



## CHAPTER 4

# Configuring the Software Using the CLI

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This chapter describes how to use the CLI to configure your Cisco Nexus 1000V software after it is installed on your ESX or ESXi 4.0 VMware server.



**Note**

To install the Cisco Nexus 1000V software on your ESX or ESXi 4.0 VMware server, see the *Cisco Nexus 1000V Software Installation Guide, Release 4.0(4)SV1(3)*.

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## CLI Software Configuration Process

The following section will guide you through this process. After completing each procedure, return to this section to make sure you complete all required procedures in the correct sequence.

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- Step 1** Set up the VSM virtual machine using the [“Setting Up the VSM Virtual Machine Using the CLI” procedure on page 4-2](#).
- Step 2** Do one of the following:
  - If you are configuring Layer 3 control, see the Domain Configuration section in the *Cisco Nexus 1000V System Management Configuration Guide, Release 4.0(4)SV1(3)*, and then continue with the next step.
  - If you are not configuring Layer 3 control, continue with the next step.
- Step 3** Verify VSM connectivity using the [“Verifying VSM Connectivity” procedure on page 4-7](#).
- Step 4** Add the Cisco Nexus 1000V license.



**Note**

The software provides 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.

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If you have purchased licenses, see the *Cisco Nexus 1000V License Configuration Guide, Release 4.0(4)SV1(3)*.

- Step 5** Create a Cisco Nexus 1000V plug-in using the [“Creating a Cisco Nexus 1000V Plug-In on the vCenter Server” procedure on page 4-8](#).
- Step 6** Connect to vCenter Server using the [“Connecting to the vCenter Server” procedure on page 4-9](#).
- Step 7** Create the required VLANs using the [“Creating VLANs” procedure on page 2-6](#).

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- Step 8** Use the following procedures to create the required port profiles.
- “Configuring the System Port Profile for VSM-VEM Communication” procedure on page 4-11.
  - “Configuring the Uplink Port Profile for VM Traffic” procedure on page 4-15
  - “Configuring the Data Port Profile for VM Traffic” procedure on page 4-18
- Step 9** Add the host to the DVS using the “Adding an ESX 4.0 Host to the DVS” procedure on page 4-21.
- Step 10** You have completed this process. Return to the “Software Configuration Process” section on page 2-6
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## Setting Up the VSM Virtual Machine Using the CLI

You can use this procedure to set up and save the VSM management access configuration with the CLI.

### BEFORE YOU BEGIN

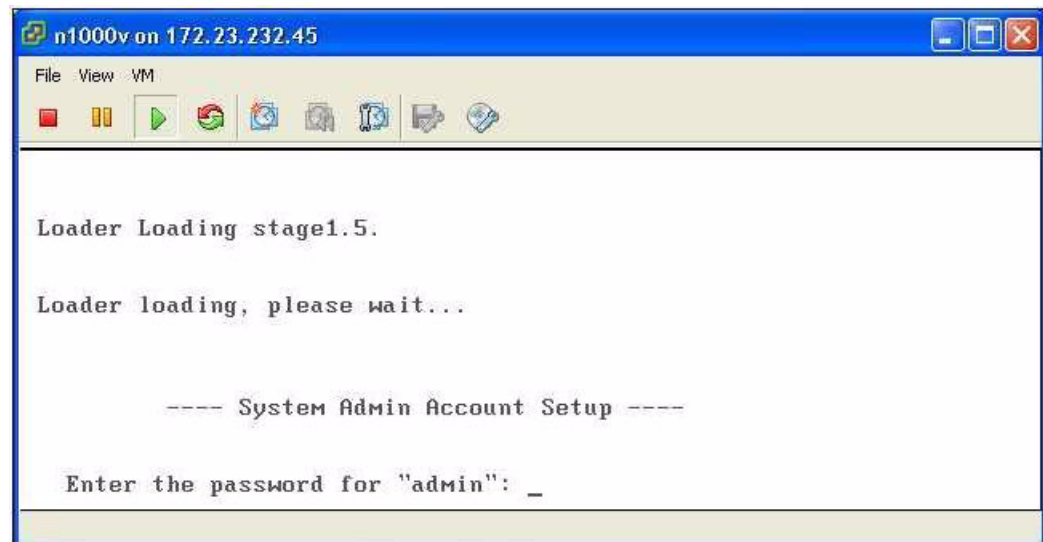
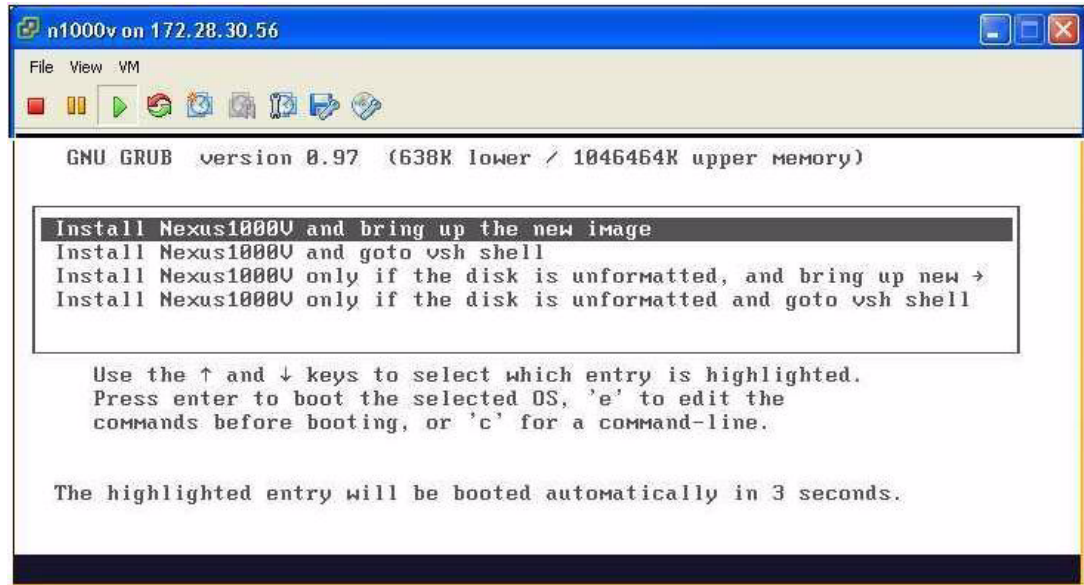
Before beginning this procedure, you must know or do the following:

- You have the following Cisco Nexus 1000V domain information:
  - Control VLAN ID
  - Packet VLAN ID
  - Domain ID
- Cisco recommends that you use the same VLAN for control, packet, and management, but that you do not place data traffic on this VLAN. For flexibility, you can use separate VLANs.

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## DETAILED STEPS

- Step 1** Power on the VM, choose **Install Cisco Nexus 1000V**, and bring up the new image. One of the following screens displays.



**Note** It may take up to 5 minutes for the VM to power on.

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**Step 2** When asked, enter and confirm the Administrator password.

**Example:**

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

**Step 3** When asked, enter the domain ID.

**Example:**

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

**Step 4** When asked, enter the HA role.

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

**Example: standalone or 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):

**Example: Secondary**

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

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

**Step 5** Do one of the following:

- If you are setting up the primary/active VSM, go to [Step 8](#).
- If you are setting up the secondary/standby VSM, then continue with the next step.

**Step 6** If you are installing the secondary VSM from the ISO image attached to your CD-ROM, unmount the virtual CD-ROM now, so that that VSM does not boot from the CD.

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

**Step 7** 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.

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```
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. Return to the “CLI Software Configuration Process” section on page 4-1 to proceed with the configuration.

**Step 8** When asked if you want to enter the basic configuration dialog, answer **yes**.

**Example:**

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

**Step 9** When asked to create another Login account, answer **no**.

**Example:**

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

**Step 10** When asked to configure a read-only SNMP community string, answer **no**.

**Example:**

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

**Step 11** When asked to configure a read-write SNMP community string, answer **no**.

**Example:**

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

**Step 12** Enter a name for the switch.

**Example:**

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

**Step 13** When asked to configure out-of-band management, answer **yes** and then enter the mgmt0 IPv4 address and subnet mask.

**Example:**

```
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 14** When asked to configure the default gateway, answer **no**.

**Example:**

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

**Step 15** When asked to configure advanced IP options, answer **no**.

**Example:**

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

**Step 16** When asked to enable the Telnet service, answer **yes**.

**Example:**

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

**Step 17** When asked to enable the SSH service, answer **yes** and then enter the key type and number of key bits. For more information, see the document, *Cisco Nexus 1000V Security Configuration Guide, Release 4.0(4)SV1(3)*.

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```
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 18** When asked to configure the NTP server, answer **no**.

**Example:**

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

**Step 19** When asked to configure the VEM feature level, answer **yes** and then enter 0 or 1.

**Example:**

```
Configure vem feature level? (yes/no) [n]: yes
Current vem feature level is set to 4.0.(4)SV1(1)
You can change the feature level to:
  1 4.0(4)SV1(2)
Enter an index from the list above <1-1> or 0 if you don't want to change:
```

**Step 20** When asked to configure Cisco Nexus 1000V domain parameters, answer **yes** and then enter them.

**Example:**

```
Configure n1000v domain parameters (yes/no) [y]: yes
Enter control vlan <1-3967, 4048-4093>: 260
Enter packet vlan <1-3967, 4048-4093>: 260
```

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

**Example:**

The following configuration will be applied:

```
Switchname n1000v
interface Mgmt0
ip address 172.28.15.152 255.255.255.0
no shutdown
telnet server enable
ssh key rsa 1024 force
ssh server enable
svs-domain
control vlan 260
packet vlan 260
domain id 152
```

**Step 21** Do one of the following:

- If you do not want to edit the configuration answer **no** and continue with the next step.
- If you want to edit the configuration, answer **yes** and return to [Step 9](#) to revisit each command.

**Example:**

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

**Step 22** When asked to use and save this configuration, answer **yes**.

**Caution**


---

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

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**Example:**

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

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The new configuration is saved into nonvolatile storage, after which the running and the startup copies of the configuration are identical.



**Note** You can use the setup routine to update the configuration done in [Step 8](#) through [Step 22](#) at any time by entering the **setup** command in EXEC mode. Once setup begins, press Enter to skip a command. Use ctrl-c to skip the remaining commands.

**Step 23** You have completed this procedure.  
Return to the “CLI Software Configuration Process” section on page 4-1.

## Verifying VSM Connectivity

You can use this procedure to verify the IP connectivity to the active VSM.

### BEFORE YOU BEGIN

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

- You are logged in to the active VSM in EXEC mode.

### DETAILED STEPS

**Step 1** Verify IP connectivity with the active VSM.

**ping** *ip\_address*

**Example:**

```
n1000v# ping 172.28.15.1
PING 172.28.15.1 (172.28.15.1): 56 data bytes
Request 0 timed out
64 bytes from 172.28.15.1: icmp_seq=1 ttl=63 time=0.799 ms
64 bytes from 172.28.15.1: icmp_seq=2 ttl=63 time=0.597 ms
64 bytes from 172.28.15.1: icmp_seq=3 ttl=63 time=0.711 ms
64 bytes from 172.28.15.1: icmp_seq=4 ttl=63 time=0.67 ms
--- 172.28.15.1 ping statistics ---
5 packets transmitted, 4 packets received, 20.00% packet loss
round-trip min/avg/max = 0.597/0.694/0.799 ms
```

Connectivity is now verified to the VSM and you can use SSH for a secure connection.

**Step 2** You have completed this procedure.  
Return to the [CLI Software Configuration Process, page 4-1](#).

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## Creating a Cisco Nexus 1000V Plug-In on the vCenter Server

Use the following guidelines and your VMware documentation to install and register the Cisco Nexus 1000V plug-in (extension) on the vCenter Server.

### BEFORE YOU BEGIN

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

- You have already downloaded a copy of the following file from the VSM home page (point your browser to the IP address of the active VSM):
  - `cisco_nexus1000v_extension.xml`
- Using an old or corrupt version of the `cisco_nexus1000v_extension.xml` file could result in an error message.




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**Note** To avoid downloading an obsolete cached copy of the file, make sure to first refresh your browser window.

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- You know the IP address of the active VSM.
  - A plug-in must be added to the vCenter Server for every VSM connecting to it.
- If you have dual supervisors, both use the same plug-in.




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**Note** If you see the error, “The specified parameter was not correct,” then you have tried to register a plugin that is already registered. See the *Cisco Nexus 1000V Troubleshooting Guide, Release 4.0(4)SV1(3)*.

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### DETAILED STEPS

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- Step 1** Open the vSphere Client.  
The local host—VMware Infrastructure Client dialog box opens.
- Step 2** From the Plug-Ins menu, choose **Manage Plug-Ins**.  
The Plug-In Manager dialog box opens.
- Step 3** Right-click the white space within the dialog box, and choose **New Plug-In** from the popup menu.  
The Register Plug-In dialog box opens.
- Step 4** Click **Browse** and choose the `cisco_nexus1000v_extension.xml` file that you downloaded from the VSM home page.
- Step 5** Click **Register Plug-In**.




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**Note** If you see the error, “The specified parameter was not correct,” then you have tried to register a plugin that is already registered. See the *Cisco Nexus 1000V Troubleshooting Guide, Release 4.0(4)SV1(3)*.

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- Step 6** In the Security Warning dialog box, click **Ignore** to continue using the certificate.
- Step 7** In the Register Plug-in dialog box, click **OK**.  
The plug-in is created and registered.
- Step 8** Verify that the extension now shows up in the Plug-in Manager window.
- Step 9** Close the window.
- Step 10** You have completed this procedure.  
Return to the [CLI Software Configuration Process, page 4-1](#).
- 

## Connecting to the vCenter Server

You can use this procedure to configure the connection between the VSM and the vCenter Server and then save the configuration in persistent memory across reboots and restarts.

### BEFORE YOU BEGIN

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

- You are logged in to the standalone or active VSM in EXEC mode.
- The extension for the Cisco Nexus 1000V is already registered as a plug-in on the vCenter Server.
- You know the datacenter name, which is case-sensitive.
- The datacenter already exists on the vCenter Server.
- You know the IP address of the vCenter Server.

### SUMMARY STEPS


1. **config t**
2. **svs connection** *connection\_name*
3. **vmware dvs datacenter-name** *dc\_name*
4. **protocol vmware-vim**
5. **remote ip address** *ip\_address*
6. **connect**
7. **show svs connections**
8. **copy running-config startup-config**

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## DETAILED STEPS

	Command	Description
Step 1	<pre>config t</pre> <p><b>Example:</b>  n1000v# config t  n1000v(config)#</p>	Enters global configuration mode.
Step 2	<pre>svs connection name</pre> <p><b>Example:</b>  n1000v (config#) svs connection VC  n1000v(config-svs-conn#)</p>	Enters connection configuration mode for adding this connection between Cisco Nexus 1000V and the vCenter Server. By using a name, information for multiple connections can be stored in the configuration.
Step 3	<pre>protocol vmware-vim [http]</pre> <p><b>Example:</b>  n1000v(config-svs-conn#) protocol vmware-vim  n1000v(config-svs-conn#)</p>	<p>Specifies that this connection uses the VIM protocol. This command is stored locally.</p> <ul style="list-style-type: none"> <li>• <b>http:</b> Specifies that the VIM protocol runs over HTTP. The default is to use HTTP over SSL (HTTPS).</li> </ul>
Step 4	<pre>remote ip address ipaddress</pre> <p><b>Example:</b>  n1000v(config-svs-conn#) remote ip address  172.28.15.150  n1000v(config-svs-conn#)</p>	Specifies the IP address of the ESX server or vCenter Server for this connection. This command is stored locally.
Step 5	<pre>vmware dvs datacenter-name name</pre> <p><b>Example:</b>  n1000v(config-svs-conn#) vmware dvs datacenter-name  Hamilton-DC  n1000v(config-svs-conn#)</p>	Identifies the datacenter name in the vCenter Server where Cisco Nexus 1000V is to be created as a distributed virtual switch (DVS). You can use this command before or after connecting. The datacenter name is stored locally.
Step 6	<pre>connect</pre> <p><b>Example:</b>  n1000v(config-svs-conn#) connect</p>	<p>Initiates the connection.</p> <p><b>Note</b> It may take up to 10 seconds to connect the first time.</p> <p>If the username and password have not been configured for this connection, the user is prompted for a username and password.</p> <p>There can be only one active connection at a time. If a previously-defined connection is up, an error message displays and the command is rejected until you close the previous connection using the <b>no connect</b> command.</p> <p><b>Note</b> If the connection is not initiated, see the <i>Cisco Nexus 1000V Troubleshooting Guide, Release 4.0(4)SV1(3)</i>.</p>

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Command	Description
<p><b>Step 7</b> <code>show svs connections [name]</code></p> <p><b>Example:</b>  <pre>n1000v(config-svs-conn#) show svs connections vc connection VC:   hostname: 172.28.15.150   protocol: vmware-vim https   certificate: default   datacenter name: HamiltonDC   DVS uuid: 6d fd 37 50 37 45 05 64-b9 a4 90 4e 66 eb 8c f5   config status: Enabled   operational status: Connected  n1000v(config-svs-conn#)</pre></p>	<p>Displays the current connections to the Cisco Nexus 1000V for verification.</p> <p>A Cisco Nexus 1000V DVS is created on vCenter Server and is visible through vSphere Client under Inventory &gt; Networking.</p> <p><b>Note</b> If your connection to the vCenter Server is shut down unexpectedly, the Cisco Nexus 1000V does not automatically restore it. In this case, you must restore the connection manually using the following command sequence,</p> <pre>no connect connect</pre>
<p><b>Step 8</b> <code>copy running-config startup-config</code></p> <p><b>Example:</b>  <pre>n1000v(config-svs-conn#) copy running-config startup-config [#####] 100% n1000v(config-port-prof)#</pre></p>	<p>The connection to the vCenter Server is setup and copied from the running configuration to the startup configuration where it is saved persistently through reboots and restarts.</p> <p> <b>Caution</b> If you do not copy this configuration to the startup configuration, then in the event of a VSM reboot, this connection configuration is discarded.</p>
<p><b>Step 9</b> You have completed this procedure.</p> <p>Return to the <a href="#">CLI Software Configuration Process, page 4-1</a>.</p>	

## Configuring the System Port Profile for VSM-VEM Communication

You can use this procedure to define the uplink port profile with system VLANs to establish communication between the VSM and VEM.

### BEFORE YOU BEGIN

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

- You have already added the required VLANs using the “[Creating VLANs](#)” procedure on page 2-6.
- You are logged in to the standalone or active VSM in EXEC mode.
- You don’t need to configure the system port profile on the secondary VSM. Once this configuration is made in the primary VSM, it automatically synchronizes with the secondary VSM.
- You can save the commands used here in a file, copy it to bootflash, and run it as a script. For more information about using scripts, see the “[Working with Command Scripts](#)” section on page 6-12.
- The system VLANs defined in this procedure establish a communication link between the VSM and VEM.

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- The VLANs defined in the trunk configuration in the system port profile must also be defined in the trunk configuration in the attached physical switchport.
- The port profile name you designate in this procedure is your choice.
- Cisco recommends that you use the same VLAN for control, packet, and management, but that you do not place data traffic on this VLAN. For flexibility, you can use separate VLANs.
- In this example, a single system VLAN 260 is used for both control and packet traffic. You can use separate VLANs.
- The port mode (access or trunk), allowed VLANs, and shut state are defined before the system VLANs.
- The list of allowed VLANs has to be a superset of (or the same as) the list of system VLANs.
- For more information about system VLANs and system port profiles, see the following:
  - [“System Port Profiles and System VLANs” section on page 1-4](#)
  - *Cisco Nexus 1000V Port Profile Configuration Guide, Release 4.0(4)SV1(3)*.

**Caution**


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You must store the port profiles in the Cisco Nexus 1000V startup configuration so that they are saved in the event of a restart or reboot. Otherwise, in the event of a VSM reboot, port groups continue to exist on the vCenter Server but not on the VSM.

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**SUMMARY STEPS**

1. **config t**
2. **port-profile** [type {ethernet | vethernet}] *name*
3. **description** *profiledescription*
4. **switchport mode trunk**
5. **switchport trunk allowed vlan** *vlan\_IDs*
6. **no shutdown**
7. **system vlan** *vlan\_ID\_list*
8. **vmware port-group** [*portgroup\_name*]
9. **state enabled**
10. **show port-profile** [brief | expand-interface | usage] [*name profile-name*]
11. **copy running-config startup-config**

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## DETAILED STEPS

	Command	Description
Step 1	<pre>config t</pre> <p><b>Example:</b>  n1000v# config t  n1000v(config)#</p>	Enters global configuration mode.
Step 2	<pre>port-profile [type {ethernet   vethernet}] name</pre> <p><b>Example:</b>  n1000v(config)# port-profile type ethernet  system-uplink  n1000v(config-port-prof)#</p>	<p>Enters port profile configuration mode for the named port profile. If the port profile does not already exist, it is created using the following characteristics:</p> <ul style="list-style-type: none"> <li>• <b>name</b>—The port profile name can be up to 80 characters and must be unique for each port profile on the Cisco Nexus 1000V.</li> <li>• <b>type</b>—(Optional) The port profile type can be Ethernet or vEthernet. Once configured, the type cannot be changed. The default is the vEthernet type.</li> </ul> <p>Defining a port profile type as Ethernet allows the port profile to be used for physical (Ethernet) ports. In the vCenter Server, the corresponding port group can be selected and assigned to physical ports (PNICs).</p> <p><b>Note</b> If a port profile is configured as an Ethernet type, then it cannot be used to configure VMware virtual ports.</p>
Step 3	<pre>description profiledescription</pre> <p><b>Example:</b>  n1000v(config-port-prof)# description "System  profile for critical ports"  n1000v(config-port-prof)#</p>	<p>Adds a description to the port profile. This description is automatically pushed to the vCenter Server.</p> <p><b>profile description:</b> up to 80 ASCII characters</p> <p><b>Note</b> If the description includes spaces, it must be surrounded by quotations.</p>
Step 4	<pre>switchport mode trunk</pre> <p><b>Example:</b>  n1000v(config-port-prof)# switchport mode  trunk  n1000v(config-port-prof)#</p>	Designates that the new port profile is used as a trunk port,
Step 5	<pre>switchport trunk allowed vlan vlan_IDs</pre> <p><b>Example:</b>  n1000v(config-port-prof)# switchport trunk  allowed vlan 260</p>	Specifies the VLANs allowed on the trunk port for the new port profile.
Step 6	<pre>no shutdown</pre> <p><b>Example:</b>  n1000v(config-port-prof)# no shutdown  n1000v(config-port-prof)#</p>	Administratively enables all ports in the new port profile.

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	Command	Description
Step 7	<p><b>system vlan</b> <i>vlan_ID_list</i></p> <p><b>Example:</b>  n1000v(config-port-prof)# system vlan 260  n1000v(config-port-prof)#</p>	<p>Adds the system vlan to this port profile. A system vlan is used to configure and bring up physical or vEthernet ports before the VSM has established communication with the VEM.</p> <p><b>Note</b> If you defined separate control and packet VLANs, then add another system VLAN.</p>
Step 8	<p><b>vmware port-group</b> [<i>portgroup_name</i>]</p> <p><b>Example:</b>  n1000v(config-port-prof)# vmware port-group system-uplink  n1000v(config-port-prof)#</p>	<p>Designates the port profile as a VMware port group of the same name.</p> <p>The port profile is mapped to a VMware port group of the same name. When a vCenter Server connection is established, this port group is then distributed to the virtual switch on the vCenter Server.</p>
Step 9	<p><b>state enabled</b></p> <p><b>Example:</b>  n1000v(config-port-prof)# state enabled  n1000v(config-port-prof)#</p>	<p>Enables the new system port profile.</p> <p>The configuration for this new system port profile is applied to the assigned ports. The VMware port group is created in the vSwitch on the vCenter Server.</p> <p>A Distributed Virtual Port Group is now visible under the VSM Name on the vSphere Client Inventory &gt; Networking &gt; DataCenter tab.</p>
Step 10	<p><b>show port-profile name</b> <i>profile-name</i></p> <p><b>Example:</b>  n1000v(config-port-prof)# show port-profile name system-uplink  port-profile system-uplink  description: "System profile for critical ports"  type: ethernet  status: enabled  capability l3control: no  pinning control-vlan: -  pinning packet-vlan: -  system vlans: 260  port-group: system-uplink  max ports: -  inherit:  config attributes:  switchport mode trunk  switchport trunk allowed vlan 260  no shutdown  evaluated config attributes:  switchport mode trunk  switchport trunk allowed vlan 260  no shutdown  assigned interfaces:  n1000v(config-port-prof)#</p>	<p>(Optional) Displays the system-uplink port profile configuration.</p>

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Command	Description
<p><b>Step 11</b> <code>copy running-config startup-config</code></p> <p><b>Example:</b>  n1000v(config-port-prof)# copy running-config startup-config  [#####]  100%  n1000v(config-port-prof)#</p>	<p>Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.</p> <p>  <b>Caution</b> If you do not copy this configuration to the startup configuration, then in the event of a VSM reboot, this port group will continue to exist on the vCenter Server but not on the VSM</p>
<p><b>Step 12</b> You have completed this procedure.</p> <p>Return to the <a href="#">CLI Software Configuration Process, page 4-1</a>.</p>	

## Example Configuration: System Profile for Critical Ports

```

config t
port-profile type ethernet system-uplink
description "System profile for critical ports"
switchport mode trunk
switchport trunk allowed vlan 260
no shutdown
system vlan 260
vmware port group system-uplink
state enabled

```

## Configuring the Uplink Port Profile for VM Traffic

You can use this procedure to define the uplink port profile that the physical interface uses to carry the VM traffic.

### BEFORE YOU BEGIN

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

- You have already added the required VLANs using the [“Creating VLANs” procedure on page 2-6](#).
- You are logged in to the standalone or active VSM in EXEC mode.
- You don’t need to configure the system port profile on the secondary VSM. Once this configuration is made, the primary VSM automatically synchronizes with the secondary VSM.
- You can save the commands used here in a file, copy it to bootflash, and run it as a script. For more information about using scripts, see the *Cisco Nexus 1000V Getting Started Guide, Release 4.0(4)SV1(3)*.
- The port profile name you designate in this procedure is your choice.
- If you want to use the system-uplink port profile to carry your data traffic, then add the data VLAN to the system-uplink port profile and make the corresponding changes on the upstream switch.
- For more information about port profiles, see the *Cisco Nexus 1000V Port Profile Configuration Guide, Release 4.0(4)SV1(3)*.

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## SUMMARY STEPS

1. **config t**
2. **port-profile** [type {ethernet | vethernet}] *name*
3. **description** *profiledescription*
4. **switchport mode access**
5. **switchport access vlan** *vlan\_ID*
6. **vmware port-group** [*portgroup\_name*]
7. **no shutdown**
8. **state enabled**
9. **show port-profile** [brief | expand-interface | usage] [*name profile-name*]
10. **copy running-config startup-config**

## DETAILED STEPS


	Command	Description
Step 1	<b>config t</b>  <b>Example:</b> n1000v# config t n1000v(config)#	Enters global configuration mode.
Step 2	<b>port-profile type ethernet</b> <i>name</i>  <b>Example:</b> n1000v(config)# port-profile type ethernet vm-uplink n1000v(config-port-prof)#	Enters port profile configuration mode for the specified port profile. <ul style="list-style-type: none"> <li>• <b>type:</b> Defines the port-profile as Ethernet or vEthernet type. Once configured, this setting cannot be changed. The default is vEthernet type.</li> </ul> Defining a port-profile as an Ethernet type allows the port to be used as an uplink port. In vCenter Server, the corresponding port group can be selected and assigned to physical ports (PNICs). <p><b>Note</b> If a port profile is configured as an Ethernet type, then it cannot be used to configure VMware virtual ports.</p> <ul style="list-style-type: none"> <li>• <b>name:</b> The port profile name can be up to 80 characters and must be unique for each port profile on the Cisco Nexus 1000V.</li> </ul>
Step 3	<b>description</b> <i>profiledescription</i>  <b>Example:</b> n1000v(config-port-prof)# description "Uplink profile for VM Traffic" n1000v(config-port-prof)#	Adds a description to the port profile. This description is automatically pushed to the vCenter Server. <p><b>profile description:</b> up to 80 ASCII characters</p> <p><b>Note</b> If the description includes spaces, it must be surrounded by quotations.</p>



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	Command	Description
Step 4	<b>switchport mode access</b>  <b>Example:</b> n1000v(config-port-prof)# switchport mode access n1000v(config-port-prof)#	Designates that the new port profile is used as an access port,
Step 5	<b>switchport access vlan <i>vlan_ID</i></b>  <b>Example:</b> n1000v(config-port-prof)# switchport access vlan 260	Specifies the access VLAN for the new port profile.
Step 6	<b>no shutdown</b>  <b>Example:</b> n1000v(config-port-prof)# no shutdown n1000v(config-port-prof)#	Administratively enables all ports in the new port profile.
Step 7	<b>vmware port-group [<i>portgroup_name</i>]</b>  <b>Example:</b> n1000v(config-port-prof)# vmware port-group vm-uplink n1000v(config-port-prof)#	<p>Designates the port profile as a VMware port group of the same name.</p> <p>The port profile is mapped to a VMware port group. When a vCenter Server connection is established, this port group is then distributed to the virtual switch on the vCenter Server.</p>
Step 8	<b>state enabled</b>  <b>Example:</b> n1000v(config-port-prof)# state enabled n1000v(config-port-prof)#	<p>Enables the new uplink port profile for VM traffic.</p> <p>The configuration for this new uplink port profile is applied to the assigned ports. The VMware port group is created in the vSwitch on the vCenter Server.</p> <p>A Distributed Virtual Port Group is now visible under the VSM Name on the vSphere Client Inventory &gt; Networking &gt; DataCenter tab.</p>
Step 9	<b>show port-profile name <i>profile-name</i></b>  <b>Example:</b> n1000v(config-port-prof)# show port-profile name vm-uplink port-profile vm-uplink description: "Uplink profile for VM traffic" type: ethernet status: enabled capability l3control: no pinning control-vlan: - pinning packet-vlan: - system vlans: none port-group: vm-uplink max ports: - inherit: config attributes: switchport mode access switchport access vlan 260 no shutdown evaluated config attributes: switchport mode access switchport access vlan 260 no shutdown assigned interfaces: n1000v(config-port-prof)#	(Optional) Displays the vm-uplink port profile configuration.

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Command	Description
<p><b>Step 10</b> <code>copy running-config startup-config</code></p> <p><b>Example:</b>  n1000v(config-port-prof)# copy running-config  startup-config  [#####]  100%  n1000v(config-port-prof)#</p>	<p>Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.</p> <p>  <b>Caution</b> If you do not copy this configuration to the startup configuration, then in the event of a VSM reboot, this port group will continue to exist on the vCenter Server but not on the VSM</p>
<p><b>Step 11</b> You have completed this procedure.</p> <p>Return to the <a href="#">CLI Software Configuration Process, page 4-1</a>.</p>	

## Example Configuration: Uplink Profile for VM Traffic

```

config t
port-profile type ethernet vm-uplink
description "Uplink profile for VM traffic
switchport mode access
switchport access vlan 260
no shutdown
vmware port-group vm-uplink
state enabled

```

## Configuring the Data Port Profile for VM Traffic

You can use this procedure to define the data port profile that will be presented to the VM as a network adapter to carry traffic to and from the guest VM.

### BEFORE YOU BEGIN

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

- You have already added the required VLANs using the “[Creating VLANs](#)” procedure on page 2-6.
- Cisco recommends that you use the same VLAN for control, packet, and management, but that you do not place data traffic on this VLAN. For flexibility, you can configure separate VLANs.
- You are logged in to the standalone or active VSM in EXEC mode.
- You don’t need to configure the data port profile on the secondary VSM. Once this configuration is made in the primary VSM, it automatically synchronizes with the secondary VSM.
- You can save the commands used here in a file, copy it to bootflash, and run it as a script. For more information about using scripts, see the *Cisco Nexus 1000V Getting Started Guide, Release 4.0(4)SV1(3)*.
- The port profile name you designate in this procedure is your choice.
- For more information about port profiles, see the *Cisco Nexus 1000V Port Profile Configuration Guide, Release 4.0(4)SV1(3)*.

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## SUMMARY STEPS

1. **config t**
2. **port-profile** [type {ethernet | vethernet}] *name*
3. **description** *profiledescription*
4. **switchport mode access**
5. **switchport access vlan** *vlan\_ID*
6. **vmware port-group** [*portgroup\_name*]
7. **no shutdown**
8. **state enabled**
9. **show port-profile** [brief | expand-interface | usage] [*name profile-name*]
10. **copy running-config startup-config**


## DETAILED STEPS

	Command	Description
Step 1	<b>config t</b>  <b>Example:</b> n1000v# config t n1000v(config)#	Enters global configuration mode.
Step 2	<b>port-profile</b> [type {ethernet   vethernet}] <i>name</i>  <b>Example:</b> n1000v(config)# port-profile type vethernet data20 n1000v(config-port-prof)#	Enters port profile configuration mode for the named port profile. If the port profile does not already exist, it is created using the following characteristics: <ul style="list-style-type: none"> <li>• <b>name</b>—The port profile name can be up to 80 characters and must be unique for each port profile on the Cisco Nexus 1000V.</li> <li>• <b>type</b>—(Optional) The port profile type can be Ethernet or vEthernet. Once configured, the type cannot be changed. The default is the vEthernet type.</li> </ul> Defining a port profile type as Ethernet allows the port profile to be used for physical (Ethernet) ports. In the vCenter Server, the corresponding port group can be selected and assigned to physical ports (PNICs). <p><b>Note</b> If a port profile is configured as an Ethernet type, then it cannot be used to configure VMware virtual ports.</p>
Step 3	<b>description</b> <i>profiledescription</i>  <b>Example:</b> n1000v(config-port-prof)# description "Data profile for VM Traffic" n1000v(config-port-prof)#	Adds a description of up to 80 ASCII characters to the port profile. This description is automatically pushed to the vCenter Server.

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	Command	Description
Step 4	<p><b>switchport mode access</b></p> <p><b>Example:</b>  n1000v(config-port-prof)# switchport mode access  n1000v(config-port-prof)#</p>	Designates that the new port profile is used as an access port,
Step 5	<p><b>switchport access vlan <i>vlan_ID</i></b></p> <p><b>Example:</b>  n1000v(config-port-prof)# switchport access vlan 20</p>	Specifies the access VLAN for the new port profile.
Step 6	<p><b>no shutdown</b></p> <p><b>Example:</b>  n1000v(config-port-prof)# no shutdown  n1000v(config-port-prof)#</p>	Administratively enables all ports in the new port profile.
Step 7	<p><b>vmware port-group [<i>portgroup_name</i>]</b></p> <p><b>Example:</b>  n1000v(config-port-prof)# vmware port-group data20  n1000v(config-port-prof)#</p>	Designates the port profile as a VMware port group.  The port profile is mapped to a VMware port group. When a vCenter Server connection is established, this port group is then distributed to the virtual switch on the vCenter Server.
Step 8	<p><b>state enabled</b></p> <p><b>Example:</b>  n1000v(config-port-prof)# state enabled  n1000v(config-port-prof)#</p>	Enables the new data port profile for VM traffic.  The configuration for this new data port profile is applied to the assigned ports. The VMware port group is created in the vSwitch on the vCenter Server.  A Distributed Virtual Port Group is now visible under the VSM Name on the vSphere Client Inventory > Networking > DataCenter tab.
Step 9	<p><b>show port-profile name <i>profile-name</i></b></p> <p><b>Example:</b>  n1000v(config-port-prof)# show port-profile name data260  port-profile data20  description: "Data profile for VM traffic"  type: vethernet  status: enabled  capability l3control: no  pinning control-vlan: -  pinning packet-vlan: -  system vlans: none  port-group: data20  max ports: -  inherit:  config attributes:  switchport mode access  switchport access vlan 20  no shutdown  evaluated config attributes:  switchport mode access  switchport access vlan 20  no shutdown  assigned interfaces:  n1000v(config-port-prof)#</p>	(Optional) Displays the port profile configuration that will be bound to the physical NIC for VM traffic.

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Command	Description
<p><b>Step 10</b> <code>copy running-config startup-config</code></p> <p><b>Example:</b>  n1000v(config-port-prof)# copy running-config  startup-config  [#####]  100%  n1000v(config-port-prof)#</p>	<p>Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.</p> <p>  <b>Caution</b> If you do not copy this configuration to the startup configuration, then in the event of a VSM reboot, this port group will continue to exist on the vCenter Server but not on the VSM</p>
<p><b>Step 11</b> You have completed this procedure.</p> <p>Return to the <a href="#">CLI Software Configuration Process, page 4-1</a>.</p>	

## Example Configuration: Data Profile for VM Traffic

```

config t
port-profile type vethernet data20
description "Data profile for VM traffic"
switchport mode access
switchport access vlan 20
no shutdown
vmware port-group data20
state enabled

```

## Adding an ESX 4.0 Host to the DVS

Use this procedure and your VMware documentation to add the host to the DVS.



### Note

If you are using VUM, then this procedure also installs the Cisco Nexus 1000V software onto the VEM automatically when the host is added to the switch.

### BEFORE YOU BEGIN

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

- The corresponding interface on the upstream switch must already be configured to allow the same VLANs as configured in the system-uplink port profile.
- In the example in this procedure, the traffic flow is set up as follows:

Traffic	VMNIC
Control VLAN	system-uplink VMNIC
Packet VLAN	system-uplink VMNIC
VM data	VM-uplink Port Group



### Note

If you use the system-uplink profile to carry data traffic and the system-uplink profile has already been defined, then you do not need to assign the vm-uplink profile to another vmnic.

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- If you are not using VUM, you have already installed the VEM software on the host using the *Cisco Nexus 1000V Virtual Ethernet Module Software Installation Guide, Release 4.0(4)SV1(3)*.
- If you are using VUM, this procedure triggers VUM to install the Cisco Nexus 1000V VEM package.
- If you are using VUM, you have already loaded VUM and created a database for patches on the vCenter Server using the VMware instructions.



### Caution

The automatic VEM software installation by VUM might fail with a proxy server enabled in VUM. This is due to a VMware limitation. The workaround is to disable the proxy during the software installation.

- The VMware Enterprise Plus license must already be installed on the host before the host can be added to the DVS. If not, then the host will not show up in the **Add Host to Distributed Virtual Switch** dialog box and you cannot add it.
- The VSM is already connected to the vCenter Server.
- To add multiple uplinks to the DVS and form a port channel with them, see the *Cisco Nexus 1000V Interface Configuration Guide, Release 4.0(4)SV1(3)*.

## DETAILED STEPS

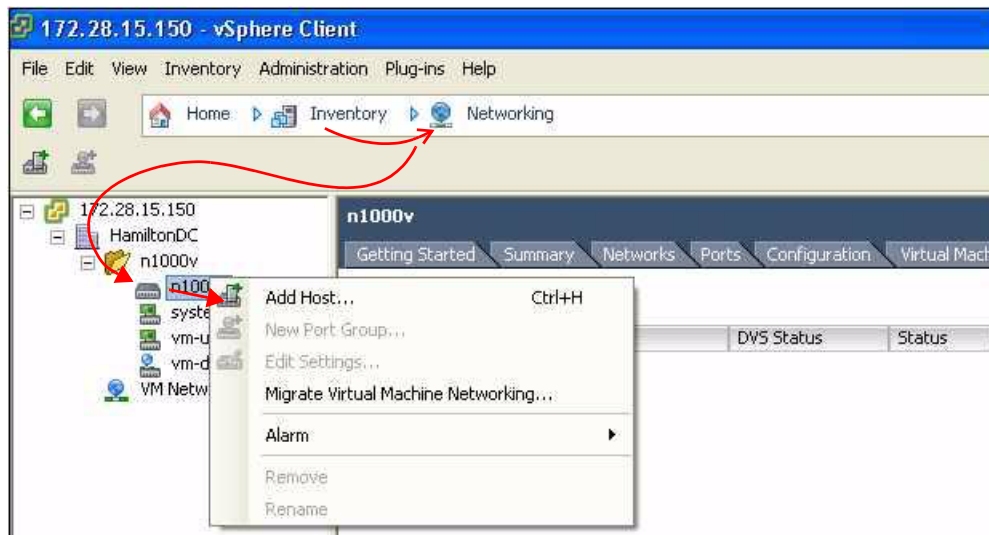
**Step 1** In the vSphere Client, click Inventory → Networking.

You should see the following that you create when :

- A DVS with the switch name that you configured.
- The port profiles that you created.

**Step 2** Do one of the following:

- If the DVS and the port profiles are present, continue with the next step.
- Otherwise, see the *Cisco Nexus 1000V Troubleshooting Guide, Release 4.0(4)SV1(3)*.



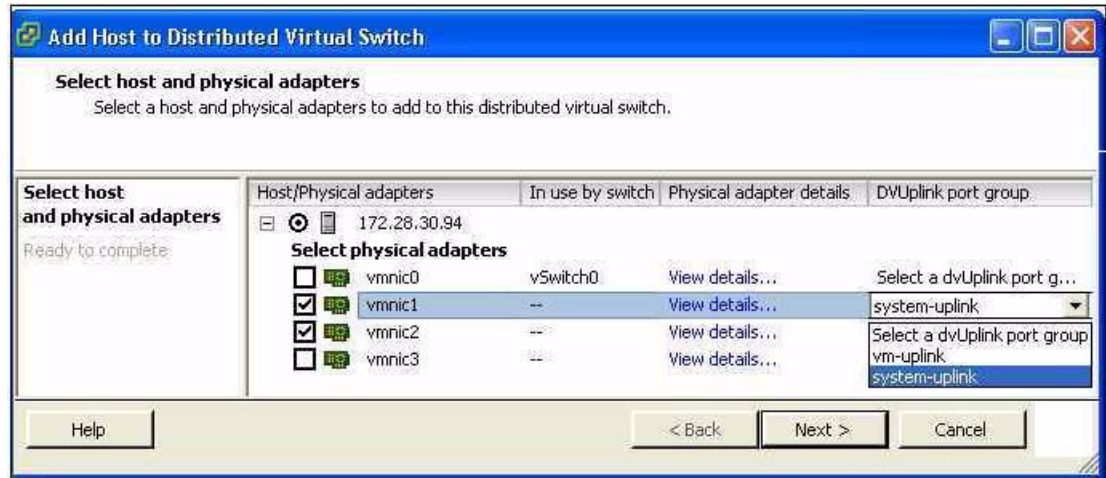
**Step 3** Right-click the switch name, and choose **Add Host**.

The Add Host to Distributed Virtual Switch Wizard opens.

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**Note**

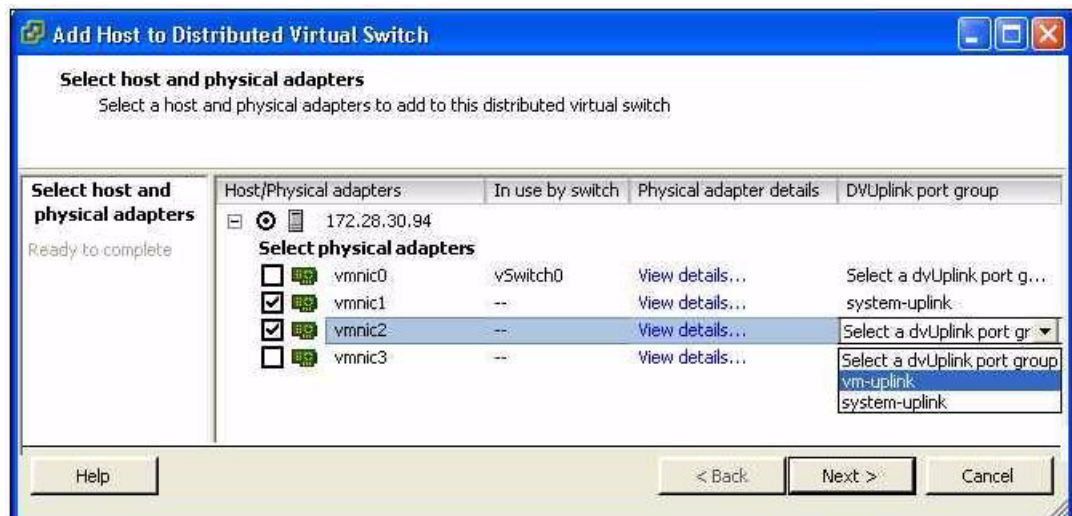
If the Add Host to Distributed Virtual Switch dialog box is empty, then check to make sure the host has an Enterprise Plus license for VMware ESX 4.0 servers.

**Note**

If using VUM, the Cisco Nexus 1000V software is now loaded onto the DVS by VUM.

**Step 4** Do one of the following:

- If you use the system-uplink profile to carry data traffic and the system-uplink profile has already been defined, then you do not need to assign the vm-uplink profile to another vmnic.
- If not, click the check box for the next vmnic that is not attached to the VMware vSwitch, for example vmnic1, click the down arrow and then choose the Uplink Port Group **system-uplink**.



**Step 5** Choose the next vmnic that is not attached to the VMware vSwitch, for example vmnic2. It should be linked to the Uplink Port Group **vm-uplink**.

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**Note** To add multiple uplinks to the DVS and form a port channel with them, see the *Cisco Nexus 1000V Port Profile Configuration Guide, Release 4.0(4)SV1(3)*.

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**Step 6** Click **Next**.

**Step 7** Verify the port group assignment and click **Finish**.

**Step 8** Do one of the following:

- If the host is successfully added to the DVS, continue with the next step.
- If the operation fails, see the *Cisco Nexus 1000V Troubleshooting Guide, Release 4.0(4)SV1(3)*.

**Step 9** You have completed this procedure.  
Return to the [CLI Software Configuration Process, page 4-1](#).

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