

Default Passive Interface Feature

Feature Overview

In Internet service provider (ISP) and large enterprise networks, many of the distribution routers have more than 200 interfaces. Before the Default Passive Interface feature, there were two possibilities for obtaining routing information from these interfaces:

- Configure a routing protocol such as Open Shortest Path First (OSPF) on the backbone interfaces and redistribute connected interfaces.
- Configure the routing protocol on all interfaces and manually set most of them as passive.

Network managers may not always be able summarize type-5 link-state advertisements (LSAs) at the router level where redistribution occurs, as in the first possibility. Thus, a large number of type-5 LSAs can be flooded over the domain.

In the second possibility, large type-1 link-state LSAs might be flooded into the area. The area border router (ABR) creates type-3 LSAs, one for each type-1 LSAs, and floods them to the backbone. It is possible, however, to have unique summarization at the ABR level, which will inject just one summary route into the backbone, thereby reducing processing overhead.

The solution to this problem has been to configure the routing protocol on all interfaces and manually set the **passive-interface** command on the interfaces where adjacency was not desired. In some networks, this meant coding 200 or more passive interface statements. With the Default Passive Interface feature, this problem is solved by allowing all interfaces to be set as passive by default using a single **passive-interface default** command, then configuring individual interfaces where adjacencies are desired using the **no passive-interface** command.

Benefits

The Default Passive Interface feature simplifies the configuration of distribution routers and allows the network manager to obtain routing information from the interfaces in large ISP and enterprise networks.

Restrictions

This feature works for all routing protocols that support the **passive-interface** command, and has been tested with all supported Cisco routing protocols.

Note If you are running Intermediate System-to-Intermediate System (IS-IS) on your network, you must keep at least one active interface and use the **ip router isis** command to must configure an IS-IS routing process for IP.

Supported Platforms

This feature has been tested and found to work on all Cisco router platforms and media that support Cisco IOS Release 12.0.

Supported MIBs and RFCs

MIBs

None

For descriptions of supported MIBs and how to use MIBs, see the Cisco MIB web site on CCO at <http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>.

RFCs

None

Configuration Tasks

Perform the following tasks to configure the Default Passive Interface feature:

- Configure the routing protocol (RIP, OSPF, EIGRP, and so on) on the network.
- Set all interfaces as passive by default using the **passive-interface default** command.
- Activate only those interfaces that need to have adjacencies set using the **no passive-interface** command.
- Verify the configurations.

These tasks are described in the following sections:

- Configuring Default Passive Interfaces
- Verifying Default Passive Interfaces

Configuring Default Passive Interfaces

In the following tasks, refer to the *Cisco IOS Release 12.0 Network Protocols Configuration Guide, Part 1* and *Cisco IOS Release 12.0 Network Protocols Command Reference, Part 1*, for information about configuring the routing protocol on your network.

Step	Command	Purpose
1	Router(config)# router protocol	Configures the routing protocol on the network.
2	Router(config-router)# passive-interface default	Sets all interfaces as passive by default.

Step	Command	Purpose
3	Router(config-router)# no passive-interface <i>interface-type</i>	Activates only those interfaces that need to have adjacencies set.
4	Router(config-router)# network <i>network-address</i> [<i>options</i>]	Specifies the list of networks for the routing process. The <i>network-address</i> is an IP address written in dotted decimal notation – 172.24.101.14, for example.

Verifying Default Passive Interfaces

To verify that interfaces on your network have been set to passive, you could enter a network monitoring command such as **show ip ospf interface**, or you could verify the interfaces you enabled as active using a command such as **show ip interface**.

The following is an example of verifying passive interfaces in an OSPF network:

- Enter the command **show ip ospf interface** to verify that all interfaces have been set as passive (see report indicating “No Hellos (Passive interface)”):

```
Router(config)# show ip ospf interface

Ethernet0 is up, line protocol is up
 Internet Address 171.69.232.70/28, Area 4
 Process ID 100, Router ID 171.69.232.70, Network Type BROADCAST, Cost: 10
 Transmit Delay is 1 sec, State DR, Priority 1
 Designated Router (ID) 171.69.232.70, Interface address 171.69.232.70
 No backup designated router on this network
 Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
  No Hellos (Passive interface)
 Neighbor Count is 0, Adjacent neighbor count is 0
 Suppress hello for 0 neighbor(s)
Serial0 is up, line protocol is up
 Internet Address 172.24.101.14/30, Area 4
 Process ID 100, Router ID 171.69.232.70, Network Type POINT_TO_POINT, Cost: 64
 Transmit Delay is 1 sec, State POINT_TO_POINT,
 Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
  Hello due in 00:00:07
 Neighbor Count is 1, Adjacent neighbor count is 1
  Adjacent with neighbor 172.24.101.15
 Suppress hello for 0 neighbor(s)
TokenRing0 is up, line protocol is up
 Internet Address 140.10.10.4/24, Area 0
 Process ID 100, Router ID 171.69.232.70, Network Type BROADCAST, Cost: 6
 Transmit Delay is 1 sec, State DR, Priority 1
 Designated Router (ID) 171.69.232.70, Interface address 140.10.10.4
 No backup designated router on this network
 Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
  No Hellos (Passive interface)
 Neighbor Count is 0, Adjacent neighbor count is 0
 Suppress hello for 0 neighbor(s)
```

This is just one example of how to verify status of your network interfaces. Refer to the *Cisco IOS Release 12.0 Network Protocols Configuration Guide, Part 1* and *Cisco IOS Release 12.0 Network Protocols Command Reference, Part 1*, for more information about monitoring your network interfaces.

Configuration Example

The following example configures the network interfaces, sets all interfaces running OSPF as passive, then enables the serial 0 interface:

```
interface Ethernet0
 ip address 172.19.64.38 255.255.255.0 secondary
 ip address 171.69.232.70 255.255.255.240
 no ip directed-broadcast
!
interface Serial0
 ip address 172.24.101.14 255.255.255.252
 no ip directed-broadcast
 no ip mroute-cache
!
interface TokenRing0
 ip address 140.10.10.4 255.255.255.0
 no ip directed-broadcast
 no ip mroute-cache
 ring-speed 16
!
router ospf 100
 passive-interface default
 no passive-interface Serial0
 network 140.10.10.0 0.0.0.255 area 0
 network 171.69.232.0 0.0.0.255 area 4
 network 172.24.101.0 0.0.0.255 area 4
!
```

Command Reference

This section documents the modified **passive-interface** command. All other commands used with this feature are documented in the Cisco IOS Release 12.0 command reference publications.

passive-interface

To disable sending routing updates on an interface, use the **passive-interface** router configuration command. To reenale the sending of routing updates, use the **no** form of this command.

```
passive-interface [default] {interface-type number}
no passive-interface interface-type number
```

Syntax Description

<i>interface-type</i>	Interface type.
<i>number</i>	Interface number.
default	(Optional) All interfaces become passive.

Defaults

Routing updates are sent on the interface.

Command Modes

Router configuration

Command History

Release	Modification
10.0	This command was first introduced.
12.0	The default keyword was added.

Usage Guidelines

If you disable the sending of routing updates on an interface, the particular subnet will continue to be advertised to other interfaces, and updates from other routers on that interface continue to be received and processed.

For OSPF, OSPF routing information is neither sent nor received through the specified router interface. The specified interface address appears as a stub network in the OSPF domain.

The **default** keyword sets all interfaces as passive by default. You can then configure individual interfaces where adjacencies are desired using the **no passive-interface** command. The **default** keyword is useful in Internet service provider and large enterprise networks where many of the distribution routers have more than 200 interfaces.

For IS-IS, this command instructs IS-IS to advertise the IP addresses for the specified interface without actually running IS-IS on that interface. The **no** form of this command for IS-IS disables advertising IP addresses for the specified address. For IS-IS you must keep at least one active interface and configure the interface with the **ip router isis** command.

Enhanced IGRP is disabled on an interface that is configured as passive although it advertises the route.

Examples

The following example sends IGRP updates to all interfaces on network 131.108.0.0 except Ethernet interface 1:

```
router igrp 109
network 131.108.0.0
passive-interface ethernet 1
```

The following example enables IS-IS on interfaces Ethernet 1 and serial 0 and advertises the IP addresses of Ethernet 0 in its Link State PDUs:

```
router isis Finance
passive-interface Ethernet 0
interface Ethernet 1
ip router isis Finance
interface serial 0
ip router isis Finance
```

The following example sets all interfaces as passive then activates the Ethernet 0 interface:

```
router ospf 100
passive-interface default
no passive-interface ethernet0
network 131.108.0.1 0.0.0.255 area 0
```