1 IPv4 Multicast Route Management Commands

Command	Function
clear ip mroute	Clear IP multicast routing information.
clear ip mroute statistics	Clear statistics about the IP multicast routing information.
ip mroute	Configure a multicast static route.
ip multicast-routing	Enable the multicast routing function.
ip multicast boundary	Configure a multicast border for a specified group.
ip multicast route-limit	Configure the maximum number of entries for an IPv4 multicast routing table.
ip multicast rpf longest-match	Enable RPF route selection based on the longest match rule.
ip multicast static	Enable L2 direction control for multicast streams.
ip multicast ttl-threshold	Configure a time to live (TTL) threshold for an interface.
mc ref synchronize all	Restore a multicasting failure.
multicast ip-mac-mapping verification	Filter out multicast streams whose IP addresses do not match MAC addresses.
msf force-forwarding	Enable forced forwarding of multicast packets by software.
msf ipmc-overflow override	Enable the overwriting mechanism upon overflow of multicast hardware forwarding entries.
msf nsf	Configure multicast non-stop forwarding parameters.
show ip mrf mfc	Display forwarding entries of IPv4 multicast routes.
show ip mroute	Display information of a multicast forwarding entry.
show ip mroute count	Display count information of a multicast routing table.
show ip mroute dense	Display information of a multicast forwarding entry.
show ip mroute sparse	Display information of a multicast forwarding table.

show ip mroute static	Display IPv4 multicast static routes.
show ip mroute summary	Display information of a multicast forwarding entry.
show ip mvif	Display basic information of a multicast interface.
show ip rpf	Display the RPF information of a specified source address.
show msf msc	Display an IPv4 multi-layer multicast forwarding table.
show msf nsf	Display configuration of multicast non-stop forwarding.

1.1 clear ip mroute

Function

Run the **clear ip mroute** command to clear IP multicast routing information.

Syntax

clear ip mroute { * | *group-address* [*source-address*] }

Parameter Description

*: Clears all forwarding information in the multicast routing table.

group-address: Group address of a multicast route.

source-address: Source address of a multicast route.

Command Modes

Privileged EXEC mode

Default Level

14

Usage Guidelines

This command is used to clear IP multicast routing information.

Examples

The following example clears IP multicast routing information of the group with address 230.0.0.1.

```
Hostname> enable
Hostname# clear ip mroute 230.0.0.1
```

Notifications

N/A

Platform Description

N/A

1.2 clear ip mroute statistics

Function

Run the **clear ip mroute statistics** command to clear statistics about the IP multicast routing information.

Syntax

clear ip mroute statistics { ***** | *group-address* [*source-address*] }

Parameter Description

*: Clears statistics about all the forwarding entries in the multicast routing table.

group-address: Group address of a multicast route.

source-address: Source address of a multicast route.

Command Modes

Privileged EXEC mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example clears statistics about the multicast routing information of the group with address 230.0.0.1.

```
Hostname> enable
Hostname# clear ip mroute statistics 230.0.0.1
```

Notifications

N/A

Platform Description

N/A

1.3 ip mroute

Function

Run the **ip mroute** command to configure a multicast static route.

Run the **no** form of this command to remove this configuration.

Run the **default** form of this command to restore the default configuration.

No multicast static route is configured by default.

Syntax

ip mroute *source-address mask* [**bgp** | **isis** | **ospf** | **rip** | **static**] { *rpf-addrress* | *interface-type interface-number* } [*distance*]

no ip mroute *source-address mask* [**bgp** | **isis** | **ospf** | **rip**]

default ip mroute *source-address mask* [**bgp** | **isis** | **ospf** | **rip**]

Parameter Description

source-address: Multicast source address.

mask: Mask of the multicast source address.

bgp: Uses the BGP protocol.

isis: Uses the IS-IS protocol.

ospf: Uses the OSPF protocol.

rip: Uses the RIP protocol.

static: Uses a static route.

rpf-address: Address of the reverse path forwarding (RPF) neighbor (next hop to the multicast source).

interface-type interface-number: RPF interface (outbound interface to the multicast source).

distance: Route administrative distance. The value range is from 0 to 255, and the default value is **0**.

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

Multicast static routes are applicable only to RPF checking.

If an IP address of the outbound interface, other than that of the next hop, must be specified for a multicast static route, the outbound interface must be of the point-to-point type.

Examples

The following example configures a multicast static route and sets the address range of a source specific multicast (SSM) group to 232/8.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ip mroute 172.16.0.0 255.255.0.0 172.30.10.13
```

Notifications

If the number of multicast static routes on a device reaches the upper limit, the following notification will be displayed:

```
Exceeding maximum static multicast route limit.
```

Common Errors

N/A

Platform Description

N/A

Related Commands

- **show ip mroute static**

1.4 ip multicast-routing

Function

Run the **ip multicast-routing** command to enable the multicast routing function.

Run the **no** form of this command to disable this function.

Run the **default** form of this command to restore the default configuration.

The multicast routing function is disabled by default.

Syntax

ip multicast-routing

no ip multicast-routing

default ip multicast-routing

Parameter Description

N/A

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

The IPv4 multicast routing function must be enabled before an IPv4 multicast protocol is enabled.

Examples

The following example enables the multicast routing function.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ip multicast-routing
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.5 ip multicast boundary

Function

Run the **ip multicast boundary** command to configure a multicast border for a specified group.

Run the **no** form of this command to remove this configuration.

Run the **default** form of this command to restore the default configuration.

No multicast border is configured by default.

Syntax

ip multicast boundary *access-list* [**in** | **out**]

no ip multicast boundary *access-list* [**in** | **out**]

default ip multicast boundary *access-list* [**in** | **out**]

Parameter Description

access-list: Group address range defined by an ACL.

in: Indicates that a multicast border applies to the inbound direction of a multicast stream.

out: Indicates that a multicast border applies to the outbound direction of a multicast stream.

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

After this command is executed, Internet Group Management Protocol (IGMP) and Protocol Independent Multicast Sparse Mode (PIM-SM) packets in the group range are filtered on this interface and multicast streams do not pass through this interface.

This command is associated with a standard access control list (ACL). If an extended ACL is used, an error occurs in filtering.

Examples

The following example configures SVI 1 as a border of all multicast groups.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ip access-list standard mul-boun
Hostname(config-std-nacl)# permit 233.3.3.0 0.0.0.255
Hostname(config-std-nacl)# exit
Hostname(config)# interface vlan 1
Hostname(config-if)# ip multicast boundary mul-boun
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.6 ip multicast route-limit

Function

Run the **ip multicast route-limit** command to configure the maximum number of entries for an IPv4 multicast routing table.

Run the **no** form of this command to remove this configuration.

Run the **default** form of this command to restore the default configuration.

A maximum of 1000 entries can be added to an IPv4 multicast routing table by default.

Syntax

ip multicast route-limit *route-limit* [*max-threshold*]

no ip multicast route-limit

default ip multicast route-limit

Parameter Description

route-limit: Maximum number of multicast routes. The value range is from 1 to 64000.

max-threshold: Threshold number of multicast routes that triggers an alarm. The value range is from 1 to 64000, and the default value is **64000**.

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

Due to limitations on hardware resources, routing entries that exceed the range permitted by hardware can be forwarded only by software, deteriorating the performance.

The configured value of *max-threshold* must be smaller than or equal to the value of *route-limit*.

Examples

The following example sets the maximum number of entries that can be added to an IPv4 multicast routing table to **500**.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ip multicast route-limit 500
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

- show ip mroute count

1.7 ip multicast rpf longest-match

Function

Run the **ip multicast rpf longest-match** command to enable RPF route selection based on the longest match rule.

Run the **no** form match this command to disable this function.

Run the **default** form of this command to restore the default configuration.

A route with the highest priority is selected as the RPF route by default. If the priorities are consistent, a route is selected in the sequence of multicast static route, Multiprotocol Extensions for BGP (MBGP) route, and unicast route.

Syntax

ip multicast rpf longest-match

no ip multicast rpf longest-match

default ip multicast rpf longest-match

Parameter Description

N/A

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

The RPF route selection rules are as follows:

(1) Select an optimal route respectively from the multicast static routing table, MBGP routing table, and unicast routing table for RPF checking. Select one route out of the three optimal routes as the RPF route.

(2) If the command of RPF route selection based on the longest match rule is configured, the route with the longest match is selected out of the three optimal routes as the RPF route. If the three routes share the same subnet mask, the route with the highest priority is selected. If the priorities are consistent, a route is selected in the sequence of multicast static route, MBGP route, and unicast route.

(3) If the command of RPF route selection based on the longest match rule is not configured, the route with the highest priority is selected out of the three optimal routes. If the priorities are consistent, a route is selected in the sequence of multicast static route, MBGP route, and unicast route.

Examples

The following example enables RPF route selection based on the longest match rule.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ip multicast rpf longest-match
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

- **ip multicast-routing**

1.8 ip multicast static

Function

Run the **ip multicast static** command to enable L2 direction control for multicast streams.

Run the **no** form of this command to disable this function.

Run the **default** form of this command to restore the default configuration.

No L2 direction control is enabled for a multicast stream by default.

Syntax

ip multicast static *source-address group-address interface-type interface-number*

no ip multicast static *source-address group-address interface-type interface-number*

default ip multicast static *source-address group-address interface-type interface-number*

Parameter Description

source-address: Address of a multicast source.

group-address: Address of a multicast group.

interface-type interface-number: L2 interface that is allowed to forward this multicast stream.

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

You can configure this command multiple times for a multicast stream. That is, configure multiple interfaces to forward the stream. After direction control is enabled for a multicast stream, this multicast stream can be forwarded only by these configured interfaces. Other interfaces are not allowed to forward the stream.

This command controls only the forwarding of multicast streams on interfaces, but does not directly affect the processing of protocol packets by the multicast protocols. However, some features of the multicast protocols (PIM-DM or PIM-SM) depend on the multicast streams. Behaviors of the multicast routing protocols may be affected.

Examples

The following example allows the multicast streams (192.168.43.4 and 225.1.1.5) to be forwarded from GigabitEthernet 0/1 and GigabitEthernet 0/2.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ip multicast static 192.168.43.4 225.1.1.5 gigabitEthernet 0/1
Hostname(config)# ip multicast static 192.168.43.4 225.1.1.5 gigabitEthernet 0/2
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.9 ip multicast ttl-threshold

Function

Run the **ip multicast ttl-threshold** command to configure a time to live (TTL) threshold for an interface.

Run the **no** form of this command to remove this configuration.

Run the **default** form of this command to restore the default configuration.

The default TTL threshold for an interface is **0**.

Syntax

ip multicast ttl-threshold *ttl-threshold-value*

no ip multicast ttl-threshold

default ip multicast ttl-threshold

Parameter Description

ttl-threshold-value: TTL threshold for an interface. The value range is from 0 to 255.

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

A device with multicast enabled can maintain a TTL threshold for each interface. Multicast packets whose TTL values are greater than the TTL threshold of the interface are forwarded and those whose TTL values are smaller are discarded. A TTL threshold takes effect only for multicast frames and must be configured on L3 interfaces.

Examples

The following example sets the TTL threshold for an interface to **5**.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface GigabitEthernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ip multicast ttl-threshold 5
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.10 mc ref synchronize all

Function

Run the **mc ref synchronize all** command to restore a multicasting failure.

Syntax

mc ref synchronize all

Parameter Description

N/A

Command Modes

Privileged EXEC mode

Default Level

14

Usage Guidelines

If the quantity of software entries is greater than the entry capacity supported by the hardware, and when the used entries drop below the hardware entry capacity, the entries that failed to be added cannot be automatically added again. You must manually run corresponding command to trigger entry adding. When an error occurs during multicasting, you can use this command to refresh the configuration.

Examples

The following example restores multicasting failure.

```
Hostname> enable
Hostname# mc ref synchronize all
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.11 multicast ip-mac-mapping verification

Function

Run the **multicast ip-mac-mapping verification** command to filter out multicast streams whose IP addresses do not match MAC addresses.

Run the **no** form of this command to remove this configuration.

Multicast streams whose IP addresses do not match MAC addresses are not filtered out by default.

Syntax

multicast ip-mac-mapping verification

no multicast ip-mac-mapping verification

Parameter Description

N/A

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

After this command is executed, if the IP addresses and MAC addresses in the header of packets do not match, corresponding multicast streams are filtered out.

Examples

The following example filters out multicast streams whose IP addresses do not match MAC addresses.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# multicast ip-mac-mapping verification
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.12 msf force-forwarding

Function

Run the **msf force-forwarding** command to enable forced forwarding of multicast packets by software.

Run the **no** form of this command to disable this function.

Run the **default** form of this command to restore the default configuration.

The mechanism of forced forwarding of multicast packets by software is disabled by default.

Syntax

msf force-forwarding

no msf force-forwarding

default msf force-forwarding

Parameter Description

N/A

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example enables the mechanism of forced forwarding of multicast packets by software.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# msf force-forwarding
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.13 msf ipmc-overflow override

Function

Run the **msf ipmc-overflow override** command to enable the overwriting mechanism upon overflow of multicast hardware forwarding entries.

Run the **no** form of this command to disable this function

Run the **default** form of this command to restore the default configuration.

The overwriting mechanism upon overflow of multicast hardware forwarding entries is disabled by default.

Syntax

msf ipmc-overflow override

no msf ipmc-overflow override

default msf ipmc-overflow override

Parameter Description

N/A

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example enables the overwriting mechanism upon overflow of multicast hardware forwarding entries.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# msf ipmc-overflow override
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.14 msf nsf

Function

Run the **msf nsf** command to configure multicast non-stop forwarding parameters.

Run the **no** form of this command to remove this configuration.

Run the **default** form of this command to restore the default configuration.

The maximum period for multicast protocol convergence is **20** seconds and the packet leakage time is **30** seconds by default.

Syntax

msf nsf { **convergence-time** *convergence-time* | **leak** *leak-time* }

no msf nsf { **convergence-time** | **leak** }

default msf nsf { **convergence-time** | **leak** }

Parameter Description

convergence-time *convergence-time*: Specifies the maximum period for multicast protocol convergence, in seconds. The value range is from 0 to 3600.

leak *leak-time*: Specifies the packet leakage time, in seconds. The value range is from 0 to 3600.

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example sets the maximum period for multicast protocol convergence to 300s and the packet leakage time to 200s.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# msf nsf convergence-time 300
Hostname(config)# msf nsf leak 200
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

- **show msf nsf**

1.15 show ip mrf mfc

Function

Run the **show ip mrf mfc** command to display forwarding entries of IPv4 multicast routes.

Syntax

show ip mrf mfc [*soure-address group-address*]

Parameter Description

source-address: Source address in the forwarding entry of a multicast route.

group-address: Group address in the forwarding entry of a multicast route.

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

The two parameters are optional, and the source address and group address must be specified simultaneously.

When no source address or group address is specified, all multicast forwarding cache (MFC) entries are displayed.

Examples

The following example displays all IPv4 multicast route forwarding entries whose source address is 20.0.1.30 and group address is 233.3.3.3.

```
Hostname> enable
Hostname# show ip mrf mfc 20.0.1.30 233.3.3.3
Multicast Routing and Forwarding Cache Table
(20.0.1.30, 233.3.3.3)
  FAST_SW, SWTCHED, MIN_MTU: 1500, MIN_MTU_IFINDEX: 4099, WRONG IF: 0
  Incoming interface: VLAN 1[4097]
  Outgoing interface list:
VLAN 3 (1)
```

Table 1-1Output Fields of the show ip mrf mfc Command

Field	Description
FAST_SW	A flag indicating whether an entry allows quick forwarding. If non-Ethernet interface frame relay exists, no quick entry is generated.
SWTCHED	Specifies whether an entry is added to next-layer forwarding table.
MIN_MTU MTU	Minimum maximum transmission unit (MTU) value of an entry
MIN_MTU_IFINDEX	Index of an interface with the minimum MTU value
WRONG IF	Counts of multicast packets that come from an incorrect interface
Incoming interface	RPF inbound interface of an entry
VLAN 3 (1)	Specifies that the L3 outbound interface of an entry belongs to VLAN 3. The value 1 indicates the TTL threshold of this L3 interface.

Notifications

N/A

Platform Description

N/A

1.16 show ip mroute

Function

Run the **show ip mroute** command to display information of a multicast forwarding entry.

Syntax

show ip mroute [*group-or-source-address* [*group-or-source-address*]]

Parameter Description

group-or-source-address: Group address or source address.

group-or-source-address: Group address or source address. The two addresses must be different.

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example displays information of all multicast routing entries.

```
Hostname> enable
Hostname# show ip mroute
IP Multicast Routing Table
Flags: I - Immediate Stat, T - Timed Stat, F - Forwarder installed
Timers: Uptime/Stat Expiry
Interface State: Interface (TTL)
(10.10.1.52, 224.0.1.3), uptime 00:00:31, stat expires 00:02:59
Owner PIM-SM, Flags: TF
Incoming interface: GigabitEthernet 2/1
Outgoing interface list:
GigabitEthernet 1/3
```

Table 1-1Output Fields of the show ip mroute Command

Field	Description
Flags	● **I**: Makes statistics immediately. ● **T**: Scheduled statistics. ● **F**: Set to a forwarding table.
Timers: Uptime/Stat Expiry	Time at which this entry is created or ages
Interface State	Status of an interface
Owner	Owner of this entry, which may be a multicast routing protocol
Incoming interface	Expected inbound interface of a packet. If it is inconsistent with the actual inbound interface, the packet is discarded.
Outgoing interface list	List of outbound interfaces. Packets are forwarded out from the interfaces in the list.

Notifications

N/A

Platform Description

N/A

1.17 show ip mroute count

Function

Run the **show ip mroute count** command to display count information of a multicast routing table.

Syntax

show ip mroute count

Parameter Description

N/A

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example displays count information of a routing table.

```
Hostname> enable
Hostname# show ip mroute count
IP Multicast Statistics
Total 1 routes using 132 bytes memory
Route limit/Route threshold: 2147483647/2147483647
Total NOCACHE/WRONGVIF/WHOLEPKT recv from fwd: 1/0/0
Total NOCACHE/WRONGVIF/WHOLEPKT sent to clients: 1/0/0
Immediate/Timed stat updates sent to clients: 0/0
Reg ACK recv/Reg NACK recv/Reg pkt sent: 0/0/0
Next stats poll: 00:01:10
Forwarding Counts: Pkt count/Byte count, Other Counts: Wrong If pkts
Fwd msg counts: WRONGVIF/WHOLEPKT recv
Client msg counts: WRONGVIF/WHOLEPKT/Imm Stat/Timed Stat sent
Reg pkt counts: Reg ACK recv/Reg NACK recv/Reg pkt sent
(10.10.1.52, 224.0.1.3), Forwarding: 2/19456, Other: 0
Fwd msg: 0/0, Client msg: 0/0/0/0, Reg: 0/0/0
```

Table 1-1Output Fields of the show ip mroute count Command

Field	Description
Total x routes using y bytes memory	A total of x routes use y-byte memory.
Route limit/Route threshold	Maximum number of routes that can be added/threshold of routes
Total NOCACHE/WRONGmif/WHOLEPKT recv from fwd	Number of received packets that are unresolved/number of packets received from incorrect interfaces/number of well-known multicast packets
Total NOCACHE/WRONGmif/WHOLEPKT sent to clients	Number of unresolved packets sent to a client
Immediate/Timed stat updates sent to clients	Number of packets sent to a client and updated in time or number of packets sent to a client and updated as scheduled
Reg ACK recv/Reg NACK recv/Reg pkt sent	Number of received and confirmed register packets/number of received but unconfirmed register packets/number of register packets sent
Next stats poll	Next status update time
Forwarding Counts: Pkt count/Byte count, Other Counts: Wrong If pkts	Number of software forwarded packets: Number of packets/number of bytes Statistics of other packets: Number of packets sent from incorrect interfaces
Fwd msg counts: WRONGVIF/WHOLEPKT recv	Number of forwarded messages: Packets sent from incorrect interfaces/well-known multicast packets

Field	Description
Client msg counts: WRONGVIF/WHOLEPKT/Imm Stat/Timed Stat sent	Number of client messages: Packets sent from incorrect interfaces/well-known multicast packets/packets updated in time/messages that are updated as scheduled
Reg pkt counts: Reg ACK recv/Reg NACK recv/Reg pkt sent	Number of register packets: Number of received and confirmed register packets/number of received but unconfirmed register packets/number of register packets sent

Notifications

N/A

Platform Description

N/A

1.18 show ip mroute dense

Function

Run the **show ip mroute dense** command to display information of a multicast forwarding entry.

Syntax

show ip mroute dense

Parameter Description

N/A

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example displays information of all multicast routing entries.

```
Hostname> enable
Hostname(config)# show ip mroute dense

IP Multicast Routing Table
Flags: I - Immediate Stat, T - Timed Stat, F - Forwarder installed,
       R - RPT, S - SPT, s - SSM Group
Timers: Uptime/Stat Expiry
```

```
Interface State: Interface (TTL)
```

Table 1-1Output Fields of the show ip mroute dense Command

Field	Description
Flags	● **I**: Makes statistics immediately. ● **T**: Scheduled statistics. ● **F**: Set to a forwarding table.
Timers: Uptime/Stat Expiry	Time at which this entry is created or ages
Interface State	Status of an interface

Notifications

N/A

Platform Description

N/A

1.19 show ip mroute sparse

Function

Run the **show ip mroute sparse** command to display information of a multicast forwarding table.

Syntax

show ip mroute sparse

Parameter Description

N/A

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example displays information of all multicast routing entries.

```
Hostname> enable
Hostname# show ip mroute sparse

IP Multicast Routing Table
Flags: I - Immediate Stat, T - Timed Stat, F - Forwarder installed,
```

```
      R - RPT, S - SPT, s - SSM Group
Timers: Uptime/Stat Expiry
Interface State: Interface (TTL)
```

Table 1-1Output Fields of the show ipv6 mroute sparse Command

Field	Description
Flags	● **I**: Makes statistics immediately. ● **T**: Scheduled statistics. ● **F**: Set to a forwarding table.
Timers: Uptime/Stat Expiry	Time at which this entry is created or ages
Interface State	Status of an interface

Notifications

N/A

Platform Description

N/A

1.20 show ip mroute static

Function

Run the **show ip mroute static** command to display IPv4 multicast static routes.

Syntax

show ip mroute static

Parameter Description

N/A

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

Under the same conditions, a multicast static route has higher priority than a dynamic route learned.

Examples

The following example displays multicast static routes configured by users.

```
Hostname> enable
Hostname# show ip mroute static
Mroute: 172.16.0.0, RPF neighbor: 172.30.10.13
```

```
Protocol: , distance: 0
```

Table 1-1Output Fields of the show ip mroute static Command

Field	Description
Mroute	Multicast route
RPF neighbor	RPF neighbor
Protocol	Protocol
distance	Administrative distance

Notifications

N/A

Platform Description

N/A

1.21 show ip mroute summary

Function

Run the **show ip mroute summary** command to display information of a multicast forwarding entry.

Syntax

show ip mroute summary

Parameter Description

N/A

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example displays abstract information of routing entries.

```
Hostname> enable
Hostname# show ip mroute summary
IP Multicast Routing Table
Flags: I - Immediate Stat, T - Timed Stat, F - Forwarder installed
```

```
Timers: Uptime/Stat Expiry
Interface State: Interface (TTL)
(10.10.1.52, 224.0.1.3), 00:01:32/00:03:20, PIM-SM, Flags: T
```

Table 1-1Output Fields of the show ip mroute Command

Field	Description
Flags	● **I**: Makes statistics immediately. ● **T**: Scheduled statistics. ● **F**: Set to a forwarding table.
Timers: Uptime/Stat Expiry	Time at which this entry is created or ages
Interface State	Status of an interface

Notifications

N/A

Platform Description

N/A

1.22 show ip mvif

Function

Run the **show ip mvif** command to display basic information of a multicast interface.

Syntax

show ip mvif [*interface-type interface-number*]

Parameter Description

interface-type interface-number: Interface type and interface number

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example displays basic information of the multicast interface that belongs to VLAN 1.

```
Hostname> enable
Hostname# show ip mvif vlan 1
Interface   Vif    Owner    TTL   Local         Remote      Uptime
```

```
            Idx    Module          Address        Address
VLAN 1      1      PIM-DM   2      192.168.1.1    0.0.0.0      00:13:16
```

Table 1-1Output Fields of the show ip mvif Command

Field	Description
Interface	Interface
Vif Idx	Index of a multicast interface
Owner Module	Module name
TTL	Time to live
Local Address	Local address
Remote Address	Remote address of multicast virtual private network (VPN)
Uptime	Start time

Notifications

N/A

Platform Description

N/A

1.23 show ip rpf

Function

Run the **show ip rpf** command to display the RPF information of a specified source address.

Syntax

show ip rpf *source-address*

Parameter Description

source-address: Source address.

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example displays RPF information destined to 192.168.1.54.

```
Hostname# show ip rpf 192.168.1.54
RPF information for 192.168.1.54
RPF interface: VLAN 1
RPF neighbor: 0.0.0.0
RPF route: 192.168.1.0/24
RPF type: unicast (connected)
RPF recursion count: 0
Doing distance-preferred lookups across tables
Distance: 0
Metric: 0
```

Table 1-1 Output Fields of the show ip rpf Command

Field	Description
RPF interface	RPF interface
RPF neighbor	RPF neighbor
RPF route	RPF route
RPF type	RPF type
RPF recursion count	RPF recursion count
Distance	Administrative distance
Metric	Measurement

Notifications

N/A

Platform Description

N/A

1.24 show msf msc

Function

Run the **show msf msc** command to display an IPv4 multi-layer multicast forwarding table.

Syntax

show msf msc [*soure-address*] [*group-address*] [*vlan-id*]

Parameter Description

soure-address: Source address in the multi-layer forwarding entry.

group-address: Group address in the multi-layer forwarding entry.

vlan-id: VLAN ID which an inbound interface belongs to in the multi-layer forwarding entry.

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

When only the source address is specified as S1, all MSC entries with the source address being S1 are displayed.

When the source address is specified as S1 and the group address is specified as G1, all MSC entries with the source address being S1 and the group address being G1 are displayed.

When the source address is specified as S1, the group address is specified as G1, and the VLAN ID is specified as V1, all MSC entries with the source address being S1, group address being G1, and the inbound interface belonging to V1 are displayed.

Examples

The following example displays the IPv4 multi-layer multicast forwarding entries with the source address being 192.168.195.25.

```
Hostname> enable
Hostname# show msf msc 192.168.195.25
Multicast Switching Cache Table
(192.168.195.23, 233.3.3.3, 1), SYNC, MTU:0, 1 OIFs
  VLAN 1(0): 1 OPORTs, REQ: DONE
OPORT 6, IGMP-SNP, REQ: DONE
```

Table 1-1Output Fields of the show msf msc Command

Field	Description
192.168.195.23	Source address in an entry
233.3.3.3	Group address in an entry
1	VLAN ID that an inbound interface of an entry belongs to
SYNC	Specifies that an entry has been synchronized to the bottom layer hardware.
MTU	MTU value of an entry
OIFs	Number of L3 outbound interfaces in an entry
VLAN1(0)	VLAN ID which L3 outbound interface OIFs belong to
1 OPORTs	Number of L2 interfaces belonging to the L3 outbound interface OIF

Field	Description
REQ: DONE	Specifies that this OIF has been set to the bottom layer hardware.
OPORT 6	L2 interfaces belonging to this OIF. The interfaces are indexed as 6.
IGMP-SNP	Specifies that this interface is created based on the IGMP Snooping protocol. **PIM-SNP**: This interface is created based on the PIM Snooping protocol. **ROUTER**: This interface is created based on the L3 protocol.
REQ: DONE	Specifies that this interface has been set to the bottom layer hardware.

Notifications

N/A

Platform Description

N/A

1.25 show msf nsf

Function

Run the **show msf nsf** command to display configuration of multicast non-stop forwarding.

Syntax

show msf nsf

Parameter Description

N/A

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

N/A

Examples

```
Hostname> enable
```

```
Hostname# show msf nsf
Multicast HA Parameters
-------------------
protocol convergence timeout                120 secs
flow leak interval                          20 secs
```

Table 1-1Output Fields of the show msf nsf Command

Field	Description
protocol convergence timeout	Maximum period for multicast protocol convergence
flow leak interval	Packet leakage time

Notifications

N/A

Platform Description

N/A