Configuring Named VSANs

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Named VSANs

A named VSAN creates a connection to a specific external SAN. The VSAN isolates traffic to that external SAN, including broadcast traffic. The traffic on one named VSAN knows that the traffic on another named VSAN exists, but cannot read or access that traffic.

Like a named VLAN, the name that you assign to a VSAN ID adds a layer of abstraction that allows you to globally update all servers associated with service profiles that use the named VSAN. You do not need to reconfigure the servers individually to maintain communication with the external SAN. You can create more than one named VSAN with the same VSAN ID.

Named VSANs in Cluster Configurations

In a cluster configuration, a named VSAN can be configured to be accessible only to the Fibre Channel uplink ports on one fabric interconnect or to the Fibre Channel uplink ports on both fabric interconnects.

Named VSANs and the FCoE VLAN ID

You must configure each named VSAN with an FCoE VLAN ID. This property determines which VLAN is used for transporting the VSAN and its Fibre Channel packets.

For FIP-capable, converged network adapters, such as the Cisco UCS CNA M72KR-Q and the Cisco UCS CNA M72KR-E, the named VSAN must be configured with a named VLAN that is not the native VLAN for the FCoE VLAN ID. This configuration ensures that FCoE traffic can pass through these adapters.

In the following sample configuration, a service profile with a vNIC and vHBA mapped to fabric A is associated with a server that has FIP capable, converged network adapters:

- The vNIC is configured to use VLAN 10.
- VLAN 10 is also designated as the native VLAN for the vNIC.
- The vHBA is configured to use VSAN 2.
- Therefore, VSAN 2 cannot be configured with VLAN 10 as the FCoE VLAN ID. VSAN 2 can be mapped to any other VLAN configured on fabric A.

Fibre Channel Uplink Trunking for Named VSANs

You can configure Fibre Channel uplink trunking for the named VSANs on each fabric interconnect. If you enable trunking on a fabric interconnect, all named VSANs in a Cisco UCS domain are allowed on all Fibre Channel uplink ports on that fabric interconnect.

Guidelines and Recommendations for VSANs

The following guidelines and recommendations apply to all named VSANs, including storage VSANs.

VSAN 4079 is a Reserved VSAN ID

Do not configure a VSAN as 4079. This VSAN is reserved and cannot be used in either FC switch mode or FC end-host mode.

If you create a named VSAN with ID 4079, Cisco UCS Manager marks that VSAN with an error and raises a fault.

Reserved VSAN Range for Named VSANs in FC Switch Mode

If you plan to use FC switch mode in a Cisco UCS domain, do not configure VSANs with an ID in the range from 3040 to 4078.

VSANs in that range are not operational if the fabric interconnects are configured to operate in FC switch mode. Cisco UCS Manager marks that VSAN with an error and raises a fault.

Reserved VSAN Range for Named VSANs in FC End-Host Mode

If you plan to use FC end-host mode in a Cisco UCS domain, do not configure VSANs with an ID in the range from 3840 to 4079.

VSANs in that range are not operational if the following conditions exist in a Cisco UCS domain:

- The fabric interconnects are configured to operate in FC end-host mode.
- The Cisco UCS domain is configured with Fibre Channel trunking or SAN port channels.

If these configurations exist, Cisco UCS Manager does the following:

1. Renders all VSANs with an ID in the range from 3840 to 4079 non-operational.
2. Raises a fault against the non-operational VSANs.
3. Transfers all non-operational VSANs to the default VSAN.
4. Transfers all vHBAs associated with the non-operational VSANs to the default VSAN.

If you disable Fibre Channel trunking and delete any existing SAN port channels, Cisco UCS Manager returns all VSANs in the range from 3840 to 4078 to an operational state and restores any associated vHBAs back to those VSANs.

Range Restrictions for Named VSAN IDs in FC Switch Mode

If you plan to use FC switch mode in a Cisco UCS domain, do not configure VSANs in the range from 3040 to 4078.

When a fabric interconnect operating in FC switch mode is connected to MDS as the upstream switch, VSANs configured in Cisco UCS Manager in the range from 3040 to 4078 and assigned as port VSANs cannot be created in MDS. This configuration results in a possible port VSAN mismatch.

Guidelines for FCoE VLAN IDs

Note FCoE VLANs in the SAN cloud and VLANs in the LAN cloud must have different IDs. Using the same ID for an FCoE VLAN in a VSAN and a VLAN results in a critical fault and traffic disruption for all vNICs and uplink ports using that FCoE VLAN. Ethernet traffic is dropped on any VLAN which has an ID that overlaps with an FCoE VLAN ID.

VLAN 4048 is user configurable. However, Cisco UCS Manager uses VLAN 4048 for the following default values. If you want to assign 4048 to a VLAN, you must reconfigure these values:

- After an upgrade to Cisco UCS, Release 2.0—The FCoE storage port native VLAN uses VLAN 4048 by default. If the default FCoE VSAN was set to use VLAN 1 before the upgrade, you must change it to a VLAN ID that is not used or reserved. For example, consider changing the default to 4049 if that VLAN ID is not in use.
- After a fresh install of Cisco UCS, Release 2.0—The FCoE VLAN for the default VSAN uses VLAN 4048 by default. The FCoE storage port native VLAN uses VLAN 4049.

Creating a Named VSAN

Note FCoE VLANs in the SAN cloud and VLANs in the LAN cloud must have different IDs. Using the same ID for an FCoE VLAN in a VSAN and a VLAN results in a critical fault and traffic disruption for all vNICs and uplink ports using that FCoE VLAN. Ethernet traffic is dropped on any VLAN which has an ID that overlaps with an FCoE VLAN ID.

Procedure

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

Step 2 On the **SAN** tab, expand **SAN** > **SAN Cloud**.

Step 3 In the **Work** pane, click the **VSANs** tab.

Step 4 On the icon bar to the right of the table, click +.
If the + icon is disabled, click an entry in the table to enable it.

Step 5 In the **Create VSAN** dialog box, complete the required.

Step 6 Click **OK**.
Cisco UCS Manager GUI adds the VSAN to one of the following **VSANs** nodes:

- The **SAN Cloud** > **VSANs** node for a storage VSAN accessible to both fabric interconnects.
- The **SAN Cloud** > ***Fabric_Name*** > **VSANs** node for a VSAN accessible to only one fabric interconnect.

Creating a Storage VSAN

Note FCoE VLANs in the SAN cloud and VLANs in the LAN cloud must have different IDs. Using the same ID for an FCoE VLAN in a VSAN and a VLAN results in a critical fault and traffic disruption for all vNICs and uplink ports using that FCoE VLAN. Ethernet traffic is dropped on any VLAN which has an ID that overlaps with an FCoE VLAN ID.

Procedure

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

Step 2 On the **SAN** tab, expand **SAN** > **Storage Cloud**.

Step 3 In the **Work** pane, click the **VSANs** tab.

Step 4 On the icon bar to the right of the table, click +.
If the + icon is disabled, click an entry in the table to enable it.

Step 5 In the **Create VSAN** dialog box, complete the required fields.

Step 6 Click **OK**.
Cisco UCS Manager GUI adds the VSAN to one of the following **VSANs** nodes:

- The **Storage Cloud** > **VSANs** node for a storage VSAN accessible to both fabric interconnects.
- The **Storage Cloud** > ***Fabric_Name*** > **VSANs** node for a VSAN accessible to only one fabric interconnect.

Deleting a VSAN

If Cisco UCS Manager includes a named VSAN with the same VSAN ID as the one you delete, the VSAN is not removed from the fabric interconnect configuration until all named VSANs with that ID are deleted.

Procedure

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

Step 2 In the **SAN** tab, click the **SAN** node.

Step 3 In the **Work** pane, click the **VSANs** tab.

Step 4 Click one of the following subtabs, depending upon what type of VSAN you want to delete:

Subtab	Description
All	Displays all VSANs in the Cisco UCS domain.
Dual Mode	Displays the VSANs that are accessible to both fabric interconnects.
Switch A	Displays the VSANs that are accessible to only fabric interconnect A.
Switch B	Displays the VSANs that are accessible to only fabric interconnect B.

Step 5 In the table, click the VSAN you want to delete.
You can use the Shift key or Ctrl key to select multiple entries.

Step 6 Right-click the highlighted VSAN or VSANs and choose **Delete**.

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

Changing the VLAN ID for the FCoE VLAN for a Storage VSAN

Note FCoE VLANs in the SAN cloud and VLANs in the LAN cloud must have different IDs. Using the same ID for an FCoE VLAN in a VSAN and a VLAN results in a critical fault and traffic disruption for all vNICs and uplink ports using that FCoE VLAN. Ethernet traffic is dropped on any VLAN which has an ID that overlaps with an FCoE VLAN ID.

Procedure

Step 1 In the **Navigation** pane, click the **SAN** tab.
Step 2 On the **SAN** tab, expand **SAN** > **Storage Cloud** > **VSANs**.
Step 3 Choose the VSAN for which you want to modify the FCoE VLAN ID.
Step 4 In the **Work** pane, click the **General** tab.
Step 5 In the **FCoE VLAN** field, enter the desired VLAN ID.
Step 6 Click **Save Changes**.

Enabling Fibre Channel Uplink Trunking

Note If the fabric interconnects are configured for Fibre Channel end-host mode, enabling Fibre Channel uplink trunking renders all VSANs with an ID in the range from 3840 to 4079 non-operational.

Procedure

Step 1 In the **Navigation** pane, click the **SAN** tab.
Step 2 On the **SAN** tab, expand **SAN** > **SAN Cloud**.
Step 3 Click the node for the fabric where you want to enable FC uplink trunking.
Step 4 In the **Work** pane, click the **General** tab.
Step 5 In the **Actions** area, click **Enable FC Uplink Trunking**.
Step 6 If the Cisco UCS Manager GUI displays a confirmation dialog box, click **Yes**.

Disabling Fibre Channel Uplink Trunking

Procedure

Step 1 In the **Navigation** pane, click the **SAN** tab.
Step 2 On the **SAN** tab, expand **SAN** > **SAN Cloud**.
Step 3 Click the node for the fabric where you want to disable Fibre Channel uplink trunking.
Step 4 In the **Work** pane, click the **General** tab.
Step 5 In the **Actions** area, click **Disable FC Uplink Trunking**.
Step 6 If the Cisco UCS Manager GUI displays a confirmation dialog box, click **Yes**.