I Commands

This chapter describes the Cisco NX-OS PIM commands that begin with I.

ip mroute

To configure multicast reverse path forwarding (RPF) static routes, use the **ip mroute** command. To remove RPF static routes, use the **no** form of this command.

ip mroute {*ip-addr ip-mask* | *ip-prefix*} {{*next-hop* | *nh-prefix*} | {**ethernet** *slot*/*port* | **loopback** *if_number* | **port-channel** *number* | **vlan** *vlan-id*}} [*pref*] [**vrf** *vrf-name*]

no ip mroute {*ip-addr ip-mask* | *ip-prefix*} {{*next-hop* | *nh-prefix*} | {**ethernet** *slot*/*port* | **loopback** *if_number* | **port-channel** *number* | **vlan** *vlan-id*}} [*pref*] [**vrf** *vrf-name*]

Syntax Description

ip-addr	IP prefix in the format i.i.i.i.
ip-mask	IP network mask in the format m.m.m.m.
ip-prefix	IP prefix and network mask length in the format x.x.x.x/m.
next-hop	IP next-hop address in the format i.i.i.i.
nh-prefix	IP next-hop prefix in the format i.i.i.i/m.
ethernet *slot*/*port*	Specifies the Ethernet interface and the slot number and port number. The slot number is from 1 to 255, and the port number is from 1 to 128.
loopback *if_number*	Specifies the loopback interface. The loopback interface number is from 0 to 1023.
port-channel *number*	Specifies the EtherChannel interface and EtherChannel number. The range is from 1 to 4096.
vlan *vlan-id*	Specifies the VLAN interface. The range is from 1 to 4094.
pref	(Optional) Route preference. The range is from 1 to 255. The default is 1.
vrf *vrf-name*	(Optional) Specifies the virtual routing and forwarding (VRF) context name. The name can be any case-sensitive, alphanumeric string up to 32 characters.

Command Default

The route preference is 1.

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure an RPF static route:

```
switch(config)# ip mroute 192.0.2.33/24 192.0.2.1
switch(config)#
```

This example shows how to remove an RPF static route:

```
switch(config)# no ip mroute 192.0.2.33/24 192.0.2.1
switch(config)#
```

Related Commands

Command	Description
show ip mroute	Displays information about multicast routes.

ip pim anycast-rp

To configure an IPv4 Protocol Independent Multicast (PIM) Anycast-RP peer for the specified Anycast-RP address, use the **ip pim anycast-rp** command. To remove the peer, use the **no** form of this command.

ip pim anycast-rp *anycast-rp rp-addr*

no ip pim anycast-rp *anycast-rp rp-addr*

Syntax Description

anycast-rp	Anycast-RP address of the peer.
rp-addr	Address of RP in the Anycast-RP set.

Command Default

None

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Each command with the same Anycast-RP address forms an Anycast-RP set. The IP addresses of RPs are used for communication with RPs in the set.

This command requires the LAN Base Services license.

Examples

This example shows how to configure a PIM Anycast-RP peer:

```
switch# configure terminal
switch(config)# ip pim anycast-rp 192.0.2.3 192.0.2.31
```

This example shows how to remove a peer:

```
switch# configure terminal
switch(config)# no ip pim anycast-rp 192.0.2.3 192.0.2.31
```

Related Commands

Command	Description
show ip pim rp	Displays information about PIM RPs.

ip pim auto-rp

To enable Protocol Independent Multicast (PIM) listening and forwarding of Auto-RP messages, use the **ip pim auto-rp listen** and **ip pim auto-rp forward** commands. To disable the listening and forwarding of Auto-RP messages, use the **no** form of this command.

ip pim auto-rp {**listen** [**forward**] | **forward** [**listen**]}

no ip pim auto-rp [{**listen** [**forward**] | **forward** [**listen**]}]

Syntax Description

listen	Specifies to listen to Auto-RP messages.
forward	Specifies to forward Auto-RP messages.

Command Default

Disabled

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

This command requires the LAN Base Services license.

Examples

This example shows how to enable listening and forwarding of Auto-RP messages:

```
switch(config)# ip pim auto-rp listen forward
```

This example shows how to disable listening and forwarding of Auto-RP messages:

```
switch(config)# no ip pim auto-rp listen forward
```

Related Commands

Command	Description
show ip pim rp	Displays information about PIM RPs.

ip pim auto-rp mapping-agent

To configure the router as an IPv4 Protocol Independent Multicast (PIM) Auto-RP mapping agent that sends RP-Discovery messages, use the **ip pim auto-rp mapping-agent** command. To remove the mapping agent configuration, use the **no** form of this command.

ip pim auto-rp mapping-agent {**ethernet** *slot/port* | **loopback** *if_number* | **port-channel** *number* | **vlan** *vlan-id*} [**scope** *ttl*]

no ip pim auto-rp mapping-agent [{**ethernet** *slot/port* | **loopback** *if_number* | **port-channel** *number* | **vlan** *vlan-id*}] [**scope** *ttl*]

Syntax Description

ethernet *slot/port*	Specifies the Ethernet interface and the slot number and port number. The slot number is from 1 to 255, and the port number is from 1 to 128.
loopback *if_number*	Specifies the loopback interface. The loopback interface number is from 0 to 1023.
port-channel *number*	Specifies the EtherChannel interface and EtherChannel number. The range is from 1 to 4096.
vlan *vlan-id*	Specifies the VLAN interface. The range is from 1 to 4094.
scope *ttl*	(Optional) Specifies the time-to-live (TTL) value for the scope of Auto-RP Discovery messages. The range is from 1 to 255. The default is 32. **Note** See the **ip pim border** command to explicitly define a router on the edge of a PIM domain rather than using the **scope** argument.

Command Default

The TTL is 32.

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

The **ip pim send-rp-discovery** command is an alternative form of this command.

This command requires the LAN Base Services license.

Examples

This example shows how to configure an Auto-RP mapping agent:

```
switch(config)# ip pim auto-rp mapping-agent ethernet 2/1
```

This example shows how to remove the Auto-RP mapping agent configuration:

```
switch(config)# no ip pim auto-rp mapping-agent ethernet 2/1
```

Related Commands

Command	Description
ip pim border	Configures a router to be on the edge of a PIM domain.
ip pim send-rp-discovery	Configures a router as an Auto-RP mapping agent.
show ip pim rp	Displays information about PIM RPs.

ip pim auto-rp mapping-agent-policy

To enable filtering of IPv4 IPv4 Protocol Independent Multicast (PIM) Auto-RP Discover messages, use the **ip pim auto-rp mapping-agent-policy** command. To disable filtering, use the **no** form of this command.

ip pim auto-rp mapping-agent-policy *policy-name*

no ip pim auto-rp mapping-agent-policy [*policy-name*]

Syntax Description

policy-name	Route-map policy name.

Command Default

Disabled

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

This command can be used on client routers where you can specify mapping agent addresses.

You can specify mapping agent source addresses to filter messages from with the **match ip multicast** command in a route-map policy.

This command requires the LAN Base Services license.

Examples

This example shows how to enable a route-map policy to filter Auto-RP Discover messages:

```
switch(config)# ip pim auto-rp mapping-agent-policy my_mapping_agent_policy
```

This example shows how to disable filtering:

```
switch(config)# no ip pim auto-rp mapping-agent-policy
```

Related Commands

Command	Description
show ip pim rp	Displays information about PIM RPs.

ip pim auto-rp rp-candidate

To configure an IPv4 Protocol Independent Multicast (PIM) Auto-RP candidate route processor (RP), use the **ip pim auto-rp rp-candidate** command. To remove an Auto-RP candidate RP, use the **no** form of this command.

ip pim auto-rp rp-candidate {**ethernet** *slot/port* | **loopback** *if_number* | **port-channel** *number* | **vlan** *vlan-id*} {**group-list** *prefix*} {[**scope** *ttl*] | [**interval** *interval*] }

no ip pim auto-rp rp-candidate [{**ethernet** *slot/port* | **loopback** *if_number* | **port-channel** *number* | **vlan** *vlan-id*}] [**group-list** *prefix}* {[**scope** *ttl*] | [**interval** *interval*]}

Syntax Description

ethernet *slot/port*	Specifies the Ethernet interface and the slot number and port number. The slot number is from 1 to 255, and the port number is from 1 to 128.
loopback *if_number*	Specifies the loopback interface. The loopback interface number is from 0 to 1023.
port-channel *number*	Specifies the EtherChannel interface and EtherChannel number. The range is from 1 to 4096.
vlan *vlan-id*	Specifies the VLAN interface. The range is from 1 to 4094.
group-list *prefix*	Specifies the group range used for the access list.
scope *ttl*	(Optional) Specifies a time-to-live (TTL) value for the scope of Auto-RP Announce messages. The range is from 1 to 255. The default is 32. **Note** See the **ip pim border** command to explicitly define a router on the edge of a PIM domain rather than using the **scope** argument.
interval *interval*	(Optional) Specifies an Auto-RP Announce message transmission interval in seconds. The range is from 1 to 65,535. The default is 60.

Command Default

The TTL is 32.
The Announce message interval is 60 seconds

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

The **scope** and **interval** keywords can be entered once and in any order.

The **ip pim send-rp-announce** command is an alternative form of this command.

Using a route map, you can add group ranges that this auto RP candidate-RP can serve.

Note Use the same configuration guidelines for the route-map auto-rp-range that you used when you create a route map for static RPS.

This command requires the LAN Base Services license.

Examples

This example shows how to configure a PIM Auto-RP candidate RP:

```
switch(config)# ip pim auto-rp rp-candidate ethernet 2/1 group-list 239.0.0.0/24
```

This example shows how to remove a PIM Auto-RP candidate RP:

```
switch(config)# no ip pim auto-rp rp-candidate ethernet 2/1 group-list 239.0.0.0/24
```

Related Commands

Command	Description
ip pim send-rp-announce	Configures a PIM Auto-RP candidate RP.
show ip pim interface	Displays information about PIM-enabled interfaces.

ip pim auto-rp rp-candidate-policy

To allow the Auto-RP mapping agents to filter IPv4 Protocol Independent Multicast (PIM) Auto-RP Announce messages that are based on a route-map policy, use the **ip pim auto-rp rp-candidate-policy** command. To disable filtering, use the **no** form of this command.

ip pim auto-rp rp-candidate-policy *policy-name*

no ip pim auto-rp rp-candidate-policy [*policy-name*]

Syntax Description

policy-name	Route-map policy name.

Command Default

Disabled

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

You can specify the RP and group addresses, and whether the type is ASM with the **match ip multicast** command in a route-map policy.

This command requires the LAN Base Services license.

Examples

This example shows how to allow the Auto-RP mapping agents to filter Auto-RP Announce messages:

```
switch(config)# ip pim auto-rp rp-candidate-policy my_policy
```

This example shows how to disable filtering:

```
switch(config)# no ip pim auto-rp rp-candidate-policy
```

Related Commands

Command	Description
show ip pim rp	Displays information about PIM RPs.

ip pim bidir-rp-limit

To configure the number of bidirectional (Bidir) RPs for use in IPv4 Protocol Independent Multicast (PIM), use the **ip pim bidir-rp-limit** command. To reset the number of RPs to the default, use the **no** form of this command.

ip pim bidir-rp-limit *limit*

no ip pim bidir-rp-limit *limit*

Syntax Description

limit	Limit for the number of Bidir RPs permitted in PIM. The range is from 0 to 8. The default is 6.

Defaults

The Bidir RP limit is 6.

Command Modes

Global configuration (config)
VRF configuration (config-vrf)

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Because the maximum ordinal count of designated forwarders (DFs) is 8, the PIM and IPv6 PIM RP limits should be no more than 8.

To display the Bidir RP limit configured, use this command line:

```
switch(config)# show running-config | include bidir
```

This command requires the Enterprise Services license.

Examples

This example shows how to configure the number of Bidir RPs:

```
switch(config)# ip pim bidir-rp-limit 6
```

This example shows how to reset the number of Bidir RPs to the default:

```
switch(config)# no ip pim bidir-rp-limit 6
```

Related Commands

Command	Description
show running-config	Displays information about the running-system configuration.

ip pim border

To configure an interface on an IPv4 Protocol Independent Multicast (PIM) border, use the **ip pim border** command. To remove an interface from a PIM border, use the **no** form of this command.

ip pim border

no ip pim border

Syntax Description

This command has no arguments or keywords.

Command Default

The interface is not on a PIM border.

Command Modes

Interface configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

This command requires the LAN Base Services license.

Examples

This example shows how to configure an interface on a PIM border:

```
switch(config)# ip pim border
```

This example shows how to remove an interface from a PIM border:

```
switch(config)# no ip pim border
```

Related Commands

Command	Description
show ip pim interface	Displays information about PIM-enabled interfaces.

ip pim bsr bsr-policy

To allow the bootstrap router (BSR) client routers to filter IPv4 Protocol Independent Multicast (PIM) BSR messages that are based on a route-map policy, use the **ip pim bsr bsr-policy** command. To disable filtering, use the **no** form of this command.

ip pim bsr bsr-policy *policy-name*

no ip pim bsr bsr-policy [*policy-name*]

Syntax Description

policy-name	Route-map policy name.

Command Default

Disabled

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

You can specify which source addresses to filter messages from with the **match ip multicast** command in a route-map policy.

This command requires the LAN Base Services license.

Examples

This example shows how to allow the BSR client routers to filter BSR messages:

```
switch(config)# interface ethernet 2/2
switch(config-if)# ip pim bsr bsr-policy my_bsr_policy
```

This example shows how to disable filtering:

```
switch(config)# interface ethernet 2/2
switch(config-if)# no ip pim bsr bsr-policy
```

Related Commands

Command	Description
show ip pim rp	Displays information about PIM RPs.

ip pim bsr-candidate

To configure the router as an IPv4 Protocol Independent Multicast (PIM) bootstrap router (BSR) candidate, use the **ip pim bsr-candidate** command. To remove a router as a BSR candidate, use the **no** form of this command.

ip pim [**bsr**] **bsr-candidate** {**ethernet** *slot/port* | **loopback** *if_number* | **port-channel** *number* | **vlan** *vlan-id*} [**hash-len** *hash-len*] [**priority** *priority*]

no ip pim [**bsr**] **bsr-candidate** [{**ethernet** *slot/port* | **loopback** *if_number* | **port-channel** *number* | **vlan** *vlan-id*}] [**hash-len** *hash-len*] [**priority** *priority*]

Syntax Description

bsr	(Optional) Specifies the BSR protocol RP-distribution configuration.
ethernet *slot/port*	Specifies the Ethernet interface and the slot number and port number. The slot number is from 1 to 255, and the port number is from 1 to 128.
loopback *if_number*	Specifies the loopback interface. The loopback interface number is from 0 to 1023.
port-channel *number*	Specifies the EtherChannel interface and EtherChannel number. The range is from 1 to 4096.
vlan *vlan-id*	Specifies the VLAN interface. The range is from 1 to 4094.
hash-len *hash-len*	(Optional) Specifies the hash mask length used in BSR messages. The range is from 0 to 32. The default is 30.
priority *priority*	(Optional) Specifies the BSR priority used in BSR messages. The range is from 0 to 255. The default is 64.

Command Default

The hash mask length is 30.
The BSR priority is 64.

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

The interface specified is used to derive the BSR source IP address used in BSR messages.

This command requires the LAN Base Services license.

Examples

This example shows how to configure a router as a BSR candidate:

```
switch(config)# ip pim bsr-candidate ethernet 2/2
```

This example shows how to remove a router as a BSR candidate:

```
switch(config)# no ip pim bsr-candidate
```

Related Commands

Command	Description
show ip pim rp	Displays information about PIM RPs.

ip pim bsr forward

To listen to and forward IPv4 Protocol Independent Multicast (PIM) bootstrap router (BSR) and Candidate-RP messages, use the **ip pim bsr forward** command. To disable listening and forwarding, use the **no** form of this command.

ip pim bsr forward [**listen**]

no ip pim bsr [**forward** [**listen**]]

Syntax Description

forward	Specifies to forward BSR and Candidate-RP messages.
listen	(Optional) Specifies to listen to BSR and Candidate-RP messages.

Command Default

Disabled

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

A router configured as either a candidate RP or a candidate BSR will automatically listen to and forward all BSR protocol messages, unless an interface is configured with the domain border feature.

The **ip pim bsr listen** command is an alternative form of this command.

This command requires the LAN Base Services license.

Examples

This example shows how to forward BSR and Candidate-RP messages:

```
switch(config)# ip pim bsr forward
```

This example shows how to disable forwarding:

```
switch(config)# no ip pim bsr forward
```

Related Commands

Command	Description
ip pim bsr listen	Enables listening to and forwarding of BSR messages.
show ip pim rp	Displays information about PIM RPs.

ip pim bsr listen

To listen to and forward IPv4 Protocol Independent Multicast (PIM) bootstrap router (BSR) and Candidate-RP messages, use the **ip pim bsr listen** command. To disable listening and forwarding, use the **no** form of this command.

ip pim bsr listen [**forward**]

no ip pim bsr [**listen** [**forward**]]

Syntax Description

listen	Specifies to listen to BSR and Candidate-RP messages.
forward	(Optional) Specifies to forward BSR and Candidate-RP messages.

Command Default

Disabled

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

A router configured as either a candidate RP or a candidate BSR will automatically listen to and forward all BSR protocol messages, unless an interface is configured with the domain border feature.

The **ip pim bsr forward** command is an alternative form of this command.

This command requires the LAN Base Services license.

Examples

This example shows how to listen to and forward BSR and Candidate-RP messages:

```
switch(config)# ip pim bsr listen forward
```

This example shows how to disable listening and forwarding:

```
switch(config)# no ip pim bsr listen forward
```

Related Commands

Command	Description
ip pim bsr forward	Enables listening to and forwarding of BSR messages.
show ip pim rp	Displays information about PIM RPs.

ip pim bsr rp-candidate-policy

To filter IPv4 Protocol Independent Multicast (PIM) bootstrap router (BSR) Candidate-RP messages that are based on a route-map policy, use the **ip pim bsr rp-candidate-policy** command. To disable filtering, use the **no** form of this command.

ip pim bsr rp-candidate-policy *policy-name*

no ip pim bsr rp-candidate-policy [*policy-name*]

Syntax Description

policy-name	Route-map policy name.

Command Default

Disabled

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

You can specify the RP and group addresses, and whether the type is ASM with the **match ip multicast** command in a route-map policy.

This command requires the LAN Base Services license.

Examples

This example shows how to filter Candidate-RP messages:

```
switch(config)# ip pim bsr rp-candidate-policy my_bsr_rp_candidate_policy
```

This example shows how to disable message filtering:

```
switch(config)# no ip pim bsr rp-candidate-policy
```

Related Commands

Command	Description
show ip pim rp	Displays information about PIM RPs.

ip pim dr-priority

To configure the designated router (DR) priority that is advertised in IPv4 Protocol Independent Multicast (PIM) hello messages, use the **ip pim dr-priority** command. To reset the DR priority to the default, use the **no** form of this command.

ip pim dr-priority *priority*

no ip pim dr-priority [*priority*]

Syntax Description

priority	Priority value. The range is from 1 to 4294967295. The default is 1.

Command Default

The DR priority is 1.

Command Modes

Interface configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

This command requires the LAN Base Services license.

Examples

This example shows how to configure DR priority on an interface:

```
switch(config)# interface ethernet 2/2
switch(config-if)# ip pim dr-priority 5
```

This example shows how to reset DR priority on an interface to the default:

```
switch(config)# interface ethernet 2/2
switch(config-if)# no ip pim dr-priority
```

Related Commands

Command	Description
show ip pim interface	Displays information about PIM-enabled interfaces.

ip pim event-history

To configure the size of the IPv4 Protocol Independent Multicast (PIM) event history buffers, use the **ip pim event-history** command. To revert to the default buffer size, use the **no** form of this command.

ip pim event-history {**assert-receive** | **cli** | **hello** | **join-prune** | **null-register** | **packet** | **pim-internal** | **rp** | **vrf**} **size** *buffer-size*

no ip pim event-history {**assert-receive** | **cli** | **hello** | **join-prune** | **null-register** | **packet** | **pim-internal** | **rp** | **vrf**} **size** *buffer-size*

Syntax Description

assert-receive	Configures the assert receive event history buffer.
cli	Configures the CLI event history buffer.
hello	Configures the hello event history buffer.
join-prune	Configures the join-prune event history buffer.
null-register	Configures the null register event history buffer.
packet	Configures the packet event history buffer.
pim-internal	Configures the PIM internal event history buffer.
rp	Configures the rendezvous point (RP) event history buffer.
vrf	Configures the virtual routing and forwarding (VRF) event history buffer.
size	Specifies the size of the buffer to allocate.
buffer-size	Buffer size is one of the following values: **disabled**, **large**, **medium**, or **small**. The default buffer size is **small**.

Command Default

All history buffers are allocated as small.

Command Modes

Any command mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

This command requires the LAN Base Services license.

Examples

This example shows how to configure the size of the PIM hello event history buffer:

```
switch(config)# ip pim event-history hello size medium
switch(config)#
```

Related Commands

Command	Description
clear ip pim event-history	Clears information in the IPv4 PIM event history buffers.
show ip pim event-history	Displays information in the IPv4 PIM event history buffers.
show running-config pim	Displays information about the running-system PIM configuration.

ip pim flush-routes

To remove routes when the IPv4 Protocol Independent Multicast (PIM) process is restarted, use the **ip pim flush-routes** command. To leave routes in place, use the **no** form of this command.

ip pim flush-routes

no ip pim flush-routes

Syntax Description

This command has no arguments or keywords.

Command Default

The routes are not flushed.

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

To display whether flush routes are configured, use this command line:

```
switch(config)# show running-config | include flush-routes
```

This command requires the LAN Base Services license.

Examples

This example shows how to remove routes when the PIM process is restarted:

```
switch(config)# ip pim flush-routes
```

This example shows how to leave routes in place when the PIM process is restarted:

```
switch(config)# no ip pim flush-routes
```

Related Commands

Command	Description
show running-config	Displays information about the running-system configuration.

ip pim hello-authentication ah-md5

To enable an MD5 hash authentication key in IPv4 Protocol Independent Multicast (PIM) hello messages, use the **ip pim hello-authentication ah-md5** command. To disable hello-message authentication, use the **no** form of this command.

ip pim hello-authentication ah-md5 *auth-key*

no ip pim hello-authentication ah-md5 [*auth-key*]

Syntax Description

auth-key	MD5 authentication key. You can enter an unencrypted (cleartext) key, or one of these values followed by a space and the MD5 authentication key: • 0—Specifies an unencrypted (cleartext) key • 3—Specifies a 3-DES encrypted key • 7—Specifies a Cisco Type 7 encrypted key The key can be from 1 to 16 characters.

Command Default

Disabled

Command Modes

Interface configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

Triple Data Encryption Standard (3-DES) is a strong form of encryption (168-bit) that allows sensitive information to be transmitted over untrusted networks. Cisco Type 7 encryption uses the algorithm from the Vigenère cipher.

This command requires the LAN Base Services license.

Examples

This example shows how to enable a 3-DES encrypted key for PIM hello-message authentication:

```
switch(config)# interface ethernet 2/2
switch(config-if)# ip pim hello-authentication-ah-md5 3 myauthkey
```

This example shows how to disable PIM hello-message authentication:

```
switch(config)# interface ethernet 2/2
switch(config-if)# no ip pim hello-authentication-ah-md5
```

Related Commands

Command	Description
show ip pim interface	Displays information about PIM-enabled interfaces.

ip pim hello-interval

To configure the IPv4 Protocol Independent Multicast (PIM) hello-message interval on an interface, use the **ip pim hello-interval** command. To reset the hello interval to the default, use the **no** form of this command.

ip pim hello-interval *interval*

no ip pim hello-interval [*interval*]

Syntax Description

interval	Interval in milliseconds. The range is from 1 to 18,724,286. The default is 30000. **Note** We do not support agressive hello intervals. Any value below 30000 milliseconds is an aggressive PIM hello-interval value.

Command Default

The PIM hello interval is 30,000 milliseconds.

Command Modes

Interface configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

At a minimum interval, VPC vs non-VPC cases, and also with single vs dual sup cases, Basically for vPC and with dual sups one needs to use default timers. the neighbor hold time is automatically set to 3.5x this value. Also it is recommended to use BFD for PIM instead of non-default timers.

This command requires the LAN Base Services license.

Examples

This example shows how to configure the PIM hello-message interval on an interface:

```
switch(config)# interface ethernet 2/2
switch(config-if)# ip pim hello-interval 20000
```

This example shows how to reset the PIM hello-message interval on an interface to the default:

```
switch(config)# interface ethernet 2/2
switch(config-if)# no ip pim hello-interval
```

Related Commands

Command	Description
show ip pim interface	Displays information about PIM-enabled interfaces.

ip pim jp-policy

To filter IPv4 Protocol Independent Multicast (PIM) join-prune messages that are based on a route-map policy, use the **ip pim jp-policy** command. To disable filtering, use the **no** form of this command.

ip pim jp-policy *policy-name* [**in** | **out**]

no ip pim jp-policy [***policy-name***]

Syntax Description

policy-name	Route-map policy name.
in	Specifies that the system applies a filter only for incoming messages.
out	Specifies that the system applies a filter only for outgoing messages.

Command Default

Disabled; no filter is applied for either incoming or outgoing messages.

Command Modes

Interface configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

The **ip pim jp-policy** command filters messages in both incoming and outgoing directions. To specify filtering only incoming messages, use the optional **in** keyword; to specify filtering only outgoing messages, use the optional **out** keyword. When you enter the command with no keywords, that is no explicit direction, the system rejects further configurations if given with explicit direction.

Use the **ip pim jp-policy** command to filter incoming messages. You can configure the route map to prevent state from being created in the multicast routing table.

You can specify group, group and source, or group and RP addresses to filter messages with the **match ip multicast** command.

This command requires the LAN Base Services license.

Examples

This example shows how to filter PIM join-prune messages:

```
switch(config)# interface ethernet 2/2
switch(config-if)# ip pim jp-policy my_jp_policy
```

This example shows how to disable filtering:

```
switch(config)# interface ethernet 2/2
switch(config-if)# no ip pim jp-policy
```

Related Commands

Command	Description
show ip pim interface	Displays information about PIM-enabled interfaces.

ip pim log-neighbor-changes

To generate syslog messages that list the IPv4 Protocol Independent Multicast (PIM) neighbor state changes, use the **ip pim log-neighbor-changes** command. To disable messages, use the **no** form of this command.

ip pim log-neighbor-changes

no ip pim log-neighbor-changes

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

This command requires the LAN Base Services license.

Examples

This example shows how to generate syslog message that list the PIM neighbor state changes:

```
switch(config)# ip pim log-neighbor-changes
```

This example shows how to disable logging:

```
switch(config)# no ip pim log-neighbor-changes
```

Related Commands

Command	Description
logging level ip pim	Configures the logging level of PIM messages.

ip pim neighbor-policy

To configure a route-map policy that determines which IPv4 Protocol Independent Multicast (PIM) neighbors should become adjacent, use the **ip pim neighbor-policy** command. To reset to the default, use the **no** form of this command.

ip pim neighbor-policy *policy-name*

no ip pim neighbor-policy [*policy-name*]

Syntax Description

policy-name	Route-map policy name.

Command Default

Forms adjacency with all neighbors.

Command Modes

Interface configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

You can use the **match ip address** command in a route-map policy to specify which groups to become adjacent to.

This command requires the LAN Base Services license.

Examples

This example shows how to configure a policy that determines which PIM neighbors should become adjacent:

```
switch(config)# interface ethernet 2/2
switch(config-if)# ip pim neighbor-policy
```

This example shows how to reset to the default:

```
switch(config)# interface ethernet 2/2
switch(config-if)# no ip pim neighbor-policy
```

Related Commands

Command	Description
show ip pim interface	Displays information about PIM-enabled interfaces.

ip pim pre-build-spt

To prebuild the shortest path tree (SPT) for all known (S,G) in the routing table by triggering Protocol Independent Multicast (PIM) joins upstream, use the **ip pim pre-build-spt** command. To reset to the default, use the **no** form of this command.

ip pim pre-build-spt

no ip pim pre-build-spt

Syntax Description

This command has no arguments or keywords.

Command Default

Joins are triggered only if the OIF list is not empty.

Command Modes

VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

To prebuild the SPT for all known (S,G)s in the routing table by triggering PIM joins upstream, even in the absence of any receivers, use the **ip pim pre-build-spt** command.

By default, PIM (S,G) joins are triggered upstream only if the OIF-list for the (S,G) is not empty. It is useful in certain scenarios—for example, on the virtual port-channel (vPC) nonforwarding router—to prebuild the SPTs and maintain the (S,G) states even when the system is not forwarding on these routes. Prebuilding the SPT ensures faster convergence when a vPC failover occurs.

When you are running virtual port channels (vPCs), enabling this feature causes both vPC peer switches to join the SPT, even though only one vPC peer switch actually routes the multicast traffic into the vPC domain. This behavior results in the multicast traffic passing over two parallel paths from the source to the vPC switch pair, consuming bandwidth on both paths. Additionally, when both vPC peer switches join the SPT, one or more upstream devices in the network may be required to perform additional multicast replications to deliver the traffic on both parallel paths toward the receivers in the vPC domain.

This command requires the LAN Base Services license.

Examples

This example shows how to prebuild the SPT in the absence of receivers:

```
switch(config)# vrf context Enterprise
switch(config-vrf)# ip pim pre-build-spt
switch(config-vrf)#
```

Related Commands

Command	Description
show ip pim context	Displays information about PIM routes.

ip pim register-policy

To filter IPv4 Protocol Independent Multicast (PIM) Register messages that are based on a route-map policy, use the **ip pim register-policy** command. To disable message filtering, use the **no** form of this command.

ip pim register-policy *policy-name*

no ip pim register-policy [*policy-name*]

Syntax Description

policy-name	Route-map policy name.

Command Default

Disabled

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

You can use the **match ip multicast** command in a route-map policy to specify the group or group and source addresses whose register messages that should be filtered.

This command requires the LAN Base Services license.

Examples

This example shows how to enable filtering of PIM Register messages:

```
switch(config)# ip pim register-policy my_register_policy
```

This example shows how to disable message filtering:

```
switch(config)# no ip pim register-policy
```

Related Commands

Command	Description
show ip pim policy statistics register-policy	Displays statistics for PIM Register messages.

ip pim register-rate-limit

To configure a rate limit for IPv4 Protocol Independent Multicast (PIM) data registers, use the **ip pim register-rate-limit** command. To remove a rate limit, use the **no** form of this command.

ip pim register-rate-limit *rate*

no ip pim register-rate-limit [*rate*]

Syntax Description

rate	Rate in packets per second. The range is from 1 to 65,535.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

This command requires the LAN Base Services license.

Examples

This example shows how to configure a rate limit for PIM data registers:

```
switch(config)# ip pim register-rate-limit 1000
```

This example shows how to remove a rate limit:

```
switch(config)# no ip pim register-rate-limit
```

Related Commands

Command	Description
show ip pim vrf detail	Displays information about the PIM configuration.

ip pim rp-address

To configure an IPv4 Protocol Independent Multicast (PIM) static route processor (RP) address for a multicast group range, use the **ip pim rp-address** command. To remove a static RP address, use the **no** form of this command.

ip pim rp-address *rp-address* [**group-list** *prefix* | **override** | **route-map** *policy-name*]

no ip pim rp-address *rp-address* [**group-list** *prefix* | **override** | **route-map** *policy-name*]

Syntax Description

rp-address	IP address of a router which is the RP for a group range.
group-list *prefix*	(Optional) Specifies a group range for a static RP.
override	(Optional) Specifies the RP address. The RP address overrides the dynamically learned RP addresses.
route-map *policy-name*	(Optional) Specifies a route-map policy name.

Command Default

The group range is treated in ASM mode.

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

The **match ip multicast** command is the only **match** command that is evaluated in the route map. You can the specify group prefix to filter messages with the **match ip multicast** command.

Customers can use this “override” provision, if they want the static RPs always to override the dynamic ones.

This command requires the LAN Base Services license.

Examples

This example shows how to configure a PIM static RP address for a serving group range and to override any dynamically learned (through BSR) RP addresses:

```
switch(config)# ip pim rp-address 1.1.1.1 group-list 225.1.0.0/16 override
```

This example shows how to configure a PIM static RP address for a group range:

```
switch(config)# ip pim rp-address 192.0.2.33 group-list 224.0.0.0/9
```

This example shows how to remove a static RP address:

```
switch(config)# no ip pim rp-address 192.0.2.33
```

Related Commands

Command	Description
show ip pim rp	Displays information about PIM RPs.

ip pim rp-candidate

To configure the router as an IPv4 Protocol Independent Multicast (PIM) bootstrap router (BSR) roure processor (RP) candidate, use the **ip pim rp-candidate** command. To remove the router as an RP candidate, use the **no** form of this command.

ip pim [**bsr**] **rp-candidate** {**ethernet** *slot/port* | **loopback** *if_number* | **port-channel** *number*} {**group-list** *prefix*} [**priority** *priority*] [**interval** *interval*]

no ip pim [**bsr**] **rp-candidate** {**ethernet** *slot/port* | **loopback** *if_number* | **port-channel** *number*} {**group-list** *prefix*} [**priority** *priority*] [**interval** *interval*]

Syntax Description

bsr	(Optional) Specifies the BSR protocol RP-distribution configuration.
ethernet *slot/port*	(Optional) Specifies the Ethernet interface and the slot number and port number. The slot number is from 1 to 255, and the port number is from 1 to 128.
loopback *if_number*	(Optional) Specifies the loopback interface. The loopback interface number is from 0 to 1023.
port-channel *number*	(Optional) Specifies the EtherChannel interface and EtherChannel number. The range is from 1 to 4096.
group-list *prefix*	Specifies a group range handled by the RP.
priority *priority*	(Optional) Specifies the RP priority used in candidate-RP messages. The range is from 0 to 65,535. The default is 192.
interval *interval*	(Optional) Specifies the BSR message transmission interval in seconds. The range is from 1 to 65,535. The default is 60.

Command Default

The RP priority is 192.
The BSR message interval is 60 seconds.

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

We recommend that you configure the candidate RP interval to be a minimum of 15 seconds.

Using this route map, you can add a range of group lists that this candidate-RP can serve.

Note Use the same configuration guidelines for the route-map auto-rp-range that you used when you created a route map for static RPS.

This command requires the LAN Base Services license.

Examples

This example shows how to configure the router as a PIM BSR RP candidate:

```
switch(config)# ip pim rp-candidate e 2/11 group-list 239.0.0.0/24
```

This example shows how to remove the router as an RP candidate:

```
switch(config)# no ip pim rp-candidate
```

Related Commands

Command	Description
show ip pim rp	Displays information about PIM RPs.

ip pim send-rp-announce

To configure an IPv4 Protocol Independent Multicast (PIM) Auto-RP candidate route processor (RP), use the **ip pim send-rp-announce** command. To remove an Auto-RP candidate RP, use the **no** form of this command.

ip pim send-rp-announce {**ethernet** *slot/port* | **loopback** *if_number* | **port-channel** *number*} {**group-list** *prefix*} {[**scope** *ttl*] | [**interval** *interval*]}

no ip pim send-rp-announce [{**ethernet** *slot/port* | **loopback** *if_number* | **port-channel** *number*} {**group-list** *prefix*} {[**scope** *ttl*] | [**interval** *interval*] }

Syntax Description

ethernet *slot/port*	(Optional) Specifies the Ethernet interface and the slot number and port number. The slot number is from 1 to 255, and the port number is from 1 to 128.
loopback *if_number*	(Optional) Specifies the loopback interface. The loopback interface number is from 0 to 1023.
port-channel *number*	(Optional) Specifies the EtherChannel interface and EtherChannel number. The range is from 1 to 4096.
group-list *prefix*	Specifies a group range handled by the RP.
scope *ttl*	(Optional) Specifies a time-to-live (TTL) value for the scope of Auto-RP Announce messages. The range is from 1 to 255. The default is 32. **Note** See the **ip pim border** command to explicitly define a router on the edge of a PIM domain rather than using the **scope** argument.
interval *interval*	(Optional) Specifies an Auto-RP Announce message transmission interval in seconds. The range is from 1 to 65,535. The default is 60.

Command Default

The TTL is 32.
The Auto-RP Announce message interval is 60 seconds.

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

The **scope**, and **interval** keywords can be entered once and in any order.

The **ip pim auto-rp rp-candidate** command is an alternative form of this command.

This command requires the LAN Base Services license.

Examples

This example shows how to configure a PIM Auto-RP candidate RP:

```
switch(config)# ip pim send-rp-announce ethernet 2/1 group-list 239.0.0.0/24
```

This example shows how to remove a PIM Auto-RP candidate RP:

```
switch(config)# no ip pim send-rp-announce ethernet 2/1 group-list 239.0.0.0/24
```

Related Commands

Command	Description
ip pim auto-rp rp-candidate	Configures a PIM Auto-RP candidate RP.
show ip pim interface	Displays information about PIM-enabled interfaces.

ip pim send-rp-discovery

To configure the router as an IPv4 Protocol Independent Multicast (PIM) Auto-RP mapping agent that sends RP-Discovery messages, use the **ip pim send-rp-discovery** command. To remove the configuration, use the **no** form of this command.

ip pim send-rp-discovery {**ethernet** *slot/port* | **loopback** *if_number* | **port-channel** *number*} [**scope** *ttl*]

no ip pim send-rp-discovery [{**ethernet** *slot/port* | **loopback** *if_number* | **port-channel** *number*} [**scope** *ttl*]

Syntax Description

ethernet *slot/port*	Specifies the Ethernet interface and the slot number and port number. The slot number is from 1 to 255, and the port number is from 1 to 128.
loopback *if_number*	Specifies the loopback interface. The loopback interface number is from 0 to 1023.
port-channel *number*	Specifies the EtherChannel interface and EtherChannel number. The range is from 1 to 4096.
scope *ttl*	(Optional) Specifies the time-to-live (TTL) value for the scope of Auto-RP Discovery messages. The range is from 1 to 255. The default is 32. **Note** See the **ip pim border** command to explicitly define a router on the edge of a PIM domain rather than using the **scope** argument.

Command Default

The TTL is 32.

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

The **ip pim auto-rp mapping-agent** command is an alternative form of this command.

This command requires the LAN Base Services license.

Examples

This example shows how to configure an Auto-RP mapping agent:

```
switch(config)# ip pim send-rp-discovery ethernet 2/1
```

This example shows how to remove an Auto-RP mapping agent:

```
switch(config)# no ip pim send-rp-discovery ethernet 2/1
```

Related Commands

Command	Description
show ip pim rp	Displays information about PIM RPs.
ip pim auto-rp mapping-agent	Configures a router as an Auto-RP mapping agent.
ip pim border	Configures a router to be on the edge of a PIM domain.

ip pim sg-expiry-timer

To adjust the (S, G) expiry timer interval for Protocol Independent Multicast sparse mode (PIM-SM) (S, G) multicast routes, use the **ip pim sg-expiry-timer** command. To reset to the default values, use the **no** form of the command.

ip pim [**sparse**] **sg-expiry-timer** *seconds* [**sg-list** *route-map*]

no ip pim [**sparse**] **sg-expiry-timer** *seconds* [**sg-list** *route-map*]

Syntax Description

sparse	(Optional) Specifies sparse mode.
seconds	Expiry-timer interval. The range is from 181 to 57600 seconds.
sg-list *route-map*	(Optional) Specifies S,G values to which the timer applies. The route map name can be a maximum of 100 alphanumeric characters.

Command Default

The default expiry time is 180 seconds.
The timer applies to all (S, G) entries in the routing table.

Command Modes

VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

This command requires the LAN Base Services license.

Examples

This example shows how to configure the expiry interval to 300 seconds for all (S, G) entries:

```
switch(config)# vrf context Enterprise
switch(config-vrf)# ip pim sg-expiry-timer 300
switch(config-vrf)#
```

Related Commands

Command	Description
show ip pim context	Displays information about the PIM configuration.

ip pim sparse-mode

To enable IPv4 Protocol Independent Multicast (PIM) sparse mode on an interface, use the **ip pim sparse-mode** command. To disable PIM on an interface, use the **no** form of this command.

ip pim sparse-mode

no ip pim [**sparse-mode**]

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Interface configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

This command requires the LAN Base Services license.

Examples

This example shows how to enable PIM sparse mode on an interface:

```
switch(config)# interface ethernet 2/2
switch(config-if)# ip pim sparse-mode
```

This example shows how to disable PIM on an interface:

```
switch(config)# interface ethernet 2/2
switch(config-if)# no ip pim
```

Related Commands

Command	Description
show ip pim interface	Displays information about PIM-enabled interfaces.

ip pim spt-threshold infinity

To create the IPv4 Protocol Independent Multicast (PIM) (*, G) state only (where no source state is created), use the **ip pim spt-threshold infinity** command. To remove the creation of the shared tree state only, use the **no** form of this command.

ip pim spt-threshold infinity group-list *route-map-name*

no ip pim spt-threshold infinity [**group-list** *route-map-name*]

Syntax Description

route-map-name	Route-map policy name that defines the group prefixes where this feature is applied. A route-map policy name can be a maximum of 100 alphanumeric characters.

Command Default

None

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
7.0(0)N1(1)	This command was introduced.

Usage Guidelines

You can specify up to 500 sequence lines in a route map.

The **match ip multicast** command is the only match command that is evaluated in the route map. You can specify the group prefix to filter messages with the **match ip multicast** command.

You must have enabled PIM before you can use the **ip pim spt-threshold infinity** command.

Note This command is not supported for virtual port channels (vPC/vPC+).

This command requires the Enterprise Services license.

Note The **ip pim use-shared-tree-only group-list** command performs the same function as the **ip pim spt-threshold infinity group-list** command. You can choose to use either command to implement this task.

Examples

This example shows how to create the PIM (*, G) state only for the group prefixes defined in my_group_map:

```
switch(config)# ip pim spt-threshold infinity group-list my_group_map
```

This example shows how to remove the creation of the (*, G) state only:

```
switch(config)# no ip pim spt-threshold infinity
```

Related Commands

Command	Description
show ip pim rp	Displays information about PIM RPs.

ip pim ssm policy

To configure group ranges for Source Specific Multicast (SSM) using a route-map policy, use the **ip pim ssm policy** command. To remove the SSM group range policy, use the **no** form of this command.

ip pim ssm policy *policy-name*

no ip pim ssm policy *policy-name*

Syntax Description

policy-name	Route-map policy name that defines the group prefixes where this feature is applied.

Command Default

The SSM range is 232.0.0.0/8.

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

This command requires the LAN Base Services license.

Examples

This example shows how to configure a group range for SSM:

```
switch(config)# ip pim ssm policy my_ssm_policy
```

This example shows how to reset the group range to the default:

```
switch(config)# no ip pim ssm policy my_ssm_policy
```

Related Commands

Command	Description
show ip pim group-range	Displays information about PIM group ranges.

ip pim ssm

To configure group ranges for Source Specific Multicast (SSM), use the **ip pim ssm range** command. To reset the SSM group range to the default, use the **no** form of this command with the **none** keyword.

ip pim ssm {**range** {*groups* | **none**} | **route-map** *policy-name*}

no ip pim ssm {**range** {*groups* | **none**} | **route-map** *policy-name*}

Syntax Description

groups	List of up to four group range prefixes.
none	Removes all group ranges.
route-map *policy-name*	Specifies the route-map policy name.

Command Default

The SSM range is 232.0.0.0/8.

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

The **match ip multicast** command is the only **match** command that is evaluated in the route map. You can specify the group prefix to filter messages with the **match ip multicast** command.

This command requires the LAN Base Services license.

Examples

This example shows how to configure a group range for SSM:

```
switch(config)# ip pim ssm range 239.128.1.0/24
```

This example shows how to reset the group range to the default:

```
switch(config)# no ip pim ssm range none
```

This example shows how to remove all group ranges:

```
switch(config)# ip pim ssm range none
```

Related Commands

Command	Description
show ip pim group-range	Displays information about PIM group ranges.

ip pim state-limit

To configure a maximum number of IPv4 Protocol Independent Multicast (PIM) state entries in the current virtual routing and forwarding (VRF) instance, use the **ip pim state-limit** command. To remove the limit on state entries, use the **no** form of this command.

ip pim state-limit *max-states* [**reserved** *policy-name max-reserved*]

no ip pim state-limit [*max-states* [**reserved** *policy-name max-reserved*]]

Syntax Description

max-states	Maximum number of (*, G) and (S, G) entries allowed in this VRF. The range is from 1 to 429,496,7295. The default is no limit.
reserved	(Optional) Specifies that a number of state entries are to be reserved for the routes specified in a policy map.
policy-name	(Optional) Route-map policy name.
max-reserved	(Optional) Maximum reserved (*, G) and (S, G) entries allowed in this VRF. Must be less than or equal to the maximum states allowed. The range is from 1 to 429,496,7295.

Command Default

None

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

To display commands where state limits are configured, use this command line:

```
switch(config)# show running-config | include state-limit
```

This command requires the LAN Base Services license.

Examples

This example shows how to configure a state entry limit with a number of state entries reserved for routes in a policy map:

```
switch(config)# ip pim state-limit 100000 reserved my_reserved_policy 40000
```

This example shows how to remove the limits on state entries:

```
switch(config)# no ip pim state-limit
```

Related Commands

Command	Description
show running-config	Displays information about the running-system configuration.

ip pim use-shared-tree-only

To create the IPv4 Protocol Independent Multicast (PIM) (*, G) state only (where no source state is created), use the **ip pim use-shared-tree-only** command. To remove the creation of the shared tree state only, use the **no** form of this command.

ip pim use-shared-tree-only group-list *policy-name*

no ip pim use-shared-tree-only [**group-list** *policy-name*]

Syntax Description

policy-name	Route-map policy name that defines the group prefixes where this feature is applied.

Command Default

None

Command Modes

Global configuration mode
VRF configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

You can use the **match ip multicast** command in a route-map policy to specify the groups where shared trees should be enforced.

This command requires the LAN Base Services license.

Note The **ip pim use-shared-tree-only group-list** command performs the same function as the **ip pim spt-threshold infinity group-list** command. You can choose to use either command to implement this task.

Examples

This example shows how to create the PIM (*, G) state only for the group prefixes defined in my_group_policy:

```
switch(config)# ip pim use-shared-tree-only group-list my_group_policy
```

This example shows how to remove the creation of the (*, G) state only:

```
switch(config)# no ip pim use-shared-tree-only
```

Related Commands

Command	Description
show ip pim rp	Displays information about PIM RPs.

ip routing multicast event-history

To configure the size of the IPv4 Multicast Routing Information Base (MRIB) event history buffers, use the **ip routing multicast event-history** command. To revert to the default buffer size, use the **no** form of this command.

ip routing multicast event-history {**cli** | **mfdm-debugs** | **mfdm-events** | **mfdm-stats** | **rib** | **vrf**} **size** *buffer-size*

no ip routing multicast event-history {**cli** | **mfdm** | **mfdm-stats** | **rib** | **vrf**} **size** *buffer-size*

Syntax Description

cli	Configures the CLI event history buffer.
mfdm-debugs	Configures the multicast FIB distribution (MFDM) debug event history buffer.
mfdm-events	Configures the multicast FIB distribution (MFDM) non-periodic events event history buffer.
mfdm-stats	Configures the MFDM sum event history buffer.
rib	Configures the RIB event history buffer.
vrf	Configures the virtual routing and forwarding (VRF) event history buffer.
size	Specifies the size of the buffer to allocate.
buffer-size	Buffer size is one of the following values: **disabled**, **large**, **medium**, or **small**. The default buffer size is **small**.

Command Default

All history buffers are allocated as small.

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

To display configured buffer sizes, use this command line:

```
switch(config)# show running-config | include "ip routing"
```

Examples

This example shows how to configure the size of the MRIB MFDM event history buffer:

```
switch(config)# ip routing multicast event-history mfdm size large
switch(config)#
```

Related Commands

Command	Description
clear ip routing multicast event-history	Clears information in the IPv4 MRIB event history buffers.
show routing ip multicast event-history	Displays information in the IPv4 MRIB event history buffers.
show running-config	Displays information about the running-system configuration.

ip routing multicast holddown

To configure the IPv4 multicast routing initial holddown period, use the **ip routing multicast holddown** command. To revert to the default holddown period, use the **no** form of this command.

[**ip** | **ipv4**] **routing multicast holddown** *holddown-period*

no [**ip** | **ipv4**] **routing multicast holddown** *holddown-period*

Syntax Description

holddown-period	Initial route holddown period in seconds. The range is from 90 to 210. Specify 0 to disable the holddown period. The default is 210.

Command Default

The holddown period is 210 seconds.

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

To display the holddown period configuration, use this command line:

```
switch(config)# show running-config | include "ip routing multicast holddown"
```

This command does not require a license.

Examples

This example shows how to configure the routing holddown period:

```
switch(config)# ip routing multicast holddown 100
switch(config)#
```

Related Commands

Command	Description
show running-config	Displays information about the running-system configuration.

ip routing multicast software-replicate

To enable software replication of IPv4 Protocol Independent Multicast (PIM) Any Source Multicast (ASM) packets that are leaked to the software for state creation, use the **ip routing multicast software-replicate** command. To reset to the default, use the **no** form of this command.

ip routing multicast software-replicate

no ip routing multicast software-replicate

Syntax Description

This command has no arguments or keywords.

Command Default

No software replication.

Command Modes

Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines

By default, these packets are used by the software only for (S,G) state creation and then dropped.

This command does not require a license.

Examples

This example shows how to enable software replication of IPv4 PIM ASM packets:

```
switch(config)# ip routing multicast software-replicate
switch(config)#
```

Related Commands

Command	Description
show running-config	Displays information about the running-system configuration.