Configuring Named VLANs

This chapter includes the following sections:

Named VLANs

A named VLAN creates a connection to a specific external LAN. The VLAN isolates traffic to that external LAN, including broadcast traffic.

The name that you assign to a VLAN ID adds a layer of abstraction that allows you to globally update all servers associated with service profiles that use the named VLAN. You do not need to reconfigure the servers individually to maintain communication with the external LAN.

You can create more than one named VLAN with the same VLAN ID. For example, if servers that host business services for HR and Finance need to access the same external LAN, you can create VLANs named HR and Finance with the same VLAN ID. Then, if the network is reconfigured and Finance is assigned to a different LAN, you only have to change the VLAN ID for the named VLAN for Finance.

In a cluster configuration, you can configure a named VLAN to be accessible only to one fabric interconnect or to both fabric interconnects.

Creating a Named VLAN

In a Cisco UCS instance with two switches, you can create a named VLAN that is accessible to both switches or to only one switch.

Important You cannot create VLANs with IDs from 3968 to 4047. This range of VLAN IDs is reserved.

The VLAN name is case sensitive.

Procedure

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

Step 2 On the **LAN** tab, click the **LAN** node.

Step 3 In the **Work** pane, click the **VLANs** 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 VLAN** dialog box, complete the following fields:

Name	Description
VLAN Name/Prefix field	For a single VLAN, this is the VLAN name. For a range of VLANs, this is the prefix that the system uses for each VLAN name. This name can be between 1 and 32 alphanumeric characters. You cannot use spaces or any special characters, and you cannot change this name after the object has been saved.
Configuration options	You can select: • **Common/Global**—The VLANs apply to both fabrics and use the same configuration parameters in both cases • **Fabric A**—The VLANs only apply to fabric A. • **Fabric B**—The VLAN only apply to fabric B. • **Both Fabrics Configured Differently**—The VLANs apply to both fabrics but you can specify different VLAN IDs for each fabric.
VLAN IDs field	To create one VLAN, enter a single numeric ID. To create multiple VLANs, enter individual IDs or ranges of IDs separated by commas. A VLAN ID can: • Be between 1 and 3967 • Be between 4049 and 4093 • Overlap with other VLAN IDs already defined on the system For example, to create six VLANs with the IDs 4, 22, 40, 41, 42, and 43, you would enter 4, 22, 40-43. **Important** The VLAN IDs from 3968 to 4048 are reserved. You cannot specify an ID within this range.

Name	Description
Sharing Type field	Whether this VLAN is subdivided into private or secondary VLANs. This can be: • **none**—This VLAN does not have any secondary or private VLANs. • **primary**—This VLAN can have one or more secondary VLANs, as shown in the **Secondary VLANs** area. • **isolated**—This is a private VLAN. The primary VLAN with which it is associated is shown in the **Primary VLAN** drop-down list.
Primary VLAN drop-down list	If the **Sharing Type** field is set to **isolated**, this is the primary VLAN associated with this private VLAN.
Check Overlap button	Click this button to determine whether the VLAN ID overlaps with any other IDs on the system.

Step 6 Click **OK**.
Cisco UCS Manager adds the VLAN to one of the following **VLANs** nodes:

- The **LAN Cloud** ➤ **VLANs** node for a VLAN accessible to both fabric interconnects.
- The ***Fabric_Interconnect_Name*** ➤ **VLANs** node for a VLAN accessible to only one fabric interconnect.

Deleting a Named VLAN

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

If you are deleting a private primary VLAN, make sure to reassign the secondary VLANs to another working primary VLAN.

Procedure

Step 1 In the **Navigation** pane, click the **LAN** tab.
Step 2 On the **LAN** tab, click the **LAN** node.
Step 3 In the **Work** pane, click the **VLANs** tab.
Step 4 Click one of the following subtabs, depending upon what type of VLAN you want to delete:

Subtab	Description
All	Displays all VLANs in the Cisco UCS instance.
Dual Mode	Displays the VLANs that are accessible to both fabric interconnects.

Subtab	Description
Fabric A	Displays the VLANs that are accessible to only fabric interconnect A.
Fabric B	Displays the VLANs that are accessible to only fabric interconnect B.

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

Step 6 Right-click the highlighted VLAN or VLANs and select **Delete**.

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

Private VLANs

A private VLAN (PVLAN) partitions the Ethernet broadcast domain of a VLAN into subdomains and allows you to isolate some ports. Each subdomain in a PVLAN includes a primary VLAN and one or more secondary VLANs. All secondary VLANs in a PVLAN must share the same primary VLAN. The secondary VLAN ID differentiates one subdomain from another.

Isolated VLANs

All secondary VLANs in a Cisco UCS instance must be isolated VLANs. Cisco UCS does not support community VLANs.

Ports on Isolated VLANs

Communications on an isolated VLAN can only use the associated port in the primary VLAN. These ports are isolated ports and are not configurable in Cisco UCS Manager. If the primary VLAN includes multiple secondary VLANs, those isolated VLANs cannot communicate directly with each other.

An isolated port is a host port that belongs to an isolated secondary VLAN. This port has complete isolation from other ports within the same private VLAN domain. PVLANs block all traffic to isolated ports except traffic from promiscuous ports. Traffic received from an isolated port is forwarded only to promiscuous ports. You can have more than one isolated port in a specified isolated VLAN. Each port is completely isolated from all other ports in the isolated VLAN.

Guidelines for Uplink Ports

When you create PVLANs, be aware of the following guidelines:

- The uplink Ethernet port channel cannot be in promiscuous mode.
- Each primary VLAN can have only one isolated VLAN.
- VIFs on VNTAG adapters can have only one isolated VLAN.

Creating a Primary VLAN for a Private VLAN

In a Cisco UCS instance with two switches, you can create a named VLAN that is accessible to both switches or to only one switch.

Important You cannot create VLANs with IDs from 3968 to 4047. This range of VLAN IDs is reserved.

The VLAN name is case sensitive.

Procedure

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

Step 2 On the **LAN** tab, click the **LAN** node.

Step 3 In the **Work** pane, click the **VLANs** 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 VLAN** dialog box, complete the following fields:

Name	Description
VLAN Name/Prefix field	For a single VLAN, this is the VLAN name. For a range of VLANs, this is the prefix that the system uses for each VLAN name. This name can be between 1 and 16 alphanumeric characters. You cannot use spaces or any special characters, and you cannot change this name after the object has been saved.
Configuration options	You can select: • **Common/Global**—The VLANs apply to both fabrics and use the same configuration parameters in both cases • **Fabric A**—The VLANs only apply to fabric A. • **Fabric B**—The VLAN only apply to fabric B. • **Both Fabrics Configured Differently**—The VLANs apply to both fabrics but you can specify different VLAN IDs for each fabric.
VLAN IDs field	To create one VLAN, enter a single numeric ID. To create multiple VLANs, enter individual IDs or ranges of IDs separated by commas. A VLAN ID can: • Be between 1 and 3967 • Be between 4049 and 4093 • Overlap with other VLAN IDs already defined on the system

Name	Description
	For example, to create six VLANs with the IDs 4, 22, 40, 41, 42, and 43, you would enter 4, 22, 40-43. **Important** The VLAN IDs from 3968 to 4048 are reserved. You cannot specify an ID within this range.
Sharing Type field	Click the **primary** radio button.
Check Overlap button	Click this button to determine whether the VLAN ID overlaps with any other IDs on the system.

Step 6 Click **OK**.
Cisco UCS Manager adds the primary VLAN to one of the following **VLANs** nodes:

- The **LAN Cloud** ➤ **VLANs** node for a primary VLAN accessible to both fabric interconnects.
- The ***Fabric_Interconnect_Name*** ➤ **VLANs** node for a primary VLAN accessible to only one fabric interconnect.

Creating a Secondary VLAN for a Private VLAN

In a Cisco UCS instance with two switches, you can create a named VLAN that is accessible to both switches or to only one switch.

Important You cannot create VLANs with IDs from 3968 to 4047. This range of VLAN IDs is reserved.

The VLAN name is case sensitive.

Before You Begin

Create the primary VLAN.

Procedure

Step 1 In the **Navigation** pane, click the **LAN** tab.
Step 2 On the **LAN** tab, click the **LAN** node.
Step 3 In the **Work** pane, click the **VLANs** 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 VLAN** dialog box, complete the following fields:

Name	Description
VLAN Name/Prefix field	For a single VLAN, this is the VLAN name. For a range of VLANs, this is the prefix that the system uses for each VLAN name. This name can be between 1 and 16 alphanumeric characters. You cannot use spaces or any special characters, and you cannot change this name after the object has been saved.
Configuration options	You can select: • **Common/Global**—The VLANs apply to both fabrics and use the same configuration parameters in both cases • **Fabric A**—The VLANs only apply to fabric A. • **Fabric B**—The VLAN only apply to fabric B. • **Both Fabrics Configured Differently**—The VLANs apply to both fabrics but you can specify different VLAN IDs for each fabric.
VLAN IDs field	To create one VLAN, enter a single numeric ID. To create multiple VLANs, enter individual IDs or ranges of IDs separated by commas. A VLAN ID can: • Be between 1 and 3967 • Be between 4049 and 4093 • Overlap with other VLAN IDs already defined on the system For example, to create six VLANs with the IDs 4, 22, 40, 41, 42, and 43, you would enter 4, 22, 40-43. **Important** The VLAN IDs from 3968 to 4048 are reserved. You cannot specify an ID within this range.
Sharing Type field	Click the **isolated** radio button.
Primary VLAN drop-down list	Choose the primary VLAN to be associated with this secondary VLAN from the drop-down list.
Check Overlap button	Click this button to determine whether the VLAN ID overlaps with any other IDs on the system.

Step 6 Click **OK**.
Cisco UCS Manager adds the primary VLAN to one of the following **VLANs** nodes:

- The **LAN Cloud ➤ VLANs** node for a primary VLAN accessible to both fabric interconnects.
- The ***Fabric_Interconnect_Name*** **➤ VLANs** node for a primary VLAN accessible to only one fabric interconnect.