



CHAPTER 4

Configuring Virtual Fibre Channel Interfaces

This chapter describes how to configure virtual Fibre Channel (FC) interfaces on a Cisco Nexus 5000 Series switch.



Note

Before you configure virtual FC interfaces on a Cisco Nexus 5000 Series switch, you must enable and configure FCoE on the switch. For information on enabling and configuring FCoE, refer to the *Cisco Fabric Manager Fabric Configuration Guide*.

This chapter includes the following sections:

- [About Virtual Fibre Channel Interfaces, page 4-1](#)
- [Guidelines and Limitations, page 4-1](#)
- [Configuring Virtual Fibre Channel Interfaces, page 4-2](#)
- [Default Settings, page 4-12](#)

About Virtual Fibre Channel Interfaces

Cisco Nexus 5000 Series switches support Fibre Channel over Ethernet (FCoE), which allows Fibre Channel and Ethernet traffic to be carried on the same physical Ethernet connection between the switch and the servers.

The Fibre Channel portion of FCoE is configured as a virtual Fibre Channel interface. Logical Fibre Channel features (such as interface mode) can be configured on virtual FC interfaces. A virtual FC interface must be bound to an interface before it can be used.



Note

Virtual FC interfaces are created with the administrative state set to down. You need to explicitly configure the administrative state to bring the virtual FC interface into operation.

Guidelines and Limitations

When configuring virtual FC interfaces, note the following guidelines and limitations:

- Each virtual FC interface can be bound to one of the following interfaces:
 - An Ethernet interface

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- An Ethernet PortChannel
- A media access control (MAC) address of an FCoE Node (ENode) or a remote Fibre Channel Forwarder (FCF) identified by the virtual FC interface
- FCoE is supported only on 10-Gigabit Ethernet interfaces.
- FCoE is not supported on private VLANs.

Configuring Virtual Fibre Channel Interfaces

This section describes how to configure virtual FC interfaces and includes the following topics:

- [Configuring a Virtual Fibre Channel Interface, page 4-2](#)
- [Mapping VSANs to VLANs, page 4-6](#)
- [Assigning Fibre Channel VSAN Membership, page 4-8](#)
- [Creating a Virtual Fibre Channel Interface, page 4-9](#)
- [Deleting a Virtual Fibre Channel Interface, page 4-12](#)

Configuring a Virtual Fibre Channel Interface

You can configure a virtual FC interface on a Cisco Nexus 5000 Series switch that runs Cisco NX-OS Release 4.0(1a) or later releases. You can bind a virtual FC interface to a physical Ethernet interface, an Ethernet PortChannel, or a remote MAC address.

The Ethernet interface that you bind the virtual FC interface to must be configured as follows:

- The Ethernet interface must be a trunk port (use the **switchport mode trunk** command).
- The FCoE VLAN that corresponds to the virtual Fibre Channel's VSAN must be in the allowed VLAN list.
- The FCoE VLAN must not be configured as the native VLAN of the trunk port.
- The Ethernet interface must be configured as PortFast (use the **spanning-tree port type edge trunk** command).

Following the above configuration guidelines will ensure a smooth upgrade to a T11 Fibre Channel Initialization Protocol (FIP)-based FCoE release in the future.

This section describes how to configure a virtual FC interface and includes the following topics:

- [Configuring a Virtual Fibre Channel Interface Using Fabric Manager, page 4-2](#)
- [Configuring a Virtual Fibre Channel Interface Using Device Manager, page 4-4](#)
- [Configuring a Virtual Fibre Channel Interface Using the Quick Configuration Tool, page 4-4](#)

Configuring a Virtual Fibre Channel Interface Using Fabric Manager

To configure virtual FC interfaces using Fabric Manager, follow these steps:

-
- Step 1** In the Physical Attributes pane, expand **Switches > Interfaces**, and then choose **VFC (FCoE)**. You see the FC Virtual information pane shown in [Figure 4-1](#).

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The General tab in the Information pane displays the description, bind type, bound interface, bound MAC address, FCF priority value, VSAN port, and status for each virtual FC interface.

Figure 4-1 FC Virtual Information Pane

Switch	Interface	Description	Bind Type	Bind Interface	Bind MACAddress	FCF Priority	Port VSAN	Mode Admin	Mode Oper	Status Service	Status Admin	Status Oper	FailureCause	LastChange
nms-eugene-03	vfc1		interfaceIndex	eth1/1	00:00:00:00:00:00	0	1F	auto	in	down	down	adminDown	n/a	n/a

Step 2 In the Information pane, in the FC Virtual table, click a virtual FC interface row to configure, and do the following:

- a. (Optional) You can modify the bind type for the selected virtual FC interface. To do so, click the **Bind Type** column. From the drop-down list, choose **interfaceIndex** or **macAddress**.



Note You cannot modify the bind type value of a virtual FC interface on a Cisco Nexus 5000 Series switch that runs a Cisco NX-OS release prior to Release 4.1(3). On such a switch, the Bind Type column will display interfaceIndex as the bind type.

- b. (Optional) Double-click the **Bind Interface** column to choose a physical Ethernet interface or Ethernet PortChannel that will be bound to the virtual FC interface. You can bind a virtual FC interface to an Ethernet PortChannel on a Cisco Nexus 5000 Series switch that runs Cisco NX-OS Release 4.1(3) or later releases.

This column is dimmed if the Bind Type value is macAddress.

- c. (Optional) Double-click the **Bind MAC Address** column to enter the MAC address of the ENode or the remote FCF.

This column is dimmed if the Bind Type value is interfaceIndex.

- d. (Optional) Double-click the **FCF Priority** column to enter a FCF priority value for the virtual FC interface. The value that you enter in this field will override the default FCF Priority value you configured in the FCoE Information pane. For more information on configuring FCoE, refer to the *Cisco Fabric Manager Fabric Configuration Guide*.



Note You cannot modify the FCF Priority value on a Cisco Nexus 5000 Series switch that runs a Cisco NX-OS release prior to Release 4.1(3).

- e. In the Information pane toolbar, click the **Apply Changes** icon to save the configuration.

Step 3 In the Information pane toolbar, click the **Create Row** icon to create a virtual FC interface. For more information, see the “[Creating a Virtual Fibre Channel Interface Using Fabric Manager](#)” section on page 4-9.

Step 4 In the Information pane toolbar, click the **Delete Row** icon to delete a virtual FC interface. For more information, see the “[Deleting a Virtual Fibre Channel Interface](#)” section on page 4-12.

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Configuring a Virtual Fibre Channel Interface Using Device Manager

To configure virtual FC interfaces using Device Manager, follow these steps:

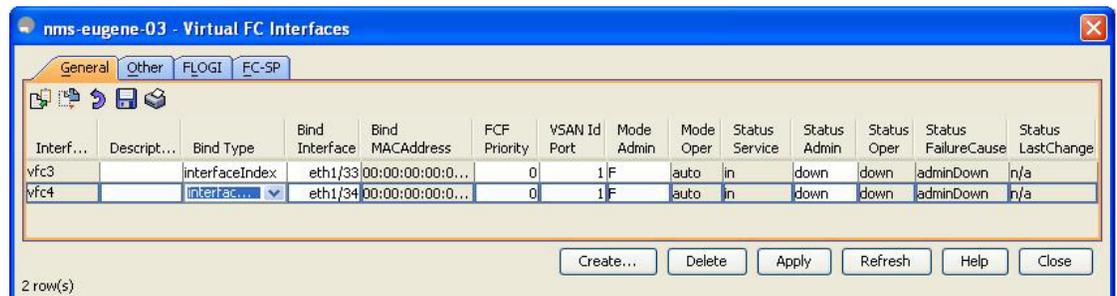
Step 1 Launch Device Manager from the Cisco Nexus 5000 Series switch.

Step 2 Choose **Interface > Virtual Interfaces > Fibre Channel**.

You see the Virtual FC Interfaces dialog box shown in [Figure 4-2](#).

The General tab displays the description, bind type, bound interface, bound MAC address, FCF priority value, VSAN port, and status for each virtual FC interface.

Figure 4-2 Virtual FC Interfaces Dialog Box



Step 3 Click a virtual FC interface row to configure. Modify the values for the virtual FC interface.

For more information, see the [“Configuring a Virtual Fibre Channel Interface Using Fabric Manager”](#) section on page 4-2.

Step 4 Click **Apply** to save the configuration.

Step 5 Click **Create** to create a virtual FC interface. For more information, see the [“Creating a Virtual Fibre Channel Interface Using Device Manager”](#) section on page 4-10.

Step 6 Click **Delete** to delete a virtual FC interface. For more information, see the [“Deleting a Virtual Fibre Channel Interface”](#) section on page 4-12.

Configuring a Virtual Fibre Channel Interface Using the Quick Configuration Tool

The Quick Configuration Tool allows you to bind virtual FC interfaces to Ethernet interfaces or Ethernet PortChannels and enable or disable the FCoE feature on the Cisco Nexus 5000 Series switch. The tool allows you to select one of the following configurations for each Ethernet interface:

- Eth Only—Configures the physical Ethernet without any virtual FC interfaces.
- vFC Only—Configures the physical Ethernet or Ethernet PortChannel to have an associated virtual FC interface.

To bind virtual FC interfaces or enable FCoE features on the Ethernet interfaces using the Quick Configuration Tool, follow these steps:

Step 1 Launch Device Manager from the Cisco Nexus 5000 Series switch.

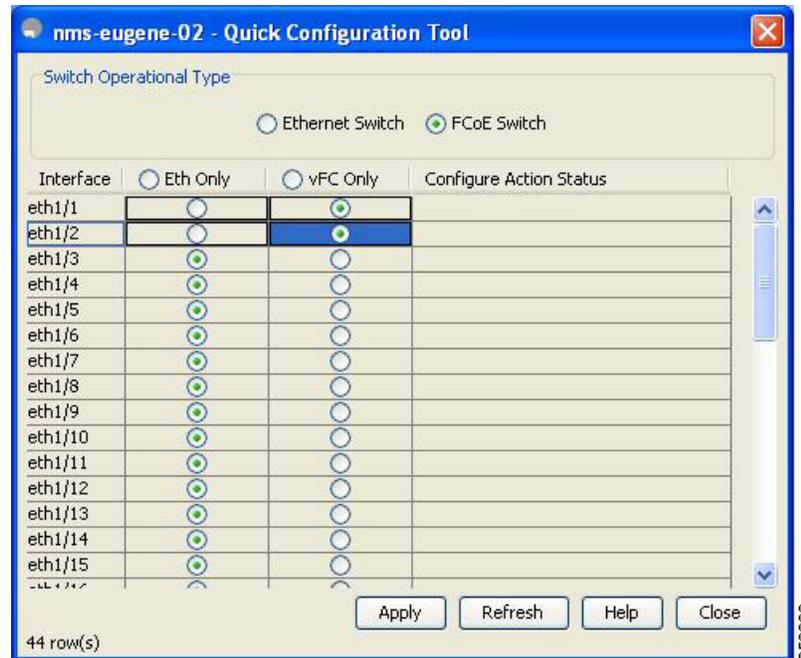
Step 2 Choose **Interface > Quick Configuration Tool**.

You see the Quick Configuration Tool dialog box shown in [Figure 4-3](#).

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The Interface column displays the physical Ethernet interfaces, followed by the Ethernet PortChannels.

Figure 4-3 Quick Configuration Tool



Step 3 In the Switch Operational Type area, click **Ethernet Switch** if you are configuring the switch as a pure Ethernet switch. Click **FCoE Switch** if you are configuring the switch with Fibre Channel and FCoE interfaces.

Step 4 Do one of the following:

- a. (Optional) In the column header, click the radio button to set all of the interfaces to the value in the selected column.
- b. For each row, click the radio button for the configuration that you want to apply to this interface.

Step 5 Click **Apply**.

Device Manager enables or disables the FCoE feature on the interfaces, depending on whether you clicked the virtual Fibre Channel (vFC Only) or Ethernet (Eth only) radio button.

Depending on the type of switch that you chose in the Switch Operational Type area, Device Manager does one of the following:

- If the FCoE feature was enabled on the switch, and you chose the Ethernet Switch radio button, a confirmation message appears asking if you would like to disable the FCoE feature. Click **Yes** if you want Device Manager to disable the FCoE feature and save the configuration.
- If the FCoE feature was disabled on the switch, and you chose the FCoE Switch radio button, and then chose the virtual Fibre Channel (vFC Only) radio button, a confirmation message appears asking if you would like to enable the FCoE feature. Click **Yes** if you want Device Manager to enable the FCoE feature and save the configuration.

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**Note**

If you enable or disable the FCoE feature on a Cisco Nexus 5000 Series switch that runs a Cisco NX-OS release prior to Release 4.2(1), Device Manager will automatically reboot the switch after enabling or disabling the FCoE feature.

Mapping VSANs to VLANs

A VSAN-VLAN mapping indicates the VLAN that is used to transport Fibre Channel traffic for a specific VSAN. Each virtual FC interface is associated with only one VSAN. Any VSAN with associated virtual FC interfaces must be mapped to a dedicated FCoE-enabled VLAN. FCoE is not supported on private VLANs.

This section provides information about how to map a VSAN to a VLAN and includes the following topics:

- [Mapping VSANs to VLANs Using Fabric Manager, page 4-6](#)
- [Mapping VSANs to VLANs Using Device Manager, page 4-8](#)

Mapping VSANs to VLANs Using Fabric Manager

To create a mapping between a VSAN and its associated VLAN using Fabric Manager, follow these steps:

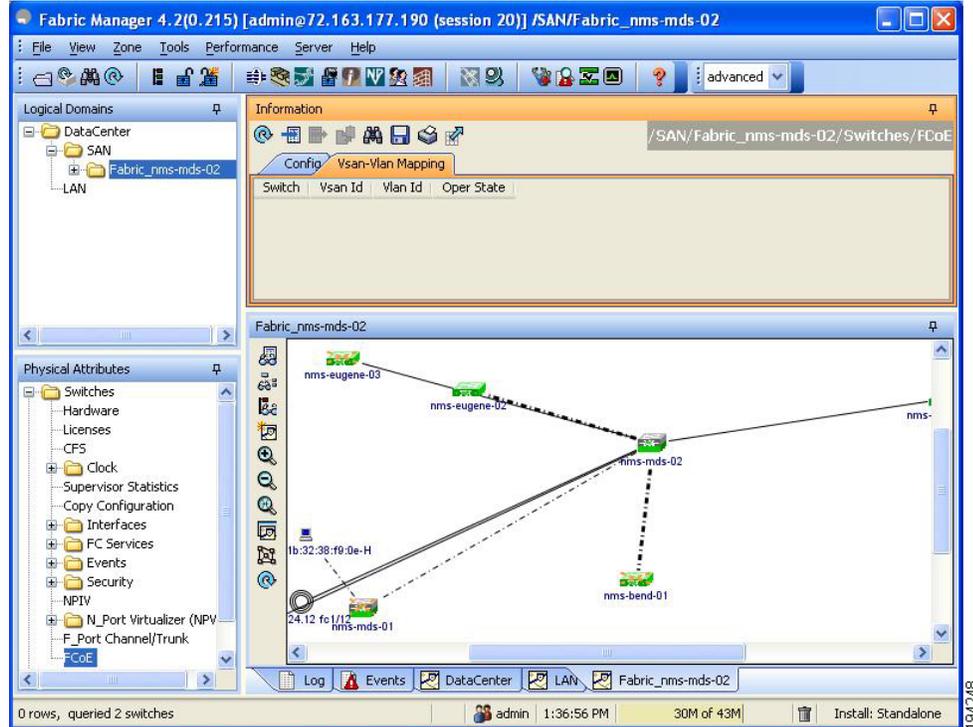
-
- Step 1** In the Physical Attributes pane, choose **Switches > FCoE**.
- Step 2** In the Information pane, click the **VSAN-VLAN Mapping** tab.

You see the VSAN-VLAN Mapping information pane shown in [Figure 4-4](#).

The VSAN-VLAN Mapping tab displays the existing VSAN-VLAN mappings and the operational state of the VSAN-VLAN associations. You cannot modify an existing VSAN-VLAN mapping.

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Figure 4-4 VSAN-VLAN Mapping Information Pane



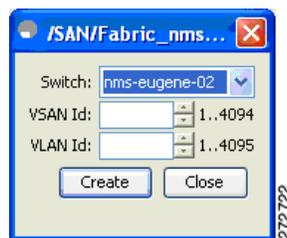
Step 3 In the Information pane toolbar, click the **Create Row** icon to create a new mapping.



Note You must have a Cisco Nexus 5000 Series switch in the fabric to map a VSAN to a VLAN.

You see the Create dialog box shown in [Figure 4-5](#).

Figure 4-5 Create VSAN-VLAN Mapping



Step 4 From the Switch drop-down list, choose a Cisco Nexus 5000 Series switch.

Step 5 In the VSAN Id and VLAN Id fields, enter the VSAN ID and the VLAN ID that will be mapped together.

Step 6 Click **Create** to create the mapping.

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Mapping VSANs to VLANs Using Device Manager

To create a mapping between a VSAN and its associated VLAN using Device Manager, follow these steps:

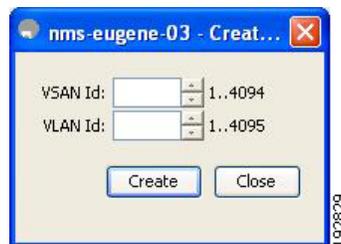
-
- Step 1** Launch Device Manager from the Cisco Nexus 5000 Series switch.
- Step 2** Choose **FCoE > Config**.
- You see the FCoE Config dialog box shown in [Figure 4-6](#).

Figure 4-6 FCoE Config Dialog Box



- Step 3** Click the **VSAN-VLAN Mapping** tab.
- The VSAN-VLAN Mapping tab lists the existing VSAN-VLAN mappings and the operational state of the VSAN-VLAN associations. You cannot modify an existing VSAN-VLAN mapping.
- Step 4** Click **Create** to create a new mapping.
- You see the Create VSAN-VLAN Mapping dialog box shown in [Figure 4-7](#).

Figure 4-7 Create VSAN-VLAN Mapping



- Step 5** In the VSAN Id and VLAN Id fields, enter the VSAN ID and the VLAN ID that will be mapped together.
- Step 6** Click **Create** to create the mapping.
-

Assigning Fibre Channel VSAN Membership

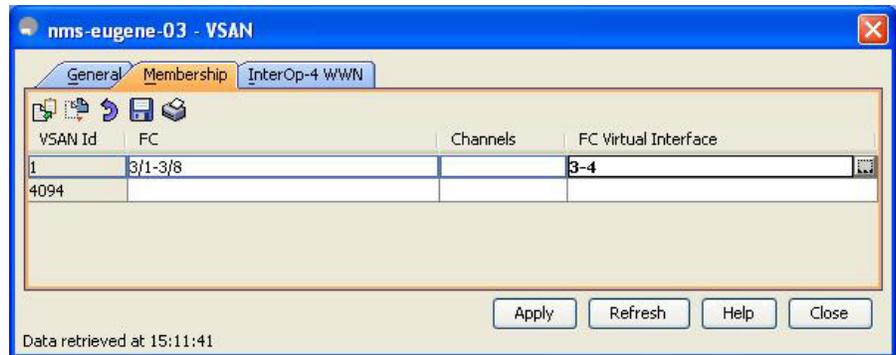
To associate a virtual FC interface with a VSAN port using Device Manager, follow these steps:

-
- Step 1** Launch Device Manager from the Cisco Nexus 5000 Series switch.
- Step 2** Choose **FC > VSANs**.

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You see the VSAN dialog box shown in [Figure 4-8](#).

Figure 4-8 VSAN Dialog Box



- Step 3** Click the **Membership** tab. This tab displays the virtual FC interfaces associated with VSAN ports.
- Step 4** For each VSAN port in the table, double-click the following VSAN parameters and choose a value to associate the virtual FC interface with the VSAN:
- FC—Fibre Channel ports in VSAN
 - Channels—Ethernet PortChannels in VSAN
 - FC Virtual Interface—Fibre Channel virtual interface to associate with the VSAN port
- Step 5** Click **Apply** to save the changes.

Creating a Virtual Fibre Channel Interface

This section describes how to create a virtual FC interface and includes the following topics:

- [Creating a Virtual Fibre Channel Interface Using Fabric Manager, page 4-9](#)
- [Creating a Virtual Fibre Channel Interface Using Device Manager, page 4-10](#)

Creating a Virtual Fibre Channel Interface Using Fabric Manager

To create a virtual FC interface using Fabric Manager, follow these steps:

- Step 1** In the Physical Attributes pane, expand **Switches > Interfaces**, and then choose **VFC (FCoE)**.

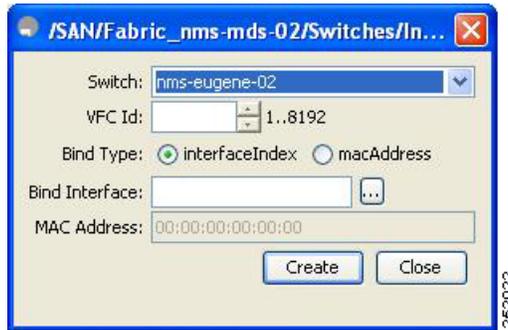


Note Cisco Fabric Manager 4.1(2) and later releases do not support the configuration of a virtual FC interface on a Cisco Nexus 5000 Series switch that runs a Cisco NX-OS release prior to Release 4.0(1a). Fabric Manager issues an error message if you try to configure a virtual FC interface on a Cisco Nexus 5000 Series switch that runs a Cisco NX-OS release prior to Release 4.0(1a).

- Step 2** In the Information pane toolbar, click the **Create Row** icon.
You see the Create Virtual Interface dialog box shown in [Figure 4-9](#).

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Figure 4-9 Create Virtual Interface Dialog Box



- Step 3** From the Switch drop-down list, choose the switch where the virtual FC interface will be created. Fabric Manager preselects the next available virtual FC interface ID. Optionally, in the VFC ID field, enter a value for this ID as an integer from 1 to 8192.
- Step 4** (Optional) To bind the virtual FC interface to an Ethernet interface or an Ethernet PortChannel, do the following:
- Ensure that the `interfaceIndex` radio button is selected. The `interfaceIndex` radio button is selected by default.
 - Click the button located next to the Bind Interface field, and choose the physical Ethernet interface or Ethernet PortChannel number that will be bound to this virtual FC interface. Optionally, you can enter a value for the Ethernet interface or Ethernet PortChannel in the Bind Interface field.
- Step 5** (Optional) To bind the virtual FC interface to the MAC address of the ENode or the remote FCF, do the following:
- Click the `macAddress` radio button.
 - In the MAC Address field, enter the MAC address of the ENode or the remote FCF identified by the virtual FC interface. For example, 00:15:60:0F:C1:D0.
- Step 6** Click **Create**.
- Step 7** (Optional) Repeat Step 3 through Step 6 to create additional virtual FC interfaces for the same switch or a different switch.
- Step 8** In the Create Virtual Interface dialog box, click **Close** when done. The FC Virtual information pane lists the new and existing virtual FC interfaces for the switch.

Creating a Virtual Fibre Channel Interface Using Device Manager

To create a virtual FC interface using Device Manager, follow these steps:

- Step 1** Launch Device Manager from the Cisco Nexus 5000 Series switch.
- Step 2** Choose **Interface > Virtual Interfaces > Fibre Channel**. You see the Virtual FC Interfaces dialog box (see [Figure 4-2](#)). The General tab displays the description, bind type, bound Ethernet interface or PortChannel, bound MAC address, FCF priority value, VSAN port, and status for each virtual FC interface.
- Step 3** Click **Create**.

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You see the Create Virtual FC Interfaces General dialog box shown in [Figure 4-10](#).

Figure 4-10 Create Virtual FC Interfaces Dialog Box



- Step 4** In the VFC Id field, enter the virtual FC interface ID as an integer from 1 to 8192. The VFC Id field increments by 1.
- Step 5** (Optional) To bind the virtual FC interface to an Ethernet interface or an Ethernet PortChannel, do the following:
- a. Ensure that the `interfaceIndex` radio button is selected. The `interfaceIndex` radio button is selected by default.
 - b. Click the button located next to the Bind Interface field, and choose the physical Ethernet interface or Ethernet PortChannel to bind to the virtual FC interface. Optionally, you can enter a value for the Ethernet interface or Ethernet PortChannel in the Bind Interface field.



Note You cannot bind a virtual FC interface to an Ethernet interface that runs at 1-Gigabit Ethernet.

- Step 6** (Optional) To bind the virtual FC interface to the MAC address of the ENode or the remote FCF, do the following:
- a. Click the **macAddress** radio button.
 - b. In the MAC Address field, enter the MAC address of the ENode or the remote FCF identified by the virtual FC interface. For example, 00:15:60:0F:C1:D0.
- Step 7** Click **Create**.
- You see the virtual FC interface in the Virtual FC Interfaces dialog box.
- Step 8** (Optional) Repeat Step 4 through Step 7 to create additional virtual FC interfaces.
- Step 9** In the Create Virtual FC Interfaces General dialog box, click **Close** when done.
- The Virtual FC Interfaces dialog box lists the new and existing virtual FC interfaces for the switch.
-

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Deleting a Virtual Fibre Channel Interface

You can delete a virtual FC interface using Fabric Manager or Device Manager.

To delete a virtual FC interface, follow these steps:

-
- Step 1** Do one of the following:
- In Fabric Manager, in the Physical Attributes pane, expand **Switches > Interfaces**, and then choose **VFC (FCoE)**.
You see the Virtual Fibre Channel table in the Information pane.
 - Launch Device Manager from the Cisco Nexus 5000 Series switch, and then choose **Interface > Virtual Interfaces > Fibre Channel**.
You see the Virtual FC Interfaces dialog box.
- Step 2** Choose a virtual FC interface that you want to delete.
- Step 3** Do one of the following:
- In Fabric Manager, in the Information pane toolbar, click the **Delete Row** icon.
 - In Device Manager, in the Virtual FC Interfaces dialog box, click **Delete**.

In the confirmation dialog box that appears, confirm the deletion of the virtual FC interface.

Default Settings

Table 4-1 lists the default settings for all virtual FC interfaces.

Table 4-1 Default Virtual Fibre Channel Interface Parameters

Parameters	Default
VSAN ID Port	1
Mode Admin	False
Mode Oper	Auto
Status Service	In
Status Admin	Down