



Configuration Examples

This appendix provides real-world examples of Layer 3 switching configurations. This appendix contains the following sections:

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Note

The IP, IPX, and network addresses in these examples are generic addresses, so you must replace them with the actual addresses for your network.

Example of a Catalyst 2948G-L3 with ISL and VLAN

This example configuration for a Catalyst 2948G-L3 switch router focuses on Inter-Switch Link (ISL) and virtual LANs (VLANs), integrated routing and bridging (IRB) using a Bridge-Group Virtual Interface (BVI), Fast EtherChannel (FEC), and Gigabit EtherChannel (GEC). The Cisco proprietary ISL allows any Fast Ethernet port to be configured as a trunk. This example also includes multicast routing.

```
version 12.0
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname cat2948G-L3
!
no logging console
enable secret 5 $1$1$1$1$1$1$1$1$1$1$
enable password changme
!
sdm size ipx-bvi-network 32
sdm size ip-adjacency 1056
sdm size ipx-node 1024
sdm size ip-prefix 8000
sdm size ipx-network 2048
sdm size ip-mcast 2000
sdm size udp-flooding 512
```

```

sdm size l2-switching 5000
sdm autolearn
ip subnet-zero
no ip domain-lookup
ip multicast-routing
ipx routing 0050.3e7b.c800
bridge irb
!
!
!
interface Port-channel1
 ip address 1.200.0.1 255.255.0.0
 no ip redirects
 no ip unreachable
 no ip directed-broadcast
 ipx network 1200 encapsulation ARPA
 hold-queue 300 in
!
interface FastEthernet1
 no ip address
 no ip directed-broadcast
!
interface FastEthernet1.100
 encapsulation isl 100
 ip address 1.1.0.1 255.255.0.0
 no ip redirects
 no ip directed-broadcast
 ip pim dense-mode
 ipx network 1001 encapsulation ARPA
!
interface FastEthernet2
 no ip address
 no ip redirects
 no ip directed-broadcast
!
interface FastEthernet2.200
 encapsulation isl 200
 ip address 1.2.0.1 255.255.0.0
 no ip redirects
 no ip directed-broadcast
 ip pim dense-mode
 ipx network 1002 encapsulation ARPA
!
interface FastEthernet3
 no ip address
 no ip directed-broadcast
!
interface FastEthernet4
 no ip address
 no ip directed-broadcast
 bridge-group 10
!
interface FastEthernet5
 no ip address
 no ip redirects
 no ip unreachable
 no ip directed-broadcast
 bridge-group 10
!
interface FastEthernet6
 no ip address
 no ip directed-broadcast
 bridge-group 10
!

```

```
interface FastEthernet7
  no ip address
  no ip directed-broadcast
  bridge-group 10
!
interface FastEthernet8
  no ip address
  no ip directed-broadcast
  shutdown
!
<information deleted>

interface FastEthernet47
  no ip address
  no ip directed-broadcast
  shutdown
!
interface FastEthernet48
  ip address 24.0.4.4 255.0.0.0
  no ip directed-broadcast
  shutdown
  duplex full
  speed 10
!
interface GigabitEthernet49
  no ip address
  no ip directed-broadcast
  channel-group 1
!
interface GigabitEthernet50
  no ip address
  no ip directed-broadcast
  channel-group 1
!
interface BVI10
  ip address 1.3.0.1 255.255.0.0
  no ip directed-broadcast
  no ip route-cache cef
  ipx network 1003 encapsulation ARPA
!
router eigrp 100
  network 1.0.0.0
!
ip classless
!
!
bridge 10 protocol ieee
  bridge 10 route ip
  bridge 10 route ipx
!
line con 0
  exec-timeout 0 0
  transport input none
line aux 0
line vty 0 4
  password changme
  login
!

end
```



```
ip helper-address 172.69.2.74
ip helper-address 172.69.2.123
ip helper-address 172.69.30.31
ip helper-address 172.69.2.121
ip helper-address 172.71.84.140
ip helper-address 172.69.67.35
no ip redirects
no ip directed-broadcast
ip pim sparse-mode
standby priority 200
standby preempt
standby ip 172.69.90.6
!
interface FastEthernet3
ip address 172.69.91.1 255.255.255.0
ip helper-address 172.69.2.74
ip helper-address 172.69.2.123
ip helper-address 172.69.30.31
ip helper-address 172.69.2.121
ip helper-address 172.71.84.140
ip helper-address 172.69.67.35
no ip redirects
no ip directed-broadcast
ip pim sparse-mode
standby priority 200
standby preempt
standby ip 172.69.91.6
!
interface FastEthernet4
description Building 2 Network A
ip address 172.69.88.1 255.255.255.192
ip helper-address 172.69.2.74
ip helper-address 172.69.2.123
ip helper-address 172.69.30.31
ip helper-address 172.69.2.121
ip helper-address 172.71.84.140
ip helper-address 172.69.67.35
no ip redirects
no ip directed-broadcast
ip pim sparse-mode
standby priority 200
standby preempt
standby ip 172.69.88.6
!
interface FastEthernet5
description Building 3 Network A
ip address 172.69.89.1 255.255.255.192
ip helper-address 172.69.2.74
ip helper-address 172.69.2.123
ip helper-address 172.69.30.31
ip helper-address 172.69.2.121
ip helper-address 172.71.84.140
ip helper-address 172.69.67.35
no ip redirects
no ip directed-broadcast
ip pim sparse-mode
standby priority 200
standby preempt
standby ip 172.69.89.6
!
interface FastEthernet6
no ip address
no ip directed-broadcast
!
```

```

<information deleted>

interface FastEthernet47
no ip address
no ip directed-broadcast
shutdown
!
interface FastEthernet48
ip address 24.0.4.4 255.0.0.0
no ip directed-broadcast
shutdown
duplex full speed 10
!
interface GigabitEthernet49
no ip address
no ip directed-broadcast
shutdown
!
interface GigabitEthernet50
no ip address
no ip directed-broadcast
shutdown
!
!
router eigrp 109
network 172.69.0.0
no auto-summary
!

ip pim accept-rp auto-rp
ip pim accept-rp 172.69.10.13
logging 172.69.43.19
snmp-server community 8540 RO 98
snmp-server community Cisco RW 99
snmp-server host 172.69.43.19 traps public
tacacs-server host 172.69.2.210
tacacs-server host 172.69.35.87
tacacs-server timeout 15
!
line con 0
password 7 071B245F5A
transport input none
line aux 0
password 7 071B245F5A
line vty 0
exec-timeout 0 0
login authentication admin
line vty 1
exec-timeout 0 0
login authentication admin
length 57
line vty 2 4
exec-timeout 0 0
login authentication admin
!

end

```

Example of a Catalyst 4908G-L3 with Bridging

This example configuration for the Catalyst 4908G-L3 switch router shows the eight Gigabit Ethernet ports as part of one bridge group.

```
version 12.0
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname cat4908G-L3
!
no logging console
enable secret 5 $1$1$1$1$1$1$1$1$1$1$
enable password changme
!
sdm size ipx-bvi-network 32
sdm size ip-adjacency 1056
sdm size ipx-node 1024
sdm size ip-prefix 8000
sdm size ipx-network 2048
sdm size ip-mcast 2000
sdm size l2-switching 5000
sdm autolearn
!
!
interface GigabitEthernet1
no ip address
no ip directed-broadcast
bridge-group 1
!
interface GigabitEthernet2
no ip address
no ip directed-broadcast
bridge-group 1

<information deleted>

interface GigabitEthernet7
no ip address
no ip directed-broadcast
bridge-group 1
!
interface GigabitEthernet8
no ip address
no ip directed-broadcast
bridge-group 1
!
no ip routing

bridge 1 protocol ieee

!
line con 0
exec-timeout 0 0
transport input none
line aux 0
line vty 0 4
password changme
login
!
end
```

Example of a Catalyst 2948G-L3 with IP Uplink Redirect

This example configuration for the Catalyst 2948G-L3 switch router shows all IP traffic between Fast Ethernet ports will be redirected to G49 and switched via the upstream router 200.10.49.2.

```

version 12.0
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname Router
!
!
ip subnet-zero
ip uplink-redirect
!
!
!
!
interface FastEthernet1
 ip address 200.10.1.1 255.255.255.0
 no ip directed-broadcast
!
interface FastEthernet2
 ip address 200.10.2.1 255.255.255.0
 no ip directed-broadcast
!
interface FastEthernet3
 ip address 200.10.3.1 255.255.255.0
 no ip directed-broadcast
!
interface FastEthernet4
 ip address 200.10.4.1 255.255.255.0
 no ip directed-broadcast
!
interface FastEthernet5
 ip address 200.10.5.1 255.255.255.0
 no ip directed-broadcast
!
interface FastEthernet6
 ip address 200.10.6.1 255.255.255.0
 no ip directed-broadcast
 shutdown

<information deleted>

interface FastEthernet45
 ip address 200.10.45.1 255.255.255.0
 no ip directed-broadcast
!
interface FastEthernet46
 ip address 200.10.46.1 255.255.255.0
 no ip directed-broadcast
!
interface FastEthernet47
 ip address 200.10.47.1 255.255.255.0
 no ip directed-broadcast
!
interface FastEthernet48
 ip address 200.10.48.1 255.255.255.0
 no ip directed-broadcast
!

```

```
interface GigabitEthernet49
 ip address 200.10.49.1 255.255.255.0
 no ip directed-broadcast

!
interface GigabitEthernet50
 ip address 200.10.50.1 255.255.255.0
 no ip directed-broadcast
!
ip classless
ip route 0.0.0.0 0.0.0.0 200.10.49.2
!
!
line con 0
 transport input none
line aux 0
line vty 0 4
 login
!
endup
```

Example of a Catalyst 2948G-L3 with QoS

This example configuration for the Catalyst 2948G-L3 switch router shows interface FastEthernet1 input rate-limiting at 1000000 bits per second and a burst of 1000 bytes. The interface FastEthernet2 is configured for traffic-shaping rate-limiting at 1000000 bits per second and a burst of 1000 bits.

```
!
version 12.0
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname Domino-vp
!
!
ip subnet-zero
!
!
interface FastEthernet1
 ip address 1.1.1.1 255.0.0.0
 no ip directed-broadcast
 rate-limit input 1000000 1000
!
interface FastEthernet2
 ip address 2.2.2.2 255.0.0.0
 no ip directed-broadcast
 traffic-shape rate 1000000 1000
!
interface FastEthernet3
 ip address 3.3.3.3 255.0.0.0
 no ip directed-broadcast
 shutdown
!
<information deleted>

!
interface FastEthernet48
 no ip address
 no ip directed-broadcast
 shutdown
!
interface GigabitEthernet49
 no ip address
 no ip directed-broadcast
 shutdown
!
interface GigabitEthernet50
 no ip address
 no ip directed-broadcast
 shutdown
!
ip classless
!
!
line con 0
 transport input none
line aux 0
line vty 0 4
!
end
```