IGMP Snooping and MVR Commands

This chapter contains IGMP snooping and MVR commands.

ip igmp snooping

To globally enable Internet Group Management Protocol (IGMP) snooping on the switch or to enable it on a per-VLAN basis, use the **ip igmp snooping** global configuration command on the switch stack or on a standalone switch. 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** *vlan-id* (Optional) Enables IGMP snooping on the specified VLAN. Ranges are 1—1001 and 1006—4094.

Command Default   IGMP snooping is globally enabled on the switch.

IGMP snooping is enabled on VLAN interfaces.

Command Modes   Global configuration

Command History

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

Usage Guidelines   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.

VLAN IDs 1002 to 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 IGMP snooping:

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

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

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

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

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 *vlan-id*	(Optional) Sets the count value on a specific VLAN ID. The range is from 1—1001. Do not enter leading zeroes.
	count	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)EX	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 switch to the host or the report packet from the host to the switch) 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 switch, 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 switch is processing more than one leave within an LMQI. In such a scenario, the average leave latency is determined by the (count + 0.5) * 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:

```
Switch(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 *vlan-id*	(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)EX	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:

```
Switch(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:

```
Switch(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:

```
Switch(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.

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 *vlan-id*	(Optional) Enables IGMP snooping and the IGMP querier function on the specified VLAN. Ranges are 1—1001 and 1006—4094.
	address *ip-address*	(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 *response-time*	(Optional) Sets the maximum time to wait for an IGMP querier report. The range is 1—25 seconds.
	query-interval *interval-count*	(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 *count*	Sets the number of TCN queries to be executed during the TCN interval time. The range is 1—10.
	interval *interval*	Sets the TCN query interval time. The range is 1—255.
	timer expiry *expiry-time*	(Optional) Sets the length of time until the IGMP querier expires. The range is 60—300 seconds.
	version *version*	(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 switch.

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)EX	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:

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

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

```
Switch(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:

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

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

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

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

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

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

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

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

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 switch stack or on a standalone switch. 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)EX	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 switch 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 switch sends the first IGMP report from all the hosts for a group to all the multicast routers. The switch 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 switch 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 switch 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:

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

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

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	**vlan** *vlan-id*	(Optional) Enables IGMP snooping and the leave timer on the specified VLAN. The range is 1 to 1001 and 1006 to 4094.
	number	Robustness variable number. The range is 1 to 3.

Command Default None

Command Modes Global configuration

Command History	**Release**	**Modification**
	Cisco IOS Release 15.0(2)EX	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 switch stack or on a standalone switch. 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

vlan-id	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)EX	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 or to configure the multicast learning method, use the **ip igmp snooping mrouter** global configuration command on the switch stack or on a standalone switch. To return to the default settings, use the **no** form of this command.

ip igmp snooping vlan *vlan-id* **mrouter** {**interface** *interface-id* | **learn** {**cgmp** | **pim-dvmrp**} }
no ip igmp snooping vlan *vlan-id* **mrouter** {**interface** *interface-id* | **learn** {**cgmp** | **pim-dvmrp**} }

Syntax Description		
	vlan-id	Enables IGMP snooping and adds the port in the specified VLAN as the multicast router port. Ranges are 1—1001 and 1006—4094.
	interface *interface-id*	Specifies the next-hop interface to the multicast router. The *interface-id* value has these options:
		• *fastethernet interface number*—A Fast Ethernet IEEE 802.3 interface.
		• *gigabitethernet interface number*—A Gigabit Ethernet IEEE 802.3z interface.
		• *tengigabitethernet interface number*—A 10-Gigabit Ethernet IEEE 802.3z interface.
		• *port-channel interface number*—A channel interface. The range is 0—48.
	learn	Specifies the multicast router learning method.
	cgmp	Sets the switch to learn multicast router ports by snooping on Cisco Group Management Protocol (CGMP) packets.
	pim-dvmrp	Sets the switch to learn multicast router ports by snooping on IGMP queries and Protocol-Independent Multicast-Distance Vector Multicast Routing Protocol (PIM-DVMRP) packets.

Command Default

By default, there are no multicast router ports.

The default learning method is pim-dvmrp to snoop IGMP queries and PIM-DVMRP packets.

Command Modes

Global configuration

Command History

Release	Modification
Cisco IOS Release 15.0(2)EX	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 CGMP learn method is useful for reducing control traffic.

The configuration is saved in NVRAM.

Example

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

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

The following example shows how to specify the multicast router learning method as CGMP:

```
Switch(config)# ip igmp snooping vlan 1 mrouter learn cgmp
```

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

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 switch stack or on a standalone switch. 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		
vlan-id	Enables IGMP snooping on the specified VLAN. Ranges are 1—1001 and 1006—4094.	
ip-address	Adds a Layer 2 port as a member of a multicast group with the specified group IP address.	
interface *interface-id*	Specifies the interface of the member port. The *interface-id* has these options: • *fastethernet interface number*—A Fast Ethernet IEEE 802.3 interface. • *gigabitethernet interface number*—A Gigabit Ethernet IEEE 802.3z interface. • *tengigabitethernet interface number*—A 10-Gigabit Ethernet IEEE 802.3z interface. • *port-channel interface number*—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)EX	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:

```
Switch(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.

mvr (global configuration)

To enable the multicast VLAN registration (MVR) feature on the switch, use the **mvr** global configuration command without keywords on the switch stack or on a standalone switch. To return to the default settings, use the **no** form of this command.

mvr [**group** *ip-address* [*count*] | **mode** [**compatible** | **dynamic**] | **querytime** *value* | **vlan** *vlan-id*]

no mvr [**group** *ip-address* [*count*] | **mode** [**compatible** | **dynamic**] | **querytime** *value* | **vlan** *vlan-id*]

Syntax Description

group *ip-address*	(Optional) Statically configures an MVR group IP multicast address on the switch.
	Use the **no** form of this command to remove a statically configured IP multicast address or contiguous addresses or, when no IP address is entered, to remove all statically configured MVR IP multicast addresses.
count	(Optional) Multiple contiguous MVR group addresses. The range is 1 to 256; the default is 0.
mode	(Optional) Specifies the MVR mode of operation.
	The default is compatible mode.
compatible	(Optional) Sets MVR mode to provide compatibility with Catalyst 2900 XL and Catalyst 3500 XL switches. This mode does not allow dynamic membership joins on source ports.
dynamic	(Optional) Sets MVR mode to allow dynamic MVR membership on source ports.
querytime *value*	(Optional) Sets the maximum time to wait for IGMP report memberships on a receiver port. This time applies only to receiver-port leave processing. When an IGMP query is sent from a receiver port, the switch waits for the default or configured MVR querytime for an IGMP group membership report before removing the port from multicast group membership.
	The value is the response time in units of tenths of a second. The range is 1 to 100; the default is 5 tenths or one-half second.
	Use the **no** form of the command to return to the default setting.

vlan *vlan-id*	(Optional) Specifies the VLAN on which MVR multicast data is expected to be received. This is also the VLAN to which all the source ports belong. The range is 1 to 4094; the default is VLAN 1.

Command Default

MVR is disabled by default.

The default MVR **mode** is compatible mode.

No IP multicast addresses are configured on the switch by default.

The default **group** *ip-address count* is 0.

The default query response time is five-tenths or one-half second.

The default multicast VLAN for MVR is VLAN 1.

Command Modes

Global configuration

Command History

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

Usage Guidelines

A maximum of 256 MVR multicast groups can be configured on a switch.

Use the command with keywords to set the MVR mode for a switch, configure the MVR IP multicast address, set the maximum time to wait for a query reply before removing a port from group membership, and to specify the MVR multicast VLAN.

Use the **mvr group** command to statically set up all the IP multicast addresses that will take part in MVR. Any multicast data sent to a configured multicast address is sent to all the source ports on the switch and to all receiver ports that have registered to receive data on that IP multicast address.

MVR supports aliased IP multicast addresses on the switch. However, if the switch is interoperating with Catalyst 3550 or Catalyst 3500 XL switches, you should not configure IP addresses that alias between themselves or with the reserved IP multicast addresses (in the range 224.0.0.xxx).

The **mvr querytime** command applies only to receiver ports.

If the switch MVR is interoperating with Catalyst 2900 XL or Catalyst 3500 XL switches, set the multicast mode to compatible.

When operating in compatible mode, MVR does not support IGMP dynamic joins on MVR source ports.

MVR can coexist with IGMP snooping on a switch.

Multicast routing and MVR cannot coexist on a switch. If you enable multicast routing and a multicast routing protocol while MVR is enabled, MVR is disabled and a warning message appears. If you try to enable MVR while multicast routing and a multicast routing protocol are enabled, the operation to enable MVR is cancelled with an error message.

Examples

This example shows how to enable MVR:

```
Switch(config)# mvr
```

Use the **show mvr** privileged EXEC command to display the current setting for maximum multicast groups.

This example shows how to configure 228.1.23.4 as an IP multicast address:

```
Switch(config)# mvr group 228.1.23.4
```

This example shows how to configure ten contiguous IP multicast groups with multicast addresses from 228.1.23.1 to 228.1.23.10:

```
Switch(config)# mvr group 228.1.23.1 10
```

Use the **show mvr members** privileged EXEC command to display the IP multicast group addresses configured on the switch.

This example shows how to set the maximum query response time as one second (10 tenths):

```
Switch(config)# mvr querytime 10
```

This example shows how to set VLAN 2 as the multicast VLAN:

```
Switch(config)# mvr vlan 2
```

You can verify your settings by entering the **show mvr** privileged EXEC command.

mvr (interface configuration)

To statically assign a port to an IP multicast VLAN and IP address, use the **mvr** interface configuration command on the switch stack or on a standalone switch. To return to the default settings, use the **no** form of this command.

mvr [**immediate** | **type** {**receiver** | **source**} | **vlan** *vlan-id* **group** [*ip-address*]]
no mvr [**immediate** | **type** | **vlan** *vlan-id* **group** [*ip-address*]]

Syntax Description		
	immediate	(Optional) Enables the Immediate Leave feature of MVR on a port. Use the **no mvr immediate** command to disable the feature.
	type	(Optional) Configures the port as an MVR receiver port or a source port.
		The default port type is neither an MVR source nor a receiver port. The **no mvr type** command resets the port as neither a source or a receiver port.
	receiver	Configures the port as a subscriber port that can only receive multicast data. Receiver ports cannot belong to the multicast VLAN.
	source	Configures the port as an uplink port that can send and receive multicast data for the configured multicast groups. All source ports on a switch belong to a single multicast VLAN.
	vlan *vlan-id* **group**	(Optional) Adds the port as a static member of the multicast group with the specified VLAN ID.
		The **no mvr vlan** *vlan-id* **group** command removes a port on a VLAN from membership in an IP multicast address group.
	ip-address	(Optional) Statically configures the specified MVR IP multicast group address for the specified multicast VLAN ID. This is the IP address of the multicast group that the port is joining.

Command Default

A port is configured as neither a receiver nor a source.

The Immediate Leave feature is disabled on all ports.

No receiver port is a member of any configured multicast group.

Command Modes

Interface configuration

Command History

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

Usage Guidelines

Configure a port as a source port if that port should be able to both send and receive multicast data bound for the configured multicast groups. Multicast data is received on all ports configured as source ports.

Receiver ports cannot be trunk ports. Receiver ports on a switch can be in different VLANs, but should not belong to the multicast VLAN.

A port that is not taking part in MVR should not be configured as an MVR receiver port or a source port. A non-MVR port is a normal switch port, able to send and receive multicast data with normal switch behavior.

When Immediate Leave is enabled, a receiver port leaves a multicast group more quickly. Without Immediate Leave, when the switch receives an IGMP leave message from a group on a receiver port, it sends out an IGMP MAC-based query on that port and waits for IGMP group membership reports. If no reports are received in a configured time period, the receiver port is removed from multicast group membership. With Immediate Leave, an IGMP MAC-based query is not sent from the receiver port on which the IGMP leave was received. As soon as the leave message is received, the receiver port is removed from multicast group membership, which speeds up leave latency.

The Immediate Leave feature should be enabled only on receiver ports to which a single receiver device is connected.

The **mvr vlan group** command statically configures ports to receive multicast traffic sent to the IP multicast address. A port statically configured as a member of group remains a member of the group until statically removed. In compatible mode, this command applies only to receiver ports; in dynamic mode, it can also apply to source ports. Receiver ports can also dynamically join multicast groups by using IGMP join messages.

When operating in compatible mode, MVR does not support IGMP dynamic joins on MVR source ports.

An MVR port cannot be a private-VLAN port.

Examples

This example shows how to configure a port as an MVR receiver port:

```
Switch(config)# interface gigabitethernet1/0/1
Switch(config-if)# mvr type receiver
```

Use the **show mvr interface** privileged EXEC command to display configured receiver ports and source ports.

This example shows how to enable Immediate Leave on a port:

```
Switch(config)# interface gigabitethernet1/0/1
Switch(config-if)# mvr immediate
```

This example shows how to add a port on VLAN 1 as a static member of IP multicast group 228.1.23.4:

```
Switch(config)# interface gigabitethernet1/0/2
Switch(config-if)# mvr vlan1 group 230.1.23.4
```

You can verify your settings by entering the **show mvr members** privileged EXEC command.

show ip igmp snooping

To display the Internet Group Management Protocol (IGMP) snooping configuration of the switch 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 *vlan-id*	(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)EX	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:

```
Switch# 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 switch:

```
Switch# 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
-
.
.
.
```

show ip igmp snooping groups

To display the Internet Group Management Protocol (IGMP) snooping multicast table for the switch 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 *vlan-id*	(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.	
ip_address	(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)EX	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 switch.

```
Switch# show ip igmp snooping groups

Vlan      Group        Type       Version      Port List
-------------------------------------------------------------
1         224.1.4.4    igmp                     Gi1/0/11
1         224.1.4.5    igmp                     Gi1/0/11
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 switch.

```
Switch# 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:

```
Switch# 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
```

show ip igmp snooping mrouter

To display the Internet Group Management Protocol (IGMP) snooping dynamically learned and manually configured multicast router ports for the switch 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 *vlan-id*	(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)EX	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.

When multicast VLAN registration (MVR) is enabled, the **show ip igmp snooping mrouter** command displays MVR multicast router information and IGMP snooping information.

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.

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 switch:

```
Switch# show ip igmp snooping mrouter

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

show ip igmp snooping querier

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

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

Syntax Description	**vlan** *vlan-id* (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)EX	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 switch.

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 switch, 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 switch querier.

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

- The elected IGMP querier in the VLAN

- The configuration and operational information pertaining to the switch 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:

```
Switch> 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:

```
Switch> show ip igmp snooping querier detail

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

show mvr

To display the current Multicast VLAN Registration (MVR) global parameter values, including whether or not MVR is enabled, the MVR multicast VLAN, the maximum query response time, the number of multicast groups, and the MVR mode (dynamic or compatible), use the **show mvr** privileged EXEC command without keywords.

show mvr

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

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

Examples

This is an example of output from the **show mvr** command:

```
Switch# show mvr
MVR Running: TRUE
MVR multicast VLAN: 1
MVR Max Multicast Groups: 256
MVR Current multicast groups: 0
MVR Global query response time: 5 (tenths of sec)
MVR Mode: compatible
```

In the preceding display, the maximum number of multicast groups is fixed at 256. The MVR mode is either compatible (for interoperability with Catalyst 2900 XL and Catalyst 3500 XL switches) or dynamic (where operation is consistent with IGMP snooping operation and dynamic MVR membership on source ports is supported).

show mvr interface

To display the Multicast VLAN Registration (MVR) receiver and source ports, use the **show mvr interface** privileged EXEC command without keywords. To display MVR parameters for a specific receiver port, use the command with keywords.

show mvr interface [*interface-id* [**members** [**vlan** *vlan-id*]]]

Syntax Description		
	interface-id	(Optional) Displays MVR type, status, and Immediate Leave setting for the interface.
		Valid interfaces include physical ports (including type, stack member (stacking-capable switches only) module, and port number).
	members	(Optional) Displays all MVR groups to which the specified interface belongs.
	vlan *vlan-id*	(Optional) Displays all MVR group members on this VLAN. The range is 1 to 4094.

Command Modes   Privileged EXEC

Command History

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

Usage Guidelines   If the entered port identification is a non-MVR port or a source port, the command returns an error message. For receiver ports, it displays the port type, per port status, and Immediate-Leave setting.

If you enter the **members** keyword, all MVR group members on the interface appear. If you enter a VLAN ID, all MVR group members in the VLAN appear.

Examples

This is an example of output from the **show mvr interface** command:

```
Switch# show mvr interface
Port        Type          Status         Immediate Leave
----        ----          -------        --------------
Gi1/0/1     SOURCE        ACTIVE/UP      DISABLED
Gi1/0/2     RECEIVER      ACTIVE/DOWN    DISABLED
```

In the preceding display, Status is defined as follows:

   • Active means the port is part of a VLAN.

   • Up/Down means that the port is forwarding/nonforwarding.

   • Inactive means that the port is not yet part of any VLAN.

This is an example of output from the **show mvr interface** command for a specified port:

```
Switch# show mvr interface gigabitethernet1/0/2
Type: RECEIVER Status: ACTIVE Immediate Leave: DISABLED
```

This is an example of output from the **show mvr interface** *interface-id* **members** command:

```
Switch# show mvr interface gigabitethernet1/0/2 members
239.255.0.0     DYNAMIC ACTIVE
239.255.0.1     DYNAMIC ACTIVE
239.255.0.2     DYNAMIC ACTIVE
239.255.0.3     DYNAMIC ACTIVE
239.255.0.4     DYNAMIC ACTIVE
239.255.0.5     DYNAMIC ACTIVE
239.255.0.6     DYNAMIC ACTIVE
239.255.0.7     DYNAMIC ACTIVE
239.255.0.8     DYNAMIC ACTIVE
239.255.0.9     DYNAMIC ACTIVE
```

show mvr members

To display all receiver and source ports that are currently members of an IP multicast group, use the **show mvr members** privileged EXEC command.

show mvr members [*ip-address*]　　[**vlan** *vlan-id*]

Syntax Description		
ip-address		(Optional) The IP multicast address. If the address is entered, all receiver and source ports that are members of the multicast group appear. If no address is entered, all members of all Multicast VLAN Registration (MVR) groups are listed. If a group has no members, the group is listed as Inactive.
vlan *vlan-id*		(Optional) Displays all MVR group members on this VLAN. The range is 1 to 4094.

Command Modes　　Privileged EXEC

Command History

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

Usage Guidelines　　The **show mvr members** command applies to receiver and source ports. For MVR-compatible mode, all source ports are members of all multicast groups.

Examples

This is an example of output from the **show mvr members** command:

```
Switch# show mvr members
MVR Group IP     Status        Members
------------     ------        -------
239.255.0.1      ACTIVE        Gi1/0/1(d), Gi1/0/5(s)
239.255.0.2      INACTIVE      None
239.255.0.3      INACTIVE      None
239.255.0.4      INACTIVE      None
239.255.0.5      INACTIVE      None
239.255.0.6      INACTIVE      None
239.255.0.7      INACTIVE      None
239.255.0.8      INACTIVE      None
239.255.0.9      INACTIVE      None
239.255.0.10     INACTIVE      None
<output truncated>
```

This is an example of output from the **show mvr members** *ip-address* command. It displays the members of the IP multicast group with that address:

```
Switch# show mvr members 239.255.0.2
239.255.003.--22    ACTIVE        Gi1//1(d), Gi1/0/2(d), Gi1/0/3(d), Gi1/0/4(d), Gi1/0/5(s)
```