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# PIM commands

## anycast-rp (PIM view)

Use **anycast-rp** to add an anycast RP member to an Anycast RP set.

Use **undo anycast-rp** to remove an anycast RP member from an Anycast RP set.

### Syntax

```
anycast-rp anycast-rp-address member-address
```

```
undo anycast-rp anycast-rp-address member-address
```

### Default

No Anycast RP sets exist.

### Views

PIM view

### Predefined user roles

network-admin

### Parameters

*anycast-rp-address*: Specifies an Anycast RP address. It must be a legal unicast IP address that is not in the range of 127.0.0.0/8.

*member-address*: Specifies an Anycast RP member address. It must be a legal unicast IP address that is not in the range of 127.0.0.0/8 and must be different from the Anycast RP address.

### Usage guidelines

To add multiple RP member addresses to an Anycast RP set, execute this command multiple times with the same Anycast RP address but different RP member addresses.

To configure multiple Anycast RP sets, execute this command multiple times with different Anycast RP addresses.

### Examples

```
# Add Anycast RP members 1.1.0.1 and 1.2.0.1 to Anycast RP set 1.1.0.0 on the public network.
```

```
<Sysname> system-view  
[Sysname] pim  
[Sysname-pim] anycast-rp 1.1.0.0 1.1.0.1  
[Sysname-pim] anycast-rp 1.1.0.0 1.2.0.1
```

### Related commands

```
display pim rp-info
```

## auto-rp enable (PIM view)

Use **auto-rp enable** to enable Auto-RP listening.

Use **undo auto-rp enable** to disable Auto-RP listening.

### Syntax

```
auto-rp enable
```

```
undo auto-rp enable
```

## Default

Auto-RP listening is disabled.

## Views

PIM view

## Predefined user roles

network-admin

## Examples

```
# Enable Auto-RP listening on the public network.
<Sysname> system-view
[Sysname] pim
[Sysname-pim] auto-rp enable
```

## bsm-fragment enable (PIM view)

Use **bsm-fragment enable** to enable bootstrap message (BSM) semantic fragmentation.

Use **undo bsm-fragment enable** to disable BSM semantic fragmentation.

## Syntax

```
bsm-fragment enable
undo bsm-fragment enable
```

## Default

BSM semantic fragmentation is enabled.

## Views

PIM view

## Predefined user roles

network-admin

## Usage guidelines

Disable BSM semantic fragmentation if the PIM-SM domain contains a device that does not support BSM semantic fragmentation.

## Examples

```
# Disable BSM semantic fragmentation on the public network.
<Sysname> system-view
[Sysname] pim
[Sysname-pim] undo bsm-fragment enable
```

## bsm-reflection enable (PIM view)

Use **bsm-reflection enable** to enable the device to forward BSMs out of their incoming interfaces.

Use **undo bsm-reflection enable** to disable the device from forwarding BSMs out of their incoming interfaces.

## Syntax

```
bsm-reflection enable
undo bsm-reflection enable
```

## Default

The device forwards BSMs out of their incoming interfaces.

## Views

PIM view

## Predefined user roles

network-admin

## Usage guidelines

Disable this feature if all the devices in the PIM-SM domain have consistent routing information.

## Examples

```
# Disable the device from forwarding BSMs out of their incoming interfaces on the public network.
<Sysname> system-view
[Sysname] pim
[Sysname-pim] undo bsm-reflection enable
```

# bsr-policy (PIM view)

Use **bsr-policy** to configure a BSR policy.

Use **undo bsr-policy** to restore the default.

## Syntax

```
bsr-policy ipv4-acl-number
undo bsr-policy
```

## Default

No BSR policy exists, and all bootstrap messages are regarded as legal.

## Views

PIM view

## Predefined user roles

network-admin

## Parameters

*ipv4-acl-number*: Specifies an IPv4 basic ACL by its number in the range of 2000 to 2999.

## Usage guidelines

A BSR policy filters bootstrap messages to guard against BSR spoofing.

When you configure a rule in the IPv4 basic ACL, follow these restrictions and guidelines:

- For the rule to take effect, do not specify the **vpn-instance** *vpn-instance* option.
- The **source** *source-address source-wildcard* option specifies a BSR address.
- Among the other optional parameters, only the **fragment** keyword and the **time-range** *time-range-name* option take effect.

If you execute this command multiple times, the most recent configuration takes effect.

## Examples

# Configure a BSR policy on the public network so that only the devices on subnet 10.1.1.0/24 can act as the BSR.

```
<Sysname> system-view
[Sysname] acl basic 2000
[Sysname-acl-ipv4-basic-2000] rule permit source 10.1.1.0 0.0.0.255
[Sysname-acl-ipv4-basic-2000] quit
[Sysname] pim
[Sysname-pim] bsr-policy 2000
```

## Related commands

**c-bsr** (PIM view)

## c-bsr (PIM view)

Use **c-bsr** to configure a candidate-BSR (C-BSR).

Use **undo c-bsr** to remove the configuration of a C-BSR.

## Syntax

```
c-bsr ip-address [ scope group-address { mask-length | mask } ] [ hash-length hash-length | priority priority ] *
```

```
undo c-bsr ip-address [ scope group-address { mask-length | mask } ]
```

## Default

No C-BSRs exist.

## Views

PIM view

## Predefined user roles

network-admin

## Parameters

*ip-address*: Specifies the IP address of a C-BSR. You must specify the IP address of a local PIM interface.

**scope** *group-address*: Specifies a multicast group by its IP address in the range of 239.0.0.0 to 239.255.255.255. If you do not specify a multicast group, this command designates the C-BSR to the global-scoped zone.

*mask-length*: Specifies an address mask length in the range of 8 to 32.

*mask*: Specifies an address mask.

**hash-length** *hash-length*: Specifies a hash mask length in the range of 0 to 32. The default setting is 30.

**priority** *priority*: Specifies a C-BSR priority in the range of 0 to 255. The default setting is 64. The greater the value, the higher the priority.

## Usage guidelines

If you execute this command for a zone multiple times, the most recent configuration takes effect.

You can configure the same C-BSR for different zones.

## Examples

```
# Configure the interface with IP address 1.1.1.1 as a C-BSR for the global-scoped zone on the public network.
```

```
<Sysname> system-view
[Sysname] pim
[Sysname-pim] c-bsr 1.1.1.1
```

## c-rp (PIM view)

Use **c-rp** to configure a candidate-RP (C-RP).

Use **undo c-rp** to remove the configuration of a C-RP.

### Syntax

```
c-rp ip-address [ advertisement-interval adv-interval | group-policy ipv4-acl-number | holdtime hold-time | priority priority ] *
undo c-rp ip-address
```

### Default

No C-RPs exist.

### Views

PIM view

### Predefined user roles

network-admin

### Parameters

**ip-address**: Specifies the IP address of a C-RP. You must specify the IP address of a local PIM interface.

**advertisement-interval** *adv-interval*: Specifies a C-RP advertisement interval in the range of 1 to 65535 seconds. The default value is 60 seconds.

**group-policy** *ipv4-acl-number*: Specifies an IPv4 basic ACL by its number in the range of 2000 to 2999. If you specify an ACL, this command designates the C-RP to IPv4 multicast groups in C-RP advertisement messages that the ACL permits. The C-RP is designated to all IPv4 multicast groups when one of the following conditions exists:

- You do not specify an ACL.
- The specified ACL does not exist.
- The specified ACL does not have valid rules.

**holdtime** *hold-time*: Specifies a C-RP lifetime in the range of 1 to 65535 seconds. The default value is 150 seconds.

**priority** *priority*: Specifies a C-RP priority in the range of 0 to 255. The default setting is 192. The greater the value, the lower the priority.

### Usage guidelines

To designate a C-RP to multiple multicast group ranges, create multiple rules that specify different multicast group ranges in the ACL.

When you configure a rule in the IPv4 basic ACL, follow these restrictions and guidelines:

- For the rule to take effect, do not specify the **vpn-instance** *vpn-instance* option.
- The **source** *source-address source-wildcard* option specifies a multicast group range.

- Among the other optional parameters, only the **fragment** keyword and the **time-range** *time-range-name* option take effect.

If you execute this command by using the same C-RP address multiple times, the most recent configuration takes effect.

## Examples

# Configure the interface with IP address 1.1.1.1 as a C-RP for multicast group ranges 225.1.0.0/16 and 226.2.0.0/16 and set its priority to 10 on the public network.

```
<Sysname> system-view
[Sysname] acl basic 2000
[Sysname-acl-ipv4-basic-2000] rule permit source 225.1.0.0 0.0.255.255
[Sysname-acl-ipv4-basic-2000] rule permit source 226.2.0.0 0.0.255.255
[Sysname-acl-ipv4-basic-2000] quit
[Sysname] pim
[Sysname-pim] c-rp 1.1.1.1 group-policy 2000 priority 10
```

## crp-policy (PIM view)

Use **crp-policy** to configure a C-RP policy.

Use **undo crp-policy** to restore the default.

### Syntax

```
crp-policy ipv4-acl-number
undo crp-policy
```

### Default

No C-RP policy exists, and all C-RP messages are regarded as legal.

### Views

PIM view

### Predefined user roles

network-admin

### Parameters

*ipv4-acl-number*: Specifies an IPv4 advanced ACL number in the range of 3000 to 3999.

### Usage guidelines

A C-RP policy filters C-RP advertisement messages to guard against C-RP spoofing.

The device uses only the prefixes of the multicast group ranges in advertisement messages to match the destination field in ACL rules. For example, the multicast group range in an advertisement message is 224.1.0.0/16. If the prefix 224.1.0.0 is in the range specified by the destination field of an ACL rule, the specified C-RPs are designated to this multicast group range.

When you configure a rule in the IPv4 advanced ACL, follow these restrictions and guidelines:

- For the rule to take effect, do not specify the **vpn-instance** *vpn-instance* option.
- The **source** *source-address source-wildcard* option specifies an RP address.
- The **destination** *dest-address dest-wildcard* option specifies a multicast group address.
- Among the other optional parameters, only the **fragment** keyword and the **time-range** *time-range-name* option take effect.



If you execute this command multiple times, the most recent configuration takes effect.

## Examples

```
# Configure a C-RP policy on the public network so that only devices in the range of 1.1.1.1/24 can be C-RPs for the groups in the range of 225.1.1.0/24.
```

```
<Sysname> system-view
[Sysname] acl advanced 3000
[Sysname-acl-ipv4-adv-3000] rule permit ip source 1.1.1.1 0.0.0.255 destination 225.1.1.0 0.0.0.255
[Sysname-acl-ipv4-adv-3000] quit
[Sysname] pim
[Sysname-pim] crp-policy 3000
```

## Related commands

**c-rp** (PIM view)

# display interface register-tunnel

Use **display interface register-tunnel** to display register-tunnel interface information.

## Syntax

```
display interface [ register-tunnel [ interface-number ] ] [ brief
[ description | down ] ]
```

## Views

Any view

## Predefined user roles

network-admin  
network-operator

## Parameters

**register-tunnel** [ *interface-number* ]: Specifies a register-tunnel interface by its number. The device has only one register-tunnel interface, Register-Tunnel 0. If you specify the **register-tunnel** keyword, this command displays information about Register-Tunnel 0 regardless of whether you specify an interface number. If you do not specify the **register-tunnel** keyword, this command displays information about all interfaces.

**brief**: Displays brief information. If you do not specify this keyword, the command displays detailed information.

**description**: Displays the full interface description. If you do not specify this keyword, the command displays only the first 27 characters of the interface description.

**down**: Displays information about the interfaces in down state and the reasons why the interfaces are down. If you do not specify this keyword, the command displays information about interfaces in all states.

## Usage guidelines

The register-tunnel interface is a virtual interface that is automatically created by the system. You cannot configure it or delete it, but you can display the interface information by using this command.

In the initial stage of multicast source registration, the register-tunnel interface is used to establish a channel between the source-side DR and the RP to transmit multicast register messages. The process of initial source registration is as follows:

1. After receiving the first multicast data from the source, the source-side DR encapsulates the multicast data into a register message. Then, it forwards the message to the RP through the register-tunnel interface.
2. The register message reaches RP on the register-tunnel interface on the RP. The RP decapsulates the register message and forwards the multicast data to the receiver hosts. At the same time, the RP learns the IP address of the multicast source.
3. The RP sends a join message toward the multicast source to build an SPT.
4. After the SPT is built, the multicast data travels to the RP along the SPT rather than through the register-tunnel interface.

## Examples

# Display detailed information about Register-Tunnel 0.

```
<Sysname> display interface register-tunnel 0
Register-Tunnel0
Current state: UP
Line protocol state: DOWN
Description: Register-Tunnel0 Interface
Maximum transmission unit: 1536
Internet protocol processing: Disabled
Physical: Unknown
Last 300 seconds input rate: 0 bytes/sec, 0 bits/sec, 0 packets/sec
Last 300 seconds output rate: 0 bytes/sec, 0 bits/sec, 0 packets/sec
Input: 0 packets, 0 bytes, 0 drops
Output: 0 packets, 0 bytes, 0 drops
```

# Display brief information about Register-Tunnel 0.

```
<Sysname> display interface register-tunnel 0 brief
Brief information on interfaces in route mode:
Link: ADM - administratively down; Stby - standby
Protocol: (s) - spoofing
Interface          Link Protocol Primary IP      Description
REG0               UP    --      --
```

**Table 1 Command output**

Field	Description
Current state	Physical link state of the interface. This field always displays <b>UP</b> .
Line protocol state	Data link layer state of interface. This field always displays <b>DOWN</b> .
Description	Description of the interface. It is not configurable.
Maximum transmission unit	MTU of the register-tunnel interface. It is not configurable.
Internet protocol processing: Disabled	The interface is not assigned an IP address and cannot process IP packets.
Physical	Physical type of the interface. This field always displays <b>Unknown</b> , because the physical type of the interface is unknown.
Last 300 seconds input rate	Average incoming rate in the last 300 seconds. This field always displays <b>0</b> .
Last 300 seconds output rate	Average outgoing rate in the last 300 seconds. This field always displays <b>0</b> .
Input	Number of incoming packets, incoming bytes, and discarded packets. This field always displays <b>0</b> .

Field	Description
Output	Number of outgoing packets, outgoing bytes, and discarded packets. This field always displays <b>0</b> .
Brief information on interfaces in route mode	Brief information about Layer 3 interfaces.
Link	Physical link state of the interface. This field always displays <b>UP</b> .
Protocol	Data link layer protocol state of the interface. This field always displays two hyphens (--) because the interface does not support a data link layer protocol.
Primary IP	Primary IP address of the interface. This field always displays two hyphens (--) because the interface does not have a primary IP address.
Cause	Cause for the physical link state of an interface to be <b>DOWN</b> . This field always displays <b>Not connected</b> because no physical connection exists.
Description	Description of the interface. This field is empty because the interface cannot be configured with a description.

### Related command

```
reset counters interface register-tunnel
```

## display pim bsr-info

Use `display pim bsr-info` to display BSR information.

### Syntax

```
display pim [ vpn-instance vpn-instance-name ] bsr-info
```

### Views

Any view

### Predefined user roles

network-admin  
network-operator

### Parameters

**vpn-instance** *vpn-instance-name*: Specifies an MPLS L3VPN instance by its name, a case-sensitive string of 1 to 31 characters. If you do not specify a VPN instance, this command displays BSR information on the public network.

### Examples

# Display BSR information on the public network.

```
<Sysname> display pim bsr-info
Scope: non-scoped
  State: Accept Preferred
  Bootstrap timer: 00:01:44
  Elected BSR address: 12.12.12.1
  Priority: 64
  Hash mask length: 30
  Uptime: 00:21:56

Scope: 239.4.0.0/16
```

State: Accept Any  
Scope-zone expiry timer: 00:21:12

Scope: 239.1.0.0/16  
State: Elected  
Bootstrap timer: 00:00:26  
Elected BSR address: 17.1.11.1  
Priority: 64  
Hash mask length: 30  
Uptime: 02:53:37  
Candidate BSR address: 17.1.11.1  
Priority: 64  
Hash mask length: 30

Scope: 239.2.2.0/24  
State: Candidate  
Bootstrap timer: 00:01:56  
Elected BSR address: 61.2.37.1  
Priority: 64  
Hash mask length: 30  
Uptime: 02:53:32  
Candidate BSR address: 17.1.12.1  
Priority: 64  
Hash mask length: 30

Scope: 239.3.3.0/24  
State: Pending  
Bootstrap timer: 00:00:07  
Candidate BSR address: 17.1.13.1  
Priority: 64  
Hash mask length: 30

**Table 2 Command output**

Field	Description
Bootstrap timer	Aging timer for the BSR.
Scope-zone expiry timer	Aging timer for the scoped zone.
Elected BSR address	Address of the elected BSR.
Candidate BSR address	Address of the C-BSR.
Priority	BSR priority.
Uptime	Length of time the BSR has been up.

## display pim claimed-route

Use `display pim claimed-route` to display information about all routes that PIM uses.

## Syntax

```
display pim [ vpn-instance vpn-instance-name ] claimed-route  
[ source-address ]
```

## Views

Any view

## Predefined user roles

network-admin

network-operator

## Parameters

**vpn-instance** *vpn-instance-name*: Specifies an MPLS L3VPN instance by its name, a case-sensitive string of 1 to 31 characters. If you do not specify a VPN instance, this command displays information about all routes that PIM uses on the public network.

*source-address*: Specifies a multicast source by its IP address. If you do not specify a multicast source, this command displays information about all routes that PIM uses.

## Examples

# Display information about all routes that PIM uses on the public network.

```
<Sysname> display pim claimed-route  
RPF-route selecting rule: longest-match  
  
Route/mask: 7.11.0.0/16 (unicast (direct))  
RPF interface: Vlan-interface2, RPF neighbor: 8.0.0.2  
Total number of (S,G) or (*,G) dependent on this route entry: 4  
(7.11.0.10, 225.1.1.1)  
(7.11.0.10, 226.1.1.1)  
(7.11.0.10, 227.1.1.1)  
(* , 228.1.1.1)  
Route/mask: 7.12.0.0/16 (multicast static)  
RPF interface: Vlan-interface2, RPF neighbor: 8.0.0.3,  
Config NextHop: 8.0.0.5  
Total number of (S,G) or (*,G) dependent on this route entry: 2  
(7.12.0.10, 226.1.1.1)  
(7.12.0.10, 225.1.1.1)
```

**Table 3 Command output**

Field	Description
Route/mask	Route entry. Route types in parentheses include: <ul style="list-style-type: none"><li>• <b>igp</b>—IGP unicast route.</li><li>• <b>egp</b>—EGP unicast route.</li><li>• <b>unicast (direct)</b>—Direct unicast route.</li><li>• <b>unicast</b>—Other unicast route, such as static unicast route.</li><li>• <b>mbgp</b>—MBGP route.</li><li>• <b>multicast static</b>—Static multicast route.</li></ul>
RPF interface	Name of the RPF interface.
RPF neighbor	IP address of the RPF neighbor.

Field	Description
Config NextHop	Address of the configured next hop. This field is displayed only when the static multicast route is configured with a next hop.
Total number of (S,G) or (*,G) dependent on this route entry	Total number of (S, G) or (*, G) entries associated with the RPF route and the entry list.

## display pim c-rp

Use **display pim c-rp** to display C-RP information.

### Syntax

```
display pim [ vpn-instance vpn-instance-name ] c-rp [ local ]
```

### Views

Any view

### Predefined user roles

network-admin  
network-operator

### Parameters

**vpn-instance** *vpn-instance-name*: Specifies an MPLS L3VPN instance by its name, a case-sensitive string of 1 to 31 characters. If you do not specify a VPN instance, this command displays information about learned C-RPs on the public network.

**local**: Specifies local C-RPs. If you do not specify this keyword, the command displays information about all C-RPs.

### Usage guidelines

You can view information about learned C-RPs only on the BSR. On other devices, you can view information about the locally configured C-RPs.

### Examples

# Display information about learned C-RPs on the public network.

```
<Sysname> display pim c-rp
Scope: non-scoped
  Group/MaskLen: 224.0.0.0/4
    C-RP address      Priority  HoldTime  Uptime    Expires
  1.1.1.1 (local)    192     150       03:01:36  00:02:29
  2.2.2.2            192     150       1d:13h    00:02:02
  Group/MaskLen: 226.1.1.0/24 [B] Expires: 00:00:33
  Group/MaskLen: 225.1.0.0/16 [B]
    C-RP Address      Priority  HoldTime  Uptime    Expires
  3.3.3.3            192     150       12w:5d    00:02:05
```

# Display information about the locally configured C-RPs.

```
<Sysname> display pim c-rp local
Candidate RP: 12.12.12.9(Loop1)
  Priority: 192
  HoldTime: 150
  Advertisement interval: 60
```

Next advertisement scheduled at: 00:00:48

**Table 4 Command output**

Field	Description
Group/MaskLen	Multicast group to which the C-RP is designated.
[B]	BIDIR-PIM is not supported in the current software version. BIDIR-PIM C-RP. This field is not displayed if the C-RP is a PIM-SM C-RP.
C-RP address	IP address of the C-RP. If the C-RP resides on the device where the command is executed, this field displays <b>(local)</b> after the address.
Priority	Priority of the C-RP.
HoldTime	Lifetime of the C-RP.
Uptime	Length of time the C-RP has been up: <ul style="list-style-type: none"><li>• <b>w</b>—Weeks.</li><li>• <b>d</b>—Days.</li><li>• <b>h</b>—Hours.</li></ul>
Expires	Remaining lifetime for the C-RP and the multicast group.
Candidate RP	IP address of the locally configured C-RP.
Advertisement interval	Interval between two advertisement messages sent by the locally configured C-RP.
Next advertisement scheduled at	Remaining time for the locally configured C-RP to send the next advertisement message.

## display pim interface

Use `display pim interface` to display PIM information for interfaces.

### Syntax

```
display pim [ vpn-instance vpn-instance-name ] interface [ interface-type  
interface-number ] [ verbose ]
```

### Views

Any view

### Predefined user roles

network-admin

network-operator

### Parameters

**vpn-instance** *vpn-instance-name*: Specifies an MPLS L3VPN instance by its name, a case-sensitive string of 1 to 31 characters. If you do not specify a VPN instance, this command displays PIM information for interfaces on the public network.

*interface-type interface-number*: Specifies an interface by its type and number. If you do not specify an interface, this command displays PIM information for all interfaces.

**verbose**: Displays detailed PIM information. If you do not specify this keyword, the command displays brief PIM information.

## Examples

# Display brief PIM information for all interfaces on the public network.

```
<Sysname> display pim interface
Interface      NbrCnt  HelloInt  DR-Pri   DR-Address
Vlan1          1       30        1        10.1.1.2
Vlan2          0       30        1        172.168.0.2  (local)
Vlan3          1       30        1        20.1.1.2
```

**Table 5 Command output**

Field	Description
NbrCnt	Number of PIM neighbors.
HelloInt	Interval for sending hello messages.
DR-Pri	Priority for DR election.
DR-Address	IP address of the DR. If the DR resides on the device where the command is executed, this field displays <b>(local)</b> after the address.

# Display detailed PIM information for VLAN-interface 1 on the public network.

```
<Sysname> display pim interface vlan-interface 1 verbose
Interface: Vlan-interfaces1, 10.1.1.1
  PIM version: 2
  PIM mode: Sparse
  PIM DR: 10.1.1.2
  PIM DR Priority (configured): 1
  PIM neighbors count: 1
  PIM hello interval: 30 s
  PIM LAN delay (negotiated): 500 ms
  PIM LAN delay (configured): 500 ms
  PIM override interval (negotiated): 2500 ms
  PIM override interval (configured): 2500 ms
  PIM neighbor tracking (negotiated): disabled
  PIM neighbor tracking (configured): disabled
  PIM generation ID: 0xF5712241
  PIM require generation ID: disabled
  PIM hello hold interval: 105 s
  PIM assert hold interval: 180 s
  PIM triggered hello delay: 5 s
  PIM J/P interval: 60 s
  PIM J/P hold interval: 210 s
  PIM BSR domain border: disabled
  PIM BFD: disabled
  PIM passive: disabled
  Number of routers on network not using DR priority: 0
  Number of routers on network not using LAN delay: 0
  Number of routers on network not using neighbor tracking: 2
```



**Table 6 Command output**

Field	Description
PIM version	Version of the PIM protocol.
PIM mode	PIM mode: dense or sparse.
PIM DR	IP address of the DR.
PIM DR Priority (configured)	Configured priority for DR election.
PIM neighbors count	Total number of PIM neighbors.
PIM hello interval	Interval between two hello messages.
PIM LAN delay (negotiated)	Negotiated PIM message propagation delay.
PIM LAN delay (configured)	Configured PIM message propagation delay.
PIM override interval (negotiated)	Negotiated interval for overriding prune messages.
PIM override interval (configured)	Configured interval for overriding prune messages.
PIM neighbor tracking (negotiated)	Negotiated neighbor tracking status: enabled or disabled.
PIM neighbor tracking (configured)	Configured neighbor tracking status: enabled or disabled.
PIM require generation ID	Whether the feature of discarding hello messages without Generation_ID is enabled.
PIM hello hold interval	PIM neighbor lifetime.
PIM assert hold interval	Assert holdtime timer.
PIM triggered hello delay	Maximum delay for sending hello messages.
PIM J/P interval	Interval between two join/prune messages.
PIM J/P hold interval	Joined/pruned state holdtime timer.
PIM BSR domain border	Whether a PIM domain border is configured.
PIM BFD	Whether PIM is enabled to work with BFD.
PIM passive	Whether PIM passive mode is enabled on the interface.
Number of routers on network not using DR priority	Number of routers that do not use the DR priority field on the subnet where the interface resides.
Number of routers on network not using LAN delay	Number of routers that do not use the LAN delay field on the subnet where the interface resides.
Number of routers on network not using neighbor tracking	Number of routers that are not enabled with neighbor tracking on the subnet where the interface resides.

## display pim neighbor

Use **display pim neighbor** to display PIM neighbor information.

### Syntax

```
display pim [ vpn-instance vpn-instance-name ] neighbor [ neighbor-address | interface interface-type interface-number | verbose ] *
```

### Views

Any view

## Predefined user roles

network-admin  
network-operator

## Parameters

**vpn-instance** *vpn-instance-name*: Specifies an MPLS L3VPN instance by its name, a case-sensitive string of 1 to 31 characters. If you do not specify a VPN instance, this command displays PIM neighbor information on the public network.

*neighbor-address*: Specifies a PIM neighbor by its IP address. If you do not specify a PIM neighbor, this command displays information about all PIM neighbors.

**interface** *interface-type interface-number*: Specifies an interface by its type and number. If you do not specify an interface, this command displays PIM neighbor information on all interfaces.

**verbose**: Displays detailed PIM neighbor information. If you do not specify this keyword, the command displays brief PIM neighbor information.

## Examples

# Display brief information about all PIM neighbors on the public network.

```
<Sysname> display pim neighbor
Total Number of Neighbors = 2
```

Neighbor	Interface	Uptime	Expires	DR-Priority	Mode
10.1.1.2	Vlan1	02:50:49	00:01:31	1	B
20.1.1.2	Vlan2	02:49:39	00:01:42	1	P

# Display detailed information about the PIM neighbor with IP address 11.110.0.20 on the public network.

```
<Sysname> display pim neighbor 11.110.0.20 verbose
```

```
Neighbor: 11.110.0.20
  Interface: Vlan-interface3
  Uptime: 00:00:10
  Expiry time: 00:00:30
  DR Priority: 1
  Generation ID: 0x2ACEFE15
  Holdtime: 105 s
  LAN delay: 500 ms
  Override interval: 2500 ms
  State refresh interval: 60 s
  Neighbor tracking: Disabled
  Bidirectional PIM: Disabled
  RPF proxy vector: Disabled
  Secondary address(es):
  22.1.1.2
  22.1.1.3
  22.1.1.4
  22.1.1.5
  22.1.1.6
  22.1.1.7
  22.1.1.8
```

**Table 7 Command output**

Field	Description
Total Number of Neighbors	Total number of PIM neighbors.
Neighbor	IP address of the PIM neighbor.
Interface	Interface that connects to the PIM neighbor.
Uptime	Length of time the PIM neighbor has been up.
Expires/Expiry time	Remaining lifetime for the PIM neighbor. If the PIM neighbor is always up and reachable, this field displays <b>never</b> .
DR-Priority/DR Priority	Priority of the PIM neighbor.
Mode	<p>PIM mode.</p> <ul style="list-style-type: none"> <li><b>B</b>—The PIM mode is BIDIR-PIM. BIDIR-PIM is not supported in the current software version.</li> <li><b>P</b>—The RPF proxy vector is enabled.</li> </ul> <p>This field is empty if the PIM mode is not BIDIR-PIM and the RPF vector is disabled.</p>
Generation ID	Generation ID of the PIM neighbor. (A random value represents a status change of the PIM neighbor.)
Holdtime	Lifetime of the PIM neighbor. If the PIM neighbor is always up and reachable, this field displays <b>forever</b> .
LAN delay	PIM message propagation delay on a shared-media LAN.
Override interval	Interval for overriding prune messages.
State refresh interval	Interval for refreshing state. This field is displayed only when the PIM neighbor operates in the PIM-DM mode and the state refresh capability is enabled.
Neighbor tracking	Neighbor tracking status: enabled or disabled.
Bidirectional PIM	<p>BIDIR-PIM is not supported in the current software version.</p> <p>Whether BIDIR-PIM is enabled.</p>
RPF proxy vector	<p>Whether the RPF vector feature is enabled.</p> <p>For more information about the RPF proxy vector feature, see "Configuring multicast VPN."</p>
Secondary address(es)	Secondary addresses of the PIM neighbor.

## display pim routing-table

Use `display pim routing-table` to display PIM routing entries.

### Syntax

```
display pim [ vpn-instance vpn-instance-name ] routing-table
[ group-address [ mask { mask-length | mask } ] | source-address [ mask
{ mask-length | mask } ] | flags flag-value | fsm | incoming-interface
interface-type interface-number | mode mode-type | outgoing-interface
{ exclude | include | match } interface-type interface-number | proxy ] *
```

### Views

Any view

## Predefined user roles

network-admin

network-operator

## Parameters

**vpn-instance** *vpn-instance-name*: Specifies an MPLS L3VPN instance by its name, a case-sensitive string of 1 to 31 characters. If you do not specify a VPN instance, this command displays PIM routing entries on the public network.

*group-address*: Specifies a multicast group by its IP address in the range of 224.0.0.0 to 239.255.255.255. If you do not specify a multicast group, this command displays PIM routing entries for all multicast groups.

*source-address*: Specifies a multicast source by its IP address.

*mask-length*: Specifies an address mask length in the range of 0 to 32. The default value is 32.

*mask*: Specifies an address mask. The default value is 255.255.255.255.

**flags** *flag-value*: Specifies a flag. If you do not specify a flag, this command displays PIM routing entries that contain all flags. The following lists the values for the *flag-value* argument and their meanings:

- **2msdp**: Specifies PIM routing entries to be contained in the next SA message to notify an MSDP peer.
- **2mvpn**: Specifies PIM routing entries that have been advertised to MVPN.
- **act**: Specifies PIM routing entries that have been used for routing data.
- **del**: Specifies PIM routing entries to be deleted.
- **exprune**: Specifies PIM routing entries containing outgoing interfaces pruned by other multicast routing protocols.
- **ext**: Specifies PIM routing entries containing outgoing interfaces provided by other multicast routing protocols.
- **loc**: Specifies PIM routing entries on the devices that reside on the same subnet as the multicast source.
- **msdp**: Specifies PIM routing entries learned from MSDP SA messages.
- **niif**: Specifies PIM routing entries containing unknown incoming interfaces.
- **nonbr**: Specifies PIM routing entries with PIM neighbor lookup failure.
- **rpt**: Specifies PIM routing entries on the RPT branches where (S, G) prunes have been sent to the RP.
- **rc**: Specifies PIM routing entries that have received C-Multicast route information.
- **rq**: Specifies PIM routing entries of the receiving side of the data-MDT switchover.
- **spt**: Specifies PIM routing entries on the SPT.
- **sq**: Specifies PIM routing entries of the originator side of data-MDT switchover.
- **src-act**: Specifies PIM routing entries that have received Source Active A-D route information.
- **swt**: Specifies PIM routing entries in the process of RPT-to-SPT switchover.
- **vxlan**: Specifies VXLAN overlay entries maintained by PIM.
- **wc**: Specifies PIM routing entries with wildcards.

**fsm**: Displays detailed information about the finite state machine.

**incoming-interface** *interface-type interface-number*: Specifies an incoming interface. If you do not specify an incoming interface, this command displays PIM routing entries that contain all incoming interfaces.

**mode** *mode-type*: Specifies a PIM mode. If you do not specify a PIM mode, this command displays PIM routing entries in all PIM modes. The available PIM modes include:

- **dm**: Specifies PIM-DM.
- **sm**: Specifies PIM-SM.
- **ssm**: Specifies PIM-SSM.

**outgoing-interface** { **exclude** | **include** | **match** } *interface-type interface-number*: Specifies an outgoing interface. If you do not specify an outgoing interface, this command displays PIM routing entries that contain all outgoing interfaces. Whether an outgoing interface is contained in the PIM routing table depends on the following conditions:

- If you specify an excluded interface, this command displays PIM routing entries that do not contain the specified outgoing interface.
- If you specify an included interface, this command displays PIM routing entries that contain the specified outgoing interface.
- If you specify a matching interface, this command displays PIM routing entries that contain only the specified outgoing interface.

**proxy**: Displays information about the RPF vector used by PIM routing entries.

## Examples

# Display PIM routing entries on the public network.

```
<Sysname> display pim routing-table
Total 0 (*, G) entries; 1 (S, G) entries

(172.168.0.12, 227.0.0.1)
  RP: 2.2.2.2
  Protocol: pim-sm, Flag: SPT LOC ACT
  UpTime: 02:54:43
  Upstream interface: Vlan-interface1
    Upstream neighbor: NULL
    RPF prime neighbor: NULL
  Downstream interface information:
  Total number of downstream interfaces: 1
    1: Vlan-interface2
      Protocol: pim-sm, UpTime: 02:54:43, Expires: 00:02:47
```

**Table 8 Command output**

Field	Description
Total 0 (*, G) entries; 1 (S, G) entries	Total number of (*, G) entries, and the total number of (S, G) entries.
(172.168.0.12, 227.0.0.1)	(S, G) entry.
Protocol	PIM mode.
Flag	Flag of the (S, G) entry or (*, G) entry: <ul style="list-style-type: none"> <li>• <b>2MSDP</b>—The entry is to be advertised by the MSDP module in the next (S, A) message.</li> <li>• <b>2MVPN</b>—The entry has been advertised to MVPN.</li> <li>• <b>ACT</b>—The entry has been used for routing data.</li> </ul>

Field	Description
	<ul style="list-style-type: none"> <li>• <b>DEL</b>—The entry is to be removed.</li> <li>• <b>EXPRUNE</b>—Some outgoing interfaces are pruned by other multicast routing protocols.</li> <li>• <b>EXT</b>—The entry contains outgoing interfaces provided by other multicast routing protocols.</li> <li>• <b>LOC</b>—The entry is on a router directly connected to the same subnet with the multicast source.</li> <li>• <b>MSDP</b>—The entry is learned from an MSDP (S, A) message.</li> <li>• <b>NIIF</b>—The entry contains unknown incoming interfaces.</li> <li>• <b>NONBR</b>—The entry has a PIM neighbor lookup failure.</li> <li>• <b>RC</b>—The entry has received C-Multicast route information.</li> <li>• <b>RPT</b>—The entry is on an RPT branch where (S, G) prunes have been sent to the RP.</li> <li>• <b>SPT</b>—The entry is on the SPT.</li> <li>• <b>SQ</b>—The entry triggers the default-MDT to data-MDT switchover.</li> <li>• <b>SRC-ACT</b>—The entry has received Source Active A-D route information.</li> <li>• <b>SWT</b>—The entry is in the process of RPT-to-SPT switchover.</li> <li>• <b>VXLAN</b>—The entry is a VXLAN overlay entry.</li> <li>• <b>WC</b>—The entry contains a wildcard.</li> </ul>
Uptime	Length of time for which the (S, G) entry or (*, G) entry has been up.
Upstream interface	Upstream (incoming) interface of the (S, G) entry or (*, G) entry.
Upstream neighbor	Upstream neighbor of the (S, G) entry or (*, G) entry.
RPF prime neighbor	<p>RPF neighbor of the (S, G) or (*, G) entry:</p> <ul style="list-style-type: none"> <li>• For a (*, G) entry, if the RPF neighbor is the RP, the field displays <b>NULL</b>.</li> <li>• For an (S, G) entry, if the RPF neighbor is a router that directly connects to the multicast source, this field displays <b>NULL</b>.</li> </ul>
Downstream interface information	<p>Information about the downstream interfaces:</p> <ul style="list-style-type: none"> <li>• Total number of downstream interfaces.</li> <li>• Names of the downstream interfaces.</li> <li>• Protocol type on the downstream interfaces.</li> <li>• Uptime of the downstream interfaces.</li> <li>• Expiration time of the downstream interfaces.</li> </ul>

# Display information about the RPF vector used by the public network PIM routing entries on a PE device.

```
<Sysname> display pim routing-table proxy
(100.0.0.8, 232.1.1.1)
  Proxy: 10:1/192.168.0.4
  Assigner: 0.0.0.0          Origin: BGP MDT
  Uptime: 02:08:18         Expires: Off
```

# Display information about the RPF vector used by the public network PIM routing entries on a P device.

```
<Sysname> display pim routing-table proxy
(100.0.0.8, 232.1.1.1)
  Proxy: 10:1/192.168.0.4
  Assigner: 1.0.3.1          Origin: PIM
  Uptime: 02:19:33         Expires: 00:02:12
```

# Display information about the RPF vector used by the public network PIM routing entries on an ASBR.

```
<Sysname> display pim routing-table proxy
(100.0.0.1, 232.1.1.1)
  Proxy: 10:1/local
  Assigner: 1.0.5.9      Origin: PIM
  Uptime: 02:22:04     Expires: 00:02:35
(100.0.0.8, 232.1.1.1)
  Proxy: 10:1/local
  Assigner: 1.0.4.1     Origin: PIM
  Uptime: 02:21:10     Expires: 00:02:35
```

**Table 9 Command output**

Field	Description
Proxy	RPF vector, including the RD and the IP address of the RPF vector. If the RPF vector resides on the device where the command is executed, this field displays <b>(local)</b> after the IP address.
Assigner	IP address of the device from which the RPF vector is obtained: <ul style="list-style-type: none"> <li>On PE devices, the RPF vector is obtained from a BGP MDT routing entry. This field displays <b>0.0.0.0</b>.</li> <li>On non-PE devices, the RPF vector is obtained from the PIM join message sent by a downstream PIM neighbor. This field displays the IP address of the downstream PIM neighbor.</li> </ul>
Origin	Protocol that origins the RPF vector: <ul style="list-style-type: none"> <li>On PE devices, the RPF vector is obtained from a BGP MDT routing entry. This field displays <b>BGP MDT</b>.</li> <li>On non-PE devices, the RPF vector is obtained from the PIM join message sent by a downstream PIM neighbor. This field displays <b>PIM</b>.</li> </ul>
Uptime	Length of time since the RPF vector is originated.
Expires	Remaining timeout time for the RPF vector, where <b>Off</b> means that the timer is disabled.

## display pim rp-info

Use `display pim rp-info` to display PIM RP information.

### Syntax

```
display pim [ vpn-instance vpn-instance-name ] rp-info [ group-address ]
```

### Views

Any view

### Predefined user roles

network-admin  
network-operator

### Parameters

**vpn-instance** *vpn-instance-name*: Specifies an MPLS L3VPN instance by its name, a case-sensitive string of 1 to 31 characters. If you do not specify a VPN instance, this command displays RP information on the public network.

*group-address*: Specifies a multicast group by its IP address in the range of 224.0.1.0 to 239.255.255.255. If you do not specify a multicast group, this command displays RP information for all multicast groups.

## Examples

# Display RP information for multicast group 224.0.1.1 on the public network.

```
<Sysname> display pim rp-info 224.0.1.1
```

```
BSR RP address is: 2.2.2.2
  Priority: 192
  HoldTime: 180
  Uptime: 03:01:10
  Expires: 00:02:30
```

```
Static RP address is: 3.3.3.5
  Preferred: Yes
  Configured ACL: 2003
```

```
RP mapping for this group is: 3.3.3.5
```

```
Anycast-RP 3.3.3.5 members:
```

Member address	State
1.1.0.1	Active
1.2.0.2	Local
1.2.0.1	Remote

# Display RP information for all multicast groups on the public network.

```
<Sysname> display pim rp-info
```

```
BSR RP information:
```

```
Scope: non-scoped
```

```
Group/MaskLen: 224.0.0.0/4
```

RP address	Priority	HoldTime	Uptime	Expires
1.1.1.1 (local)	192	180	03:01:36	00:02:29
2.2.2.2	192	180	1d:13h	00:02:02

```
Group/MaskLen: 225.1.0.0/16 [B]
```

RP address	Priority	HoldTime	Uptime	Expires
3.3.3.3	192	180	12w:5d	00:02:05

```
Static RP information:
```

RP address	ACL	Mode	Preferred
3.3.3.1	2000	pim-sm	No
3.3.3.3	2002	pim-sm	No
3.3.3.4		pim-sm	No
3.3.3.5	2002	pim-sm	Yes

```
Anycast-RP information:
```

RP address	Member address	State
3.3.3.5	1.1.0.1	Active
3.3.3.5	1.1.0.2	Local
3.3.3.5	1.2.0.1	Remote



**Table 10 Command output**

Field	Description
BSR RP address is	IP address of the RP.
BSR RP information	Information about the RP.
Group/MaskLen	Multicast group to which the RP is designated.
[B]	BIDIR-PIM is not supported in the current software version. The RP is a BIDIR-PIM RP. This field is not displayed if the RP is a PIM-SM RP.
RP address	IP address of the RP. If the RP resides on the device where the command is executed, this field displays <b>(local)</b> after the address.
Priority	Priority of the RP.
HoldTime	RP lifetime.
Uptime	Length of time the RP has been up.
Expires	Remaining lifetime for the RP.
Preferred	Whether the static RP is preferred.
Configured ACL/ACL	ACL defining the multicast groups to which the static RP is designated.
Mode	RP service mode: PIM-SM.
RP mapping for this group	IP address of the RP that provides services for the multicast group.
Anycast-RP 3.3.3.5 members	Members of Anycast RP 3.3.3.5.
Member address	IP address of the Anycast RP member.
State	State of the interface from which the member address originates: <ul style="list-style-type: none"> <li>• <b>Active</b>—Activated local interface.</li> <li>• <b>Local</b>—Inactivated local interface.</li> <li>• <b>Remote</b>—Remote interface.</li> </ul>

## display pim statistics

Use `display pim statistics` to display statistics for PIM packets.

### Syntax

```
display pim statistics
```

### Views

Any view

### Predefined user roles

network-admin  
network-operator

### Examples

```
# Display statistics for PIM packets.
<Sysname> display pim statistics
Received PIM packets: 3295
Sent PIM packets      : 5975
```

	Valid	Invalid	Succeeded	Failed
Hello	: 3128	0	4333	0
Reg	: 14	0	0	0
Reg-stop	: 0	0	0	0
JP	: 151	0	561	0
BSM	: 0	0	1081	0
Assert	: 0	0	0	0
Graft	: 0	0	0	0
Graft-ACK	: 0	0	0	0
C-RP	: 0	0	0	0
SRM	: 0	0	0	0
DF	: 0	0	0	0
AutoRP	: 0	0	0	0

**Table 11 Command output**

Field	Description
Received PIM packets	Total number of received PIM protocol packets.
Sent PIM packets	Total number of sent PIM protocol packets.
Valid	Number of received legal PIM protocol packets.
Invalid	Number of received illegal PIM protocol packets.
Succeeded	Number of PIM protocol packets that were sent successfully.
Failed	Number of PIM protocol packets that failed to be sent.
Hello	Hello message statistics.
Reg	Register message statistics.
Reg-stop	Register-stop message statistics.
JP	Join/prune message statistics.
BSM	Bootstrap message statistics.
Assert	Assert message statistics.
Graft	Graft message statistics.
Graft-ACK	Graft-ACK message statistics.
C-RP	C-RP message statistics.
SRM	State refresh message statistics.
DF	Designated forwarder statistics.
AutoRP	Auto-RP message statistics.

## dscp

Use **dscp** to set the DSCP value for outgoing PIM protocol packets.

Use **undo dscp** to restore the default.

### Syntax

**dscp** *dscp-value*

`undo dscp`

## Default

The DSCP value for outgoing PIM protocol packets is 48.

## Views

PIM view

## Predefined user roles

network-admin

## Parameters

*dscp-value*: Specifies the DSCP value in the range of 0 to 63.

## Usage guidelines

The DSCP value is carried in the ToS field of an IP packet to determine the transmission priority of the packet. A greater DSCP value represents a higher priority.

## Examples

```
# Set the DSCP value for outgoing PIM protocol packets to 63.
<Sysname> system-view
[Sysname] pim
[Sysname-pim] dscp 63
```

# hello-option dr-priority (PIM view)

Use `hello-option dr-priority` to set the DR priority globally.

Use `undo hello-option dr-priority` to restore the default.

## Syntax

```
hello-option dr-priority priority
undo hello-option dr-priority
```

## Default

The DR priority is 1.

## Views

PIM view

## Predefined user roles

network-admin

## Parameters

*priority*: Specifies a DR priority in the range of 0 to 4294967295. The greater the value, the higher the priority.

## Usage guidelines

You can set the DR priority globally for all interfaces in PIM view or for an interface in interface view. For an interface, the interface-specific configuration takes priority over the global configuration.

## Examples

```
# Set the global DR priority to 3 on the public network.
<Sysname> system-view
[Sysname] pim
```

```
[Sysname-pim] hello-option dr-priority 3
```

## Related commands

```
pim hello-option dr-priority
```

## hello-option holdtime (PIM view)

Use `hello-option holdtime` to set the PIM neighbor lifetime globally.

Use `undo hello-option holdtime` to restore the default.

### Syntax

```
hello-option holdtime time
```

```
undo hello-option holdtime
```

### Default

The PIM neighbor lifetime is 105 seconds.

### Views

PIM view

### Predefined user roles

network-admin

### Parameters

*time*: Specifies a PIM neighbor lifetime in the range of 1 to 65535 seconds. If you set the value to 65535 seconds, PIM neighbors are always reachable.

### Usage guidelines

You can set the PIM neighbor lifetime globally for all interfaces in PIM view or for an interface in interface view. For an interface, the interface-specific configuration takes priority over the global configuration.

### Examples

```
# Set the global PIM neighbor lifetime to 120 seconds on the public network.
```

```
<Sysname> system-view
```

```
[Sysname] pim
```

```
[Sysname-pim] hello-option holdtime 120
```

### Related commands

```
pim hello-option holdtime
```

## hello-option lan-delay (PIM view)

Use `hello-option lan-delay` to set the PIM message propagation delay on a shared-media LAN globally.

Use `undo hello-option lan-delay` to restore the default.

### Syntax

```
hello-option lan-delay delay
```

```
undo hello-option lan-delay
```

### Default

The PIM message propagation delay on a shared-media LAN is 500 milliseconds.

## Views

PIM view

## Predefined user roles

network-admin

## Parameters

*delay*: Specifies a PIM message propagation delay on a shared-media LAN, in the range of 1 to 32767 milliseconds.

## Usage guidelines

You can set the PIM message propagation delay globally for all interfaces in PIM view or for an interface in interface view. For an interface, the interface-specific configuration takes priority over the global configuration.

## Examples

```
# Set the global PIM message propagation delay on a shared-media LAN to 200 milliseconds on the public network.
```

```
<Sysname> system-view
[Sysname] pim
[Sysname-pim] hello-option lan-delay 200
```

## Related commands

**hello-option override-interval** (PIM view)

**pim hello-option lan-delay**

**pim hello-option override-interval**

# hello-option neighbor-tracking (PIM view)

Use **hello-option neighbor-tracking** to enable neighbor tracking globally.

Use **undo hello-option neighbor-tracking** to disable neighbor tracking globally.

## Syntax

**hello-option neighbor-tracking**

**undo hello-option neighbor-tracking**

## Default

Neighbor tracking is disabled.

## Views

PIM view

## Predefined user roles

network-admin

## Usage guidelines

You can enable neighbor tracking globally for all interfaces in PIM view or for an interface in interface view. For an interface, the interface-specific configuration takes priority over the global configuration.

## Examples

```
# Enable neighbor tracking globally on the public network.
```

```
<Sysname> system-view
[Sysname] pim
```

```
[Sysname-pim] hello-option neighbor-tracking
```

### Related commands

```
pim hello-option neighbor-tracking
```

## hello-option override-interval (PIM view)

Use `hello-option override-interval` to set the override interval globally.

Use `undo hello-option override-interval` to restore the default.

### Syntax

```
hello-option override-interval interval
```

```
undo hello-option override-interval
```

### Default

The override interval is 2500 milliseconds.

### Views

PIM view

### Predefined user roles

network-admin

### Parameters

*interval*: Specifies an override interval in the range of 1 to 65535 milliseconds.

### Usage guidelines

You can set the override interval globally for all interfaces in PIM view or for an interface in interface view. For an interface, the interface-specific configuration takes priority over the global configuration.

### Examples

```
# Set the global override interval to 2000 milliseconds on the public network.
```

```
<Sysname> system-view
```

```
[Sysname] pim
```

```
[Sysname-pim] hello-option override-interval 2000
```

### Related commands

```
hello-option lan-delay (PIM view)
```

```
pim hello-option lan-delay
```

```
pim hello-option override-interval
```

## holdtime join-prune (PIM view)

Use `holdtime join-prune` to set the joined/pruned state holdtime globally.

Use `undo holdtime join-prune` to restore the default.

### Syntax

```
holdtime join-prune time
```

```
undo holdtime join-prune
```

### Default

The joined/pruned state holdtime is 210 seconds.

## Views

PIM view

## Predefined user roles

network-admin

## Parameters

*time*: Specifies a joined/pruned state holdtime in the range of 1 to 65535 seconds.

## Usage guidelines

You can set the joined/pruned state holdtime globally for all interfaces in PIM view or for an interface in interface view. For an interface, the interface-specific configuration takes priority over the global configuration.

To prevent the upstream neighbors from aging out, you must set the join/prune interval to be less than the joined/pruned state holdtime.

## Examples

```
# Set the global joined/pruned state holdtime to 280 seconds on the public network.
<Sysname> system-view
[Sysname] pim
[Sysname-pim] holdtime join-prune 280
```

## Related commands

```
pim holdtime join-prune
timer join-prune (PIM view)
```

## jp-pkt-size (PIM view)

Use **jp-pkt-size** to set the maximum size of a join/prune message.

Use **undo jp-pkt-size** to restore the default.

## Syntax

```
jp-pkt-size size
undo jp-pkt-size
```

## Default

The maximum size of a join/prune message is 1200 bytes.

## Views

PIM view

## Predefined user roles

network-admin

## Parameters

*size*: Specifies the maximum size of a join/prune message, in the range of 100 to 8100 bytes.

## Examples

```
# Set the maximum size of a join/prune message to 1500 bytes on the public network.
<Sysname> system-view
[Sysname] pim
[Sysname-pim] jp-pkt-size 1500
```

# pim

Use **pim** to enter PIM view.

Use **undo pim** to remove all configurations in PIM view.

## Syntax

```
pim [ vpn-instance vpn-instance-name ]
```

```
undo pim [ vpn-instance vpn-instance-name ]
```

## Views

System view

## Predefined user roles

network-admin

## Parameters

**vpn-instance** *vpn-instance-name*: Specifies an MPLS L3VPN instance by its name, a case-sensitive string of 1 to 31 characters. If you do not specify a VPN instance, you enter public network PIM view.

## Examples

# Enable IP multicast routing on the public network and enter PIM view of the public network.

```
<Sysname> system-view  
[Sysname] multicast routing  
[Sysname-mrib] quit  
[Sysname] pim  
[Sysname-pim]
```

# Enable IP multicast routing for VPN instance **mvpn** and enter PIM view of VPN instance **mvpn**.

```
<Sysname> system-view  
[Sysname] multicast routing vpn-instance mvpn  
[Sysname-mrib-mvpn] quit  
[Sysname] pim vpn-instance mvpn  
[Sysname-pim-mvpn]
```

## Related commands

**multicast routing-enable**

# pim bfd enable

Use **pim bfd enable** to enable BFD for PIM.

Use **undo pim bfd enable** to disable BFD for PIM.

## Syntax

```
pim bfd enable
```

```
undo pim bfd enable
```

## Default

BFD is disabled for PIM.

## Views

Interface view



## Predefined user roles

network-admin

## Usage guidelines

This command takes effect only when PIM-DM or PIM-SM is enabled on the interface.

## Examples

```
# Enable IP multicast routing on the public network. Then, enable PIM-DM on VLAN-interface 100,
and enable BFD for PIM on the interface.
```

```
<Sysname> system-view
[Sysname] multicast routing
[Sysname-mrib] quit
[Sysname] interface vlan-interface 100
[Sysname-Vlan-interface100] pim dm
[Sysname-Vlan-interface100] pim bfd enable
```

## Related commands

**pim dm**

**pim sm**

# pim bsr-boundary

Use **pim bsr-boundary** to configure a PIM-SM domain border (a bootstrap message boundary).

Use **undo pim bsr-boundary** to restore the default.

## Syntax

**pim bsr-boundary**

**undo pim bsr-boundary**

## Default

An interface is not a PIM-SM domain border.

## Views

Interface view

## Predefined user roles

network-admin

## Examples

```
# Configure VLAN-interface 100 as a PIM-SM domain border.
```

```
<Sysname> system-view
[Sysname] interface vlan-interface 100
[Sysname-Vlan-interface100] pim bsr-boundary
```

## Related commands

**c-bsr** (PIM view)

**multicast boundary**

# pim dm

Use **pim dm** to enable PIM-DM.

Use `undo pim dm` to disable PIM-DM.

### Syntax

```
pim dm
undo pim dm
```

### Default

PIM-DM is disabled.

### Views

Interface view

### Predefined user roles

network-admin

### Usage guidelines

This command takes effect only when IP multicast routing is enabled on the public network or for the VPN instance to which the interface belongs.

### Examples

```
# Enable IP multicast routing on the public network, and enable PIM-DM on VLAN-interface 100.
<Sysname> system-view
[Sysname] multicast routing
[Sysname-mrib] quit
[Sysname] interface vlan-interface 100
[Sysname-Vlan-interface100] pim dm
```

### Related commands

```
multicast routing
```

## pim hello-option dr-priority

Use `pim hello-option dr-priority` to set the DR priority on an interface.

Use `undo pim hello-option dr-priority` to restore the default.

### Syntax

```
pim hello-option dr-priority priority
undo pim hello-option dr-priority
```

### Default

The DR priority is 1.

### Views

Interface view

### Predefined user roles

network-admin

### Parameters

*priority*: Specifies a DR priority in the range of 0 to 4294967295. The greater the value, the higher the priority.

## Usage guidelines

You can set the DR priority for an interface in interface view or globally for all interfaces in PIM view. For an interface, the interface-specific configuration takes priority over the global configuration.

## Examples

```
# Set the DR priority to 3 on VLAN-interface 100.
<Sysname> system-view
[Sysname] interface vlan-interface 100
[Sysname-Vlan-interface100] pim hello-option dr-priority 3
```

## Related commands

**hello-option dr-priority** (PIM view)

# pim hello-option holdtime

Use **pim hello-option holdtime** to set the PIM neighbor lifetime on an interface.

Use **undo pim hello-option holdtime** to restore the default.

## Syntax

```
pim hello-option holdtime time
undo pim hello-option holdtime
```

## Default

The PIM neighbor lifetime is 105 seconds.

## Views

Interface view

## Predefined user roles

network-admin

## Parameters

*time*: Specifies a PIM neighbor lifetime in the range of 1 to 65535 seconds. If you set the value to 65535 seconds, the PIM neighbor is always reachable.

## Usage guidelines

You can set the PIM neighbor lifetime for an interface in interface view or globally for all interfaces in PIM view. For an interface, the interface-specific configuration takes priority over the global configuration.

## Examples

```
# Set the PIM neighbor lifetime to 120 seconds on VLAN-interface 100.
<Sysname> system-view
[Sysname] interface vlan-interface 100
[Sysname-Vlan-interface100] pim hello-option holdtime 120
```

## Related commands

**hello-option holdtime** (PIM view)

# pim hello-option lan-delay

Use **pim hello-option lan-delay** to set the PIM message propagation delay on a shared-media LAN for an interface.

Use `undo pim hello-option lan-delay` to restore the default.

### Syntax

```
pim hello-option lan-delay delay  
undo pim hello-option lan-delay
```

### Default

The PIM message propagation delay on a shared-media LAN is 500 milliseconds.

### Views

Interface view

### Predefined user roles

network-admin

### Parameters

*delay*: Specifies a PIM message propagation delay on a shared-media LAN in the range of 1 to 32767 milliseconds.

### Usage guidelines

You can set the PIM message propagation delay for an interface in interface view or globally for all interfaces in PIM view. For an interface, the interface-specific configuration takes priority over the global configuration.

### Examples

```
# Set the PIM message propagation delay on a shared-media LAN to 200 milliseconds on  
VLAN-interface 100.  
<Sysname> system-view  
[Sysname] interface vlan-interface 100  
[Sysname-Vlan-interface100] pim hello-option lan-delay 200
```

### Related commands

```
hello-option lan-delay (PIM view)  
hello-option override-interval (PIM view)  
pim hello-option override-interval
```

## pim hello-option neighbor-tracking

Use `pim hello-option neighbor-tracking` to enable neighbor tracking on an interface.

Use `pim hello-option neighbor-tracking disable` to disable neighbor tracking on an interface when neighbor tracking is enabled globally.

Use `undo pim hello-option neighbor-tracking` to restore neighbor tracking setting on an interface to be consistent with the global setting.

### Syntax

```
pim hello-option neighbor-tracking  
pim hello-option neighbor-tracking disable  
undo pim hello-option neighbor-tracking
```

### Default

Neighbor tracking is disabled on an interface.

## Views

Interface view

## Predefined user roles

network-admin

## Usage guidelines

You can enable neighbor tracking for an interface in interface view or globally for all interfaces in PIM view. For an interface, the interface-specific configuration takes priority over the global configuration.

## Examples

```
# Enable neighbor tracking on VLAN-interface 100.
```

```
<Sysname> system-view
```

```
[Sysname] interface vlan-interface 100
```

```
[Sysname-Vlan-interface100] pim hello-option neighbor-tracking
```

```
# Disable neighbor tracking on VLAN-interface 100 when neighbor tracking is enabled globally on the public network.
```

```
<Sysname> system-view
```

```
[Sysname] pim
```

```
[Sysname-pim] hello-option neighbor-tracking
```

```
[Sysname-pim] quit
```

```
[Sysname] interface vlan-interface 100
```

```
[Sysname-Vlan-interface100] pim hello-option neighbor-tracking disable
```

## Related commands

`hello-option neighbor-tracking` (PIM view)

# pim hello-option override-interval

Use `pim hello-option override-interval` to set the override interval on an interface.

Use `undo pim hello-option override-interval` to restore the default.

## Syntax

```
pim hello-option override-interval interval
```

```
undo pim hello-option override-interval
```

## Default

The override interval is 2500 milliseconds.

## Views

Interface view

## Predefined user roles

network-admin

## Parameters

*interval*: Specifies an override interval in the range of 1 to 65535 milliseconds.

## Usage guidelines

You can set the override interval for an interface in interface view or globally for all interfaces in PIM view. For an interface, the interface-specific configuration takes priority over the global configuration.

## Examples

```
# Set the override interval to 2000 milliseconds on VLAN-interface 100.
<Sysname> system-view
[Sysname] interface vlan-interface 100
[Sysname-Vlan-interface100] pim hello-option override-interval 2000
```

## Related commands

```
hello-option lan-delay (PIM view)
hello-option override-interval (PIM view)
pim hello-option lan-delay
```

# pim holdtime join-prune

Use `pim holdtime join-prune` to set the joined/pruned state holdtime on an interface.

Use `undo pim holdtime join-prune` to restore the default.

## Syntax

```
pim holdtime join-prune time
undo pim holdtime join-prune
```

## Default

The joined/pruned state holdtime is 210 seconds.

## Views

Interface view

## Predefined user roles

network-admin

## Parameters

*time*: Specifies a joined/pruned state holdtime in the range of 1 to 65535 seconds.

## Usage guidelines

You can set the joined/pruned state holdtime for an interface in interface view or globally for all interfaces in PIM view. For an interface, the interface-specific configuration takes priority over the global configuration.

To prevent the upstream neighbors from aging out, you must configure the join/prune interval to be less than the joined/pruned state holdtime.

## Examples

```
# Set the joined/pruned state holdtime to 280 seconds on VLAN-interface 100.
<Sysname> system-view
[Sysname] interface vlan-interface 100
[Sysname-Vlan-interface100] pim holdtime join-prune 280
```

## Related commands

```
holdtime join-prune (PIM view)
pim timer join-prune
```

## pim neighbor-policy

Use `pim neighbor-policy` to configure a PIM hello policy.

Use `undo pim neighbor-policy` to restore the default.

### Syntax

```
pim neighbor-policy ipv4-acl-number  
undo pim neighbor-policy
```

### Default

No PIM hello policy exists on an interface, and all PIM hello messages are regarded as legal.

### Views

Interface view

### Predefined user roles

network-admin

### Parameters

*ipv4-acl-number*: Specifies an IPv4 basic ACL number in the range of 2000 to 2999.

### Usage guidelines

A PIM hello policy filters PIM hello messages to guard against hello message spoofing.

When you configure a rule in the IPv4 basic ACL, follow these restrictions and guidelines:

- For the rule to take effect, do not specify the **vpn-instance** *vpn-instance* option.
- The **source** *source-address source-wildcard* option specifies a source IP address.
- Among the other optional parameters, only the **fragment** keyword and the **time-range** *time-range-name* option take effect.

If you execute this command multiple times, the most recent configuration takes effect.

### Examples

# Configure a PIM hello policy on VLAN-interface 100 so that only the devices on subnet 10.1.1.0/24 can become PIM neighbors of this switch.

```
<Sysname> system-view  
[Sysname] acl basic 2000  
[Sysname-acl-ipv4-basic-2000] rule permit source 10.1.1.0 0.0.0.255  
[Sysname-acl-ipv4-basic-2000] quit  
[Sysname] interface vlan-interface 100  
[Sysname-Vlan-interfacel00] pim neighbor-policy 2000
```

## pim non-stop-routing

Use `pim non-stop-routing` to enable PIM NSR.

Use `undo pim non-stop-routing` to disable PIM NSR.

### Syntax

```
pim non-stop-routing  
undo pim non-stop-routing
```

## Default

PIM NSR is disabled.

## Views

System view

## Predefined user roles

network-admin

## Examples

```
# Enable PIM NSR.
<Sysname> system-view
[Sysname] pim non-stop-routing
```

# pim passive

Use **pim passive** to enable PIM passive mode on an interface.

Use **undo pim passive** to disable PIM passive mode on an interface.

## Syntax

```
pim passive
undo pim passive
```

## Default

PIM passive mode is disabled on an interface.

## Views

Interface view

## Predefined user roles

network-admin

## Usage guidelines

This command takes effect only when PIM-DM or PIM-SM is enabled on the interface.

## Examples

```
# Enable IP multicast routing on the public network. Then, enable PIM-DM and PIM passive mode on
VLAN-interface 100.
<Sysname> system-view
[Sysname] multicast routing
[Sysname-mrib] quit
[Sysname] interface vlan-interface 100
[Sysname-Vlan-interface100] pim dm
[Sysname-Vlan-interface100] pim passive
```

# pim require-genid

Use **pim require-genid** to enable dropping hello messages without the generation ID options.

Use **undo pim require-genid** to restore the default.

## Syntax

```
pim require-genid
```



```
undo pim require-genid
```

## Default

Hello messages without the generation ID options are accepted.

## Views

Interface view

## Predefined user roles

network-admin

## Examples

```
# Enable VLAN-interface 100 to drop hello messages without the generation ID options.
<Sysname> system-view
[Sysname] interface vlan-interface 100
[Sysname-Vlan-interface100] pim require-genid
```

# pim sm

Use `pim sm` to enable PIM-SM.

Use `undo pim sm` to disable PIM-SM.

## Syntax

```
pim sm
undo pim sm
```

## Default

PIM-SM is disabled.

## Views

Interface view

## Predefined user roles

network-admin

## Usage guidelines

This command takes effect only when IP multicast routing is enabled on the public network or for the VPN instance to which the interface belongs.

## Examples

```
# Enable IP multicast routing on the public network, and enable PIM-SM on VLAN-interface 100.
<Sysname> system-view
[Sysname] multicast routing
[Sysname-mrib] quit
[Sysname] interface vlan-interface 100
[Sysname-Vlan-interface100] pim sm
```

## Related commands

```
multicast routing
```

# pim state-refresh-capable

Use `pim state-refresh-capable` to enable the state refresh feature on an interface.

Use `undo pim state-refresh-capable` to disable the state refresh feature.

### Syntax

```
pim state-refresh-capable
undo pim state-refresh-capable
```

### Default

The state refresh feature is enabled.

### Views

Interface view

### Predefined user roles

network-admin

### Examples

```
# Disable the state refresh feature on VLAN-interface 100.
<Sysname> system-view
[Sysname] interface vlan-interface 100
[Sysname-Vlan-interface100] undo pim state-refresh-capable
```

### Related commands

```
state-refresh-interval (PIM view)
state-refresh-rate-limit (PIM view)
state-refresh-ttl (PIM view)
```

## pim timer graft-retry

Use `pim timer graft-retry` to set a graft retry timer.

Use `undo pim timer graft-retry` to restore the default.

### Syntax

```
pim timer graft-retry interval
undo pim timer graft-retry
```

### Default

The graft retry timer is 3 seconds.

### Views

Interface view

### Predefined user roles

network-admin

### Parameters

*interval*: Specifies a graft retry timer in the range of 1 to 65535 seconds.

### Examples

```
# Set the graft retry timer to 80 seconds on VLAN-interface 100.
<Sysname> system-view
[Sysname] interface vlan-interface 100
[Sysname-Vlan-interface100] pim timer graft-retry 80
```

# pim timer hello

Use `pim timer hello` to set the hello interval on an interface.

Use `undo pim timer hello` to restore the default.

## Syntax

```
pim timer hello interval  
undo pim timer hello
```

## Default

The hello interval is 30 seconds.

## Views

Interface view

## Predefined user roles

network-admin

## Parameters

*interval*: Specifies a hello interval in the range of 0 to 18000 seconds. If you set the value to 0 seconds, the interface does not send hello messages.

## Usage guidelines

You can set the hello interval for an interface in interface view or globally for all interfaces in PIM view. For an interface, the interface-specific configuration takes priority over the global configuration.

## Examples

```
# Set the hello interval to 40 seconds on VLAN-interface 100.  
<Sysname> system-view  
[Sysname] interface vlan-interface 100  
[Sysname-Vlan-interface100] pim timer hello 40
```

## Related commands

`timer hello` (PIM view)

# pim timer join-prune

Use `pim timer join-prune` to set the join/prune interval on an interface.

Use `undo pim timer join-prune` to restore the default.

## Syntax

```
pim timer join-prune interval  
undo pim timer join-prune
```

## Default

The join/prune interval is 60 seconds.

## Views

Interface view

## Predefined user roles

network-admin

## Parameters

*interval*: Specifies a join/prune interval in the range of 0 to 18000 seconds. If you set the value to 0 seconds, the interface does not send join or prune messages.

## Usage guidelines

You can set the join/prune interval for an interface in interface view or globally for all interfaces in PIM view. For an interface, the interface-specific configuration takes priority over the global configuration.

The configuration takes effect after the current interval ends.

To prevent the upstream neighbors from aging out, you must set the join/prune interval to be less than the joined/pruned state holdtime.

## Examples

```
# Set the join/prune interval to 80 seconds on VLAN-interface 100.
<Sysname> system-view
[Sysname] interface vlan-interface 100
[Sysname-Vlan-interface100] pim timer join-prune 80
```

## Related commands

```
pim holdtime join-prune
timer join-prune (PIM view)
```

# pim triggered-hello-delay

Use **pim triggered-hello-delay** to set the triggered hello delay (maximum delay for sending a hello message).

Use **undo pim triggered-hello-delay** to restore the default.

## Syntax

```
pim triggered-hello-delay delay
undo pim triggered-hello-delay
```

## Default

The triggered hello delay is 5 seconds.

## Views

Interface view

## Predefined user roles

network-admin

## Parameters

*delay*: Specifies a triggered hello delay in the range of 1 to 60 seconds.

## Examples

```
# Set the triggered hello delay to 3 seconds on VLAN-interface 100.
<Sysname> system-view
[Sysname] interface vlan-interface 100
[Sysname-Vlan-interface100] pim triggered-hello-delay 3
```

## register-policy (PIM view)

Use **register-policy** to configure a PIM register policy.

Use **undo register-policy** to restore the default.

### Syntax

```
register-policy ipv4-acl-number  
undo register-policy
```

### Default

No PIM register policy exists, and all PIM register messages are regarded as legal.

### Views

PIM view

### Predefined user roles

network-admin

### Parameters

*ipv4-acl-number*: Specifies an IPv4 advanced ACL number in the range of 3000 to 3999.

### Usage guidelines

A PIM register policy enables an RP to filter PIM register messages so that the RP is designated only to multicast groups permitted by the ACL.

When you configure a rule in the IPv4 advanced ACL, follow these restrictions and guidelines:

- For the rule to take effect, do not specify the **vpn-instance** *vpn-instance* option.
- The **source** *source-address source-wildcard* option specifies a multicast source address.
- The **destination** *dest-address dest-wildcard* option specifies a multicast group range.
- Among the other optional parameters, only the **fragment** keyword and the **time-range** *time-range-name* option take effect.

If you execute this command multiple times, the most recent configuration takes effect.

### Examples

# Configure a PIM register policy on the public network. Then, the device accepts only register messages from the sources on the subnet 10.10.0.0/16 to the groups on the subnet 225.1.0.0/16.

```
<Sysname> system-view  
[Sysname] acl advanced 3000  
[Sysname-acl-ipv4-adv-3000] rule permit ip source 10.10.0.0 0.0.255.255 destination  
225.1.0.0 0.0.255.255  
[Sysname-acl-ipv4-adv-3000] quit  
[Sysname] pim  
[Sysname-pim] register-policy 3000
```

## register-suppression-timeout (PIM view)

Use **register-suppression-timeout** to set the register suppression time.

Use **undo register-suppression-timeout** to restore the default.

## Syntax

```
register-suppression-timeout interval  
undo register-suppression-timeout
```

## Default

The register suppression time is 60 seconds.

## Views

PIM view

## Predefined user roles

network-admin

## Parameters

*interval*: Specifies a register suppression time in the range of 1 to 65535 seconds.

## Examples

```
# Set the register suppression time to 70 seconds on the public network.  
<Sysname> system-view  
[Sysname] pim  
[Sysname-pim] register-suppression-timeout 70
```

## register-whole-checksum (PIM view)

Use **register-whole-checksum** to configure the device to calculate the checksum based on an entire register message.

Use **undo register-whole-checksum** to restore the default.

## Syntax

```
register-whole-checksum  
undo register-whole-checksum
```

## Default

The device calculates the checksum based on the register message header.

## Views

PIM view

## Predefined user roles

network-admin

## Examples

```
# Configure the device to calculate the checksum based on an entire register message on the public network.  
<Sysname> system-view  
[Sysname] pim  
[Sysname-pim] register-whole-checksum
```

## snmp-agent trap enable pim

Use **snmp-agent trap enable pim** to enable SNMP notifications for PIM.

Use **undo snmp-agent trap enable pim** to disable SNMP notifications for PIM.

## Syntax

```
snmp-agent trap enable pim [ candidate-bsr-win-election |  
elected-bsr-lost-election | neighbor-loss ] *  
undo snmp-agent trap enable pim [ candidate-bsr-win-election |  
elected-bsr-lost-election | neighbor-loss ] *
```

## Default

SNMP notifications for PIM are enabled.

## Views

System view

## Predefined user roles

network-admin

## Parameters

**candidate-bsr-win-election:** Specifies notifications about winning the BSR election.

**elected-bsr-lost-election:** Specifies notifications about losing the BSR election.

**neighbor-loss:** Specifies notifications about losing neighbors.

## Usage guidelines

If you do not specify an optional keyword, this command enables or disables PIM to generate SNMP notifications.

To report critical PIM events to an NMS, enable SNMP notifications for PIM. For PIM event notifications to be sent correctly, you must also configure SNMP as described in *Network Management and Monitoring Configuration Guide*.

## Examples

```
# Disable SNMP notifications for PIM.  
<Sysname> system-view  
[Sysname] undo snmp-agent trap enable pim
```

# source-lifetime (PIM view)

Use **source-lifetime** to set the multicast source lifetime.

Use **undo source-lifetime** to restore the default.

## Syntax

```
source-lifetime time  
undo source-lifetime
```

## Default

The multicast source lifetime is 210 seconds.

## Views

PIM view

## Predefined user roles

network-admin

## Parameters

*time*: Specifies a multicast source lifetime in the range of 0 to 31536000 seconds. If you set the value to 0 seconds, multicast sources never age out.

## Examples

```
# Set the multicast source lifetime to 200 seconds on the public network.
<Sysname> system-view
[Sysname] pim
[Sysname-pim] source-lifetime 200
```

## source-policy (PIM view)

Use **source-policy** to configure a multicast source policy.

Use **undo source-policy** to restore the default.

## Syntax

```
source-policy ipv4-acl-number
undo source-policy
```

## Default

No multicast source policy exists. The device does not filter multicast data packets.

## Views

PIM view

## Predefined user roles

network-admin

## Parameters

*ipv4-acl-number*: Specifies an IPv4 basic or advanced ACL number in the range of 2000 to 3999.

## Usage guidelines

A multicast source policy filters multicast data packets to control information available to downstream receivers.

When you configure a rule in the IPv4 ACL, follow these restrictions and guidelines:

- For the rule to take effect, do not specify the **vpn-instance** *vpn-instance* option.
- In a basic ACL, the **source** *source-address source-wildcard* option specifies a source IP address.
- In an advanced ACL, the **source** *source-address source-wildcard* option specifies a source IP address. The **destination** *dest-address dest-wildcard* option specifies a multicast group address.
- Among the other optional parameters, only the **fragment** keyword and the **time-range** *time-range-name* option take effect.

If you execute this command multiple times, the most recent configuration takes effect.

## Examples

```
# Configure a multicast source policy on the public network to accept multicast data from source
10.10.1.2 and to deny multicast data from source 10.10.1.1.
<Sysname> system-view
[Sysname] acl basic 2000
```



```
[Sysname-acl-ipv4-basic-2000] rule permit source 10.10.1.2 0
[Sysname-acl-ipv4-basic-2000] rule deny source 10.10.1.1 0
[Sysname-acl-ipv4-basic-2000] quit
[Sysname] pim
[Sysname-pim] source-policy 2000
```

## spt-switch-threshold (PIM view)

Use **spt-switch-threshold** to configure a criterion for an RPT-to-SPT switchover.

Use **undo spt-switch-threshold** to remove criteria for RPT-to-SPT switchovers.

### Syntax

```
spt-switch-threshold { immediacy | infinity } [ group-policy
ipv4-acl-number ]
undo spt-switch-threshold [ immediacy | infinity ] [ group-policy
ipv4-acl-number ]
```

### Default

The first multicast packet triggers an RPT-to-STP switchover.

### Views

PIM view

### Predefined user roles

network-admin

### Parameters

**immediacy**: Triggers an RPT-to-STP switchover immediately.

**infinity**: Disables RPT-to-STP switchover.

**group-policy** *ipv4-acl-number*: Specifies an IPv4 basic ACL number in the range of 2000 to 2999. If you specify an ACL, the configuration applies to the multicast groups that the ACL permits. The configuration applies to all multicast groups when one of the following conditions exists:

- You do not specify an ACL.
- The specified ACL does not exist.
- The specified ACL does not have valid rules.

### Usage guidelines

#### CAUTION:

If the device is an RP, disabling RPT-to-STP switchover might cause multicast traffic forwarding failures on the source-side DR. When disabling RPT-to-SPT switchover, make sure you fully understand its impact on your network.

When you configure a rule in the IPv4 basic ACL, follow these restrictions and guidelines:

- For the rule to take effect, do not specify the **vpn-instance** *vpn-instance* option.
- The **source** *source-address source-wildcard* option specifies a multicast group address.
- Among the other optional parameters, only the **fragment** keyword and the **time-range** *time-range-name* option take effect.

## Examples

```
# Disable RPT-to-STP switchover on a receiver-side DR on the public network.
<Sysname> system-view
[Sysname] pim
[Sysname-pim] spt-switch-threshold infinity
```

## ssm-policy (PIM view)

Use **ssm-policy** to configure the SSM group range.

Use **undo ssm-policy** to restore the default.

### Syntax

```
ssm-policy ipv4-acl-number
undo ssm-policy
```

### Default

The SSM group range is 232.0.0.0/8.

### Views

PIM view

### Predefined user roles

network-admin

### Parameters

*ipv4-acl-number*: Specifies an IPv4 basic ACL number in the range of 2000 to 2999.

### Usage guidelines

This command defines a multicast group range that is used by PIM-SSM. For multicast packets that are permitted by the ACL, the PIM-SSM mode is used. For multicast packets that are not permitted by the ACL, the PIM-SM mode is used.

When you configure a rule in the IPv4 basic ACL, follow these restrictions and guidelines:

- For the rule to take effect, do not specify the **vpn-instance** *vpn-instance* option.
- The **source** *source-address source-wildcard* option specifies a multicast group range.
- Among the other optional parameters, only the **fragment** keyword and the **time-range** *time-range-name* option take effect.

If you execute this command multiple times, the most recent configuration takes effect.

## Examples

```
# Configure the SSM group range as 232.1.0.0/16.
<Sysname> system-view
[Sysname] acl basic 2000
[Sysname-acl-ipv4-basic-2000] rule permit source 232.1.0.0 0.0.255.255
[Sysname-acl-ipv4-basic-2000] quit
[Sysname] pim
[Sysname-pim] ssm-policy 2000
```

## state-refresh-interval (PIM view)

Use `state-refresh-interval` to set the state refresh interval.

Use `undo state-refresh-interval` to restore the default.

### Syntax

```
state-refresh-interval interval  
undo state-refresh-interval
```

### Default

The state refresh interval is 60 seconds.

### Views

PIM view

### Predefined user roles

network-admin

### Parameters

*interval*: Specifies a state refresh interval in the range of 1 to 255 seconds.

### Examples

```
# Set the state refresh interval to 70 seconds on the public network.  
<Sysname> system-view  
[Sysname] pim  
[Sysname-pim] state-refresh-interval 70
```

### Related commands

```
pim state-refresh-capable  
state-refresh-rate-limit (PIM view)  
state-refresh-ttl (PIM view)
```

## state-refresh-rate-limit (PIM view)

Use `state-refresh-rate-limit` to set the waiting time to accept a new state refresh message.

Use `undo state-refresh-rate-limit` to restore the default.

### Syntax

```
state-refresh-rate-limit time  
undo state-refresh-rate-limit
```

### Default

The device waits 30 seconds before it accepts a new state refresh message.

### Views

PIM view

### Predefined user roles

network-admin

## Parameters

*time*: Specifies the waiting time to accept a new refresh message, in the range of 1 to 65535 seconds.

## Examples

```
# Set the waiting time to 45 seconds to accept a new state refresh message on the public network.
<Sysname> system-view
[Sysname] pim
[Sysname-pim] state-refresh-rate-limit 45
```

## Related commands

```
pim state-refresh-capable
state-refresh-interval (PIM view)
state-refresh-ttl (PIM view)
```

## state-refresh-ttl (PIM view)

Use **state-refresh-ttl** to set the TTL value for state refresh messages.

Use **undo state-refresh-ttl** to restore the default.

## Syntax

```
state-refresh-ttl ttl-value
undo state-refresh-ttl
```

## Default

The TTL value for state refresh messages is 255.

## Views

PIM view

## Predefined user roles

network-admin

## Parameters

*ttl-value*: Specifies the TTL value for state refresh messages, in the range of 1 to 255.

## Examples

```
# Set the TTL value to 45 for state refresh messages on the public network.
<Sysname> system-view
[Sysname] pim
[Sysname-pim] state-refresh-ttl 45
```

## Related commands

```
pim state-refresh-capable (PIM view)
state-refresh-interval (PIM view)
state-refresh-rate-limit (PIM view)
```

## static-rp (PIM view)

Use **static-rp** to configure a static RP.

Use `undo static-rp` to delete a static RP.

## Syntax

```
static-rp rp-address [ ipv4-acl-number | preferred ] *  
undo static-rp rp-address
```

## Default

No static RPs exist.

## Views

PIM view

## Predefined user roles

network-admin

## Parameters

*rp-address*: Specifies the IP address of the static RP. The IP address must be valid and cannot be on the subnet 127.0.0.0/8. For a static PIM-SM RP, you must specify a used IP address.

*ipv4-acl-number*: Specifies an IPv4 basic ACL number in the range of 2000 to 2999. If you specify an ACL, the static RP is designated only to multicast groups that the ACL permits. The static RP is designated to all multicast groups when one of the following conditions exists:

- You do not specify an ACL.
- The specified ACL does not exist.
- The specified ACL does not have valid rules.

**preferred**: Gives priority to the static RP if a dynamic RP also exists on the network. The dynamic RP takes effect only when the static RP fails. If you do not specify this keyword, the dynamic RP has priority, and the static RP takes effect only when the dynamic RP fails.

## Usage guidelines

You do not need to enable PIM on an interface that acts as a static RP.

When you configure a rule in the IPv4 basic ACL, follow these restrictions and guidelines:

- For the rule to take effect, do not specify the **vpn-instance** *vpn-instance* option.
- The **source** *source-address source-wildcard* option specifies a multicast group address.
- Among the other optional parameters, only the **fragment** keyword and the **time-range** *time-range-name* option take effect.

When rules in the ACL used by a static RP change, new RPs are dynamically elected for all multicast groups.

You can configure multiple static RPs by using this command multiple times. However, if you specify the same static RP address or use the same ACL in the command, the most recent configuration takes effect. If you configure multiple static RPs for the same multicast group, the static RP with the highest IP address is used.

## Examples

```
# Configure the interface with IP address 11.110.0.6 as a static RP for multicast group range 225.1.1.0/24 and give priority to this static RP on the public network.
```

```
<Sysname> system-view  
[Sysname] acl basic 2001  
[Sysname-acl-ipv4-basic-2001] rule permit source 225.1.1.0 0.0.0.255  
[Sysname-acl-ipv4-basic-2001] quit  
[Sysname] pim
```

```
[Sysname-pim] static-rp 11.110.0.6 2001 preferred
```

## Related commands

```
display pim rp-info
```

## timer hello (PIM view)

Use **timer hello** to set the hello interval globally.

Use **undo timer hello** to restore the default.

## Syntax

```
timer hello interval
```

```
undo timer hello
```

## Default

The hello interval is 30 seconds.

## Views

PIM view

## Predefined user roles

network-admin

## Parameters

*interval*: Specifies a hello interval in the range of 0 to 18000 seconds. If you set the value to 0 seconds, the device does not send hello messages.

## Usage guidelines

You can set the hello interval globally for all interfaces in PIM view or for an interface in interface view. For an interface, the interface-specific configuration takes priority over the global configuration.

## Examples

```
# Set the global hello interval to 40 seconds on the public network.
```

```
<Sysname> system-view
```

```
[Sysname] pim
```

```
[Sysname-pim] timer hello 40
```

## Related commands

```
pim timer hello
```

## timer join-prune (PIM view)

Use **timer join-prune** to set the join/prune interval globally.

Use **undo timer join-prune** to restore the default.

## Syntax

```
timer join-prune interval
```

```
undo timer join-prune
```

## Default

The join/prune interval is 60 seconds.

## Views

PIM view

## Predefined user roles

network-admin

## Parameters

*interval*: Specifies a join/prune interval in the range of 0 to 18000 seconds. If you set the value to 0 seconds, the device does not send join or prune messages.

## Usage guidelines

You can set the join/prune interval globally for all interfaces in PIM view or for an interface in interface view. For an interface, the interface-specific configuration takes priority over the global configuration.

The configuration takes effect after the current interval ends.

To prevent the upstream neighbors from expiring, you must set the join/prune interval to be less than the joined/pruned state holdtime.

## Examples

# Set the global join/prune interval to 80 seconds on the public network.

```
<Sysname> system-view
[Sysname] pim
[Sysname-pim] timer join-prune 80
```

## Related commands

**holdtime join-prune** (PIM view)

**pim timer join-prune**