



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 instance 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.

Creating a Named VSAN Accessible to Both Fabric Interconnects (Fibre Channel Uplink Mode)

You can create a named VSAN with IDs from 1 to 4093, except for those in the following reserved ranges:

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope fc-uplink	Enters Fibre Channel uplink mode.
Step 2	UCS-A /fc-uplink # create vsan <i>vsan-name vsan-id fcoe-id</i>	Creates the specified named VSAN, specifies the VSAN name, VSAN ID and FCoE VLAN ID, and enters Fibre Channel uplink VSAN mode.
Step 3	UCS-A /fc-uplink/vsan # commit-buffer	Commits the transaction to the system configuration.

The following example creates a named VSAN for both fabric interconnects, names the VSAN accounting, assigns the VSAN ID 2112, assigns the FCoE VLAN ID 4021, and commits the transaction:

```
UCS-A# scope fc-uplink
UCS-A /fc-uplink* # create vsan accounting 2112 4021
UCS-A /fc-uplink/vsan* # commit-buffer
UCS-A /fc-uplink/vsan #
```

Creating a Named VSAN Accessible to Both Fabric Interconnects (Fibre Channel Storage Mode)

You can create a named VSAN with IDs from 1 to 4093, except for those in the following reserved ranges:

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope fc-storage	Enters Fibre Channel storage mode.
Step 2	UCS-A /fc-storage # create vsan <i>vsan-name vsan-id fcoe-id</i>	Creates the specified named VSAN, specifies the VSAN name, VSAN ID, and FCoE VLAN ID, and enters Fibre Channel storage VSAN mode.
Step 3	UCS-A /fc-storage/vsan # create member-port {a b} <i>slot-id port-id</i>	Creates a member port; specifies the slot ID and port ID.
Step 4	UCS-A /fc-storage/vsan # commit-buffer	Commits the transaction to the system configuration.

The following example creates a named VSAN, names the VSAN finance, assigns the VSAN ID 3955, assigns the FCoE VLAN ID 4021, creates a member port and assigns the it to member port A, slot 1 port 40, and commits the transaction:

```
UCS-A# scope fc-storage
UCS-A /fc-storage/ # create VSAN finance 3955 4021
UCS-A /fc-storage/vsan # create member-port fcoe a 1 40
UCS-A /fc-storage/vsan/member-port* # commit-buffer
UCS-A /fc-storage/vsan/member-port #
```

Creating a Named VSAN Accessible to One Fabric Interconnect (Fibre Channel Uplink Mode)

You can create a named VSAN with IDs from 1 to 4093, except for those in the following reserved ranges:

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope fc-uplink	Enters Fibre Channel uplink mode.
Step 2	UCS-A /fc-uplink # scope fabric {a b}	Enters Fibre Channel uplink fabric interconnect mode for the specified fabric interconnect (A or B).
Step 3	UCS-A /fc-uplink/fabric # create vsan <i>vsan-name vsan-id fcoe-id</i>	Creates the specified named VSAN, specifies the VSAN name, VSAN ID, and FCoE VLAN ID, and enters Fibre Channel uplink VSAN mode.
Step 4	UCS-A /fc-uplink/fabric/vsan # commit-buffer	Commits the transaction to the system configuration.

The following example creates a named VSAN for fabric interconnect A, names the VSAN finance, assigns the VSAN ID 3955, assigns the FCoE VLAN ID 2221, and commits the transaction:

```
UCS-A# scope fc-uplink
UCS-A /fc-uplink # scope fabric a
UCS-A /fc-uplink/fabric # create vsan finance 3955 2221
UCS-A /fc-uplink/fabric/vsan* # commit-buffer
UCS-A /fc-uplink/fabric/vsan #
```

Creating a Named VSAN Accessible to One Fabric Interconnect (Fibre Channel Storage Mode)

You can create a named VSAN with IDs from 1 to 4093, except for those in the following reserved ranges:

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope fc-storage	Enters Fibre Channel storage mode.
Step 2	UCS-A /fc-storage # scope fabric {a b}	Enters Fibre Channel storage mode for the specified fabric interconnect.
Step 3	UCS-A /fc-storage/fabric # create vsan <i>vsan-name vsan-id fcoe-id</i>	Creates the specified named VSAN, specifies the VSAN name, VSAN ID, and FCoE VLAN ID, and enters Fibre Channel storage VSAN mode.
Step 4	UCS-A /fc-storage/fabric/vsan # create member-port {a b} slot-id port-id	Creates a member port on the specified VSAN.
Step 5	UCS-A /fc-storage/fabric/vsan # commit-buffer	Commits the transaction to the system configuration.

The following example creates a named VSAN on fabric A, names the VSAN finance, assigns the VSAN ID 3955, assigns the FCoE VLAN ID 2221, creates a member port and assigns the it to member port A, slot 1 port 40, and commits the transaction:

```
UCS-A# scope fc-storage
UCS-A /fc-storage/ # scope fabric a
UCS-A /fc-storage/fabric # create VSAN finance 3955 2221
UCS-A /fc-storage/fabric/vsan # create member-port a 1 40
UCS-A /fc-storage/fabric/vsan/member-port* # commit-buffer
UCS-A /fc-storage/fabric/vsan/member-port #
```

Deleting a Named 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

	Command or Action	Purpose
Step 1	UCS-A# scope fc-uplink	Enters Fibre Channel uplink mode.
Step 2	UCS-A /fc-uplink # delete vsan vsan-name	Deletes the specified named VSAN.
Step 3	UCS-A /fc-uplink # commit-buffer	Commits the transaction to the system configuration.

The following example deletes a named VSAN and commits the transaction:

```
UCS-A# scope fc-uplink
UCS-A /fc-uplink # delete vsan finance
UCS-A /fc-uplink* # commit-buffer
UCS-A /fc-uplink #
```

Enabling or Disabling 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

	Command or Action	Purpose
Step 1	UCS-A# scope fc-uplink	Enters Fibre Channel uplink mode.
Step 2	UCS-A /fc-uplink # scope fabric {a b }	Enters Fibre Channel uplink mode for the specified fabric.

	Command or Action	Purpose
Step 3	UCS-A /fc-uplink/fabric # set uplink-trunking {enabled disabled }	Enables or disables uplink trunking.
Step 4	UCS-A /fc-uplink/fabric # commit-buffer	Commits the transaction to the system configuration.

The following example enables Fibre Channel uplink trunking for fabric A and commits the transaction:

```
UCS-A# scope fc-uplink
UCS-A /fc-uplink # scope fabric a
UCS-A /fc-uplink/fabric # set uplink-trunking enabled
UCS-A /fc-uplink/fabric* # commit-buffer
UCS-A /fc-uplink/fabric #
```

