

Configuring Voice Interfaces

The Catalyst 4006 switch with Supervisor Engine III can connect to a Cisco 7960 IP phone and carry IP voice traffic. If necessary, the switch can supply electrical power to the circuit connecting it to the Cisco 7960 IP phone.

The Catalyst 4006 switch with Supervisor Engine III has extensive QoS capabilities so that voice traffic can be prioritized and serviced differently from the data traffic. QoS uses classification and scheduling to transmit network traffic from the switch in a predictable manner. The Cisco 7960 IP phone itself is also a configurable device, and you can configure it to forward traffic with an 802.1p priority. You can use the CLI to configure the Catalyst 4006 switch with Supervisor Engine III to honor or ignore a traffic priority assigned by a Cisco 7960 IP phone.

The Cisco 7960 IP phone contains an integrated three-port 10/100 switch. The ports are dedicated connections to the following devices:

- Port 1 connects to the Catalyst 4006 switch with Supervisor Engine III or other voice-over-IP device.
- Port 2 is an internal 10/100 interface that carries the phone traffic.
- Port 3 connects to a PC or other device.

Figure 23-1 shows one way to configure a Cisco 7960 IP phone.

Figure 23-1 Cisco 7960 IP phone Connected to a Catalyst 4006 Switch with Supervisor Engine III



Configuring Voice Ports to Carry Voice and Data Traffic on Different VLANs

You can configure a switch port to forward voice and data traffic on different virtual LANs (VLANs).

Beginning in privileged EXEC mode, follow these steps to configure a port to receive voice and data from a Cisco IP Phone in different VLANs:

	Purpose	Command
Step 1	Enter configuration mode.	Switch# configure terminal
Step 2	Select the interface to configure.	Switch(config)# interface { fastethernet gigabitethernet } <i>slot/port</i>
Step 3	Instruct the Cisco IP Phone to forward all voice traffic through the <i>vlan_num</i> VLAN. The Cisco IP Phone forwards the traffic with an 802.1p priority of 5.	Switch(config-if)# switchport voice vlan <i>vlan_num</i>
Step 4	Return to privileged EXEC mode.	Switch(config-if)# end
Step 5	Verify the configuration.	Switch# show interface { fastethernet gigabitethernet } <i>slot/port</i> switchport

In the following example, VLAN 1 carries data traffic, and VLAN 2 carries voice traffic. In this configuration, you must connect all Cisco IP Phones and other voice-related devices to switch ports that belong to VLAN 2.

```
Switch# configure terminal
Switch(config)# interface fastethernet 2/5
Switch(config-if)# switchport voice vlan 2
switchport voice vlan 2
Switch(config-if)# end
Switch# show interface fastethernet 2/5 switchport
show interface fastethernet 2/5 switchport
Name:Fa2/5
Switchport:Enabled
Administrative Mode:dynamic auto
Operational Mode:down
Administrative Trunking Encapsulation:negotiate
Negotiation of Trunking:On
Access Mode VLAN:1 (default)
Trunking Native Mode VLAN:1 (default)
Voice VLAN:2 ((Inactive))
Appliance trust:none
Administrative private-vlan host-association:none
Administrative private-vlan mapping:none
Operational private-vlan:none
Trunking VLANs Enabled:ALL
Pruning VLANs Enabled:2-1001
Switch#
```

Configuring a Port to Connect to a Cisco 7690 IP Phone

Because a Cisco 7960 IP phone also supports connection to a PC or other device, an interface connecting a Catalyst 4006 switch with Supervisor Engine III switch to a Cisco 7960 IP phone can carry mixed traffic. There are three configurations for a port connected to a Cisco 7960 IP phone:

- All traffic is transmitted according to the default COS priority of the port. This is the default.
- Voice traffic is given a higher priority by the phone, and all traffic is in the same VLAN.
- Voice and data traffic are carried on separate VLANs, and voice traffic always has a CoS priority of 5.

Beginning in privileged EXEC mode, follow these steps to configure a port to instruct the phone to give voice traffic a higher priority and to forward all traffic through the 802.1Q native VLAN.

	Purpose	Command
Step 1	Enter configuration mode.	Switch# configure terminal
Step 2	Select the interface to configure.	Switch(config)# interface { fastethernet gigabitethernet } <i>slot/port</i>
Step 3	Instruct the switch to use 802.1p priority tagging for voice traffic and to use VLAN 1 (default native VLAN) to carry all traffic.	Switch(config-if)# switchport voice vlan dot1p
Step 4	Return to privileged EXEC mode.	Switch(config-if)# end
Step 5	Verify the port configuration.	Switch# show interface { fastethernet gigabitethernet } <i>slot/port</i> switchport

Overriding the CoS Priority of Incoming Frames

A PC or other data device can connect to a Cisco 7960 IP phone port. The PC can generate packets with an assigned CoS value. If you want, you can use the switch CLI to override the priority of frames arriving on the phone port from connected devices. You can also set the phone port to accept (trust) the priority of frames arriving on the port.

Beginning in privileged EXEC mode, follow these steps to override the CoS priority setting received from the non-voice port on the Cisco 7960 IP phone:

	Purpose	Command
Step 1	Enter configuration mode.	Switch# configure terminal
Step 2	Select the interface to configure.	Switch(config)# interface { fastethernet gigabitethernet } <i>slot/port</i>
Step 3	Set the phone port to override the priority received from the PC or the attached device and forward the received data with a priority of 3. Use the no keyword to return the port to its default setting.	Switch(config-if)# [no] qos trust extend cos 3
Step 4	Return to privileged EXEC mode.	Switch(config-if)# end
Step 5	Verify the change.	Switch# show interface { fastethernet gigabitethernet } <i>slot/port</i> switchport

Configuring Inline Power

The Catalyst 4006 switch with Supervisor Engine III can supply inline power to the Cisco 7960 IP phone, if necessary. The Cisco 7960 IP phone can also be connected to an AC power source and supply its own power to the voice circuit.

The Catalyst 4006 switch with Supervisor Engine III senses if it is connected to a Cisco 7960 IP phone. If there is *no* power on the circuit, the switch supplies the power. If there is power on the circuit, the switch does not supply it.

You can configure the switch to never supply power to the Cisco 7960 IP phone and to disable the detection mechanism. See the [“Configuring Inline Power” section on page 22-8](#) for the CLI commands that you use to supply inline power to a Cisco 7960 IP phone.