Configuring the Network Uplinks

This chapter describes how to configure the uplink type and includes the following sections:

Information About Network Uplink Configurations

The Cisco Nexus Cloud Services Platform product family supports two types of network uplink configurations to connect to the network:

Flexible Network Uplink Configuration

The flexible network configuration offers complete flexibility to connect Cisco Nexus Cloud Services Platform to the network. This configuration type enables appropriate traffic segregation policies like VSB traffic segregation.

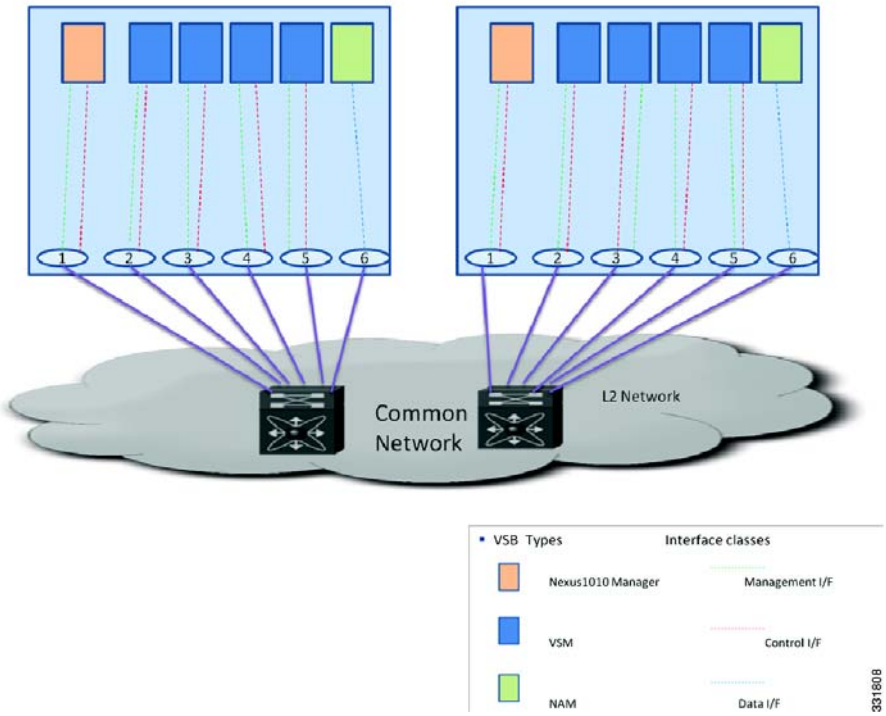
This configuration consists of the following features:

- Complete flexibility in terms of port configuration and usage
- Flexible building of ports into a port channel.
- Flexible assignment of a port or port channel to a VSB interface.
- Easy uplink configuration.
- Ability to achieve maximum uplink.

The default flexible network uplink configuration (see Figure 3-1) includes the following features:

- Every physical port individually forms an uplink.
- Each uplink can be configured independently.
- Each uplink can achieve a maximum uplink of 6 Gbps.
- No default redundancy for uplinks.
- You cannot bundle physical ports in a port channel.
- VSB traffic is segregated by default.
- You can manually configure a VSB interface to share a port.

Figure 3-1 Default Flexible Network Uplink Configuration



If you choose flexible configuration during the installation of the Cisco Nexus Cloud Services Platform, the default configuration is used to connect to the network. See the *Cisco Nexus Cloud Services Platform Software Installation and Upgrade Guide*, for more information.

You can then make changes to the default flexible network uplink configuration to suit your needs:

- For example, you can add ports to a port channel. See Figure 3-3 and the See Configuring Port Channels, page 3-11 for more information.
- For example, you can assign uplinks to a VSB interface. See Figure 3-2 and the Assigning Uplinks to a VSB Interface, page 3-13 for more information.

Figure 3-2 Assigning uplinks to flexible network configuration

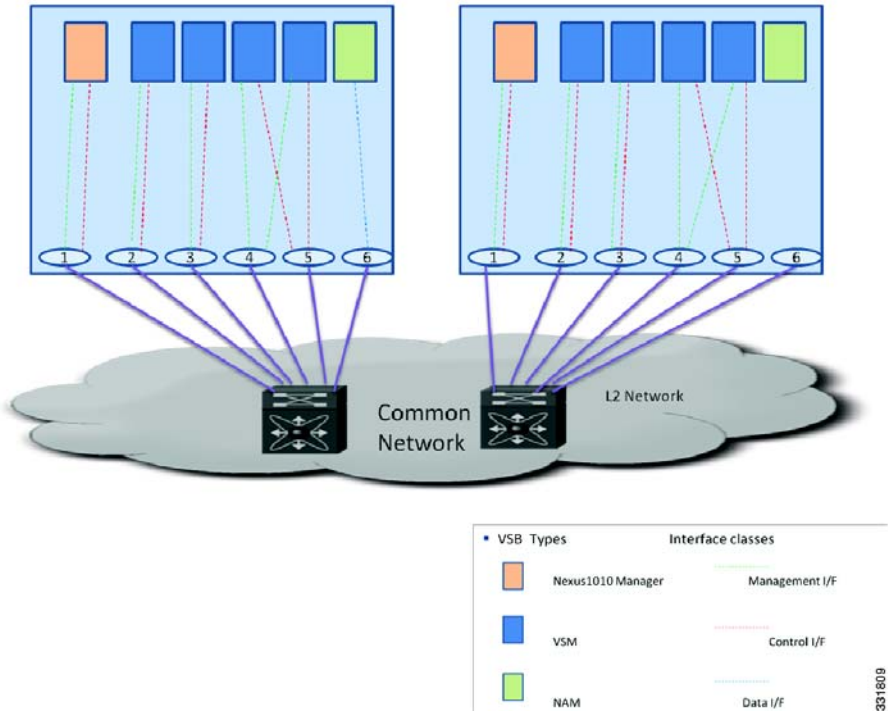
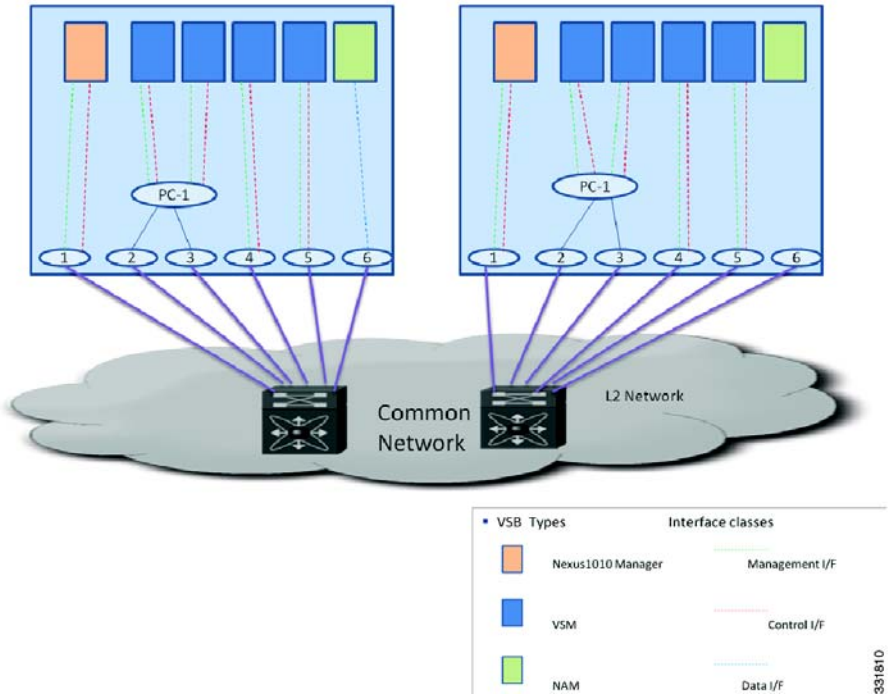


Figure 3-3 Adding port channels to flexible network configuration



Static Network Uplink Configuration

In a static network configuration, the Cisco Nexus Cloud Services Platform product family is connected to the network using the following four fixed network uplink configurations:

- In configuration 1, control traffic, management traffic and data traffic share a single uplink.
- In configuration 2, control traffic and management traffic share an uplink and data traffic is a separate uplink.
- In configuration 3, control traffic and data traffic share an uplink and management traffic is a separate uplink.
- In configuration 4, control traffic, management traffic and data traffic are all on separate unlinks.

For more information about uplink configurations, see the Uplinks section.

Guidelines and Limitations

The Cisco Nexus Cloud Services Platform has the following configuration guidelines and limitations:

- A change to the uplink type does not take effect until you reload the software.
- Changing the uplink type is disruptive and leads to a service disruption.
- You can change the uplink type only once before issuing a reboot.
- Use Table 3-1 when modifying the network uplink type.

Table 3-1 Uplink Usage

Uplink Type	Usage
1	When only the Cisco Nexus 1000V VSM is installed.
2	When only NAM is installed.
3	When the management and data traffic upstream must be separated.
4	When the management and data traffic upstream must be separated and control and data traffic must also be separated.
5	Flexible network uplink

Configuring Network Uplink Types

This section includes the following topics:

Modifying the Uplink Type

You can modify the uplink type on an operational Cisco Nexus Cloud Services Platform.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- Log in to the CLI in EXEC mode.
- You must reload the Cisco Nexus Cloud Services Platform pair in order to activate the changes made in this procedure. This procedure includes a step for reloading.

Caution To prevent loss of connectivity, you must reconfigure the uplink switches to correspond with the change made in this procedure.

SUMMARY STEPS

1. **configure terminal**
2. **network uplink type** *number*
3. (Optional) show **network-uplink type**
4. **copy running-config startup-config**
5. **reload**

DETAILED STEPS

	Command	Purpose
Step 1	**configure terminal** **Example:** switch# configure terminal switch(config)#	Places you in the CLI Global Configuration mode.
Step 2	**network uplink type** *number* **Example:** switch(config)# network uplink type 2 switch(config)#	Changes the uplink type for the Cisco Nexus Cloud Services Platform. The *number* argument range is from 1 to 4.
Step 3	**show network-uplink type** **Example:** switch(config)# show network uplink type Administrative topology id: 2 Operational topology id: 1 switch(config)#	Displays the uplink configuration for verification.
Step 4	**copy running-config startup-config** **Example:** switch(config)# copy running-config startup-config	Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.
Step 5	**reload** **Example:** switch(config)# **reload** This command will reboot the system. (y/n)? [n] y 2009 Oct 30 21:51:34 s1 %$ VDC-1 %$ %PLATFORM-2-PFM_SYSTEM_RESET: Manual system restart from Command Line Interface switch(config)#	

Migrating from a Static Network Uplink to a Flexible Network Uplink

You can migrate from a static network uplink type to a flexible network uplink type.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- Log in to the CLI in EXEC mode.
- After you change the uplink type from static to flexible, you can configure the port channel and assign uplink assignment to a VSB manually.
- You must reload the Cisco Nexus Cloud Services Platform pair in order to activate the changes made in this procedure.
- Changing the uplink type from static to flexible is disruptive and leads to a service disruption. After you change the uplink type from static to flexible, you must save the configuration and reload for the new configuration to take effect.

- When you change the uplink type from static to flexible, the configuration for all the port channels, native VLANs, and port states is retained in the flexible network type.

SUMMARY STEPS

1. **configure terminal**
2. **network uplink type** *number*
3. **network uplink type** *keyword*
4. (Optional) **svs-domain**
5. (Optional) **control uplink** *interface name*
6. (Optional) **management uplink** *interface name*
7. copy running-config startup-config
8. **reload**
9. **show network-uplink type**

DETAILED STEPS

	Command	Purpose

Step 1	**configure terminal**
	
	Example:
	`switch# config terminal`
	`switch(config)#`
		Enters Global Configuration mode.

Step 2	**network uplink type** *number*
	Example:
	`switch(config)# network uplink type 5`
	`switch(config)#`
		Changes the uplink type for the Cisco Nexus Cloud Services Platform.

	Command	Purpose
Step 3	**network uplink type** *keyword* **Example:** switch(config)# network uplink type flexible switch(config)# The command will change network-uplink type and network-uplink type cannot be changed again before reload. Change to [1-4] network-uplink type will lead to loss of native vlan config on all ports. Do you really want to proceed(yes/no)? [no] yes Note: Save the configuration and reload to bring the system with new network_uplink **Example:** switch(config)#)# network-uplink type flexible force Note: The command will change network-uplink type and network-uplink type cannot be changed again before reload. Change to [1-4] network-uplink type will lead to loss of native vlan config on all ports. Note: Save the configuration and reload to bring the system with new network_uplink	Changes the uplink type for the Cisco Nexus Cloud Services Platform from static to flexible. **Note** You can change the network type only once. In order to change the network type again, you must reload and then change the network type. You can use the **force** option to skip the confirmation step.
Step 4	**svs-domain** **Example:** switch(config)# svs-domain switch(config-svs-domain)#	(Optional) Configures an SVS domain and enters SVS domain configuration mode.
Step 5	**control uplink** *interface name* **Example:** switch(config-svs-domain)# **control uplink GigabitEthernet1** switch(config-svs-domain)#	(Optional) Changes the default control traffic interface name. Interface names can be Gigabit Ethernet or Portchannel.
Step 6	**management uplink** *interface name* **Example** switch(config-svs-domain)# **management uplink GigabitEthernet2**	(Optional) Changes the default management traffic interface name. Interface names can be Gigabit Ethernet or Portchannel.
Step 7	**copy running-config startup-config** **Example:** switch(config)# copy running-config startup-config	Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

	Command	Purpose
Step 8	**reload** **Example:** switch(config-svs-domain)# reload This command will reboot the system. (y/n)? [n] y 2011 Oct 27 10:26:30 switch %PLATFORM-2-PFM_SYSTEM_RESET: Manual system restart from Command Line Interface	
Step 9	show **network-uplink type** **Example:** switch(config)# show network uplink type Administrative topology id: flexible Operational topology id: flexible	Displays the uplink configuration for verification.

Migrating from a Flexible Network Uplink to a Static Network Uplink

You can migrate from a flexible network uplink to a static network uplink.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- Log in to the CLI in EXEC mode.
- This procedure is disruptive because both the active and standby Cisco Nexus Cloud Services Platforms should be reloaded together.
- You must reload the Cisco Nexus Cloud Services Platform pair to activate the changes made in this procedure. This procedure includes a step for reloading.

Caution To prevent a connectivity loss, you must reconfigure the uplink switches to correspond with the change made in this procedure.

- Table 3-2 lists supported uplink types and the ports that carry each type of VLAN traffic.

Table 3-2 Uplink Types and VLAN Ports

Uplink Type	Management VLAN	Control VLAN	Data VLAN
1	Ports 1 and 2 (HA)	Ports 1 and 2 (HA)	Ports 1 and 2 (HA)
2	Ports 1 and 2 (HA)	Ports 1 and 2 (HA)	Ports 3–6 (LACP)
3	Ports 1 and 2 (HA)	Ports 3-6 (LACP)	Ports 3–6 (LACP)

Table 3-2 Uplink Types and VLAN Ports (continued)

Uplink Type	Management VLAN	Control VLAN	Data VLAN
4	Ports 1 and 2 (HA)	Ports 3-4 (HA)	Ports 5–6 (HA)
Flexible	There is no traffic segregation based on traffic class.		

For a description of each uplink, see the Uplinks section.

- When you migrate from a flexible network uplink type to a static network uplink type, the configuration for all the port channels, native VLANs, and port states is lost.
- You must ensure that the uplink connectivity is the same for that static network uplink type.
- If the system is not configured for a required uplink type, shut down the system from ILO after you save the configuration for both active and standby and then reload.

SUMMARY STEPS

1. **configure terminal**
2. **network uplink type** *number*
3. (Optional) **show network-uplink type**
4. **copy running-config startup-config**
5. **reload**

DETAILED STEPS

	Command	Purpose

Step 1	**configure terminal**
	
	Example:
	`switch# config terminal`
	`switch(config)#`
		Enters the global configuration mode.

Step 2	**network uplink type** *number*
	
	Example:
	`switch(config)# network uplink type 2`
	`switch(config)#`
		Changes the uplink type for the Cisco Nexus Cloud Services Platform. The *number* argument range is from 1 to 4.

Step 3	**show network-uplink type**
	
	Example:
	`switch(config)# show network uplink type`
	`Administrative topology id: 2`
	`Operational topology id: 1`
	`switch(config)#`
		Displays the uplink configuration for verification.

	Command	Purpose
Step 4	**copy running-config startup-config** **Example:** switch(config)# **copy running-config startup-config**	Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.
Step 5	**reload** **Example:** switch(config)# **reload** This command will reboot the system. (y/n)? [n] y 2009 Oct 30 21:51:34 s1 %$ VDC-1 %$ %PLATFORM-2-PFM_SYSTEM_RESET: Manual system restart from Command Line Interface switch(config)#	

Configuring Port Channels

You can configure the port channels in the Cisco Nexus Cloud Services Platform. You can configure the port channels only in the flexible network uplink type configuration.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- Log in to the CLI in EXEC mode.
- You must group the ports together in either HA or LACP mode.
- You must ensure that the ports are not used by any other port channel or by any VSB interface. To delete a port see Deleting Port Channels, page 3-12.
- An Ethernet interface with conflicting native VLAN cannot be part of an existing port channel.

SUMMARY STEPS

1. **configure terminal**
2. **[no] interface** *name*
3. **interface ethernet** *name*
4. **channel-group** *id* **mode {ha | active}**
5. (Optional) **show network port-channel summary**

DETAILED STEPS

	Command	Purpose
Step 1	**configure terminal** **Example:** switch# **configure terminal** switch(config)#	Enters the global configuration mode.
Step 2	**[no] interface** *name* **Example:** switch(config)# [no] **interface PortChannel1** switch(config-if)#	Places you into configuration mode for the port channel or creates a port channel ID if the port channel does not exist. The port channel range is from 1to 6.
Step 3	**interface *ethernet*** *name* **Example:** switch(config)# **interface GigabitEthernet4** switch(config-if)#	Places you into configuration mode for the named Ethernet interface. The interface names can be Gigabit Ethernet only.
Step 4	**channel-group** *id* **mode {ha | active}** **Example:** switch(config-if)# **channel-group 1 mode active** switch(config-if)#	Assigns an ethernet interface to a port channel. The mode can be either HA or Active.
Step 5	**show network port-channel summary** **Example:** switch(config)# show network port-channel summary --- Group Port-Channel Adm-State Type Member-Ports --- 1 PortChannel1 up ha Gi1 Gi2	

Deleting Port Channels

You can delete port channels. You must delete ports from the port channel and then delete the port channel.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- Log in to the CLI in EXEC mode.
- Shut down the VSBs using the port or the port channel that contains the port.

SUMMARY STEPS

1. **configure terminal**
2. **interface ethernet** *name*
3. **no channel-group**

DETAILED STEPS

	Command	Purpose

Step 1	**configure terminal**
	
	Example:
	`switch# configure terminal`
	`switch(config)#`
		Enters the global configuration mode.

Step 2	**interface *ethernet*** *name*
	
	Example:
	`switch(config)# interface GigabitEthernet4`
	`switch(config-if)#`
		Places you into the configuration mode for the named interface.
		
		The interface names can be Gigabit Ethernet only.

Step 3	**no channel-group**
	
	Example:
	`switch(config-if)# no channel-group`
	`switch(config-if)#`
		Deletes the port channel.

Assigning Uplinks to a VSB Interface

You can assign uplinks to a VSB interface. You can assign uplinks to a VSB interface only in the flexible network uplink type configuration.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in EXEC mode.
- By default, uplinks are assigned to the first available free port or port channel.
- If both free ports and port channels are available, free ports get preference over port channels.
- If no free ports are available, you must assign the uplink manually.
- A VSB can have different uplinks for every port or port channel.

SUMMARY STEPS

1. **configure terminal**
2. **virtual-service-blade** *name*
3. **[no] interface** *name* **uplink** *name*
4. (Optional) **show network {[uplink] | summary}**

DETAILED STEPS

	Command	Purpose

Step 1	configure terminal
	
	Example:
	`switch# configure terminal`
	`switch(config)#`
		Enters the global configuration mode.

Step 2	**virtual-service-blade** *name*
	
	Example:
	`switch(config)# virtual-service-blade vsm-5`
	`switch(config-vsb-config)#`
		Places you into the configuration mode for the named virtual service blade.

Step 3	**[no] interface** *name* **uplink** *name* **Example:** `switch(config-vsb-config)# interface control uplink PortChannel2`	Assigns a VSB Ethernet interface to an uplink.
Step 4	**show network summary**	(Optional) Displays VSB Ethernet interfaces assigned to an uplink.

-Example:

```
switch(config)#show network summary

--------------------------------------------------------------------------------
      Port     State     Uplink-Interface  Speed  RefCnt    MTU   Nat-Vlan
            Oper  Admin     Oper  Admin                                  Oper  Admin
--------------------------------------------------------------------------------
       Gi1    up     up                      1000       0   9000
       Gi2    up     up                      1000       0   9000
       Gi3    up     up                      1000       3   9000
       Gi4  down     up                      1000       0   9000
       Gi5  down     up                      1000       0   9000
       Gi6  down     up                      1000       0   9000
       Po1    up     up                      1000      13   9000
 VsbEth6/1    up     up      Gi3    Gi3      1000           9000
 VsbEth6/2    up     up      Gi3    Gi3      1000           9000
 VsbEth6/3    up     up      Gi3    Gi3      1000           9000
  control0    up     up      Po1    Po1      1000           9000
     mgmt0    up     up      Po1    Po1      1000           9000
```

Assigning a Native VLAN to a Port Channel

You can configure a native VLAN that corresponds to an Ethernet interface. This procedure is applicable to both static and flexible network uplink types. Native VLAN changes can take effect immediately except for cases that involve Cisco Nexus Cloud Services Platform VLANs and interfaces.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- Log in to the CLI in EXEC mode.
- You cannot assign a native VLAN to an Ethernet interface that is a part of a port channel.
- You can add an Ethernet interface to a port channel only if the Ethernet interface and the port channel have the same native VLAN configuration.
- After you configure the native VLANs in the Cisco Nexus Cloud Services Platform, you must also configure all the upstream switches with the same native VLAN.
- When you modify the control or management native VLAN uplink configuration, you must first save the configuration and then shut down Cisco Nexus Cloud Services Platform from ILO. Now you can change the native VLAN configuration on the uplink switch and then restart the Cisco Nexus Cloud Services Platform.
- When you change the network uplink configuration from flexible to static, all the ports and port channels will lose their native VLAN configuration.
- When you delete an Ethernet interface from a port channel, it retains the native VLAN configuration.

SUMMARY STEPS

1. **configure terminal**
2. **interface** *name*
3. **native vlan** *id*
4. (Optional) **show network summary**

DETAILED STEPS

	Command	Purpose

Step 1	**configure terminal**
	
	Example:
	`switch# configure terminal`
	`switch(config)#`
		Enters global configuration mode.

Step 2	**interface** *name*
	
	Example:
	`switch(config)# interface Gigabitethernet1`
	`switch(config-if)#`
		Places you into the configuration mode for the named interface.
		
		The interface names can be Gigabit Ethernet or Portchannel.

	Command	Purpose
Step 3	**native vlan** *id* **Example:** switch(config-if)# **native vlan 346** switch(config-if)#	Modifies the native VLAN ID.

Step 4 **show network summary**

Example:

```
switch# show network summary

------------------------------------------------------------------------------
      Port     State     Uplink-Interface  Speed  RefCnt    MTU   Nat-Vlan
            Oper  Admin     Oper  Admin                                  Oper  Admin
------------------------------------------------------------------------------
       Gi1    up     up                    1000       0   9000
       Gi2    up     up                    1000       0   9000
       Gi3    up     up                    1000       3   9000
       Gi4  down     up                    1000       0   9000
       Gi5  down     up                    1000       0   9000
       Gi6  down     up                    1000       0   9000
       Po1    up     up                    1000      13   9000
 VsbEth6/1    up     up      Gi3    Gi3     1000           9000
 VsbEth6/2    up     up      Gi3    Gi3     1000           9000
 VsbEth6/3    up     up      Gi3    Gi3     1000           9000
  control0    up     up      Po1    Po1     1000           9000
     mgmt0    up     up      Po1    Po1     1000           9000
```

Shutting Down Ports or Port Channel Interfaces

Use this procedure to shut down ports or port channels to shut traffic for certain VSBs.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in EXEC mode.

SUMMARY STEPS

1. **configure terminal**
2. **interface** *name*
3. **[no] shutdown [primary | secondary]**
4. **show network summary**
5. (Optional) **show network port-channel summary**

DETAILED STEPS

	Command	Purpose
Step 1	**configure terminal** **Example:** switch# **config terminal** switch(config)#	Places you in the CLI Global Configuration mode.
Step 2	**interface** *name* **Example:** switch(config)# **interface GigabitEthernet1** switch(config-if)	Enters interface configuration mode for the specified interface.
Step 3	**[no] shutdown [primary | secondary]** **Example:** switch(config-if) **shutdown**	Shuts down the port or port channel interface. If a redundant pair of Cisco Nexus Cloud Services Platforms, you must specify whether to shut down the primary or secondary.

Step 4 **show network summary**

Example:

```
switch# show network summary

-------------------------------------------------------------------------------
      Port     State     Uplink-Interface  Speed  RefCnt    MTU   Nat-Vlan
            Oper  Admin     Oper  Admin                                  Oper  Admin
-------------------------------------------------------------------------------
       Gi1    up     up                    1000       0   9000
       Gi2    up     up                    1000       0   9000
       Gi3    up     up                    1000       3   9000
       Gi4  down     up                    1000       0   9000
       Gi5  down     up                    1000       0   9000
       Gi6  down     up                    1000       0   9000
       Po1    up     up                    1000      13   9000
 VsbEth6/1    up     up      Gi3    Gi3     1000           9000
 VsbEth6/2    up     up      Gi3    Gi3     1000           9000
 VsbEth6/3    up     up      Gi3    Gi3     1000           9000
  control0    up     up      Po1    Po1     1000           9000
     mgmt0    up     up      Po1    Po1     1000           9000
```

Step 5	(Optional) **show network port-channel summary**	Displays the network port channel summary.

Verifying the Uplink Configuration

To verify the uplink configuration, use the following commands:

Command	Purpose
show network-uplink type	Displays information about the network uplinks, such as addresses, duplex settings, and traffic. See Example 3-1 on page 3-18.
show network	Displays information about the network. See Example 3-2 on page 3-18.
show network cdp neighbors	Display uplink connectivity for the active or standby Cisco Nexus Cloud Services Platform. See Example 3-3 on page 3-19.
show network counters	Displays statistical information about the network. See Example 3-4 on page 3-19.
show network summary	Displays summary information about the network. See Example 3-5 on page 3-20.
show network port-channel summary	Displays summary information port channels in the network. See Example 3-6 on page 3-20.
show network uplink	Displays information about network uplinks. See Example 3-7 on page 3-20.

Example 3-1 Network Uplink Type

```
switch# show network uplink type
Administrative topology id: 2
Operational topology id: 1
switch#
```

Example 3-2 Network

This example shows how to display information about the network:

```
switch# show network
GigabitEthernet5 is down (not connected)
  Hardware: Ethernet, address: 0010.18a5.c524 (bia 0010.18a5.c524)
  MTU 9000 bytes, BW 1000000 Kbit, DLY 10 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA
  full-duplex, 1000 Mb/s
  Auto-Negotiation is turned on
    0 packets input, 0 bytes
    0 multicast frames, 0 compressed
    0 input errors, 0 frame, 0 overrun, 0 fifo
    0 packets output, 0 bytes
    0 underrun, 0 output errors, 0 collisions
    0 fifo, 0 carrier errors
```

```
GigabitEthernet6 is down (Administratively down)
  Hardware: Ethernet, address: 0010.18a5.c526 (bia 0010.18a5.c526)
  MTU 9000 bytes, BW 1000000 Kbit, DLY 10 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA
  full-duplex, 1000 Mb/s
  Auto-Negotiation is turned on
    0 packets input, 0 bytes
    0 multicast frames, 0 compressed
    0 input errors, 0 frame, 0 overrun, 0 fifo
    0 packets output, 0 bytes
    0 underrun, 0 output errors, 0 collisions
    0 fifo, 0 carrier errors
```

Example 3-3 Network Cdp Neighbors

```
switch# show network cdp neighbors
Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater,
                  V - VoIP-Phone, D - Remotely-Managed-Device,
                  s - Supports-STP-Dispute


Device-ID             Local Intrfce    Hldtme Capability  Platform      Port ID

sfish-cat3k-K5-stack2 GigabitEthernet1  173    S I       cisco WS-C375
GigabitEthernet1/0/45
sfish-cat3k-K5-stack1 GigabitEthernet2  133    S I       cisco WS-C375
GigabitEthernet1/0/45
sfish-cat3k-K5-stack2 GigabitEthernet3  173    S I       cisco WS-C375
GigabitEthernet1/0/46
sfish-cat3k-K5-stack1 GigabitEthernet4  133    S I       cisco WS-C375
GigabitEthernet1/0/46
```

Example 3-4 Network Counters

```
switch# show network counters
--------------------------------------------------------------------------
                Port       InOctets    InUcastPkts    InMcastPkts
--------------------------------------------------------------------------
    GigabitEthernet1      146344975        1163124         105444
    GigabitEthernet2      128022491        1110953         280235
    GigabitEthernet3       28839731         209796          11722
    GigabitEthernet4      107951630         907268         269112
    GigabitEthernet5              0              0              0
    GigabitEthernet6              0              0              0
        PortChannel1      274367466        2274077         385679
      VsbEthernet1/1       17208966          81687              0
      VsbEthernet1/2         230213           2011              0
      VsbEthernet1/3              0              0              0
--------------------------------------------------------------------------
                Port      OutOctets   OutUcastPkts   OutMcastPkts
--------------------------------------------------------------------------
    GigabitEthernet1       73351536         339419         105444
    GigabitEthernet2          34200            200         280235
    GigabitEthernet3          48242            405          11722
    GigabitEthernet4          35492            206         269112
    GigabitEthernet5              0              0              0
    GigabitEthernet6              0              0              0
        PortChannel1       73385736         339619         385679
```

```
      VsbEthernet1/1       36137879         158796             0
      VsbEthernet1/2       35632175         415746             0
      VsbEthernet1/3       41904366         148529             0
```

Example 3-5 Network Summary

```
switch# show network summary

--------------------------------------------------------------------------------
      Port     State     Uplink-Interface  Speed  RefCnt    MTU   Nat-Vlan
           Oper  Admin     Oper  Admin                                    Oper  Admin
--------------------------------------------------------------------------------
       Gi1    up     up                    1000       0   9000
       Gi2    up     up                    1000       0   9000
       Gi3    up     up                    1000       3   9000
       Gi4  down     up                    1000       0   9000
       Gi5  down     up                    1000       0   9000
       Gi6  down     up                    1000       0   9000
       Po1    up     up                    1000      13   9000
 VsbEth6/1    up     up      Gi3    Gi3     1000           9000
 VsbEth6/2    up     up      Gi3    Gi3     1000           9000
 VsbEth6/3    up     up      Gi3    Gi3     1000           9000
  control0    up     up      Po1    Po1     1000           9000
     mgmt0    up     up      Po1    Po1     1000           9000
```

Example 3-6 Network Port Channel Summary

```
switch#show network port-channel summary
--------------------------------------------------------------------------
 Group  Port-Channel   Adm-State  Type              Member-Ports
--------------------------------------------------------------------------
     1       PortChannel1        up              ha                  Gi1 Gi2
```

Example 3-7 Network Uplinks

```
switch# show network
GigabitEthernet5 is down (not connected)
  Hardware: Ethernet, address: 0010.18a5.c524 (bia 0010.18a5.c524)
  MTU 9000 bytes, BW 1000000 Kbit, DLY 10 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA
  full-duplex, 1000 Mb/s
  Auto-Negotiation is turned on
    0 packets input, 0 bytes
    0 multicast frames, 0 compressed
    0 input errors, 0 frame, 0 overrun, 0 fifo
    0 packets output, 0 bytes
    0 underrun, 0 output errors, 0 collisions
    0 fifo, 0 carrier errors

GigabitEthernet6 is down (Administratively down)
  Hardware: Ethernet, address: 0010.18a5.c526 (bia 0010.18a5.c526)
  MTU 9000 bytes, BW 1000000 Kbit, DLY 10 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA
  full-duplex, 1000 Mb/s
  Auto-Negotiation is turned on
    0 packets input, 0 bytes
    0 multicast frames, 0 compressed
    0 input errors, 0 frame, 0 overrun, 0 fifo
    0 packets output, 0 bytes
    0 underrun, 0 output errors, 0 collisions
```

```
0 fifo, 0 carrier errors
```

Recommendations for Configuring Uplinks for Passthrough Interfaces

After you create a Cisco Nexus VXLAN Gateway VSB, you can configure it to function as a passthrough interface. The passthrough feature enables the VSB to assign a virtual interface to a dedicated uplink. This uplink can be a Gigabit Ethernet port on the Cisco Nexus Cloud Services Platform or a port channel. For more information about setting up a passthrough interface, see the Setting up a Passthrough Interface section.

Note The passthrough feature is supported only in a flexible topology. You must migrate from a static to flexible topology before you configure your VXLAN Gateway and the Citrix NetScaler 1000V VSBs in the passthrough mode.

These recommendations enable you to free up ports to configure the VSBs as passthrough interfaces. These recommendations are based on the topology types that you may be migrating from. You can use the common procedures in the following sections to free up the ports:

- To migrate from a static to flexible topology, use the instructions in Migrating from a Static Network Uplink to a Flexible Network Uplink, page 3-6.
- To create a port channel, use the instructions in Configuring Port Channels, page 3-11.
- To configure network uplink types, use the instructions in Configuring Network Uplink Types, page 3-5.
- To assign uplinks to a VSB interface, use the instructions in Assigning Uplinks to a VSB Interface, page 3-13.
- To set up a VSB interface in passthrough mode, use the instructions in the Setting up a Passthrough Interface section.

Topology Type 1

In topology type 1, the management, control, and data traffic share the same uplink. To free up the ports in topology 1, do the following:

1. Migrate to Topology 5 by using the instructions in Migrating from a Static Network Uplink to a Flexible Network Uplink, page 3-6.
2. Configure the HA port channel using the first two physical ports.
3. Configure the existing VSBs to use this high-availability (HA) port channel for the management, control and data traffic.
4. Use the remaining four ports to configure the new VSBs in the passthrough mode. To configure your VSBs in the passthrough mode, see the Setting up a Passthrough Interface section.

Topology Type 2

In topology type 2, the management and control traffic share an uplink and the data link traffic is separated. To free up the ports on this topology, do the following:

1. Migrate to Topology 5 by using the instructions in Migrating from a Static Network Uplink to a Flexible Network Uplink, page 3-6.
2. If you want to separate the traffic on data, and the management and control links on your existing VSBs, do the following:
   a. Configure the HA port channels using the first two physical ports.
   b. Configure the existing VSBs to use this HA port channel for the management and control and data traffic.
   c. If your existing VSBs require interface redundancy on the data traffic, do the following:
   - Create a port channel using the physical ports 3 and 4.
   - Configure the existing VSBs to use this port channel for the data traffic.
   - Use the remaining two physical ports to configure the new VSBs in the passthrough mode.
   d. If your existing VSBs do not require interface redundancy on the data traffic:
   - Make the third physical port a shared interface for all of the existing VSB's data traffic.
   - Use the remaining three physical ports to configure the new VSBs in the passthrough mode.
3. If you do not want to separate data traffic from the management and control traffic, see Topology Type 1, page 3-21.

Topology Type 3

Topology type 3 uses two uplinks where the control and data traffic share an uplink and the management traffic is separated. To free up the ports on this topology do the following:

1. Migrate to Topology 5 by using the instructions in Migrating from a Static Network Uplink to a Flexible Network Uplink, page 3-6.
2. If you want to separate management traffic from the control and data traffic, do the following:
   a. Create a port channel using the physical ports 1 and 2.
   b. Configure existing VSBs to use this port channel for their management traffic.
   c. Create a port channel using physical ports 3 and 4.
   d. Configure existing VSBs to use the port channel for their control and data traffic.
   e. Use the remaining two physical ports to configure the new VSBs in passthrough mode.
3. If you do not want to the separate management traffic from the control and data traffic, see Topology Type 1, page 3-21.

Topology Type 4

In this topology, the management, control and data traffic are all on separate uplinks. To free up the ports on this topology, do the following:

1. Migrate to Topology 5 by using the instructions in Migrating from a Static Network Uplink to a Flexible Network Uplink, page 3-6.
2. If you want interface redundancy for the management, control and data traffic and also want to separate the traffic for all the links, do the following:
   a. Create a port channel using physical ports 1 and port 2.
   b. Configure the existing VSBs to use this port channel for the management traffic.
   c. Create a second port channel using physical ports 3 and 4.
   d. Configure the existing VSB to use this port channel for the control traffic.
   e. Create a third port channel using physical ports 5 and 6.
   f. Configure the existing VSBs to use this port for the data traffic. Now, there is no physical port available for passthrough interfaces.
3. If you want to separate the management, control and data traffic but do not need HA, do the following:
   a. Configure the existing VSBs to use the first interface for the management traffic.
   b. Configure the existing VSBs to use the second interface for the control traffic.
   c. Configure the existing VSBs to use the third interface for the data traffic.
   d. Use physical ports 3,4, and 5 for configuring VSBs in the passthrough mode.
4. If you want to separate the management, control and data, and HA for only management traffic, do the following:
   a. Create a port channel using physical ports 1 and 2.
   b. Configure the VSBs to use the port channel for management traffic.
   c. Configure the VSBs to use the third port for control traffic.
   d. Configure the VSBs to use the fourth port for data traffic.
   e. Use the physical ports 5 and 6 for configuring the VSBs in the passthrough mode.
5. If you want to separate data from management and control traffic, see the Topology Type 2, page 3-22.
6. If you want to separate the management traffic from the data and control traffic, see the Topology Type 3, page 3-22.

Additional References

For additional information related to implementing system-level HA features, see the following sections:

- Related Documents, page 3-24
- Feature History for Uplink, page 3-24

Related Documents

Related Topic	Document Title
Software setup configuration	*Cisco Nexus Cloud Services Platform Software Installation and Upgrade Guide*
Virtual service blade configuration	Configuring Virtual Service Blades Chapter
Connecting uplinks to the network	*Cisco Nexus Cloud Services Platform Hardware Installation Guide*
Cisco Nexus Cloud Services Platform commands	*Cisco Nexus Cloud Services Platform Command Reference*

Feature History for Uplink

This section provides the uplink feature release history.

Feature Name	Releases	Feature Information
Recommendations for freeing ports for setting up new VSBs as passthrough interfaces	4.2(1)SP1(6.1)	These recommendations were introduced.
Flexible Network Uplink	4.0(4)SP1(4)	This feature was introduced.
Uplink	4.0(4)SP1(1)	This feature was introduced.