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Preface

This preface includes the following sections:

- Audience, page vii
- Conventions, page vii
- Related Documentation, page ix
- Obtaining Documentation and Submitting a Service Request, page ix

Audience

This guide is intended primarily for data center administrators with responsibilities and expertise in one or more of the following:

- Server administration
- Storage administration
- Network administration
- Network security

Conventions

<table>
<thead>
<tr>
<th>Text Type</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>GUI elements</td>
<td>GUI elements such as tab titles, area names, and field labels appear in this font. Main titles such as window, dialog box, and wizard titles appear in this font.</td>
</tr>
<tr>
<td>TUI elements</td>
<td>In a Text-based User Interface, text the system displays appears in this font.</td>
</tr>
<tr>
<td>System output</td>
<td>Terminal sessions and information that the system displays appear in this font.</td>
</tr>
<tr>
<td>Text Type</td>
<td>Indication</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td>CLI commands</td>
<td>CLI command keywords appear in <strong>this font</strong>. Variables in a CLI command appear in <em>this font</em>.</td>
</tr>
<tr>
<td>[]</td>
<td>Elements in square brackets are optional.</td>
</tr>
<tr>
<td>{x</td>
<td>y</td>
</tr>
<tr>
<td>[x</td>
<td>y</td>
</tr>
<tr>
<td>string</td>
<td>A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.</td>
</tr>
<tr>
<td>&lt;&gt;</td>
<td>Nonprinting characters such as passwords are in angle brackets.</td>
</tr>
<tr>
<td>[]</td>
<td>Default responses to system prompts are in square brackets.</td>
</tr>
<tr>
<td>!, #</td>
<td>An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.</td>
</tr>
</tbody>
</table>

**Note**

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

**Tip**

Means *the following information will help you solve a problem*. The tips information might not be troubleshooting or even an action, but could be useful information, similar to a Timesaver.

**Caution**

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

**Timesaver**

Means *the described action saves time*. You can save time by performing the action described in the paragraph.
IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS

Related Documentation

UCS Documentation Roadmaps

For a complete list of all B-Series documentation, see the Cisco UCS B-Series Servers Documentation Roadmap available at the following URL: http://www.cisco.com/go/unifiedcomputing/b-series-doc.

For a complete list of all C-Series documentation, see the Cisco UCS C-Series Servers Documentation Roadmap available at the following URL: http://www.cisco.com/go/unifiedcomputing/c-series-doc.

VM-FEX for VMware Documentation

The following documentation is available for Cisco Virtual Machine Fabric Extender (VM-FEX) for VMware:

- Roadmap that lists all documentation for Cisco Unified Computing System (Cisco UCS) at the following URL: http://www.cisco.com/go/unifiedcomputing/b-series-doc
- The Unify Virtual and Physical Networking with Cisco Virtual Interface Card White Paper
- The Cisco Unified Computing System with Cisco VM-FEX and VMware VMDirectPath2 Deployment Guide

Other Documentation Resources

An ISO file containing all B and C-Series documents is available at the following URL: http://www.cisco.com/cisco/software/type.html?mdfid=283853163&flowid=25821. From this page, click Unified Computing System (UCS) Documentation Roadmap Bundle.

The ISO file is updated after every major documentation release.

Follow Cisco UCS Docs on Twitter to receive document update notifications.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly What's New in Cisco Product Documentation, which also lists all new and revised Cisco technical documentation.

Subscribe to the What's New in Cisco Product Documentation as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0.
Follow Cisco UCS Docs on Twitter to receive document update notifications.
Introduction

This chapter includes the following sections:

- Overview of Virtualization, page 1
- Overview of Cisco Virtual Machine Fabric Extender, page 1
- Virtualization with a Virtual Interface Card Adapter, page 2
- Virtualization with Network Interface Cards and Converged Network Adapters, page 2
- VM-FEX for VMware Components and Requirements, page 3
- Modes of Operation, page 6
- Configuring VM-FEX for VMware, page 8

Overview of Virtualization

Virtualization allows you to create multiple Virtual Machines (VMs) to run in isolation, side by side on the same physical machine.

Each virtual machine has its own set of virtual hardware (RAM, CPU, NIC) upon which an operating system and fully configured applications are loaded. The operating system sees a consistent, normalized set of hardware regardless of the actual physical hardware components.

In a virtual machine, both hardware and software are encapsulated in a single file for rapid provisioning and moving between physical servers. You can move a virtual machine, within seconds, from one physical server to another for zero-downtime maintenance and continuous workload consolidation.

The virtual hardware makes it possible for many servers, each running in an independent virtual machine, to run on a single physical server. The advantages of virtualization include better use of computing resources, greater server density, and seamless server migration.

Overview of Cisco Virtual Machine Fabric Extender

A virtualized server implementation consists of one or more VMs that run as guests on a single physical server. The guest VMs are hosted and managed by a software layer called the hypervisor or virtual machine manager.
Typically, the hypervisor presents a virtual network interface to each VM and performs Layer 2 switching of traffic from a VM to other local VMs or to another interface to the external network.

Working with a Cisco virtual interface card (VIC) adapter, the Cisco Virtual Machine Fabric Extender (VM-FEX) bypasses software-based switching of VM traffic by the hypervisor for external hardware-based switching in the fabric interconnect. This method reduces the load on the server CPU, provides faster switching, and enables you to apply a rich set of network management features to local and remote traffic.

VM-FEX extends the IEEE 802.1Qbh port extender architecture to the VMs by providing each VM interface with a virtual Peripheral Component Interconnect Express (PCIe) device and a virtual port on a switch. This solution allows precise rate limiting and quality of service (QoS) guarantees on the VM interface.

**Virtualization with a Virtual Interface Card Adapter**

A Cisco VIC adapter, such as the Cisco UCS M81KR Virtual Interface Card, is a converged network adapter (CNA) that is designed for both single-OS and VM-based deployments. The VIC adapter supports static or dynamic virtualized interfaces, which includes up to 128 virtual network interface cards (vNICs).

VIC adapters support VM-FEX to provide hardware-based switching of traffic to and from virtual machine interfaces.

In a VMware environment, VM-FEX supports the standard VMware integration with VMware ESX hypervisors installed on the server and all virtual machine management performed through the VMware vCenter.

**Virtualization with Network Interface Cards and Converged Network Adapters**

Network interface card (NIC) and converged network adapters support virtualized environments with the standard VMware integration with ESX installed on the server and all virtual machine management performed through the VC.

**Portability of Virtual Machines**

If you implement service profiles you retain the ability to easily move a server identity from one server to another. After you image the new server, the ESX treats that server as if it were the original.

**Communication between Virtual Machines on the Same Server**

These adapters implement the standard communications between virtual machines on the same server. If an ESX host includes multiple virtual machines, all communications must go through the virtual switch on the server.

If the system uses the native VMware drivers, the virtual switch is out of the network administrator's domain and is not subject to any network policies. As a result, for example, QoS policies on the network are not applied to any data packets traveling from VM1 to VM2 through the virtual switch.

If the system includes another virtual switch, such as the Nexus 1000, that virtual switch is subject to the network policies configured on that switch by the network administrator.
VM-FEX for VMware Components and Requirements

At a high level, VM-FEX for VMware requires a hypervisor host, Cisco UCS Manager, and VMware vCenter virtualization management software.

The following figure shows these three main components and the methods by which they are connected.

Figure 1: Component Connectivity for VM-FEX with VMware

These components must be configured correctly for VM-FEX for VMware to work.

Hypervisor Host

The hypervisor host has these requirements:

- You must install a Cisco UCS M81KR Virtual Interface Card in the server you intend to use as the hypervisor host. For more information about installing a Cisco UCS M81KR Virtual Interface Card, see the Cisco UCS 5108 Server Chassis Hardware Installation Guide.

- You must install the correct version of VMware ESX or ESXi software on the Cisco UCS Manager host. For VM-FEX in standard mode, you must install VMware ESX version 4.0, Update 1 software or later versions. For VM-FEX in standard mode and high-performance mode, you must install VMware ESXi
5.0 software or later versions. For information about upgrading these VMware software versions, see Upgrading a Host to ESX or ESXi 4.0, Update 3 or to ESX or ESXi 4.1, Update 1 and the Compatible Cisco VEM Software Bundle, on page 21 or Upgrading a Host to ESXi 5.0 and the Compatible Cisco VEM Software Bundle, on page 23.

- You must obtain the Cisco VEM software bundle from the Cisco Download Software page:


**Note**
The VEM software bundle is also a component of another product: the Cisco Nexus 1000V switch. Do not be concerned if you see references to this product during the installation of the VEM bundle. This reference is cosmetic only and does not affect the outcome of the installation and implementation of VM-FEX.

---

**Cisco UCS Manager**

**VM-FEX for VMware-Related Policies**

You must modify or create several policies in order for VM-FEX for VMware to function optimally:

- VMware PassThrough Ethernet Adapter Policy (high-performance mode only)
- Dynamic vNIC Connection Policies
- BIOS Policy (high-performance mode only)
- VM Lifecycle Policy

**Extension File for Communicating with VMware vCenter**

For Cisco UCS domains that use VIC adapters to implement VM-FEX, you must create and install an extension file to establish the relationship and communications between Cisco UCS Manager and VMware vCenter.
This extension file is an XML file that contains an extension key and public secure sockets layer (SSL) certificate.

---

**Important**

You cannot change an extension key that is being used by a DVS or an external virtualization manager. If you want to use a custom extension key, we recommend that you create and register the custom key before you create the DVS in Cisco UCS Manager to avoid any possibility of having to delete and recreate the associated DVS.

---

**Extension Key**

Cisco UCS and VMware vCenter must be connected for management integration and network communication with the host. To accomplish this connectivity, Cisco UCS provides an extension key that represents the Cisco UCS identity. The extension key must be registered with the external virtualization manager before the Cisco UCS domain can be acknowledged and management and network connectivity can be established.

**SSL Certificate**

Cisco UCS Manager generates a default, self-signed SSL certificate to support communication with a VMware vCenter. You can also create your own custom certificate to communicate with multiple VMware vCenters. When you create a custom certificate, Cisco UCS Manager recreates the extension files to include the new certificate. If you subsequently delete the custom certificate, Cisco UCS Manager recreates the extension files to include the default, self-signed SSL certificate.

To create a custom certificate, you must obtain and copy an external certificate into Cisco UCS and then create a certificate for VM-FEX that uses the certificate you copied into Cisco UCS.

**Distributed Virtual Switches (DVSes)**

The Cisco UCS distributed virtual switch (DVS) is a software-based virtual switch that runs alongside the vSwitch in the ESX hypervisor and can be distributed across multiple ESX hosts. Unlike the vSwitch, which uses its own local port configuration, a DVS that is associated with multiple ESX hosts uses the same port configuration across all ESX hosts.

After associating an ESX host to a DVS, you can migrate existing VMs from the vSwitch to the DVS, and you can create VMs to use the DVS instead of the vSwitch. With the VM-FEX for VMware implementation, when a VM uses the DVS, all VM traffic passes through the DVS and ASIC-based switching is performed by the fabric interconnect.

**Port Profiles**

Port profiles contain the properties and settings that you can use to configure virtual interfaces in Cisco UCS for VM-FEX. The port profiles are created and administered in Cisco UCS Manager. After a port profile is created, assigned to, and actively used by one or more DVSes, any changes made to the networking properties of the port profile in Cisco UCS Manager are immediately applied to those DVSes.

In VMware vCenter, a port profile is represented as a port group. Cisco UCS Manager pushes the port profile names to VMware vCenter, which displays the names as port groups. None of the specific networking properties or settings in the port profile are visible in VMware vCenter. You must configure at least one port profile client for a port profile if you want Cisco UCS Manager to push the port profile to VMware vCenter.
Port Profile Clients

The port profile client determines the DVSes to which a port profile is applied. By default, the port profile client specifies that the associated port profile applies to all DVSes in the VMware vCenter. However, you can configure the client to apply the port profile to all DVSes in a specific datacenter or datacenter folder or only to one DVS.

VMware vCenter

You need VMware vCenter (vCenter Server and vSphere Client) for VM-FEX for VMware. The VMware vCenter must meet the following requirements:

- The Windows-based machine that you install VMware vCenter on must have network connectivity to the Cisco UCS management port and to the uplink Ethernet port(s) being used by the ESX host. The management port connectivity is used for management plane integration between VMware vCenter and Cisco UCS Manager; the uplink Ethernet port connectivity is used for communication between VMware vCenter and the ESX host.

  Note

  The HTTP and HTTPS ports (normally TCP 80 and 443) must not be blocked between vCenter and the Cisco UCS domain.

- A VMware vCenter extension key provided by Cisco UCS Manager must be registered with VMware vCenter before VMware vCenter acknowledges the Cisco UCS domain.

In addition, you must configure VMware vCenter with the following parameters:

- A datacenter.
- A distributed virtual switch (DVS).
- ESX hosts added to the DVS and configured to migrate to pass-through switching PTS/DVS.
- For each Cisco VIC adapter, two static vNICs (one for each fabric) added to the DVS.
- Virtual machines (VMs) required for the VMs on the server.
- (For VMware vMotion) Hosts with common shared storage (datastore) that are properly configured for vMotion.
- (For VM-FEX in high-performance mode) All guest memory on the VMs must be reserved.
- (For VM-FEX in high-performance mode) The port profiles and VMwarePassThrough Ethernet adapter policy that you have previously configured in Cisco UCS Manager must be specified.

For information about how to configure these required components in VMware vCenter, see the VMware product documentation.

 Modes of Operation

VM-FEX ports can operate in standard mode or high-performance mode.
Standard Mode

In standard mode, traffic to and from a virtual machine passes through the distributed virtual switch (DVS) and the hypervisor.

The following figure shows the traffic paths taken by VM traffic on a Cisco UCS server with a VIC adapter that has VM-FEX ports in standard mode.

*Figure 2: Traffic Paths for VM Traffic with VM-FEX*

![Traffic Paths for VM Traffic with VM-FEX](image)

High-Performance Mode

In high-performance mode, traffic to and from a virtual machine (VM) bypasses the DVS and hypervisor. Traffic travels directly between VMs and the virtual interface card (VIC) adapter.

The benefits of high-performance mode are as follows:

- Increases I/O performance and throughput.
- Decreases I/O latency.
- Improves CPU utilization for virtualized I/O-intensive applications.

With VMware, high-performance mode also supports vMotion. During vMotion, the hypervisor reconfigures links in high-performance mode to be in standard mode, transitions the link to the new hypervisor, and then
reconfigures the link to be in high-performance mode. The following figure shows how VM-FEX operates in high-performance mode with vMotion.

*Figure 3: VM-FEX in High-Performance Mode with VMotion*

1. Two VMs are attached to a VIC in high-performance mode.
2. VMotion begins on one VM. This VM transitions to standard mode.
3. The VM migrates to the other host, and standard mode is established.
4. The VM transitions back to high-performance mode.

## Configuring VM-FEX for VMware

### Procedure

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td>Configure a Service Profile for VM-FEX for VMware.</td>
</tr>
</tbody>
</table>
| **Purpose** | You must modify or create several policies in order for VM-FEX for VMware to function optimally:  
- VMwarePassThrough Ethernet Adapter Policy (high-performance mode only)  
- Dynamic vNIC Connection Policies  
- BIOS Policy (high-performance mode only)  
- VM Lifecycle Policy  

For more information, see Configuring a Service Profile with VM-FEX, on page 11. |
| **Step 2** | Configure the installation of the Cisco VEM bundle on the hypervisor host. |
| **Purpose** | You must configure the VMware ESX host and install the Cisco VEM software bundle and a VMware vCenter for VM-FEX. For more information, see Installing the Cisco VEM Software Bundle, on page 19 and the VMware documentation. |
### Command or Action

<table>
<thead>
<tr>
<th>Step</th>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 3</td>
<td>(Optional) In Cisco UCS Manager, use the VMware Integration wizard to connect Cisco UCS Manager to VMware vCenter, define a distributed virtual switch, define port profiles, and apply this configuration to VMware vCenter.</td>
<td>For simple implementations, you can use the wizard to perform these steps, or for more complex implementations, use the information provided in steps 4 through 6 in this procedure. <strong>Note</strong> The wizard does not address every VMware vCenter configuration. For more information, see Using the Configure VMware Integration Wizard, on page 29.</td>
</tr>
<tr>
<td>Step 4</td>
<td>Connect Cisco UCS Manager to VMware vCenter.</td>
<td>You must connect Cisco UCS Manager with VMware vCenter to manage the distributed virtual switch (DVS) in Cisco UCS Manager. For more information, see Connecting Cisco UCS Manager to VMware vCenter, on page 37.</td>
</tr>
<tr>
<td>Step 5</td>
<td>In Cisco UCS Manager, define a distributed virtual switch.</td>
<td>You must create a distributed virtual switch (DVS) to use in place of the VMware vSwitch. For more information, see Configuring Distributed Virtual Switches in Cisco UCS, on page 43.</td>
</tr>
<tr>
<td>Step 6</td>
<td>In Cisco UCS Manager, define a port profile and (optionally) create a port profile client.</td>
<td>You must create a port profile to define the properties and settings used to configure the virtual interfaces in the DVS. Optionally, you can also create a port profile client that defines the DVSes to which port profiles are assigned. For more information, see Configuring Port Profiles, on page 55.</td>
</tr>
</tbody>
</table>
CHAPTER 2

Configuring a Service Profile with VM-FEX

This chapter includes the following sections:

- Modifying the VMware PassThrough Ethernet Adapter Policy, page 11
- Configuring Dynamic vNIC Connection Policies, page 12
- Configuring the VM Lifecycle Policy, page 15
- Creating a BIOS Policy for VM-FEX in High-Performance Mode, page 17

Modifying the VMware PassThrough Ethernet Adapter Policy

VM-FEX in high-performance mode has a system-provided VMware PassThrough adapter policy. Most of the default settings are sufficient. However, you might need different settings than this policy provides to accommodate your particular implementation. If you need different settings, we recommend that you create another Ethernet adapter policy with your specific settings. In particular, you might want to check the following settings to make sure that they work with your particular implementation:

- Guest OS requirements
  - Transmit queue
  - Receive queue
  - Completion queues
  - Interrupts

- Maximum number of interfaces per host.
- Maximum number of interfaces in pass-through mode per host.

For more information about configuring an Ethernet adapter policy, see the Cisco UCS Manager GUI Configuration Guide.
Configuring Dynamic vNIC Connection Policies

Dynamic vNIC Connection Policy

The dynamic vNIC connection policy determines how the connectivity between VMs and dynamic vNICs is configured. This policy is required for Cisco UCS domains that include servers with VIC adapters on which you have installed VMs and configured dynamic vNICs.

Each dynamic vNIC connection policy includes an Ethernet adapter policy and designates the number of vNICs that can be configured for any server associated with a service profile that includes the policy.

For VM-FEX that has all ports on a blade in standard mode, you need to use the VMware adapter policy.

For VM-FEX that has at least one port on a blade in high-performance mode, use the VMwarePassThrough adapter policy or create a custom policy. If you need to create a custom policy, the resources provisioned need to equal the resource requirements of the guest OS that needs the most resources and for which you will be using high-performance mode.

Note

In a VM-FEX deployment, a VM will attach to a dynamic vNIC only if the VIC adapter has two static vNICs, one for each fabric, attached to the DVS in vCenter. If a server contains more than one VIC adapter, each adapter must have two static vNICs configured.

Note

If you migrate a server that is configured with dynamic vNICs using VMotion, the dynamic interface used by the vNICs fails and Cisco UCS Manager notifies you of that failure.

When the server comes back up, Cisco UCS Manager assigns new dynamic vNICs to the server. If you are monitoring traffic on the dynamic vNIC, you must reconfigure the monitoring source.

Creating a Dynamic vNIC Connection Policy

You can create a dynamic vNIC connection policy.

Procedure

Step 1 In the Navigation pane, click the LAN tab.
Step 2 On the LAN tab, expand LAN > Policies.
Step 3 Expand the node for the organization where you want to create the policy. If the system does not include multitenancy, expand the root node.
Step 4 Right-click the Dynamic vNIC Connection Policies node and choose Create Dynamic vNIC Connection Policy.
Step 5 In the Create Dynamic vNIC Connection Policy dialog box, complete the following fields:
**Dynamic vNIC Connection Policy**

**Name**

The name of the policy.

This name can be between 1 and 16 alphanumeric characters. You cannot use spaces or any special characters other than - (hyphen), _ (underscore), : (colon), and . (period), and you cannot change this name after the object has been saved.

**Description field**

A description of the policy. We recommend that you include information about where and when the policy should be used.

Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), ” (double quote), = (equal sign), > (greater than), < (less than), or ' (single quote).

**Number of Dynamic vNICs field**

The number of dynamic vNICs that this policy affects.

Enter an integer between 0 and 256. The default is 54.

**Note** Components of your system might limit this number to fewer than 256 vNICs.

**Adapter Policy drop-down list**

The adapter profile associated with this policy. The profile must already exist to be included in the drop-down list.

**Protection field**

Dynamic vNICs are always protected in Cisco UCS, but this field allows you to select a preferred fabric, if any. You can choose one of the following:

- **Protected Pref A**—Cisco UCS attempts to use fabric A but fails over to fabric B if necessary
- **Protected Pref B**—Cisco UCS attempts to use fabric B but fails over to fabric A if necessary
- **Protected**—Cisco UCS uses whichever fabric is available

**Step 6** Click OK.

**Step 7** If a confirmation dialog box appears, click Yes.

---

**Changing a Dynamic vNIC Connection Policy**

You can change a dynamic vNIC connection policy.
**Procedure**

**Step 1** In the **Navigation** pane, click the **LAN** tab.

**Step 2** On the **LAN** tab, expand **LAN > Policies**.

**Step 3** Expand the node for the organization that contains the policy that you want to change. If the system does not include multitenancy, expand the **root** node.

**Step 4** Expand the **Dynamic vNIC Connection Policies** node and click the policy that you want to change.

**Step 5** In the **Work** pane, click the **General** tab.

**Step 6** Change one or more of the following fields:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description field</strong></td>
<td>A description of the policy. We recommend that you include information about where and when the policy should be used.</td>
</tr>
<tr>
<td><strong>Number of Dynamic vNICs field</strong></td>
<td>The number of dynamic vNICs that this policy affects.</td>
</tr>
<tr>
<td><strong>Adapter Policy</strong> drop-down list</td>
<td>The adapter profile associated with this policy. The profile must already exist to be included in the drop-down list.</td>
</tr>
</tbody>
</table>

You cannot change the other properties of the policy, such as the **Name** field.

**Step 7** Click **Save Changes**.

**Step 8** If the Cisco UCS Manager GUI displays a confirmation dialog box, click **Yes**.

---

**Deleting a Dynamic vNIC Connection Policy**

You can delete a dynamic vNIC connection policy.

**Procedure**

**Step 1** In the **Navigation** pane, click the **LAN** tab.

**Step 2** On the **LAN** tab, expand **LAN > Policies > Organization_Name**.

**Step 3** Expand the **Dynamic vNIC Connection Policies** node.

**Step 4** Right-click the policy that you want to delete and choose **Delete**.

**Step 5** If the Cisco UCS Manager GUI displays a confirmation dialog box, click **Yes**.
Viewing Dynamic vNIC Properties in a VM

You can view dynamic vNIC properties in a VM.

**Before You Begin**

The VM must be operational.

**Procedure**

1. **Step 1** In the Navigation pane, click the VM tab.
2. **Step 2** On the VM tab, expand All > VMware.
3. **Step 3** Expand Virtual Machines.
4. **Step 4** Expand the virtual machine that contains the dynamic vNIC.
5. **Step 5** Choose the dynamic vNIC.
6. **Step 6** In the Work pane, click the General tab.

In the Properties area, the vNIC properties appear.

---

Configuring the VM Lifecycle Policy

**VM Lifecycle Policy**

The VM lifecycle policy determines how long Cisco UCS Manager retains offline VMs and offline dynamic vNICs in its database. If a VM or dynamic vNIC remains offline after that period, Cisco UCS Manager deletes the object from its database.

All virtual machines (VMs) on Cisco UCS servers are managed by vCenter. Cisco UCS Manager cannot determine whether an inactive VM is temporarily shut down, has been deleted, or is in some other state that renders it inaccessible. Therefore, Cisco UCS Manager considers all inactive VMs to be in an offline state.

Cisco UCS Manager considers a dynamic vNIC to be offline when the associated VM is shut down, or the link between the fabric interconnect and the I/O module fails. On rare occasions, an internal error can also cause Cisco UCS Manager to consider a dynamic vNIC to be offline.

The default VM and dynamic vNIC retention period is 15 minutes. You can configure a retention period of between 1 minute and 7200 minutes (2 days).

**Note**

The VM database displayed by Cisco UCS Manager is for information and monitoring only. You cannot manage VMs through Cisco UCS Manager. If you delete a VM from the Cisco UCS Manager database, the VM is not deleted from the server or from vCenter.
Configuring the VM Lifecycle Policy

You can configure the VM lifecycle policy.

Procedure

Step 1 In the Navigation pane, click the VM tab.
Step 2 On the VM tab, expand the All node.
Step 3 On the VM tab, click VMWare.
Step 4 In the Work pane, click the Life Cycle Policy tab.
Step 5 In the Life Cycle Policy area, complete the following fields:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VM Retention field</td>
<td>The period of time that Cisco UCS Manager retains an offline VM in its database. If a VM remains offline after that period, Cisco UCS Manager deletes the VM from its database. This can be one of the following:</td>
</tr>
<tr>
<td></td>
<td>• 1 Min</td>
</tr>
<tr>
<td></td>
<td>• 1 Hour</td>
</tr>
<tr>
<td></td>
<td>• 1 Day</td>
</tr>
<tr>
<td></td>
<td>• other—Cisco UCS Manager displays the Minutes field that allows you to specify a custom retention time.</td>
</tr>
<tr>
<td>Minutes field</td>
<td>Enter an integer between 1 and 7200 minutes (or 5 days).</td>
</tr>
<tr>
<td>vNIC Retention field</td>
<td>The period of time that Cisco UCS Manager retains an offline dynamic vNIC in its database. If a dynamic vNIC remains offline after that period, Cisco UCS Manager deletes the dynamic vNIC from its database. This can be one of the following:</td>
</tr>
<tr>
<td></td>
<td>• 1 Min</td>
</tr>
<tr>
<td></td>
<td>• 1 Hour</td>
</tr>
<tr>
<td></td>
<td>• 1 Day</td>
</tr>
<tr>
<td></td>
<td>• other—Cisco UCS Manager displays the Minutes field that allows you to specify a custom retention time.</td>
</tr>
<tr>
<td>Minutes field</td>
<td>Enter an integer between 1 and 7200 minutes (or 5 days).</td>
</tr>
</tbody>
</table>

Step 6 Click Save Changes.
Creating a BIOS Policy for VM-FEX in High-Performance Mode

For VM-FEX in high performance mode, you must configure specific BIOS settings.

Note
Cisco UCS Manager pushes BIOS configuration changes through a BIOS policy or default BIOS settings to the Cisco Integrated Management Controller (CIMC) buffer. These changes remain in the buffer and do not take effect until the server is rebooted.

We recommend that you verify the support for BIOS settings in the server that you want to configure. Some settings, such as Mirroring Mode and Sparing Mode for RAS Memory, are not supported by all Cisco UCS servers.

We recommend that you name this BIOS policy as VMwarePassThru so that you can identify it as being used for VM-FEX in high-performance mode.

You must enable these specific parameters in the following BIOS settings:

- **Processor**—Enable Virtual Technology (VT) and Direct Cache Access.

  Note
  You must enable VT if you intend to run 64-bit VMs on the ESX/ESXi host. An ESX/ESXi host will not run 64-bit VMs unless VT is enabled.

- **Intel Directed IO**—Enable the following parameters:
  - VT for Directed IO
  - Interrupt Remap
  - Coherency Support
  - ATS Support
  - Pass Through DMA Support

Configure the remaining BIOS settings, as appropriate.

For more information, see the *Cisco UCS Manager GUI Configuration Guide*. 
Installing the Cisco VEM Software Bundle

This chapter includes the following sections:

- Cisco VEM Software Bundle Installation Overview, page 19
- Cisco VEM Software Bundle Prerequisites, page 19
- Installing or Upgrading the Cisco VEM Software Bundle Using VUM, page 20
- Upgrading a Host to ESX or ESXi 4.0, Update 3 or to ESX or ESXi 4.1, Update 1 and the Compatible Cisco VEM Software Bundle, page 21
- Upgrading a Host to ESXi 5.0 and the Compatible Cisco VEM Software Bundle, page 23
- Upgrading a Host to ESXi 5.1 and the Compatible Cisco VEM Software Bundle, page 24
- Installing or Upgrading the Cisco VEM Software Bundle on an ESX or ESXi Host, page 25
- Uninstalling the Cisco VEM Software Bundle, page 27

Cisco VEM Software Bundle Installation Overview

To use the VM-FEX feature with Cisco UCS, you must install the Cisco UCS M81KR Virtual Interface Card in the Cisco UCS server and install the correct VMware ESX software version and Cisco VEM software bundle on it. The software that you install depends on whether you intend to use the VM-FEX feature in standard mode or high-performance mode. For more information, see Cisco VEM Software Bundle Prerequisites, on page 19.

Cisco VEM Software Bundle Prerequisites

Before installing the Cisco VEM software bundle, make sure to satisfy these prerequisites:

- You must install a Cisco UCS M81KR Virtual Interface Card in the server you intend to use as the hypervisor host. For more information about installing a Cisco UCS M81KR Virtual Interface Card, see the Cisco UCS 5108 Server Chassis Hardware Installation Guide.

- You must install the correct version of VMware ESX or ESXi software on the Cisco UCS Manager host. For VM-FEX in standard mode, you must install VMware ESX version 4.0, Update 1 software or later
versions. For VM-FEX in standard mode and high-performance mode, you must install VMware ESXi 5.0 software or later versions. For information about upgrading these VMware software versions, see Upgrading a Host to ESX or ESXi 4.0, Update 3 or to ESX or ESXi 4.1, Update 1 and the Compatible Cisco VEM Software Bundle, on page 21 or Upgrading a Host to ESXi 5.0 and the Compatible Cisco VEM Software Bundle, on page 23.

- You must obtain the Cisco VEM software bundle from the Cisco Download Software page:

- You must install the correct version of the Cisco VEM software bundle on the hypervisor host. The Cisco VEM software bundle that you install depends on the VMware ESX or ESXi version you have installed on the hypervisor host. For information about the compatible versions of VMware ESX software and Cisco VEM software bundles, see VM-FEX Software Interoperability Matrix in Hardware and Software Interoperability Matrix for B Series Servers at http://www.cisco.com/en/US/products/ps10477/prod_technical_reference_list.html.

Note

The VEM software bundle is also a component of another product: the Cisco Nexus 1000V switch. Do not be concerned if you see references to this product during the installation of the VEM bundle. This reference is cosmetic only and does not affect the outcome of the installation and implementation of VM-FEX.

- You must be aware of any installation caveats. For information, see the Release Notes for Cisco UCS Manager.

Installing or Upgrading the Cisco VEM Software Bundle Using VUM

To install the Cisco VEM software bundle using VMware vSphere Update Manager (VUM), you need to log into the VMware vSphere client and copy the VM-FEX driver VIBs or bundles from cisco.com locally and import them in VUM.

For information about configuring VUM, see the VMware product documentation.
Upgrading a Host to ESX or ESXi 4.0, Update 3 or to ESX or ESXi 4.1, Update 1 and the Compatible Cisco VEM Software Bundle

You can use this procedure to upgrade a host to ESX or ESXi 4.0, Update 3 or 4.1, Update 1 and simultaneously upgrade the Cisco VEM software bundle.

Note
You can also perform this procedure using VMware VUM. For more information, see Installing or Upgrading the Cisco VEM Software Bundle Using VUM, on page 20 and the VMware documentation.

Before You Begin

- You have copied the ESX or ESXi host software and Cisco VEM software bundle to the /tmp directory.

To determine the correct Cisco VEM software bundle for your ESX or ESXi version and Cisco UCS release, see the Hardware and Software Interoperability Matrix for B Series Servers.

Procedure

Step 1
Power off the VMs or migrate all VMs to another host.

Step 2
Migrate the vmk0 management interface to the vSwitch.

Step 3
Remove the host from pass-through switching (PTS) mode.

Step 4
If you are upgrading from ESX or ESXi 4.0, Update 1 to ESX or ESXi 4.0, Update 3, uninstall the VIB that enables pass-through switching (PTS). Otherwise, continue to step 6.

a) Enter the following command to identify the Cisco VEM VIB:

```
esxupdate query --vib-view | grep cross_cisco | grep installed
```

The output appears showing the VIB package to be removed.

b) Enter the following command to remove the VIB.

```
esxupdate -b VIB_package remove
```

Example:

```
[root@serialport -]# esxupdate query --vib-view | grep cross_cisco | grep installed
[root@serialport -]# cross_cisco-vem-v100-esx_4.0.4.1.31-1.11.11 installed
2010-03-11T10:02:29.076573-05:00
[root@serialport -]# esxupdate -b cross_cisco-vem-v100-esx_4.0.4.1.31-1.11.11 remove
```

Step 5
If you are upgrading a host from ESX or ESXi 4.0, Update 1 to ESX or ESXi 4.0, Update 3, copy the ESX or ESXi Patch 04 (ESX400-201001001.zip) and the ESX or ESXi Patch 05 (ESX400-201003001.zip) to the /tmp directory and install them, if you have not already installed them. Otherwise, continue to step 6.

```
vihostupdate --install --bundle "[path to VMware Update offline patch]" --server [vsphere host IP address]"
```

Example:

```
[root@serialport -]# vihostupdate --install --bundle "/tmp/Patch04/ESX400-201002001.zip" --server 10.10.10.1
```
**Installing the Cisco VEM Software Bundle**

Upgrading a Host to ESX or ESXi 4.0, Update 3 or to ESX or ESXi 4.1, Update 1 and the Compatible Cisco VEM Software Bundle

---

**Step 6**
Go to the directory where the ESX or ESXi host software and Cisco VEM software bundle were copied.

**Example:**
```
[root@serialport -]# vihostupdate --install --bundle "/tmp/Patch05/BuiltByVMware/ESX/20100330/ESX400-201003001.zip" --server 10.10.10.1
```

**Step 7**
Put the host in maintenance mode.

**Step 8**
Enter the `vihostupdate` command:
```
vihostupdate --install --bundle "[path to VMware Update offline bundle"]", "[path to Cisco updated VEM offline bundle]" --server [vsphere host IP address]
```

**Example:**
This example shows how to upgrade to ESX 4.0, Update 3 using the `vihostupdate` command from a client:
```
[root@serialport tmp]# vihostupdate --install --bundle "/tmp/update-from-esx4.0-4.0_update03.zip", "/root/UPGRADE/BL/VEM400-201101406.zip" --server 10.10.10.1
Enter username: root
Enter password: 
Please wait installation in progress ...
The update completed successfully, but the system needs to be rebooted for the changes to be effective.
[root@serialport tmp]#
```

**Example:**
This example shows how to upgrade to ESX 4.1, Update 1 using the `vihostupdate` command from a client:
```
[root@serialport tmp]# vihostupdate --install --bundle "/tmp/update-from-esx4.1-4.1_update01.zip", "/root/UPGRADE/BL/VEM410-201101407.zip" --server 10.10.10.1
Enter username: root
Enter password: 
Please wait patch installation is in progress ...
The update completed successfully, but the system needs to be rebooted for the changes to be effective.
[root@serialport tmp]#
```

**Step 9**
Reboot the host.

**Step 10**
Verify that the installation was successful. A successful installation shows the correct ESX or ESXi version and the correct Cisco VEM software bundle installed.

**Example:**
This example shows how to verify that the correct Cisco VEM software bundle was installed:
```
[root@serialport tmp]# esxupdate query --vib-view | grep cross_cisco | grep installed
cross_cisco-vem-v130-esx_4.2.1.1.4.0.0-1.20.1 installed
2011-08-18T00:01:07.104096+00:00
[root@serialport tmp]# vmload_mod -l | grep vem
vem-v130-svs-mux 0x418035e73000 0x40000 0x417ff6d1fc40 0x1000 56 Yes
vem-v130-pts 0x418035e77000 0x160000 0x417ff6d193c0 0x1000 57 Yes
```

This example shows how to verify that ESX 4.0, Update 3 was installed:
```
[root@serialport tmp]# vmware -v
VMware ESX 4.0.0 build-398348
[root@serialport tmp]#
```
This example show how to verify that ESX 4.1, Update 1 was installed:

```
[root@serialport tmp]# vmware -v
VMware ESX 4.1.0 build-348481
[root@serialport tmp]#
```

**Step 11** Remove the host from maintenance mode.

**Step 12** Place the host in pass-through switching (PTS) mode.

**Step 13** Migrate the vmk0 management interface back to the host.

**Step 14** Power on the VMs or migrate all VMs back to the original host.

# Upgrading a Host to ESXi 5.0 and the Compatible Cisco VEM Software Bundle

You can upgrade a host to ESXi 5.0 with the compatible Cisco VEM software bundle using an Interactive upgrade from CD, DVD, or USB drive or using VMware vSphere Update Manager (VUM) (also known as an online upgrade).

**Before You Begin**

You have copied the ESXi 5.0 host software and the Cisco VEM software bundle to the /tmp directory. To determine the correct Cisco VEM software bundle to use, see the *Hardware and Software Interoperability Matrix for B Series Servers*.

**Procedure**

**Step 1** Upgrade the Cisco UCS to release 1.4 and the ESX or ESXi host to one of the following releases:

- Release 4.0, Update 3 with Cisco VEM software bundle v130-4.2.1.1.4.0.0-1.20.1.vib (or v129-4.2.1.1.4.0.0-1.20.1.vib if VUM was used)
- Release 4.1, Update 1 with Cisco VEM software bundle v130-4.2.1.1.4.0.0-2.0.1.vib (or v129-4.2.1.1.4.0.0-2.0.1.vib if VUM was used)

For more information, see Upgrading a Host to ESX or ESXi 4.0, Update 3 or to ESX or ESXi 4.1, Update 1 and the Compatible Cisco VEM Software Bundle, on page 21.

**Step 2** Upgrade the Cisco UCS to release 2.0.

For more information, see Upgrading Cisco UCS from Release 1.4 to Release 2.0.

**Step 3** Because VM-FEX for VMware has Cisco VEMs that require custom .vib files, create a custom ESX installable ISO file that includes the Cisco VEM software bundle. This custom ESX installable ISO file is installed as part of the ESXi 5.0 host upgrade.

For more information, see the "Upgrading Hosts That Have Third-Party Custom VIBs" section in the VMware vSphere Upgrade document for vSphere 5.0.

**Step 4** Upgrade the host to ESXi 5.0 and install the custom ESX installable ISO file.

For more information, see the VMware vSphere Upgrade document for vSphere 5.0.
Upgrading a Host to ESXi 5.1 and the Compatible Cisco VEM Software Bundle

You can upgrade a host to ESXi 5.1 with the compatible Cisco VEM software bundle using an Interactive upgrade from CD, DVD, or USB drive or using VMware vSphere Update Manager (VUM) (also known as an online upgrade).

Before You Begin
You have copied the ESXi 5.1 host software and the Cisco VEM software bundle to the /tmp directory. To determine the correct Cisco VEM software bundle to use, see the Hardware and Software Interoperability Matrix for B Series Servers.

Procedure

Step 1 Upgrade the Cisco UCS to release 1.4 and the ESX or ESXi host to one of the following releases:

- Release 4.0, Update 3 with Cisco VEM software bundle v130-4.2.1.1.4.0.0-1.20.1.vib (or v129-4.2.1.1.4.0.0-1.20.1.vib if VUM was used)
- Release 4.1, Update 1 with Cisco VEM software bundle v130-4.2.1.1.4.0.0-2.0.1.vib (or v129-4.2.1.1.4.0.0-2.0.1.vib if VUM was used)

For more information, see Upgrading a Host to ESX or ESXi 4.0, Update 3 or to ESX or ESXi 4.1, Update 1 and the Compatible Cisco VEM Software Bundle, on page 21.

Step 2 Upgrade the Cisco UCS to release 2.0.
For more information, see Upgrading Cisco UCS from Release 1.4 to Release 2.0.

Step 3 Because VM-FEX for VMware has Cisco VEMs that require custom.vib files, create a custom ESX installable ISO file that includes the Cisco VEM software bundle. This custom ESX installable ISO file is installed as part of the ESXi 5.1 host upgrade.
For more information, see the "Upgrading Hosts That Have Third-Party Custom VIBs" section in the VMware vSphere Upgrade document for vSphere 5.0.

Step 4 Upgrade the host to ESXi 5.1 and install the custom ESX installable ISO file.
For more information, see the VMware vSphere Upgrade document for vSphere 5.1.

Note If the installer displays the warning "DISTRIBUTED_VIRTUAL_SWITCH WARNING: Host contains DVS VIB(s) that have no substitute on the ISO," press Enter to continue.
Installing or Upgrading the Cisco VEM Software Bundle on an ESX or ESXi Host

Use this procedure to install the Cisco VEM software bundle on a host.

Before You Begin

- You have copied the ESX or ESXi host software and Cisco VEM software bundle to the /tmp directory.

To determine the correct Cisco VEM software bundle for your ESX or ESXi version and Cisco UCS release, see the Hardware and Software Interoperability Matrix for B Series Servers.

Procedure

Step 1
Go to the directory where the ESX or ESXi host software and Cisco VEM software bundle were copied.

Example:

[root@serialport ~]# cd tmp
[root@serialport tmp]#

Step 2
If the host is at ESXi Release 5, proceed to step 3. If the host is at ESX or ESXi Release 4.0 or 4.1, do one of the following:

- If you are performing this installation or upgrade remotely from a client, put the host in maintenance mode and enter the vihostupdate command:

  vihostupdate --install --bundle [path to desired offline Cisco VEM software bundle] --server [vsphere host IP address]

Example:
The following examples shows how to install or upgrade a Cisco VEM software bundle remotely.

[root@serialport ~]# vihostupdate --install --bundle VEM400-201108405.zip --server 192.0.2.1
Enter username: root
Enter password: 
Please wait patch installation is in progress ...
Host updated successfully.

- If you are performing this installation or upgrade locally on the ESX or ESXi host, log into the each host separately and, from the /tmp directory, use the `esxupdate` command to install the VEM software. This command loads the software manually onto the host, loads the kernel modules, and starts the VEM Agent on the running system.

```
esxupdate --bundle [VMware offline update bundle] update
```

**Example:**
The following example shows how to install or upgrade a Cisco VEM software bundle locally on a host.

```
~ # esxupdate -b cross_cisco-vem-v132-4.2.1.1.4.1.0-1.20.4.vib update
cross_cisco-vem-v132-4.2.1.1.4.1.0-1.20.4.vib
########################################################################
[100%]
Unpacking cross_cisco-vem-v132-esx_4.2.1.1.4.1.0-1.20.4.vib
########################################################################
[100%]
Installing packages :cross_cisco-vem-v132-esx_4.2.1.1.4.1.0-1.20.4.
########################################################################
[100%]
Running [/usr/sbin/vmkmod-install.sh]... ok.
```

**Step 3** If the host is at ESXi Release 5.0, do one of the following:

- If you are performing this installation or upgrade remotely from a client, put the host in maintenance mode and enter the `esxcli` command, as follows:

  ```
esxcli --server Server-IP-Address software vib install --viburl URL-Path-to-vib
  
  Example:
The following examples show how to perform this installation or upgrade remotely from a client.
  ```

```
# esxcli --server 30.20.41.197 software vib install --viburl http://192.0.2.1/cross_cisco-vem-v132-4.2.1.1.4.1.0-3.0.4.vib
Enter username: root
Enter password: 
Installation Result
Message: Operation finished successfully.
Reboot Required: false
VIBs Installed: Cisco_bootbank_cisco-vem-v132-esx_4.2.1.1.4.1.0-3.0.4
VIBs Removed: 
VIBs Skipped: 
```

- If you are performing this installation or upgrade locally on a host, log into the each host separately and from the /tmp directory, enter the following command:

```
esxcli software vib install -v /vib-file
```

**Example:**
The following example shows how to perform this installation or upgrade locally on a host.

```
# esxcli software vib install -v /cross_cisco-vem-v132-4.2.1.1.4.1.0-3.0.4.vib
```
Installation Result
Message: Operation finished successfully.
Reboot Required: false
VIBs Installed: Cisco_bootbank_cisco-vem-v132-esx_4.2.1.1.4.1.0-3.0.4
VIBs Removed:
VIBs Skipped:

Step 4  (Optional) Verify that the installation or upgrade of the Cisco VEM software bundle was successful on an ESX or ESXi 4.0, 4.1 or 5.0 host, by using the following commands:

```
esxcli software vib get | grep name
vmkload_mod -l | grep pts
```

Example:
The following example shows how to verify that the installation or upgrade of the Cisco VEM software bundle was successful on an ESX 4.1 host:

```
~ # esxupdate query --v | grep cisco
  cross_cisco-vem-v132-esx_4.2.1.1.4.1.0-2.0.4 2011-09-04T20:03:24.794110+00:00
~ # vmkload_mod -l | grep pts
  mptsas 2 256
  vem-v132 pts 132
```

Uninstalling the Cisco VEM Software Bundle

Use this procedure to uninstall the Cisco VEM software bundle from a host. The command that you use removes the software from the host, removes the kernel modules, and stops the VEM Agent on the running system.

Before You Begin

- Make sure that the host is not part of any DVS by removing all of the following active ports from the DVS:
  - VMware kernel NICs
  - Virtual switch interfaces
  - Virtual NICs

  - You are logged in to the ESX or ESXi host remotely by using secure shell (SSH).

Procedure

Step 1  If the host is at ESXi release 5.0, proceed to step 2. If the host is at ESX or ESXi release 4.0 or 4.1, uninstall the Cisco VEM software bundle by using the `esxupdate remove -b VEM_name` command.

Example:
The following example shows how to remove the Cisco VEM software bundle from a host that is at ESX or ESXi release 4.1:

```
[root@serialport ~]# esxupdate remove -b cross_cisco-vem-v132-esx_4.2.1.1.4.1.0-2.0.4
Removing cisco-vem-v132-esx
# ######################################################################################################################
[100%]
```

```
Running [/usr/sbin/vmkmod-install.sh]...
ok.
[root@serialport ~]# esxupdate query --v |grep cisco
```

```
cross_cisco-vem-v132-esx_4.2.1.1.4.1.0-2.0.4  uninstalled
  2011-09-05T09:04:51.096141-07:00
```

**Step 2** For an ESXi 5.0 host, uninstall the Cisco VEM software bundle by using the `esxcli software vib remove -n --maintenance-mode [Cisco VEM bundle software name]` command.

**Example:**
The following example shows how to remove the Cisco VEM software bundle from a host that is at ESXi release 5.0:

```
# esxcli software vib remove --maintenance-mode -n cisco-vem-v132-esx
```

**Removal Result**
- Message: Operation finished successfully.
- Reboot Required: false
- VIBs Installed:
  - VIBs Removed: Cisco_bootbank_cisco-vem-v132-esx_4.2.1.1.4.1.0-3.0.4
- VIBs Skipped:

**Step 3** If the host is at ESXi release 5.0, proceed to step 4. If the host is at ESX or ESXi release 4.0 or 4.1, verify that the software was successfully uninstalled by checking the output of the `esxupdate query --v |grep cisco` command.

**Example:**
The following example shows how to verify that the Cisco VEM software bundle was successfully uninstalled from an ESX or ESXi release 4.1 host:

```
[root@serialport ~]# esxupdate query --v |grep cisco
cross_cisco-vem-v132-esx_4.2.1.1.4.1.0-2.0.4  uninstalled
  2011-09-05T09:04:51.096141-07:00
```

**Step 4** For an ESXi 5.0 host, verify that the software was successfully uninstalled by checking for the output of the `esxcli software vib get | grep cisco` command.

**Example:**

```
~ # esxcli software vib get | grep cisco
~ #
```

**Step 5** Reboot the system.
Using the Configure VMware Integration Wizard

This chapter includes the following sections:

- Overview of the Configure VMware Integration Wizard, page 29
- Configuring the VMware Integration with the Wizard, page 29

Overview of the Configure VMware Integration Wizard

The Configure VMware Integration wizard provides a single access to perform the basic configuration steps that are specific to Cisco UCS Manager. The wizard does not address every vCenter configuration. For example, it does not create a DVS structure that includes a vCenter server folder that contains the datacenter. If you want a folder between the vCenter server and the datacenter, do not use this wizard.

You cannot use this wizard to complete the configuration steps that must be performed in VMware vCenter to complete the integration.

Through the Configure VMware Integration wizard, you can perform the following configuration steps:

1. Export the vCenter extension files to establish a connection to VMware vCenter.
   You must register the vCenter extension key as a plug-in in VMware vCenter. You cannot perform that step in the Configure VMware Integration wizard.

2. Define the structure for one VMware vCenter Distributed Virtual Switch (DVS), including the vCenter server, datacenter, DVS folder, and DVS.

3. Define the port profile and profile client.

4. Apply the configuration to VMware vCenter.

When you have completed the integration steps through the wizard, you must log in to VMware vCenter and associate the VMs and port profiles with the DVS. The port profiles are shown as port groups in VMware vCenter.

Configuring the VMware Integration with the Wizard

If you prefer not to use this wizard, you can perform each of these steps individually.
Before You Begin

Before you use the Configure VMware Integration wizard, complete the following:

- Configure the VMware ESX host for VM-FEX.
- Configure a VMware vCenter instance for VM-FEX.
- Configure a certificate for VM-FEX.

Procedure

Step 1 In the Navigation pane, click the VM tab.
Step 2 On the VM tab, expand the All node.
Step 3 In the Work pane, click the General tab.
Step 4 In the Actions area, click Configure VMware Integration.
Step 5 In the Configure VMware Integration wizard, complete the following:
  - Page 1: Establishing the Connection to vCenter Server
  - Page 2: Defining a VMware vCenter Distributed Virtual Switch
  - Page 3: Defining a Port Profile, on page 33
  - Page 4: Applying Port Profiles and Configuration to vCenter Server

Page 1: Establishing the Connection to vCenter Server

This procedure directly follows the steps in Configuring the VMware Integration with the Wizard. It describes how to establish a connection to VMware vCenter through the Configure VMware Integration wizard.

You can skip this page and move onto the next page if you have already exported and registered the vCenter extension key files.

Before You Begin

- If you want to use a custom extension key, you must modify the extension key before performing this step as described in (Optional) Modifying the vCenter Extension Key.
- The vCenter server must have network connectivity to the Cisco UCS management port and to the uplink Ethernet port(s) being used by the ESX host. Specifically, the HTTP and HTTPS ports (normally TCP 80 and 443) must not be blocked by any device or policy in the network path.

Procedure

Step 1 To export the vCenter extension files, click one of the following:
### Export

For VMware vCenter version 4.0 update 1 and later.
Exports a single vCenter Extension Key file.

### Export Multiple

For VMware vCenter version 4.0.
Exports nine vCenter Extension Key files.

---

**Step 2**

In the Export vCenter Extension dialog box, do the following:

a) In the Save Location field, enter the path to the directory where you want to save the extension file or files.
If you do not know the path, click the ... button and browse to the location.

b) Click OK.
Cisco UCS Manager generates the extension file(s) and saves them to the specified location.

**Step 3**
Copy the downloaded file to a location on the VMware vCenter.

**Step 4**
Register the vCenter extension file(s) in VMware vCenter.
For more information, see Registering a vCenter Extension File in VMware vCenter, and the instructions on this page in the Configure VMware Integration wizard.

**Step 5**
Click Next.

---

**What to Do Next**

Complete the steps in Page 2: Defining a VMware vCenter Distributed Virtual Switch.

---

### Page 2: Defining a VMware vCenter Distributed Virtual Switch

This procedure directly follows the steps in Page 1: Establishing the Connection to vCenter Server. It describes how to define the components of a distributed virtual switch in VMware vCenter through the Configure VMware Integration wizard.

**Procedure**

**Step 1**
In the vCenter Server area, complete the following fields to define the connection to VMware vCenter:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vCenter Server Name</td>
<td>The user-defined name for the vCenter server. This name can be between 1 and 16 alphanumeric characters. You cannot use spaces or any special characters other than - (hyphen), _ (underscore), : (colon), and . (period), and you cannot change this name after the object has been saved.</td>
</tr>
</tbody>
</table>
### Step 2
In the **Datacenter** area, complete the following fields to create the datacenter in VMware vCenter:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>vCenter Datacenter Name</strong> field</td>
<td>The name of the vCenter Datacenter. This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ‘(accent mark), \ (back slash), ^ (carat), &quot; (double quote), / (forward slash), &gt; (greater than), &lt; (less than), or ’ (single quote).</td>
</tr>
<tr>
<td><strong>Description</strong> field</td>
<td>The user-defined description of the Datacenter. Enter up to 256 characters. You can use any characters or spaces except ‘ (accent mark), \ (back slash), ^ (carat), &quot; (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ’ (single quote).</td>
</tr>
</tbody>
</table>

### Step 3
In the **DVS Folder** area, complete the following fields to create a folder to contain the distributed virtual switch in VMware vCenter:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Folder Name</strong> field</td>
<td>The name of the folder that contains the distributed virtual switch (DVS). This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ‘ (accent mark), \ (back slash), ^ (carat), &quot; (double quote), / (forward slash), &gt; (greater than), &lt; (less than), or ’ (single quote).</td>
</tr>
<tr>
<td><strong>Description</strong> field</td>
<td>The user-defined description of the folder. Enter up to 256 characters. You can use any characters or spaces except ‘ (accent mark), \ (back slash), ^ (carat), &quot; (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ’ (single quote).</td>
</tr>
</tbody>
</table>
### Step 4

In the **DVS** area, complete the following fields to create the distributed virtual switch in VMware vCenter:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DVS Name</strong></td>
<td>The name of the DVS. This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for <code>\</code> (accent), <code>\</code> (backslash), <code>^</code> (carat), <code>&quot;</code> (double quote), <code>/</code> (forward slash), <code>&gt;</code> (greater than), <code>&lt;</code> (less than), or <code>'</code> (single quote).</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>The user-defined description of the DVS. Enter up to 256 characters. You can use any characters or spaces except <code>\</code> (accent mark), <code>\</code> (backslash), <code>^</code> (carat), <code>&quot;</code> (double quote), <code>=</code> (equal sign), <code>&gt;</code> (greater than), <code>&lt;</code> (less than), or <code>'</code> (single quote).</td>
</tr>
</tbody>
</table>
| **DVS**         | This can be one of the following:  
  - disable  
  - enable  
    If you disable the DVS, Cisco UCS Manager does not push any configuration changes related to the DVS to VMware vCenter. |

### Step 5

Click Next.

### What to Do Next

Complete the steps in **Page 3: Defining a Port Profile**, on page 33.

## Page 3: Defining a Port Profile

This procedure directly follows the steps in **Page 2: Defining a VMware vCenter Distributed Virtual Switch**. It describes how to define the components of a distributed virtual switch in VMware vCenter through the **Configure VMware Integration** wizard.

### Procedure

### Step 1

In the **Port Profile** area, complete the following fields to define the port profile:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Name** | The user-defined name for the port profile.  
  This name can be between 1 and 31 ASCII alphanumeric characters. You cannot use spaces or any special characters other than - (hyphen), _ (underscore), and : (colon), and you cannot change this name after the object has been saved. |
### Defining a Port Profile

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong> field</td>
<td>The user-defined description for the port profile. Enter up to 256 characters. You can use any characters or spaces except \ (accent mark), \ (backslash), ^ (carat), &quot; (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ’ (single quote).</td>
</tr>
<tr>
<td><strong>QoS Policy</strong> drop-down list</td>
<td>The quality of service policy associated with this port profile.</td>
</tr>
<tr>
<td><strong>Network Control Policy</strong> drop-down list</td>
<td>The network control policy associated with this port profile.</td>
</tr>
<tr>
<td><strong>Max Ports</strong> field</td>
<td>The maximum number of ports that can be associated with this port profile. The default is 64 ports.</td>
</tr>
<tr>
<td></td>
<td>The maximum number of ports that can be associated with a single distributed virtual switch (DVS) is 4096. If the DVS has only one associated port profile, that port profile can be configured with up to 4096 ports. However, if the DVS has more than one associated port profile, the total number of ports associated with all of those port profiles combined cannot exceed 4096.</td>
</tr>
<tr>
<td><strong>Host Network IO Performance</strong> field</td>
<td>This can be one of the following:</td>
</tr>
<tr>
<td></td>
<td>• None—Traffic to and from a virtual machine passes through the DVS.</td>
</tr>
<tr>
<td></td>
<td>• High Performance—Traffic to and from a virtual machine bypasses the DVS and hypervisor and travels directly between the virtual machines and a virtual interface card (VIC) adapter.</td>
</tr>
<tr>
<td><strong>Pin Group</strong> drop-down list</td>
<td>The pin group associated with this port profile.</td>
</tr>
</tbody>
</table>

#### Step 2
In the **VLANs** area, do the following to assign one or more VLANs to the port profile:

a) In the **Select** column, check the check box in the appropriate row for each VLAN that you want to use in the port profile.

b) In the **Native VLAN** column, click the radio button in the appropriate row for the VLAN that you want to designate as the native VLAN.

#### Step 3
In the **Client Profile** area, do the following to create a profile client for the port profile:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong> field</td>
<td>The user-defined name for the profile client. This name can be between 1 and 16 ASCII alphanumeric characters. You cannot use spaces or any special characters other than - (hyphen), _ (underscore), and : (colon), and you cannot change this name after the object has been saved.</td>
</tr>
<tr>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Description field</strong></td>
<td>The user-defined description of the client. Enter up to 256 characters.</td>
</tr>
<tr>
<td></td>
<td>You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), &quot; (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ' (single quote).</td>
</tr>
<tr>
<td><strong>Datacenter drop-down list</strong></td>
<td>Choose a datacenter from the drop-down list or choose All if this profile</td>
</tr>
<tr>
<td></td>
<td>client applies to all datacenters.</td>
</tr>
<tr>
<td><strong>Folder drop-down list</strong></td>
<td>Choose a folder from the drop-down list or choose All if this profile</td>
</tr>
<tr>
<td></td>
<td>client applies to all folders.</td>
</tr>
<tr>
<td><strong>Distributed Virtual Switch</strong></td>
<td>Choose a virtual switch from the drop-down list or choose All if this</td>
</tr>
<tr>
<td>drop-down list</td>
<td>profile client applies to all virtual switches.</td>
</tr>
</tbody>
</table>

**Step 4**  
Click Next.

**What to Do Next**  
Complete the configuration of the virtual machines in VMware vCenter.

**Page 4: Applying Port Profiles and Configuration to vCenter Server**

This procedure directly follows the steps in Page 3: Defining a Port Profile, on page 33. It describes how to apply the port profiles to vCenter Server through the Configure VMware Integration wizard.

**Procedure**

**Step 1**  
Review the text on the page in the Configure VMware Integration wizard.

**Step 2**  
Click Finish.  
Cisco UCS Manager connects to the vCenter Server, creates the specified DVS, and applies the port profiles.

**What to Do Next**  
In VMware vCenter, associate the VMs and port profiles with the DVS. The port profiles are shown as port groups in VMware vCenter.
CHAPTER 5

Connecting Cisco UCS Manager to VMware vCenter

This chapter includes the following sections:

- Connecting Using the Extension Key, page 37
- (Optional) Modifying the vCenter Extension Key, page 37
- Exporting a vCenter Extension File from Cisco UCS Manager, page 38
- Registering a vCenter Extension File in VMware vCenter, page 39
- Configuring a Certificate for VM-FEX, page 39
- Creating a Certificate for VM-FEX, page 39
- Copying a Certificate to the Fabric Interconnect, page 40
- Deleting a Certificate for VM-FEX, page 41

Connecting Using the Extension Key

(Optional) Modifying the vCenter Extension Key

You can modify the vCenter extension key to be more meaningful than the default ID string. This provides better system identification.
Procedure

**Step 1** In the Navigation pane, click the VM tab.

**Step 2** On the VM tab, expand the All node.

**Step 3** On the VM tab, click VMWare.

**Step 4** In the Work pane, click the General tab.

**Step 5** In the Actions area, click Modify Extension Key.

**Step 6** In the Modify Extension Key dialog box, do the following:

a) In the Key field, modify the key as needed.

   A vCenter extension key can have a maximum length of 33 characters. These characters can be letters, numbers, or hyphens. No other characters or spaces are permitted in the extension key.

b) Click OK.

What to Do Next

Export the vCenter extension file or files from Cisco UCS Manager.

Exporting a vCenter Extension File from Cisco UCS Manager

Depending on the version of VMware vCenter you are using, you can either generate one extension file or a set of nine extension files.

Procedure

**Step 1** In the Navigation pane, click the VM tab.

**Step 2** On the VM tab, expand the All node.

**Step 3** On the VM tab, click VMWare.

**Step 4** In the Work pane, click the General tab.

**Step 5** In the Actions area, click one of the following links:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Export vCenter Extension</td>
<td>For vCenter version 4.0 update 1 and later versions.</td>
</tr>
<tr>
<td>Export Multiple vCenter Extensions</td>
<td>For vCenter version 4.0.</td>
</tr>
</tbody>
</table>

**Step 6** In the Export vCenter Extension dialog box, do the following:

a) In the Save Location field, enter the path to the directory where you want to save the extension file or files.

   If you do not know the path, click the ... button and browse to the location.

b) Click OK.
Cisco UCS Manager generates the extension file(s) and saves them to the specified location.

What to Do Next
Register the vCenter extension file or files in VMware vCenter.

Registering a vCenter Extension File in VMware vCenter

In VMware vCenter, the vCenter extension files are called plug-ins.

Before You Begin
Export the vCenter extension file(s) from Cisco UCS Manager. Ensure that the exported vCenter extension files are saved to a location that can be reached by VMware vCenter.

Procedure

Step 1
In VMware vCenter, choose Plug-ins > Manage Plug-ins.

Step 2
Right-click any empty space below the Available Plug-ins section of the Plug-in Manager dialog box and click New Plug-in.

Step 3
Click Browse and navigate to the location where the vCenter extension file(s) are saved.

Step 4
Choose a vCenter extension file and click Open.

Step 5
Click Register Plug-in.

Step 6
If the Security Warning dialog box appears, click Ignore.

Step 7
Click OK.

The vCenter extension file registers as an available VMware vCenter plug-in. You do not need to install the plug-in; instead, leave it in the available state. If you are registering multiple vCenter extension files, repeat this procedure until all files are registered.

Configuring a Certificate for VM-FEX

Creating a Certificate for VM-FEX

Before You Begin
Copy a certificate to the fabric interconnect.
Procedure

**Step 1** In the Navigation pane, click the VM tab.

**Step 2** On the VM tab, expand the All node.

**Step 3** On the VM tab, click VMWare.

**Step 4** In the Work pane, click the Certificates tab.

**Step 5** On the icon bar to the right of the table, click +.
If the + icon is disabled, click an entry in the table to enable it.

**Step 6** In the Create Key Ring dialog box, complete the following fields:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name field</td>
<td>The name of the key ring. Enter up to 510 ASCII characters. This name cannot be changed after the object has been saved.</td>
</tr>
<tr>
<td>Protocol field</td>
<td>This can be one of the following:</td>
</tr>
<tr>
<td></td>
<td>• Workspace</td>
</tr>
<tr>
<td></td>
<td>• Volatile</td>
</tr>
<tr>
<td>Certificate File</td>
<td>The name of the certificate file associated with this key ring.</td>
</tr>
<tr>
<td>Path field</td>
<td>The path to the certificate file on the server.</td>
</tr>
</tbody>
</table>

**Step 7** Click OK.

---

**Copying a Certificate to the Fabric Interconnect**

**Before You Begin**
Obtain a certificate.

**Procedure**

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1 UCS-A# connect local-mgmt</td>
<td>Enters local management mode.</td>
</tr>
<tr>
<td>Step 2 UCS-A(local-mgmt)# copy from-filesystem: [from-path ] filename to-filesystem: [to-path ] filename</td>
<td>Copies the certificate from its source location to its destination location. For the from-filesystem: argument, use one of the following syntax:</td>
</tr>
<tr>
<td></td>
<td>• ftp:// username@server-ip-addr</td>
</tr>
</tbody>
</table>
### Connecting Cisco UCS Manager to VMware vCenter

#### Deleting a Certificate for VM-FEX

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>• scp:// username@server-ip-addr</td>
<td></td>
</tr>
<tr>
<td>• sftp:// username@server-ip-addr</td>
<td></td>
</tr>
<tr>
<td>• tftp:// server-ip-addr : port-num</td>
<td></td>
</tr>
</tbody>
</table>

For the *to-filesystem:* argument, use one of the following syntax:

- **Volatile:**
- **Workspace:**

The following shows how to use FTP to copy a certificate (certificate.txt) to the temp folder in the workspace:

**UCS-A # connect local-mgmt**
Cisco UCS 6100 Series Fabric Interconnect

TAC support: http://www.cisco.com/tac

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**UCS-A(local-mgmt)# copy ftp://192.168.10.10/certs/certificate.txt workspace:/temp/certificate.txt**

**UCS-A(local-mgmt)#**

**What to Do Next**

Create a certificate for VM-FEX.

### Deleting a Certificate for VM-FEX

**Procedure**

- **Step 1** In the *Navigation* pane, click the *VM* tab.
- **Step 2** On the *VM* tab, expand the *All* node.
- **Step 3** On the *VM* tab, click *VMWare*.
- **Step 4** In the *Work* pane, click the *Certificates* tab.
- **Step 5** In the *Key Rings* table, click the certificate you want to delete.
- **Step 6** Right-click the certificate you want to delete and select *Delete*.
- **Step 7** If the Cisco UCS Manager GUI displays a confirmation dialog box, click *Yes.*
Configuring Distributed Virtual Switches in Cisco UCS

This chapter includes the following sections:

- Distributed Virtual Switches, page 43
- Overview of Creating a DVS in Cisco UCS Manager, page 43
- Configuring a Distributed Virtual Switch, page 44
- Managing Distributed Virtual Switches, page 47

Distributed Virtual Switches

The Cisco UCS distributed virtual switch (DVS) is a software-based virtual switch that runs along side the vSwitch in the ESX hypervisor and can be distributed across multiple ESX hosts. Unlike the vSwitch, which uses its own local port configuration, a DVS that is associated with multiple ESX hosts uses the same port configuration across all ESX hosts.

After associating an ESX host to a DVS, you can migrate existing VMs from the vSwitch to the DVS, and you can create VMs to use the DVS instead of the vSwitch. With the VM-FEX for VMware implementation, when a VM uses the DVS, all VM traffic passes through the DVS and ASIC-based switching is performed by the fabric interconnect.

Overview of Creating a DVS in Cisco UCS Manager

To create a distributed virtual switch (DVS) in Cisco UCS Manager, you must first create a vCenter, a datacenter under the vCenter, and a datacenter folder under the datacenter. You can then create a DVS in the datacenter folder. The vCenter name you specify in Cisco UCS Manager does not need to match the vCenter name specified in VMware vCenter; however, the datacenter name you specify in Cisco UCS Manager must match the datacenter name specified in VMware vCenter. The datacenter folder and DVS you create in Cisco UCS Manager are pushed to VMware vCenter.
Configuring a Distributed Virtual Switch

Before You Begin

You must first create a datacenter in VMware vCenter. Do not create the folder inside the datacenter or the DVS in VMware vCenter.

Procedure

Step 1 In the Navigation pane, click the VM tab.
Step 2 On the VM tab, expand the All node.
Step 3 Right-click the VMware node and choose Configure vCenter.
Step 4 On the Configure vCenter page, do the following:
   a) Complete the following fields:

<table>
<thead>
<tr>
<th>Name field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name field</td>
<td>The name of the vCenter folder. This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except ‘ (accent), \ (back slash), ^ (carat), &quot; (double quote), / (forward slash), &gt; (greater than), &lt; (less than), or ‘ (single quote).</td>
</tr>
<tr>
<td>Description field</td>
<td>A user-defined description of the folder. Enter up to 256 characters. You can use any characters or spaces except ‘ (accent mark), \ (backslash), ^ (carat), &quot; (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ‘ (single quote).</td>
</tr>
</tbody>
</table>

   b) Click Next.

Step 5 On the Create Folder page, click one of the following:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Next</td>
<td>Moves to the next page. Choose this option if the vCenter structure does not require you to include the datacenter in a high-level folder. If you choose this option, continue with Step 7.</td>
</tr>
<tr>
<td>Add</td>
<td>Opens the Create Folder dialog box, where you can add a high-level folder above the datacenter. If you choose this option, continue with Step 6.</td>
</tr>
</tbody>
</table>

Step 6 (Optional) In the Create Folder dialog box, do the following:
   a) Complete the following fields:
b) Click Next.

**Step 7** On the Create Datacenter page, do the following:

a) Click Add.

b) In the Create Datacenter dialog box, complete the following fields:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name field</td>
<td>The name of the datacenter. This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), &quot; (double quote), / (forward slash), &gt; (greater than), &lt; (less than), or ’ (single quote). The datacenter name that you specify in Cisco UCS Manager must match the name of the datacenter previously created in VMware vCenter.</td>
</tr>
<tr>
<td>Description field</td>
<td>The user-defined description of the datacenter. Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), &quot; (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ’ (single quote).</td>
</tr>
</tbody>
</table>

c) Click Next.

**Step 8** In the Create Folder page, do the following to create a folder in the datacenter:

a) Click Add.

b) In the Create Folder dialog box, complete the following fields:
### Name field

The name of the vCenter folder. This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (backslash), ^ (carat), " (double quote), / (forward slash), > (greater than), < (less than), or ' (single quote).

### Description field

A user-defined description of the folder. Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), " (double quote), = (equal sign), > (greater than), < (less than), or ' (single quote).

**Step 9**

On the **Create Distributed Virtual Switches** page, do the following to create a distributed virtual switch in the folder:

- a) Click **Add** to add a distributed virtual switch to the folder.
- b) In the **Create Distributed Virtual Switches** dialog box, complete the following fields:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong> field</td>
<td>The name of the distributed virtual switch. This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (backslash), ^ (carat), &quot; (double quote), / (forward slash), &gt; (greater than), &lt; (less than), or ' (single quote).</td>
</tr>
<tr>
<td><strong>Description</strong> field</td>
<td>The user-defined description of the distributed virtual switch. Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), &quot; (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ' (single quote).</td>
</tr>
<tr>
<td><strong>Admin State</strong> field</td>
<td>This can be one of the following: • <strong>Enabled</strong> • <strong>Disabled</strong> If you disable the DVS, Cisco UCS Manager does not push any configuration changes related to the DVS to VMware vCenter.</td>
</tr>
</tbody>
</table>

c) Click **OK**.

**Step 10**

Click **Finish** if you have finished adding all datacenters, folders, and DVSes to the vCenter. You may need to click **Finish** more than once to exit the wizard. You can stop at any page to add another datacenter, folder, or DVS.
Managing Distributed Virtual Switches

Adding a Folder to an Existing vCenter

You can add a folder inside an existing vCenter and place your datacenters inside the folder. However, this folder is optional.

Procedure

- **Step 1**: In the Navigation pane, click the VM tab.
- **Step 2**: On the VM tab, expand the VMWare node.
- **Step 3**: Right-click the vCenter to which you want to add a datacenter and choose Create Folder.
- **Step 4** (Optional): In the Create Folder dialog box, do the following:
  - a) Complete the following fields:

    | Name       | Description                                      |
    |------------|--------------------------------------------------|
    | **Name** field | The name of the vCenter folder. This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), " (double quote), / (forward slash), > (greater than), < (less than), or ' (single quote). |
    | **Description** field | A user-defined description of the folder. Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), " (double quote), = (equal sign), > (greater than), < (less than), or ' (single quote). |

  - b) Click Next.

- **Step 5**: On the Create Datacenter page, do the following:
  - a) Click Add.
  - b) In the Create Datacenter dialog box, complete the following fields:
c) Click Next.

**Step 6** In the **Create Folder** page, do the following to create a folder in the datacenter:

a) Click **Add**.

b) In the **Create Folder** dialog box, complete the following fields:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
</table>
| Name field | The name of the vCenter folder.  
This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), " (double quote), / (forward slash), > (greater than), < (less than), or ’ (single quote). |
| Description field | A user-defined description of the folder.  
Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), " (double quote), = (equal sign), > (greater than), < (less than), or ’ (single quote). |

c) Click Next.

**Step 7** On the **Create Distributed Virtual Switches** page, do the following to create a distributed virtual switch in the folder:

a) Click **Add** to add a distributed virtual switch to the folder.

b) In the **Create Distributed Virtual Switches** dialog box, complete the following fields:
Adding a Datacenter to an Existing vCenter

Before You Begin

You must first create a datacenter in VMware vCenter. Do not create the folder inside the datacenter or the DVS in VMware vCenter.

Procedure

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In the Navigation pane, click the VM tab.</td>
</tr>
<tr>
<td>2</td>
<td>On the VM tab, expand the VMWare node.</td>
</tr>
<tr>
<td>3</td>
<td>Right-click the vCenter to which you want to add a datacenter and choose Create Datacenter.</td>
</tr>
<tr>
<td>4</td>
<td>On the Create Datacenter page, do the following:</td>
</tr>
<tr>
<td></td>
<td>a) Click Add.</td>
</tr>
<tr>
<td></td>
<td>b) In the Create Datacenter dialog box, complete the following fields:</td>
</tr>
</tbody>
</table>
### Name field

The name of the datacenter. This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), " (double quote), / (forward slash), > (greater than), < (less than), or ' (single quote).

The datacenter name that you specify in Cisco UCS Manager must match the name of the datacenter previously created in VMware vCenter.

### Description field

The user-defined description of the datacenter.

Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (back slash), ^ (carat), " (double quote), = (equal sign), > (greater than), < (less than), or ' (single quote).

---

c) Click Next.

**Step 5** In the Create Folder page, do the following to create a folder in the datacenter:

a) Click Add.

b) In the Create Folder dialog box, complete the following fields:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong> field</td>
<td>The name of the vCenter folder. This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), &quot; (double quote), / (forward slash), &gt; (greater than), &lt; (less than), or ' (single quote).</td>
</tr>
<tr>
<td><strong>Description</strong> field</td>
<td>A user-defined description of the folder. Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (back slash), ^ (carat), &quot; (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ' (single quote).</td>
</tr>
</tbody>
</table>

c) Click Next.

**Step 6** On the Create Distributed Virtual Switches page, do the following to create a distributed virtual switch in the folder:

a) Click Add to add a distributed virtual switch to the folder.

b) In the Create Distributed Virtual Switches dialog box, complete the following fields:
### Adding a Folder to a Datacenter

**Procedure**

**Step 1**  
In the Navigation pane, click the **VM** tab.

**Step 2**  
On the VM tab, expand the **VMWare** node.

**Step 3**  
Expand the vCenter that includes the datacenter to which you want to add a folder.

**Step 4**  
Right-click the datacenter to which you want to add a folder and choose **Create Folder**.

**Step 5**  
On the **Create Folder** page, do the following to add a folder to the datacenter:

a)  
Complete the following fields:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name field</strong></td>
<td>The name of the distributed virtual switch. This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (backslash), ^ (carat), &quot; (double quote), / (forward slash), &gt; (greater than), &lt; (less than), or ‘ (single quote).</td>
</tr>
<tr>
<td><strong>Description field</strong></td>
<td>The user-defined description of the distributed virtual switch. Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), &quot; (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ‘ (single quote).</td>
</tr>
</tbody>
</table>
| **Admin State field** | This can be one of the following:  
• **Enabled**  
• **Disabled**  
If you disable the DVS, Cisco UCS Manager does not push any configuration changes related to the DVS to VMware vCenter. |

c)  
Click **OK**.

**Step 7**  
Click **Finish** if you have finished adding all folders and distributed virtual switches to the datacenter. You may need to click **Finish** more than once to exit the wizard. You can stop at any page to add another folder or DVS to the datacenter.
b) • Click Next and continue with Step 6 to create a DVS in the folder.
   • Continue with Step 7 if you do not want to create a DVS in the folder.

**Step 6** On the Create Distributed Virtual Switches page, do the following to create a distributed virtual switch in the folder:

a) Click Add to add a distributed virtual switch to the folder.

b) In the Create Distributed Virtual Switches dialog box, complete the following fields:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name field</td>
<td>The name of the distributed virtual switch. This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), &quot; (double quote), / (forward slash), &gt; (greater than), &lt; (less than), or ' (single quote).</td>
</tr>
<tr>
<td>Description field</td>
<td>The user-defined description of the distributed virtual switch. Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (back slash), ^ (carat), &quot; (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ' (single quote).</td>
</tr>
</tbody>
</table>
| Admin State field | This can be one of the following:
   - Enabled
   - Disabled
   If you disable the DVS, Cisco UCS Manager does not push any configuration changes related to the DVS to VMware vCenter. |

c) Click OK.

**Step 7** Click Finish if you have finished adding all folders and DVSes to the datacenter.
Deleting a Folder from a vCenter

If the folder contains a datacenter, Cisco UCS Manager also deletes that datacenter and any folders and DVSes it contains.

Procedure

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In the Navigation pane, click the VM tab.</td>
</tr>
<tr>
<td>2</td>
<td>On the VM tab, expand All &gt; VMWare.</td>
</tr>
<tr>
<td>3</td>
<td>Expand the node for the vCenter that contains the folder you want to delete.</td>
</tr>
<tr>
<td>4</td>
<td>Right-click the folder and choose Delete.</td>
</tr>
<tr>
<td>5</td>
<td>If the Cisco UCS Manager GUI displays a confirmation dialog box, click Yes.</td>
</tr>
</tbody>
</table>

Deleting a Datacenter

If the datacenter contains a folder, Cisco UCS Manager also deletes that folder and any DVS it contains.

Procedure

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In the Navigation pane, click the VM tab.</td>
</tr>
<tr>
<td>2</td>
<td>On the VM tab, expand All &gt; VMWare.</td>
</tr>
<tr>
<td>3</td>
<td>If the datacenter that you want to delete is contained in a higher level folder, expand the node for that folder.</td>
</tr>
<tr>
<td>4</td>
<td>Right-click the datacenter and choose Delete.</td>
</tr>
<tr>
<td>5</td>
<td>If the Cisco UCS Manager GUI displays a confirmation dialog box, click Yes.</td>
</tr>
</tbody>
</table>

Deleting a Folder from a Datacenter

If the folder contains a DVS, Cisco UCS Manager also deletes that DVS.
**Procedure**

**Step 1** In the **Navigation** pane, click the **VM** tab.

**Step 2** On the **VM** tab, expand **All > VMWare**.

**Step 3** If the datacenter that you want to modify is contained in a higher level folder, expand the node for that folder.

**Step 4** Expand the node for the datacenter that contains the folder you want to delete.

**Step 5** Right-click the folder and choose **Delete**.

**Step 6** If the Cisco UCS Manager GUI displays a confirmation dialog box, click **Yes**.
CHAPTER 7

Configuring Port Profiles

This chapter includes the following sections:

- Port Profiles, page 55
- Creating a Port Profile, page 56
- Modifying the VLANs in a Port Profile, page 57
- Changing the Native VLAN for a Port Profile, page 58
- Adding a VLAN to a Port Profile, page 58
- Removing a VLAN from a Port Profile, page 59
- Deleting a Port Profile, page 59
- Port Profile Clients, page 59
- Creating a Profile Client, page 60
- Modifying a Profile Client, page 60
- Deleting a Profile Client, page 61

Port Profiles

Port profiles contain the properties and settings that you can use to configure virtual interfaces in Cisco UCS for VM-FEX. The port profiles are created and administered in Cisco UCS Manager. After a port profile is created, assigned to, and actively used by one or more DVSes, any changes made to the networking properties of the port profile in Cisco UCS Manager are immediately applied to those DVSes.

In VMware vCenter, a port profile is represented as a port group. Cisco UCS Manager pushes the port profile names to VMware vCenter, which displays the names as port groups. None of the specific networking properties or settings in the port profile are visible in VMware vCenter. You must configure at least one port profile client for a port profile if you want Cisco UCS Manager to push the port profile to VMware vCenter.
Creating a Port Profile

Note
If you are configuring VMDirectPath Gen 2, you need to set the Host Network IO Performance field to High Performance.

Procedure

Step 1 In the Navigation pane, click the VM tab.
Step 2 On the VM tab, expand the All node.
Step 3 Right-click the Port Profiles node and choose Create Port Profile.
Step 4 In the Create Port Profile dialog box, complete the following fields:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name field</td>
<td>The user-defined name for the port profile. This name can be between 1 and 31 ASCII alphanumeric characters. You cannot use spaces or any special characters other than - (hyphen), _ (underscore), and : (colon), and you cannot change this name after the object has been saved.</td>
</tr>
<tr>
<td>Description field</td>
<td>The user-defined description for the port profile. Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), &quot; (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ' (single quote).</td>
</tr>
<tr>
<td>QoS Policy drop-down list</td>
<td>The quality of service policy associated with this port profile.</td>
</tr>
<tr>
<td>Network Control Policy drop-down list</td>
<td>The network control policy associated with this port profile.</td>
</tr>
<tr>
<td>Max Ports field</td>
<td>The maximum number of ports that can be associated with this port profile. The default is 64 ports. The maximum number of ports that can be associated with a single distributed virtual switch (DVS) is 4096. If the DVS has only one associated port profile, that port profile can be configured with up to 4096 ports. However, if the DVS has more than one associated port profile, the total number of ports associated with all of those port profiles combined cannot exceed 4096.</td>
</tr>
</tbody>
</table>
This can be one of the following:

- **None** — Traffic to and from a virtual machine passes through the DVS.
- **High Performance** — Traffic to and from a virtual machine bypasses the DVS and hypervisor and travels directly between the virtual machines and a virtual interface card (VIC) adapter.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Host Network IO Performance field</strong></td>
<td>This can be one of the following:</td>
</tr>
<tr>
<td></td>
<td>• <strong>None</strong> — Traffic to and from a virtual machine passes through the DVS.</td>
</tr>
<tr>
<td></td>
<td>• <strong>High Performance</strong> — Traffic to and from a virtual machine bypasses the DVS and hypervisor and travels directly between the virtual machines and a virtual interface card (VIC) adapter.</td>
</tr>
</tbody>
</table>

| Pin Group drop-down list | The pin group associated with this port profile.                               |

**Step 5**

In the VLANs area, complete the following fields:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Select</strong> column</td>
<td>Check the check box in this column for each VLAN that you want to use.</td>
</tr>
<tr>
<td><strong>Name</strong> column</td>
<td>The name of the VLAN.</td>
</tr>
<tr>
<td><strong>Native VLAN</strong> column</td>
<td>To designate one of the VLANs as the native VLAN, click the radio button in this column.</td>
</tr>
</tbody>
</table>

**Step 6**

Click OK.

---

**Modifying the VLANs in a Port Profile**

**Procedure**

**Step 1**

In the Navigation pane, click the VM tab.

**Step 2**

On the VM tab, expand All > Port Profiles.

**Step 3**

Right-click the port profile for which you want to modify the VLANs and choose Modify VLANs.

**Step 4**

In the Modify VLANs dialog box, change one or more of the following:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Select</strong> column</td>
<td>Check the check box in this column for each VLAN that you want to use.</td>
</tr>
<tr>
<td><strong>Name</strong> column</td>
<td>The name of the VLAN.</td>
</tr>
</tbody>
</table>
Changing the Native VLAN for a Port Profile

Procedure

Step 1 In the Navigation pane, click the VM tab.
Step 2 On the VM tab, expand All > Port Profiles.
Step 3 Right-click the port profile for which you want to change the native VLAN and choose Modify VLANs.
Step 4 In the Modify VLANs dialog box, do the following:
   a) In the Native VLAN column, click the radio button in the row for the VLAN that you want to become the native VLAN.
   b) Click OK.

Adding a VLAN to a Port Profile

Procedure

Step 1 In the Navigation pane, click the VM tab.
Step 2 On the VM tab, expand All > Port Profiles.
Step 3 Right-click the port profile to which you want to add a VLAN and choose Modify VLANs.
Step 4 In the Modify VLANs dialog box, do the following:
   a) In the Select column, check the check box in the row for the VLAN that you want to add to the port profile.
   b) (Optional) If you want this VLAN to be the native VLAN, click the radio button in the Native VLAN column.
   c) Click OK.
Removing a VLAN from a Port Profile

You can remove a VLAN from a port profile or change the VLAN that you have assigned as the native VLAN.

Procedure

Step 1  In the Navigation pane, click the VM tab.
Step 2  On the VM tab, expand All > Port Profiles.
Step 3  Right-click the port profile from which you want to remove a VLAN and choose Modify VLANs.
Step 4  In the Modify VLANs dialog box, do the following:
   a) In the Select column, uncheck the check box in the row for the VLAN that you want to remove from the port profile.
   b) (Optional) You can change the native VLAN to a different VLAN by clicking the radio button in the Native VLAN column for a different VLAN.
   c) Click OK.

Deleting a Port Profile

You cannot delete a port profile if a VM is actively using that port profile.

Procedure

Step 1  In the Navigation pane, click the VM tab.
Step 2  On the VM tab, expand All > Port Profiles.
Step 3  Right-click the port profile you want to delete and choose Delete.
Step 4  If the Cisco UCS Manager GUI displays a confirmation dialog box, click Yes.
Step 5  Click OK. Cisco UCS Manager deletes the port profile and all associated port profile clients.

Port Profile Clients

The port profile client determines the DVSes to which a port profile is applied. By default, the port profile client specifies that the associated port profile applies to all DVSes in the VMware vCenter. However, you can configure the client to apply the port profile to all DVSes in a specific datacenter or datacenter folder or only to one DVS.
Creating a Profile Client

You can create a profile client.

**Procedure**

**Step 1** In the **Navigation** pane, click the **VM** tab.

**Step 2** On the **VM** tab, expand All > **Port Profiles**.

**Step 3** Right-click the port profile for which you want to create a profile client and choose **Create Profile Client**.

**Step 4** In the **Create Profile Client** dialog box, complete the following fields:

<table>
<thead>
<tr>
<th>Name Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name field</td>
<td>The user-defined name for the profile client.</td>
</tr>
<tr>
<td></td>
<td>This name can be between 1 and 16 ASCII alphanumeric characters.</td>
</tr>
<tr>
<td></td>
<td>You cannot use spaces or any special characters other than: -(hyphen),</td>
</tr>
<tr>
<td></td>
<td>_ (underscore), and : (colon), and you cannot change this name after</td>
</tr>
<tr>
<td></td>
<td>the object has been saved.</td>
</tr>
<tr>
<td>Description field</td>
<td>The user-defined description of the client.</td>
</tr>
<tr>
<td></td>
<td>Enter up to 256 characters. You can use any characters or spaces except</td>
</tr>
<tr>
<td></td>
<td>` (accent mark), \ (backslash), ^ (carat), &quot; (double quote), = (equal sign),</td>
</tr>
<tr>
<td></td>
<td>&gt; (greater than), &lt; (less than), or ’ (single quote).</td>
</tr>
<tr>
<td>Datacenter drop-down list</td>
<td>Choose a datacenter from the drop-down list or choose <strong>All</strong> if this profile</td>
</tr>
<tr>
<td></td>
<td>client applies to all datacenters.</td>
</tr>
<tr>
<td>Folder drop-down list</td>
<td>Choose a folder from the drop-down list or choose <strong>All</strong> if this profile</td>
</tr>
<tr>
<td></td>
<td>client applies to all folders.</td>
</tr>
<tr>
<td>Distributed Virtual Switch drop-down list</td>
<td>Choose a virtual switch from the drop-down list or choose <strong>All</strong> if this profile client applies to all virtual switches.</td>
</tr>
</tbody>
</table>

**Step 5** Click **OK**.

**What to Do Next**

Complete the configuration of the virtual machines in VMware vCenter.

Modifying a Profile Client

You can modify a profile client.
Configuring Port Profiles

Deleting a Profile Client

You cannot delete a port profile client if a VM is actively using the port profile with which the client is associated.

Procedure

Step 1 In the Navigation pane, click the VM tab.

Step 2 On the VM tab, expand All > Port Profiles.

Step 3 Click the port profile from which you want to delete a profile client.

Step 4 In the Work pane, click the Profile Clients tab.

Step 5 Right-click the profile client that you want to delete and choose Delete.

Step 6 If the Cisco UCS Manager GUI displays a confirmation dialog box, click Yes.

Step 7 Click Save Changes.
Managing Pending Deletions of Distributed Virtual Switches

This chapter includes the following sections:

- Pending Deletions of Distributed Virtual Switches, page 63
- Viewing Pending Deletions, page 64
- Changing the Properties of a Pending Deletion, page 64
- Deleting a Pending Deletion, page 65

Pending Deletions of Distributed Virtual Switches

When you delete a distributed virtual switch (DVS) from Cisco UCS Manager, either explicitly or by deleting any parent object in the hierarchy, Cisco UCS Manager initiates a connection with VMware vCenter to start the process of deleting the DVS. Until the DVS is successfully deleted from VMware vCenter, Cisco UCS Manager places the DVS in a pending deletion list.

However, Cisco UCS Manager cannot successfully delete a DVS from VMware vCenter if certain situations occur, including the following:

- VMware vCenter database was corrupted
- VMware vCenter was uninstalled
- The IP address for VMware vCenter was changed

If the DVS cannot be successfully deleted from VMware vCenter, the DVS remains in the pending deletion list until the pending deletion is deleted in Cisco UCS Manager or the properties for that pending deletion are changed in a way that allows the DVS to be successfully deleted from VMware vCenter. When you delete a pending deletion, the DVS is deleted from Cisco UCS Manager but is not deleted from VMware vCenter. If the DVS remains in VMware vCenter, you must delete the DVS manually.

You can view the pending deletion list, delete a pending deletion, or change the properties for a pending deletion in Cisco UCS Manager. For example, you can correct the VMware vCenter IP address for a pending deletion so that Cisco UCS Manager can successfully initiate a connection and delete the DVS from VMware vCenter. You cannot cancel the deletion of a DVS from Cisco UCS Manager.
Viewing Pending Deletions

Viewing Pending Deletions

Procedure

Step 1 In the Navigation pane, click the VM tab.
Step 2 On the VM tab, expand the All node.
Step 3 On the VM tab, click VMware.
Step 4 In the Work pane, click the Deletion Tasks tab.

Changing the Properties of a Pending Deletion

You can change the properties of a pending deletion, if necessary, to ensure that Cisco UCS Manager can successfully initiate a connection and delete the DVS from VMware vCenter.

Procedure

Step 1 In the Navigation pane, click the VM tab.
Step 2 On the VM tab, expand the All node.
Step 3 On the VM tab, click VMware.
Step 4 In the Work pane, click the Deletion Tasks tab.
Step 5 Click the pending deletion for which you want to change the properties.
Step 6 Right-click the pending deletion and choose Show Navigator.
Step 7 In the Properties dialog box, change one or more of the following properties to ensure that Cisco UCS Manager can connect to VMware vCenter:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hostname field</td>
<td>The host on which the datacenter resides.</td>
</tr>
<tr>
<td>Datacenter field</td>
<td>The name of the datacenter.</td>
</tr>
<tr>
<td>Protocol field</td>
<td>The datacenter protocol.</td>
</tr>
<tr>
<td>Folder field</td>
<td>The folder that is to be deleted.</td>
</tr>
</tbody>
</table>

Step 8 Click OK.
Cisco UCS Manager attempts to connect with VMware vCenter and delete the DVS.
Deleting a Pending Deletion

When you delete a pending deletion, the DVS is deleted from Cisco UCS Manager but is not deleted from VMware vCenter. If the DVS remains in VMware vCenter, you must delete the DVS manually.

Procedure

Step 1 In the Navigation pane, click the VM tab.
Step 2 On the VM tab, expand the All node.
Step 3 On the VM tab, click VMWare.
Step 4 In the Work pane, click the Deletion Tasks tab.
Step 5 Click the pending deletion that you want to delete.
Step 6 Right-click the pending deletion and choose Delete.
Step 7 If the Cisco UCS Manager GUI displays a confirmation dialog box, click Yes.
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  - VIC 2
- virtualization 2

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