



# Configuring Distributed Virtual Switches in Cisco UCS

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## 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

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope system</b>	Enters system mode.
<b>Step 2</b>	UCS-A /system # <b>scope vm-mgmt</b>	Enters system VM management mode.
<b>Step 3</b>	UCS-A /system/vm-mgmt # <b>scope vmware</b>	Enters system VM management VMware mode.
<b>Step 4</b>	UCS-A /system/vm-mgmt/vmware # <b>create vcenter vcenter-name</b>	Creates the specified vCenter and enters system VM management VMware vCenter mode.
<b>Step 5</b>	UCS-A /system/vm-mgmt/vmware/vcenter # <b>set hostname {hostname   ip-addr}</b>	Specifies the hostname or IP address of the remote vCenter Server instance associated to the vCenter object in Cisco UCS Manager.  <b>Note</b> If you use a hostname rather than an IP address, you must configure a DNS server. If the Cisco UCS domain is not registered with Cisco UCS Central or DNS management is set to <b>local</b> , configure a DNS server in Cisco UCS Manager. If the Cisco UCS domain is registered with Cisco UCS Central and DNS management is set to <b>global</b> , configure a DNS server in Cisco UCS Central.
<b>Step 6</b>	UCS-A /system/vm-mgmt/vmware/vcenter # <b>set description description</b>	Provides a description for the vCenter.  <b>Note</b> If your description includes spaces, special characters, or punctuation, you must begin and end your description with quotation marks. The quotation marks do not appear in the description field of any <b>show</b> command output.
<b>Step 7</b>	UCS-A /system/vm-mgmt/vmware/vcenter # <b>create folder folder-name</b>	(Optional) Creates the specified vCenter folder.  <b>Note</b> A vCenter can contain multiple datacenters, none of which must be contained in a vCenter folder, so vCenter folders are optionally used only for organizational purposes.
<b>Step 8</b>	UCS-A /system/vm-mgmt/vmware/vcenter/ # <b>create data-center data-center-name</b>	Creates the specified datacenter and enters system VM management VMware vCenter datacenter mode.

	<b>Command or Action</b>	<b>Purpose</b>
		The datacenter name that you specify in Cisco UCS Manager must match the name of the datacenter previously created in VMware vCenter.
<b>Step 9</b>	UCS-A /system/vm-mgmt /vmware/vcenter/data-center # <b>create folder</b> <i>folder-name</i>	Creates the specified datacenter folder and enters system VM management VMware vCenter datacenter folder mode. <b>Note</b> At least one datacenter folder is required. You cannot create a distributed virtual switch (DVS) directly under a datacenter; you must create the DVS in a datacenter folder.
<b>Step 10</b>	UCS-A /system/vm-mgmt /vmware/vcenter/data-center/folder # <b>create distributed-virtual-switch</b> <i>dvs-name</i>	Creates the specified DVS and enters system VM management VMware vCenter datacenter folder distributed virtual switch mode.
<b>Step 11</b>	UCS-A /system/vm-mgmt /vmware/vcenter/data-center /folder/distributed-virtual-switch # <b>{disable   enable}</b>	Disables or enables the DVS. If you disable the DVS, Cisco UCS Manager does not push any configuration changes related to the DVS to VMware vCenter.
<b>Step 12</b>	UCS-A /system/vm-mgmt /vmware/vcenter/data-center/folder /distributed-virtual-switch # <b>commit-buffer</b>	Commits the transaction to the system configuration.

The following example shows how to create a vCenter, a datacenter with the exact same name as the datacenter in VMware vCenter, a DVS in the datacenter folder named Engineering, and commit the transaction:

```
UCS-A# scope system
UCS-A /system # scope vm-mgmt
UCS-A /system/vm-mgmt # scope vmware
UCS-A /system/vm-mgmt/vmware # create vcenter MyVcenter
UCS-A /system/vm-mgmt/vmware/vcenter* # set hostname 192.168.10.10
UCS-A /system/vm-mgmt/vmware/vcenter* # set description "vCenter running on my laptop"
UCS-A /system/vm-mgmt/vmware/vcenter* # create data-center MyDatacenter
UCS-A /system/vm-mgmt/vmware/vcenter/data-center* # create folder Engineering
UCS-A /system/vm-mgmt/vmware/vcenter/data-center/folder* # create distributed-virtual-switch
LabSwitch
UCS-A /system/vm-mgmt/vmware/vcenter/data-center/folder/distributed-virtual-switch* # enable
UCS-A /system/vm-mgmt/vmware/vcenter/data-center/folder/distributed-virtual-switch* #
commit-buffer
UCS-A /system/vm-mgmt/vmware/vcenter/data-center/folder/distributed-virtual-switch #
```

# Managing Distributed Virtual Switches

## Adding a Folder to a vCenter

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope system</b>	Enters system mode.
<b>Step 2</b>	UCS-A /system # <b>scope vm-mgmt</b>	Enters system VM management mode.
<b>Step 3</b>	UCS-A /system/vm-mgmt # <b>scope vmware</b>	Enters system VM management VMware mode.
<b>Step 4</b>	UCS-A /system/vm-mgmt /vmware # <b>scope vcenter vcenter-name</b>	Enters system VM management VMware vCenter mode for the specified vCenter.
<b>Step 5</b>	UCS-A /system/vm-mgmt /vmware/vcenter # <b>create folder folder-name</b>	(Optional) Creates the specified vCenter folder and enters system VM management VMware vCenter folder mode.  <b>Note</b> A vCenter can contain multiple datacenters, none of which must be contained in a vCenter folder, so vCenter folders are optionally used only for organizational purposes.
<b>Step 6</b>	UCS-A /system/vm-mgmt /vmware/vcenter/folder # <b>commit-buffer</b>	Commits the transaction to the system configuration.

The following example shows how to add a vCenter folder named Lab 5 to the vCenter named MyVcenter and commit the transaction:

```
UCS-A# scope system
UCS-A /system # scope vm-mgmt
UCS-A /system/vm-mgmt # scope vmware
UCS-A /system/vm-mgmt/vmware # scope vcenter MyVcenter
UCS-A /system/vm-mgmt/vmware/vcenter* # create folder Lab5
UCS-A /system/vm-mgmt/vmware/vcenter/folder* # commit-buffer
UCS-A /system/vm-mgmt/vmware/vcenter/folder #
```

## Adding a Datacenter to a 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

	<b>Command or Action</b>	<b>Purpose</b>
<b>Step 1</b>	UCS-A# <b>scope system</b>	Enters system mode.
<b>Step 2</b>	UCS-A /system # <b>scope vm-mgmt</b>	Enters system VM management mode.
<b>Step 3</b>	UCS-A /system/vm-mgmt # <b>scope vmware</b>	Enters system VM management VMware mode.
<b>Step 4</b>	UCS-A /system/vm-mgmt/vmware # <b>scope vcenter vcenter-name</b>	Enters system VM management VMware vCenter mode for the specified vCenter.
<b>Step 5</b>	UCS-A /system/vm-mgmt/vmware/vcenter # <b>scope folder folder-name</b>	(Optional) Enters system VM management VMware vCenter folder mode for the specified folder.
<b>Step 6</b>	UCS-A /system/vm-mgmt/vmware/vcenter/ # <b>create data-center data-center-name</b>	Creates the specified datacenter and enters system VM management VMware vCenter datacenter mode.  The datacenter name that you specify in Cisco UCS Manager must match the name of the datacenter previously created in VMware vCenter.
<b>Step 7</b>	UCS-A /system/vm-mgmt/vmware/vcenter/data-center # <b>commit-buffer</b>	Commits the transaction to the system configuration.

The following example shows how to add a datacenter named SQA-Datacenter to the vCenter named MyVcenter and commit the transaction:

```
UCS-A# scope system
UCS-A /system # scope vm-mgmt
UCS-A /system/vm-mgmt # scope vmware
UCS-A /system/vm-mgmt/vmware # scope vcenter MyVcenter
UCS-A /system/vm-mgmt/vmware/vcenter* # create data-center SQA-Datacenter
UCS-A /system/vm-mgmt/vmware/vcenter/data-center* # commit-buffer
UCS-A /system/vm-mgmt/vmware/vcenter/data-center #
```

## Adding a Folder to a Datacenter

### Procedure

	<b>Command or Action</b>	<b>Purpose</b>
<b>Step 1</b>	UCS-A# <b>scope system</b>	Enters system mode.
<b>Step 2</b>	UCS-A /system # <b>scope vm-mgmt</b>	Enters system VM management mode.
<b>Step 3</b>	UCS-A /system/vm-mgmt # <b>scope vmware</b>	Enters system VM management VMware mode.

	<b>Command or Action</b>	<b>Purpose</b>
<b>Step 4</b>	UCS-A /system/vm-mgmt /vmware # <b>scope vcenter</b> <i>vcenter-name</i>	Enters system VM management VMware vCenter mode for the specified vCenter.
<b>Step 5</b>	UCS-A /system/vm-mgmt /vmware/vcenter # <b>scope folder</b> <i>folder-name</i>	(Optional) Enters system VM management VMware vCenter folder mode for the specified folder.
<b>Step 6</b>	UCS-A /system/vm-mgmt /vmware/vcenter/ # <b>scope data-center</b> <i>data-center-name</i>	Enters system VM management VMware vCenter datacenter mode for the specified datacenter.
<b>Step 7</b>	UCS-A /system/vm-mgmt /vmware/vcenter/data-center # <b>create folder</b> <i>folder-name</i>	Creates the specified datacenter folder and enters system VM management VMware vCenter datacenter folder mode.
<b>Step 8</b>	UCS-A /system/vm-mgmt /vmware/vcenter/data-center/folder # <b>commit-buffer</b>	Commits the transaction to the system configuration.

The following example shows how to add a datacenter folder named SoftwareQA to the datacenter named MyDatacenter and commit the transaction:

```
UCS-A# scope system
UCS-A /system # scope vm-mgmt
UCS-A /system/vm-mgmt # scope vmware
UCS-A /system/vm-mgmt/vmware # scope vcenter MyVcenter
UCS-A /system/vm-mgmt/vmware/vcenter* # scope data-center MyDatacenter
UCS-A /system/vm-mgmt/vmware/vcenter/data-center* # create folder SoftwareQA
UCS-A /system/vm-mgmt/vmware/vcenter/data-center/folder* # commit-buffer
UCS-A /system/vm-mgmt/vmware/vcenter/data-center/folder #
```

## Deleting a Folder from a vCenter

### Procedure

	<b>Command or Action</b>	<b>Purpose</b>
<b>Step 1</b>	UCS-A# <b>scope system</b>	Enters system mode.
<b>Step 2</b>	UCS-A /system # <b>scope vm-mgmt</b>	Enters system VM management mode.
<b>Step 3</b>	UCS-A /system/vm-mgmt # <b>scope vmware</b>	Enters system VM management VMware mode.
<b>Step 4</b>	UCS-A /system/vm-mgmt /vmware # <b>scope vcenter</b> <i>vcenter-name</i>	Enters system VM management VMware vCenter mode for the specified vCenter.
<b>Step 5</b>	UCS-A /system/vm-mgmt /vmware/vcenter # <b>delete folder</b> <i>folder-name</i>	(Optional) Deletes the specified vCenter folder.

	<b>Command or Action</b>	<b>Purpose</b>
<b>Step 6</b>	UCS-A /system/vm-mgmt /vmware/vcenter # <b>commit-buffer</b>	Commits the transaction to the system configuration.

The following example shows how to delete the vCenter folder named Lab5 from the vCenter named MyVcenter and commit the transaction:

```
UCS-A# scope system
UCS-A /system # scope vm-mgmt
UCS-A /system/vm-mgmt # scope vmware
UCS-A /system/vm-mgmt/vmware # scope vcenter MyVcenter
UCS-A /system/vm-mgmt/vmware/vcenter # delete folder Lab5
UCS-A /system/vm-mgmt/vmware/vcenter* # commit-buffer
UCS-A /system/vm-mgmt/vmware/vcenter #
```

## Deleting a Datacenter from vCenter

### Procedure

	<b>Command or Action</b>	<b>Purpose</b>
<b>Step 1</b>	UCS-A# <b>scope system</b>	Enters system mode.
<b>Step 2</b>	UCS-A /system # <b>scope vm-mgmt</b>	Enters system VM management mode.
<b>Step 3</b>	UCS-A /system/vm-mgmt# <b>scope vmware</b>	Enters system VM management VMware mode.
<b>Step 4</b>	UCS-A /system/vm-mgmt/vmware # <b>scope vcenter vcenter-name</b>	Enters system VM management VMware vCenter mode for the specified vCenter.
<b>Step 5</b>	UCS-A /system/vm-mgmt/vmware/vcenter# <b>scope folder folder-name</b>	(Optional) Enters system VM management VMware vCenter folder mode for the specified folder.
<b>Step 6</b>	UCS-A /system/vm-mgmt/vmware/vcenter# <b>delete data-center data-center-name</b>	Deletes the specified datacenter. The datacenter name that you specify in Cisco UCS Manager must match the name of a datacenter previously created in vCenter Server.
<b>Step 7</b>	UCS-A /system/vm-mgmt/vmware/vcenter# <b>commit-buffer</b>	Commits the transaction to the system configuration.

The following example shows how to delete the datacenter named SQA-Datacenter from the vCenter named MyVcenter and commit the transaction:

```
UCS-A# scope system
UCS-A /system # scope vm-mgmt
UCS-A /system/vm-mgmt # scope vmware
UCS-A /system/vm-mgmt/vmware # scope vcenter MyVcenter
UCS-A /system/vm-mgmt/vmware/vcenter* # delete data-center SQA-Datacenter
```

```
UCS-A /system/vm-mgmt/vmware/vcenter* # commit-buffer
UCS-A /system/vm-mgmt/vmware/vcenter #
```

## Deleting a Folder from a Datacenter

### Procedure

	<b>Command or Action</b>	<b>Purpose</b>
<b>Step 1</b>	UCS-A# <b>scope system</b>	Enters system mode.
<b>Step 2</b>	UCS-A /system # <b>scope vm-mgmt</b>	Enters system VM management mode.
<b>Step 3</b>	UCS-A /system/vm-mgmt # <b>scope vmware</b>	Enters system VM management VMware mode.
<b>Step 4</b>	UCS-A /system/vm-mgmt /vmware # <b>scope vcenter vcenter-name</b>	Enters system VM management VMware vCenter mode for the specified vCenter.
<b>Step 5</b>	UCS-A /system/vm-mgmt /vmware/vcenter # <b>scope folder folder-name</b>	(Optional) Enters system VM management VMware vCenter folder mode for the specified folder.
<b>Step 6</b>	UCS-A /system/vm-mgmt /vmware/vcenter/# <b>scope data-center data-center-name</b>	Enters system VM management VMware vCenter datacenter mode for the specified datacenter.
<b>Step 7</b>	UCS-A /system/vm-mgmt /vmware/vcenter/data-center # <b>delete folder folder-name</b>	Deletes the specified datacenter folder.
<b>Step 8</b>	UCS-A /system/vm-mgmt /vmware/vcenter/data-center # <b>commit-buffer</b>	Commits the transaction to the system configuration.

The following example shows how to delete the datacenter folder named SoftwareQA from the datacenter named MyDatacenter and commit the transaction:

```
UCS-A# scope system
UCS-A /system # scope vm-mgmt
UCS-A /system/vm-mgmt # scope vmware
UCS-A /system/vm-mgmt/vmware # scope vcenter MyVcenter
UCS-A /system/vm-mgmt/vmware/vcenter # scope data-center MyDatacenter
UCS-A /system/vm-mgmt/vmware/vcenter/data-center # delete folder SoftwareQA
UCS-A /system/vm-mgmt/vmware/vcenter/data-center* # commit-buffer
UCS-A /system/vm-mgmt/vmware/vcenter/data-center #
```