



Cisco Nexus 1000V Virtual Supervisor Module Software Installation Guide, Release 4.0(4) SV1(3b)

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This document describes how to create a Cisco Nexus 1000V Virtual Supervisor Module (VSM) by installing the VSM software on a VMware server.

For an overview of the Cisco Nexus 1000V system and procedures for configuring the software after installation, see the [Cisco Nexus 1000V Getting Started Guide, Release 4.0\(4\)SV1\(3\)](#).

This document includes the following topics:

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Audience

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

- An understanding of virtualization
- Using VMware tools to create a virtual machine and configure a vswitch

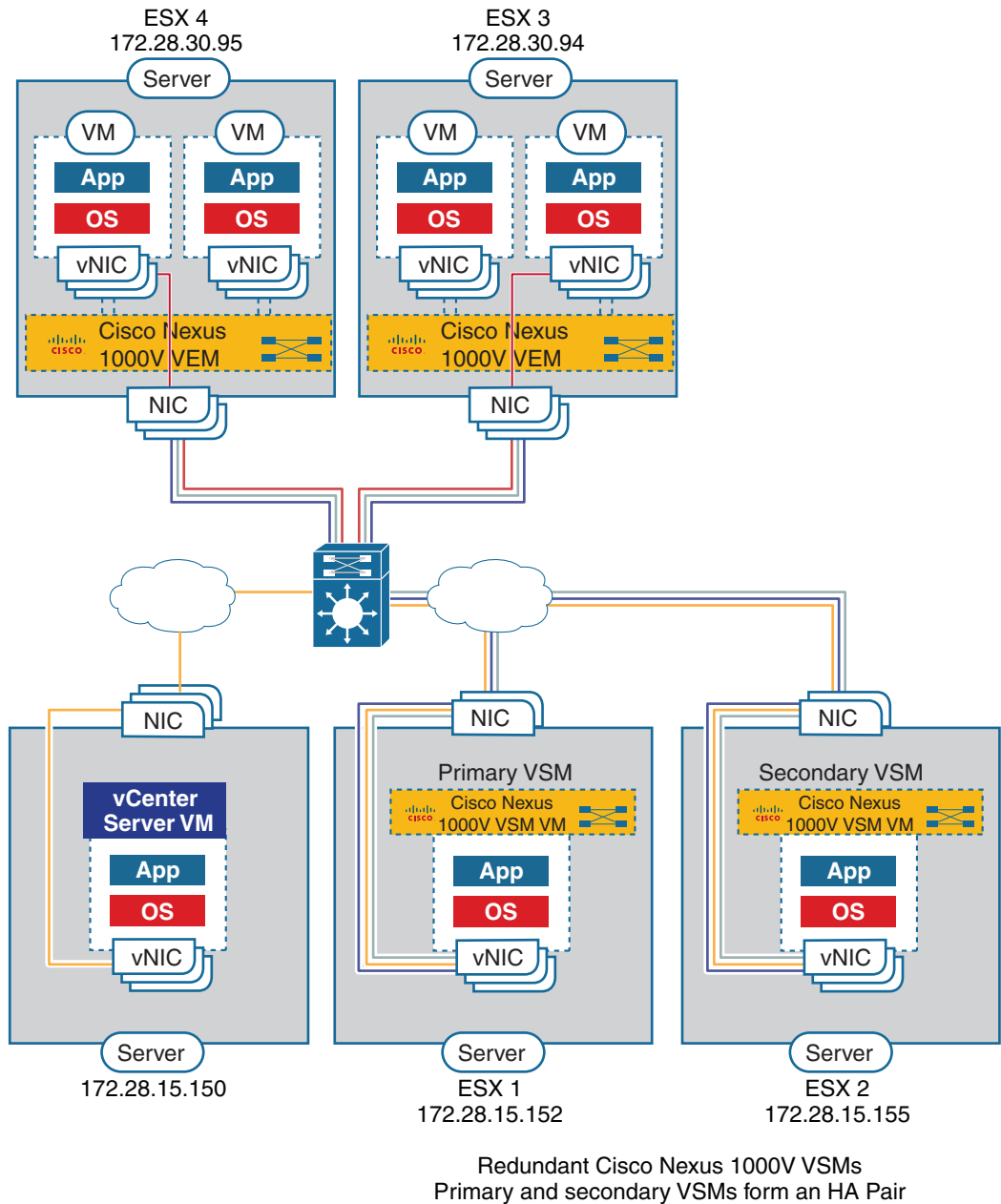


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Information About the Software Installation

The Cisco Nexus 1000V software installation installs the software required to create a VSM VM on a VMware server. Figure 1 shows redundant VSM VMs in such an installation.

Figure 1 Cisco Nexus 1000V Installation Diagram



Management — VLAN 260, vmnic 0
 Control — VLAN 260, vmnic 0
 Packet — VLAN 260, vmnic 0
 Data — VLAN 20, vmnic 1

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Prerequisites

This section includes the following prerequisites for installing the Cisco Nexus 1000V:

- [VSM Prerequisites, page 3](#)
- [VMware and Host Prerequisites, page 3](#)
- [Upstream Switch Prerequisites, page 5](#)

VSM Prerequisites

The following prerequisites apply to the VSM:

- We recommend that you install redundant VSMS. For more information about configuring redundant VSMS, see the *Cisco Nexus 1000V High Availability and Redundancy Configuration Guide, Release 4.0(4)SV1(3)*.
- If you are installing redundant VSMS, make sure that you first install and set up the software on the primary VSM before installing and setting up the software on the secondary VSM.
- To improve redundancy, install primary and secondary VSM virtual machines in separate hosts connected to different upstream switches. For other recommendations, see the *Cisco Nexus 1000V Getting Started Guide, Release 4.0(4)SV1(3)*.
- You have already identified the HA role for this VSM from those listed below.

Role	Single Supervisor System	Dual Supervisor System
Standalone	X	
Primary		X ¹
Secondary		X ²

1. Install the first VSM of a dual supervisor pair as the primary VSM.
2. Install the second VSM of a dual supervisor pair as the secondary VSM.

- The Cisco Nexus 1000V software includes evaluation licenses for 16 CPU sockets for a period of 60 days. These licenses are used only if there are no permanent licenses installed on the VSM. The evaluation period of 60 days starts when you install the software. For more information about licenses, see the *Cisco Nexus 1000V License Configuration Guide, Release 4.0(4)SV1(3)*.
- You are familiar with the Cisco Nexus 1000V example installation that is shown in [Figure 1 on page 2](#).

VMware and Host Prerequisites

The following prerequisites apply to VMware and the host:

- You have already installed the vCenter Server.
- You have already prepared the vCenter Server using the instructions from VMware.
- You have the VMware documentation for installing software on the vSphere Client.
- You have already prepared the required hosts, including the following:
 - The VMware Enterprise Plus license must already be installed on the hosts.

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- All VEM hosts must be running ESX or ESXi software version 4.0 Update 1.
- There is at least one ESX or ESXi host running version 4.0 Update 1. If you plan to use VMotion, you need two hosts running version 4.0 Update 1.
- An ESX host is available to run the VSM VM.
- The VSM virtual machine can be hosted on any of the following:
 - A VEM in an ESX host that it is managing.
 - A separate ESX or ESXi host 4.0 Update 1 running the regular VMware vSwitch or DVS.
 - The same host running VEM but using a VMware vSwitch or DVS.
- The ESX host requires a minimum of 4 GB of physical RAM to host a VSM VM as the ESX server alone requires a minimum of 2 GB of physical RAM. Additional memory may be required to run the vCenter Server VM on the same host.
- Do not create more than one virtual CPU for the VM to be used for the VSM. The Cisco Nexus 1000V only supports one virtual CPU.
- Each host has a minimum of the following physical NICs (PNICs):
 - One PNIC for a Service Console or Management.
 - One PNIC for the traffic between VSM and VEM and for VM data traffic.
- All ESX hosts that are to be added as modules in a Cisco Nexus 1000V must have Layer 2 connectivity to each other.
- If you are using a set of switches, make sure that the inter-switch trunk links carry all relevant VLANs, including control and packet VLANs. The uplink should be a trunk port carrying all VLANs configured on the ESX host.
- On the host running the VSM VM, the control and packet VLANs are configured through the VMware switch or DVS and the VMNIC.
- For instructions on installing the optional VMware Update Manager (VUM) to manage the Cisco Nexus 1000V VEM software installation for ESX hosts, see the VMware documentation.
- You have configured valid network mapping on the VM for control, management, and packet VLAN access.
- The host for the VSM VM runs on 64-bit server hardware and can run VMware software version 4.1, 4.0, or 3.5.
- Make sure that the VM to be used for the VSM meets the following minimum requirements.



Caution

The VSM VM may fail to boot if you have not properly allocated RAM and CPU. This document includes procedures for allocating RAM and setting the CPU speed.

VSM VM Component	Minimum Requirement
Platform	64-bit
Type	Other 64-bit Linux (recommended)
Processor	1
RAM (configured and reserved)	2 GB ¹
NIC	3

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VSM VM Component	Minimum Requirement
SCSI Hard Disk	3 GB with LSI Logic Parallel adapter
CPU speed	1500 MHz ²

1. If you are installing the VSM using the OVA file, then the correct RAM setting is made automatically during the installation of this file.

If using the CD ISO image, use the “[Installing the Software from the ISO Image](#)” procedure on [page 6](#) to reserve RAM and set the memory size.

2. If you are installing the VSM using the OVA file, then the correct CPU speed setting is made automatically during the installation of this file.

If using the CD ISO image, use the “[Installing the Software from the ISO Image](#)” procedure on [page 6](#) to set CPU speed.

Upstream Switch Prerequisites

The following prerequisites apply to the switch upstream from the Cisco Nexus 1000V whose ports connect to the VEM:

- On upstream switches the following configuration is mandatory:
 - cat6k IOS:
(config-if) **portfast trunk**
or
(config-if) **portfast edge trunk**
 - n5k:
(config-if) **spanning-tree port type edge trunk**
- On upstream switches it is highly recommended that the following are enabled globally:
 - Global BPDU Filtering
 - Global BPDU Guard
- On upstream switches where you cannot globally enable BPDU Filtering and BPDU Guard, it is highly recommended that the following are configured:
 - (config-if) **spanning-tree bpdn filter**
 - (config-if) **spanning-tree bpdn guard**

For more information about these features and commands, see the documentation for your upstream switch.

Guidelines and Limitations

Use the following guidelines and limitations when installing the Cisco Nexus 1000V software:

- Do not enable VMware Fault Tolerance (FT) for the VSM VM because it is not supported. Instead, NX-OS HA provides high availability for the VSM.
- The VSM VM supports VMware high availability (HA). We strongly recommend that you use redundant VSMs and the NX-OS high availability, which can be used with VMware HA. When using VMware HA, you must follow the VMware recommendations. The Isolation Response must not be set to **Leave powered on**.

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- Do not enable VM Monitoring for the VSM VM because it is not supported, even if you enable VMware HA on the underlying host. Cisco NX-OS redundancy is the preferred method.
- If either your primary or secondary VSM is installed on the same server as the vSwitch, then a traffic interruption between them can occur when you migrate interfaces to the DVS. In this configuration, both VSMs take the active role, sometimes referred to as split-brain. If this happens, the primary VSM is reloaded when connectivity between the VSMs is restored.

Installing the Software from the ISO Image

You can use this procedure to install the VSM software using the ISO image file from the CD

BEFORE YOU BEGIN

Before beginning this procedure you must know or do the following:

- You have already read the [“Prerequisites” section on page 3](#).
- You must manually create the VM to be used for the VSM.
- The VSM VM requires a minimum of 2 GB of RAM reserved and allocated.
- The VSM VM requires a minimum CPU speed of 1500 MHz.
- Do not create more than one virtual CPU. The Cisco Nexus 1000V supports only one virtual CPU.
- For detailed information about changing virtual machine properties, see the following VMware document:

vSphere Virtual Machine Administration Guide

-
- Step 1** Using your VMware documentation, attach the VSM ISO image to the virtual CD-ROM and copy the software to a virtual machine (VM).
- Step 2** Make sure that the VSM VM is powered off.
- Step 3** In the vSphere client Virtual Machine Properties window Hardware tab, choose **Memory**.
The Memory Configuration settings display in the right-hand panel.
- Step 4** In the Memory Size field, choose **2 GB**.
- Step 5** In the Resources tab, choose **Memory**.
The Resource Allocation settings display in the right-hand panel.
- Step 6** In the Reservation field, choose **2048 MB**.
- Step 7** In the Resources tab, choose **CPU**.
The Resource Allocation settings display in the right-hand panel.
- Step 8** In the Reservation field, choose **1500 MHz**.
- Step 9** Click OK.
The VSM VM memory and CPU speed settings are saved in vSphere client.
- To continue configuring your Cisco Nexus 1000V, see the [“Where to Go Next” section on page 13](#).
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Installing the Software from the OVA Image

You can use this procedure and your VMware documentation to install the Cisco Nexus 1000V software on a VMware server. This procedure does the following:

- Creates a VM where the Cisco Nexus 1000V software is installed, reserves the required RAM, and sets the required CPU size.
- Maps VMware port groups to the VSM.
- Creates an initial Cisco Nexus 1000V configuration file including the VSM domainID, admin user password, and Management IP address, subnet mask, and IP gateway.
- Installs a GUI setup application that you can use for configuring the VSM.
- Lets you choose the GUI or CLI setup dialog to set up the VSM configuration file.

For information about using the GUI or CLI to setup the VSM, see the *Cisco Nexus 1000V Getting Started Guide, Release 4.0(4)SV1(3)*.

BEFORE YOU BEGIN

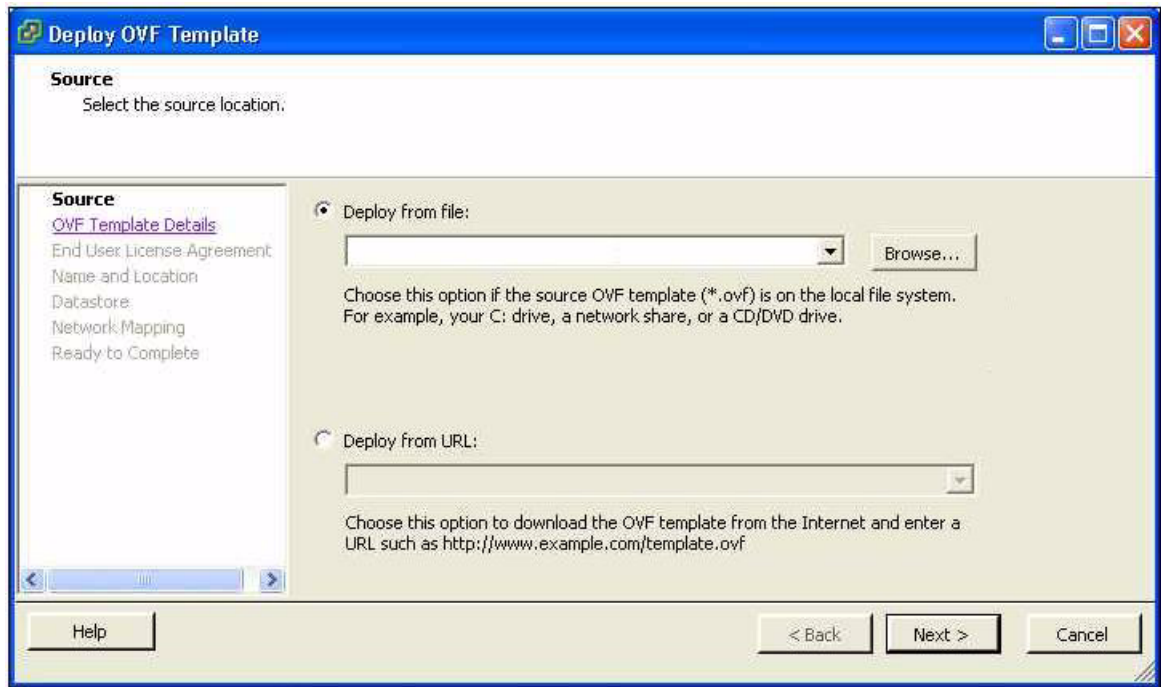
Before beginning this procedure you must know or do the following:

- You have already read the [“Prerequisites” section on page 3](#).
- For detailed information about deploying an OVF template, see the following VMware document: *vSphere Virtual Machine Administration Guide*
- You have the following information available for creating a VM for the VSM and mapping the required port groups:
 - A name for the new VSM that is unique within the inventory folder and up to 80 characters in length.
 - The name of the host where the VSM will be installed in the inventory folder.
 - The name of the datastore in which the VM files will be stored.
 - The names of the network port groups used for the VM.
 - The Cisco Nexus 1000V VSM IP address.
- You have the following information available for creating and saving an initial configuration file on the VSM:
 - VSM domain ID
 - Admin password
 - Management IP address, subnet mask, and gateway
- You have a copy of the following open virtual appliance (OVA) VSM software file on your local drive:
 - Nexus1000v-4.0.4.SV1.3b.ova

DETAILED STEPS

-
- Step 1** From the VSphere Client, choose **File > Deploy OVF Template**.
The Source window opens.

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Step 2 Click **Deploy from file** and choose the location of the installation file on the local disk.

Step 3 Click **Next**.

The OVF Template Details window opens displaying product information, including the size of the file and the size of the VM disk.

Step 4 Click **Next**.

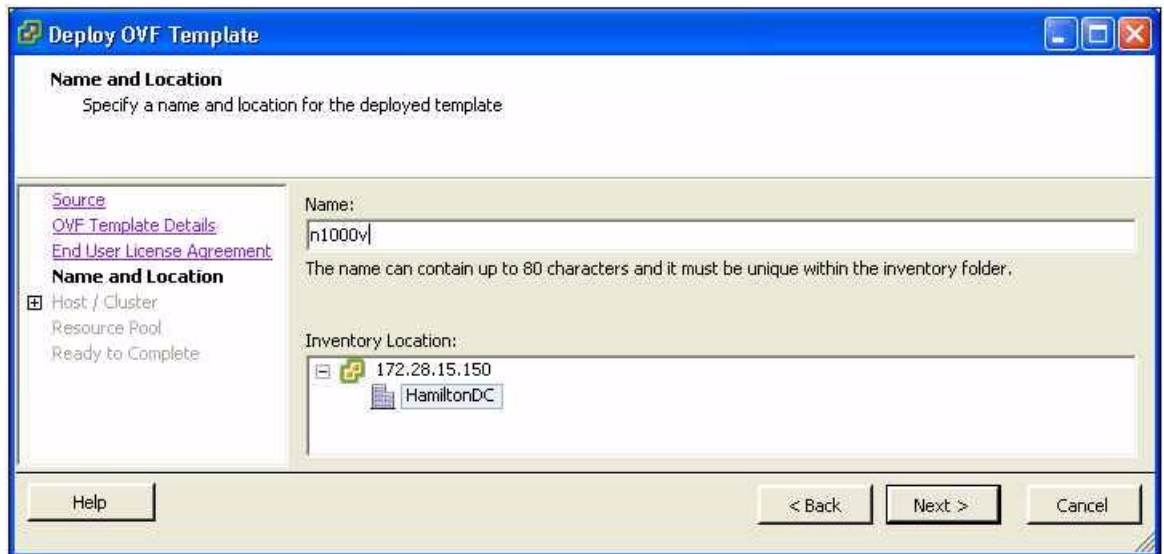
The End User License Agreement opens.

Step 5 Read the Cisco Nexus 1000V License Agreement.

Step 6 Click **Accept** and then click **Next**.

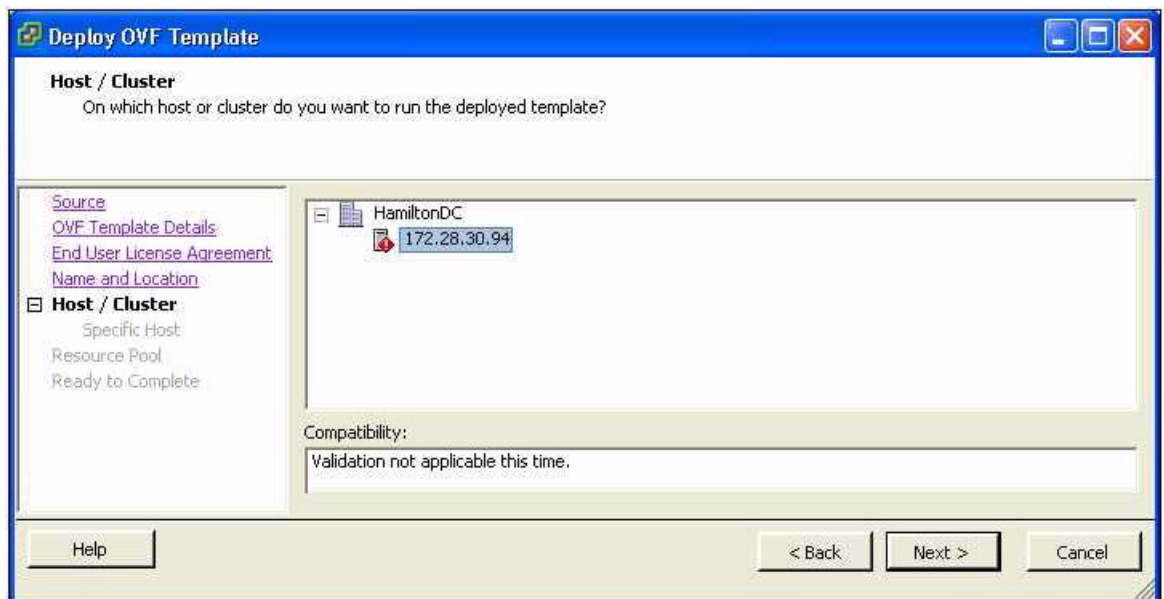
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The Name and Location window opens.



Step 7 In the Name field, add a name for the VSM that is unique within the inventory folder and less than 80 characters in length. Click **Next**.

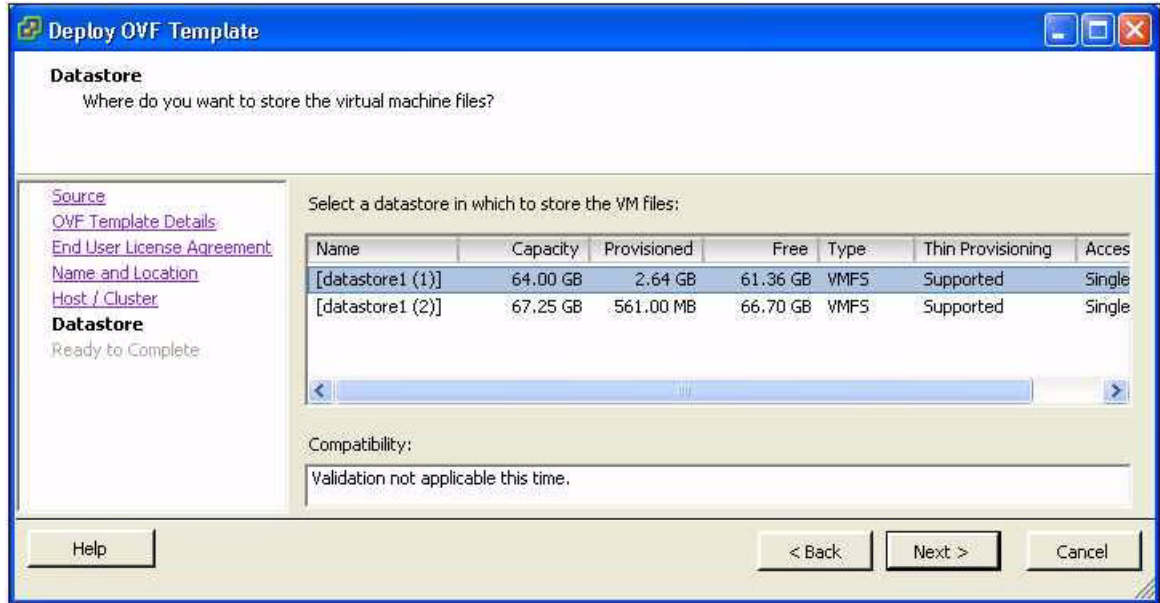
The Host or Cluster window opens.



Step 8 Choose the host where this VSM will be installed. Click **Next**.

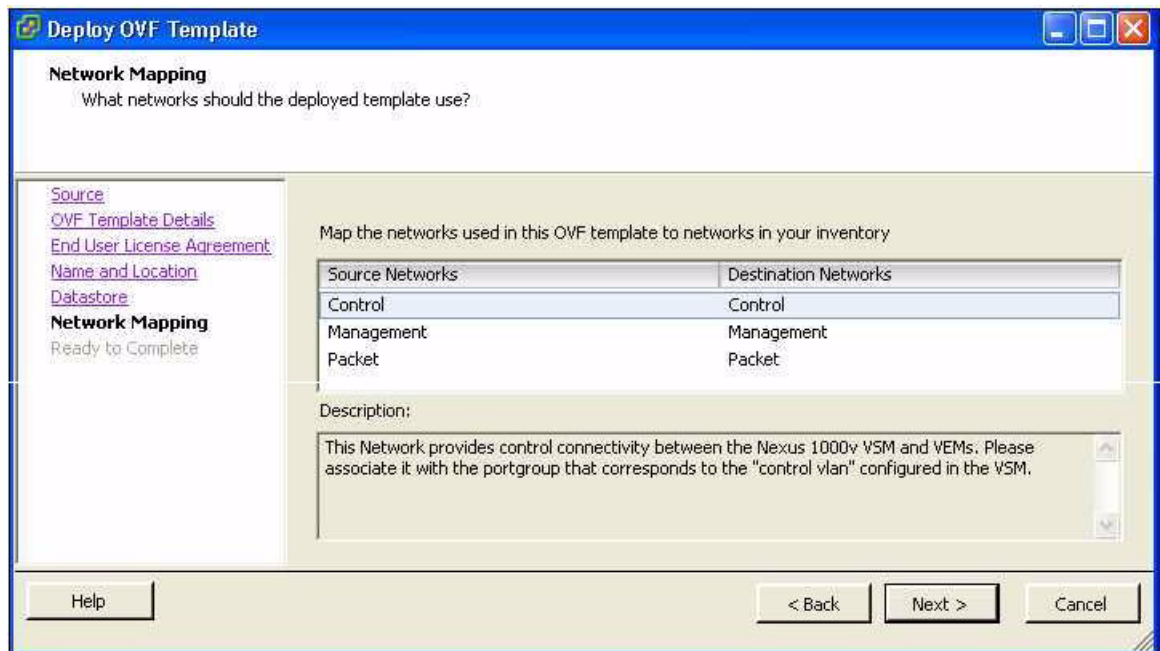
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The Datastore window opens.



Step 9 Choose the datastore if one is available and click **Next**.

The Network Mapping window opens.



Step 10 Choose the networks (the control, management, and packet port groups) that are present in your inventory and click **Next**.

The Deployment Configuration window opens.

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Step 11 In the Configuration field, choose one of the following methods for configuring the VSM. This defines the method of configuration you will use after software installation is complete.

- Nexus 1000V Installer
(Configures the primary VSM using a GUI setup dialog.)
- Manually Configure Nexus 1000V
(Configures the VSM using a CLI setup dialog.)

The Properties window opens.

Step 12 Add the following information for your VSM:

- Admin password



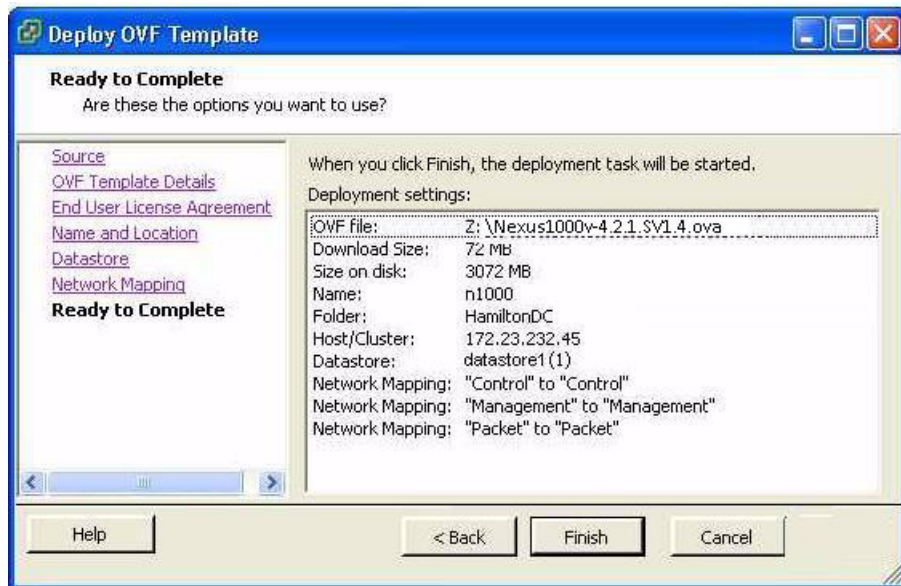
Note All alphanumeric characters and symbols on a standard US keyboard are allowed except for these three: \$ \ ?

- Management IP address, subnet mask, and IP gateway

Step 13 Click **Next**.

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The Ready to Complete window opens.



Step 14 If the configuration is correct, click **Finish**.

The status for the VM installation displays as the software installation is in progress.

A message notifies you when the installation completes.

Step 15 You have completed installing the Cisco Nexus 1000V software on the VMware server.



Note

If you are installing redundant VSMS, make sure that you configure the software on the primary VSM before installing the software on the secondary VSM.

To continue configuring your Cisco Nexus 1000V, see the [“Where to Go Next”](#) section on page 13.

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Where to Go Next

After you have completed the Cisco Nexus 1000V software installation and powered on the VM, a setup dialog starts automatically. This setup dialog prompts you for the required information for your initial Cisco Nexus 1000V configuration and is available in either a CLI or GUI version.

For detailed information about using the setup dialog to continue the setup of your Cisco Nexus 1000V, see the *Cisco Nexus 1000V Getting Started Guide, Release 4.0(4)SV1(3)*.



Note

If you are installing redundant VSMs, make sure that you configure the software on the primary VSM before installing the software on the secondary VSM.

Available Documents

The following documents are used with the Cisco Nexus 1000 and are available on [Cisco.com](http://www.cisco.com) at the following url:

http://www.cisco.com/en/US/products/ps9902/tsd_products_support_series_home.html

General Information

Cisco Nexus 1000V Documentation Roadmap, Release 4.0(4)SV1(3b)

Cisco Nexus 1000V Release Notes, Release 4.0(4)SV1(3b)

Cisco Nexus 1000V Compatibility Information, Release 4.0(4)SV1(3b)

Cisco Nexus 1010 Management Software Release Notes, Release 4.0(4)SP1(1)

Install and Upgrade

Cisco Nexus 1000V Virtual Supervisor Module Software Installation Guide, Release 4.0(4)SV1(3b)

Cisco Nexus 1000V Software Upgrade Guide, Release 4.0(4)SV1(3b)

Cisco Nexus 1000V VEM Software Installation and Upgrade Guide, Release 4.0(4)SV1(3b)

Cisco Nexus 1010 Virtual Services Appliance Installation Guide

Configuration Guides

Cisco Nexus 1000V Getting Started Guide, Release 4.0(4)SV1(3)

Cisco Nexus 1000V High Availability and Redundancy Configuration Guide, Release 4.0(4)SV1(3)

Cisco Nexus 1000V Interface Configuration Guide, Release 4.0(4)SV1(3)

Cisco Nexus 1000V Layer 2 Switching Configuration Guide, Release 4.0(4)SV1(3)

Cisco Nexus 1000V License Configuration Guide, Release 4.0(4)SV1(3)

Cisco Nexus 1000V Port Profile Configuration Guide, Release 4.0(4)SV1(3)

Cisco Nexus 1000V Quality of Service Configuration Guide, Release 4.0(4)SV1(3)

Cisco Nexus 1000V Security Configuration Guide, Release 4.0(4)SV1(3)

Cisco Nexus 1000V System Management Configuration Guide, Release 4.0(4)SV1(3)

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Cisco Nexus 1010 Software Configuration Guide, Release 4.0(4)SP1(1)

Programming Guide

Cisco Nexus 1000V XML API User Guide, Release 4.0(4)SV1(3)

Reference Guides

Cisco Nexus 1000V Command Reference, Release 4.0(4)SV1(3)

Cisco Nexus 1000V MIB Quick Reference

Cisco Nexus 1010 Command Reference, Release 4.0(4)SP1(1)

Troubleshooting and Alerts

Cisco Nexus 1000V Troubleshooting Guide, Release 4.0(4)SV1(3a)

Cisco Nexus 1000V Password Recovery Guide

Cisco NX-OS System Messages Reference

Network Analysis Module Documentation

Cisco Network Analysis Module Software Documentation Guide, 4.2

Cisco Nexus 1000V NAM Virtual Service Blade Installation and Configuration Guide

Network Analysis Module Command Reference Guide, 4.2

User Guide for the Cisco Network Analysis Module Virtual Service Blades, 4.2

Cisco Network Analysis Module Software Release Notes, 4.2

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<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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