SAN Ports and Port Channels

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Port Modes

The port mode determines whether a unified port on the fabric interconnect is configured to carry Ethernet or Fibre Channel traffic. You configure the port mode in Cisco UCS Manager. However, the fabric interconnect does not automatically discover the port mode.

Changing the port mode deletes the existing port configuration and replaces it with a new logical port. Any objects associated with that port configuration, such as VLANs and VSANS, are also removed. There is no restriction on the number of times you can change the port mode for a unified port.

Port Types

The port type defines the type of traffic carried over a unified port connection.

By default, unified ports changed to Ethernet port mode are set to the Ethernet uplink port type. Unified ports changed to Fibre Channel port mode are set to the Fibre Channel uplink port type. You cannot unconfigure Fibre Channel ports.

Changing the port type does not require a Fabric Interconnect (FI) reboot. However, certain other port configuration changes do require a FI reboot. For more information, see Operations Requiring a Fabric Interconnect Reboot.

Ethernet Port Mode

When you set the port mode to Ethernet, you can configure the following port types:

- Server ports
- Ethernet uplink ports
- Ethernet port channel members
- FCoE ports
- Appliance ports
- Appliance port channel members
- SPAN destination ports
- SPAN source ports

Note For SPAN source ports, configure one of the port types and then configure the port as SPAN source.

Fibre Channel Port Mode

When you set the port mode to Fibre Channel, you can configure the following port types:

- Fibre Channel uplink ports
- Fibre Channel port channel members
- Fibre Channel storage ports
- SPAN source ports

Note For SPAN source ports, configure one of the port types and then configure the port as SPAN source.

Operations Requiring a Fabric Interconnect Reboot

Certain configuration changes on the Fabric Interconnect (FI) require a system reboot to take effect. Performing these actions will cause a temporary service disruption.

Before performing the following actions, ensure that you have planned for a maintenance window, as these operations will cause a temporary service outage:

- Changing the port mode on unified ports (switching between Ethernet and Fibre Channel modes).
- Switching between Ethernet and Fibre Channel breakout modes on unified ports.
- Any configuration changes that affect the physical port mode grouping on the FI.
- Reconfiguring unified ports on the FI (such as configuring unified uplink ports or unified storage ports).
- Changing the FI switching mode (Example, End-Host Mode to Switch Mode and vice versa).
- Upgrading or downgrading firmware on the Fabric Interconnect.
- Replacing or migrating Fabric Interconnect hardware components.
- Changing the reserved VLAN range.

Server Ports

Configuring Server Ports

All of the port types listed are configurable on both the fixed module and expansion module, including the server ports.

This task describes only one method of configuring ports. You can also configure ports from a right-click menu, or in the LAN Uplinks Manager.

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.

Step 2 Expand **Equipment** > **Fabric Interconnects** > ***Fabric_Interconnect_Name*** > **Fixed Module** > **Ethernet Ports**.

Step 3 Click a port under the **Ethernet Ports** node.

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

Step 5 In the **Actions** area, click **Reconfigure**.

Step 6 From the drop-down list, choose **Configure as Server Port**.

Reconfiguring a Port on a Fabric Interconnect

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.

Step 2 Expand **Equipment** > **Fabric Interconnects** > ***Fabric_Interconnect_Name***.

Step 3 Expand the node for the ports that you want to reconfigure.

Step 4 Click the port or ports that you want to reconfigure.

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

Step 6 In the **Actions** area, click **Reconfigure**.

Step 7 From the drop-down list, choose which way you want the port reconfigured.

Example: Reconfiguring an Uplink Ethernet Port as a Server Port

1. Expand the **Ethernet Ports** node and select the port you want to reconfigure.
2. Follow steps 5 and 6 above.
3. From the drop-down list choose **Configure as Server Port**.

Enabling or Disabling a Port on a Fabric Interconnect

After you enable or disable a port on a fabric interconnect, wait for at least 1 minute before you re-acknowledge the chassis. If you re-acknowledge the chassis too soon, the pinning of server traffic from the chassis might not get updated with the changes to the port that you enabled or disabled.

You can enable or disable a port only when it is configured. If the port is unconfigured, the enable and disable options are not active.

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.

Step 2 Expand **Equipment** > **Fabric Interconnects** > ***Fabric_Interconnect_Name***.

Step 3 Expand the node for the ports that you want to enable or disable.

Step 4 Under the **Ethernet Ports** node, select a port.

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

Step 6 In the **Actions** area, click **Enable Port** or **Disable Port**.

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

Step 8 Click **OK**.

Unconfiguring a Port on a Fabric Interconnect

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.
Step 2 Expand **Equipment** > **Fabric Interconnects** > ***Fabric_Interconnect_Name***.
Step 3 Expand the node for the ports that you want to unconfigure.
Step 4 Under the **Ethernet Ports** node, select a port.
Step 5 In the **Work** pane, click the **General** tab.
Step 6 In the **Actions** area, click **Unconfigure**.
Step 7 If a confirmation dialog box displays, click **Yes**.
Step 8 Click **OK**.

Appliance Ports

Appliance ports are only used to connect fabric interconnects to directly attached NFS storage.

Note When you create a new appliance VLAN, its IEEE VLAN ID is not added to the LAN Cloud. Therefore, appliance ports that are configured with the new VLAN remain down, by default, due to a pinning failure. To bring up these appliance ports, you have to configure a VLAN in the LAN Cloud with the same IEEE VLAN ID.

Cisco UCS Manager supports up to four appliance ports per fabric interconnect.

Configuring an Appliance Port

You can configure Appliance ports on either the fixed module or an expansion module.

This task describes only one method of configuring appliance ports. You can also configure appliance ports from the **General** tab for the port.

Note If you configure an appliance port when the uplink port is down, Cisco UCS Manager may display an error message stating that the appliance port has failed. This message is controlled by the **Action on Uplink Fail** option in the associated Network Control Policy.

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.

Step 2 Expand **Equipment** > **Fabric Interconnects** > ***Fabric_Interconnect_Name***.

Step 3 Expand the node for the ports that you want to configure.

Step 4 Under the **Ethernet Ports** node, select a port.

If you want to reconfigure a server port, uplink Ethernet port, or FCoE storage port, expand the appropriate node.

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

Step 6 In the **Actions** area, click **Reconfigure**.

Step 7 From the drop-down list, click **Configure as Appliance Port**.

Step 8 If a confirmation dialog box displays, click **Yes**.

Step 9 In the **Configure as Appliance Port** dialog box, complete the required fields.

Step 10 In the **VLANs** area, do the following:

a) In the **Port Mode** field, click one of the following radio buttons to select the mode you want to use for the port channel:

- **Trunk**—Cisco UCS Manager GUI displays the VLANs Table that lets you choose the VLANs you want to use.
- **Access**—Cisco UCS Manager GUI displays the **Select VLAN** drop-down list that allows you to choose a VLAN to associate with this port or port channel.

With either mode, you can click the **Create VLAN** link to create a new VLAN.

Note
If traffic for the appliance port needs to traverse the uplink ports, you must also define each VLAN used by this port in the LAN cloud. For example, you need the traffic to traverse the uplink ports if the storage is also used by other servers, or if you want to ensure that traffic fails over to the secondary fabric interconnect if the storage controller for the primary fabric interconnect fails.

b) If you clicked the **Trunk** radio button, complete the required fields in the VLANs table.

c) If you clicked the **Access** radio button, choose a VLAN from the **Select VLAN** drop-down list.

Step 11 (Optional) If you want to add an endpoint, check the **Ethernet Target Endpoint** check box and specify the name and MAC address.

Step 12 Click **OK**.

Modifying the Properties of an Appliance Port

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.

Step 2 Expand **Equipment** > **Fabric Interconnects** > ***Fabric_Interconnect_Name***.

Step 3 Expand the node for the appliance port that you want to modify.

Step 4 Expand **Ethernet Ports**.

Step 5 Click the appliance port for which you want to modify the properties.

Step 6 In the **Work** pane, click the **General** tab.

Step 7 In the **Actions** area, click **Show Interface**.

You may need to expand the pane or use the scroll bars in the **Properties** dialog box to see all the fields.

Step 8 In the **Properties** dialog box, modify the values as needed.

Step 9 Click **OK**.

FCoE and Fibre Channel Storage Ports

Configuring an Ethernet Port as an FCoE Storage Port

You can configure FCoE storage ports on either the fixed module or an expansion module.

This task describes only one method of configuring FCoE storage ports. You can also configure FCoE storage ports from the **General** tab for the port.

Before you begin

The Fibre Channel switching mode must be set to Switching for these ports to be valid. The storage ports cannot function in end-host mode.

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.

Step 2 Expand **Equipment** > **Fabric Interconnects** > ***Fabric_Interconnect_Name***.

Step 3 Depending upon the location of the ports you want to configure, expand one of the following:

- **Fixed Module**
- **Expansion Module**

Step 4 Click one or more of the ports under the **Ethernet Ports** node.

If you want to reconfigure an uplink Ethernet port, server port, or appliance port, expand the appropriate node.

Step 5 Right-click the selected port or ports and choose **Configure as FCoE Storage Port**.

On Cisco UCS 6454 Fabric Interconnects, ports 49-54 cannot be configured as FCoE storage ports.

On Cisco UCS 64108 Fabric Interconnects, ports 97-108 cannot be configured as FCoE storage ports.

On Cisco UCS 6536 Fabric Interconnects, ports 1-32 cannot be configured as FCoE storage ports.

On Cisco UCS Fabric Interconnects 9108 100G, ports 3-8 cannot be configured as FCoE storage ports.

Step 6 If a confirmation dialog box displays, click **Yes**.

Step 7 Click **OK**.

Configuring a Fibre Channel Storage Port

This task describes only one method of configuring FC storage ports. You can also configure FC storage ports from the **General** tab for the port.

Before you begin

The Fibre Channel switching mode must be set to Switching for these ports to be valid. The storage ports cannot function in end-host mode.

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.

Step 2 Expand **Equipment** > **Fabric Interconnects** > ***Fabric_Interconnect_Name***.

Step 3 Expand the **Expansion Module** node.

Step 4 Click one or more of the ports under the **FC Ports** node.

Step 5 Right-click the selected port or ports and choose **Configure as FC Storage Port**.

Step 6 If a confirmation dialog box displays, click **Yes**.

Step 7 Click **OK**.

Restoring an Uplink Fibre Channel Port

This task describes only one method of restoring an FC storage port to function as an uplink FC port. You can also reconfigure FC storage ports from the **General** tab for the port.

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.

Step 2 Expand **Equipment** > **Fabric Interconnects** > ***Fabric_Interconnect_Name***.

Step 3 Expand the **Expansion Module** node.

Step 4 Click one or more of the ports under the **FC Ports** node.

Step 5 Right-click the selected port or ports and choose **Configure as Uplink Port**.

Step 6 If a confirmation dialog box displays, click **Yes**.

Step 7 Click **OK**.

Note
During the initial bring-up of a Fibre Channel (FC) uplink, such as when enabling a port or after a Fabric Interconnect reboot, it is normal to observe transient discards or cyclic redundancy check (CRC) errors on the peer interface, such as a Cisco MDS switch. These errors may occur during the link negotiation and stabilization process. If the error count stops incrementing once the uplink is operational and normal traffic is flowing, these transient errors are considered normal behavior and do not require further action.

FC Links Rebalancing

The FC uplinks balance automatically when FC Port Channels are utilized. To create FC Port Channels, refer to Creating a Fibre Channel Port Channel, on page 16.

For the FC uplinks that are not members of the Port Channels (Individual ISLs), load balancing is done according to the FC uplinks balancing algorithm. For a vHBA of a host or service profile to choose an available FC uplink, when FC uplink trunking is disabled, the uplink and vHBA must belong to the same VSAN

For each vHBA, the algorithm searches for an FC uplink in the following order:

1. Least used FC uplink based on the number of vHBAs currently bound to the uplink.
2. If FC uplinks are equally balanced, then round robin is used.

This process continues for all the other vHBAs. The algorithm also considers other parameters such as pre-fip/fip adapters and number of flogis. You may not see the least-used component when there are less than six flogis.

After a port configuration or any other uplink state changes, if the traffic passing through the FC uplinks is no longer balanced, you can re-balance the traffic by resetting the vHBA(s) on each adapter and allow the load balancing algorithm to evaluate for the current state of the FC uplinks.

Converting FC Storage Port to FC Uplink Port

You can configure an FC Uplink port on either a fixed module or an expansion module.

This task describes only one method of configuring FC Uplink ports. You can also configure FC uplink ports from a right-click menu for the port.

Important The fill pattern is greyed out and is automatically set to IDLE on Cisco UCS Fabric Interconnects 9108 100G (Cisco UCS X-Series Direct), Cisco UCS 6500 Series Fabric Interconnects and Cisco UCS 6400 Series Fabric Interconnect.

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.

Step 2 Expand **Equipment** > **Fabric Interconnects** > ***Fabric_Interconnect_Name***.

Step 3 Expand the node for the ports that you want to configure.

Step 4 Under the **FC Ports** node, select any **Storage** port.

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

Step 6 From the **Actions** area, select **Configure as Uplink Port**.

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

Step 8 The Cisco UCS Manager GUI displays a success message.

In the **Actions** area, **Configure as Uplink Port** becomes greyed out and **Configure as FC Storage Port** becomes active.

FCoE Uplink Ports

FCoE uplink ports are physical Ethernet interfaces between the fabric interconnects and the upstream Ethernet switch, used for carrying FCoE traffic. With this support the same physical Ethernet port can carry both Ethernet traffic and Fibre Channel traffic.

FCoE uplink ports connect to upstream Ethernet switches using the FCoE protocol for Fibre Channel traffic. This allows both the Fibre Channel traffic and Ethernet traffic to flow on the same physical Ethernet link.

Note FCoE uplinks and unified uplinks enable the multi-hop FCoE feature, by extending the unified fabric up to the distribution layer switch.

You can configure the same Ethernet port as any of the following:

- **FCoE uplink port**—As an FCoE uplink port for only Fibre Channel traffic.
- **Uplink port**—As an Ethernet port for only Ethernet traffic.
- **Unified uplink port**—As a unified uplink port to carry both Ethernet and Fibre Channel traffic.

Configuring FCoE Uplink Ports

You can configure an FCoE Uplink port on either a fixed module or an expansion module.

This task describes only one method of configuring FCoE Uplink ports. You can also configure FCoE uplink ports from a right-click menu or from the General tab for the port.

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.

Step 2 Expand **Equipment** > **Fabric Interconnects** > ***Fabric_Interconnect_Name***.

Step 3 Expand the node for the ports that you want to configure.

Step 4 Under the **Ethernet Ports** node, select any **Unconfigured** port.

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

Step 6 In the **Actions** area, click **Reconfigure**.

Step 7 From the drop down options, select **Configure as FCoE Uplink Port**.

Step 8 If a confirmation dialog box displays, click **Yes**.

Step 9 The Cisco UCS Manager GUI displays a success message.

In the **Properties** area, the **Role** changes to **Fcoe Uplink**.

Unified Storage Ports

Unified storage involves configuring the same physical port as both an Ethernet storage interface and an FCoE storage interface. You can configure any appliance port or FCoE storage port as a unified storage port. To configure a unified storage port, you must have the fabric interconnect in Fibre Channel switching mode.

In a unified storage port, you can enable or disable individual FCoE storage or appliance interfaces.

- In an unified storage port, if you do not specify a non-default VLAN for the appliance port, the FCoE-storage-native-vlan will be assigned as the native VLAN on the unified storage port. If the appliance port has a non-default native VLAN specified as native VLAN, this will be assigned as the native VLAN for the unified storage port.
- When you enable or disable the appliance interface, the corresponding physical port is enabled or disabled. So when you disable the appliance interface in unified storage, even if the FCoE storage is enabled, it goes down with the physical port.
- When you enable or disable the FCoE storage interface, the corresponding VFC is enabled or disabled. So when the FCoE storage interface is disabled in a unified storage port, the appliance interface will continue to function normally.

Configuring an Appliance Port as a Unified Storage Port

You can configure a unified storage port either from an appliance port or from an FCoE storage port. You can also configure the unified storage port from an unconfigured port. If you start from an unconfigured port, you will assign either an appliance configuration or an FCoE storage configuration to the port, and then will add another configuration to enable it as a unified storage port.

Important Make sure the fabric interconnect is in Fibre Channel switching mode.

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.

Step 2 Expand **Equipment** > **Fabric Interconnects** > ***Fabric_Interconnect_Name***.

Step 3 Depending on the location of the ports you want to configure, expand one of the following:

- **Fixed Module**
- **Expansion Module**

Step 4 Under the **Ethernet Ports** node, select any the port that is already configured as an appliance port.

In the **Work** pane, under the **General** tab, in the **Properties** area, the **Role** will show as **Appliance Storage**.

Step 5 In the **Actions** area, click **Reconfigure**.

Step 6 From the pop-up menu, select **Configure as FCoE Storage** port.

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

Step 8 The Cisco UCS Manager GUI displays a success message. In the **Properties** area, the **Role** changes to **Unified Storage**.

Unconfiguring a Unified Storage Port

You can unconfigure and remove both configurations from the unified connect port. Or you can unconfigure either of them and retain the other on the port.

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.

Step 2 Expand **Equipment** > **Fabric Interconnects** > ***Fabric_Interconnect_Name***.

Step 3 Expand the node for the ports that you want to unconfigure.

Step 4 Under the **Ethernet Ports** node, select the port that you want to unconfigure.

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

Step 6 In the **Actions** area, click **Unconfigure**. You will see the following options:

- **Unconfigure FCoE Storage Port**
- **Unconfigure Appliance Port**
- **Unconfigure both**

Step 7 Select one of the unconfigure options.

Step 8 If a confirmation dialog box displays, click **Yes**.

Step 9 The Cisco UCS Manager GUI displays a success message. In the **Properties** area, the **Role** changes to based on your unconfigure selection.

Unified Uplink Ports

When you configure an Ethernet uplink and an FCoE uplink on the same physical Ethernet port, it is called a unified uplink port. You can individually enable or disable either the FCoE or Ethernet interfaces independently.

- Enabling or disabling the FCoE uplink results in the corresponding VFC being enabled or disabled.
- Enabling or disabling an Ethernet uplink results in the corresponding physical port being enabled or disabled.

If you disable an Ethernet uplink, it disables the underlying physical port in a unified uplink. Therefore, even when the FCoE uplink is enabled, the FCoE uplink also goes down. But if you disable an FCoE uplink, only the VFC goes down. If the Ethernet uplink is enabled, it can still function properly in the unified uplink port.

Configuring Unified Uplink Ports

You can configure the unified uplink port from either of the following:

- From an existing FCoE uplink port or Ethernet uplink port
- From an unconfigured uplink port

You can configure the unified uplink port on either a fixed module or on an expansion module.

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.

Step 2 Expand **Equipment** > **Fabric Interconnects** > *Fabric_Interconnect_Name*.

Step 3 Expand the node for the ports that you want to configure.

Step 4 Under the **Ethernet Ports** node, select a port.

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

Step 6 In the **Properties** area, make sure the **Role** shows as **Fcoe Uplink**.

Step 7 In the **Actions** area, click **Reconfigure**.

Step 8 From the drop-down options, select **Configure as Uplink Port**.

Step 9 If a confirmation dialog box displays, click **Yes**.

Step 10 The Cisco UCS Manager GUI displays a success message.

In the **Properties** area, the **Role** changes to **Unified Uplink**.

Unconfiguring Unified Uplink Port

You can unconfigure and remove both configurations from the unified uplink port. Or you can unconfigure either the FCoE configuration or Ethernet port configuration and retain the other on the port.

Procedure

Step 1 In the **Navigation** pane, click **Equipment**.

Step 2 Expand **Equipment** > **Fabric Interconnects** > ***Fabric_Interconnect_Name***.

Step 3 Expand the node for the ports that you want to unconfigure.

Step 4 Under the **Ethernet Ports** node, select the port you want to unconfigure.

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

Step 6 In the **Actions** area, click **Unconfigure**. Select one of the following options:

- **Unconfigure FCoE Uplink Port**
- **Unconfigure Uplink Port**
- **Unconfigure both**

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

Step 8 The Cisco UCS Manager GUI displays a success message. In the **Properties** area, the **Role** changes based on your unconfigure selection.

Step 9 Click **Save Changes**.

Policy-Based Port Error Handling

If Cisco UCS Manager detects any errors on active network interface (NI) ports, and if the error-disable feature has been implemented, Cisco UCS Manager automatically disables the respective fabric interconnect port that is connected to the NI port that had errors. When a fabric interconnect port is error disabled, it is effectively shut down and no traffic is sent or received on that port.

The error-disable function serves two purposes:

- It lets you know which fabric interconnect port is error-disabled and that the connected NI Port has errors.
- It eliminates the possibility that this port can cause the failure of other ports other ports connected to the same Chassis/FEX. Such a failure can occur when the NI port has errors, which can ultimately cause serious network issues. The error-disable function helps prevent these situations.

Configuring Error-Based Action

Procedure

Step 1 In the **Navigation** pane, click **Admin**.

Step 2 Expand **Admin** > **All** > **Stats Management** > **fabric** > **Internal LAN** > **thr-policy-default** > **etherNiErrStats**.

Step 3 Select a delta property.

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

Step 5 To implement an error-disable state on a fabric interconnect port, check the **Disable FI port when fault is raised** check box.

Step 6 To enable auto recovery, in the **Enable Auto Recovery** field, select **Enable**.

Step 7 To specify the time after which the port can automatically be re-enabled, in the **Time (in minutes)** field, type the desired value.

Step 8 Click **Save Changes**.

Fibre Channel Port Channels

A Fibre Channel port channel allows you to group several physical Fibre Channel ports (link aggregation) to create one logical Fibre Channel link to provide fault-tolerance and high-speed connectivity. In Cisco UCS Manager, you create a port channel first and then add Fibre Channel ports to the port channel.

Note Fibre Channel port channels are not compatible with non-Cisco technology.

You can create up to two Fibre Channel port channels in each Cisco UCS domain with Cisco UCS Fabric Interconnects 9108 100G (Cisco UCS X-Series Direct). Each Fibre Channel port channel can include a maximum of four uplink Fibre Channel ports.

For more information, see Port Breakout Functionality on respective fabric interconnects in Network Management Guide.

Ensure that the Fibre Channel port channel on the upstream NPIV switch is configured with its channel mode as **active**. If both the member port(s) and peer port(s) do not have the same channel mode configured, the port channel will not come up. When the channel mode is configured as **active**, the member ports initiate port channel protocol negotiation with the peer port(s) regardless of the channel group mode of the peer port. If the peer port, while configured in a channel group, does not support the port channel protocol, or responds with a nonnegotiable status, it defaults to the On mode behavior. The **active** port channel mode allows automatic recovery without explicitly enabling and disabling the port channel member ports at either end.

This example shows how to configure channel mode as active:

```
switch(config)# int po114
switch(config-if)# channel mode active
```

Creating a Fibre Channel Port Channel

Procedure

Step 1 In the **Navigation** pane, click **SAN**.

Step 2 Expand **SAN** > **SAN Cloud**.

Step 3 Expand the node for the fabric where you want to create the port channel.

Step 4 Right-click the **FC Port Channels** node and choose **Create Port Channel**.

Step 5 In the **Set Port Channel Name** panel, specify the ID and name, then click **Next**.

Step 6 In the **Add Ports** panel, specify the port channel admin speed, and add ports to the port channel.

Port Channel Admin Speed 1 Gbps and 2 Gbps are not available for Cisco UCS 6400 Series Fabric Interconnect. **Port Channel Admin Speed** 16 Gbps and 32 Gbps are available only for Cisco UCS 6400 Series Fabric Interconnect.

Step 7 Click **Finish**.

Enabling a Fibre Channel Port Channel

Procedure

Step 1 In the **Navigation** pane, click **SAN**.

Step 2 Expand **SAN** > **SAN Cloud** > ***Fabric*** > **FC Port Channels**.

Step 3 Click the port channel you want to enable.

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

Step 5 In the **Actions** area, click **Enable Port Channel**.

Step 6 If a confirmation dialog box displays, click **Yes**.

Disabling a Fibre Channel Port Channel

Procedure

Step 1 In the **Navigation** pane, click **SAN**.

Step 2 Expand **SAN** > **SAN Cloud** > ***Fabric*** > **FC Port Channels**.

Step 3 Click the port channel you want to disable.

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

Step 5 In the **Actions** area, click **Disable Port Channel**.

Step 6 If a confirmation dialog box displays, click **Yes**.

Adding Ports to and Removing Ports from a Fibre Channel Port Channel

Procedure

Step 1 In the **Navigation** pane, click **SAN**.

Step 2 Expand **SAN** > **SAN Cloud** > ***Fabric*** > **FC Port Channels**.

Step 3 Click the port channel to which you want to add or remove ports.

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

Step 5 In the **Actions** area, click **Add Ports**.

Step 6 In the **Add Ports** dialog box, do one of the following:

- To add ports, choose one or more ports in the **Ports** table, and then click the >> button to add the ports to the **Ports in the port channel** table.
- To remove ports, choose one or more ports in the **Ports in the port channel** table, and then click the << button to remove the ports from the port channel and add them to the **Ports** table.

Step 7 Click **OK**.

Modifying the Properties of a Fibre Channel Port Channel

Note If you are connecting two Fibre Channel port channels, the admin speed for both port channels must match for the link to operate. If the admin speed for one or both of the Fibre Channel port channels is set to auto, Cisco UCS adjusts the admin speed automatically.

Procedure

Step 1 In the **Navigation** pane, click **SAN**.

Step 2 Expand **SAN** > **SAN Cloud** > ***Fabric*** > **FC Port Channels**.

Step 3 Click the port channel that you want to modify.

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

Step 5 In the **Properties** area, change the values in one or more of the following fields:

Name	Description
Name field	The user-defined name given to the port channel. This name can be between 1 and 16 alphanumeric characters.

Name	Description
VSAN drop-down list	The VSAN associated with the port channel.
Port Channel Admin Speed drop-down list	The admin speed of the port channel. This can be: • **1 Gbps** **Note** Not available for Cisco UCS 6400 Series Fabric Interconnect. • **2 Gbps** **Note** Not available for Cisco UCS 6400 Series Fabric Interconnect. • **4 Gbps** • **8 Gbps** • **16 Gbps** **Note** Available only for Cisco UCS 6400 Series Fabric Interconnect. • **32 Gpbs** **Note** Available only for Cisco UCS 6400 Series Fabric Interconnect. • **auto** **Note** Not available for Cisco UCS 6400 Series Fabric Interconnect.

Step 6 Click **Save Changes**.

Deleting a Fibre Channel Port Channel

Procedure

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

Step 2 Expand **SAN** > **SAN Cloud** > ***Fabric*** > **FC Port Channels**.

Step 3 Right-click the port channel you want to delete and choose **Delete**.

Step 4 If a confirmation dialog box displays, click **Yes**.

FCoE Port Channels

An FCoE port channel allows you to group several physical FCoE ports to create one logical FCoE port channel. At a physical level, the FCoE port channel carries FCoE traffic over an Ethernet port channel. So an FCoE port channel with a set of members is essentially an Ethernet port channel with the same members. This Ethernet port channel is used as a physical transport for FCoE traffic.

For each FCoE port channel, Cisco UCS Manager creates a VFC internally and binds it to an Ethernet port channel. FCoE traffic received from the hosts is sent over the VFC the same way as the FCoE traffic is sent over Fibre Channel uplinks.

Creating an FCoE Port Channel

Procedure

Step 1 In the **Navigation** pane, click **SAN**.

Step 2 Expand **SAN** > **SAN Cloud**.

Step 3 Expand the node for the fabric where you want to create the port channel.

Step 4 Right-click the **FCoE Port Channels** node and choose **Create FCoE Port Channel**.

Step 5 In the **Set Port Channel Name** panel of the **Create FCoE Port Channel** wizard, specify the ID and name, then click **Next**.

Step 6 In the **Add Ports** panel of the **Create FCoE Port Channel** wizard, specify the ports that you want to add.

Step 7 Click **Finish**.

Deleting an FCoE Port Channel

Procedure

Step 1 In the **Navigation** pane, click **SAN**.

Step 2 On the **SAN** tab, expand **SAN** > **SAN Cloud** > ***Fabric*** > **FCoE Port Channels**.

Step 3 Right-click the port channel you want to delete and choose **Delete**.

Step 4 If a confirmation dialog box displays, click **Yes**.

Unified Uplink Port Channel

When you create an Ethernet port channel and an FCoE port channel with the same ID, it is called a unified uplink port channel. When the unified port channel is created, a physical Ethernet port channel and a VFC are created on the fabric interconnect with the specified members. The physical Ethernet port channel is used to carry both Ethernet and FCoE traffic. The VFC binds FCoE traffic to the Ethernet port channel.

The following rules will apply to the member port sets of the unified uplink port channel:

- The Ethernet port channel and FCoE port channel on the same ID, must have the same set of member ports.
- When you add a member port channel to the Ethernet port channel, Cisco UCS Manager adds the same port channel to FCoE port channel as well. Similarly, adding a member to the FCoE port channel adds the member port to the Ethernet port channel.
- When you delete a member port from one of the port channels, Cisco UCS Manager automatically deletes the member port from the other port channel.

If you disable an Ethernet uplink port channel, it disables the underlying physical port channel in a unified uplink port channel. Therefore, even when the FCoE uplink is enabled, the FCoE uplink port channel also goes down. If you disable an FCoE uplink port channel, only the VFC goes down. If the Ethernet uplink port channel is enabled, it can still function properly in the unified uplink port channel.