



Cisco Virtual Switch Update Manager Release 1.1 Getting Started Guide for Cisco Nexus 1000V

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CONTENTS

Preface

Preface vii

Audience vii

Document Conventions vii

Related Documentation for Cisco Virtual Switch Update Manager ix

Documentation Feedback ix

Obtaining Documentation and Submitting a Service Request x

CHAPTER 1

Overview 1

Information About the Cisco Virtual Switch Update Manager 1

Information About Cisco Nexus 1000V 2

Cisco Nexus 1000V Components 2

Information About the Cisco Nexus 1000V Virtual Supervisor Module 3

Information About the Virtual Ethernet Module 5

Workflow for Installing Cisco Nexus 1000V 5

CHAPTER 2

Installing Cisco Virtual Switch Update Manager 7

Information About Cisco Virtual Switch Update Manager 7

Compatibility Information for Cisco Virtual Switch Update Manager 8

System Requirements 8

Prerequisites 9

Verifying the Authenticity of the Cisco-Signed Image (Optional) 9

Installing the Cisco Virtual Switch Update Manager 10

About the Cisco Virtual Switch Update Manager GUI 11

Upgrading Cisco Virtual Switch Update Manager 13

Replacing Cisco Virtual Switch Update Manager—Windows vCenter Server 13

Replacing Cisco Virtual Switch Update Manager—Linux vCenter Appliance 14

Feature History for Installing Cisco Virtual Switch Update Manager 15

CHAPTER 3**Installing Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager 17**

Information About Installing Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager 17

Prerequisites for Installing the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager 18

Guidelines and Limitations for Installing Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager 18

Installing the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager 19

Feature History for Installing Cisco Nexus 1000V using Cisco Virtual Switch Update Manager 24

CHAPTER 4**Managing an Existing Cisco Nexus 1000V Switch 25**

About Managing an Existing Cisco Nexus 1000V Switch 25

Setting Up Management for an Existing Cisco Nexus 1000V Switch 25

Feature History for Managing an Existing Cisco Nexus 1000V Switch 26

CHAPTER 5**Migrating Hosts to Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager 27**

Information About Migrating Hosts to the Cisco Nexus 1000V Switch Using Cisco Virtual Switch Update Manager 27

Prerequisites for Migrating Hosts to the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager 28

Guidelines and Limitations for Migrating Hosts to the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager 28

Migrating Hosts to the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager 29

Feature History for Migrating Hosts to the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager 35

CHAPTER 6**Upgrading Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager 37**

Information About Upgrading the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager 37

Prerequisites for Upgrading Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager 38

Guidelines and Limitations for Upgrading the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager 39

Upgrading the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager	40
Feature History for Upgrading the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager	42

CHAPTER 7**Monitoring Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager 43**

Information about Monitoring	43
Monitoring the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager	44
Feature History for Cisco Virtual Switch Update Manager Monitoring Feature	50

CHAPTER 8**Installing a License Using Cisco Virtual Switch Update Manager 51**

Information About Installing Licenses Using Cisco Virtual Switch Update Manager	51
Installing a License Using Cisco Virtual Switch Update Manager	51
Feature History For Installing a License Using the Cisco Virtual Switch Update Manager	52

CHAPTER 9**Dashboard-Cisco Nexus 1000V 53**

Information About the Dashboard-Cisco Nexus 1000V	53
Using the Dashboard-Cisco Nexus 1000V	54
Feature History For Dashboard-Cisco Nexus 1000V	55



Preface

This preface contains the following sections:

- [Audience, page vii](#)
- [Document Conventions, page vii](#)
- [Related Documentation for Cisco Virtual Switch Update Manager, page ix](#)
- [Documentation Feedback, page ix](#)
- [Obtaining Documentation and Submitting a Service Request, page x](#)

Audience

This publication is for network administrators who configure and maintain Cisco Nexus devices.

This guide is for network and server administrators with the following experience and knowledge:

- An understanding of virtualization
- An understanding of the corresponding hypervisor management software for your switch, such as VMware vSwitch, Microsoft System Center Virtual Machine Manager (SCVMM), or OpenStack.

Document Conventions

Command descriptions use the following conventions:

Convention	Description
bold	Bold text indicates the commands and keywords that you enter literally as shown.
<i>Italic</i>	Italic text indicates arguments for which the user supplies the values.
[x]	Square brackets enclose an optional element (keyword or argument).

Convention	Description
[x y]	Square brackets enclosing keywords or arguments separated by a vertical bar indicate an optional choice.
{x y}	Braces enclosing keywords or arguments separated by a vertical bar indicate a required choice.
[x {y z}]	Nested set of square brackets or braces indicate optional or required choices within optional or required elements. Braces and a vertical bar within square brackets indicate a required choice within an optional element.
<i>variable</i>	Indicates a variable for which you supply values, in context where italics cannot be used.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.

Examples use the following conventions:

Convention	Description
<code>screen font</code>	Terminal sessions and information the switch displays are in screen font.
boldface screen font	Information you must enter is in boldface screen font.
<i>italic screen font</i>	Arguments for which you supply values are in italic screen font.
< >	Nonprinting characters, such as passwords, are in angle brackets.
[]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

This document uses the following conventions:



Note

Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the manual.



Caution

Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

Related Documentation for Cisco Virtual Switch Update Manager

This section lists the documents used with the Cisco Virtual Switch Update Manager and available on Cisco.com at the following URL:

[Cisco Nexus 1000V for VMware vSphere Documentation](#)

General Information

Cisco Virtual Switch Update Manager Release Notes

Install and Upgrade

Cisco Virtual Switch Update Manager Getting Started Guide for Cisco Nexus 1000V

Cisco Virtual Switch Update Manager Getting Started Guide for Cisco Application Virtual Switch

Troubleshooting and Alerts

Cisco Virtual Switch Update Manager Troubleshooting Guide

Nexus 1000V Documentation

For the Cisco Nexus 1000V for VMware vSphere Documentation:

[Cisco Nexus 1000V for VMware vSphere Documentation](#)

Cisco Application Virtual Switch Documentation

[Cisco Application Virtual Switch Documentation](#)

Virtual Security Gateway Documentation

[Cisco Virtual Security Gateway Documentation](#)

Prime Network Services Controller Documentation

[Prime Network Services Controller](#)

Documentation Feedback

To provide technical feedback on this document, or to report an error or omission, please send your comments to:

- nexus1k-docfeedback@cisco.com

We appreciate your feedback.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation*, at: <http://www.cisco.com/c/en/us/td/docs/general/whatsnew/whatsnew.html>.

Subscribe to *What's New in Cisco Product Documentation*, which lists all new and revised Cisco technical documentation, as an RSS feed and deliver content directly to your desktop using a reader application. The RSS feeds are a free service.



CHAPTER 1

Overview

This chapter contains the following sections:

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

Information About the Cisco Virtual Switch Update Manager

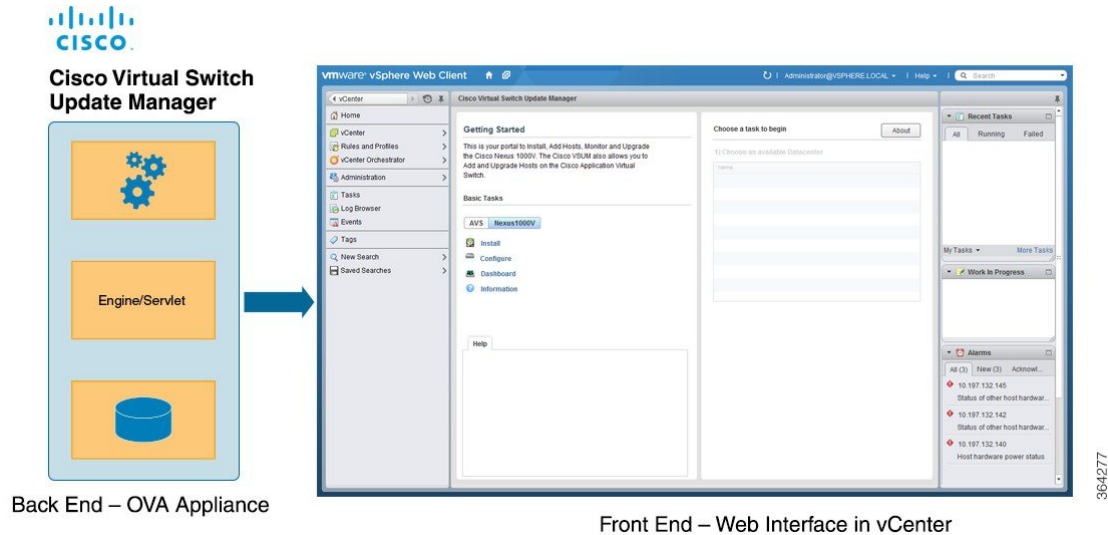
Cisco Virtual Switch Update Manager enables you to install, upgrade, and monitor the Cisco Nexus 1000V for VMware vSphere and also migrate hosts to the Cisco Nexus 1000V, using the VMware vSphere Web Client .

Cisco Virtual Switch Update Manager enables you to do the following:

- 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 added hosts from an earlier version to the latest version.
- Install the Cisco Nexus 1000V license.

- View the health of the virtual machines in your datacenter using the Dashboard - Cisco Nexus 1000V.

Figure 1: Cisco Virtual Switch Update Manager



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 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 ESX host software.

Cisco Nexus 1000V Components

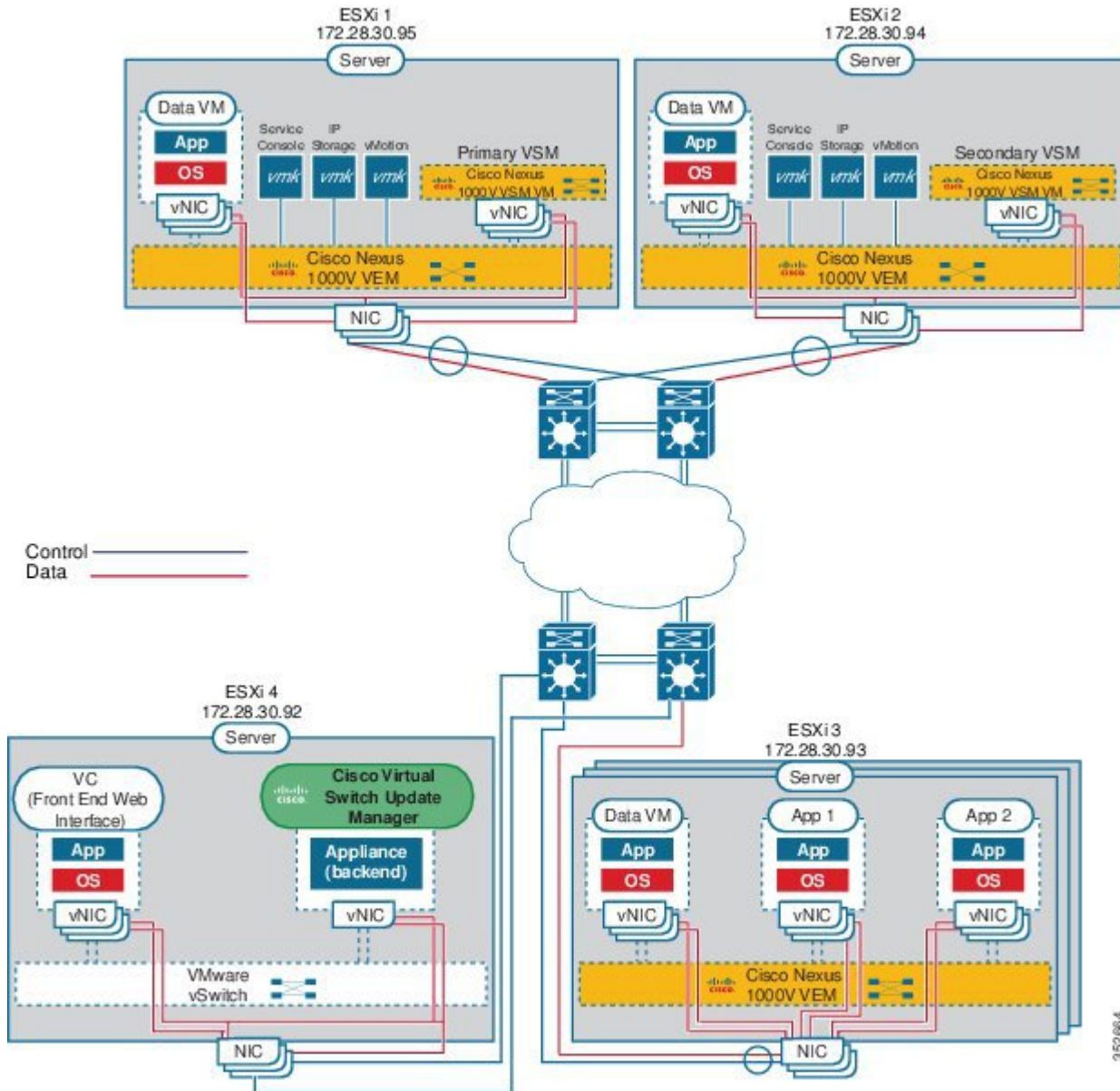
The Cisco Nexus 1000V switch has the following components:

- 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 (ESX) host. The VEM is partly inside the kernel of the hypervisor and partly in a user-world process, called the VEM Agent.

This 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. This 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 Virtual Switch Update Manager



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 switch supports the following operations:

- Configuration
- Management
- Monitoring
- Diagnostics
- Integration with VMware vCenter Server

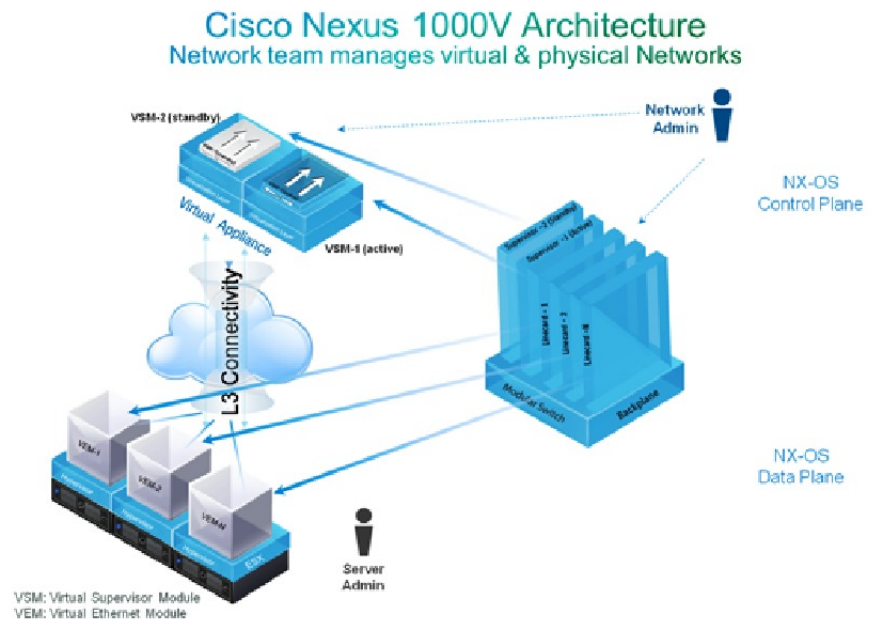
The VSM uses an external network fabric to communicate with the VEMs. The VSM runs the control plane protocols and configures the state of each VEM, but it never actually forwards packets. The physical NICs on the VEM server are the uplinks to the external fabric. VEMs switch traffic between the local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

Figure 3: Cisco Nexus 1000V Architecture



Information About the Virtual Ethernet Module

Each hypervisor is embedded with one VEM which 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 given time.

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 Virtual Switch Update Manager consists of the following steps:

-
- | | |
|---------------|---|
| Step 1 | Installing Cisco Virtual Switch Update Manager.
See Installing the Cisco Virtual Switch Update Manager , on page 10. |
| Step 2 | Installing Cisco Nexus 1000V VSM.
See Installing the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager , on page 19. |
| Step 3 | Migrating hosts to Cisco Nexus 1000V.
See Migrating Hosts to the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager , on page 29. |
-



Installing Cisco Virtual Switch Update Manager

This chapter contains the following sections:

- [Information About Cisco Virtual Switch Update Manager, page 7](#)
- [Compatibility Information for Cisco Virtual Switch Update Manager, page 8](#)
- [System Requirements, page 8](#)
- [Prerequisites, page 9](#)
- [Verifying the Authenticity of the Cisco-Signed Image \(Optional\), page 9](#)
- [Installing the Cisco Virtual Switch Update Manager, page 10](#)
- [About the Cisco Virtual Switch Update Manager GUI, page 11](#)
- [Upgrading Cisco Virtual Switch Update Manager, page 13](#)
- [Replacing Cisco Virtual Switch Update Manager—Windows vCenter Server, page 13](#)
- [Replacing Cisco Virtual Switch Update Manager—Linux vCenter Appliance, page 14](#)
- [Feature History for Installing Cisco Virtual Switch Update Manager, page 15](#)

Information About Cisco Virtual Switch Update Manager

Cisco Virtual Switch Update Manager (VSUM) is a virtual appliance that is registered as a plug-in to VMware vCenter Server. The VSUM graphical user interface (GUI) is an integral part of VMware vSphere Web Client; it can only be accessed by logging into the VMware vSphere Web Client.

The Cisco VSUM enables you to install, migrate, monitor, and upgrade the VSMs in high availability (HA) or standalone mode and the VEMs on ESX/ESXi hosts.

The Cisco VSUM software is available on the Cisco Nexus 1000V [VSUM download page](#) on Cisco.com.

Compatibility Information for Cisco Virtual Switch Update Manager

The following table lists the compatibility information for Cisco Virtual Switch Update Manager.

Table 1: Version Compatibility for Cisco Virtual Switch Update Manager 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(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 Virtual Switch Update Manager supports the migrations from Release 4.2(1)SV1(5.1) and later releases.</p> <p>Cisco Virtual Switch Update Manager supports upgrades from Release 4.2(1)SV1(4b) and later releases.</p> <p>Cisco Virtual Switch Update Manager supports the monitoring functionality from Release 4.2(1)SV2(1.1) and later releases.</p>	5.1, 5.5	<p>ESXi 4.1</p> <p>ESXi 5.0</p> <p>ESXi 5.1</p> <p>ESXi 5.5</p>

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

System Requirements

- VMware ESXi 4.1, 5.0, 5.1, 5.5
- All the web-based GUI client requirements as required by 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 Virtual Switch Update Manager has the following prerequisites:

- You have installed the VMware Enterprise Plus license on the hosts.
- You have installed the vCenter Server 5.1 or 5.5 with Web Client.
- You must have administrative credentials for vCenter Server.
- You must have a username, IP address, subnet mask, and a gateway IP address for deploying the OVA.
- Cisco Virtual Switch Update Manager must have IP connectivity on port 443 to all ESXi hosts.
- Ensure that ports 80 and 443 are open in the vCenter to communicate with the host.
- Ensure that the IP address used for deploying the OVA can communicate with the IP address of vCenter Server.

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

Before you install the Nexus1000v-vsum.1.1-pkg.zip image, you have the option to validate the authenticity of it. In the zip file, there is a signature.txt file that contains a SHA-512 signature and an executable script that can be used to verify the authenticity of the Nexus1000v-vsum.1.1-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 need to 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.1.1-pkg.zip image
- signature.txt file
- cisco_n1k_image_validation_v_1_1 script

Step 2 Ensure that the script is executable.
chmod 755 cisco_n1k_image_validation_v_1_1

- Step 3** Run the script.
`./cisco_n1k_image_validation_v_1_1 -s signature.txt Nexus1000v-vsum.1.1-pkg.zip`
- Step 4** Check the output. If the validation is successful, the following message displays:
 Authenticity of Cisco-signed image Nexus1000v-vsum.1.1-pkg.zip has been successfully verified!

Installing the Cisco Virtual Switch Update Manager

You can install the Cisco Virtual Switch Update Manager OVA using the following steps.

Before You Begin

- Ensure that the Cisco Virtual Switch Update Manager 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 It is important that you use the credentials that you use for the thick client and vCenter Managed Object Browser (MOB) while installing Cisco Virtual Switch Update Manager.

- Step 1** Log in to VMware vSphere Web Client.
- Step 2** Choose the host on which to deploy the Cisco Virtual Switch Update Manager OVA.
- Step 3** From the **Actions** menu, choose **Deploy OVF Template**.
- Step 4** In the **Deploy OVF Template** wizard, complete the information as described in the following table.

Window	Action
Source	Choose the Cisco Virtual Switch Update Manager OVA.
OVF Template Details	Review the details.
End User License Agreement	Review the agreement and click Accept .
Name and Location	Enter a name and choose a location for the appliance.
Host or Cluster	Choose the host or cluster to run the OVA template.
Datastore	Choose the datastore for the VM.
Disk Format	Choose either Thin provisioned format or Thick provisioned format to store the VM virtual disks. We recommend that you store the VM virtual disks in the Thick provisioned format .

Window	Action
Network Mapping	Choose the destination network for the VM that is reachable from vCenter Server.
Properties	Provide the following information: <ul style="list-style-type: none"> • Management IP address • Subnet mask • Gateway IP address • DNS server IP address • DNS entry to resolve FQDN • vCenter IP or fully qualified domain name (FQDN) • vCenter username • vCenter password • HTTP cleartext port and HTTPS port
Ready to Complete	Review the deployment settings. Caution Any discrepancies can cause VM booting issues. Carefully review the IP address, subnet mask, gateway information, and vCenter credentials.

Step 5 Click **Finish**.

Step 6 After Cisco Virtual Switch Update Manager is successfully deployed, click **Close**.

Step 7 Power on the Cisco Virtual Switch Update Manager VM.
 It might take 5 minutes for Cisco Virtual Switch Update Manager to be installed and registered as a vSphere Web Client plug-in.
 If the Web Client session was open during this installation, you must log out and log in again to view the Cisco Virtual Switch Update Manager plug-in.

About the Cisco Virtual Switch Update Manager GUI

Cisco Virtual Switch Update Manager is a virtual appliance that is registered as a plug-in to VMware vCenter Server.

The Cisco Virtual Switch Update Manager is the graphical user interface (GUI) that you use to 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

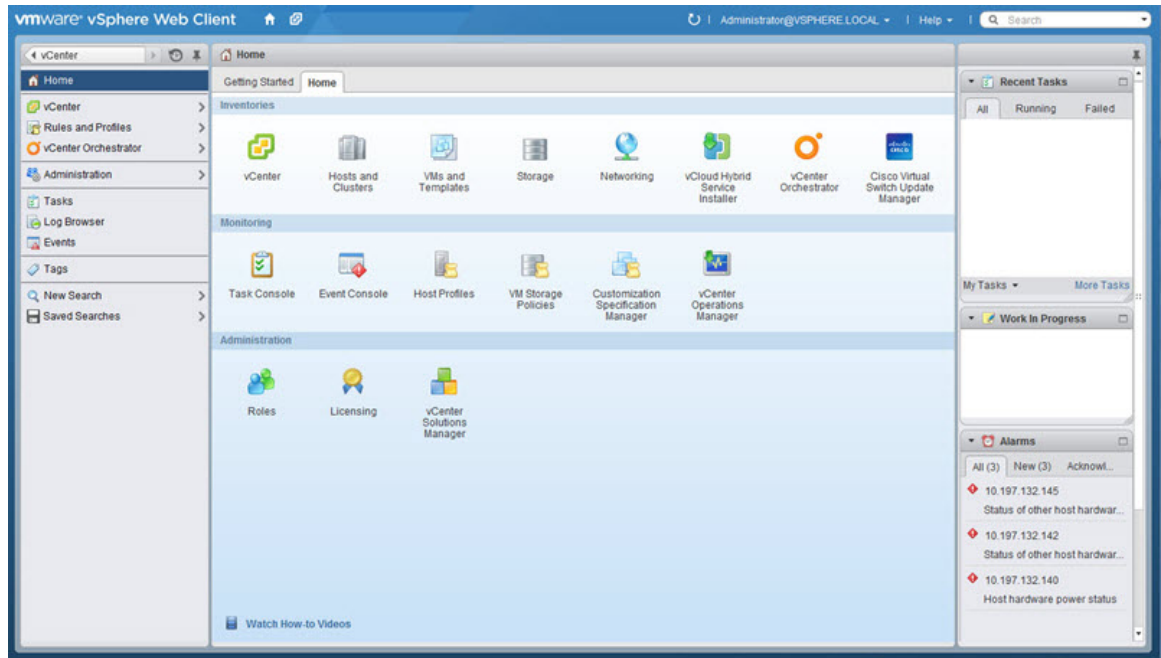
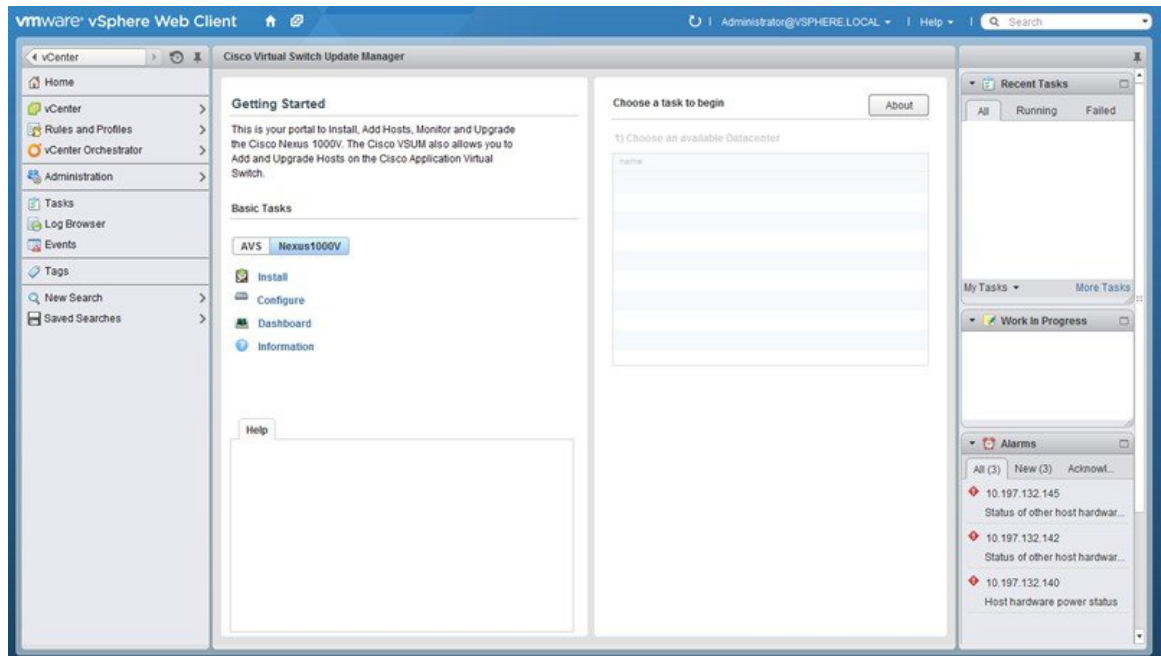


Figure 5: Cisco Virtual Switch Update Manager—Home Page



Upgrading Cisco Virtual Switch Update Manager

-
- Step 1** Log in to Cisco Virtual Switch Update Manager (VSUM) as the root user.
The default Cisco VSUM username is root and the default Cisco VSUM password is cisco.
- Step 2** Download from Cisco.com the zipped file containing the upgrade file for the version of VSUM that you want to upgrade to.
The upgrade file name is `vsum-upgrade-bundle-1.1.zip`.
- Step 3** Copy the zipped file to VSUM by entering the following command: `scp://vsum-upgrade-bundle-1.1.zip user_name@VSUM_IP:destination_directory`
- Step 4** Unzip the file and display its contents.
- Step 5** Upgrade VSUM by entering the following command: `./upgrade-file-name.sh vCenter-username vCenter-password`
- Note** The credentials are for the vCenter with which VSUM is associated.
-

What to Do Next

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

Replacing Cisco Virtual Switch Update Manager—Windows vCenter Server

Use this procedure to replace an existing Cisco Virtual Switch Update Manager in the VMware vSphere Web Client.

Before You Begin

Ensure that you power off the current Cisco Virtual Switch Update Manager before you begin this procedure.

-
- Step 1** Power off the current active Cisco Virtual Switch Update Manager 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\vsphere Web Client\vc-packages\vsphere-client-serenity` directory, delete the `com.cisco.n1kv` folder.
 - 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 Virtual Switch Update Manager VM.
 - Step 11** After Cisco Virtual Switch Update Manager is successfully deployed, login to the VMware vSphere Web Client to view the Cisco Virtual Switch Update Manager plugin.
-

Replacing Cisco Virtual Switch Update Manager—Linux vCenter Appliance

Use this procedure to replace an existing Cisco Virtual Switch Update Manager in the VMware vSphere Web Client.

Before You Begin

Ensure that you power off the current Cisco Virtual Switch Update Manager before you begin this procedure.

-
- Step 1** Power off the current active Cisco Virtual Switch Update Manager 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 `rm -rf /var/lib/vmware/vsphere-client/vc-packages/vsphere-client-serenity/com.cisco.n1kv-1.0/` command.
 - Step 6** Enter the `/etc/init.d/vsphere-client restart` command.
 - Step 7** Install the new version of the Cisco Virtual Switch Update Manager VM.
 - Step 8** After Cisco Virtual Switch Update Manager is successfully deployed, login to the VMware vSphere Web Client to view the Cisco Virtual Switch Update Manager plugin.
-

Feature History for Installing Cisco Virtual Switch Update Manager

This table includes only the updates for those releases that have resulted in additions or changes to the feature.

Feature Name	Releases	Feature Information
Installing Cisco Virtual Switch Update Manager	Release 1.0	This feature was introduced.
Upgrading Cisco Virtual Switch Update Manager	Release 1.1	Upgrades from Release 1.0.



CHAPTER

3

Installing Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

This chapter contains the following sections:

- [Information About Installing Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager](#), page 17
- [Prerequisites for Installing the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager](#), page 18
- [Guidelines and Limitations for Installing Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager](#), page 18
- [Installing the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager](#), page 19
- [Feature History for Installing Cisco Nexus 1000V using Cisco Virtual Switch Update Manager](#), page 24

Information About Installing Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

The Cisco Virtual Switch Update Manager is the graphical user interface (GUI) that you use to install the VSMs in high availability (HA) or standalone mode and the VEMs on ESX/ESXi hosts. The Cisco Virtual Switch Update Manager 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 Virtual Switch Update Manager enables you to install the following releases VSM:

- Release 5.2(1)SV3(1.2)
- Release 5.2(1)SV3(1.1)
 - Release 4.2(1)SV1(5.2b)
 - Release 4.2(1)SV2(1.1a)
 - Release 4.2(1)SV2(2.3)

- Release 4.2(1)SV2(2.2)

See [Migrating Hosts to Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager](#), on page 27 to install VEM using Cisco Virtual Switch Update Manager.

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 Virtual Switch Update Manager.

Prerequisites for Installing the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

The Cisco Nexus 1000V installation using Cisco Virtual Switch Update Manager has the following prerequisites:

- You have installed Cisco Virtual Switch Update Manager.
- You have installed and prepared vCenter Server for host management using the instructions from VMware.
- You have installed VMware vSphere Web Client.
- You have installed the VMware Enterprise Plus license on the hosts.
- You are familiar with the Cisco Nexus 1000V topology diagram.
- You must create port groups for the Control and Management VLANs on the Cisco Nexus 1000V.
- You must have the Distributed Switch—Create, Extension-Register, Update privilege permissions enabled on the vCenter Server.
- ESXi host must be running 4.1 or later releases.

Guidelines and Limitations for Installing Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

The Cisco Nexus 1000V installation using Cisco Virtual Switch Update Manager 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 Virtual Switch Update Manager supports standalone mode, but we do not recommend that you use this mode in a production environment.
- Cisco Virtual Switch Update Manager 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 Virtual Switch Update Manager with ESXi host only.

- The Cisco Nexus 1000V VSM always uses the following two network interfaces in the same order as follows:
 - 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 ESX host server.

Installing the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

You can install Cisco Nexus 1000V using Cisco Virtual Switch Update Manager. 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

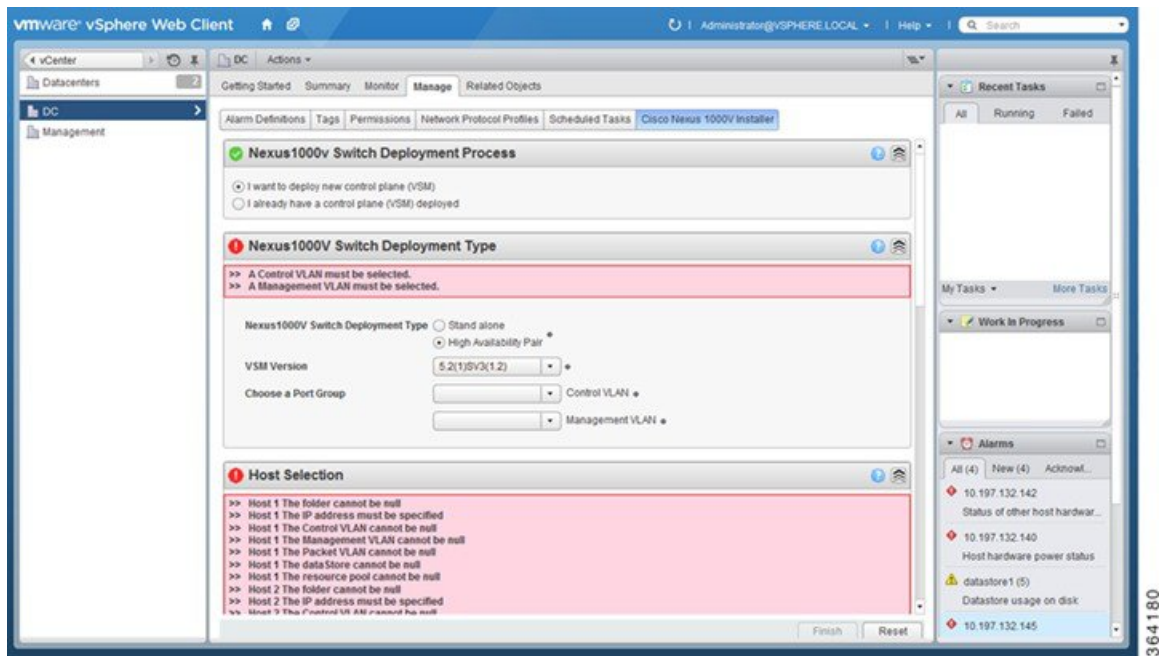
Know the following about the switch:

- 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)

Step 1

Log in to VMware vSphere Web Client and choose **Home > Cisco Virtual Switch Update Manager > Nexus 1000V > Install**, and then choose the data center. The installation screen appears.

Figure 6: Cisco Nexus 1000V Installer Pane



Step 2 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. <p>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.</p> 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 3

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

Name	Description
High Availability Pair radio button	Installs the switch as a HA pair. By default, the High Availability Pair is selected.
Standalone radio button	Installs the switch in a standalone mode. Note We recommend that you install the Cisco Nexus 1000V in an HA pair.
VSM Version drop-down list	Choose the Cisco Nexus 1000V version to be installed. By default, the latest version is selected.
Control VLAN drop-down list	Choose the control port group for the switch. The control port group is used for the control traffic.
Management VLAN drop-down list	Choose the management port group for the switch. Note The Cisco Nexus 1000V VSM uses the management network to communicate with vCenter Server and ESXi.

Step 4

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

Step 5

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

Name	Description
IP Address field	<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 drop-down list	Choose the system-selected datastore that you want to override. Choose a datastore for each host.

Name	Description
Resource Pool drop-down list	<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 a standalone mode, then the resource pool for the switch will be the root resource pool of the host.</p>
Folder Name drop-down list	<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 datacenter.</p>

Step 6 In the **Switch Configuration** area, complete the following fields:

Name	Description
Domain ID field	<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 radio button	<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, then this IP address is used for the VSM management operations and the VSM-to-VEM communications. • If you choose the Control IP address, then this IP address is used only for the VSM to VEM communications.
Control:IP/Name field	The IP address for switch connectivity.
Control: Mask field	The subnet mask.
Control: Gateway IP/Name field	The gateway IP address.

Step 7 In the **Virtual Supervisor Module (VSM) configuration** area, complete the following fields:

Name	Description
Switch Name field	<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 a 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 field	The IP address of the switch. The IP address is used for the management of the Cisco Nexus 1000V switch.
Subnet Mask field	The subnet mask for the above entered IP address.
Gateway Address field	The gateway IP address for the above entered IP address.
Username field	By default, the user name is admin. This field is not editable.
Default Port Profiles checkbox	<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 field	<p>The admin user password.</p> <p>This password is used to log in to the switch for administration.</p>
Confirm Password field	The admin user password that you reenter for confirmation.

Step 8 Click **Finish** to install the Cisco Nexus 1000V switch.

Step 9 Check 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 is in progress. You can click the refresh icon to display new tasks and learn how much of the task is complete in terms of percentage.

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

The 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 Virtual Switch Update Manager](#), on page 29.

Feature History for Installing Cisco Nexus 1000V using Cisco Virtual Switch Update Manager

This table includes only the updates for those releases that have resulted in additions or changes to the feature.

Feature Name	Releases	Feature Information
Installing Cisco Nexus 1000V for VMware vSphere using Cisco Virtual Switch Update Manager	Release 1.0	This feature was introduced.
Installing a Cisco Nexus 1000V switch using an existing VSM	Release 1.1	Users now have the option of installing a Cisco Nexus 1000V switch using an existing VSM or a Nexus 1010 or Nexus 1110 switch.
Installing Cisco Nexus 1000V for VMware vSphere using Cisco Virtual Switch Update Manager	Release 1.1	Users can check status of installation with VSUM in the vCenter Task Console.



Managing an Existing Cisco Nexus 1000V Switch

- [About Managing an Existing Cisco Nexus 1000V Switch, page 25](#)
- [Setting Up Management for an Existing Cisco Nexus 1000V Switch , page 25](#)
- [Feature History for Managing an Existing Cisco Nexus 1000V Switch, page 26](#)

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 Virtual Switch Upgrade Manager (VSUM), you first need to set up management in 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 VSUM management ahead of time so you do not need to set up management when you perform these tasks.

Setting Up Management for an Existing Cisco Nexus 1000V Switch

Perform the following steps to set up management in Cisco Virtual Switch Update Manager (VSUM) for a Cisco Nexus 1000V switch that was installed without using VSUM.

-
- 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**.
If the switch is not managed by Cisco Virtual Switch Update Manager, you see a **Switch Not Managed** dialog box telling you that you need to make the switch managed.
 - Step 4** In the **Switch Not Managed** dialog box, click **OK**.
 - Step 5** In the central pane, click the **Make Managed** tab.
 - 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 Virtual Supervisor Module (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. VSUM always will use the username associated with the account that you choose to do all of its operations. It does not create internal user n1kvmgr here because it uses either local administrator or remote administrator user credentials directly. 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 the 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. You might choose this option if you do not want VSUM to use VSM local admin user credentials. This option creates n1kvmgr user internally on VSUM, and VSUM will use this internal user for all operations. 3 Click Manage Switch.

Feature History for Managing an Existing Cisco Nexus 1000V Switch

This table includes only the updates for those releases that have resulted in additions or changes to the feature.

Feature Name	Releases	Feature Information
Cisco Virtual Switch Update Manager Managing Feature	Release 1.1 and later	This feature was introduced to manage manually installed switches with VSUM.



Migrating Hosts to Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

This chapter contains the following sections:

- [Information About Migrating Hosts to the Cisco Nexus 1000V Switch Using Cisco Virtual Switch Update Manager, page 27](#)
- [Prerequisites for Migrating Hosts to the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager, page 28](#)
- [Guidelines and Limitations for Migrating Hosts to the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager, page 28](#)
- [Migrating Hosts to the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager, page 29](#)
- [Feature History for Migrating Hosts to the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager, page 35](#)

Information About Migrating Hosts to the Cisco Nexus 1000V Switch Using Cisco Virtual Switch Update Manager

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

Cisco Virtual Switch Update Manager enables you to do the following:

- Add hosts and/or 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 Virtual Switch Update Manager

The migration of hosts to the Cisco Nexus 1000V using Cisco Virtual Switch Update Manager 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 vCenter Server.
- You must have the Distributed Switch—Create and Modify privilege permission enabled on the vCentre.

Guidelines and Limitations for Migrating Hosts to the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

When you move the ESX/ESXi host that runs the Virtual Supervisor module (VSM) from the VMware vSwitch or VMware DVS to the Cisco Nexus 1000V, the connectivity between the active and standby VSM might get temporarily 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 Virtual Switch Update Manager

You can install a Cisco Nexus 1000V Virtual Ethernet module (VEM) using Cisco Virtual Switch Update Manager. When the Cisco Virtual Switch Update Manager 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.

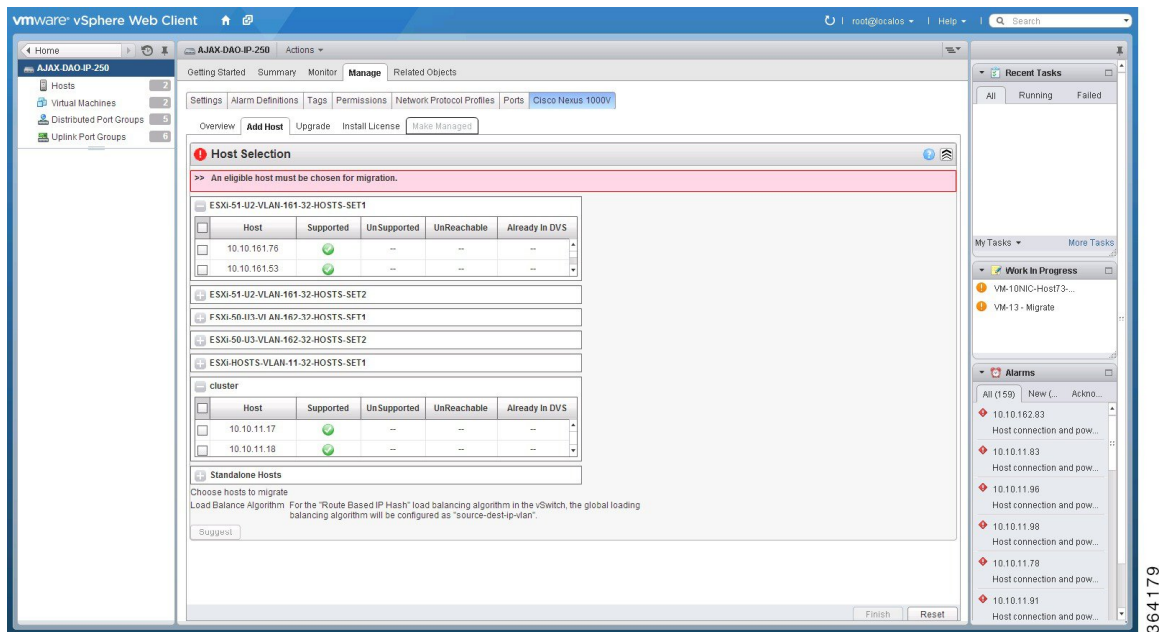
Step 2 In the vSphere Client, choose **Home > Cisco Virtual Switch Update Manager > Nexus 1000V > Configure**.

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

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

- Step 4** In the switch pane, click **Add Host**.
- Step 5** (Optional) In case of multiple vCenter Servers, choose **Home > Cisco Virtual Switch Update Manager > vCenter Server > Configure**.
- Step 6** (Optional) You can also access the Cisco Virtual Switch Update Manager in the vSphere Client by navigating to **vCenter > Distributed Switches**.
- Step 7** (Optional) In the switch pane, click **Manage > Cisco Nexus 1000V > Add Host**

Figure 7: Cisco Virtual Switch Update Manager—Migrating Hosts



- Step 8** In the **Host Selection** area, review the following fields.

Name	Description
Cluster area	Lists all the hosts that are in an HA pair. Check the checkbox next to the hosts to be migrated.
Standalone Hosts area	Lists the standalone hosts. Check the checkbox next to the hosts to be migrated.
Supported column	If checked, the host can be migrated to the current version of the Cisco Nexus 1000V.

Name	Description
UnSupported column	If checked, the host cannot be migrated to the current version of the Cisco Nexus 1000V. For information on the list of hosts that are not supported, see the Cisco Nexus 1000V and VMware Compatibility Documentation, at: http://www.cisco.com/c/en/us/support/switches/nexus-1000v-switch-vmware-vsphere/products-device-support-tables-list.html .
UnReachable column	If checked, the host is in an unreachable state.
Already in DVS column	If checked, the host is already migrated to the Cisco Nexus 1000V.

Step 9 Click **Suggest**.

Cisco Virtual Switch Update Manager displays the list of existing and proposed port profiles and suggests appropriate port profiles for each VMKNIC, VM NIC, and physical NICs.

Step 10 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 are suggested by the Cisco Virtual Switch Update Manager. Click the **Duplicate** button to create a new port profile from an existing or from a suggested port profile.

Step 11 In the **Port Profile Editor** area, complete the following fields.

Name	Description
Port Profile Editor drop-down list	The list of existing port profiles or new port profiles to be created are displayed. Choose the port profile. <ul style="list-style-type: none"> • In Use—Displays true, when the port profile is in use on the current Add Host screen. Displays False when the port profile is not in use on the current Add Host screen. • Valid—Displays true when all the port profile fields are completed. Displays false when one or more of the port profile fields is incomplete. • Editable—Displays true if the port profile is editable. Displays false if the port profile is not editable. • Profile Name—Displays the name of the port profile.
Uplink check box	If checked, displays the uplink associated with the port profile.
Trunk check box	If checked, displays the trunk associated with the port profile.

Name	Description
L3 Capable check box	If checked, the L3 capability is associated with the port profile.
ISCSI Multipath check box	If checked, the ISCSI Multipath is associated with the port profile.
Neither L3 nor ISCSI check box	If checked, then neither the L3 or the ISCSI is associated with the port profile.
Channel-group auto mode on check box	If checked, the channel group auto mode is associated with the port profile.
Mac-pinning check box	If checked, the channel group auto mode on mac-pining is associated with the port profile.
Name field	The name of the port profile.
VLANs field	Choose the VLAN.
Native VLAN field	The native VLAN associated with the port profile.
Duplicate button	Clones an existing port profile configuration to create a new port profile.

Step 12 Scroll down to view the host profile populated in the **Physical NIC Migration** area.

Step 13 In the **Physical NIC Migration** area, review the following fields.

Name	Description
Physical NIC check box	Review the physical NIC that has been automatically selected by the Cisco Virtual Switch Update Manager. Check/uncheck to select/deselect the VMNics for the migration. You must ensure that at least one physical NIC is selected for the migration.
Profile drop-down list	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 column	The vSwitch or VDS port group that the PNIC is currently assigned to.
Select All button	Migrates all the physical NICs associated with the host.

Name	Description
Select None button	Deselects all the selected values for the physical NICs associated with the host.

Step 14 Scroll down to view the host profile populated in the **VM Kernel NIC Setup** area.

Step 15 In the **VM Kernel NIC Setup** area, complete the following fields.

Name	Description
VM Kernel NIC check box	<p>If checked, displays the port profile configuration that will be created on 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 which will carry the L3 traffic.</p> <p>Note Do not uncheck any of the VMkernel NIC checkboxes, unless and until the required VMkernel NIC is associated with the Layer3 port profile.</p>
L3 Capable column	<p>Displays whether the VMkernel NIC is Layer 3 capable. Only one VMkernel NIC is Layer3 capable. By default, the VMK0 is selected as the Layer3 control.</p> <p>Note To change the VMkernel to Layer3 port profile, do the following:</p> <ul style="list-style-type: none"> From the Port Profile drop-down list, choose the non Layer3 port profile for VMk0. In absence of non Layer3 veth profile, you can create non Layer3 port profiles as follows: <ul style="list-style-type: none"> Select the Layer3 port profile and click Duplicate. Check the Neither L3 nor ISCSI radio button and click OK. You can edit the list of the supported VLANs. Select the L3 enabled PP for any one VMkernel NICs, which you want to use for the L3 control traffic.
Profile drop-down list	Choose the port profile associated with the VMkernel NIC.

Name	Description
Source Profile column	Displays the vSwitch or VDS port group that the VMkernel NIC is currently assigned to.
Select None button	Deselects all the selected VMkernel NICs associated with the host.
New button	<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 the VMKernel NIC is created, select the appropriate port profile for the VMKernel NIC from the port profile drop-down list.</p> <p>Note Ensure that the host is selected before you create the new VMkernel NIC.</p>
Edit button	Edits the IP address and subnet mask for a newly created VMkernel NIC.

Step 16 Scroll down to view the host profile populated in the **VM Migration** area.

Step 17 In the **VM Migration** area, review the following fields.

Area	Action
Virtual Machine NICs check box	If checked, displays the VSMs and the network adapters associated with the VM.
Profile drop-down list	Choose the port profile associated with the Virtual NIC.
Source Profile column	The source associated with the port profile.
Select None button	Deselects all the VMs associated with the host.

Step 18 Click **Finish** to migrate the host from the VMware vSwitch to the Cisco Nexus 1000V switch.

Step 19 Check 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.
 - 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 is in progress. You can click the refresh icon to display new tasks and learn how much of the task is complete in terms of percentage.
- Note** Several tasks might appear above the primary task you just performed. They might be associated with your primary task.

The Nexus 1000V installation is confirmed when the primary task `Add hosts to Cisco DVS` has the status `Completed`. A typical migration of the host takes about 2 minutes.

Feature History for Migrating Hosts to the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

This table includes only the updates for those releases that have resulted in additions or changes to the feature.

Feature Name	Releases	Feature Information
Migrating hosts to the Cisco Nexus 1000V using Cisco Virtual Switch Update Manager	Release 1.0	This feature was introduced.
Migrating hosts to the Cisco Nexus 1000V using Cisco Virtual Switch Update Manager	Release 1.1	Users can check status of adding a host with VSUM in the vCenter Task Console.



Upgrading Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

This chapter contains the following sections:

- [Information About Upgrading the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager, page 37](#)
- [Prerequisites for Upgrading Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager, page 38](#)
- [Guidelines and Limitations for Upgrading the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager, page 39](#)
- [Upgrading the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager, page 40](#)
- [Feature History for Upgrading the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager, page 42](#)

Information About Upgrading the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

Cisco Virtual Switch Update Manager is the graphical user interface (GUI) that you can use to upgrade the Virtual Supervisor modules (VSMs) and the VEMs on ESX/ESXi hosts.

An [interactive upgrade tool](#) has been provided to assist you in determining 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 your upgrade-related software for the current release of the Cisco Nexus 1000V software from cisco.com.

With Cisco Virtual Switch Update Manager, you can upgrade 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 Virtual Switch Update Manager, you can upgrade Cisco Nexus 1000V from Release 4.2(1)SV1(4b) and later releases.

Unsupported Upgrade Paths: Using Cisco Virtual Switch Update Manager, 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.

Prerequisites for Upgrading Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

Upgrading the Cisco Nexus 1000V with Cisco Virtual Switch Update Manager 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.
- Perform a VSM backup. For more information, see the “Configuring VSM Backup and Recovery” chapter in the *Cisco Nexus 1000V System Management Configuration Guide*.
- Use the VSM management IP address to log into 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 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 the Cisco IOS software, enter the **portfast trunk** command or the **portfast edge trunk** command.
 - On Cisco Nexus 5000 Series switches with the Cisco NX-OS software, enter the **spanning-tree port type edge trunk** command.
- On your upstream switches, we highly recommend that you globally enable the following:
 - Global BPDU Filtering
 - Global BPDU Guard
- On your upstream switches where you cannot globally enable BPDU Filtering and BPDU Guard, we highly 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 vCentre.
- For more information about configuring spanning tree, BPDU, or PortFast, see the documentation for your upstream switch.

Guidelines and Limitations for Upgrading the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager



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 Virtual Switch Update Manager 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).

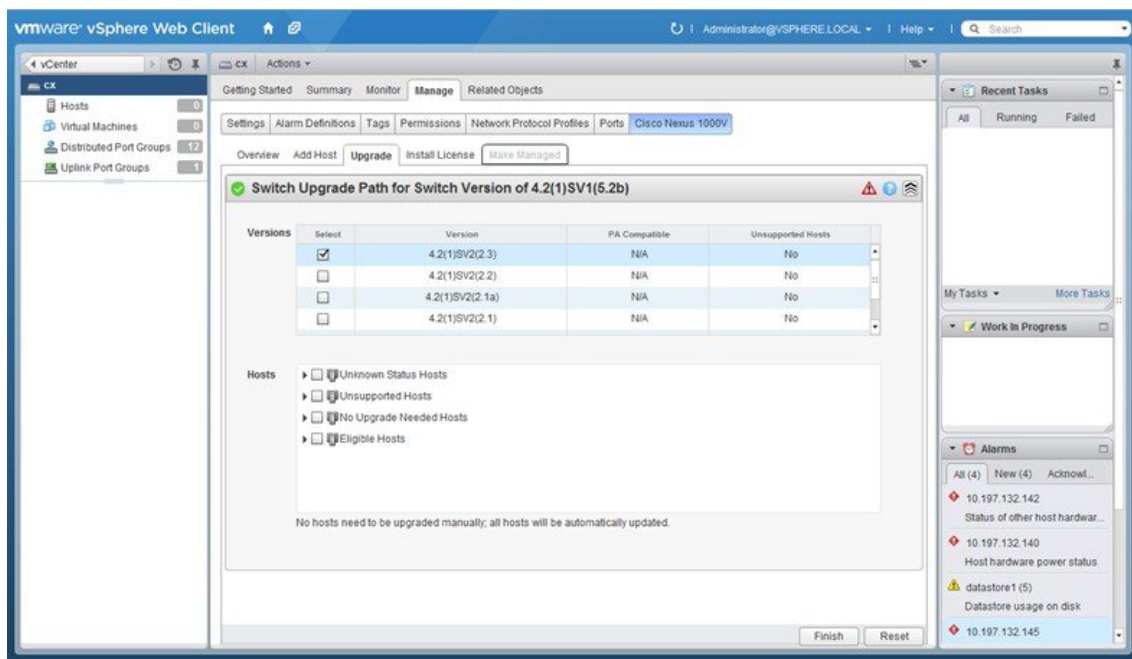
Upgrading the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

You can upgrade the Cisco Nexus 1000V using Cisco Virtual Switch Update Manager.

-
- 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 and Manage Nexus 1000V and Application Virtual Switch > Datacenter > Distributed Virtual Switch > Manage**.
- Note** If the switch is not managed by Cisco Virtual Switch Update Manager, you are prompted to enter the switch credentials in the **Make Managed** window. For more information, see the chapter [Managing an Existing Cisco Nexus 1000V Switch](#).
- Step 3** In the switch pane, click **Upgrade**.
- Step 4** (Optional) In case of multiple vCenter Servers, choose **Home > Cisco Virtual Switch Update Manager > vCenter Server > Configure**.
- Step 5** (Optional) You can also access the Cisco Virtual Switch Update Manager in the vSphere Client by navigating to **vCenter > Distributed Switches**.
- Step 6** (Optional) In the switch pane, click **Manage > Cisco Nexus 1000V > Upgrade**.
- Note** If the policy agent has been installed on the VSM, then do the following:
- 1 Enter the PNSC version number in the PNSC field.
 - 2 Enter the VSG version number in the VSG field.
 - 3 Click **OK**. The upgrade path displays the selected PNSC version and PA Compatible option as **Yes**.
 - 4 From the Eligible Hosts drop-down list, choose the host and click **Finish**. This upgrades the VSMs along with the Policy Agent and the VEM.

Step 7 In the **Switch Upgrade Path** area, the **Switch Upgrade Path** for the selected switch displays the switch to be upgraded.

Figure 8: Cisco Virtual Switch Update Manager—Upgrading Cisco Nexus 1000V



Step 8 In the **Versions** area, the following information is pre configured.

Name	Description
Suggested Upgrade field	Displays if the upgrade is supported .
Version field	Displays the version number of the Cisco Nexus 1000V switch suggested for upgrade.
PA Compatible field	Displays if the Cisco PNSC version is compatible with the Cisco Nexus 1000V switch version suggested for upgrade.
Unsupported Hosts field	Displays if the ESX host has to be upgraded manually.

Step 9 In the **Hosts** area, the hosts that are associated with the Cisco Nexus 1000V version suggested for upgrade are displayed. The hosts are represented in the following four 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 ESX/ESXi version of the host that is associated with the Cisco Nexus 1000V version suggested for upgrade. The unsupported hosts should be upgraded manually to the ESX/ESXi versions supported by 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 ESX version of the host that is associated with the Cisco Nexus 1000V version suggested for upgrade. During the upgrade process, Cisco Virtual Switch Update Manager upgrades the VEM version installed on the hosts to the specified version.

Step 10 Click **Finish** to upgrade the Cisco Nexus 1000V.

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 is in progress. You can click the refresh icon to display new tasks and learn how much of the task is complete in terms of percentage.

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, click **Tasks** in the navigation pane to display the lists of tasks in the work pane.

Feature History for Upgrading the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

This table includes only the updates for those releases that have resulted in additions or changes to the feature.

Feature Name	Releases	Feature Information
Upgrading Cisco Nexus 1000V using Cisco Virtual Switch Update Manager	Release 1.0	This feature was introduced.
Upgrading Cisco Nexus 1000V using Cisco Virtual Switch Update Manager	Release 1.1	Users can check the status of an upgrade with VSUM in the vCenter Task Console.



Monitoring Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

This chapter contains the following sections:

- [Information about Monitoring, page 43](#)
- [Monitoring the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager, page 44](#)
- [Feature History for Cisco Virtual Switch Update Manager Monitoring Feature, page 50](#)

Information about Monitoring

Cisco Virtual Switch Update Manager provides the server administrators with a view of the virtual network and visibility into the networking aspects of the Cisco Nexus 1000V.

It allows the administrators to view the configuration aspects of the VSM, export networking details from vCenter server, investigate the root cause of and prevent networking issues, and deploy the virtual machines with policies. The administrators can monitor and manage the resources effectively with the network details that are provided in the Cisco Virtual Switch Update Manager.

Cisco Virtual Switch Update Manager 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 the Cisco Virtual Switch Update Manager.

Monitoring the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

You can view the Virtual Supervisor module (VSM) and Virtual Ethernet module (VEM) details of the Cisco Nexus 1000V switch.

- Step 1** Log in to VMware vSphere Web Client.
- Step 2** 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 Virtual Switch Update Manager. For more information, see the chapter [Managing an Existing Cisco Nexus 1000V Switch](#).
- Note** If you register Cisco Virtual Switch Update Manager 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 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 **Dashboard**.
The **Dashboard** pane displays following non configurable summary of the Cisco Nexus 1000V:

Name	Description
System	
Switch Name field	The name of the switch
NX-OS Version field	The Cisco NX-OS version and the build that the switch is using
VSM IP field	The IP address of the Virtual Supervisor Module (VSM)
DC Name field	The name of the data center
Connectivity Mode field	The mode of connectivity between the VSMS and the VEMs
VC Connectivity field	The status of vCenter connectivity
VSM HA field	The Virtual Supervisor Module (VSM) high availability mode
Network Statistics	
VNICs vs Max field	The maximum number of virtual network interface cards (VNICs) that are supported and their current usage

Name	Description
Hosts vs Max field	The maximum number of server hosts that are supported and their current usage
Port-Groups vs Max field	The maximum number of port groups that are supported and their current usage
Veths/Host Max field	The maximum number of vEthernet ports per host that are supported and their current usage
VLAN vs Max field	The maximum number of VLANs that are supported and their current usage
VXLAN vs Max field	The maximum number of VXLANs that are supported and their current usage
Licenses	The information of the license installed
License Type field	The type of the license
Licenses Available field	The licenses that are available to use
Licenses Used field	The licenses that are actually used
Earliest Expiration field	The earliest expiration time of the license
Status field	The status of the license

Step 7 Click **Switch**.

Step 8 Click **Host/VEM**.

The **Host/VEM** pane displays the following non configurable details of the host.

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

Name	Description
VNICs / Host field.	The number of VNICs per host

Step 9

Click **VM Info**.

The **VM Info** pane displays the following non configurable details.

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

Step 10

Click **Port Groups**.

The **Port Groups** pane displays the following non configurable details.

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

Step 11

Click **vNICs**.

The **vNICs** pane displays the following non configurable details.

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

Step 12 Click **Uplinks**.

The Uplinks pane displays the details of the Uplinks as described in the table below:

Name	Description
Switch Interface field	The name of the port
Status field	The status of the uplink
Port Channel field	The port channel associated with the uplink
Host ID field	The module number of the host at the VSM
Port Group field	The port group associated with the uplink
VLANs field	The VLANs associated with the uplink
CDP Uplinks field	The CDP uplink information

Step 13 Click **Hosts/VEM**.

The Systems area in the Host/VEM pane displays the details of the host as described in the table below:

Name	Description
Host Name field	The name of the host
NX-OS Version field	The Cisco NX-OS version and the build that the host is using
Host IP field	The IP address of the host

Name	Description
License field	The license details of the host
Host/Module field	The number of modules per host
VMs/Host field	The number of VMs per host
VNIC/Host field	The number of VNICs per host

Step 14

Click **VM Info**.

The **VM Info** area provides the following host details:

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

Step 15

Click **Port Groups**.

The **Port Groups** area provides the following host details:

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

Step 16

Click **vNICs**.

The **vNICs** area provides the following host details:

Name	Description
VNICs field	The name of the VNICs associated to the host
VMs field	The name of the VM associated to the host
Adapter field	The name of the adapter
Status field	The status of the vNIC associated to the host
Ports Group field	The name of the port group associated to the host
VLANs field	The VLANs associated with the host
Host ID field	The module number of the host at the VSM

Step 17

Click **Uplinks**.

The **Uplinks** area provides the following host details:

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

Feature History for Cisco Virtual Switch Update Manager Monitoring Feature

This table includes only the updates for those releases that have resulted in additions or changes to the feature.

Feature Name	Releases	Feature Information
Cisco Virtual Switch Update Manager Monitoring Feature	Release 1.0	This feature was introduced.



Installing a License Using Cisco Virtual Switch Update Manager

This chapter contains the following sections:

- [Information About Installing Licenses Using Cisco Virtual Switch Update Manager](#), page 51
- [Installing a License Using Cisco Virtual Switch Update Manager](#), page 51
- [Feature History For Installing a License Using the Cisco Virtual Switch Update Manager](#), page 52

Information About Installing Licenses Using Cisco Virtual Switch Update Manager

Cisco Virtual Switch Update Manager is the graphical user interface (GUI) that you can use to install and upload a license on the Virtual Supervisor Module (VSM) to mark the VSM as licensed. The Cisco Virtual Switch Update Manager GUI is an integral part of the VMware vSphere Web Client and it can only be accessed by logging into VMware vSphere Web Client.

The license file is shared by both Virtual Supervisor Modules (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 are not allowed to come up. For software upgrades, if the switch is still in the default licensing period, it 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.

Installing a License Using Cisco Virtual Switch Update Manager

You can install and upload Cisco Nexus 1000V licenses using Cisco Virtual Switch Update Manager.

Before You Begin

- You have installed Cisco Virtual Switch Update Manager.
- You have the license file accessible to Cisco Virtual Switch Update Manager.
- You have the Distributed Switch - Create and Modify privilege enabled on the VMware vSphere Distributed Switch (VDS).

-
- Step 1** Log in to VMware vSphere Web Client.
- Step 2** 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 Virtual Switch Update Manager, you are prompted to enter the switch credentials in the **Make Managed** window. For more information, see the chapter [Managing an Existing Cisco Nexus 1000V Switch](#).
- 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 count and expiry date of the license using the Monitor functionality of the Cisco Virtual Switch Update Manager. See [Monitoring the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager](#), on page 44
-

Feature History For Installing a License Using the Cisco Virtual Switch Update Manager

This table includes only the updates for those releases that have resulted in additions or changes to the feature.

Feature Name	Releases	Feature Information
Installing a license using the Cisco Virtual Switch Update Manager	Release 1.0	This feature was introduced.



Dashboard-Cisco Nexus 1000V

This chapter contains the following sections:

- [Information About the Dashboard–Cisco Nexus 1000V, page 53](#)
- [Using the Dashboard-Cisco Nexus 1000V, page 54](#)
- [Feature History For Dashboard–Cisco Nexus 1000V, page 55](#)

Information About the Dashboard–Cisco Nexus 1000V

The dashboard in Cisco Virtual Switch Update Manager displays the health of the Cisco Nexus 1000V switch and the hosts and the virtual machines that it manages in your datacenter. The dashboard enables you to detect errors and warnings and fix any potential issues in your datacenter.

Cisco Virtual Switch Update Manager supports the dashboard functionality from Release 4.2(1)SV2(1.1a) and later releases..

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.
- If the number of Cisco Nexus 1000V licenses available is less than 5.
- 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 Virtual Switch Update Manager
- If the version of the switch is not supported.
- If the switch is not connected to vCenter Server.

- If the switch is not reachable.
- If the number of licenses is available is zero.
- 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.

Using the Dashboard-Cisco Nexus 1000V

The **Dashboard–Cisco Nexus 1000V** pane enables you to view the inventory of the components in your datacenter which are managed by the Cisco Virtual Switch Update Manager, the status of your datacenter, and a detailed summary of the errors and warnings associated with the components in your datacenter.

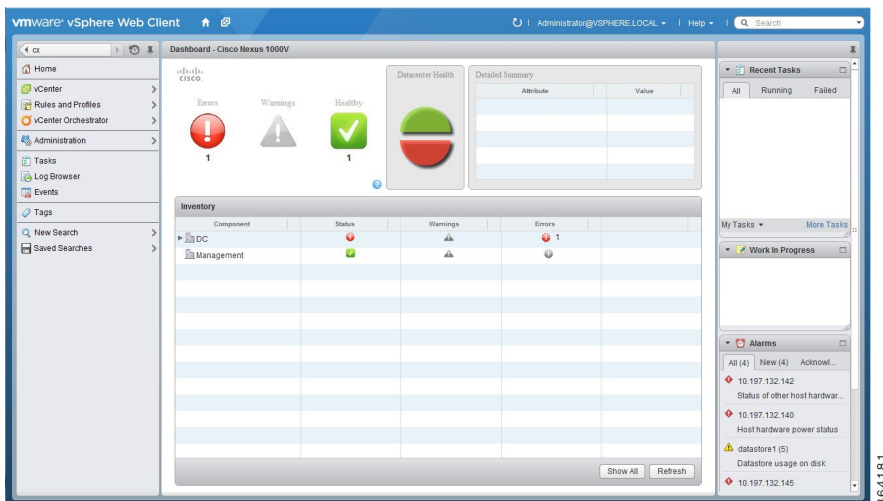
Before You Begin

- You have already installed the Cisco Virtual Switch Update Manager.
- The Cisco Nexus 1000V switch is managed by Cisco Virtual Switch Update Manager.

Step 1 Log in to the VMware vSphere Web Client .

Step 2 Choose **Home > Cisco Virtual Switch Update Manager > Dashboard – Cisco Nexus 1000V**. The Dashboard - Cisco Nexus 1000V pane appears.

Figure 9: Dashboard–Cisco Nexus 1000V



Step 3 From the **Component** column, in the **Inventory** table, choose the data center.
You can view the following status of your datacenter in the **Status** column:

- A green icon indicates that the datacenter is healthy.
- A yellow icon indicates that there are errors associated with the components in the datacenter.
- A red icon indicates that there are warnings associated with the components in the datacenter.

See [Information About the Dashboard–Cisco Nexus 1000V, on page 53](#) 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 datacenter.
In the **Detailed Summary** window, you can view the summary of the component such as the component type, component state, errors, or warnings that are associated with the component.

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

Feature History For Dashboard–Cisco Nexus 1000V

This table includes only the updates for those releases that have resulted in additions or changes to the feature.

Feature Name	Releases	Feature Information
Dashboard–Cisco Nexus 1000V	Release 1.0	This feature was introduced.

