CHAPTER 29

Configuring Virtual Interfaces

This section describes the configuration of virtual interfaces on the Cisco Nexus 5000 Series switches. It includes the following sections:

Information About Virtual Interfaces

Cisco Nexus 5000 Series switches support I/O consolidation (IOC), which allows Fibre Channel and Ethernet traffic to be carried on the same physical Ethernet connection between the switch and the servers. For additional information about IOC, see Chapter 1, "Product Overview."

The concept of virtual interface is used to emulate the logical connections that are carried on the same physical Ethernet. The Cisco Nexus 5000 Series switch supports virtual Ethernet and virtual Fibre Channel interfaces.

For configuration purposes, a virtual Ethernet or virtual Fibre Channel interface is implemented as a Layer 2 subinterface of the physical Ethernet interface. Logical features (such as VLAN and ACL) that can be configured on Ethernet interfaces can be configured on individual virtual Ethernet interfaces. Logical Fibre Channel features (such as VSAN) can be configured on virtual Fibre Channel interfaces.

Note Virtual interfaces are created with the administrative state set to down. You need to explicitly configure the administrative state to bring the virtual interface into operation.

Configuring Virtual Interfaces

This section describes how to configure virtual interfaces, and it includes the following topics:

Creating a Virtual Interface Group

To create a virtual interface group, perform this task:

	Command	Purpose
Step 1	`switch# configure terminal`	Enters configuration mode.
Step 2	`switch(config)# interface vig {num}`	Creates a virtual interface group (if it does not already exist) and enter interface configuration mode. The virtual interface group can be numbered between 1 and 64.

Binding a VIG to a Physical Ethernet Interface

To bind the virtual interface group to a physical Ethernet port, perform this task:

Command	Purpose
`switch(config-if)# bind interface type slot/port`	Associates the virtual interface group to the specified physical interface.

Deleting a Virtual Interface Group

When you delete a virtual interface group, its associated virtual Ethernet and virtual Fibre Channel interfaces are also deleted. To delete a virtual interface group, perform this task:

	Command	Purpose
Step 1	`switch# configure terminal`	Enters configuration mode.
Step 2	`switch(config)# no interface vig {num}`	Deletes an existing virtual interface group. Deleting a virtual interface group also deletes its associated virtual Ethernet or virtual Fibre Channel interfaces.

Creating a Virtual Ethernet Interface

To create a virtual Ethernet interface, perform this task:

	Command	Purpose
Step 1	`switch# configure terminal`	Enters configuration mode.
Step 2	`switch(config)# interface vethernet` *vig-num/port*	Create a virtual Ethernet interface (if it does not already exist) and enters interface configuration mode. You must have previously created the virtual interface group number. The only valid number for the port value is 1.

Deleting a Virtual Ethernet Interface

To delete a virtual Ethernet interface, perform this task:

	Command	Purpose
Step 1	`switch# configure terminal`	Enters configuration mode.
Step 2	`switch(config)# no interface vethernet` *vig-num/port*	Deletes a virtual Ethernet interface.

Creating a Virtual Fibre Channel Interface

To create a virtual Fibre Channel interface, perform this task:

	Command	Purpose
Step 1	`switch# configure terminal`	Enters configuration mode.
Step 2	`switch(config)# interface vfc` *vig-num/port*	Creates a virtual Fibre Channel interface (if it does not already exist) and enters interface configuration mode. You must have previously created the virtual interface group number. The only valid number for the port value is 1.

Deleting a Virtual Fibre Channel Interface

To delete a virtual Fibre Channel interface, perform this task:

	Command	Purpose
Step 1	`switch# configure terminal`	Enters configuration mode.
Step 2	`switch(config)# no interface vfc` *vig-num/port*	Deletes a virtual Fibre Channel interface.

Virtual Interface Example

The following example shows how to create a virtual interface group and a virtual Ethernet interface, and then binding them to a physical port:

```
switch# configure terminal
switch(config)# interface vig 4
switch(config-if)# exit
switch(config)# interface vethernet 4/1
switch(config-if)# exit
switch(config)# interface vig 4
switch(config-if)# bind interface ethernet 1/4
switch(config-if)# exit
```

Displaying Interface Information

To display interface information, perform one of the following tasks:

Command	Purpose
`switch# show interface` *type slot/port*	Displays the detailed configuration of the specified interface.
`switch# show interface brief`	Displays the status of all interfaces.
`switch# show interface debounce`	Displays the debounce status of all interfaces.
`switch# show interface flowcontrol`	Displays the detailed listing of the flow control settings on all interfaces.

The following examples show a virtual Ethernet and virtual Fibre Channel interface:

```
switch# show interface vethernet 1/1
vethernet1/1 is up
    Hardware is VEthernet
    MTU 1500 bytes, BW 0 Kbit, DLY 0 usec,
       reliability 255/255, txload 1/255, rxload 1/255
    Encapsulation ARPA
    Port mode is access
    full-duplex, 10000 Mb/s
    Input flow-control is off, output flow-control is off
    5 minute input rate 0 bytes/sec, 0 packets/sec
    5 minute output rate 34 bytes/sec, 0 packets/sec
    Rx
    2560 Input Packets    225280 Bytes
    Tx
    42172 Output Packets     3642616 Bytes

switch# show interface vfc 32/1
vfc32/1 is down
    Hardware is GigabitEthernet
    Port WWN is 27:c0:00:0d:ec:8f:cb:3f
    Admin port mode is F
    snmp link state traps are enabled
    Port vsan is 1
    Beacon is turned unknown
    5 minutes input rate 0 bits/sec, 0 bytes/sec, 0 frames/sec
    5 minutes output rate 0 bits/sec, 0 bytes/sec, 0 frames/sec
      0 frames input, 0 bytes
```

```
      0 discards, 0 errors
    0 frames output, 0 bytes
      0 discards, 0 errors
```

The following example shows the status of all the interfaces on the switch (some output has been removed for brevity):

```
switch# show interface brief

--------------------------------------------------------------------------------
Interface  Vsan   Admin  Admin   Status          SFP    Oper  Oper   Port
                  Mode   Trunk                         Mode  Speed  Channel
                         Mode                                (Gbps)
--------------------------------------------------------------------------------
fc3/1      1      auto   on      trunking         swl    TE      2    --
fc3/2      1      auto   on      sfpAbsent        --     --           --
fc3/3      1      auto   on      trunking         swl    TE      2    --
fc3/4      1      auto   on      sfpAbsent        --     --           --
fc3/5      1      auto   on      down             swl    --           --
fc3/6      1      auto   on      sfpAbsent        --     --           --
fc3/7      1      auto   on      sfpAbsent        --     --           --
fc3/8      1      auto   on      sfpAbsent        --     --           --

--------------------------------------------------------------------------------
Interface                Status     IP Address        Speed    MTU   Port
                                                                    Channel
--------------------------------------------------------------------------------
Ethernet1/1              hwFailure  --                --       1500  --
Ethernet1/2              hwFailure  --                --       1500  --
Ethernet1/3              up         --                10000    1500  --
Ethernet1/4              sfpIsAbsen --                --       1500  --
Ethernet1/5              hwFailure  --                --       1500  --
 ...
Ethernet1/39             sfpIsAbsen --                --       1500  --
Ethernet1/40             sfpIsAbsen --                --       1500  --

--------------------------------------------------------------------------------
Interface                Status     IP Address        Speed    MTU
--------------------------------------------------------------------------------
mgmt0                    up         172.16.24.41      100      1500

--------------------------------------------------------------------------------
Interface                Status     IP Address        Speed    MTU   Port
                                                                              Channel
--------------------------------------------------------------------------------
vethernet1/1             up         --                10000    1500  --

--------------------------------------------------------------------------------
Interface  Vsan   Admin  Admin   Status          SFP    Oper  Oper   Port
                  Mode   Trunk                         Mode  Speed  Channel
                         Mode                                (Gbps)
--------------------------------------------------------------------------------
vfc1/1     1      F      --      down             --     --           --
```