessed by logging into the VMware vSphere Web Client.

Cisco VSUM enables you to install Cisco Nexus 1000V Release 4.2(1)SV2(2.3) and the later releases.

See [Migrating Hosts to Cisco Nexus 1000V Using Cisco VSUM, on page 37](#) to install VEM using Cisco VSUM.

See the *Cisco Nexus 1000V and VMware Compatibility Information* for more information on the compatibility information for Cisco Nexus 1000V.

See the corresponding *Cisco Nexus 1000V Installation and Upgrade Guide* to manually install the Cisco Nexus 1000V versions that are not supported by the Cisco VSUM.

About the Virtual Switch Image File Upload Utility

The Virtual Switch Image File Upload utility is a GUI that enables you to dynamically upload the Cisco Nexus 1000V image files before you install Cisco Nexus 1000V. You must download the Cisco Nexus 1000V image files from Cisco.com on your local system before you upload them to the Cisco VSUM repository.

Uploading the Cisco Nexus 1000V Image File

Before you install Cisco Nexus 1000V using Cisco VSUM, you must upload the corresponding Cisco Nexus 1000V image file to Cisco VSUM.

Before you begin

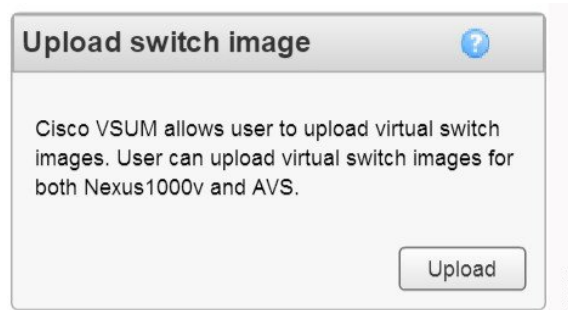
Download the Cisco Nexus 1000V .zip image folder from <https://software.cisco.com/download>.



Attention You must download the Cisco Nexus 1000V .zip image folder before starting the upload operation.

Step 1 Log in to the VMware vSphere WebClient and choose **Home > Cisco Virtual Switch Update Manager > Upload**. The **Upload Switch Image** dialog box appears.

Figure 6: Upload Switch Image Dialog Box



Step 2 In the **Upload Switch Image** dialog box, click **Upload**.

The **Virtual Switch Image File Uploader** dialog box appears.

Step 3 In the **File Upload** dialog box, click **Choose File**, choose the appropriate image file available on your local machine, and then click **Upload**.

The upload might take a few minutes. The Cisco Nexus 1000V image file is uploaded to the Cisco VSUM repository.

What to do next

Install Cisco Nexus 1000V as described in the procedure at [Installing the Cisco Nexus 1000V Using Cisco VSUM, on page 28](#).

Prerequisites for Installing the Cisco Nexus 1000V Using Cisco VSUM

The Cisco Nexus 1000V installation using Cisco VSUM has the following prerequisites:

- You have downloaded the appropriate Cisco Nexus 1000V image file from Cisco.com and uploaded it in the Cisco VSUM repository.
- You installed Cisco VSUM.
- You installed and prepared vCenter Server for host management using the instructions from VMware.
- You installed VMware vSphere Web Client.
- You installed the VMware Enterprise Plus license on the hosts.
- You are familiar with the Cisco Nexus 1000V topology diagram.
- You created port groups for the Control and Management VLANs on the Cisco Nexus 1000V.
- You enabled the Distributed Switch—Create, Extension-Register, Update privilege permissions on the vCenter Server.
- ESXi host is running 4.1 or later releases.

Guidelines and Limitations for Installing Cisco Nexus 1000V Using Cisco VSUM

The Cisco Nexus 1000V installation using Cisco VSUM has the following guidelines and limitations:

- We recommend that you install the VSMs in a high availability mode on the Cisco Nexus 1000V. For information about high availability and redundancy, see the *Cisco Nexus 1000V High Availability and Redundancy Configuration Guide*. Cisco VSUM supports standalone mode, but we do not recommend that you use this mode in a production environment.
- Cisco VSUM always deploys with VSM HA pairs by default. We recommend that you install primary and secondary VSM VMs on separate hosts.
- Only Layer 3 mode of deployment is supported by the Cisco VSUM with ESXi host.
- The Cisco Nexus 1000V VSM always uses the following two network interfaces in the same order:
 1. Control Interface
 2. Management Interface
- The VM hardware version has no dependencies, so the VM hardware version can be upgraded if required.
- Do not deploy vCenter server and VSM in different data centers. It is not supported.
- We recommend that you monitor and install all the relevant patch applications from the VMware ESXi host server.

Installing the Cisco Nexus 1000V Using Cisco VSUM

You can install Cisco Nexus 1000V using Cisco VSUM. You install the Cisco Nexus 1000V switch by creating a new VSM or by using an existing VSM that is on a Cisco Nexus Cloud Services Platform (CSP). The VSM must not have been used to create a switch before you use it to install the Cisco Nexus 1000V switch.



Note If you want to install a Cisco Nexus 1000V switch by using a VSM, you must first create the VSM on a CSP.

Before you begin

Know the following about the switch:

- VM port group for the control traffic of the switch
- VM port group for the management traffic of the switch
- IP address for management
- Subnet mask
- Gateway IP address
- Data center in which the switch will be installed
- Domain ID (a unique ID for the switch)
- Password (the default username is admin)



Attention From Cisco VSUM, Release 2.0, you cannot proceed with the installation of Cisco Nexus 1000V without uploading the Cisco Nexus 1000V image file to the Cisco VSUM repository. You can navigate to the Manage Uploaded Switch Image pane to check if the image file is already available in the Cisco VSUM repository.

Step 1

Step 2

Log in to VMware vSphere Web Client.

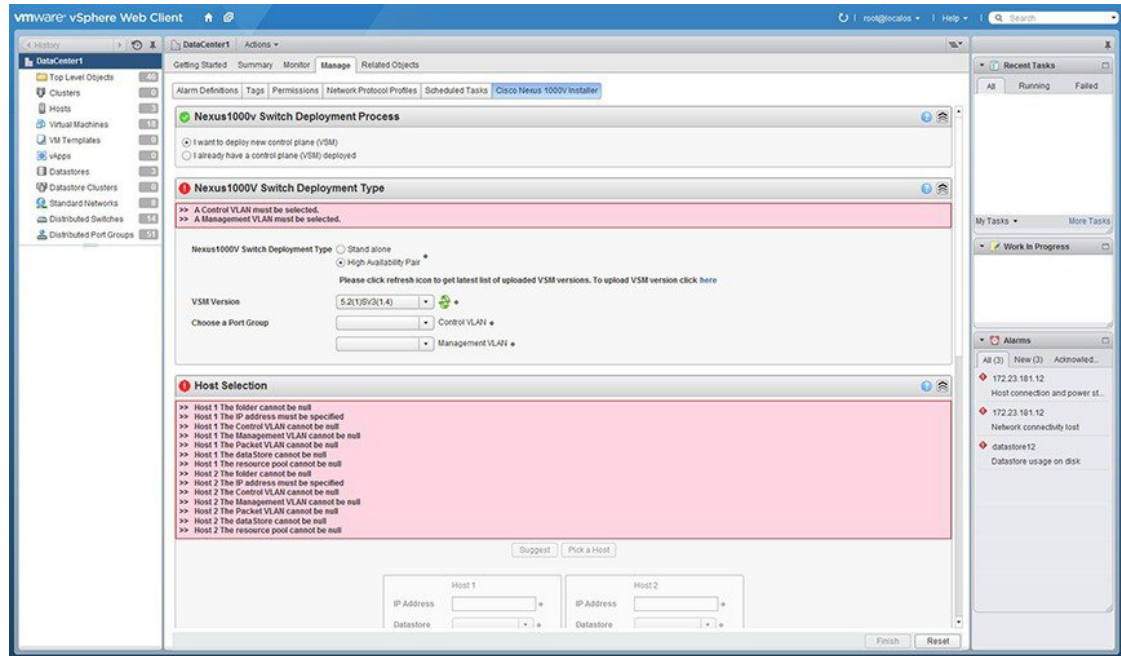
Step 3

Complete one of the following actions, depending on the version of vCenter that you are using.

If you are using ...	Then...
vCenter 6.0 or earlier	Choose Home > Cisco Virtual Switch Update Manager > Nexus 1000V > Install , and then choose the data center.
vCenter 6.5a	Choose Home > Cisco Virtual Switch Update Manager > Nexus 1000V > Install > Configure > Cisco Nexus1000V Installer .

The installation screen appears.

Figure 7: Cisco Nexus 1000V Installer Pane



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Step 4 Required: Complete one of the following sets of steps:

If you want to create a switch with...	Then...
An existing VSM	<ol style="list-style-type: none"> 1. In the Nexus 1000v Switch Deployment area, choose I already have a control plane deployed. 2. In the Virtual Supervisor Module (VSM) configuration area, enter an IP address of an already existing VSM in the IP address field, and enter a password in the Password field. <ul style="list-style-type: none"> Note If you check the Default Port Profile check box, the default port profile is enabled. Also, sample port profiles are created for the different features in the VSM, and the port profiles are pushed to the VSM. The sample port profiles are created as user references and include default and mandatory commands that are required to configure this feature. You can modify the port profiles based on the network configuration. 3. Click Finish. 4. Skip to the next section; you do not need to complete the remaining steps in this section because the switch is created when you complete the previous step.

If you want to create a switch with...	Then...
A new VSM	<ol style="list-style-type: none"> 1. In the Nexus 1000v Switch Deployment area, choose I want to deploy new control plane (VSM). 2. Complete the remaining steps in this section to create the switch.

Step 5

In the **Cisco Nexus 1000V Switch Deployment Type** area, complete the following fields:

Name	Description
Standalone	<p>Installs the switch in standalone mode.</p> <p>Note We recommend that you install the Cisco Nexus 1000V in an HA pair.</p>
High Availability Pair	<p>Installs the switch as an HA pair. By default, the High Availability Pair is selected.</p>
VSM Version	<p>Choose the Cisco Nexus 1000V version to be installed. By default, the latest version is selected.</p> <p>Note We recommend that you click the refresh icon to display the latest list of the uploaded VSM versions.</p>
Control VLAN	<p>Choose the control port group for the switch.</p> <p>The control port group is used for the control traffic.</p>
Management VLAN	<p>Choose the management port group for the switch.</p> <p>Note The Cisco Nexus 1000V VSM uses the management network to communicate with vCenter Server and ESXi.</p>

Step 6

Click **Suggest** to choose two hosts based on the details provided in the **Cisco Nexus 1000V Switch Deployment Type** area.

Step 7

In the **Host Selection** area, complete the following fields:

Name	Description
IP Address	<p>The IP address of the hosts on which the switch will be deployed.</p> <p>The primary switch is deployed on Host 1 and the secondary switch is deployed on Host 2.</p> <p>You can override system choices by dragging and dropping hosts. Click Pick a host to drag and drop hosts.</p>
Datastore	<p>Choose the system-selected datastore that you want to override. Choose a datastore for each host.</p>

Name	Description
Resource Pool	<p>Choose the resource pool for each host.</p> <p>Note If you do not choose a resource pool and the host is a cluster, the resource pool for the switch is the root resource pool of the cluster.</p> <p>If you do not choose a resource pool and the host is in standalone mode, the resource pool for the switch will be the root resource pool of the host.</p>
Folder Name	<p>Choose the folder name for each host.</p> <p>Note If the folder name is not displayed in the drop-down list, the switch VM is created in the root VM folder of the data center.</p>

Step 8

In the **Switch Configuration** area, complete the following fields:

Name	Description
Domain ID	<p>The domain ID for the switch.</p> <p>The domain ID is common for both the primary and secondary switches and it should be unique for every new switch. The range for the domain is from 1 to 1023.</p>
Deployment Type	<p>Configures the deployment type.</p> <p>By default, Management IP Address is selected.</p> <p>Note</p> <ul style="list-style-type: none"> • If you choose the Management IP address, this IP address is used for the VSM management operations and the VSM-to-VEM communications. • If you choose the Control IP address, this IP address is used only for the VSM-to-VEM communications.
Control:IP/Name	The IP address for switch connectivity.
Control: Mask	The subnet mask.
Control: Gateway IP/Name	The gateway IP address.

Step 9

In the **Virtual Supervisor Module (VSM) configuration** area, complete the following fields:

Name	Description
Switch Name	<p>The name of the switch. The name must have the following:</p> <ul style="list-style-type: none"> • Start with a letter (A-Z, a-z). • Contain up to 32 case-sensitive letters (A-Z, a-z), numbers (0-9), or hyphens (-). • Not contain any other special characters or spaces. <p>When a switch VM is created in vCenter, the same name is used for the primary and the secondary switch.</p> <p>For a standalone deployment, the VSM VM is the <i>switch name</i>.</p> <p>For an HA deployment, the primary VSM VM is the <i>switch name_primary</i> and the secondary switch is the <i>switch name_secondary</i>.</p>
IP Address	The IP address of the switch. The IP address is used for the management of the Cisco Nexus 1000V switch.
Subnet Mask	The subnet mask for the above entered IP address.
Gateway Address	The gateway IP address for the above entered IP address.
Username	By default, the user name is admin. This field is not editable.
Default Port Profiles	<p>If checked, the default port profile is enabled and this creates sample port profiles for the different features in the VSM, and pushes it to the VSM.</p> <p>The sample port profiles are created as user references and include default and mandatory commands that are required to configure this feature. You can modify the port profiles based on the network configuration.</p>
Password	<p>The admin user password.</p> <p>This password is used to log in to the switch for administration.</p>
Confirm Password	The admin user password that you reenter for confirmation.

Step 10 Click **Finish** to install the Cisco Nexus 1000V switch.
A window appears to show the status of the installation.

Step 11 (Optional) For detailed information about the status of the installation by completing the following steps:

- Open a new tab in your browser and enter the same vCenter IP address to open the web client again.
- Log in to the web client and in the navigation pane, click **Tasks**.

The **Task Console** opens in the work pane, displaying a list of tasks with the most recent task at the top.

- c) Find the task in the **Task Name** column and then view the status in the **Status** column.

The **Status** column shows whether the task is complete or in progress. You can click the refresh icon to display new tasks and learn how much of the task is complete.

Note Several tasks might appear above the primary task you just performed. They might be associated with your primary task.

The Cisco Nexus 1000V installation is confirmed when the primary task `Create Nexus 1000v Switch` has the status `Completed`. A typical installation of the switch takes about 4 minutes.

What to do next

Install VEM as described in the procedure [Migrating Hosts to the Cisco Nexus 1000V Using Cisco VSUM](#), on page 39.

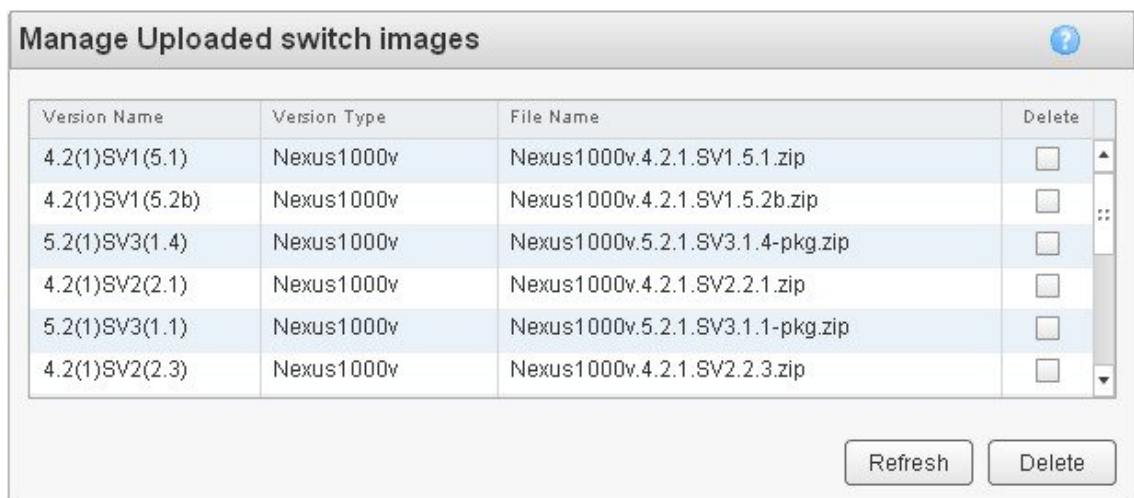
Managing the Cisco Nexus 1000V Image Files in the Cisco VSUM Repository

You can choose to either retain multiple image files that have been uploaded in the Cisco VSUM repository, or you can delete image files that you do not require.

- Step 1** Log in to VMware vSphere Web Client and choose **Home > Cisco Virtual Switch Update Manager > Upload**.

The **Manage Uploaded Switch Images** pane appears.

Figure 8: Manage Uploaded Switch Images Pane



Version Name	Version Type	File Name	Delete
4.2(1)SV1(5.1)	Nexus1000v	Nexus1000v.4.2.1.SV1.5.1.zip	<input type="checkbox"/>
4.2(1)SV1(5.2b)	Nexus1000v	Nexus1000v.4.2.1.SV1.5.2b.zip	<input type="checkbox"/>
5.2(1)SV3(1.4)	Nexus1000v	Nexus1000v.5.2.1.SV3.1.4-pkg.zip	<input type="checkbox"/>
4.2(1)SV2(2.1)	Nexus1000v	Nexus1000v.4.2.1.SV2.2.1.zip	<input type="checkbox"/>
5.2(1)SV3(1.1)	Nexus1000v	Nexus1000v.5.2.1.SV3.1.1-pkg.zip	<input type="checkbox"/>
4.2(1)SV2(2.3)	Nexus1000v	Nexus1000v.4.2.1.SV2.2.3.zip	<input type="checkbox"/>

Refresh Delete

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- Step 2** Click **Refresh** to view the latest list of image files in the Cisco VSUM repository.

Step 3 Check the check box(es) against the image file that you want to delete and click **Delete** to delete the image file(s) from the Cisco VSUM repository.



CHAPTER 4

Managing an Existing Cisco Nexus 1000V Switch

- [About Managing an Existing Cisco Nexus 1000V Switch, on page 35](#)
- [Setting Up Management for an Existing Cisco Nexus 1000V Switch, on page 35](#)

About Managing an Existing Cisco Nexus 1000V Switch

If you want to add hosts to, monitor, or upgrade a Cisco Nexus 1000V switch that was installed without Cisco VSUM, you must first set up management in Cisco VSUM.

You can set up management when you add hosts to, monitor, or upgrade a Cisco Nexus 1000V switch, as documented later in this guide. However, you can also set up Cisco VSUM management ahead of time.

It is important that you set up management in Cisco VSUM for all the Cisco Nexus 1000V versions that were installed without using the Virtual Switch Image File Upload utility.

Setting Up Management for an Existing Cisco Nexus 1000V Switch

Perform the following steps to set up management in Cisco VSUM for a Cisco Nexus 1000V switch that was installed without using Cisco VSUM.



Attention You must upload the existing image file before you set up the management of the switch.

Before you begin

Follow these prerequisites and usage guidelines before setting up management for an existing Cisco Nexus 1000V switch.

- Make sure that VSUM has SSH connectivity to the existing Cisco Nexus 1000V switch VSM via port 22.

Step 1 Log in to the VMware vSphere Web Client.

Step 2 On the **Home** tab, click **Cisco Virtual Switch Update Manager > Nexus 1000V > Configure**.

Step 3 Click the data center, click the switch, and then click **Manage**.

Step 4 Complete one of the following actions, depending on what version of vCenter you are using.

If the switch is not managed by Cisco VSUM, a **Switch Not Managed** dialog box prompts you to make the switch managed.

Step 5 In the **Switch Not Managed** dialog box, click **OK**.

If you are using...	Then..
vCenter 6.0 or earlier	In the central pane, click the Make Managed tab.
vCenter 6.5	Click Configure > Cisco Nexus 1000V > Make Managed .

Step 6 In the **Management Account** dialog box, complete one of the following series of steps to set up management for the switch in VSUM with VSM credentials:

If you want to...	Then...
Use an existing administrator account to manage the switch.	<ol style="list-style-type: none"> 1. Enter a username and password. You can use either a VSM local administrator account or a remote administrator (RADIUS/TACACS) account. Cisco VSUM always uses the username associated with the account to do all of its operations. It does not create an internal user n1kvmgr; rather, it uses local or remote administrator credentials. 2. Click the Use an existing administrator account to manage the switch radio button. 3. Click Manage Switch.
Use existing administrator credentials to create a new user account.	<p>Note Do not use this option if TACACS/RADIUS is enabled on Cisco VSUM.</p> <ol style="list-style-type: none"> 1. Enter a username and password. 2. Click the Use existing administrator credentials to create a new "N1KV" user account. (Will not work with TACACS) radio button. This option is available only for VSM local network admin users and not for remote administrators. Choose this option if you do not want Cisco VSUM to use VSM local admin user credentials. This option creates n1kvmgr user, which Cisco VSUM uses for all operations. 3. Click Manage Switch.



CHAPTER 5

Migrating Hosts to Cisco Nexus 1000V Using Cisco VSUM

This chapter contains the following sections:

- [Information About Migrating Hosts to the Cisco Nexus 1000V Switch Using Cisco VSUM, on page 37](#)
- [Prerequisites for Migrating Hosts to the Cisco Nexus 1000V Using Cisco VSUM, on page 37](#)
- [Guidelines and Limitations for Migrating Hosts to the Cisco Nexus 1000V Using Cisco VSUM, on page 38](#)
- [Migrating Hosts to the Cisco Nexus 1000V Using Cisco VSUM, on page 39](#)

Information About Migrating Hosts to the Cisco Nexus 1000V Switch Using Cisco VSUM

You can use the Cisco VSUM GUI to migrate hosts from the VMware vSwitch and VMware distributed virtual switch (DVS) to the Cisco Nexus 1000V switch.

Cisco VSUM enables you to do the following:

- Add hosts and migrate multiple hosts.
- Migrate each VMware port group or kernel NIC to the correct port profile.
- Migrate each physical NIC from the VMware vSwitch or VMware DVS to the correct uplink on the Cisco Nexus 1000V.
- Migrate VM NICs from the VMware vSwitch or VMware DVS to the corresponding uplink on the Cisco Nexus 1000V.

See the *Cisco Nexus 1000V and VMware Compatibility Information* for more information on the compatibility information for Cisco Nexus 1000V.

Prerequisites for Migrating Hosts to the Cisco Nexus 1000V Using Cisco VSUM

The migration of hosts to the Cisco Nexus 1000V using Cisco VSUM has the following prerequisites:

- The host must have one or more physical NICs on each VMware vSwitch/VMware DVS in use.
- You must have administrative privileges for the vCenter server.
- You must have the distributed switch—Create and Modify privilege permission enabled on the vCenter server.
- You must have Cisco Nexus 1000V distributed switch in Layer 3 mode.

Guidelines and Limitations for Migrating Hosts to the Cisco Nexus 1000V Using Cisco VSUM

When you move the ESX/ESXi host that runs the VSM from the VMware vSwitch or VMware DVS to the Cisco Nexus 1000V, the connectivity might be lost. In that situation, both active and standby VSMS assume the active role.

The reboot of the VSM is based on the following conditions:

1. The number of modules attached to the VSM
 - If a VSM has more modules attached than the other VSMS, and there is no virtual channel (VC) connectivity on either VSM, the VSM that has fewer modules is rebooted.
 - If modules are attached to both VSMS and one VSM has VC connectivity, the VSM without connectivity is rebooted.

2. VC connectivity



Note This option is invoked when the previous condition is not met.

- If both VSMS have the same number of modules or no modules, the software makes a selection that is based on the VC connectivity status.

3. Last configuration change



Note This condition is invoked when the previous two conditions are not met.

- If both VSMS have the same number of modules and no VC connectivity, the VSM with the latest configuration remains active and the other VSM is rebooted.

4. Last active VSM

- If the previous three conditions are not met, the VSM that became active most recently is rebooted.

Migrating Hosts to the Cisco Nexus 1000V Using Cisco VSUM

You can install a Cisco Nexus 1000V VEM using Cisco VSUM. When Cisco VSUM installs VEMs, it migrates all VM kernels and their corresponding VM NICs across vSwitches to the Cisco Nexus 1000V VEMs.

Before you begin

Know the following information about the switch:

- vCenter IP address
- vCenter user ID
- vCenter password
- Cisco Nexus 1000V switch username
- Cisco Nexus 1000V switch password

Step 1 Log in to the VMware vSphere Web Client.

Step 2 In the vSphere Client, choose **Home > Cisco Virtual Switch Update Manager > Nexus 1000V > Configure**.

Step 3 Choose a data center and a distributed virtual switch, and then click **Manage**.

Note If the switch is not managed by Cisco VSUM, you are prompted to enter the switch credentials in the **Make Managed** window. For more information, see [Managing an Existing Cisco Nexus 1000V Switch, on page 35](#).

Step 4 If you are using vCenter 6.5a, choose **Cisco Nexus 1000V**.

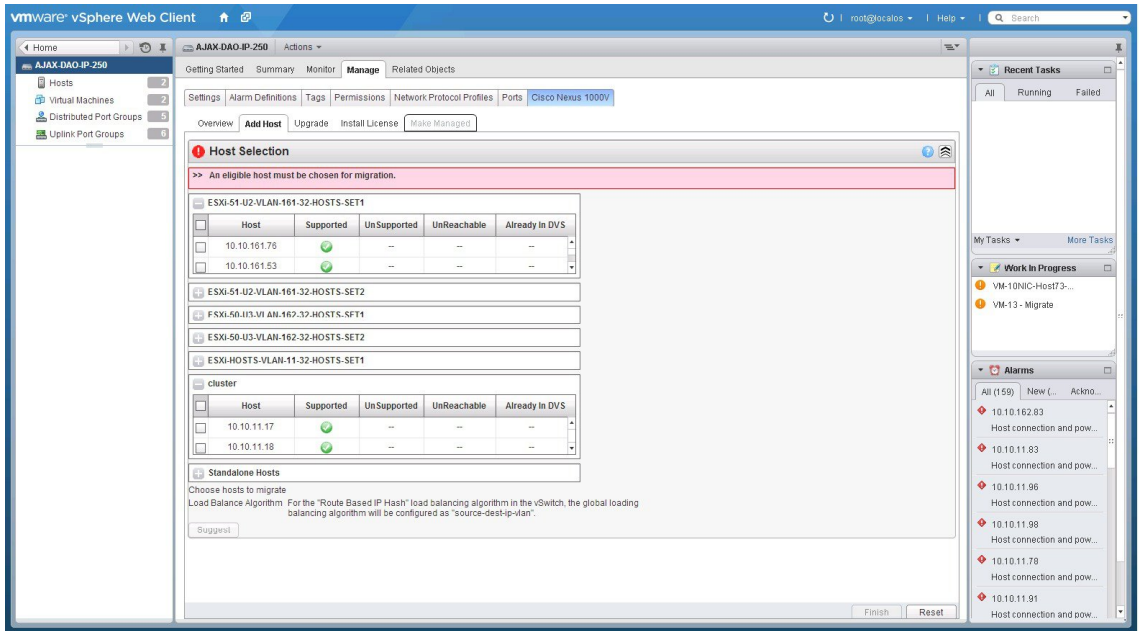
Step 5 In the switch pane, click **Add Host**.

Step 6 (Optional) In case of multiple vCenter Servers, choose **Home > Cisco Virtual Switch Update Manager > vCenter Server > Configure**.

Step 7 (Optional) You can also access Cisco VSUM in the vSphere Client by navigating to **vCenter > Distributed Switches**.

Step 8 (Optional) In the switch pane, click **Manage > Cisco Nexus 1000V > Add Host**.

Figure 9: Cisco VSUM—Migrating Hosts



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Step 9 In the **Host Selection** area, review the following fields.

Name	Description
Cluster	Lists all the hosts that are in an HA pair. Check the check box next to the hosts to migrate.
Standalone Hosts	Lists the standalone hosts. Check the check box next to the hosts to migrate.
Supported	If checked, the host can be migrated to the current version of the Cisco Nexus 1000V.
UnSupported	If checked, the host cannot be migrated to the current version of the Cisco Nexus 1000V. For information on supported hosts, see the <i>Cisco Nexus 1000V and VMware Compatibility Information</i> .
UnReachable	If checked, the host is in an unreachable state.
Already in DVS	If checked, the host is already migrated to the Cisco Nexus 1000V.

Step 10 Click **Suggest**.

Cisco VSUM displays a list of existing and proposed port profiles and suggests appropriate port profiles for each VMKNIC, VM NIC, and physical NIC.

Step 11 Review the port profile populated in the **Port Profile Editor** area. You can edit the fields based on your requirements. To edit the fields, you must use the **Port Profile Editor**.

The port profiles that are already available on the VSM are not editable. You can edit only those port profiles that Cisco VSUM suggests. Click **Duplicate** to create a new port profile from an existing or a suggested port profile.

Step 12 In the **Port Profile Editor** area, complete the following fields.

Name	Description
Port Profile Editor	The list of existing port profiles or new port profiles is displayed. Choose the port profile. <ul style="list-style-type: none"> • vEthernet Port-Profiles • Ethernet Port-Profiles
Uplink	If checked, displays the uplink associated with the port profile.
Trunk	If checked, displays the trunk associated with the port profile.
L3 Capable	If checked, the L3 capability is associated with the port profile.
ISCSI Multipath	If checked, the ISCSI multipath is associated with the port profile.
Neither L3 nor ISCSI	If checked, then neither the L3 nor the ISCSI is associated with the port profile.
Channel-group auto mode on	If checked, the channel group auto mode is associated with the port profile.
Mac-pinning	If checked, the channel group auto mode on MAC pinning is associated with the port profile.
Name	The name of the port profile.
VLANs	Choose the VLAN.
Native VLAN	The native VLAN associated with the port profile.
Duplicate	Clones an existing port profile configuration to create a new port profile.

Step 13 Scroll down to view the host profile populated in the **Physical NIC Migration** area.

Step 14 In the **Physical NIC Migration** area, review the following fields.

Name	Description
Physical NIC	Review the physical NIC that has been automatically selected by the Cisco VSUM. Check/uncheck to select/deselect the VM NICs for the migration. You must ensure that at least one physical NIC is selected for the migration.
Profile	Review the port profile associated with the physical NICs. Alternatively, you can choose the required port profile from the profile drop-down list, to associate it with the physical NIC. You must ensure that all the necessary VLANs are allowed in the selected port profile.
Source	The vSwitch or VDS port group that the PNIC is currently assigned to.
Select All	Migrates all the physical NICs associated with the host.
Select None	Deselects all the selected values for the physical NICs associated with the host.

Step 15 Scroll down to view the host profile populated in the **VM Kernel NIC Setup** area.

Step 16 In the **VM Kernel NIC Setup** area, complete the following fields.

Name	Description
VM Kernel NIC	<p>If checked, displays the port profile configuration that will be created on the Cisco Nexus 1000V and associated with the VMkernel NIC.</p> <p>Review the selected VMkernel NICs. You can also uncheck the VMkernel NIC check boxes if you do not want the VMKs to be migrated to the Cisco Nexus 1000V.</p> <p>You must ensure that at least one VMkernel NIC is selected to migrate to the Cisco Nexus 1000V that will carry the L3 traffic.</p> <p>Note Do not uncheck any of the VMkernel NIC check boxes, unless the required VMkernel NIC is associated with the Layer 3 port profile.</p>
L3 Capable	<p>Displays whether the VMkernel NIC is Layer-3 capable. Only one VMkernel NIC is Layer-3 capable. By default, the VMK0 is selected as the Layer 3 control.</p> <p>Note To change the VMkernel to Layer 3 port profile, do the following:</p> <ul style="list-style-type: none"> • From the Port Profile drop-down list, choose the non Layer 3 port profile for VMk0. In absence of non Layer3 veth profile, you can create non Layer 3 port profiles as follows: <ul style="list-style-type: none"> • Select the Layer 3 port profile and click Duplicate. • Check the Neither L3 nor ISCSI radio button and click OK. You can edit the list of supported VLANs. • Select the Layer 3 enabled port profile to use for Layer 3 control traffic.
Profile	Choose the port profile associated with the VMkernel NIC.
Source Profile	Displays the vSwitch or VDS port group that the VMkernel NIC is currently assigned to.
Select None	Deselects all the selected VMkernel NICs associated with the host.

Name	Description
New	<p>Adds a new VMkernel NIC for Layer 3 control. Enter the IP address and net mask for the new VMkernel NIC and click OK.</p> <p>After you create a new VMKernel NIC, complete the following steps:</p> <ol style="list-style-type: none"> 1. Select the row for the original VMkernel NIC. 2. Uncheck the original VMkernel NIC check box. 3. Select the row for the new VMkernel NIC. 4. Check the new VMkernel NIC check box. 5. Choose a port profile from the drop-down menu in the row for the new VMkernel NIC. <p>Note Ensure that the host is selected before you create the new VMkernel NIC.</p>
Edit	Edits the IP address and subnet mask for a newly created VMkernel NIC.

Step 17 Scroll down to view the host profile populated in the **VM Migration** area.

Step 18 In the **VM Migration** area, review the following fields.

Area	Action
Virtual Machine NICs	If checked, displays the VSMs and the network adapters associated with the VM.
Profile	Choose the port profile associated with the virtual NIC.
Source Profile	The source associated with the port profile.
Select None	Deselects all the VMs associated with the host.

Step 19 Click **Finish** to migrate the host from the VMware vSwitch to the Cisco Nexus 1000V switch.

You might see a **Warning** dialog box telling you that VMs are on the host that you want to migrate and asking if you want to manually use VMware VMotion to move the VMs to another host before proceeding with the migration. You see this dialog box only if you have VMs or switch VMs on the host that you want to migrate.

Step 20 Check the status of adding the host by completing the following steps:

a) In the **Recent Tasks** pane to the right of the work pane, click **More Tasks**.

The **Task Console** appears in the work pane, displaying a list of tasks with the most recent task at the top.

b) Find the task in the **Task Name** column and then view the status in the **Status** column.

The **Status** column shows whether the task is complete or in progress. You can click the refresh icon to display new tasks and learn how much of the task is complete.

Note Several tasks might appear above the primary task you just performed. They might be associated with your primary task.

The host addition is confirmed when the primary task `Add hosts to Cisco DVS` has the status `Completed`.

If you close the browser and want to view the history of the task, log in to the web client, and click **Tasks** in the navigation pane to display the lists of tasks in the work pane.



CHAPTER 6

Upgrading Cisco Nexus 1000V Using Cisco VSUM

This chapter contains the following sections:

- [Information About Upgrading the Cisco Nexus 1000V Using Cisco VSUM](#), on page 45
- [Prerequisites for Upgrading Cisco Nexus 1000V Using Cisco VSUM](#), on page 46
- [Guidelines and Limitations for Upgrading the Cisco Nexus 1000V Using Cisco VSUM](#), on page 51
- [Upgrading the Cisco Nexus 1000V Using Cisco VSUM](#), on page 51

Information About Upgrading the Cisco Nexus 1000V Using Cisco VSUM

Cisco VSUM is the GUI that you can use to upgrade the VSMs and the VEMs on ESX/ESXi hosts.

An [interactive upgrade tool](#) helps you determine the correct upgrade steps based on your current environment and the one to which you want to upgrade.

See the *Cisco Nexus 1000V and VMware Compatibility Information* for more information on the compatibility information for Cisco Nexus 1000V.

You can obtain upgrade software for the current release of the Cisco Nexus 1000V from Cisco.com.

With Cisco VSUM, you can upgrade the Cisco Nexus 1000V version only with the vSphere version intact.

See the *Cisco Nexus 1000V Installation and Upgrade Guide* for information about how to upgrade both vSphere and Cisco Nexus 1000V versions together and how to upgrade the vSphere version only, with the Cisco Nexus 1000V version intact.

Supported Upgrade Paths: With Cisco VSUM, you can upgrade Cisco Nexus 1000V Release 4.2(1)SV1(4b) and later.

Unsupported Upgrade Paths:

Using Cisco VSUM, you cannot upgrade the following releases of Cisco Nexus 1000V to the current release:

- Release 4.2(1)SV1(4)
- Release 4.2(1)SV1(4a)
- Release 4.2(1)SV1(3x) series

See the *Cisco Nexus 1000V Installation and Upgrade Guide* to upgrade the Cisco Nexus 1000V to the current version using the CLI.



Note Upgrades from Release 4.0(4)SV1(1), 4.0(4)SV1(2), and 4.0(4)SV1(3x) are no longer supported. VMware 4.0 and 4.1 are also not supported with this Cisco Nexus 1000V release.

Using Cisco VSUM, you cannot upgrade to following releases of Cisco Nexus 1000V:

- 4.2(1)SV1(5.2)
- 4.2(1)SV2(1.1)

Prerequisites for Upgrading Cisco Nexus 1000V Using Cisco VSUM

Upgrading the Cisco Nexus 1000V with Cisco VSUM has the following prerequisites:

- Close any active configuration sessions before upgrading the Cisco Nexus 1000V software.
- Save all changes in the running configuration to the startup configuration.
- Save a backup copy of the running configuration in the external storage.
- We recommend that you perform a VSM backup. For more information, see the “Configuring VSM Backup and Recovery” chapter in the *Cisco Nexus 1000V System Management Configuration Guide*.
Alternatively, you can perform the VSUM backup automatically at the end of the procedure [Upgrading the Cisco Nexus 1000V Using Cisco VSUM, on page 51](#).
- Upload the appropriate Cisco Nexus 1000V image before upgrading the Cisco Nexus 1000V software
- Use the VSM management IP address to log in to VSM and perform management tasks.



Important If you connect to a VSM using the VSA serial port or the connect host from the Cisco Integrated Management Control (CIMC), do not initiate commands that are CPU intensive, such as copying images from the TFTP server to bootflash or generating a lot of screen output or updates. Use the VSA serial connections, including CIMC, only for operations such as debugging or basic configuration of the VSA.

- If you are upgrading Cisco Nexus 1000V from a previous release to Release 5.2(1)SV3(1.x) and you have a VSM 2-GB hard disk drive (HDD), you must upgrade VSM to a 3-GB HDD before you upgrade Cisco Nexus 1000V. See [Upgrading VSM to a 3-GB HDD Before Upgrading Cisco Nexus 1000V](#) for instructions.
- If you need to migrate a vSphere host from ESX to ESXi, do it before the Cisco Nexus 1000V upgrade.

- You have placed the VEM software file in `/tmp` on the vSphere host. Placing it in the root (`/`) directory might interfere with the upgrade. Make sure that the root RAM disk has at least 12 MB of free space by entering the `vdf` command.
- On your upstream switches, you must have the following configuration:
 - On Catalyst 6500 Series switches with Cisco IOS software, enter the `portfast trunk` command or the `portfast edge trunk` command.
 - On Cisco Nexus 5000 Series switches with Cisco NX-OS software, enter the `spanning-tree port type edge trunk` command.
- On upstream switches, we recommend that you globally enable the following:
 - Global BPDU Filtering
 - Global BPDU Guard
- On upstream switches where you cannot globally enable BPDU Filtering and BPDU Guard, we recommend that you enter the following commands:
 - `spanning-tree bpdu filter`
 - `spanning-tree bpdu guard`
- You must have the Distributed Switch—Create and Modify privilege permission enabled on the vCenter server.
- For information about configuring spanning tree, BPDU, or PortFast, see the documentation for your upstream switch.

Upgrading VSM to a 3-GB HDD Before Upgrading Cisco Nexus 1000V

If you are upgrading Cisco Nexus 1000V from an earlier release to Release 5.2(1)SV3(1.x) and you have a VSM 2-GB HDD, you must upgrade VSM to a 3-GB HDD before you upgrade Cisco Nexus 1000V. Follow one of the following sets of instructions to upgrade VSM.

Upgrading Hard Disk Drive Space from 2 GB to 3 GB on a VSM as a VM

We recommend that you upgrade the HDD space from 2 GB to 3 GB on a VSM VM before upgrading VSM to Release 5.2(1)SV3(1.1) or later.

Before you begin

Make sure that the Cisco Nexus 1000V VSMs are running Release 4.2(1)SV2(1.1) or 4.2(1)SV2(2.1).

Make sure that the existing Cisco Nexus 1000V VSMs are an HA pair with 2 GB HDD.

-
- Step 1** Remove the existing standby VSM.
- a) Right-click the VSM VM and power off the VM.
 - b) Remove it from the Virtual Center inventory.
- Step 2** Bring up the new standby VSM VM (with 3-GB HDD) with the same release as the active VSM using ISO.

For example, if the active VSM is running Release 4.2(1)SV2(1.1), bring up the new standby VSM with Release 4.2(1)SV2(1.1).

- a) Confirm that the same port profiles are used as the primary VSM for 3 network interfaces.
- b) Provision a 3-GB HDD with a minimum of 2 GB of RAM reserved and allocated, and a minimum CPU speed of 1600 MHz.

See the section "[Installing the Software from the ISO Image](#)" in the *Cisco Nexus 1000V Installation and Upgrade Guide*.

- Step 3** Power on the standby VSM.
- a) Confirm the HA role is set as Secondary.
 - b) Confirm the Domain ID is the same as the Primary VSM.
- Step 4** After the HA pair is formed, perform a system switchover to make the standby VSM become the active VSM.
- Step 5** Remove the current standby VSM.
- a) Right-click the VSM VM and power off the VM.
 - b) Remove it from the Virtual Center inventory.
- Step 6** Change the Active VSM system redundancy role to the Primary system by entering **system redundancy role primary**.
- Step 7** Copy the config to start up and perform a reload.
- Step 8** Verify the current role by entering **show system redundancy status**. The role should be set as Primary.
- Step 9** Bring up the new standby VSM VM (with 3-GB HDD) using ISO following Step 2 and Step 3.
- Step 10** After the HA pair is formed, verify it by entering **show system internal flash**. It should reflect the VSM with 3-GB HDD.

What to do next

Perform an in-service software upgrade (ISSU) to Release 5.2(1)SV3(1.1) or later.

Upgrading Hard Disk Drive Space from 2 GB to 3 GB on a VSM on a VSB

We recommend that you upgrade the VSM that is deployed on a CSP from a 2-GB HDD to a 3-GB HDD.

- Step 1** Identify the standby VSM by entering the **show virtual-service-blade summary** command.

```
N1110# show virtual-service-blade summary
```

Name	HA-Role	HA-Status	Status	Location
switch	PRIMARY	ACTIVE	VSB POWERED ON	PRIMARY
switch	SECONDARY	STANDBY	VSB POWERED ON	SECONDARY

```
N1110#
```

The output shows that the standby VSM is running on the secondary Cisco Nexus 1010 Virtual Service Blade (VSB).

- Step 2** Shut down and delete the standby VSM on the secondary VSB.
- a) N1110# **configure terminal**
 - b) N1110#(config)**virtual-service-blade** name switch
 - c) N1110#(config-vs-b-config)**shutdown secondary**

d) N1110#(config-vs-b-config)**no enable secondary**

Step 3 Bring up the new secondary VSB with Release 4.2(1)SV2(1.1) using ISO.

See the [Cisco Nexus 1100 Series Virtual Services Appliances Deployment Guide White Paper](#) for more information.

Step 4 Change the disk size to 3 GB or more.

```
N1110 (config-vs-b-config) # disksize 4
```

Step 5 Enable the standby VSM on the secondary VSB.

See the [Cisco Nexus 1100 Series Virtual Services Appliances Deployment Guide White Paper](#) for more information.

```
N1110# sh virtual-service-blade summary
```

```
-----
Name                HA-Role    HA-Status  Status                Location
-----
switch              PRIMARY    ACTIVE     VSB POWERED ON       PRIMARY
switch              SECONDARY  NONE       VSB NOT PRESENT      SECONDARY
switch1             PRIMARY    NONE       VSB NOT PRESENT      PRIMARY
switch1             SECONDARY  STANDBY    VSB POWERED ON       SECONDARY
-----
```

```
N1110#
```

Step 6 Perform a system switchover to make the active VSM on the primary VSB become the standby VSM. To do this, enter the **system switchover** command on the active VSM.

```
N1110# system switchover
```

```
N1110 (config-vs-b-config) # show virtual-service-blade summary
```

```
-----
Name                HA-Role    HA-Status  Status                Location
-----
switch              PRIMARY    STANDBY    VSB POWERED ON       PRIMARY
switch              SECONDARY  NONE       VSB NOT PRESENT      SECONDARY
switch1             PRIMARY    NONE       VSB NOT PRESENT      PRIMARY
switch1             SECONDARY  ACTIVE     VSB POWERED ON       SECONDARY
-----
```

```
N1110 (config-vs-b-config)#
```

Step 7 After the HA pair is formed, shut down and delete the standby VSM on the primary VSB.

```
N1110 (config) # virtual-service-blade switch
```

```
N1110 (config-vs-b-config) # shutdown primary
```

```
N1110 (config-vs-b-config) # no enable primary
```

```
N1110 (config-vs-b-config) # show virtual-service-blade summary
```

```
-----
Name                HA-Role    HA-Status  Status                Location
-----
switch              PRIMARY    NONE       VSB NOT PRESENT      PRIMARY
switch              SECONDARY  NONE       VSB NOT PRESENT      SECONDARY
switch1             PRIMARY    NONE       VSB NOT PRESENT      PRIMARY
switch1             SECONDARY  ACTIVE     VSB POWERED ON       SECONDARY
-----
```

```
N1110 (config-vs-b-config) #
```

Step 8 Bring up the new VSB with Release 4.2(2)SV2(1.1) using ISO.

See the [Cisco Nexus 1100 Series Virtual Services Appliances Deployment Guide White Paper](#) for more information.

Step 9 Enable the primary VSM.

Verifying that the VSM Has 3 GB of Hard Disk Drive Storage

See the [Cisco Nexus 1100 Series Virtual Services Appliances Deployment Guide White Paper](#) for more information.

```
N1110(config)# show virtual-service-blade summary
```

Name	HA-Role	HA-Status	Status	Location
switch	PRIMARY	NONE	VSB NOT PRESENT	PRIMARY
switch	SECONDARY	NONE	VSB NOT PRESENT	SECONDARY
switch1	PRIMARY	STANDBY	VSB POWERED ON	PRIMARY
switch1	SECONDARY	ACTIVE	VSB POWERED ON	SECONDARY

```
N1110(config-vsbcfg)#
```

Step 10

Verify that the HDD size has changed. The following example shows that the HDD size is 4 GB.

```
N1110(config)# show system internal flash
```

Mount-on	1K-blocks	Used	Available	Use%	Filesystem
/		307200	87628	219572	29 /dev/root
/proc		0	0	0	0 proc
/isan	614400	243076	371324	40	none
/var/sysmgr	512000	18896	493104	4	none
/var/sysmgr/ftp	204800	40	204760	1	none
/dev/shm	358400	30268	328132	9	none
/volatile	20480	0	20480	0	none
/debug	2048	8	2040	1	none
/dev/mqueue	0	0	0	0	none
/mnt/cfg/0	326681	8360	301455	3	/dev/hda5
/mnt/cfg/1	326681	8359	301456	3	/dev/hda6
/var/sysmgr/startup-cfg	409600	1168	408432	1	none
/dev/pts	0	0	0	0	devpts
/mnt/pss	326671	8625	301178	3	/dev/hda3
/bootflash	3122988	151756	2812592	6	/dev/hda4
/bootflash_sup-remote	3122992	151760	2812592	6	127.1.1.1:/mnt/bootflash/

What to do next

Perform an in-service software upgrade (ISSU) to Release 5.2(1)SV3(1.1) or later.

Verifying that the VSM Has 3 GB of Hard Disk Drive Storage

You can display the system internal flash to verify that have at least 3 GB of HDD space.

Step 1

Display the system internal flash.

```
switch# show system internal flash
```

Mount-on	1K-blocks	Used	Available	Use%	Filesystem
/	307200	77808	229392	26	/dev/root
/mnt/pss	248895	8164	227879	4	/dev/sda3
/proc	0	0	0	0	proc
/isan	614400	372236	242164	61	none
/var/sysmgr	1048576	488704	559872	47	none
/var/sysmgr/ftp	204800	52	204748	1	none
/nxos/tmp	20480	0	20480	0	none
/dev/shm	358400	89660	268740	26	none
/volatile	20480	0	20480	0	none

/debug	2048	128	1920	7	none
/dev/mqueue	0	0	0	0	none
/mnt/cfg/0	248895	4494	231551	2	/dev/sda5
/mnt/cfg/1	241116	4493	224175	2	/dev/sda6
/var/sysmgr/startup-cfg	409600	5892	403708	2	none
/dev/pts	0	0	0	0	devpts
/mnt/pss	248895	8164	227879	4	/dev/sda3
/bootflash	2332296	1918624	295196	87	/dev/sda4
/sys	0	0	0	0	sysfs

Note 1 GB of hard disk space is equal to 1073741.824 1K-blocks.

Step 2 Make sure that the sum total of the number of blocks allocated to the /mnt/cfg/0, /mnt/cfg/1, /mnt/pss, and /bootflash partitions is approximately 3 GB.

Guidelines and Limitations for Upgrading the Cisco Nexus 1000V Using Cisco VSUM



Caution During the upgrade process, the Cisco Nexus 1000V does not support any new additions such as modules, virtual NICs (vNICs), or VM NICs and does not support any configuration changes. VM NIC and vNIC port-profile changes might render VM NICs and vNICs in an unusable state.



Note We recommend that you use vSphere 5.0 Update 1 or later instead of vSphere 5.0.

Upgrading the Cisco Nexus 1000V with Cisco VSUM has the following guidelines and limitations:

- You are upgrading the Cisco Nexus 1000V software to the current release.
- Schedule the upgrade when your network is stable and steady. Ensure that everyone who has access to the switch or the network is not configuring the switch or the network during this time. You cannot configure a switch during an upgrade.
- Avoid power interruptions to the hosts that run the VSM VMs during any installation procedure.

Before you upgrade the VEMs, note these guidelines and limitations:

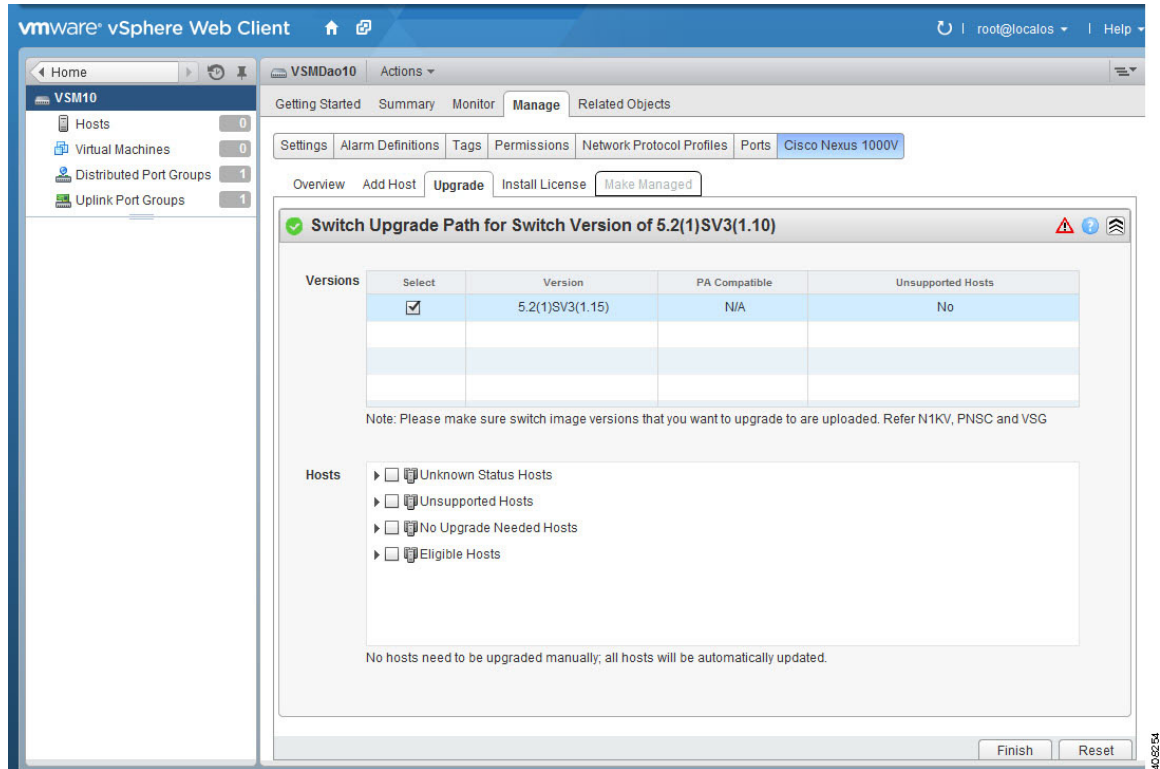
- During the VEM upgrade process, VEMs reattach to the VSM.
- Connectivity to the VSM can be lost during a VEM upgrade when the interfaces of a VSM VM connect to its own distributed virtual switch (DVS).

Upgrading the Cisco Nexus 1000V Using Cisco VSUM

You can upgrade the Cisco Nexus 1000V using Cisco VSUM.

-
- Step 1** Log in to the VMware vSphere Web Client.
- Step 2** In the vSphere Client, choose **Cisco Virtual Switch Update Manager > Nexus 1000V > Configure**, choose the data center, choose the distributed virtual switch, and then click **Manage**.
- Note** If the switch is not managed by Cisco VSUM, you are prompted to enter the switch credentials in the **Make Managed** window. For more information, see [Managing an Existing Cisco Nexus 1000V Switch, on page 35](#).
- Step 3** If you are using vCenter 6.5a, choose **Configure** and then choose **Nexus 1000V**.
- Step 4** In the switch pane, click the **Upgrade** tab.
- Step 5** Take one of the following actions:
- If you are using Cisco VSUM 2.0, complete Step 6 and then continue with the rest of the procedure.
 - If you are using Cisco VSUM 2.1 or VSUM 2.1.1, skip Step 6, and then continue with the rest of the procedure starting with Step 7.
- Step 6** If the policy agent (PA) has been installed on the VSM, complete the following steps in the **Select PNSC and VSG versions** dialog box:
1. From the **Select PNSC version** drop-down list, choose the version compatible with the version of Cisco Nexus 1000V that you are upgrading to.
 2. From the **Select VSG version** drop-down list, choose the version compatible with the version of Cisco Nexus 1000V that you are upgrading to.
 3. Click **OK**. The upgrade path displays the selected Cisco Prime Network Services Controller (PNSC) version and PA Compatible option as **Yes**.
- When you select the PNSC and VSG drop-down lists, only those VSM versions which are compatible to the selection and have already been uploaded, are enabled in the Switch Upgrade Path.
- Step 7** Note the following elements of the **Switch Upgrade Path** window, which appears under the **Upgrade** tab:

Figure 10: Cisco VSUM—Upgrading Cisco Nexus 1000V



In the **Versions** area, note the following columns:

Name	Description
Version	Displays the version number of the Cisco Nexus 1000V switch suggested for upgrade. By default, the most recent version is selected.
PA Compatible	Displays if the Cisco PNSC version is compatible with the Cisco Nexus 1000V switch version suggested for upgrade.
Unsupported Hosts	Displays if the ESXi host must be upgraded manually.

In the **Hosts** area, note the hosts that are associated with the Cisco Nexus 1000V version suggested for upgrade. The hosts are represented in the following categories:

- **Unknown Status Hosts**—The status of the host is in nonresponding state.
- **Unsupported Hosts**—The ESX/ESXi version of the host is not compatible with the Cisco Nexus 1000V. See the *Cisco Nexus 1000V and VMware Compatibility Information* for more information about supported ESX/ESXi versions.
- **No Upgrade Needed Hosts**—The hosts already have the correct VEM version installed.
- **Eligible Hosts**—The ESX/ESXi version of the host is compatible with the Cisco Nexus 1000V version suggested for upgrade. During the upgrade process, Cisco VSUM upgrades the VEM version installed on the hosts to the specified version.

Step 8 In the **Versions** area, accept the default version or choose another available version:

Step 9 In the **Hosts** area, from the **Eligible Hosts** drop-down list, choose the host or the hosts to upgrade.

Step 10 Click **Finish** to upgrade the VSMs, PA, and the VEM.

You might see a **Warning** dialog box with two messages:

- Asking you to make sure than VMs on hosts selected for upgrade are powered off or moved to a host not being upgraded.
- Asking whether you want to back up the VSM configuration file before upgrading the Cisco Nexus 1000V. If you click **Yes**, Cisco VSUM fetches the VSM configuration file from the Cisco Nexus 1000V and saves it in the `/etc/cisco/data/backup` folder with the file name `<Cisco Nexus 1000V switch name>-runConfig-<Date>.cfg`.

Step 11 Check the upgrade status by completing the following steps:

a) In the **Recent Tasks** pane to the right of the work pane, click **More Tasks**.

The **Task Console** appears in the work pane, displaying a list of tasks with the most recent task at the top.

b) Find the task in the **Task Name** column and then view the status in the **Status** column.

The **Status** column shows whether the task is complete or in progress. You can click the refresh icon to display new tasks and learn how much of the task is complete.

Note Several tasks might appear above the primary task you just performed. They might be associated with your primary task.

The upgrade is confirmed when the primary task `Upgrade Cisco DVS` has the status `Completed`.

If you close the browser and later want to view the task's history, log in to the web client and click **Tasks** in the navigation pane to display the lists of tasks in the work pane.

Step 12 Verify the upgrade by completing the following steps:

a) Log in to the Cisco Nexus 1000V over an SSH connection.

b) At the prompt, enter the command **show module**.

The output displays information about the VSMs and VEMs that are part of the Cisco Nexus 1000V.

c) In the top section of the output, verify the state of the modules.

One VSM should be active, and one should be a standby. The VEMs that are part of the DVS are listed below the VSMs. Their status should be `OK`.

d) In the center section of the output, verify that modules show the number of the release that you upgraded to.

e) At the prompt, enter the command **show version**.

f) In the software section of the output, verify that the kick-start version and the system version have the number of the release that you upgraded to.



CHAPTER 7

Monitoring Cisco Nexus 1000V Using Cisco VSUM

This chapter contains the following sections:

- [Information about Monitoring, on page 55](#)
- [Monitoring the Cisco Nexus 1000V Using Cisco VSUM, on page 55](#)

Information about Monitoring

Cisco VSUM provides server administrators with a view of the virtual network and visibility into the Cisco Nexus 1000V.

It allows administrators to view the configuration of the VSM, export networking details from the vCenter server, investigate the root cause of and prevent networking issues, and deploy virtual machines with policies. Administrators can monitor and manage resources with the network details that Cisco VSUM provides.

Cisco VSUM displays the following switch information:

- **Dashboard tab**—Displays the summary of the system, network statistics, and license information.
- **Switch tab**—Displays hosts, VMs, port groups, and VNIC and PNIC information at the switch level.
- **Hosts/VEM tab**—Displays hosts, VMs, port groups, and VNIC and PNIC information at the host level.



Note TACACS users cannot monitor the Cisco Nexus 1000V switch on Cisco VSUM.

Monitoring the Cisco Nexus 1000V Using Cisco VSUM

You can view the VSM and VEM details of the Cisco Nexus 1000V switch.

- Step 1** Log in to the VMware vSphere Web Client.
- Step 2** Required: In the vSphere Client, choose **Home > Cisco Virtual Switch Update Manager > Nexus1000V > Configure**.
- Step 3** Choose a data center and a distributed virtual switch, and then click **Monitor**.

Note You are prompted to enter your credentials if the switch is not managed by Cisco VSUM. For more information, see [Managing an Existing Cisco Nexus 1000V Switch, on page 35](#).

Note If you register Cisco VSUM with vCenter when the vCenter plug-in is already installed, you might not see the **Cisco Nexus 1000V** tab under Monitor. If you do not see this tab, reboot the VMware vSphere Web Client.

Step 4 (Optional) You can also access the **Cisco Nexus 1000V Monitor** pane in the vSphere Client by choosing **vCenter > Distributed Switches**.

Step 5 (Optional) In the switch pane, choose **Monitor > Cisco Nexus 1000V**.

Step 6 Click the **Dashboard** tab.

The **Dashboard** pane displays the following summary of the Cisco Nexus 1000V:

Name	Description
System	
Switch Name	The name of the switch.
NX-OS Version	The Cisco NX-OS version and the build that the switch is using.
VSM IP	The IP address of the VSM.
DC Name	The name of the data center.
Connectivity Mode	The mode of connectivity between the VSMS and the VEMs.
VC Connectivity	The status of vCenter connectivity.
VSM HA	The VSM high availability mode.
Network Statistics	
VNICs vs Max	The maximum number of virtual network interface cards (VNICs) that are supported and their current usage.
Hosts vs Max	The maximum number of server hosts that are supported and their current usage.
Port-Groups vs Max	The maximum number of port groups that are supported and their current usage.
Veths/Host Max	The maximum number of vEthernet ports per host that are supported and their current usage.
VLAN vs Max	The maximum number of VLANs that are supported and their current usage.
VXLAN vs Max	The maximum number of VXLANs that are supported and their current usage.
Licenses	

Name	Description
License Type	The type of the license.
Licenses Available	The licenses that are available to use.
Licenses Used	The licenses that are actually used.
Earliest Expiration	The earliest expiration time of the license.
Status	The status of the license.

Step 7 Click the **Switch** tab.

Step 8 Click **Host/VEM** below the **Switch** tab.

The **Host/VEM** pane displays the following details:

Name	Description
Host Name	The name of the host.
NX-OS Version	The Cisco NX-OS version and the build that the host is using.
Host IP	The IP address of the host.
Status	Status of the host/VEM.
License	The license details of the host.
Host/Module	The number of modules per host.
VMs/Host	The number of VMs per host.
VNICs / Host	The number of VNICs per host.

Step 9 Click **VM Info**.

The **VM Info** pane displays the following details:

Name	Description
VMs	The name of the VM.
vNICs	The name of the vNIC associated with the VM.
Adapter	The name of the adapter.
Status	The status of the VM.
Port Group	The port group associated with the VM.
VLANs	The VLAN associated with the VM.
VXLAN	The VXLAN associated with the VM.
Host ID	The module number of the host at the VSM.

Step 10 Click **Port Groups**.

The **Port Groups** pane displays the following details:

Name	Description
Port Group	The name of the port profile.
Type	The type of port profile.
VLANs	The VLANs associated with the port profile.
System VLANs	The system VLANs associated with the port profile.
VXLAN	The VXLAN associated with the port profile.
Port Max	The maximum number of ports available.
Port Min	The minimum number of ports available.
Port Used	The total number of ports used.

Step 11 Click **vNICs**.

The **vNICs** pane displays the following details:

Name	Description
vNICs	The name of the vNIC.
VM	The name of the VM.
Adapter	The name of the adapter.
Status	The status of the vNIC.
Port Group	The port group associated with the vNICs.
VLANs	The VLANs associated with the vNICs.
VXLAN	The VXLAN associated with the vNICs.
Host ID	The module number of the host at the VSM.

Step 12 Click **Uplinks**.

The **Uplinks** pane displays the following details:

Name	Description
Switch Interface	The name of the port.
Status	The status of the uplink.
Port Channel	The port channel associated with the uplink.
Host ID	The module number of the host at the VSM.

Name	Description
Port Group	The port group associated with the uplink.
VLANs	The VLANs associated with the uplink.
CDP Uplinks	The CDP uplink information.

Step 13 Click the **Hosts/VEM** tab.

The **Systems** area in the central pane displays the following host details:

Name	Description
Host Name	The name of the host.
NX-OS Version	The Cisco NX-OS version and the build that the host is using.
Host IP	The IP address of the host.
Status	Status of the host/VEM.
License	The license details of the host.
Host/Module	The number of modules per host.
VMs/Host	The number of VMs per host.
VNICs / Host	The number of VNICs per host.

Step 14 Select the host and click **VM Info**.

The **VM Info** area displays the following details.

Name	Description
VMs	The name of the VMs per host.
vNICs	The name of the vNICs per host.
Adapter	The name of the adapter.
Status	The status of the host.
Port Group	The port group associated with the VM.
VLANs	The VLANs associated with the VM of the host.
VXLAN	The VXLAN associated with the VM of the host.
Host ID	The module number of the host at the VSM.

Step 15 Click **Port Groups**.

The **Port Groups** area displays the following details.

Name	Description
Port Group	The name of the port group.
Type	The type of port group.
VLANs	The VLANs associated with the host.
System VLANs	The system VLAN associated with the host.
VXLAN	The VXLAN associated with the host.
Port Max	The maximum number of ports per host.
Port Min	The minimum number of ports per host.
Port Used	The total number of ports used.

Step 16

Click vNICs.

The vNICs area displays the following details.

Name	Description
vNICs	The name of the vNICs associated with the host.
VMs	The name of the VMs associated with the host.
Adapter	The name of the adapter.
Status	The status of the vNIC associated with the host.
Port Group	The name of the port group associated with the host.
VLANs	The VLANs associated with the host.
VXLAN	The VXLAN associated with the host.
Host ID	The module number of the host at the VSM.

Step 17

Click Uplinks.

The Uplinks area displays the following details.

Name	Description
Switch Interface	The name of the port.
Status	The status of the uplink interface.
Port Channel	The port channel associated with the uplink.
Host ID	The module number of the host at the VSM.
Port Group	The name of the port group per host.

Name	Description
VLANs	The VLANs associated with the host.
CDP Uplinks	The CDP uplink information.



CHAPTER 8

Installing a License Using Cisco VSUM

This chapter contains the following sections:

- [Information About Using Cisco VSUM to Install Licenses, on page 63](#)
- [Using Cisco VSUM to Install a License, on page 63](#)

Information About Using Cisco VSUM to Install Licenses

Cisco VSUM is a GUI that you can use to install and upload a license on the Virtual Supervisor Module (VSM) to mark the VSM as licensed.

The license file is shared by both VSMs in an HA pair. A license file contains the number of licenses ordered for your VSM. One license is required for each CPU socket on each VEM, but you do not need a license for the VSM itself. A VSM can have more than one license file depending on the number of CPU sockets on each VEM.

If the license checkout fails, the module is marked as unlicensed and the virtual Ethernet (vEth) interfaces that are attached to that module do not come up. For software upgrades, if the switch is still in the default licensing period, the license is extended for another 60 days from the software upgrade date.

See the *Cisco Nexus 1000V Platform Multi-Hypervisor Licensing Guide* for more information about the Cisco Nexus 1000V licensing model.

Using Cisco VSUM to Install a License

You can install and upload Cisco Nexus 1000V licenses using Cisco VSUM.

Before you begin

- You have installed Cisco VSUM.
- Cisco VSUM can access the license file.
- You have the Distributed Switch - Create and Modify privilege enabled on the VMware vSphere Distributed Switch (VDS).

Step 1 Log in to the VMware vSphere Web Client.

- Step 2** Required: Choose **Home > Cisco Virtual Switch Update Manager > Nexus1000V > Configure**.
- Step 3** Choose the data center and the switch that is associated in the data center and click **Manage**.
- Step 4** In the switch pane, click **Cisco Nexus 1000V > Install License**. The Cisco Nexus 1000V License pane appears.
- Note** If the switch is not managed by Cisco VSUM, you are prompted to enter the switch credentials in the **Make Managed** window. For more information, see [Managing an Existing Cisco Nexus 1000V Switch, on page 35](#).
- Step 5** (Optional) You can also access the Cisco Nexus 1000V License by choosing **vCenter > Distributed Switches**.
- Step 6** (Optional) In the switch pane, click **Manage > Cisco Nexus 1000V > Install License**.
- Step 7** Click **Copy** to copy the VSM license host ID.
- Step 8** Browse to the desired location to install the license file.
- Step 9** Click **Install the License** to upload the license to the VSM.
- After the license is installed, you can verify the license count and the expiration date of the license using the Monitor functionality of Cisco VSUM. See [Monitoring the Cisco Nexus 1000V Using Cisco VSUM, on page 55](#).
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CHAPTER 9

Dashboard–Cisco Nexus 1000V

This chapter contains the following sections:

- [Information About the Dashboard–Cisco Nexus 1000V, on page 65](#)
- [Using the Dashboard–Cisco Nexus 1000V, on page 66](#)

Information About the Dashboard–Cisco Nexus 1000V

The Cisco VSUM dashboard displays the health of the Cisco Nexus 1000V switch, the hosts, and the virtual machines. The dashboard enables you to detect errors and warnings and fix any potential issues in your data center.

Cisco VSUM supports the dashboard functionality from Release 4.2(1)SV2(1.1a) and later.

In the Dashboard–Cisco Nexus 1000V, the following conditions are classified as warnings:

- When the Cisco Nexus 1000V switch reaches 90 percent of its Virtual Ethernet module (VEM) limit.
- When the Cisco Nexus 1000V switch reaches 90 percent of its VNIC limit.
- When the secondary Virtual Supervisor module (VSM) is not operational.
- When there are fewer than five Cisco Nexus 1000V licenses available.
- When 90 percent of the VNIC limit is used in the host.
- If the license is going to expire in 10 days.

In the Dashboard–Cisco Nexus 1000V, the following conditions are classified as errors:

- When the Cisco Nexus 1000V reaches its VEM limit.
- When the Cisco Nexus 1000V reaches its module limit.
- If the switch is not managed by Cisco VSUM.
- If the version of the switch is not supported.
- If the switch is not connected to the vCenter Server.
- If the switch is not reachable.
- If there are zero licenses available.

- If the licenses have expired.
- If the host is not connected as a module to the VSM.
- If the VNIC limit is used on the host.
- If one or more uplinks are not connected on the host.
- If the VM kernel NICs are not connected on the host.
- If the VNICs are not connected on the host.

The dashboard also shows the status of the connection between the vCenter and the Cisco Nexus 1000V.

Using the Dashboard—Cisco Nexus 1000V

The **Dashboard—Cisco Nexus 1000V** pane enables you to view the inventory of your data center, the status of your data center, and a detailed summary of errors and warnings.

Before you begin

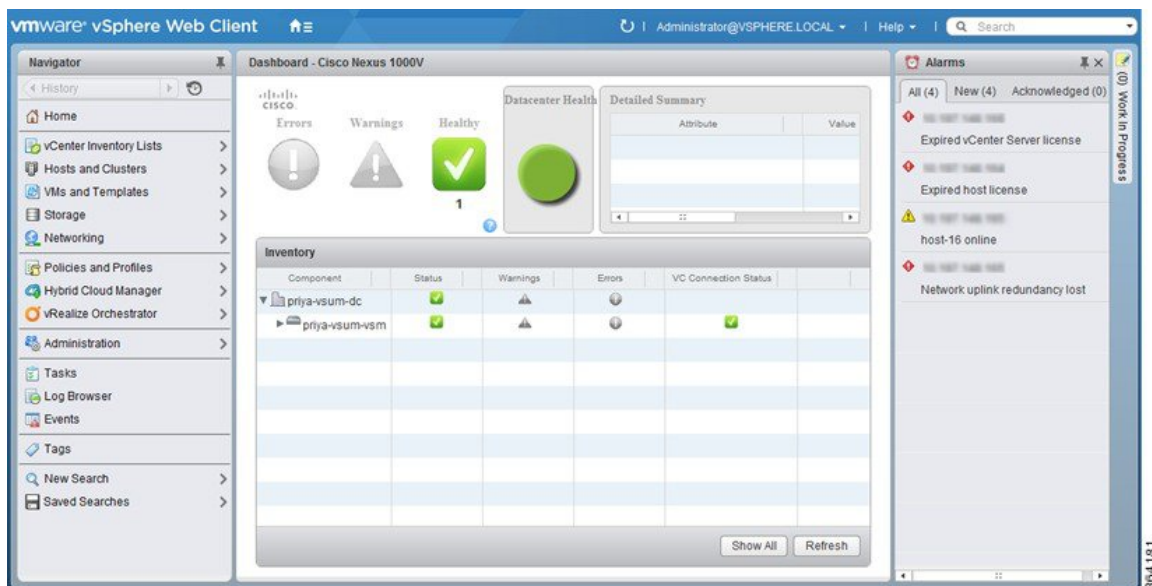
- You have installed Cisco VSUM.
- The Cisco Nexus 1000V switch is managed by Cisco VSUM.

Step 1 Log in to the VMware vSphere Web Client.

Step 2 Choose **Home > Cisco Virtual Switch Update Manager > Cisco Nexus 1000V > Dashboard**.

The Dashboard—Cisco Nexus 1000V pane appears.

Figure 11: Dashboard—Cisco Nexus 1000V



Step 3 In the **Inventory** table, from the **Component** column, choose the data center.

You can view the following status in the **Status** column:

- Green icon—The data center is healthy.
- Yellow icon—Components in the data center have errors.
- Red icon—Components in the data center have warnings.

See [Information About the Dashboard—Cisco Nexus 1000V, on page 65](#) for information about the conditions that are classified as errors or warnings.

Step 4 From the **Component** drop-down list, choose the component in your data center.

The **Detailed Summary** window shows the component type (such as a Cisco Nexus 1000V switch), state, and any errors or warnings.

Step 5 Click **Refresh** to refresh the data.

Step 6 In the **VC Connection Status** column, observe the icon for the selected Cisco Nexus 1000V or other component. A green box with a check mark indicates a connection between the vCenter and the component.
