



# CHAPTER 7

## Managing Virtual Switches

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The Cisco Nexus 1000V is a virtual access software switch that works with VMware vSphere 4.0 and has the following components:

- Virtual Supervisor Module (VSM)—Control plane of the switch and a virtual machine that runs Cisco NX-OS.
- Virtual Ethernet Module (VEM)—Virtual line card embedded in each VMware vSphere (ESX) host.

Managing a virtual switch involves configuring its domain and server connections.

A domain is an instance of a Cisco Nexus 1000V Series Switch device, including dual redundant VSMS and managed VEMs, within a VMware vCenter server. Each domain is distinguished by a unique integer called the domain identifier.

In order for the Cisco Nexus 1000V to connect to a vCenter Server or an ESX server, you must first define the connection parameters. All communication with the vCenter Server is secured by the Transport Layer Security (TLS) protocol.

This chapter describes how to manage virtual switches using Cisco Data Center Network Manager (DCNM).

This chapter includes the following sections:

- [Information About Virtual Switches, page 7-2](#)
- [Licensing Requirements for Virtual Switches, page 7-3](#)
- [Prerequisites, page 7-4](#)
- [Platform Support, page 7-4](#)
- [Configuring Domains, page 7-4](#)
- [Configuring Server Connections, page 7-9](#)
- [Displaying Neighbor Devices, page 7-13](#)
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- [Feature History for Virtual Switches, page 7-18](#)

# Information About Virtual Switches

The Cisco Nexus 1000V is a virtual access software switch that works with VMware vSphere 4.0 and has the following components:

- Virtual Supervisor Module (VSM)—Control plane of the switch and a virtual machine that runs Cisco NX-OS.
- Virtual Ethernet Module (VEM)—Virtual line card that is embedded in each VMware vSphere (ESX) host.

Managing a virtual switch involves configuring its domain and server connection.

This section includes the following topics:

- [Domains, page 7-2](#)
- [Server Connections, page 7-3](#)

## Domains

A domain is an instance of a Cisco Nexus 1000V device, including dual redundant Virtual Supervisor Modules (VSMs) and managed Virtual Ethernet Modules (VEMs), within a VMware vCenter Server. Each domain needs to be distinguished by a unique integer called the domain identifier.

You can configure Layer 2 or Layer 3 transport control mode for communication between the VSM and VEMs.

This section includes the following topics:

- [Layer 2 Control, page 7-2](#)
- [Layer 3 Control, page 7-2](#)

## Layer 2 Control

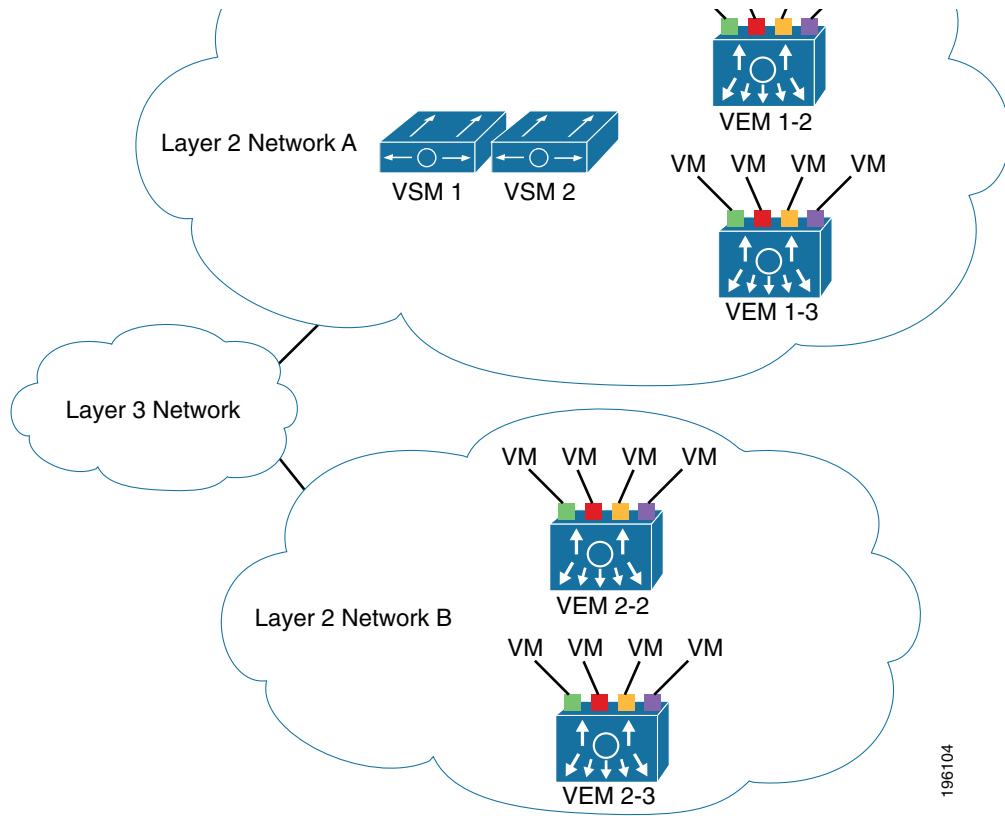
Layer 2 is a transport control mode used for communication between the VSM and VEMs. However, you can create and specify the VLAN to be used.

## Layer 3 Control

Layer 3 control, or IP connectivity, is supported between the VSM and VEM for control and packet traffic. With Layer 3 control, a VSM can be Layer 3 accessible and control hosts can reside in a separate Layer 2 network. All hosts controlled by a VSM, however, must still reside in the same Layer 2 network. Because a VSM cannot control a host that is outside of the Layer 2 network it controls, the host on which it resides must be controlled by another VSM.

[Figure 7-1](#) shows an example of Layer 3 control where VSM0 controls VEM\_0\_1. VEM\_0\_1, in turn, hosts VSM1 and VSM2, and VSM1 and VSM2 control VEMs in other Layer 2 networks.

**Figure 7-1 Example of Layer 3 Control IP Connectivity**



## Server Connections

The Nexus 1000V device requires a connection to a VMware vCenter server for management of its distributed virtual switch (DVS) and host mapping to the Virtual Ethernet Modules (VEMs).

## Licensing Requirements for Virtual Switches

The following table shows the licensing requirements for this feature:

Product	License Requirement
Cisco DCNM	The Virtual Switch feature requires no license. Any feature not included in a license package is bundled with Cisco DCNM and is provided at no charge to you. For information about obtaining and installing a Cisco DCNM LAN Enterprise license, see the <i>Cisco DCNM Installation and Licensing Guide, Release 6.x</i> .
Cisco NX-OS	The Virtual Switch feature requires no license. Any feature not included in a license package is bundled with the Cisco NX-OS system images and is provided at no extra charge to you. For an explanation of the Cisco NX-OS licensing scheme for your platform, see the licensing guide for your platform.

## Prerequisites

The following prerequisite is required for using the Virtual Switches feature on Cisco DCNM. For a full list of feature-specific prerequisites, see the platform-specific documentation.

- System-message logging levels for the Virtual Switches feature must meet or exceed Cisco DCNM requirements. During device discovery, Cisco DCNM detects inadequate logging levels and raises them to the minimum requirements. Cisco Nexus 7000 Series Switches that run Cisco NX-OS Release 4.0 are an exception. For Cisco NX-OS Release 4.0, prior to device discovery, use the command-line interface to configure logging levels to meet or exceed Cisco DCNM requirements. For more information, see the *Fundamentals Configuration Guide, Cisco DCNM for LAN, Release 5.x*.

## Platform Support

The following platform supports this feature. For platform-specific information, including guidelines and limitations, system defaults, and configuration limits, see the corresponding documentation.

Platform	Documentation
Cisco Nexus 1000V Series Switches	<a href="#">Cisco Nexus 1000V Series Switch Documentation</a>

## Configuring Domains

You can configure domains in Andiamo 9500.

This section includes the following topics:

- [Creating a Domain with Layer 2 Control, page 7-4](#)
- [Creating a Domain with Layer 3 Control, page 7-5](#)
- [Changing a Domain to Layer 3 Control, page 7-6](#)
- [Changing a Domain to Layer 2 Control, page 7-7](#)
- [Configuring a Domain with a Control VLAN, page 7-8](#)
- [Configuring a Domain with a Packet VLAN, page 7-8](#)

### Creating a Domain with Layer 2 Control

You can create a domain name for the Cisco Nexus 1000V Series Switch that identifies the Virtual Supervisor Module (VSM) and Virtual Ethernet Modules (VEMs) and then add control and packet VLANs for communication and management. This process is part of the initial installation process. If you need to create a domain after the initial setup, you can do so by using this procedure.

#### BEFORE YOU BEGIN

Be aware that if two or more VSMs share the same control and/or packet VLAN, the domain helps identify the VEMs that are managed by each VSM.

You must have a unique domain ID for this instance.

We recommend that you use one VLAN for control traffic and a different VLAN for packet traffic.

We recommend that you use a distinct VLAN for each domain.

For information about changing a domain ID after adding a second VSM, see the documentation for your platform.

## DETAILED STEPS

- 
- Step 1** From the Feature Selector pane, choose **Inventory > Virtual Switch**.  
Summary information for each managed virtual switch appears in the Summary pane.
- Step 2** From the Summary pane, choose the device for which you want to create a domain.
- Step 3** From the Details pane, choose the **Details** tab.
- Step 4** Expand the **Domain Settings** section.
- Step 5** (Optional) From the menu bar, choose **Actions > Reset Domain Setting(s)**.
- Step 6** In the Domain ID field, enter an ID number for the domain.
- Step 7** In the Control mode drop-down list, choose **L2**.

Layer 2 control uses VLAN 1 for the control and packet VLANs by default. If desired, you can configure specific control and packet VLANs for the domain. See the [“Configuring a Domain with a Control VLAN” section on page 7-8](#) and the [“Configuring a Domain with a Packet VLAN” section on page 7-8](#).

- Step 8** From the menu bar, choose **File > Deploy** to apply your changes to the device.
- 

## RELATED TOPICS

- [Configuring a Domain with a Control VLAN, page 7-8](#)
- [Configuring a Domain with a Packet VLAN, page 7-8](#)

## Creating a Domain with Layer 3 Control

You can create a domain name that identifies the Virtual Supervisor Module (VSM) and Virtual Ethernet Modules (VEMs) for the Cisco Nexus 1000V Series Switch. This process is part of the initial setup when installing the software. If you need to create a domain after initial setup, you can do so using this procedure.

### BEFORE YOU BEGIN

Configure the interface that you plan to use (mgmt 0 or control 0) with an IP address. For more information, see the [“Configuring a Control Interface” section on page 7-13](#).

Configure a port profile for Layer 3 control. See the *Interfaces Configuration Guide, Cisco DCNM for LAN, Release 6.x*.

Create a VMware kernel NIC interface on each host and apply the Layer 3 control port profile to it. For more information, see your VMware documentation.

Ensure that you have a unique domain ID for this instance.

For information about changing a domain ID after adding a second VSM, see the documentation for your platform.

**DETAILED STEPS**

- 
- Step 1** From the Feature Selector pane, choose **Inventory > Virtual Switch**.  
Summary information for each managed virtual switch appears in the Summary pane.
  - Step 2** From the Summary pane, choose the device for which you want to create a domain.
  - Step 3** From the Details pane, choose the **Details** tab.
  - Step 4** Expand the **Domain Settings** section.
  - Step 5** (Optional) From the menu bar, choose **Actions > Reset Domain Setting(s)**.
  - Step 6** In the Domain ID field, enter an ID number for the domain.
  - Step 7** In the Control Interface drop-down list, choose either **mgmt0** or **control0** as the interface to use.
  - Step 8** From the menu bar, choose **File > Deploy** to apply your changes to the device.
- 

**RELATED TOPICS**

- [Configuring a Control Interface, page 7-13](#)

**Changing a Domain to Layer 3 Control**

You can change the control mode from Layer 2 to Layer 3 for the Virtual Supervisor Module (VSM) domain control and packet traffic.

**BEFORE YOU BEGIN**

Configure the interface that you plan to use (mgmt 0 or control 0) with an IP address. For more information, see the [“Configuring a Control Interface” section on page 7-13](#).

**Note**

You must perform the steps in this procedure in order. The control and packet VLANs must be disabled before the Layer 3 control can be enabled.

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**DETAILED STEPS**

- 
- Step 1** From the Feature Selector pane, choose **Inventory > Virtual Switch**.  
Summary information for each managed virtual switch appears in the Summary pane.
  - Step 2** From the Summary pane, choose the device for which you want to create a domain.
  - Step 3** From the Details pane, choose the **Details** tab.
  - Step 4** Expand the **Domain Settings** section.
  - Step 5** In the Control VLAN field, delete the number of the VLAN that is used as the control VLAN.
  - Step 6** In the Packet VLAN field, delete the number of the VLAN that is used as the packet VLAN.
  - Step 7** From the menu bar, choose **File > Deploy** to apply your changes to the device.
  - Step 8** In the Control mode drop-down list, choose **L3**.
  - Step 9** In the Control Interface drop-down list, choose either **mgmt0** or **control0** as the interface to use.

**Step 10** From the menu bar, choose **File > Deploy** to apply your changes to the device.

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## RELATED TOPICS

- [Changing a Domain to Layer 2 Control, page 7-7](#)
- [Configuring a Control Interface, page 7-13](#)

## Changing a Domain to Layer 2 Control

You can change the control mode from Layer 3 to Layer 2 for the VSM domain control and packet traffic.

### BEFORE YOU BEGIN

Create VLANs to be used as the control and packet VLANs. For information, see the *Layer 2 Switching Configuration Guide, Cisco DCNM for LAN, Release 6.x*.



#### Note

You must perform the steps in this procedure in order. Layer 3 control must be disabled before the control and packet VLANs can be assigned.

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### DETAILED STEPS

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- Step 1** From the Feature Selector pane, choose **Inventory > Virtual Switch**.  
Summary information for each managed virtual switch appears in the Summary pane.
- Step 2** From the Summary pane, choose the device for which you want to create a domain.
- Step 3** From the Details pane, choose the **Details** tab.
- Step 4** Expand the **Domain Settings** section.
- Step 5** In the Control mode drop-down list, choose **L2**.
- Step 6** In the Control VLAN field, enter the number of the VLAN to be used as the control VLAN.
- Step 7** In the Packet VLAN field, enter the number of the VLAN to be used as the packet VLAN.
- Step 8** From the menu bar, choose **File > Deploy** to apply your changes to the device.
- 

## RELATED TOPICS

- [Changing a Domain to Layer 3 Control, page 7-6](#)

## Configuring a Domain with a Control VLAN

You can configure the domain with a control VLAN.

### BEFORE YOU BEGIN

Create the VLAN to be used as the control VLAN. For more information, see the *Layer 2 Switching Configuration Guide, Cisco DCNM for LAN, Release 6.x*.

If Layer 3 control is configured on your Virtual Supervisor Module (VSM), you cannot configure your domain with a control VLAN. You must first disable Layer 3 control.

Configure and enable the required VLAN interface using the *Cisco Nexus 1000V Interface Configuration Guide, Release 4.0(4)SVI(2)*. The VLAN interface provides communication between VLANs.

Understand how VLANs are numbered. For more information, see the *Layer 2 Switching Configuration Guide, Cisco DCNM for LAN, Release 6.x*.

Be aware that newly created VLANs remain unused until Layer 2 ports are assigned to them.

### DETAILED STEPS

- 
- Step 1** From the Feature Selector pane, choose **Inventory > Virtual Switch**.  
Summary information for each managed virtual switch appears in the Summary pane.
  - Step 2** From the Summary pane, choose the device for which you want to create a domain.
  - Step 3** From the Details pane, choose the **Details** tab.
  - Step 4** Expand the **Domain Settings** section.
  - Step 5** In the Control mode drop-down list, choose **Layer 2**.
  - Step 6** In the Control VLAN field, enter the number of the VLAN to be used as the control VLAN.
  - Step 7** From the menu bar, choose **File > Deploy** to apply your changes to the device.
- 

### RELATED TOPICS

- [Creating a Domain with Layer 2 Control, page 7-4](#)
- [Changing a Domain to Layer 2 Control, page 7-7](#)
- [Configuring a Domain with a Packet VLAN, page 7-8](#)

## Configuring a Domain with a Packet VLAN

You can configure the domain with a packet VLAN.

### BEFORE YOU BEGIN

Create the VLAN to be used as the packet VLAN. For more information, see the documentation for your platform.



Configure and enable the required VLAN interface using the *Cisco Nexus 1000V Interface Configuration Guide, Release 4.0(4)SV1(2)*. The VLAN interface provides communication between VLANs.

Understand how VLANs are numbered. For more information, see the *Layer 2 Switching Configuration Guide, Cisco DCNM for LAN, Release 6.x*.

Be aware that newly created VLANs remain unused until Layer 2 ports are assigned to them.

## DETAILED STEPS

- 
- Step 1** From the Feature Selector pane, choose **Inventory > Virtual Switch**.  
Summary information for each managed virtual switch appears in the Summary pane.
- Step 2** From the Summary pane, choose the device for which you want to create a domain.
- Step 3** From the Details pane, choose the **Details** tab.
- Step 4** Expand the **Domain Settings** section.
- Step 5** In the Control mode drop-down list, choose **L2**.
- Step 6** In the Packet VLAN field, enter the number of the VLAN to be used as the packet VLAN.
- Step 7** From the menu bar, choose **File > Deploy** to apply your changes to the device.
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## RELATED TOPICS

- [Creating a Domain with Layer 2 Control, page 7-4](#)
- [Changing a Domain to Layer 2 Control, page 7-7](#)
- [Configuring a Domain with a Control VLAN, page 7-8](#)

# Configuring Server Connections

You can manage server connections using Andiamo 9500.

This section includes the following topics:

- [Configuring a vCenter Server Connection, page 7-9](#)
- [Deleting a vCenter Server Connection, page 7-10](#)
- [Connecting to a vCenter Server, page 7-11](#)
- [Disconnecting from a vCenter Server, page 7-11](#)
- [Deleting the DVS from a vCenter Server, page 7-12](#)
- [Removing Host Mapping from a Module, page 7-12](#)

## Configuring a vCenter Server Connection

You can configure parameters for connecting the Cisco Nexus 1000V to the vCenter Server.

## BEFORE YOU BEGIN

Have the following information available:

- Data center name
- vCenter Server IP address or hostname

Ensure that the vCenter Server management station is installed and running.

Ensure that the ESX servers are installed and running.

Ensure that the management port is configured.

Ensure that the vCenter Server is reachable.

Ensure that the appliance is installed.

If you are configuring a connection using a hostname, ensure that the DNS is already configured.

Ensure that you have already registered an extension with the vCenter Server. The extension includes the extension key and public certificate for the Virtual Supervisor Module (VSM). vCenter Server uses the key and certificate to verify the authenticity of the request that it receives from the VSM. For instructions about adding and registering an extension, see the documentation for the platform.

## DETAILED STEPS

- 
- Step 1** From the Feature Selector pane, choose **Inventory > Virtual Switch**.  
Summary information for each managed virtual switch appears in the Summary pane.
- Step 2** From the Summary pane, choose the device for which you want to configure the vCenter Server connection.
- Step 3** From the Details pane, choose the **Details** tab.
- Step 4** Expand the **Connection Settings** section.
- Step 5** In the Connection Name field, enter a name for the connection.
- Step 6** In the Server Name/IP Address field, enter either the hostname of the server or its IP address.
- Step 7** In the Data Center Name field, enter the data center name in the vCenter Server where the data center is to be created as a Distributed Virtual Switch (DVS).
- Step 8** In the Protocol drop-down list, choose **VMWARE-VIM**.
- Step 9** From the menu bar, choose **File > Deploy** to apply your changes to the device.
- 

## RELATED TOPICS

- [Displaying Neighbor Devices, page 7-13](#)
- [Connecting to a vCenter Server, page 7-11](#)
- [Disconnecting from a vCenter Server, page 7-11](#)

## Deleting a vCenter Server Connection

You can delete the vCenter Server connection parameters that you have configured.

You can disconnect from the vCenter Server, for example, after correcting a vCenter Server configuration.

## DETAILED STEPS

- 
- Step 1** From the Feature Selector pane, choose **Inventory > Virtual Switch**.  
Summary information for each managed virtual switch appears in the Summary pane.
- Step 2** From the Summary pane, choose the desired device.
- Step 3** From the menu bar, choose **Actions > Delete Connection**.
- Step 4** From the menu bar, choose **File > Deploy** to apply your changes to the device.
- 

## RELATED TOPICS

- [Connecting to a vCenter Server, page 7-11](#)

# Connecting to a vCenter Server

You can connect to a vCenter Server or an ESX Server.

## BEFORE YOU BEGIN

Create a vCenter Server connection.

## DETAILED PROCEDURE

- 
- Step 1** From the Feature Selector pane, choose **Inventory > Virtual Switch**.  
Summary information for each managed virtual switch appears in the Summary pane.
- Step 2** From the Summary pane, choose the desired device.
- Step 3** From the menu bar, choose **Actions > Connect to vCenter**.
- 

## RELATED TOPICS

- [Configuring a vCenter Server Connection, page 7-9](#)
- [Disconnecting from a vCenter Server, page 7-11](#)

# Disconnecting from a vCenter Server

You can disconnect from the vCenter Server, for example, after correcting a vCenter Server configuration.

## DETAILED STEPS

- 
- Step 1** From the Feature Selector pane, choose **Inventory > Virtual Switch**.  
Summary information for each managed virtual switch appears in the Summary pane.
- Step 2** From the Summary pane, choose the desired device.
- Step 3** From the menu bar, choose **Actions > Disconnect from vCenter**.
- 

## RELATED TOPICS

- [Connecting to a vCenter Server, page 7-11](#)

## Deleting the DVS from a vCenter Server

You can delete the Distributed Virtual Switch (DVS) from a vCenter Server.

## BEFORE YOU BEGIN

Configure a vCenter Server connection.

Connect to the vCenter Server.

Ensure that the Server Administrator has removed from the VI client all of the hosts connected to it. For more information, see the VMware documentation.

## DETAILED STEPS

- 
- Step 1** From the Feature Selector pane, choose **Inventory > Virtual Switch**.  
Summary information for each managed virtual switch appears in the Summary pane.
- Step 2** From the Summary pane, choose the desired device.
- Step 3** From the menu bar, choose **Actions > Delete VMware DVS**.
- Step 4** From the menu bar, choose **File > Deploy** to apply your changes to the device.
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## RELATED TOPICS

- [Configuring a vCenter Server Connection, page 7-9](#)
- [Connecting to a vCenter Server, page 7-11](#)

## Removing Host Mapping from a Module

You can remove the mapping of a module to a host server.

**Note**

This function can be performed only on disabled modules in the Absent state.

---

## BEFORE YOU BEGIN

Remove the host from the DVS on a vCenter Server.

## DETAILED STEPS

- 
- Step 1** From the Feature Selector pane, choose **Inventory**.  
Summary chassis information for each managed device appears in the Summary pane.
- Step 2** Expand the desired Cisco Nexus 1000V device.  
All of the modules associated with the device appear.
- Step 3** Right-click the module from which you want to remove the host mapping and choose **Delete Host Mapping from Module**.
- 

## RELATED TOPICS

- [Configuring a vCenter Server Connection, page 7-9](#)
- [Connecting to a vCenter Server, page 7-11](#)

# Displaying Neighbor Devices

You can display information about the devices that surround a selected Cisco Nexus 1000V device.

## DETAILED STEPS

- 
- Step 1** From the Feature Selector pane, choose **Inventory > Virtual Switch**.  
Summary information for each managed virtual switch appears in the Summary pane.
- Step 2** From the Summary pane, choose the desired device.
- Step 3** Expand the **Neighbors** section.  
The neighboring devices appear.
- 

## RELATED TOPICS

- [Monitoring Virtual Switches, page 7-15](#)

# Configuring a Control Interface

You can configure the control interface used for Layer 3 control.

## DETAILED STEPS

- 
- Step 1** From the Feature Selector pane, choose **Inventory > Virtual Switch**.  
Summary information for each managed virtual switch appears in the Summary pane.
- Step 2** From the Summary pane, choose the desired device.
- Step 3** Expand the **Control Interface** section.
- Step 4** In the IP Address field, enter the IP address of the interface to use for Layer 3 control.
- Step 5** In the Wildcard Mask field, enter the wildcard mask.
- Step 6** In the Admin Status drop-down list, choose **Up** to enable the interface.
- Step 7** From the menu bar, choose **File > Deploy** to apply your changes to the device.
- 

## RELATED TOPICS

- [Creating a Domain with Layer 3 Control, page 7-5](#)
- [Changing a Domain to Layer 3 Control, page 7-6](#)

# Monitoring Virtual Switches

You can monitor virtual switch information in Andiamo 9500.

This section includes the following topics:

- [Displaying Virtual Switch Summary Information, page 7-15](#)
- [Displaying Virtual Switch Details, page 7-15](#)

## Displaying Virtual Switch Summary Information

You can display summary information about the virtual switches in your managed network.

From the Feature Selector pane, choose **Inventory > Virtual Switch**. Summary information for each managed virtual switch appears in the Summary pane.

### RELATED TOPICS

- [Displaying Virtual Switch Details, page 7-15](#)

## Displaying Virtual Switch Details

You can display details about the virtual switches in your managed network. This information includes details about the domain and vCenter connection settings.

### DETAILED STEPS

- 
- |               |   |
|---------------|---|
| <b>Step 1</b> | From the Feature Selector pane, choose <b>Inventory &gt; Virtual Switch</b> .<br>Summary information for each managed virtual switch appears in the Summary pane. |
| <b>Step 2</b> | From the Summary pane, choose a device to display additional details about the domain, server, neighboring devices, and control interface and to display events.  |
- 

### RELATED TOPICS

- [Displaying Virtual Switch Summary Information, page 7-15](#)

## Field Descriptions

This section includes the following field descriptions for the Virtual Switches feature:

- [Inventory: Virtual Switch: Details: Domain Settings Section, page 7-16](#)
- [Inventory: Virtual Switch: Details: Connection Settings Section, page 7-16](#)
- [Inventory: Virtual Switch: Details: Neighbors Section, page 7-17](#)
- [Inventory: Virtual Switch: Details: Control Interface Section, page 7-17](#)

## Inventory: Virtual Switch: Details: Domain Settings Section

**Table 7-1** *Inventory: Virtual Switch: Details: Domain Settings Section*

Field	Description
Domain ID	ID number for the domain.
Sync Status	Status of the configuration synchronization with the vCenter Server.
Control Mode	Control mode for the domain. Valid choices are Layer 2 or Layer 3.
Control Interface	<i>Active only if the control mode is Layer 3.</i> Layer 3 interface that is used by the Virtual Supervisor Module (VSM) for control and packet traffic.
Control VLAN	ID number of the VLAN that is used for the control traffic.
Packet VLAN	ID number of the VLAN that is used for the packet traffic.

## Inventory: Virtual Switch: Details: Connection Settings Section

**Table 7-2** *Inventory: Virtual Switch: Details: Connection Settings Section*

Field	Description
Connection Name	Name of the connection.
Server Name/IP Address	Hostname or IP address of the vCenter Server.
Data Center Name	Name of the data center in the vCenter Server where the data center is to be created as a Distributed Virtual Switch (DVS).
Config Status	Status of the configuration. Valid choices are Enabled or Disabled.
Certificate Filename	File name of the digital certificate that is used for the connection.
Version	Version on the VMware vCenter Server.
Protocol	Protocol that is used to establish the session with the vCenter Server. Valid choices are VMWARE VIM or EMPTY.
Port Number	TCP port that is used to connect to the vCenter server.
DVS UUID	Universally unique identifier (UUID) of the Distributed Virtual Switch (DVS).
Oper Status	Status of the connection.
Sync Status	Status of the configuration synchronization with the vCenter Server.



## Inventory: Virtual Switch: Details: Neighbors Section

**Table 7-3** *Inventory: Virtual Switch: Details: Neighbors Section*

Field	Description
Last Updated Time	Time when the information was last retrieved from the switch. Click <b>Get Latest Info</b> to retrieve the latest information from the switch.
Source MAC Address	<i>Display only.</i> MAC source addresses of the frames received.
Type	<i>Display only.</i> Setting that indicates whether the neighbor node is a VSM or VEM.
Domain ID	<i>Display only.</i> Numerical identifier of the domain.
Node ID	<i>Display only.</i> Numerical identifier of the neighbor node.
Last Learnt Time	<i>Display only.</i> Last time that the MAC address was learned.

## Inventory: Virtual Switch: Details: Control Interface Section

**Table 7-4** *Inventory: Virtual Switch: Details: Control Interface Section*

Field	Description
IP Address	IP address of the control interface.
Wildcard Mask	Wildcard mask of the control interface.
Admin Status	Administrative status of the control interface. Valid choices are Up or Down.
Operation Status	Current operational status, either Up or Down.

## Additional References

For additional information related to implementing virtual switches, see the following sections:

- [Related Documents, page 7-17](#)
- [Standards, page 7-18](#)

## Related Documents

Related Topic	Document Title
Configuring the Domain	<i>Cisco Nexus 1000V System Management Configuration Guide, Release 4.0(4)SVI(2)</i>
Managing Server Connections	<i>Cisco Nexus 1000V System Management Configuration Guide, Release 4.0(4)SVI(2)</i>

## Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

## Feature History for Virtual Switches

This section provides the release history of the virtual switches

Feature Name	Releases	Feature Information
Layer 3 Control	4.0(4)SV1(2)	This feature was introduced.
VSM Domain	4.0(4)SV1(1)	This feature was introduced.
Virtual switches	5.2(1)	No change from Release 5.1.
Virtual switches	5.1(1)	No change from Release 5.0.
Virtual switches	5.0(2)	This feature was introduced.
Server Connections	4.0(4)SV1(1)	This feature was introduced.