Installing the Cisco VM-FEX Driver Software Bundle

This chapter includes the following sections:

Cisco VM-FEX Driver 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 VM-FEX Driver 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 VM-FEX Driver Software Bundle Prerequisites, on page 1.

Cisco VM-FEX Driver Software Bundle Prerequisites

Before installing the Cisco VM-FEX Driver software bundle, make sure to satisfy these prerequisites:

- You must install a Cisco UCS Virtual Interface Card in the server you intend to use as the hypervisor host. For more information about installing Cisco UCS Virtual Interface Cards, 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.

- You must obtain the Cisco VM-FEX Driver software bundle from the Cisco **Download Software** page:

  - For B-Series from, http://software.cisco.com/download/navigator.html. Select **Downloads Home** > **Products** > **Servers - Unified Computing** > **Cisco UCS B-Series Blade Server Software** and click **Unified Computing Systems (UCS) Drivers**. From this page, click **Latest Releases** or **All Releases** to select the release you want, and click **Download** to download the **ISO image of UCS-related drivers**.

  - For C-Series from, http://software.cisco.com/download/navigator.html. Select **Downloads Home** > **Products** > **Servers - Unified Computing** > **Cisco UCS C-Series Rack-Mount UCS-Managed Server Software** and click **Unified Computing Systems (UCS) Drivers**. From this page, click **Latest Releases** or **All Releases** to select the release you want, and click **Download** to download the **ISO image of UCS-related drivers**.

- You must install the correct version of the Cisco VM-FEX Driver software bundle on the hypervisor host. The Cisco VM-FEX Driver 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 VM-FEX Driver 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 VM-FEX Driver Software Bundle Using VUM

To install the Cisco VM-FEX Driver 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.

Installing the Cisco VM-FEX Driver 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 VM-FEX
Driver 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 VM-FEX Driver 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 VM-FEX Driver software bundle.

Note

You can also perform this procedure using VMware VUM. For more information, see Installing or Upgrading the Cisco VM-FEX Driver Software Bundle Using VUM, on page 2 and the VMware documentation.

Before You Begin

- You have copied the ESX or ESXi host software and Cisco VM-FEX Driver software bundle to the `/tmp` directory.

   To determine the correct Cisco VM-FEX Driver 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 VM-FEX Driver 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_4.0.4.1.1.31-1.11.11 installed
2010-03-11T10:02:29.076573-05:00
[root@serialport -]# esxupdate -b cross_cisco-vem-v100-esx_4.0.4.1.1.31-1.11.11 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*]"

Installing the Cisco VM-FEX Driver 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 VM-FEX Driver Software Bundle

Example:

```
[root@serialport -]# vihostupdate --install --bundle "/tmp/Patch04/ESX400-201002001.zip"
--server 10.10.10.1
[root@serialport -]# vihostupdate --install --bundle
"/tmp/Patch05/BuiltByVMware/ESX/20100330/ESX400-201003001.zip" --server 10.10.10.1
```

Step 6 Go to the directory where the ESX or ESXi host software and Cisco VM-FEX Driver software bundle were copied.

Example:

```
[root@serialport -]# cd tmp
[root@serialport tmp]#
```

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.
```

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 VM-FEX Driver software bundle installed.

Example:

This example shows how to verify that the correct Cisco VM-FEX Driver 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]# vmkload_mod -l | grep vem
vem-v130-svs-mux    0x418035e73000    0x4000      0x417ff6d1fc40    0x1000         56 Yes
```

```
vem-v130-pts        0x418035e77000    0x16000    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 VM-FEX Driver Software Bundle

You can upgrade a host to ESXi 5.0 with the compatible Cisco VM-FEX Driver 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 VM-FEX Driver software bundle to the /tmp directory. To determine the correct Cisco VM-FEX Driver 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 VM-FEX Driver 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 VM-FEX Driver 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 VM-FEX Driver Software Bundle, on page 3.

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 VM-FEX Drivers that require custom .vib files, create a custom ESX installable ISO file that includes the Cisco VM-FEX Driver 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.

> **Note**   You can also upgrade the host to ESXi 5.0 using VUM. For more information, see Installing or Upgrading the Cisco VM-FEX Driver Software Bundle Using VUM, on page 2 and the VMware documentation.

Upgrading a Host From ESXi 5.0 to ESXi 5.1 and the Compatible Cisco VM-FEX Driver Software Bundle

You can upgrade a host to ESXi 5.1 with the compatible Cisco VM-FEX Driver 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 VM-FEX Driver software bundle to the /tmp directory. To determine the correct Cisco VM-FEX Driver 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 VM-FEX Driver 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 VM-FEX Driver 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 VM-FEX Driver Software Bundle, on page 3.

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 VM-FEX Drivers that require custom .vib files, create a custom ESX installable ISO file that includes the Cisco VM-FEX Driver 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 5.1.

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** You can also upgrade the host to ESXi 5.1 using VUM. For more information, see Installing or Upgrading the Cisco VM-FEX Driver Software Bundle Using VUM, on page 2 and the VMware documentation.

Upgrading a Host to ESXi 5.1 and the Compatible Cisco VM-FEX Driver Software Bundle

You can upgrade a host to ESXi 5.1 with the compatible Cisco VM-FEX Driver 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 VM-FEX Driver software bundle to the /tmp directory. To determine the correct Cisco VM-FEX Driver 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 VM-FEX Driver 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 VM-FEX Driver 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 VM-FEX Driver Software Bundle, on page 3.

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 VM-FEX Driver 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.

> **Note**   You can also upgrade the host to ESXi 5.1 using VUM. For more information, see Installing or Upgrading the Cisco VM-FEX Driver Software Bundle Using VUM, on page 2 and the VMware documentation.
>
> During remediation when upgrading using VUM, check the check box for **Remove installed third-party software that is incompatible with the upgrade, and continue with the remediation**.

Installing or Upgrading the Cisco VM-FEX Driver Software Bundle on an ESX or ESXi Host

Use this procedure to install the Cisco VM-FEX Driver software bundle on a host.

> **Note**   You can also perform this procedure using VMware VUM. For more information, see Installing or Upgrading the Cisco VM-FEX Driver Software Bundle Using VUM, on page 2 and the VMware documentation.

Before You Begin

- You have copied the ESX or ESXi host software and Cisco VM-FEX Driver software bundle to the `/tmp` directory.

  To determine the correct Cisco VM-FEX Driver 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 VM-FEX Driver 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 VM-FEX Driver software bundle*] **--server** [*vsphere host IP address*]

Example:

The following examples shows how to install or upgrade a Cisco VM-FEX Driver 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 Cisco VM-FEX Driver software. This command loads the software manually onto the host, loads the kernel modules, and starts the Cisco VM-FEX Driver Agent on the running system.
  esxupdate --bundle [*VMware offline update bundle*] **update**

Example:

The following example shows how to install or upgrade a Cisco VM-FEX Driver 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_4.2.1.1.4.1.0-1.2..
########################################################################################
 [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 example shows 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 VM-FEX Driver 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 VM-FEX Driver 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                    installed
2011-09-04T20:03:24.794110+00:00
~ # vmkload_mod -l |grep pts
mptsas                  2    256
vem-v132-pts            0    132
~ #
#
```

Uninstalling the Cisco VM-FEX Driver Software Bundle

Use this procedure to uninstall the Cisco VM-FEX Driver 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 VM-FEX Driver software bundle by using the `esxupdate remove -b` *VEM_name* command.

Example:
The following example shows how to remove the Cisco VM-FEX Driver 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
[root@serialport ~]#
```

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

Example:
The following example shows how to remove the Cisco VM-FEX Driver 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 VM-FEX Driver 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
[root@serialport ~]#
```

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.