



IP Multicast Routing Commands

- [debug platform ip multicast](#), on page 2
- [ip igmp filter](#), on page 4
- [ip igmp max-groups](#), on page 5
- [ip igmp profile](#), on page 7
- [ip igmp snooping](#), on page 9
- [ip igmp snooping last-member-query-count](#), on page 10
- [ip igmp snooping last-member-query-interval](#), on page 12
- [ip igmp snooping querier](#), on page 14
- [ip igmp snooping report-suppression](#), on page 16
- [ip igmp snooping robustness-variable](#), on page 17
- [ip igmp snooping vlan immediate-leave](#), on page 18
- [ip igmp snooping vlan mrouter](#), on page 19
- [ip igmp snooping vlan static](#), on page 20
- [ip multicast auto-enable](#), on page 22
- [ip pim accept-register](#), on page 23
- [ip pim bsr-candidate](#), on page 24
- [ip pim dm-fallback](#), on page 26
- [ip pim rp-candidate](#), on page 28
- [ip pim send-rp-announce](#), on page 29
- [ip pim spt-threshold](#), on page 31
- [mrinfo](#), on page 32
- [show ip igmp filter](#), on page 34
- [show ip igmp profile](#), on page 35
- [show ip igmp snooping](#), on page 36
- [show ip igmp snooping groups](#), on page 38
- [show ip igmp snooping igmpv2-tracking](#), on page 40
- [show ip igmp snooping mrouter](#), on page 41
- [show ip igmp snooping querier](#), on page 42
- [show ip pim all-vrfs tunnel](#), on page 44
- [show ip pim autorp](#), on page 45
- [show ip pim bsr-router](#), on page 46
- [show ip pim tunnel](#), on page 47
- [show platform ip multicast](#), on page 49

debug platform ip multicast

To enable debugging of IP multicast routing, use the **debug platform ip multicast** command in EXEC mode. To disable debugging, use the **no** form of this command.

```
debug platform ip multicast {all | mdb | mdfs-rp-retry | midb | mroute-rp | resources
| retry | rpf-throttle | snoop-events | software-forward | swidb-events | vlan-locks}
no debug platform ip multicast {all | mdb | mdfs-rp-retry | midb | mroute-rp | resources
| retry | rpf-throttle | snoop-events | software-forward | swidb-events | vlan-locks}
```

Syntax Description

all	Displays all platform IP-multicast event debug messages. Note Using this command can degrade the performance of the switch.
mdb	Displays IP-multicast debug messages for multicast distributed fast switching (MDFS) multicast descriptor block (mdb) events.
mdfs-rp-retry	Displays IP-multicast MDFS rendezvous point (RP) retry event debug messages.
midb	Displays IP-multicast MDFS multicast interface descriptor block (MIDB) debug messages.
mroute-rp	Displays IP-multicast RP event debug messages.
resources	Displays IP-multicast hardware resource debug messages.
retry	Displays IP-multicast retry processing event debug messages.
rpf-throttle	Displays IP-multicast reverse path forwarding (RPF) throttle event debug messages.
snoop-events	Displays IP-multicast IGMP snooping event debug messages.
software-forward	Displays IP-multicast software forwarding event debug messages.
swidb-events	Displays IP-multicast MDFS software interface descriptor block (swidb) or global event debug messages.
vlan-locks	Displays IP-multicast VLAN lock and unlock event debug messages.

Command Default

Debugging is disabled.

Command Modes

User EXEC

Privileged EXEC

Command History

Release	Modification
Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines

The **undebug platform ip multicast** command is the same as the **no debug platform ip multicast** command.

When you enable debugging on a switch stack, it is enabled only on the stack's primary switch. To enable debugging on a stack member, you can start a session from the stack's primary switch by using the **session** *switch-number* EXEC command, and then enter the **debug** command at the command-line prompt of the stack member. You also can use the **remote command** *stack-member-number* *LINE* EXEC command on the stack's primary switch to enable debugging on a member switch without first starting a session.

Related Commands

Command	Description
show debugging	Displays information about the types of debugging that are enabled.

ip igmp filter

To control whether or not all the hosts on a Layer 2 interface can join one or more IP multicast groups by applying an Internet Group Management Protocol (IGMP) profile to the interface, use the **ip igmp filter** interface configuration command on the device stack or on a standalone device. To remove the specified profile from the interface, use the **no** form of this command.

ip igmp filter *profile number*
no ip igmp filter

Syntax Description	<i>profile number</i> IGMP profile number to be applied. The range is 1—4294967295.
---------------------------	---

Command Default	No IGMP filters are applied.
------------------------	------------------------------

Command Modes	Interface configuration (config-if)
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Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines	You can apply IGMP filters only to Layer 2 physical interfaces; you cannot apply IGMP filters to routed ports, switch virtual interfaces (SVIs), or ports that belong to an EtherChannel group.
-------------------------	---

An IGMP profile can be applied to one or more device port interfaces, but one port can have only one profile applied to it.

Example

This example shows how to configure IGMP profile 40 to permit the specified range of IP multicast addresses, then shows how to apply that profile to a port as a filter:

```
Device(config)# ip igmp profile 40
Device(config-igmp-profile)# permit
Device(config-igmp-profile)# range 233.1.1.1 233.255.255.255
Device(config-igmp-profile)# exit
Device(config)# interface gigabitethernet1/0/2
Device(config-if)# ip igmp filter 40
```

This example shows how to apply IGMP profile 22 to a port:

```
Device(config)# interface gigabitethernet1/0/2
Device(config-if)# ip igmp filter 22
```

You can verify your setting by using the **show running-config** command in privileged EXEC mode and by specifying an interface.

Related Topics

[ip igmp profile](#), on page 7
[show ip dhcp snooping statistics](#)

ip igmp max-groups

To set the maximum number of Internet Group Management Protocol (IGMP) groups that a Layer 2 interface can join or to configure the IGMP throttling action when the maximum number of entries is in the forwarding table, use the **ip igmp max-groups** interface configuration command on the device stack or on a standalone device. To set the maximum back to the default, which is to have no maximum limit, or to return to the default throttling action, which is to drop the report, use the **no** form of this command.

```
ip igmp max-groups {max number | action { deny | replace }}
no ip igmp max-groups {max number | action }
```

Syntax Description

<i>max number</i>	Maximum number of IGMP groups that an interface can join. The range is 0—4294967294. The default is no limit.
action deny	Drops the next IGMP join report when the maximum number of entries is in the IGMP snooping forwarding table. This is the default action.
action replace	Replaces the existing group with the new group for which the IGMP report was received when the maximum number of entries is in the IGMP snooping forwarding table.

Command Default

The default maximum number of groups is no limit.

After the device learns the maximum number of IGMP group entries on an interface, the default throttling action is to drop the next IGMP report that the interface receives and to not add an entry for the IGMP group to the interface.

Command Modes

Interface configuration

Command History

Release	Modification
Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines

You can use this command only on Layer 2 physical interfaces and on logical EtherChannel interfaces. You cannot set IGMP maximum groups for routed ports, switch virtual interfaces (SVIs), or ports that belong to an EtherChannel group.

Follow these guidelines when configuring the IGMP throttling action:

- If you configure the throttling action as deny, and set the maximum group limit, the entries that were previously in the forwarding table are not removed, but are aged out. After these entries are aged out, when the maximum number of entries is in the forwarding table, the device drops the next IGMP report received on the interface.
- If you configure the throttling action as replace, and set the maximum group limitation, the entries that were previously in the forwarding table are removed. When the maximum number of entries is in the forwarding table, the device replaces a randomly selected multicast entry with the received IGMP report.
- When the maximum group limitation is set to the default (no maximum), entering the **ip igmp max-groups {deny | replace}** command has no effect.

Example

The following example shows how to limit the number of IGMP groups that a port can join to 25:

```
Device(config)# interface gigabitethernet1/0/2
Device(config-if)# ip igmp max-groups 25
```

The following example shows how to configure the device to replace the existing group with the new group for which the IGMP report was received when the maximum number of entries is in the forwarding table:

```
Device(config)# interface gigabitethernet2/0/1
Device(config-if)# ip igmp max-groups action replace
```

You can verify your setting by using the **show running-config** privileged EXEC command and by specifying an interface.

ip igmp profile

To create an Internet Group Management Protocol (IGMP) profile and enter IGMP profile configuration mode, use the **ip igmp profile** global configuration command on the device stack or on a standalone device. From this mode, you can specify the configuration of the IGMP profile to be used for filtering IGMP membership reports from a switch port. To delete the IGMP profile, use the **no** form of this command.

ip igmp profile *profile number*
no ip igmp profile *profile number*

Syntax Description

profile number The IGMP profile number being configured. The range is from 1—4294967295.

Command Default

No IGMP profiles are defined. When configured, the default action for matching an IGMP profile is to deny matching addresses.

Command Modes

Global configuration

Command History

Release	Modification
Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines

When you are in IGMP profile configuration mode, you can create a profile by using these commands:

- **deny**—Specifies that matching addresses are denied; this is the default condition.
- **exit**—Exits from igmp-profile configuration mode.
- **no**—Negates a command or resets to its defaults.
- **permit**—Specifies that matching addresses are permitted.
- **range**—Specifies a range of IP addresses for the profile. This can be a single IP address or a range with a start and an end address.

When entering a range, enter the low IP multicast address, a space, and the high IP multicast address.

You can apply an IGMP profile to one or more Layer 2 interfaces, but each interface can have only one profile applied to it.

Example

The following example shows how to configure IGMP profile 40, which permits the specified range of IP multicast addresses:

```
Device(config)# ip igmp profile 40
Device(config-igmp-profile)# permit
Device(config-igmp-profile)# range 233.1.1.1 233.255.255.255
```

You can verify your settings by using the **show ip igmp profile** command in privileged EXEC mode.

Related Topics

[ip igmp filter](#), on page 4

[show ip igmp profile](#), on page 35

ip igmp snooping

To globally enable Internet Group Management Protocol (IGMP) snooping on the device or to enable it on a per-VLAN basis, use the **ip igmp snooping** global configuration command on the device stack or on a standalone device. To return to the default setting, use the **no** form of this command.

ip igmp snooping [**vlan** *vlan-id*]
no ip igmp snooping [**vlan** *vlan-id*]

Syntax Description	vlan <i>vlan-id</i> (Optional) Enables IGMP snooping on the specified VLAN. Ranges are 1—1001 and 1006—4094.				
Command Default	IGMP snooping is globally enabled on the device. IGMP snooping is enabled on VLAN interfaces.				
Command Modes	Global configuration				
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS Release 15.0(2)EX1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS Release 15.0(2)EX1	This command was introduced.
Release	Modification				
Cisco IOS Release 15.0(2)EX1	This command was introduced.				
Usage Guidelines	<p>When IGMP snooping is enabled globally, it is enabled in all of the existing VLAN interfaces. When IGMP snooping is globally disabled, it is disabled on all of the existing VLAN interfaces.</p> <p>VLAN IDs 1002 to 1005 are reserved for Token Ring and FDDI VLANs, and cannot be used in IGMP snooping.</p>				

Example

The following example shows how to globally enable IGMP snooping:

```
Device(config)# ip igmp snooping
```

The following example shows how to enable IGMP snooping on VLAN 1:

```
Device(config)# ip igmp snooping vlan 1
```

You can verify your settings by entering the **show ip igmp snooping** command in privileged EXEC mode.

Related Topics

- [ip igmp snooping report-suppression](#), on page 16
- [show ip igmp snooping](#), on page 36
- [show ip igmp snooping groups](#), on page 38
- [show ip igmp snooping mrouter](#), on page 41
- [show ip igmp snooping querier](#), on page 42

ip igmp snooping last-member-query-count

To configure how often Internet Group Management Protocol (IGMP) snooping will send query messages in response to receiving an IGMP leave message, use the **ip igmp snooping last-member-query-count** command in global configuration mode. To set *count* to the default value, use the **no** form of this command.

```
ip igmp snooping [vlan vlan-id] last-member-query-count count
no ip igmp snooping [vlan vlan-id] last-member-query-count count
```

Syntax Description	vlan <i>vlan-id</i> (Optional) Sets the count value on a specific VLAN ID. The range is from 1—1001. Do not enter leading zeroes.	
	<i>count</i> Interval at which query messages are sent, in milliseconds. The range is from 1—7. The default is 2.	
Command Default	A query is sent every 2 milliseconds.	
Command Modes	Global configuration	
Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines When a multicast host leaves a group, the host sends an IGMP leave message. To check if this host is the last to leave the group, IGMP query messages are sent when the leave message is seen until the **last-member-query-interval** timeout period expires. If no response is received to the last-member queries before the timeout period expires, the group record is deleted.

Use the **ip igmp snooping last-member-query-interval** command to configure the timeout period.

When both IGMP snooping immediate-leave processing and the query count are configured, immediate-leave processing takes precedence.



Note Do not set the count to 1 because the loss of a single packet (the query packet from the device to the host or the report packet from the host to the device) may result in traffic forwarding being stopped even if the receiver is still there. Traffic continues to be forwarded after the next general query is sent by the device, but the interval during which a receiver may not receive the query could be as long as 1 minute (with the default query interval).

The leave latency in Cisco IOS software may increase by up to 1 last-member query interval (LMQI) value when the device is processing more than one leave within an LMQI. In such a scenario, the average leave latency is determined by the $(\text{count} + 0.5) * \text{LMQI}$. The result is that the default leave latency can range from 2.0 to 3.0 seconds with an average of 2.5 seconds under a higher load of IGMP leave processing. The leave latency under load for the minimum LMQI value of 100 milliseconds and a count of 1 is from 100 to 200 milliseconds, with an average of 150 milliseconds. This is done to limit the impact of higher rates of IGMP leave messages.

Example

The following example shows how to set the last member query count to 5:

```
Device(config)# ip igmp snooping last-member-query-count 5
```

ip igmp snooping last-member-query-interval

To enable the Internet Group Management Protocol (IGMP) configurable-leave timer globally or on a per-VLAN basis, use the **ip igmp snooping last-member-query-interval** command in global configuration mode. Use the **no** form of the command to return to the default setting.

```
ip igmp snooping [vlan vlan-id] last-member-query-interval time
no ip igmp snooping [vlan vlan-id] last-member-query-interval time
```

Syntax Description	vlan <i>vlan-id</i> (Optional) Enables IGMP snooping and the leave timer on the specified VLAN. The range is 1 to 1001 and 1006 to 4094.	
	time Interval time out in seconds. The range is 100 to 32767 milliseconds.	
Command Default	The default timeout setting is 1000 milliseconds.	
Command Modes	Global configuration	
Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines

When IGMP snooping is globally enabled, IGMP snooping is enabled on all the existing VLAN interfaces. When IGMP snooping is globally disabled, IGMP snooping is disabled on all the existing VLAN interfaces. VLAN IDs 1002 to 1005 are reserved for Token Ring and FDDI VLANs and cannot be used in IGMP snooping. Configuring the leave timer on a VLAN overrides the global setting. The IGMP configurable leave time is only supported on devices running IGMP Version 2. The configuration is saved in NVRAM.

Examples

This example shows how to globally enable the IGMP leave timer for 2000 milliseconds:

```
Device(config)# ip igmp snooping last-member-query-interval 2000
```

This example shows how to configure the IGMP leave timer for 3000 milliseconds on VLAN 1:

```
Device(config)# ip igmp snooping vlan 1 last-member-query-interval 3000
```

This example shows how to configure the IGMP leave timer for 3000 milliseconds on VLAN 1:

```
Device(config)# ip igmp snooping vlan 1 last-member-query-interval 3000
```

You can verify your settings by entering the **show ip igmp snooping** privileged EXEC command.

Related Topics

[ip igmp snooping](#), on page 9

[ip igmp snooping vlan immediate-leave](#), on page 18

[ip igmp snooping vlan mrouter](#), on page 19

[ip igmp snooping vlan static](#), on page 20

[show ip igmp snooping](#), on page 36

ip igmp snooping querier

To globally enable the Internet Group Management Protocol (IGMP) querier function in Layer 2 networks, use the **ip igmp snooping querier** global configuration command. Use the command with keywords to enable and configure the IGMP querier feature on a VLAN interface. To return to the default settings, use the **no** form of this command.

ip igmp snooping [**vlan** *vlan-id*] **querier** [**address** *ip-address* | **max-response-time** *response-time* | **query-interval** *interval-count* | **tcn query** {**count** *count* | **interval** *interval*} | **timer expiry** *expiry-time* | **version** *version*]

no ip igmp snooping [**vlan** *vlan-id*] **querier** [**address** | **max-response-time** | **query-interval** | **tcn query** {**count** | **interval**} | **timer expiry** | **version**]

Syntax Description		
vlan <i>vlan-id</i>	(Optional) Enables IGMP snooping and the IGMP querier function on the specified VLAN. Ranges are 1—1001 and 1006—4094.	
address <i>ip-address</i>	(Optional) Specifies a source IP address. If you do not specify an IP address, the querier tries to use the global IP address configured for the IGMP querier.	
max-response-time <i>response-time</i>	(Optional) Sets the maximum time to wait for an IGMP querier report. The range is 1—25 seconds.	
query-interval <i>interval-count</i>	(Optional) Sets the interval between IGMP queriers. The range is 1—18000 seconds.	
tcn query	(Optional) Sets parameters related to Topology Change Notifications (TCNs).	
count <i>count</i>	Sets the number of TCN queries to be executed during the TCN interval time. The range is 1—10.	
interval <i>interval</i>	Sets the TCN query interval time. The range is 1—255.	
timer expiry <i>expiry-time</i>	(Optional) Sets the length of time until the IGMP querier expires. The range is 60—300 seconds.	
version <i>version</i>	(Optional) Selects the IGMP version number that the querier feature uses. Select either 1 or 2.	

Command Default The IGMP snooping querier feature is globally disabled on the device.
When enabled, the IGMP snooping querier disables itself if it detects IGMP traffic from a multicast router.

Command Modes Global configuration

Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines

Use this command to enable IGMP snooping to detect the IGMP version and IP address of a device that sends IGMP query messages, which is also called a querier.

By default, the IGMP snooping querier is configured to detect devices that use IGMP Version 2 (IGMPv2), but does not detect clients that are using IGMP Version 1 (IGMPv1). You can manually configure the **max-response-time** value when devices use IGMPv2. You cannot configure the max-response-time when devices use IGMPv1. (The value cannot be configured, and is set to zero).

Non-RFC-compliant devices running IGMPv1 might reject IGMP general query messages that have a non-zero value as the **max-response-time** value. If you want the devices to accept the IGMP general query messages, configure the IGMP snooping querier to run IGMPv1.

VLAN IDs 1002—1005 are reserved for Token Ring and FDDI VLANs, and cannot be used in IGMP snooping.

Example

The following example shows how to globally enable the IGMP snooping querier feature:

```
Device(config)# ip igmp snooping querier
```

The following example shows how to set the IGMP snooping querier maximum response time to 25 seconds:

```
Device(config)# ip igmp snooping querier max-response-time 25
```

The following example shows how to set the IGMP snooping querier interval time to 60 seconds:

```
Device(config)# ip igmp snooping querier query-interval 60
```

The following example shows how to set the IGMP snooping querier TCN query count to 25:

```
Device(config)# ip igmp snooping querier tcn count 25
```

The following example shows how to set the IGMP snooping querier timeout value to 60 seconds:

```
Device(config)# ip igmp snooping querier timer expiry 60
```

The following example shows how to set the IGMP snooping querier feature to Version 2:

```
Device(config)# ip igmp snooping querier version 2
```

You can verify your settings by entering the **show ip igmp snooping** privileged EXEC command.

Related Topics

[ip igmp snooping report-suppression](#), on page 16

[show ip igmp snooping](#), on page 36

[show ip igmp snooping groups](#), on page 38

ip igmp snooping report-suppression

To enable Internet Group Management Protocol (IGMP) report suppression, use the **ip igmp snooping report-suppression** global configuration command on the device stack or on a standalone device. To disable IGMP report suppression, and to forward all IGMP reports to multicast routers, use the **no** form of this command.

ip igmp snooping report-suppression
no ip igmp snooping report-suppression

Syntax Description This command has no arguments or keywords.

Command Default IGMP report suppression is enabled.

Command Modes Global configuration

Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines IGMP report suppression is supported only when the multicast query has IGMPv1 and IGMPv2 reports. This feature is not supported when the query includes IGMPv3 reports.

The device uses IGMP report suppression to forward only one IGMP report per multicast router query to multicast devices. When IGMP report suppression is enabled (the default), the device sends the first IGMP report from all the hosts for a group to all the multicast routers. The device does not send the remaining IGMP reports for the group to the multicast routers. This feature prevents duplicate reports from being sent to the multicast devices.

If the multicast router query includes requests only for IGMPv1 and IGMPv2 reports, the device forwards only the first IGMPv1 or IGMPv2 report from all the hosts for a group to all of the multicast routers. If the multicast router query also includes requests for IGMPv3 reports, the device forwards all IGMPv1, IGMPv2, and IGMPv3 reports for a group to the multicast devices.

If you disable IGMP report suppression by entering the **no ip igmp snooping report-suppression** command, all IGMP reports are forwarded to all of the multicast routers.

Example

The following example shows how to disable report suppression:

```
Device(config)# no ip igmp snooping report-suppression
```

You can verify your settings by entering the **show ip igmp snooping** command in privileged EXEC mode.

Related Topics

[show ip igmp snooping](#), on page 36

ip igmp snooping robustness-variable

To configure the IGMP robustness variable globally or on a per-VLAN basis, use the **ip igmp snooping robustness-variable** command in global configuration mode. Use the **no** form of the command to return to the default setting.

```
ip igmp snooping [vlan vlan-id] robustness-variable number
no ip igmp snooping [vlan vlan-id] robustness-variable number
```

Syntax Description	<p>vlan <i>vlan-id</i> (Optional) Enables IGMP snooping and the leave timer on the specified VLAN. The range is 1 to 1001 and 1006 to 4094.</p> <p><i>number</i> Robustness variable number. The range is 1 to 3.</p>				
Command Default	None				
Command Modes	Global configuration				
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS Release 15.0(2)EX1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS Release 15.0(2)EX1	This command was introduced.
Release	Modification				
Cisco IOS Release 15.0(2)EX1	This command was introduced.				

ip igmp snooping vlan immediate-leave

To enable IGMPv2 immediate leave processing, use the **immediate-leave** global configuration command on the device stack or on a standalone device. To return to the default settings, use the **no** form of this command.

ip igmp snooping vlan *vlan-id* **immediate-leave**

no ip igmp snooping vlan *vlan-id* **immediate-leave**

Syntax Description	<i>vlan-id</i> Enables IGMPv2 immediate leave processing in the specified VLAN. The range is 1 to 1001 and 1006 to 4094.	
Command Default	By default, IGMPv2 immediate leave processing is off.	
Command Modes	Global configuration	
Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.
Usage Guidelines	You can verify your settings by entering the show ip igmp snooping privileged EXEC command.	

ip igmp snooping vlan mrouter

To add a multicast router port, use the **ip igmp snooping mrouter** global configuration command on the device stack or on a standalone device. To return to the default settings, use the **no** form of this command.

Command Default By default, there are no multicast router ports.

Command Modes Global configuration

Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines VLAN IDs 1002—1005 are reserved for Token Ring and FDDI VLANs, and cannot be used in IGMP snooping. The configuration is saved in NVRAM.

Example

The following example shows how to configure a port as a multicast router port:

```
Device(config)# ip igmp snooping vlan 1 mrouter interface gigabitethernet1/0/2
```

You can verify your settings by entering the **show ip igmp snooping** privileged EXEC command.

Related Topics

- [ip igmp snooping report-suppression](#), on page 16
- [show ip igmp snooping](#), on page 36
- [show ip igmp snooping groups](#), on page 38
- [show ip igmp snooping mrouter](#), on page 41
- [show ip igmp snooping querier](#), on page 42

ip igmp snooping vlan static

To enable Internet Group Management Protocol (IGMP) snooping and to statically add a Layer 2 port as a member of a multicast group, use the **ip igmp snooping vlan static** global configuration command on the device stack or on a standalone device. To remove the port specified as members of a static multicast group, use the **no** form of this command.

ip igmp snooping vlan *vlan-id* **static** *ip-address* **interface** *interface-id*
no ip igmp snooping vlan *vlan-id* **static** *ip-address* **interface** *interface-id*

Syntax Description

<i>vlan-id</i>	Enables IGMP snooping on the specified VLAN. Ranges are 1—1001 and 1006—4094.
<i>ip-address</i>	Adds a Layer 2 port as a member of a multicast group with the specified group IP address.
interface <i>interface-id</i>	Specifies the interface of the member port. The <i>interface-id</i> has these options: <ul style="list-style-type: none"> • <i>fastethernet interface number</i>—A Fast Ethernet IEEE 802.3 interface. • <i>gigabitethernet interface number</i>—A Gigabit Ethernet IEEE 802.3z interface. • <i>tengigabitethernet interface number</i>—A 10-Gigabit Ethernet IEEE 802.3z interface. • <i>port-channel interface number</i>—A channel interface. The range is 0—128.

Command Default

By default, no ports are statically configured as members of a multicast group.

Command Modes

Global configuration

Command History

Release	Modification
Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines

VLAN IDs 1002 to 1005 are reserved for Token Ring and FDDI VLANs, and cannot be used in IGMP snooping.

The configuration is saved in NVRAM.

Example

The following example shows how to statically configure a host on an interface:

```
Device(config)# ip igmp snooping vlan 1 static 224.2.4.12 interface
gigabitEthernet1/0/1
```

Configuring port gigabitethernet1/0/1 on group 224.2.4.12

You can verify your settings by entering the **show ip igmp snooping** command in privileged EXEC mode.

Related Topics

- [ip igmp snooping report-suppression](#), on page 16
- [show ip igmp snooping](#), on page 36
- [show ip igmp snooping groups](#), on page 38
- [show ip igmp snooping mrouter](#), on page 41
- [show ip igmp snooping querier](#), on page 42

ip multicast auto-enable

To support authentication, authorization, and accounting (AAA) enabling of IP multicast, use the **ip multicast auto-enable** command. This command allows multicast routing to be enabled dynamically on dialup interfaces using AAA attributes from a RADIUS server. To disable IP multicast for AAA, use the **no** form of this command.

ip multicast auto-enable
no ip multicast auto-enable

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Command Default	None
------------------------	------

Command Modes	Global configuration
----------------------	----------------------

Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.

Example

The following example shows how to enable AAA on IP multicast:

```
Device(config)# ip multicast auto-enable
```

ip pim accept-register

To configure a candidate rendezvous point (RP) switch to filter Protocol Independent Multicast (PIM) register messages, use the **ip pim accept-register** command in global configuration mode. To disable this function, use the **no** form of this command.

```
ip pim [vrf vrf-name ] accept-register {list access-list}
no ip pim [vrf vrf-name ] accept-register
```

Syntax Description	<p>vrf <i>vrf-name</i> (Optional) Configures a PIM register filter on candidate RPs for (S, G) traffic associated with the multicast Virtual Private Network (VPN) routing and forwarding (MVRP) instance specified for the <i>vrf-name</i> argument.</p> <p>list <i>access-list</i> Specifies the <i>access-list</i> argument as a number or name that defines the (S, G) traffic in PIM register messages to be permitted or denied. The range is 100—199 and the expanded range is 2000—2699. An IP-named access list can also be used.</p>	
Command Default	No PIM register filters are configured.	
Command Modes	Global configuration	
Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines

Use this command to prevent unauthorized sources from registering with the RP. If an unauthorized source sends a register message to the RP, the RP will immediately send back a register-stop message.

The access list provided for the **ip pim accept-register** command should only filter IP source addresses and IP destination addresses. Filtering on other fields (for example, IP protocol or UDP port number) will not be effective and may cause undesired traffic to be forwarded from the RP down the shared tree to multicast group members. If more complex filtering is required, use the **ip multicast boundary** command instead.

Example

The following example shows how to permit register packets for a source address sending to any group range, with the exception of source address 172.16.10.1 sending to the SSM group range (232.0.0.0/8). These are denied. These statements should be configured on all candidate RPs because candidate RPs will receive PIM registers from first-hop routers or switches.

```
Device(config)# ip pim accept-register list ssm-range
Device(config)# ip access-list extended ssm-range
Device(config-ext-nacl)# deny ip any 232.0.0.0 0.255.255.255
Device(config-ext-nacl)# permit ip any any
```

ip pim bsr-candidate

To configure the Device to be a candidate BSR, use the **ip pim bsr-candidate** command in global configuration mode. To remove the switch as a candidate BSR, use the **no** form of this command.

```
ip pim [vrf vrf-name] bsr-candidate interface-id [hash-mask-length] [priority]  
no ip pim [vrf vrf-name] bsr-candidate
```

Syntax Description	
vrf <i>vrf-name</i>	(Optional) Configures the Device to be a candidate BSR for the Multicast Virtual Private Network (MVPN) routing and forwarding (MVRP) instance specified for the <i>vrf-name</i> argument.
<i>interface-id</i>	ID of the interface on the Device from which the BSR address is derived to make it a candidate. This interface must be enabled for Protocol Independent Multicast (PIM) using the ip pim command. Valid interfaces include physical ports, port channels, and VLANs.
<i>hash-mask-length</i>	(Optional) Length of a mask (32 bits maximum) that is to be ANDed with the group address before the PIMv2 hash function is called. All groups with the same seed hash correspond to the same rendezvous point (RP). For example, if this value is 24, only the first 24 bits of the group addresses matter. The hash mask length allows one RP to be used for multiple groups. The default hash mask length is 0.
<i>priority</i>	(Optional) Priority of the candidate BSR (C-BSR). The range is from 0 to 255. The default priority is 0. The C-BSR with the highest priority value is preferred.

Command Default The Device is not configured to announce itself as a candidate BSR.

Command Modes Global configuration

Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines

The interface specified for this command must be enabled for Protocol Independent Multicast (PIM) using the **ip pim** command.

This command configures the Device to send BSR messages to all of its PIM neighbors, with the address of the designated interface as the BSR address.

This command should be configured on backbone Devices that have good connectivity to all parts of the PIM domain.

The BSR mechanism is specified in RFC 2362. Candidate RP (C-RP) switches unicast C-RP advertisement packets to the BSR. The BSR then aggregates these advertisements in BSR messages, which it regularly multicasts with a TTL of 1 to the ALL-PIM-ROUTERS group address, 224.0.0.13. The multicasting of these messages is handled by hop-by-hop RPF flooding; so, no pre-existing IP multicast routing setup is required (unlike with AutoRP). In addition, the BSR does not preselect the designated RP for a particular group range (unlike AutoRP); instead, each switch that receives BSR messages will elect RPs for group ranges based on the information in the BSR messages.

Cisco Device always accept and process BSR messages. There is no command to disable this function.

Cisco Device perform the following steps to determine which C-RP is used for a group:

- A long match lookup is performed on the group prefix that is announced by the BSR C-RPs.
- If more than one BSR-learned C-RP is found by the longest match lookup, the C-RP with the lowest priority (configured with the **ip pim rp-candidate** command) is preferred.
- If more than one BSR-learned C-RP has the same priority, the BSR hash function is used to select the RP for a group.
- If more than one BSR-learned C-RP returns the same hash value derived from the BSR hash function, the BSR C-RP with the highest IP address is preferred.

Example

The following example shows how to configure the IP address of the Device on Gigabit Ethernet interface 1/0/0 to be a BSR C-RP with a hash mask length of 0 and a priority of 192:

```
Device(config)# ip pim bsr-candidate GigabitEthernet1/0/1 0 192
```

Related Topics

[ip pim rp-candidate](#), on page 28

ip pim dm-fallback

To enable Protocol Independent Multicast (PIM) dense mode (DM) fallback, use the **ip pim dm-fallback** command in global configuration mode. To prevent PIM dense mode fallback, use the **no** form of this command.

ip pim dm-fallback
no ip pim dm-fallback

Syntax Description

This command has no arguments or keywords.

Command Default

PIM dense mode fallback is enabled for all interfaces on the switch that are configured with either the **ip pim dense-mode** or **ip pim sparse-dense-mode** commands.

Command Modes

Global configuration

Command History

Release	Modification
Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines

If you use IP multicast in mission-critical networks, you should avoid the use of PIM-DM (dense mode).

Dense mode fallback describes the event of the PIM mode changing (falling back) from sparse mode (which requires an RP) to dense mode (which does not use an RP). Dense mode fallback occurs when RP information is lost.

If all interfaces are configured with the **ip pim sparse-mode** command, there is no dense mode fallback because dense mode groups cannot be created over interfaces configured for sparse mode.

Use the **no ip pim dm-fallback** command to disable PIM-DM flooding on sparse-dense interfaces.

Cause and Effect of Dense Mode Fallback

PIM determines whether a multicast group operates in PIM-DM or PIM-SM mode based solely on the existence of RP information in the group-to-RP mapping cache. If Auto-RP is configured or a bootstrap router (BSR) is used to distribute RP information, there is a risk that RP information can be lost if all RPs, Auto-RP, or the BSR for a group fails due to network congestion. This failure can lead to the network either partially or fully falling back into PIM-DM.

If a network falls back into PIM-DM and AutoRP or BSR is being used, dense mode flooding will occur. Switches that lose RP information will fallback into dense mode and any new states that must be created for the failed group will be created in dense mode.

Effects of Preventing Dense Mode Fallback

Prior to the introduction of PIM-DM fallback prevention, all multicast groups without a group-to-RP mapping would be treated as dense mode.

With the introduction of PIM-DM fallback prevention, the PIM-DM fallback behavior has been changed to prevent dense mode flooding. By default, if all of the interfaces are configured to operate in PIM sparse mode (using the **ip pim sparse-mode** command), there is no need to configure the **no ip pim dm-fallback** command (that is, the PIM-DM fallback behavior is enabled by default). If any interfaces are not configured using the

ip pim sparse-mode command (for example, using the **ip pim sparse-dense-mode** command), then the PIM-DM fallback behavior can be explicitly disabled using the **no ip pim dm-fallback** command.

When the **no ip pim dm-fallback** command is configured or when **ip pim sparse-mode** is configured on all interfaces, any existing groups running in sparse mode will continue to operate in sparse mode but will use an RP address set to 0.0.0.0. Multicast entries with an RP address set to 0.0.0.0 will exhibit the following behavior:

- Existing (S, G) states will be maintained.
- No PIM Join or Prune messages for (*, G) or (S, G, RPbit) are sent.
- Received (*, G) or (S, G, RPbit) Joins or Prune messages are ignored.
- Received registers are answered with register stop.
- Asserts are unchanged.
- The (*, G) outgoing interface list (olist) is maintained only for the Internet Group Management Protocol (IGMP) state.
- Multicast Source Discovery Protocol (MSDP) source active (SA) messages for RP 0.0.0.0 groups are still accepted and forwarded.

Example

The following example shows how to disable PIM-DM fallback:

```
Device(config)# no ip pim dm-fallback
```

ip pim rp-candidate

To configure the Device to advertise itself to the BSR as a Protocol Independent Multicast (PIM) Version 2 (PIMv2) candidate rendezvous point (C-RP), use the **ip pim rp-candidate** command in global configuration mode. To remove the Device as a C-RP, use the **no** form of this command.

```
ip pim [vrf vrf-name] rp-candidate interface-id [group-list access-list-number]
no ip pim [vrf vrf-name] rp-candidate interface-id [group-list access-list-number]
```

Syntax Description		
vrf <i>vrf-name</i>	(Optional) Configures the switch to advertise itself to the BSR as PIMv2 C-RP for the Multicast Virtual Private Network (MVPN) routing and forwarding (MVRP) instance specified for the <i>vrf-name</i> argument.	
<i>interface-id</i>	ID of the interface whose associated IP address is advertised as a candidate RP address. Valid interfaces include physical ports, port channels, and VLANs.	
group-list <i>access-list-number</i>	(Optional) Specifies the standard IP access list number that defines the group prefixes that are advertised in association with the RP address.	

Command Default The Device is not configured to announce itself to the BSR as a PIMv2 C-RP.

Command Modes Global configuration

Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines Use this command to configure the Device to send PIMv2 messages so that it advertises itself as a candidate RP to the BSR.

This command should be configured on backbone Devices that have good connectivity to all parts of the PIM domain.

The IP address associated with the interface specified by *interface-id* will be advertised as the C-RP address.

The interface specified for this command must be enabled for Protocol Independent Multicast (PIM) using the **ip pim** command.

If the optional **group-list** keyword and *access-list-number* argument are configured, the group prefixes defined by the standard IP access list will also be advertised in association with the RP address.

Example

The following example shows how to configure the switch to advertise itself as a C-RP to the BSR in its PIM domain. The standard access list number 4 specifies the group prefix associated with the RP that has the address identified by Gigabit Ethernet interface 1/0/1.

```
Device(config)# ip pim rp-candidate GigabitEthernet1/0/1 group-list 4
```

Related Topics

[ip pim bsr-candidate](#), on page 24

ip pim send-rp-announce

To use Auto-RP to configure groups for which the Device will act as a rendezvous point (RP), use the **ip pim send-rp-announce** command in global configuration mode. To unconfigure the Device as an RP, use the **no** form of this command.

```
ip pim [vrf vrf-name] send-rp-announce interface-id scope ttl-value [group-list access-list-number]
[interval seconds]
```

```
no ip pim [vrf vrf-name] send-rp-announce interface-id
```

Syntax Description		
vrf <i>vrf-name</i>	(Optional) Uses Auto-RP to configure groups for which the Device will act as a rendezvous point (RP) for the <i>vrf-name</i> argument.	
<i>interface-id</i>	Enter the interface ID of the interface that identifies the RP address. Valid interfaces include physical ports, port channels, and VLANs.	
scope <i>ttl-value</i>	Specifies the time-to-live (TTL) value in hops that limits the number of Auto-RP announcements. Enter a hop count that is high enough to ensure that the RP-announce messages reach all the mapping agents in the network. There is no default setting. The range is 1—255.	
group-list <i>access-list-number</i>	(Optional) Specifies the standard IP access list number that defines the group prefixes that are advertised in association with the RP address. Enter an IP standard access list number from 1—99. If no access list is configured, the RP is used for all groups.	
interval <i>seconds</i>	(Optional) Specifies the interval between RP announcements, in seconds. The total hold time of the RP announcements is automatically set to three times the value of the interval. The default interval is 60 seconds. The range is 1—16383.	

Command Default Auto-RP is disabled.

Command Modes Global configuration

Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines Enter this command on the Device that you want to be an RP. When you are using Auto-RP to distribute group-to-RP mappings, this command causes the router to send an Auto-RP announcement message to the well-known group CISCO-RP-ANNOUNCE (224.0.1.39). This message announces the router as a candidate RP for the groups in the range described by the access list.

Example

The following example shows how to configure the Device to send RP announcements out all Protocol Independent Multicast (PIM)-enabled interfaces for a maximum of 31 hops. The IP address by which the switch wants to be identified as RP is the IP address associated with Gigabit Ethernet interface 1/0/1 at an interval of 120 seconds:

```
Device(config)# ip pim send-rp-announce GigabitEthernet1/0/1 scope 31 group-list 5 interval  
120
```

Related Topics

[ip pim rp-candidate](#), on page 28

ip pim spt-threshold

To specify the threshold that must be reached before moving to shortest-path tree (spt), use the **ip pim spt-threshold** command in global configuration mode. To remove the threshold, use the **no** form of this command.

```
ip pim {kpbs | infinity} [group-list access-list]
no ip pim {kpbs | infinity} [group-list access-list]
```

Syntax Description	<i>kpbs</i>	Threshold that must be reached before moving to shortest-path tree (spt). 0 is the only valid entry even though the range is 0 to 4294967. A 0 entry always switches to the source-tree.
	infinity	Specifies that all the sources for the specified group use the shared tree, never switching to the source tree.
	group-list access-list	(Optional) Specifies an access list number or a specific access list that you have created by name. If the value is 0 or if the group-list access-list option is not used, the threshold applies to all the groups.
Command Default	Switches to the PIM shortest-path tree (spt).	
Command Modes	Global configuration	
Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.

Example

The following example shows how to make all the sources for access list 16 use the shared tree:

```
Device(config)# ip pim spt-threshold infinity group-list 16
```

mrinfo

To query which neighboring multicast routers or multilayer switches are acting as peers, use the **mrinfo** command in user EXEC or privileged EXEC mode.

```
mrinfo [vrf route-name] [hostname | address] [interface-id]
```

Syntax Description	vrf <i>route-name</i>	(Optional) Specifies the VPN routing or forwarding instance.
	<i>hostname</i> <i>address</i>	(Optional) Domain Name System (DNS) name or IP address of the multicast router or multilayer switch to query. If omitted, the switch queries itself.
	<i>interface-id</i>	(Optional) Interface ID.
Command Default	The command is disabled.	
Command Modes	User EXEC	
	Privileged EXEC	
Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.
Usage Guidelines	<p>The mrinfo command is the original tool of the multicast backbone (MBONE) to determine which neighboring multicast routers or switches are peering with multicast routers or switches. Cisco routers supports mrinfo requests from Cisco IOS Release 10.2.</p> <p>You can query a multicast router or multilayer switch using the mrinfo command. The output format is identical to the multicast routed version of the Distance Vector Multicast Routing Protocol (DVMRP). (The mrouterd software is the UNIX software that implements DVMRP.)</p>	

Example

The following is the sample output from the **mrinfo** command:

```
Device# mrinfo
vrf 192.0.1.0
192.31.7.37 (barnet-gw.cisco.com) [version cisco 11.1] [flags: PMSA]:
  192.31.7.37 -> 192.31.7.34 (sj-wall-2.cisco.com) [1/0/pim]
  192.31.7.37 -> 192.31.7.47 (dirtylab-gw-2.cisco.com) [1/0/pim]
  192.31.7.37 -> 192.31.7.44 (dirtylab-gw-1.cisco.com) [1/0/pim]
```




Note The flags indicate the following:

- P: prune-capable
 - M: mtrace-capable
 - S: Simple Network Management Protocol-capable
 - A: Auto RP capable
-

show ip igmp filter

To display Internet Group Management Protocol (IGMP) filter information, use the **show ip igmp filter** command in privileged EXEC mode.

show ip igmp [*vrf vrf-name*] **filter**

Syntax Description	<i>vrf vrf-name</i> (Optional) Supports the multicast VPN routing and forwarding (VRF) instance.
---------------------------	--

Command Default	IGMP filters are enabled by default.
------------------------	--------------------------------------

Command Modes	Privileged EXEC
----------------------	-----------------

Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines	The show ip igmp filter command displays information about all filters defined on the device.
-------------------------	--

Example

The following example shows the sample output from the **show ip igmp filter** command:

```
Device# show ip igmp filter
IGMP filter enabled
```

show ip igmp profile

To display all the configured Internet Group Management Protocol (IGMP) profiles or a specified IGMP profile, use the **show ip igmp profile** command in privileged EXEC mode.

```
show ip igmp [vrf vrf-name] profile [profile number]
```

Syntax Description	vrf vrf-name (Optional) Supports the multicast VPN routing and forwarding (VRF) instance.				
	profile number (Optional) IGMP profile number to be displayed. The range is 1 to 4294967295. If no profile number is entered, all the IGMP profiles are displayed.				
Command Default	IGMP profiles are undefined by default.				
Command Modes	Privileged EXEC				
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS Release 15.0(2)EX1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS Release 15.0(2)EX1	This command was introduced.
Release	Modification				
Cisco IOS Release 15.0(2)EX1	This command was introduced.				
Usage Guidelines	None				

Examples

The following example shows the output of the **show ip igmp profile** command for profile number 40 on the device:

```
Device# show ip igmp profile 40
IGMP Profile 40
  permit
  range 233.1.1.1 233.255.255.255
```

The following example shows the output of the **show ip igmp profile** command for all the profiles configured on the device:

```
Device# show ip igmp profile

IGMP Profile 3
  range 230.9.9.0 230.9.9.0
IGMP Profile 4
  permit
  range 229.9.9.0 229.255.255.255
```

Related Topics

[ip igmp profile](#), on page 7

show ip igmp snooping

To display the Internet Group Management Protocol (IGMP) snooping configuration of the device or the VLAN, use the **show ip igmp snooping** command in user EXEC or privileged EXEC mode.

show ip igmp snooping [**groups** | **mrouter** | **querier**] [**vlan** *vlan-id*] [**detail**]

Syntax Description	
groups	(Optional) Displays the IGMP snooping multicast table.
mrouter	(Optional) Displays the IGMP snooping multicast router ports.
querier	(Optional) Displays the configuration and operation information for the IGMP querier.
vlan <i>vlan-id</i>	(Optional) Specifies a VLAN; the range is 1 to 1001 and 1006 to 4094.
detail	(Optional) Displays operational state information.

Command Default None

Command Modes User EXEC
Privileged EXEC

Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines VLAN IDs 1002—1005 are reserved for Token Ring and FDDI VLANs, and cannot be used in IGMP snooping. Expressions are case sensitive. For example, if you enter | **exclude output**, the lines that contain "output" do not appear, but the lines that contain "Output" appear.

Examples

The following is a sample output from the **show ip igmp snooping vlan 1** command. It shows snooping characteristics for a specific VLAN:

```
Device# show ip igmp snooping vlan 1

Global IGMP Snooping configuration:
-----
IGMP snooping                : Enabled
IGMPv3 snooping (minimal)    : Enabled
Report suppression           : Enabled
TCN solicit query            : Disabled
TCN flood query count        : 2
Robustness variable          : 2
Last member query count      : 2
Last member query interval   : 1000

Vlan 1:
-----
IGMP snooping                : Enabled
```

```

IGMPv2 immediate leave      : Disabled
Multicast router learning mode : pim-dvmrp
CGMP interoperability mode  : IGMP_ONLY
Robustness variable         : 2
Last member query count     : 2
Last member query interval  : 1000

```

The following is a sample output from the **show ip igmp snooping** command. It displays snooping characteristics for all the VLANs on the device:

```

Device# show ip igmp snooping

Global IGMP Snooping configuration:
-----
IGMP snooping                : Enabled
IGMPv3 snooping (minimal)    : Enabled
Report suppression           : Enabled
TCN solicit query            : Disabled
TCN flood query count        : 2
Robustness variable          : 2
Last member query count      : 2
Last member query interval   : 1000

Vlan 1:
-----
IGMP snooping                : Enabled
IGMPv2 immediate leave      : Disabled
Multicast router learning mode : pim-dvmrp
CGMP interoperability mode  : IGMP_ONLY
Robustness variable         : 2
Last member query count     : 2
Last member query interval  : 1000
Vlan 2:
-----
IGMP snooping                : Enabled
IGMPv2 immediate leave      : Disabled
Multicast router learning mode : pim-dvmrp
CGMP interoperability mode  : IGMP_ONLY
Robustness variable         : 2
Last member query count     : 2
Last member query interval  : 1000
-
.
.
.

```

Related Topics

- [ip igmp snooping](#), on page 9
- [show ip igmp snooping groups](#), on page 38
- [show ip igmp snooping mrouter](#), on page 41
- [show ip igmp snooping querier](#), on page 42

show ip igmp snooping groups

To display the Internet Group Management Protocol (IGMP) snooping multicast table for the device or the multicast information, use the **show ip igmp snooping groups** command in privileged EXEC mode.

show ip igmp snooping groups [**vlan** *vlan-id*] [[**dynamic** | **user**] [**count**] | *ip_address*]

Syntax Description

vlan <i>vlan-id</i>	(Optional) Specifies a VLAN; the range is 1 to 1001 and 1006 to 4094. Use this option to display the multicast table for a specified multicast VLAN or specific multicast information.
dynamic	(Optional) Displays IGMP snooping learned group information.
user	(Optional) Displays user-configured group information.
count	(Optional) Displays the total number of entries for the specified command options instead of the actual entries.
<i>ip_address</i>	(Optional) Characteristics of the multicast group with the specified group IP address.

Command Modes

Privileged EXEC

User EXEC

Command History

Release	Modification
Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines

Expressions are case sensitive. For example, if you enter | **exclude output**, the lines that contain "output" do not appear, but the lines that contain "Output" appear.

Examples

The following is a sample output from the **show ip igmp snooping groups** command without any keywords. It displays the multicast table for the device.

```
Device# show ip igmp snooping groups
Vlan      Group          Type      Version      Port List
-----
1         224.1.4.4      igmp
1         224.1.4.5      igmp
2         224.0.1.40     igmp      v2           Gi1/0/15
104      224.1.4.2      igmp      v2           Gi2/0/1, Gi2/0/2
104      224.1.4.3      igmp      v2           Gi2/0/1, Gi2/0/2
```

The following is a sample output from the **show ip igmp snooping groups count** command. It displays the total number of multicast groups on the device.

```
Device# show ip igmp snooping groups count
Total number of multicast groups: 2
```

The following is a sample output from the **show ip igmp snooping groups vlan vlan-id ip-address** command. It shows the entries for the group with the specified IP address:

```
Device# show ip igmp snooping groups vlan 104 224.1.4.2
```

Vlan	Group	Type	Version	Port List
104	224.1.4.2	igmp	v2	Gi2/0/1, Gi1/0/15

Related Topics

[ip igmp snooping](#), on page 9

[show ip igmp snooping](#), on page 36

show ip igmp snooping igmpv2-tracking

To display group and IP address entries, use the **show ip igmp snooping igmpv2-tracking** command in privileged EXEC mode.



Note The command displays group and IP address entries only for wireless multicast IGMP joins and not for wired joins. This command also displays output only if wireless multicast is enabled.

show ip igmp snooping igmpv2-tracking

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Privileged EXEC

Command History

Release	Modification
Cisco IOS Release 15.0(2)EX1	This command was introduced.

show ip igmp snooping mrouter

To display the Internet Group Management Protocol (IGMP) snooping dynamically learned and manually configured multicast router ports for the device or for the specified multicast VLAN, use the **show ip igmp snooping mrouter** command in privileged EXEC mode.

```
show ip igmp snooping mrouter [vlan vlan-id]
```

Syntax Description	vlan <i>vlan-id</i> (Optional) Specifies a VLAN; Ranges are from 1—1001 and 1006—4094.	
Command Modes	User EXEC Privileged EXEC	
Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.
Usage Guidelines	<p>VLAN IDs 1002—1005 are reserved for Token Ring and FDDI VLANs, and cannot be used in IGMP snooping. When multicast VLAN registration (MVR) is enabled, the show ip igmp snooping mrouter command displays MVR multicast router information and IGMP snooping information.</p> <p>Expressions are case sensitive, for example, if you enter exclude output, the lines that contain "output" do not appear, but the lines that contain "Output" appear.</p>	

Example

The following is a sample output from the **show ip igmp snooping mrouter** command. It shows how to display multicast router ports on the device:

```
Device# show ip igmp snooping mrouter

Vlan      ports
----      -
1         Gi2/0/1 (dynamic)
```

Related Topics

- [ip igmp snooping](#), on page 9
- [show ip igmp snooping](#), on page 36
- [show ip igmp snooping groups](#), on page 38

show ip igmp snooping querier

To display the configuration and operation information for the IGMP querier that is configured on a device, use the **show ip igmp snooping querier** command in user EXEC mode.

show ip igmp snooping querier [**vlan** *vlan-id*] [**detail**]

Syntax Description	vlan <i>vlan-id</i> (Optional) Specifies a VLAN; Ranges are from 1—1001 and 1006—4094.
	detail (Optional) Displays detailed IGMP querier information.

Command Modes	User EXEC Privileged EXEC
----------------------	------------------------------

Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines Use the **show ip igmp snooping querier** command to display the IGMP version and the IP address of a detected device, also called a querier, that sends IGMP query messages. A subnet can have multiple multicast routers but only one IGMP querier. In a subnet running IGMPv2, one of the multicast routers is elected as the querier. The querier can be a Layer 3 device.

The **show ip igmp snooping querier** command output also shows the VLAN and the interface on which the querier was detected. If the querier is the device, the output shows the Port field as Router. If the querier is a router, the output shows the port number on which the querier was detected in the Port field.

The **show ip igmp snooping querier detail** user EXEC command is similar to the **show ip igmp snooping querier** command. However, the **show ip igmp snooping querier** command displays only the device IP address most recently detected by the device querier.

The **show ip igmp snooping querier detail** command displays the device IP address most recently detected by the device querier and this additional information:

- The elected IGMP querier in the VLAN
- The configuration and operational information pertaining to the device querier (if any) that is configured in the VLAN

Expressions are case sensitive, for example, if you enter | **exclude output**, the lines that contain "output" do not appear, but the lines that contain "Output" appear.

Examples

The following is a sample output from the **show ip igmp snooping querier** command:

```
Device> show ip igmp snooping querier
Vlan      IP Address      IGMP Version      Port
-----
1         172.20.50.11   v3                 Gi1/0/1
2         172.20.40.20   v2                 Router
```

The following is a sample output from the **show ip igmp snooping querier detail** command:

```
Device> show ip igmp snooping querier detail
```

```
Vlan      IP Address      IGMP Version  Port
-----
1         1.1.1.1         v2           Fa8/0/1
```

```
Global IGMP device querier status
```

```
-----
admin state           : Enabled
admin version         : 2
source IP address     : 0.0.0.0
query-interval (sec) : 60
max-response-time (sec) : 10
querier-timeout (sec) : 120
tcn query count      : 2
tcn query interval (sec) : 10
Vlan 1: IGMP device querier status
```

```
-----
elected querier is 1.1.1.1      on port Fa8/0/1
-----
```

```
admin state           : Enabled
admin version         : 2
source IP address     : 10.1.1.65
query-interval (sec) : 60
max-response-time (sec) : 10
querier-timeout (sec) : 120
tcn query count      : 2
tcn query interval (sec) : 10
operational state     : Non-Querier
operational version   : 2
tcn query pending count : 0
```

Related Topics

[ip igmp snooping](#), on page 9

[ip igmp snooping querier](#), on page 14

[show ip igmp snooping](#), on page 36

show ip pim all-vrfs tunnel

To display information about the Protocol Independent Multicast (PIM) register encapsulation and decapsulation tunnels for all VRFs, use the **show ip pim all-vrfs tunnel** command in privileged EXEC mode.

show ip pim all-vrfs tunnel [**verbose** | **Tunnel** *tunnel-interface-number*]

Syntax Description	<p>verbose (Optional) Provides additional information, such as the MAC encapsulation header and platform-specific information.</p>				
	<p>Tunnel <i>tunnel-interface-number</i> (Optional) Displays tunnel information for a specific tunnel interface specified by <i>tunnel-interface-number</i>.</p>				
Command Default	Displays tunnel information for all VRFs on all tunnel interfaces.				
Command Modes	Privileged EXEC				
Command History	<table border="1"> <thead> <tr> <th data-bbox="332 835 1104 898">Release</th> <th data-bbox="1104 835 1497 898">Modification</th> </tr> </thead> <tbody> <tr> <td data-bbox="332 898 1104 961">Cisco IOS Release 15.0(2)EX1</td> <td data-bbox="1104 898 1497 961">This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS Release 15.0(2)EX1	This command was introduced.
Release	Modification				
Cisco IOS Release 15.0(2)EX1	This command was introduced.				
Usage Guidelines	<p>If you use the show ip pim all-vrfs tunnel command without the optional keywords, information about the PIM register encapsulation and de-encapsulation tunnel interfaces for all VRFs is displayed.</p> <p>The PIM encapsulation tunnel is the register tunnel. An encapsulation tunnel is created for every known rendezvous point (RP) on every switch. The PIM decapsulation tunnel is the register decapsulation tunnel. A decapsulation tunnel is created on the RP for the address that is configured to be the RP address.</p>				

show ip pim autorp

To display global information about auto-rp, use the **show ip pim autorp** command in privileged EXEC mode.

show ip pim autorp

Syntax Description This command has no arguments or keywords.

Command Default Auto RP is enabled by default.

Command Modes Privileged EXEC

Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines This command displays whether auto-rp is enabled or disabled.

Example

The following command output shows that Auto RP is enabled:

```
Device# show ip pim autorp

AutoRP Information:
  AutoRP is enabled.
  RP Discovery packet MTU is 0.
  224.0.1.40 is joined on GigabitEthernet1/0/1.

PIM AutoRP Statistics: Sent/Received
  RP Announce: 0/0, RP Discovery: 0/0
```

show ip pim bsr-router

To display information related to Protocol Independent Multicast (PIM) bootstrap router (BSR) protocol processing, use the **show ip pim bsr-router** command in user EXEC or privileged EXEC mode.

show ip pim bsr-router

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes User EXEC
Privileged EXEC

Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines In addition to Auto RP, the BSR RP method can be configured. After the BSR RP method is configured, this command displays the BSR router information.

The following is sample output from the **show ip pim bsr-router** command:

```
Device# show ip pim bsr-router

PIMv2 Bootstrap information
This system is the Bootstrap Router (BSR)
  BSR address: 172.16.143.28
  Uptime: 04:37:59, BSR Priority: 4, Hash mask length: 30
  Next bootstrap message in 00:00:03 seconds

Next Cand_RP_advertisement in 00:00:03 seconds.
  RP: 172.16.143.28(Ethernet0), Group acl: 6
```

show ip pim tunnel

To display information about the Protocol Independent Multicast (PIM) register encapsulation and decapsulation tunnels on an interface, use the **show ip pim tunnel** command.

```
show ip pim [vrf vrf-name] tunnel [Tunnel interface-number | verbose]
```

Syntax Description	vrf <i>vrf-name</i> (Optional) Specifies a virtual routing and forwarding (VRF) configuration.				
	Tunnel <i>interface-number</i> (Optional) Specifies the tunnel interface number.				
	verbose (Optional) Provides additional information, such as the MAC encapsulation header and platform-specific information.				
Command Default	None				
Command Modes	Privileged EXEC				
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS Release 15.0(2)EX1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS Release 15.0(2)EX1	This command was introduced.
Release	Modification				
Cisco IOS Release 15.0(2)EX1	This command was introduced.				

Usage Guidelines

Use the **show ip pim tunnel** to display information about PIM tunnel interfaces.

PIM tunnel interfaces are used by the IPv4 Multicast Forwarding Information Base (MFIB) for the PIM sparse mode (PIM-SM) registration process. Two types of PIM tunnel interfaces are used by the the IPv4 MFIB:

- A PIM encapsulation tunnel (PIM Encap Tunnel)
- A PIM decapsulation tunnel (PIM Decap Tunnel)

The PIM Encap Tunnel is dynamically created whenever a group-to-rendezvous point (RP) mapping is learned (through auto-RP, bootstrap router (BSR), or static RP configuration). The PIM Encap Tunnel is used to encapsulate multicast packets sent by first-hop designated routers (DRs) that have directly connected sources.

Similar to the PIM Encap Tunnel, the PIM Decap Tunnel interface is dynamically created—but it is created only on the RP whenever a group-to-RP mapping is learned. The PIM Decap Tunnel interface is used by the RP to decapsulate PIM register messages.



Note PIM tunnels will not appear in the running configuration.

The following syslog message appears when a PIM tunnel interface is created:

```
* %LINEPROTO-5-UPDOWN: Line protocol on Interface Tunnel<interface_number>,
changed state to up
```

The following is sample output from the **show ip pim tunnel** taken from an RP. The output is used to verify the PIM Encap and Decap Tunnel on the RP:

```
Device# show ip pim tunnel
```

```
Tunnel0  
  Type : PIM Encap  
  RP   : 70.70.70.1*  
  Source: 70.70.70.1  
Tunnel1*  
  Type : PIM Decap  
  RP   : 70.70.70.1*  
  Source: -R2#
```



Note The asterisk (*) indicates that the router is the RP. The RP will always have a PIM Encap and Decap Tunnel interface.

show platform ip multicast

To display platform-dependent IP multicast tables and other information, use the **show platform ip multicast** privileged EXEC command.

show platform ip multicast {**acl-full-info** | **counters** | **groups** | **hardware** [**detail**] | **interfaces** | **locks** | **mdfs-routes** | **mroute-retry** | **retry** | **trace**}

Syntax Description		
acl-full-info	Displays IP multicast routing access control list (ACL) information, specifically the number of outgoing VLANs for which router ACLs at the output cannot be applied in hardware.	
counters	Displays IP multicast counters and statistics.	
groups	Displays IP multicast routes per group.	
hardware [detail]	Displays IP multicast routes loaded into hardware. The optional detail keyword is used to show port members in the destination index and route index.	
interfaces	Displays IP multicast interfaces.	
locks	Displays IP multicast destination-index locks.	
mdfs-routes	Displays multicast distributed fast switching (MDFS) IP multicast routes.	
mroute-retry	Displays the IP multicast route retry queue.	
retry	Displays the IP multicast routes in the retry queue.	
trace	Displays the IP multicast trace buffer.	

Command Modes Privileged EXEC

Command History	Release	Modification
	Cisco IOS Release 15.0(2)EX1	This command was introduced.

Usage Guidelines Use this command only when you are working directly with a technical support representative while troubleshooting a problem. Do not use this command unless a technical support representative asks you to do so.

This example shows how to display platform IP multicast routes per group:

```
Device# show platform ip multicast groups

Total Number of entries:3
MROUTE ENTRY vrf 0 (*, 224.0.0.0)
Token: 0x0000001f6 flags: C
No RPF interface.
Number of OIF: 0
Flags: 0x10 Pkts : 0
```

show platform ip multicast

OIF Details:No OIF interface.

DI details

Handle:0x603cf7f8 Res-Type:ASIC_RSC_DI Asic-Num:255
 Feature-ID:AL_FID_L3_MULTICAST_IPV4 Lkp-ftr-id:LKP_FEAT_INVALID ref_count:1
 Hardware Indices/Handles: index0:0x51f6 index1:0x51f6

Cookie length 56

0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x4 0xe0 0x0 0x0 0x0 0x0 0x0
 0x0
 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0

Detailed Resource Information (ASIC# 0)

al_rsc_di

RM:index = 0x51f6
 RM:pmap = 0x0
 RM:cmi = 0x0
 RM:rcp_pmap = 0x0
 RM:force data copy = 0
 RM:remote cpu copy = 0
 RM:remote data copy = 0
 RM:local cpu copy = 0
 RM:local data copy = 0

al_rsc_cmi

RM:index = 0x51f6
 RM:cti_lo[0] = 0x0
 RM:cti_lo[1] = 0x0
 RM:cti_lo[2] = 0x0
 RM:cpu_q_vpn[0] = 0x0
 RM:cpu_q_vpn[1] = 0x0
 RM:cpu_q_vpn[2] = 0x0
 RM:npu_index = 0x0
 RM:strip_seg = 0x0
 RM:copy_seg = 0x0

Detailed Resource Information (ASIC# 1)

al_rsc_di

RM:index = 0x51f6
 RM:pmap = 0x0
 RM:cmi = 0x0
 RM:rcp_pmap = 0x0
 RM:force data copy = 0
 RM:remote cpu copy = 0
 RM:remote data copy = 0
 RM:local cpu copy = 0
 RM:local data copy = 0

al_rsc_cmi

RM:index = 0x51f6
 RM:cti_lo[0] = 0x0
 RM:cti_lo[1] = 0x0
 RM:cti_lo[2] = 0x0
 RM:cpu_q_vpn[0] = 0x0
 RM:cpu_q_vpn[1] = 0x0
 RM:cpu_q_vpn[2] = 0x0
 RM:npu_index = 0x0
 RM:strip_seg = 0x0
 RM:copy_seg = 0x0

```

=====
RI details
-----

SI details
-----

RM:generic lbl = 0x0
RM:di_handle = 0x51f6
RM:fd_const lbl = 0x0
RM:skipid_idx = 0x0
RM:rcp serviceid = 0x0
RM:dejavu prechken= 0x1
RM:local cpu = 0x0
RM:local data = 0x1
RM:remote cpu = 0x0
RM:remote data = 0x1

=====

HTM details
-----
Handle:0x5d604490 Res-Type:ASIC_RSC_STP_INDEX Asic-Num:255
Feature-ID:AL_FID_L3_MULTICAST_IPV4 Lkp-ftr-id:LKP_FEAT_IPV4_MCAST_ROUTE_STARG ref_count:1
Hardware Indices/Handles: handle0:0x5d604518 handle1:0x5d604580

Detailed Resource Information (ASIC# 0)
-----
Number of HTM Entries: 1

Entry #0: (handle 0x5d604518)

KEY - grp_addr:224.0.0.0 decap_tunnel: 0 encap_tunnel: 0 vrf_id: 0 mtr_id: 0
MASK - grp_addr:240.0.0.0 decap_tunnel: 0 encap_tunnel: 0 vrf_id: 4095 mtr_id: 0
AD: local_source_punt: 1 afd_label_or_clientid: 0 mcast_bridge_frame: 0 mcast_rep_frame: 0

rpf_valid: 1 rpf_le_ptr: 0 afd_client_flag: 0 dest_mod_bridge: 0 dest_mod_route: 1
cpp_type: 0 dest_mod_index: 0 rp_index: 0 priority: 3 rpf_le: 0 station_index: 164
capwap_mgid_present: 0 mgid 0
Detailed Resource Information (ASIC# 1)
-----
Number of HTM Entries: 1

Entry #0: (handle 0x5d604580)

KEY - grp_addr:224.0.0.0 decap_tunnel: 0 encap_tunnel: 0 vrf_id: 0 mtr_id: 0
MASK - grp_addr:240.0.0.0 decap_tunnel: 0 encap_tunnel: 0 vrf_id: 4095 mtr_id: 0
AD: local_source_punt: 1 afd_label_or_clientid: 0 mcast_bridge_frame: 0 mcast_rep_frame: 0

rpf_valid: 1 rpf_le_ptr: 0 afd_client_flag: 0 dest_mod_bridge: 0 dest_mod_route: 1
cpp_type: 0 dest_mod_index: 0 rp_index: 0 priority: 3 rpf_le: 0 station_index: 164
capwap_mgid_present: 0 mgid 0

=====

MROUTE ENTRY vrf 0 (*, 224.0.1.40)
Token: 0x0000001f8 flags: C IC
RPF interface: V1121(74238750229529173)): SVI
Token:0x00000021 flags: F IC NS
Number of OIF: 1
Flags: 0x10 Pkts : 0

```

```

OIF Details:
    V1121      F IC NS
DI details
-----
Handle:0x603d0000 Res-Type:ASIC_RSC_DI Asic-Num:255
Feature-ID:AL_FID_L3_MULTICAST_IPV4 Lkp-ftr-id:LKP_FEAT_INVALID ref_count:1
Hardware Indices/Handles: index0:0x51f7 index1:0x51f7

Cookie length 56
0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x20 0xe0 0x0 0x1 0x28 0x0 0x0

0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0

0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0

Detailed Resource Information (ASIC# 0)
-----

al_rsc_di
RM:index = 0x51f7
RM:pmap = 0x0
RM:cmi = 0x33f
RM:rcp_pmap = 0x0
RM:force data copy = 0
RM:remote cpu copy = 0
RM:remote data copy = 0
RM:local cpu copy = 0
RM:local data copy = 0

al_rsc_cmi
RM:index = 0x51f7
RM:cti_lo[0] = 0x0
RM:cti_lo[1] = 0x0
RM:cti_lo[2] = 0x0
RM:cpu_q_vpn[0] = 0x0
RM:cpu_q_vpn[1] = 0x0
RM:cpu_q_vpn[2] = 0x0
RM:npu_index = 0x0
RM:strip_seg = 0x0
RM:copy_seg = 0x0
Detailed Resource Information (ASIC# 1)
-----

al_rsc_di
RM:index = 0x51f7
RM:pmap = 0x0
RM:cmi = 0x33f
RM:rcp_pmap = 0x0
RM:force data copy = 0
RM:remote cpu copy = 0
RM:remote data copy = 0
RM:local cpu copy = 0
RM:local data copy = 0

al_rsc_cmi
RM:index = 0x51f7
RM:cti_lo[0] = 0x0
RM:cti_lo[1] = 0x0
RM:cti_lo[2] = 0x0
RM:cpu_q_vpn[0] = 0x0
RM:cpu_q_vpn[1] = 0x0
RM:cpu_q_vpn[2] = 0x0
RM:npu_index = 0x0
RM:strip_seg = 0x0

```

```

RM:copy_seg = 0x0

=====

RI details
-----

SI details
-----

RM:generic lbl = 0x0
RM:di_handle = 0x51f7
RM:fd_const lbl = 0x8
RM:skipid_idx = 0x0
RM:rcp_serviceid = 0x0
RM:dejavu prechken= 0x1
RM:local cpu = 0x0
RM:local data = 0x1
RM:remote cpu = 0x1
RM:remote data = 0x1

=====

HTM details
-----
Handle:0x603d0440 Res-Type:ASIC_RSC_STP_INDEX Asic-Num:255
Feature-ID:AL_FID_L3_MULTICAST_IPV4 Lkp-ftr-id:LKP_FEAT_IPV4_MCAST_ROUTE_STARG ref_count:1
Hardware Indices/Handles: handle0:0x603cfae0 sm handle 0:0x603d0590 handle1:0x603d0520
sm handle 1:0x603d1770

Detailed Resource Information (ASIC# 0)
-----
Number of HTM Entries: 1

Entry #0: (handle 0x603cfae0)

KEY - grp_addr:224.0.1.40 decap_tunnel: 0 encap_tunnel: 0 vrf_id: 0 mtr_id: 0
MASK - grp_addr:0.0.0.0 decap_tunnel: 0 encap_tunnel: 0 vrf_id: 0 mtr_id: 0
AD: local_source_punt: 1 afd_label_or_clientid: 0 mcast_bridge_frame: 0 mcast_rep_frame: 0

rpf_valid: 1 rpf_le_ptr: 0 afd_client_flag: 0 dest_mod_bridge: 0 dest_mod_route: 1
cpp_type: 0 dest_mod_index: 0 rp_index: 0 priority: 3 rpf_le: 6 station_index: 165
capwap_mgid_present: 0 mgid 0
Detailed Resource Information (ASIC# 1)
-----
Number of HTM Entries: 1

Entry #0: (handle 0x603d0520)

KEY - grp_addr:224.0.1.40 decap_tunnel: 0 encap_tunnel: 0 vrf_id: 0 mtr_id: 0
MASK - grp_addr:0.0.0.0 decap_tunnel: 0 encap_tunnel: 0 vrf_id: 0 mtr_id: 0
AD: local_source_punt: 1 afd_label_or_clientid: 0 mcast_bridge_frame: 0 mcast_rep_frame: 0

rpf_valid: 1 rpf_le_ptr: 0 afd_client_flag: 0 dest_mod_bridge: 0 dest_mod_route: 1
cpp_type: 0 dest_mod_index: 0 rp_index: 0 priority: 3 rpf_le: 6 station_index: 165
capwap_mgid_present: 0 mgid 0

=====

MROUTE ENTRY vrf 0 (*, 239.255.255.250)
Token: 0x0000003b7d flags: C
No RPF interface.

```

show platform ip multicast

```

Number of OIF: 1
Flags: 0x10  Pkts : 95
OIF Details:
    V1131      F NS
DI details
-----
Handle:0x606ffba0 Res-Type:ASIC_RSC_DI Asic-Num:255
Feature-ID:AL_FID_L3_MULTICAST_IPV4 Lkp-ftr-id:LKP_FEAT_INVALID ref_count:1
Hardware Indices/Handles: index0:0x51f8  index1:0x51f8

Cookie length 56
0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x20 0xef 0xff 0xff 0xfa 0x0
0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0
0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0

Detailed Resource Information (ASIC# 0)
-----

al_rsc_di
RM:index = 0x51f8
RM:pmap = 0x0
RM:cmi = 0x0
RM:rcp_pmap = 0x0
RM:force data copy = 0
RM:remote cpu copy = 0
RM:remote data copy = 0
RM:local cpu copy = 0
RM:local data copy = 0

al_rsc_cmi
RM:index = 0x51f8
RM:cti_lo[0] = 0x0
RM:cti_lo[1] = 0x0
RM:cti_lo[2] = 0x0
RM:cpu_q_vpn[0] = 0x0
RM:cpu_q_vpn[1] = 0x0
RM:cpu_q_vpn[2] = 0x0
RM:npu_index = 0x0
RM:strip_seg = 0x0
RM:copy_seg = 0x0
Detailed Resource Information (ASIC# 1)
-----

al_rsc_di
RM:index = 0x51f8
RM:pmap = 0x0
RM:cmi = 0x0
RM:rcp_pmap = 0x1
RM:force data copy = 0
RM:remote cpu copy = 0
RM:remote data copy = 0
RM:local cpu copy = 0
RM:local data copy = 0

al_rsc_cmi
RM:index = 0x51f8
RM:cti_lo[0] = 0x0
RM:cti_lo[1] = 0x0
RM:cti_lo[2] = 0x0
RM:cpu_q_vpn[0] = 0x0
RM:cpu_q_vpn[1] = 0x0
RM:cpu_q_vpn[2] = 0x0
RM:npu_index = 0x0
RM:strip_seg = 0x0

```

```
RM:copy_seg = 0x0
```

```
=====
```

```
RI details
```

```
-----
```

```
ASIC# 0
Replication list :
-----
```

```
Total #ri : 0
start_ri : 15
common_ret : 0
```

```
ASIC# 1
Replication list :
-----
```

```
Total #ri : 6
start_ri : 15
common_ret : 0
```

```
Replication entry rep_ri 0xF #elem = 1
0) ri[0]=50 port=58 dirty=0
```

```
ASIC# 2
Replication list :
-----
```

```
Total #ri : 0
start_ri : 0
common_ret : 0
```

```
SI details
```

```
-----
```

```
RM:generic lbl = 0x0
RM:di_handle = 0x51f8
RM:fd const lbl = 0x8
RM:skipid_idx = 0x0
RM:rcp serviceid = 0x0
RM:dejavu prechken= 0x1
RM:local cpu = 0x0
RM:local data = 0x1
RM:remote cpu = 0x0
RM:remote data = 0x1
```

```
=====
```

```
HTM details
```

```
-----
```

```
Handle:0x606ff6f8 Res-Type:ASIC_RSC_STP_INDEX Asic-Num:255
Feature-ID:AL_FID_L3_MULTICAST_IPV4 Lkp-ftr-id:LKP_FEAT_IPV4_MCAST_ROUTE_STARG ref_count:1
Hardware Indices/Handles: handle0:0x606ff3e0 sm handle 0:0x60ab9160 handle1:0x606ff378
sm handle 1:0x60ab6cc0
```

```
Detailed Resource Information (ASIC# 0)
```

```
-----
```

```
Number of HTM Entries: 1
```

```

Entry #0: (handle 0x606ff3e0)

KEY - grp_addr:239.255.255.250 decap_tunnel: 0 encap_tunnel: 0 vrf_id: 0 mtr_id: 0
MASK - grp_addr:0.0.0.0 decap_tunnel: 0 encap_tunnel: 0 vrf_id: 0 mtr_id: 0
AD: local_source_punt: 1 afd_label_or_clientid: 0 mcast_bridge_frame: 0 mcast_rep_frame: 0

rpf_valid: 1 rpf_le_ptr: 0 afd_client_flag: 0 dest_mod_bridge: 0 dest_mod_route: 1
cpp_type: 0 dest_mod_index: 0 rp_index: 0 priority: 3 rpf_le: 0 station_index: 178
capwap_mgid_present: 0 mgid 0
Detailed Resource Information (ASIC# 1)
-----
Number of HTM Entries: 1

Entry #0: (handle 0x606ff378)

KEY - grp_addr:239.255.255.250 decap_tunnel: 0 encap_tunnel: 0 vrf_id: 0 mtr_id: 0
MASK - grp_addr:0.0.0.0 decap_tunnel: 0 encap_tunnel: 0 vrf_id: 0 mtr_id: 0
AD: local_source_punt: 1 afd_label_or_clientid: 0 mcast_bridge_frame: 0 mcast_rep_frame: 0

rpf_valid: 1 rpf_le_ptr: 0 afd_client_flag: 0 dest_mod_bridge: 0 dest_mod_route: 1
cpp_type: 0 dest_mod_index: 0 rp_index: 0 priority: 3 rpf_le: 0 station_index: 178
capwap_mgid_present: 0 mgid 0

=====

```