APPENDIX B

Installing the Cisco Nexus 1000V Software Using ISO or OVA Files

The following chapter describes how to install the Cisco Nexus 1000V using an ISO or OVA file.

This chapter contains the following sections:

Installing the VSM Software

You can install the VSM software by using either the ISO file or the OVA file.

The workflow for installing the VSM software from an ISO file is as follows:

1. Installing the Software from the ISO Image, page B-1
2. Establishing the SVS Connection, page B-17

The workflow for installing the VSM software from an OVA file is as follows:

1. Installing the Software from an OVA Image, page B-7
2. Establishing the SVS Connection, page B-17

Installing the Software from the ISO Image

You can 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:

- The ISO image is located at *zip_file_location*/Nexus1000v.4.2.1.SV1.5.1/VSM/Install/nexus-1000v.4.2.1.SV1.5.1.iso
- You have already read the "Prerequisites for Installing the Cisco Nexus 1000V" section on page 2-3.
- You have already manually provisioned the VM to be used for the VSM. For more information, see the *vSphere Virtual Machine Administration Guide.*

- The VSM VM requires the following and this procedure includes steps for updating these properties:
  - Minimum of 2 GB of RAM reserved and allocated.
  - Minimum CPU speed of 1500 MHz.
- Do not create more than one virtual CPU. The Cisco Nexus 1000V supports only one virtual CPU.

PROCEDURE

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 pane.

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 pane.

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 pane.

Step 8 In the Reservation field, choose **1500 MHz.**

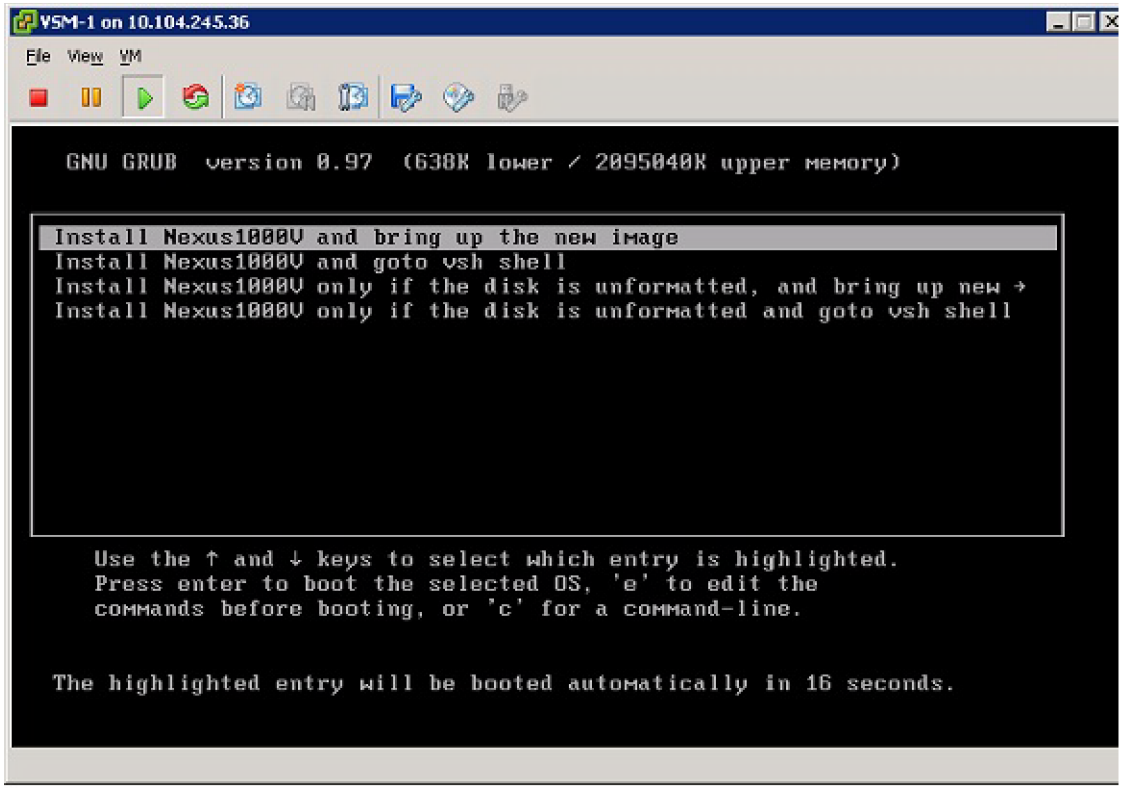
Step 9 Click **OK**.

The VSM VM memory and CPU speed settings are saved in VMware vSphere Client.

Step 10 Right-click the **VSM** and choose **Open Console**.

The Install Nexus1000V and Bring Up the New Image window opens. See Figure B-1.

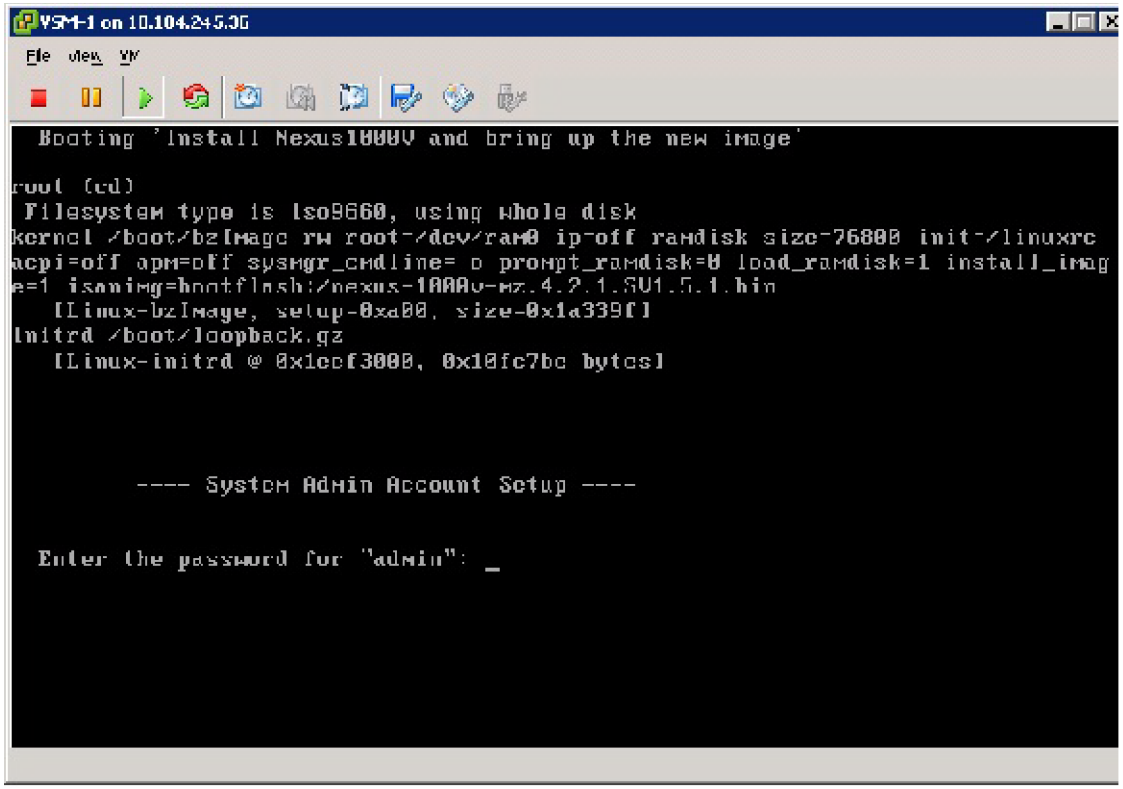
Figure B-1 Install Nexus1000V and Bring Up the New Image Window



Step 11 Choose the Install Nexus1000V and bring up the new image entry and press **Enter**.

The System Admin Account Setup window opens. See Figure B-2.

Figure B-2 System Admin Account Setup Window



Step 12 Enter and confirm the Administrator password.

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

```
---- System Admin Account Setup ----
Enter the password for "admin":
Confirm the password for "admin":
```

Step 13 Enter the domain ID.

```
Enter the domain id<1-4095>: 152
```

Step 14 Enter the HA role.

If you do not specify a role, standalone is assigned by default.

This example shows the HA role as primary.

```
Enter HA role[standalone/primary/secondary]: primary


[########################################] 100%

         ---- Basic System Configuration Dialog ----

This setup utility will guide you through the basic configuration of
the system. Setup configures only enough connectivity for management
of the system.

*Note: setup is mainly used for configuring the system initially,
```

```
when no configuration is present. So setup always assumes system
defaults and not the current system configuration values.

Press Enter at anytime to skip a dialog. Use ctrl-c at anytime
to skip the remaining dialogs.

Would you like to enter the basic configuration dialog (yes/no):
```

This example shows the HA role as secondary.

```
Enter HA role[standalone/primary/secondary]: secondary


  Setting HA role to secondary will cause a system reboot. Are you sure (yes/no) ? :
```

Step 15 Do one of the following:

- If you are setting up the primary/active VSM, go to Step 18.
- If you are setting up the secondary/standby VSM, then continue with the next step.

Step 16 If you have set up the VSM virtual machine (VM) to boot from the CD-ROM, and are installing the secondary VSM from the ISO image attached to your CD-ROM, remove the virtual CD-ROM now so that the VSM does not boot from the CD.

This step is necessary if you have set up the VSM VM to boot from the CD-ROM before the hard drive.

Step 17 If you are setting up the secondary/standby VSM, when prompted to reboot the VSM, answer **yes**.

The secondary VSM VM is rebooted and brought up in standby mode.

The password on the secondary VSM is synchronized with the password on the active/primary VSM.

Any configuration made on the active/primary VSM is now automatically synchronized with the standby.

This example show the system rebooting when the HA role is set to secondary.

```
Setting HA role to secondary will cause a system reboot. Are you sure (yes/no) ? :y

[########################################] 100%

  HA mode set to secondary. Rebooting now...
```

You have completed this procedure for the secondary VSM.

Step 18 Enter **yes** to enter the basic configuration dialog.

```
Would you like to enter the basic configuration dialog (yes/no): yes
```

Step 19 Enter **no** to create another Login account.

```
Create another login account (yes/no) [n]: no
```

Step 20 Enter **no** to configure a read-only SNMP community string.

```
Configure read-only SNMP community string (yes/no) [n]: no
```

Step 21 Enter **no** to configure a read-write SNMP community string.

```
Configure read-write SNMP community string (yes/no) [n]: no
```

Step 22 Enter a name for the switch.

```
Enter the switch name: n1000v
```

Step 23 Enter **yes** to configure out-of-band management and then enter the mgmt0 IPv4 address and subnet mask.

```
Continue with Out-of-band (mgmt0) management configuration? [yes/no] [y]: yes
Mgmt0 IPv4 address: 172.28.15.152
Mgmt0 IPv4 netmask: 255.255.255.0
```

Step 24 Enter **yes** to configure the default gateway.

```
Configure the default-gateway: (yes/no) [y]: yes

    IPv4 address of the default gateway : 172.23.233.1
```

Step 25 Enter **no** to configure advanced IP options.

```
Configure Advanced IP options (yes/no)? [n]: no
```

Step 26 Enter **yes** to enable the Telnet service.

```
Enable the telnet service? (yes/no) [y]: yes
```

Step 27 Enter **yes** to enable the SSH service and then enter the key type and number of key bits. For more information, see the document,*Cisco Nexus 1000V Security Configuration Guide, Release 4.2(1)SV1(5.1)*.

```
Enable the ssh service? (yes/no) [y]: yes
Type of ssh key you would like to generate (dsa/rsa) : rsa
Number of  key bits <768-2048> : 1024
```

Step 28 Enter **yes** to enable the HTTP server.

```
Enable the http-server? (yes/no) [y]: yes
```

Step 29 Enter **no** to configure the NTP server.

```
Configure NTP server? (yes/no) [n]: no
```

Step 30 Enter **yes** to configure the SVS domain parameters and then enter the mode (**L2** or **L3**), and the control and packet VLAN IDs.

```
Configure svs domain parameters? (yes/no) [y]: yes
Enter SVS Control mode (L2 / L3) : L2
Enter control vlan <1-3967, 4048-4093> : 100
Enter packet vlan <1-3967, 4048-4093> : 101
```

Step 31 Enter **yes** to configure the VEM feature level and then enter **0** or **1**.

```
Vem feature level will be set to 4.2(1)SV1(5.1),
Do you want to reconfigure? (yes/no) [n] yes
          Current vem feature level is set to 4.2(1)SV1(5.1)
          You can change the feature level to:
                     vem feature level is set to the highest value possible
```

Note The feature level is the least VEM version that the VSM can support. For example, if the feature level is set to 4.2(1)SV1(5.1) release, any VEMs with an earlier version will not be attached to the VSM.

The system now summarizes the complete configuration and asks if you want to edit it.

```
The following configuration will be applied:
 Switchname n1000v
interface Mgmt0
ip address 172.28.15.152 255.255.255.0
no shutdown
no telnet server enable
  ssh key rsa 1024 force
```

```
  ssh server enable
  feature http-server
  svs-domain
    svs mode L2
    control vlan 100
    packet vlan 101
    domain id 101
vlan 100
vlan 101
```

Step 32 Do one of the following:

- If you do not want to edit the configuration enter **no** and continue with the next step.
- If you want to edit the configuration, enter **yes** and return to Step 19 to revisit each command.

```
Would you like to edit the configuration? (yes/no) [n]:no
```

Step 33 Enter **yes** to use and save this configuration, answer **yes**.

Caution If you do not save the configuration now, none of your changes will be part of the configuration the next time that the switch is rebooted. Enter **yes** to save the new configuration and to ensure that the kickstart and system images are also automatically configured.

```
Use this configuration and save it? (yes/no) [y]: yes
[########################################] 100%
```

The new configuration is saved into nonvolatile storage.

Note You can use the setup routine to update the configuration done in Step 18 through Step 33 at any time by entering the **setup** command in EXEC mode. Once setup begins, press **Enter** to skip a command. Press Ctrl-C to skip the remaining commands.

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.

Step 34 Create the SVS connection manually or go to the "Establishing the SVS Connection" section on page B-17.

Installing the Software from an OVA Image

You can use this procedure and your VMware documentation to install the Cisco Nexus 1000V software on a VMware server. This procedure uses the vSphere client Deploy OVF Template wizard to do 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.
- Applies an initial configuration to the VSM, including the VSM domain ID, admin user password, and Management IP address, subnet mask, and IP gateway.

BEFORE YOU BEGIN

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

- The OVA image is located at *zip_file_location*/Nexus1000v.4.2.1.SV1.5.1/VSM/Install/nexus-1000v.4.2.1.SV1.5.1.ova
- You have already read the "Prerequisites for Installing the Cisco Nexus 1000V" section on page 2-3.
- You have a copy of the following Cisco Nexus 1000V software image files on your local drive, depending on the installation type you are using:

Installation Type	Filename	Used with ESX or ESXi Host Software Version
OVA	nexus-1000v.4.2.1.SV1.5.1.ova	4.1 or later

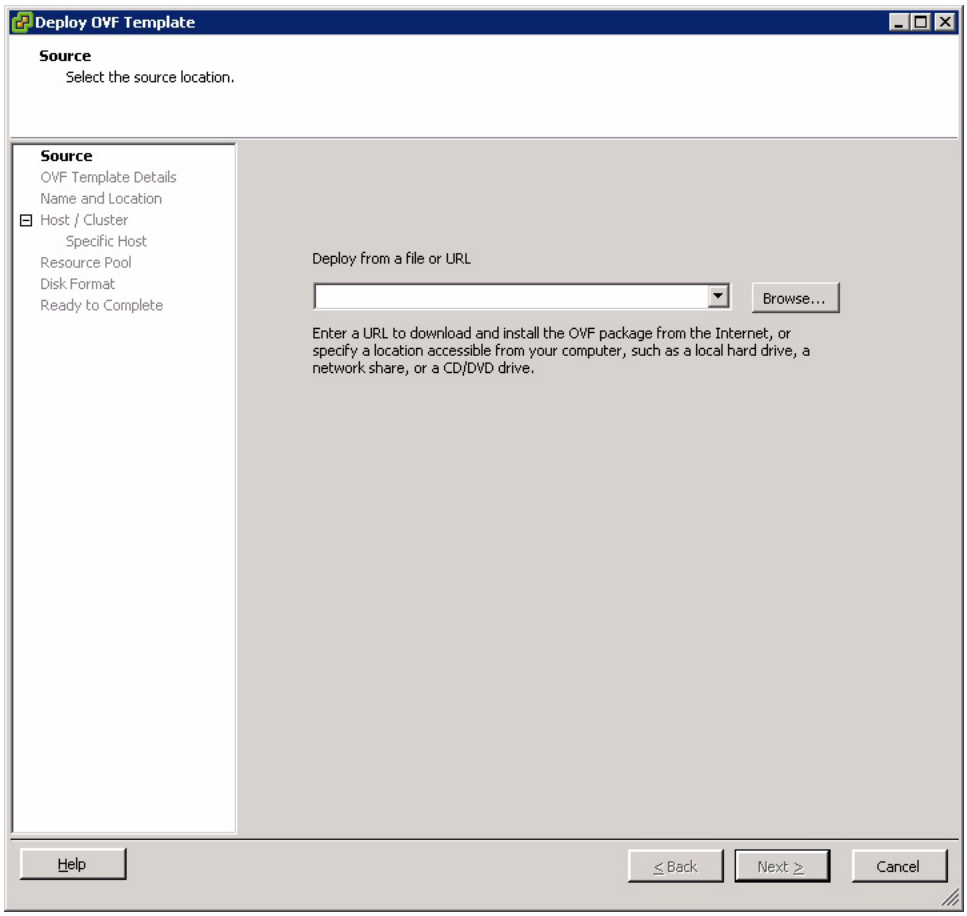
- For detailed information about using the Deploy OVF Template wizard, see the *vSphere Virtual Machine Administration Guide.*
- You have the following information available for creating a VM for the VSM and mapping the required port groups:
  - A name for the new VSM that is unique within the inventory folder and up to 80 characters.
  - 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.
- If you are using the OVA file for installation, make sure that 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

PROCEDURE

Step 1 From the vSphere Client, choose **File > Deploy OVF Template**.

The Source screen opens. See Figure B-3.

Figure B-3 Source Screen



Step 2 Specify the location of the OVA file and click **Next.**

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

Step 3 Click **Next**.

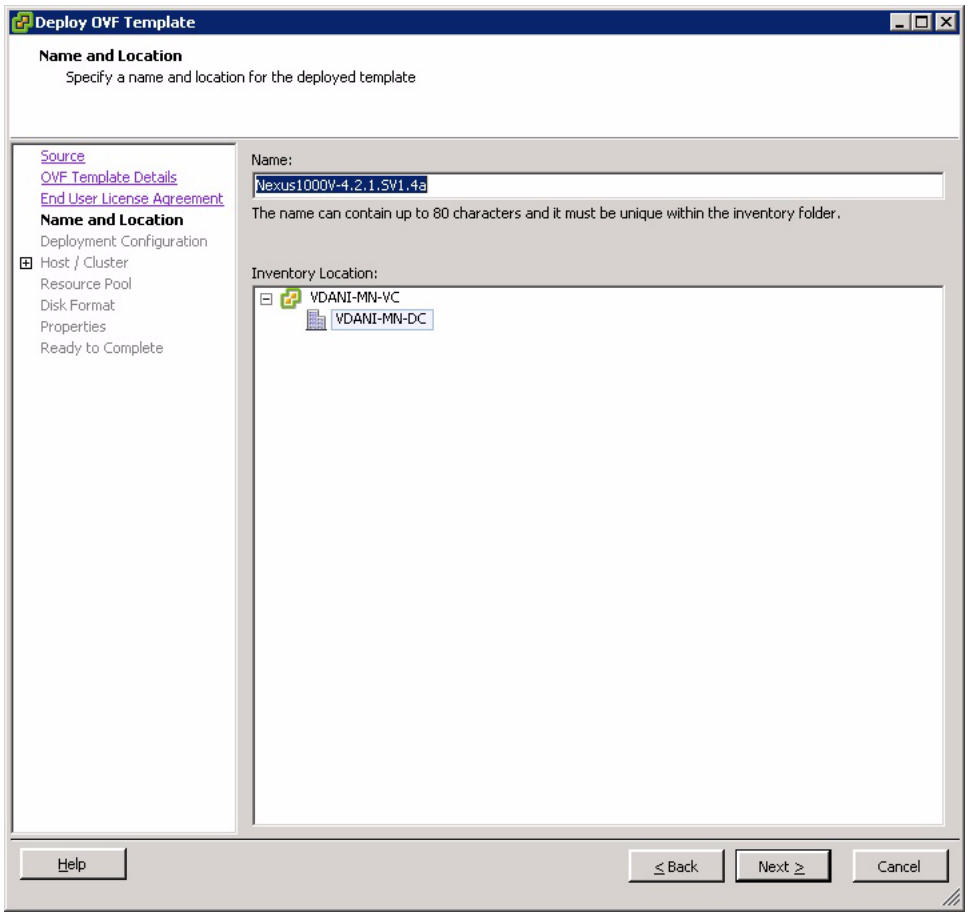
The End User License Agreement screen opens.

Step 4 Read the Cisco Nexus 1000V License Agreement.

Step 5 Click **Accept** and then click **Next**.

The Name and Location screen opens. See Figure B-4.

Figure B-4 Deploy OVF Template Screen.

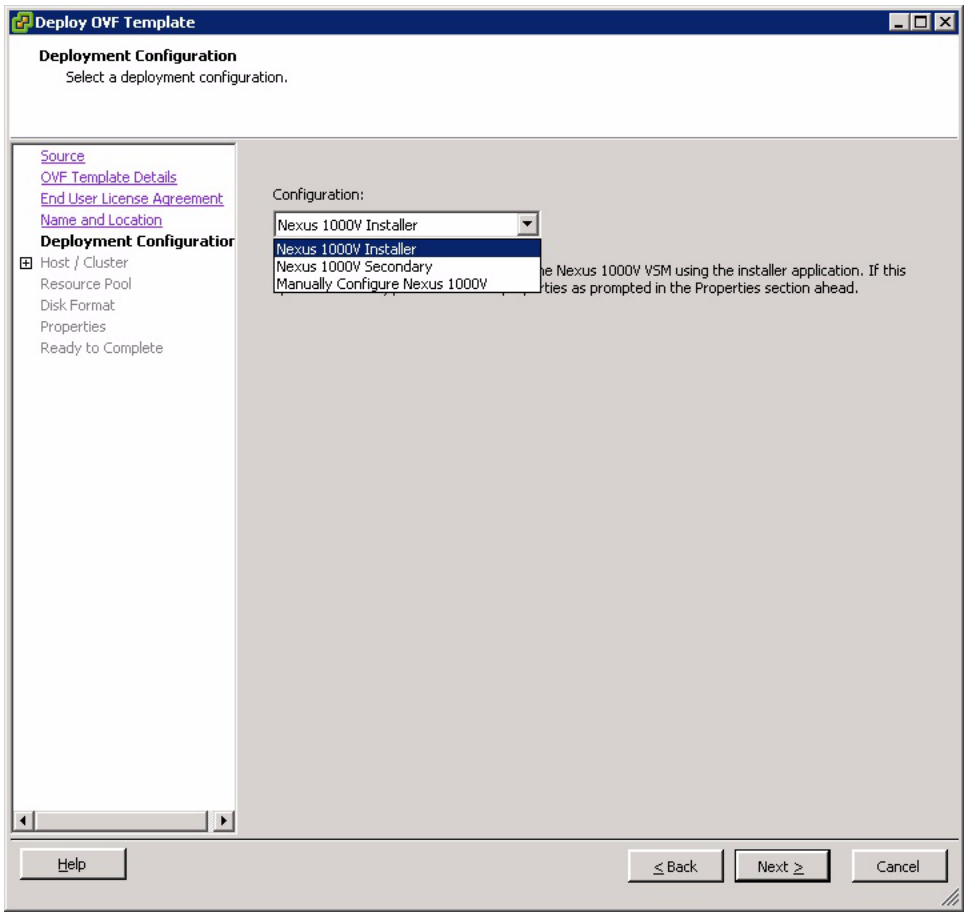


Step 6 Add the VSM name, choose the folder location within the inventory where it will reside, and click **Next**.

The name for the VSM must be unique within the inventory folder and less than 80 characters.

The Deployment Configuration screen opens. See Figure B-5.

Figure B-5 Deployment Configuration Screen



Step 7 From the Configuration drop-down list, choose **Nexus 1000V Installer**.

This choice configures the primary VSM using the GUI setup dialog.

Step 8 Click **Next**.

The Host or Cluster screen opens.

Step 9 Choose the data center or cluster on which to install the VSM.

Step 10 Click **Next**.

The Datastore screen opens.

Step 11 Choose the datastore in which to store the file if one is available.

On this page, you choose from datastores already configured on the destination cluster or host. The virtual machine configuration file and virtual disk files are stored on the datastore. Choose a datastore large enough to accommodate the virtual machine and all of its virtual disk files.

Step 12 Click **Next**.

The Disk Format screen opens.

Step 13 Choose the **Thick provisioned** disk format for storing virtual machine virtual disks, and click **Next**.

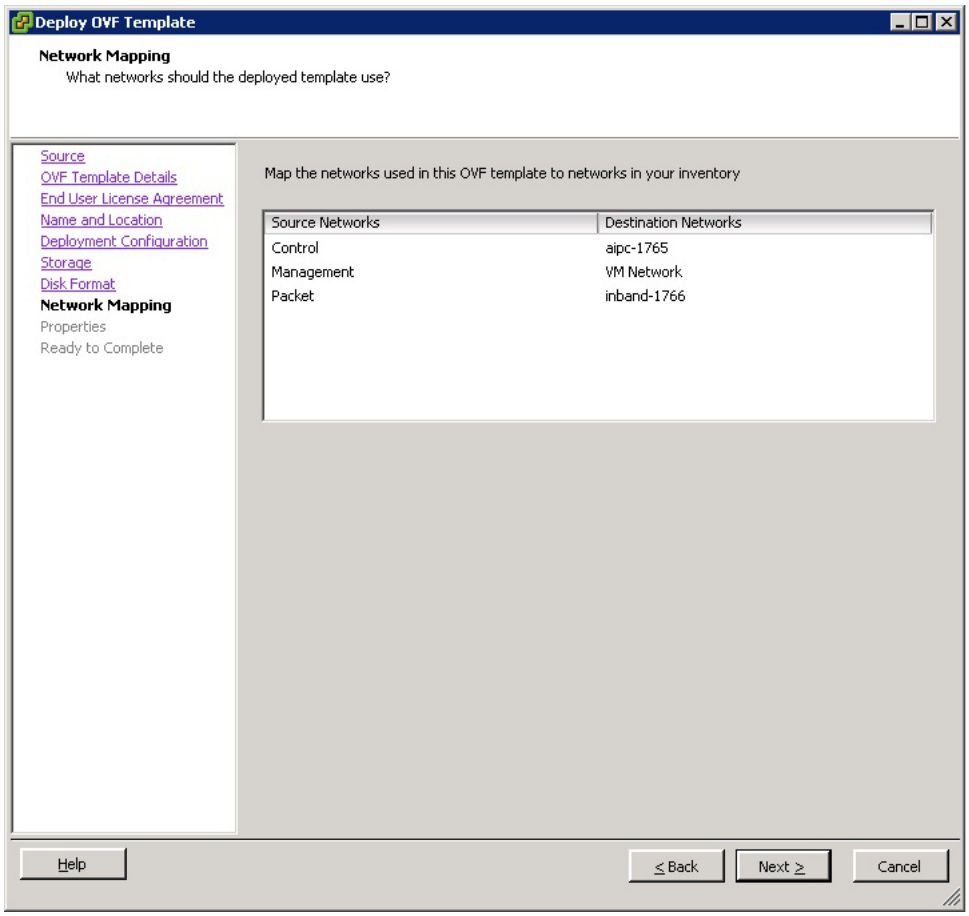
Table B-1 lists the available disk formats.

Table B-1 Disk Formats

Format	Description
Thin Provisioned	The storage is allocated on demand as data is written to the virtual disks. **Note** This disk format is not supported for Cisco Nexus 1000V.
Thick Provisioned	All storage is immediately allocated.
Flat Provisioned	**Note** This format is only available with VMWare ESXi 5.0.
Flat Disk	All storage for the virtual disk is allocated in advance.

The Network Mapping screen opens. See Figure B-6.

Figure B-6 Network Mapping Screen

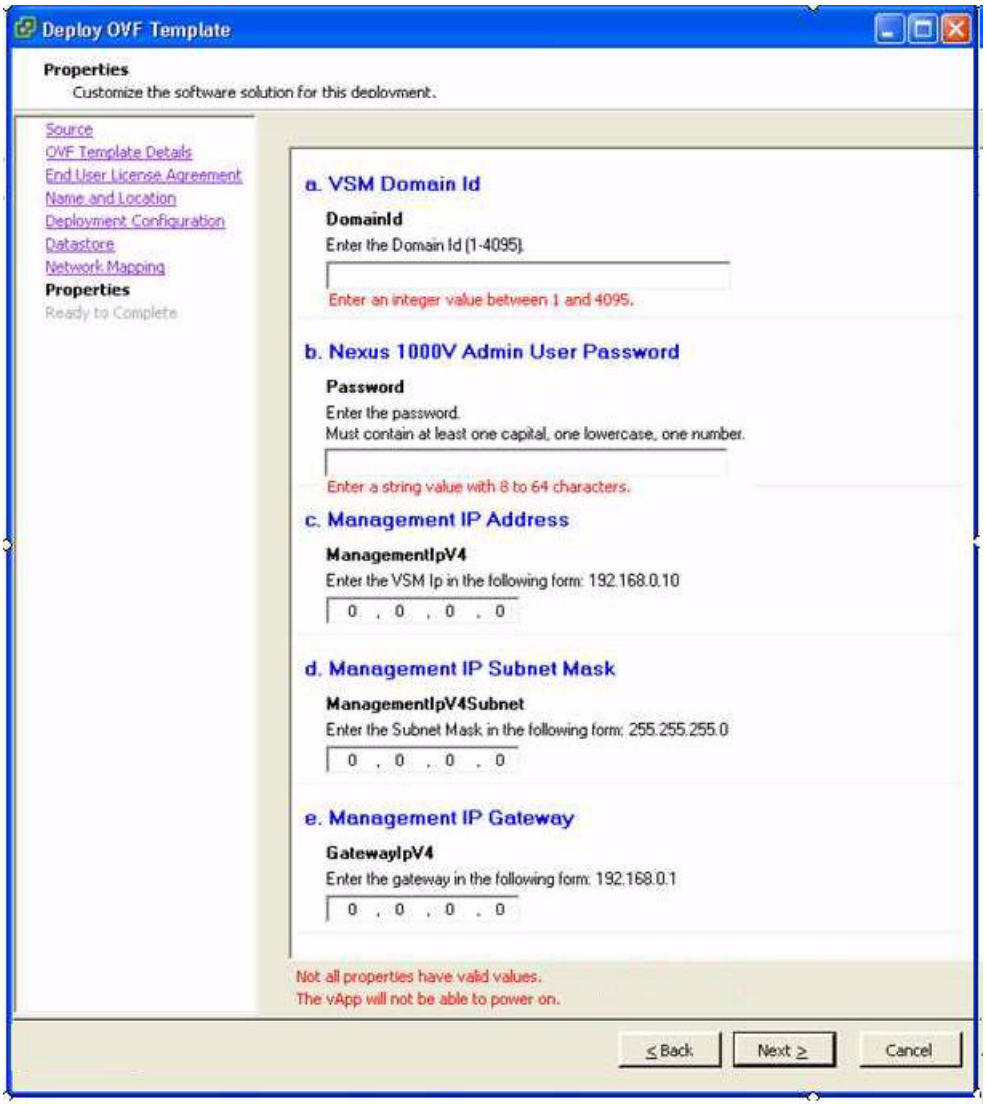


Step 14 In the Network Mapping screen, choose the networks (the control, management, and packet port groups) that are present in your inventory.

Step 15 Click **Next**.

The Properties screen opens. See Figure B-7.

Figure B-7 Properties Screen



Step 16 Do one of the following:

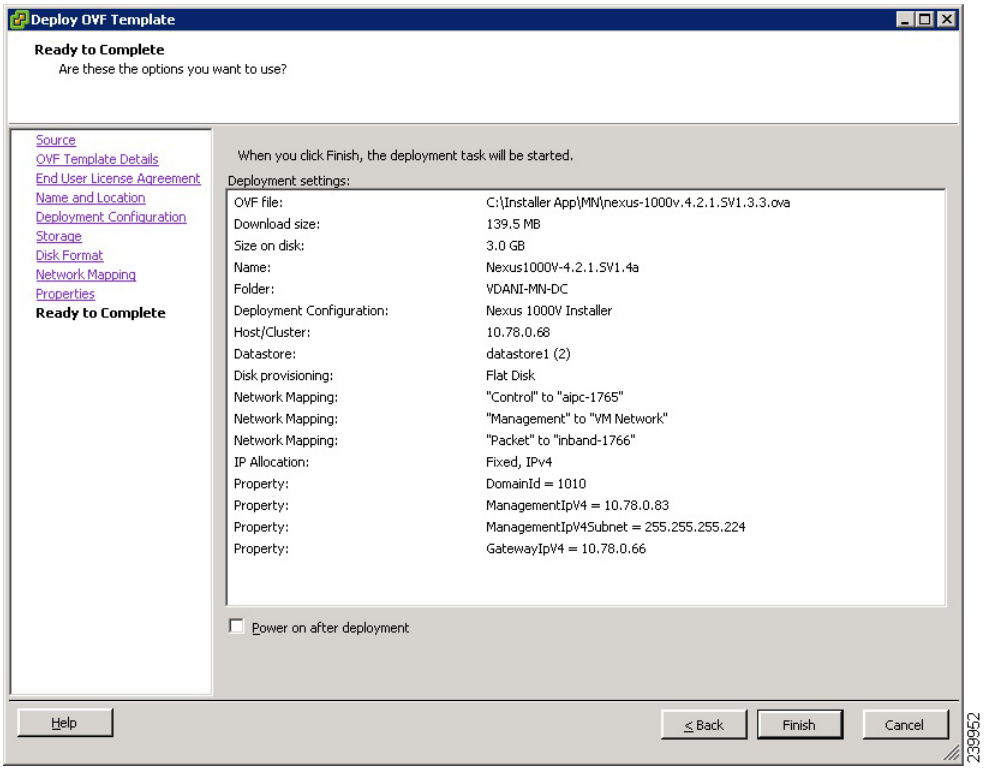
- If you are installing software on a primary VSM, specify the following properties for your primary VSM:
  - VSM domain ID
  - Admin password
  - Management IP address
  - Management IP subnet mask
  - Management IP gateway
- If you are installing software on a secondary VSM, specify only the following properties for your secondary VSM (all other properties are acquired on synchronization with the primary VSM), and then click **Next**:

- VSM domain ID (use the same domain ID entered for the primary).
- Admin password (use the same password entered for the primary).

Step 17 Click **Next**.

The Ready to Complete screen opens. See Figure B-8.

Figure B-8 Ready to Complete Screen



Step 18 If the configuration is correct, click **Finish**.

A status bar displays as the VM installation progresses.

The Deployment Completed Successfully screen opens.

Step 19 Click **Close**.

You have completed installing the Cisco Nexus 1000V software.

Step 20 Right-click the **VSM** and choose **Open Console**.

Step 21 Click the green arrow to power on the VSM.

Step 22 Enter the following command at the VSM prompt.

```
switch# configure terminal
switch(config)# setup
```

Step 23 Enter the HA role.

If you do not specify a role, standalone is assigned by default.

This example shows the HA role as primary.

```
Enter HA role[standalone/primary/secondary]: primary
```

```
[########################################] 100%

        ---- Basic System Configuration Dialog ----

This setup utility will guide you through the basic configuration of
the system. Setup configures only enough connectivity for management
of the system.

*Note: setup is mainly used for configuring the system initially,
when no configuration is present. So setup always assumes system
defaults and not the current system configuration values.

Press Enter at anytime to skip a dialog. Use ctrl-c at anytime
to skip the remaining dialogs.

Would you like to enter the basic configuration dialog (yes/no):
```

This example shows the HA role as secondary.

```
Enter HA role[standalone/primary/secondary]: secondary


  Setting HA role to secondary will cause a system reboot. Are you sure (yes/no) ? :
```

Step 24 Do one of the following:

- If you are setting up the primary/active VSM, go to Step 18.
- If you are setting up the secondary/standby VSM, then continue with the next step.

Step 25 If you have set up the VSM virtual machine (VM) to boot from the CD-ROM, and are installing the secondary VSM from the ISO image attached to your CD-ROM, remove the virtual CD-ROM now so that the VSM does not boot from the CD.

This step is necessary if you have set up the VSM VM to boot from the CD-ROM before the hard drive.

Step 26 If you are setting up the secondary/standby VSM, when prompted to reboot the VSM, answer **yes**.

The secondary VSM VM is rebooted and brought up in standby mode.

The password on the secondary VSM is synchronized with the password on the active/primary VSM.

Any configuration made on the active/primary VSM is now automatically synchronized with the standby.

This example show the system rebooting when the HA role is set to secondary.

```
Setting HA role to secondary will cause a system reboot. Are you sure (yes/no) ? :y

[########################################] 100%

  HA mode set to secondary. Rebooting now...
```

You have completed this procedure for the secondary VSM.

Step 27 Enter **yes** to enter the basic configuration dialog.

```
Would you like to enter the basic configuration dialog (yes/no): yes
```

Step 28 Enter **no** to create another Login account.

```
Create another login account (yes/no) [n]: no
```

Step 29 Enter **no** to configure a read-only SNMP community string.

```
Configure read-only SNMP community string (yes/no) [n]: no
```

Step 30 Enter **no** to configure a read-write SNMP community string.

```
Configure read-write SNMP community string (yes/no) [n]: no
```

Step 31 Enter a name for the switch.

```
Enter the switch name: n1000v
```

Step 32 Enter **yes** to configure out-of-band management and then enter the mgmt0 IPv4 address and subnet mask.

```
Continue with Out-of-band (mgmt0) management configuration? [yes/no] [y]: yes
Mgmt0 IPv4 address: 172.28.15.152
Mgmt0 IPv4 netmask: 255.255.255.0
```

Step 33 Enter **yes** to configure the default gateway.

```
Configure the default-gateway: (yes/no) [y]: yes

    IPv4 address of the default gateway : 172.23.233.1
```

Step 34 Enter **no** to configure advanced IP options.

```
Configure Advanced IP options (yes/no)? [n]: no
```

Step 35 Enter **yes** to enable the Telnet service.

```
Enable the telnet service? (yes/no) [y]: yes
```

Step 36 Enter **yes** to enable the SSH service and then enter the key type and number of key bits. For more information, see the document,*Cisco Nexus 1000V Security Configuration Guide, Release 4.2(1)SV1(5.1)*.

```
Enable the ssh service? (yes/no) [y]: yes
Type of ssh key you would like to generate (dsa/rsa) : rsa
Number of  key bits <768-2048> : 1024
```

Step 37 Enter **yes** to enable the HTTP server.

```
Enable the http-server? (yes/no) [y]: yes
```

Step 38 Enter **no** to configure the NTP server.

```
Configure NTP server? (yes/no) [n]: no
```

Step 39 Enter **yes** to configure the SVS domain parameters and then enter the mode (**L2** or **L3**), and the control and packet VLAN IDs.

```
Configure svs domain parameters? (yes/no) [y]: yes
Enter SVS Control mode (L2 / L3) : L2
Enter control vlan <1-3967, 4048-4093> : 100
Enter packet vlan <1-3967, 4048-4093> : 101
```

Step 40 Enter **yes** to configure the VEM feature level and then enter **0** or **1**.

```
Vem feature level will be set to 4.2(1)SV1(5.1),
Do you want to reconfigure? (yes/no) [n] yes
          Current vem feature level is set to 4.2(1)SV1(5.1)
          You can change the feature level to:
                     vem feature level is set to the highest value possible
```

The system now summarizes the complete configuration and asks if you want to edit it.

```
The following configuration will be applied:
```

```
 Switchname n1000v
interface Mgmt0
ip address 172.28.15.152 255.255.255.0
no shutdown
no telnet server enable
  ssh key rsa 1024 force
  ssh server enable
  feature http-server
  svs-domain
    svs mode L2
    control vlan 100
    packet vlan 101
    domain id 101
vlan 100
vlan 101
```

Step 41 Do one of the following:

- If you do not want to edit the configuration enter **no** and continue with the next step.
- If you want to edit the configuration, enter **yes** and return to Step 19 to revisit each command.

```
Would you like to edit the configuration? (yes/no) [n]:no
```

Step 42 Enter **yes** to use and save this configuration, answer **yes**.

Caution If you do not save the configuration now, none of your changes will be part of the configuration the next time that the switch is rebooted. Enter **yes** to save the new configuration and to ensure that the kickstart and system images are also automatically configured.

```
Use this configuration and save it? (yes/no) [y]: yes
[########################################] 100%
```

The new configuration is saved into nonvolatile storage.

Note You can use the setup routine to update the configuration done in Step 18 through Step 33 at any time by entering the **setup** command in EXEC mode. Once setup begins, press **Enter** to skip a command. Press Ctrl-C to skip the remaining commands.

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.

Step 43 Create the SVS connection manually or go to the "Establishing the SVS Connection" section on page B-17.

Establishing the SVS Connection

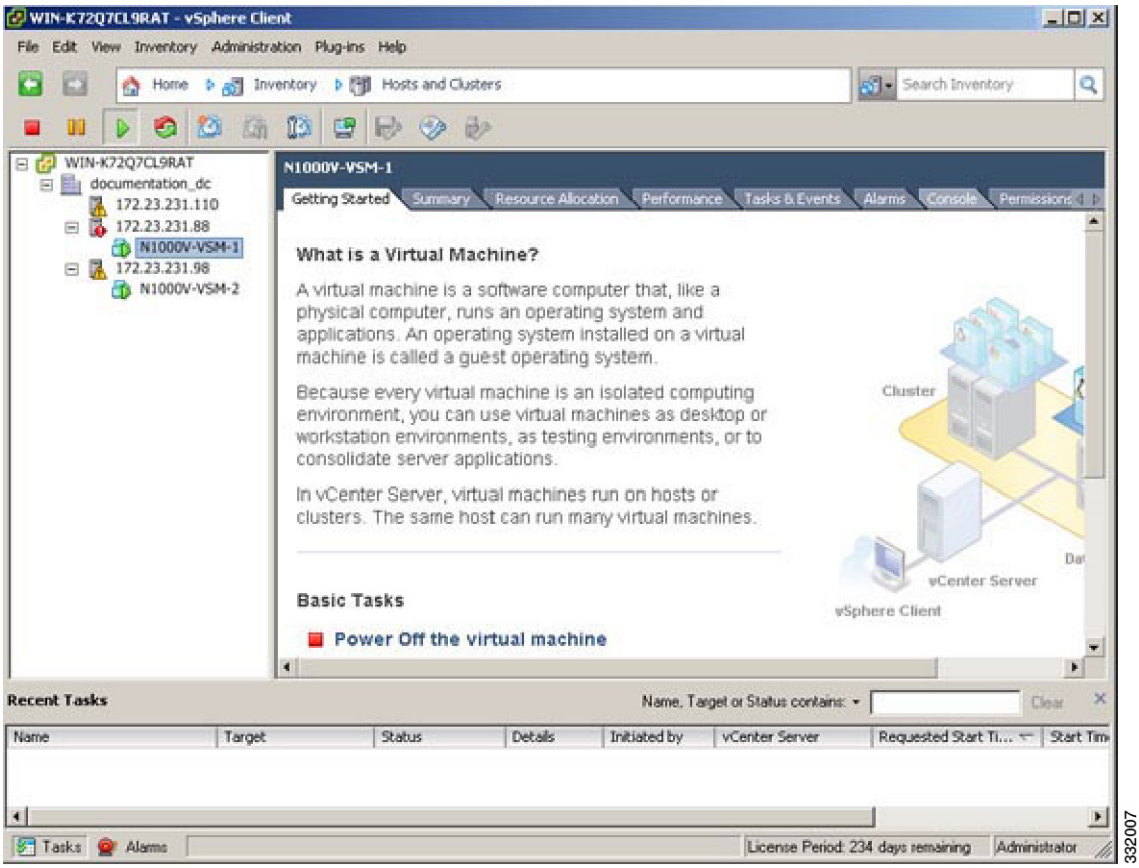
You can use this procedure to establish an SVS connection.

PROCEDURE

Step 1 Open the vSphere Client.

The vSphere Client window opens. See Figure B-9.

Figure B-9 vSphere Client WIndow



Step 2 Choose the primary VSM.

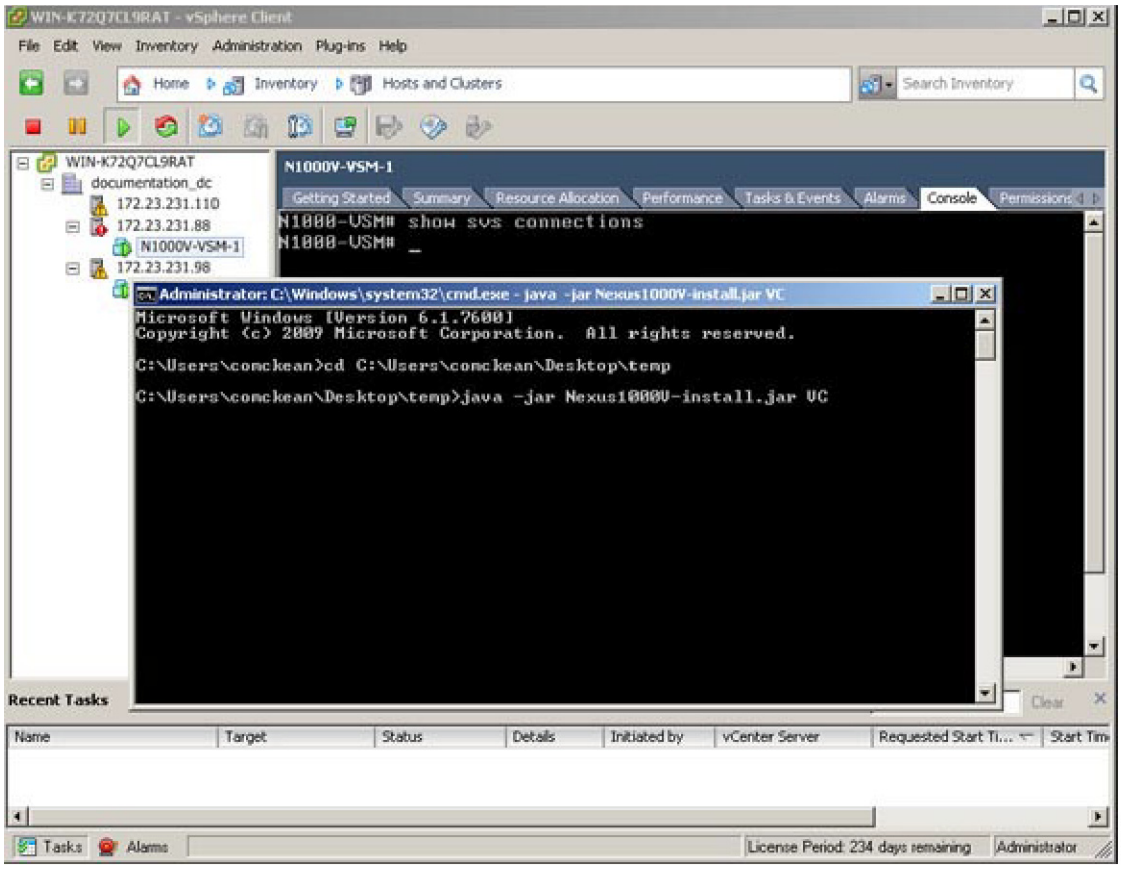
Step 3 Choose the **Console** tab.

Step 4 Enter the **show svs connections** command to confirm that there is not an SVS connection.

Step 5 Open a command window.

The Comment window opens. See Figure B-10.

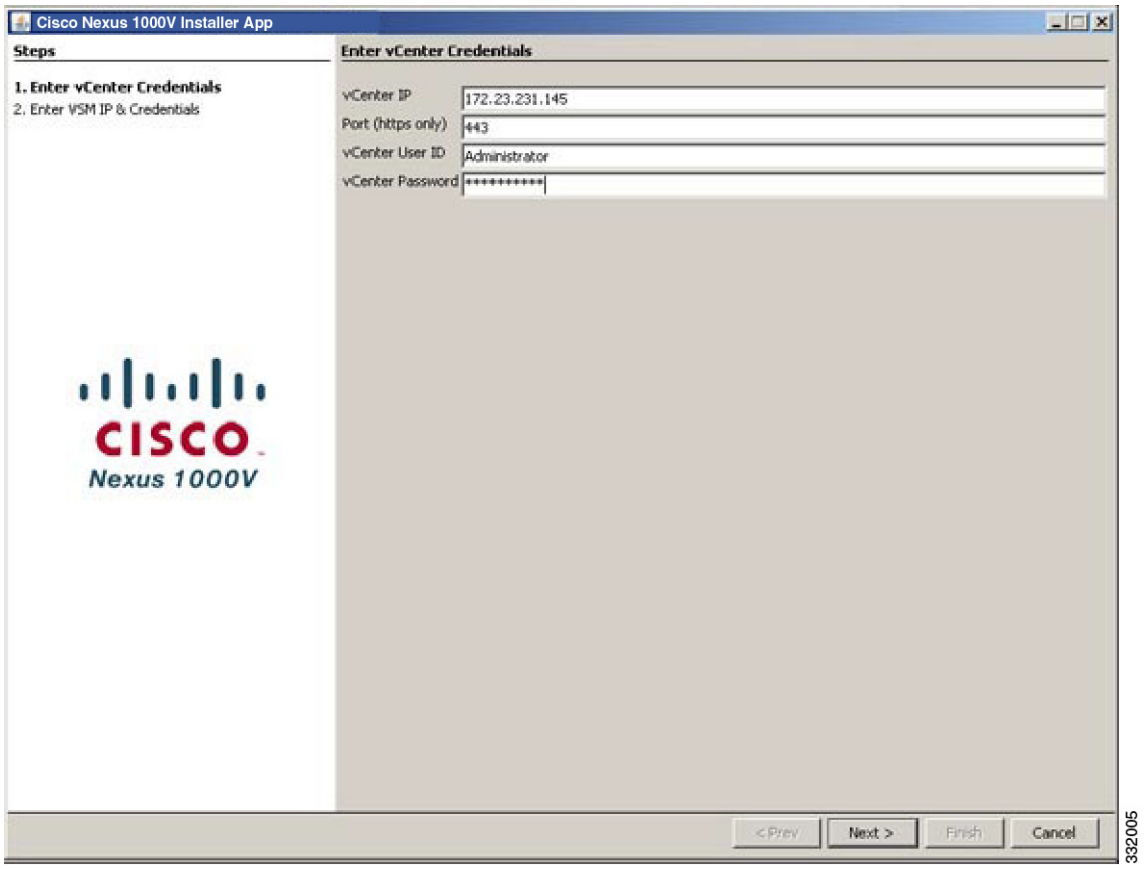
Figure B-10 Command Window



Step 6 Enter the **java -jar Nexus1000V-install.jar VC** command.

The Enter vCenter Credentials screen opens. See Figure B-11.

Figure B-11 Enter vCenter Credentials Screen



Step 7 Enter the following vCenter credentials:

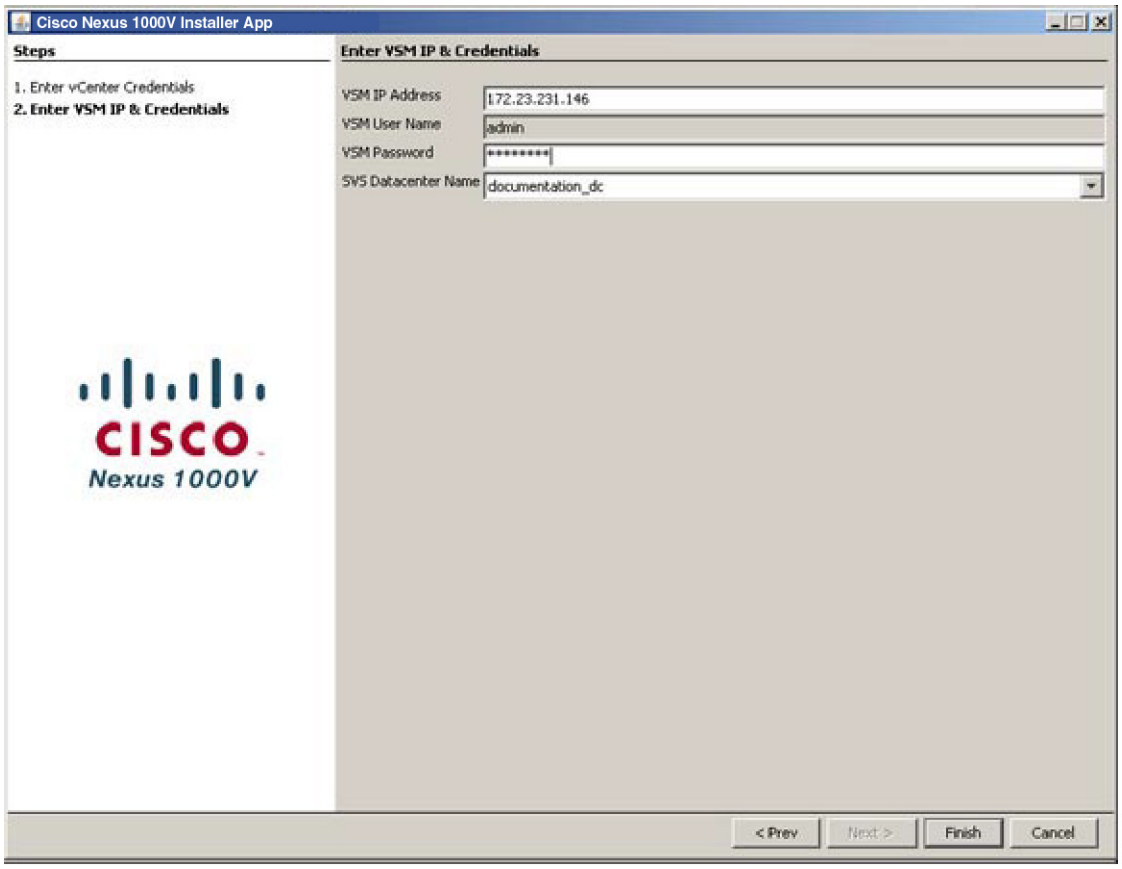
- vCenter IP address
- Secure HTTP port

  Port 443 is configured by default, but you can change the port if needed.
- vCenter User ID (for a vCenter user with administrator-level privileges)
- vCenter Password (for a vCenter user with administrator-level privileges)

Step 8 Click **Next**.

The Enter VSM IP & Credentials screen opens. See Figure B-12.

Figure B-12 Enter VSM IP & Credentials Screen



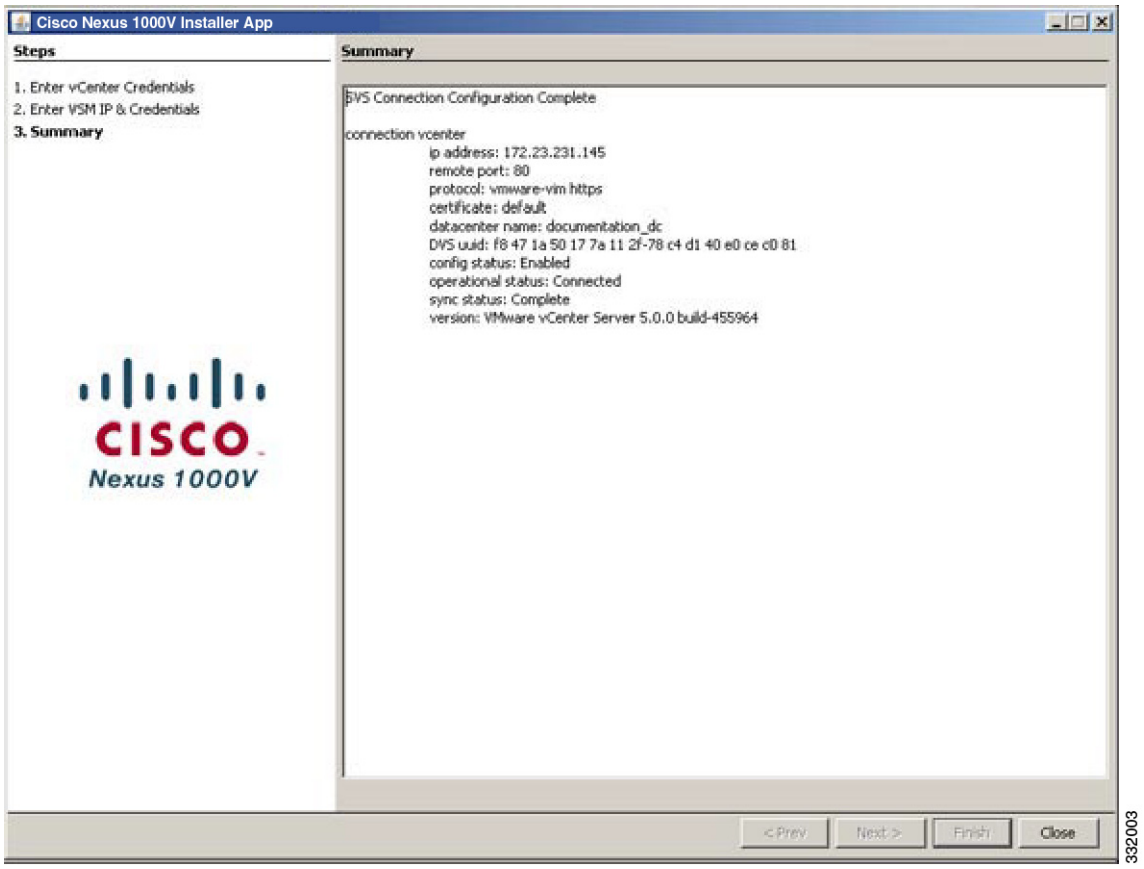
Step 9 Enter the following VSM credentials:

- VSM IP Address
- VSM Password
- From the SVS Datacenter Name drop-down list, choose the data center.

Step 10 Click **Finish**.

The Summary screen opens. See Figure B-13.

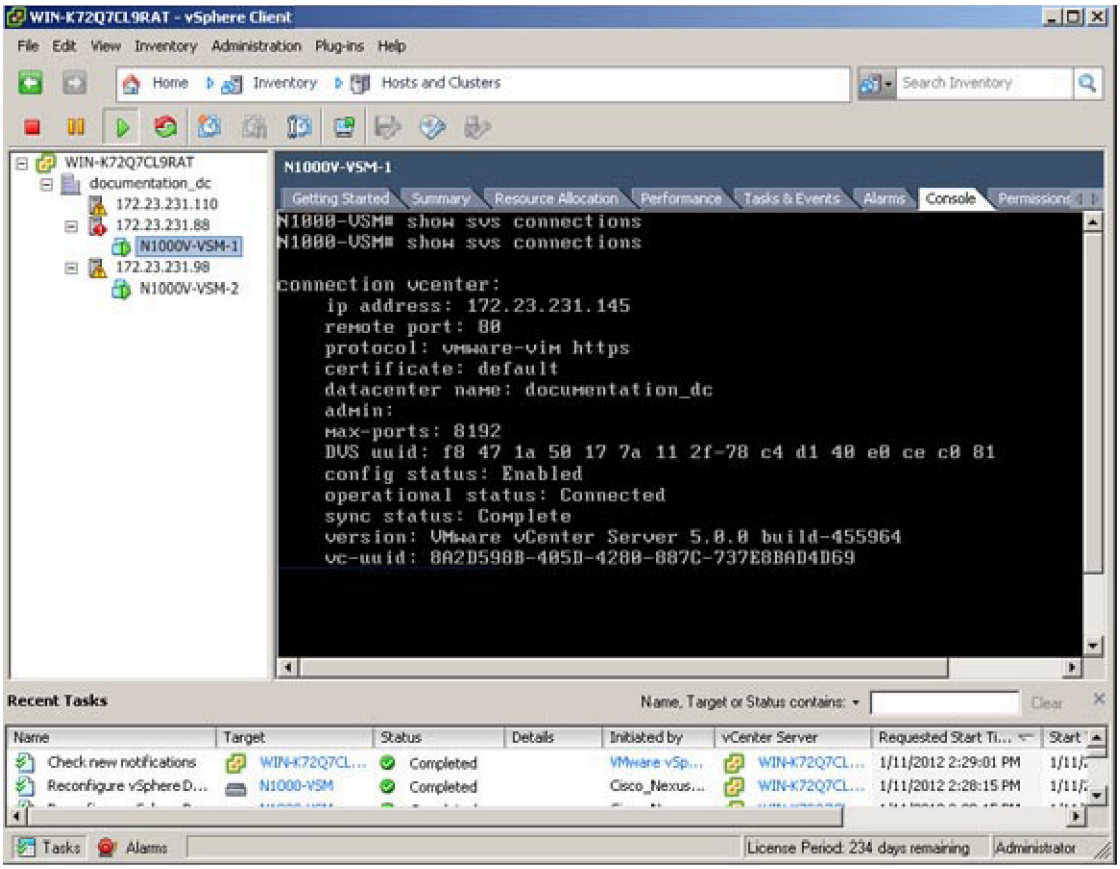
Figure B-13 Summary Screen



Step 11 Click **Close**.

The Console window reappears. See Figure B-14.

Figure B-14 Console Window



Step 12 In the vSphere Console window, enter the **show svs connections** command.

The operational status is Connected.

You have completed establishing the SVS connection.