

Configure IGMP Snooping Settings on a Switch through the CLI

Introduction

Multicast is a technology created to conserve bandwidth. It is typically used to transmit data packets from one host to multiple hosts. To allow routers to distribute multicasts out one of its ports, they use a protocol called Internet Group Management Protocol (IGMP). Hosts send an IGMP join message to get a multicast stream. When a router receives an IGMP join message at one of its interfaces, it knows there are hosts interested in joining a multicast stream and sends it out. In early switches, multicast traffic was forwarded on all ports, even if only one host needs to receive it. IGMP snooping was developed to limit multicast traffic to only the requesting host or hosts.

When IGMP snooping is enabled, the switch detects the IGMP messages exchanged between the IPv4 router and the multicast hosts attached to the interfaces. It then maintains a table that forwards IPv4 multicast traffic to the ports that need to receive them.

The following configurations are prerequisites for configuring IGMP:

1. Configure VLAN Interface Settings on a Sx350, SG350X, or Sx550X Switch. For instructions, click [here](#).
2. Configure Multicast Properties on a Switch. For instructions, click [here](#).

Note: Multicast Listener Discovery (MLD) performs a similar function to IGMP, but for IPv6. If you purchased a switch that supports IPv6 and your infrastructure supports IPv6 multicast, then you can configure MLD. This is independent of IGMP snooping. If you prefer to configure MLD snooping through the CLI, click [here](#).

This article provides instructions on how to configure the IGMP settings on your switch, through the Command Line Interface (CLI). If you prefer to configure IGMP or MLD Snooping Settings using a graphical user interface (GUI), click [here](#).

Applicable Devices

- Sx350 Series
- SG350X Series
- Sx550X Series

Software Version

- 2.3.0.130

Configure IGMP Snooping

Configure Global IGMP Snooping

Step 1. Log in to the switch console. The default username and password is cisco/cisco. If you have configured a new username or password, enter the credentials instead.

Note: To learn how to access an SMB switch CLI through SSH or Telnet, click [here](#).

```
User Name:cisco
Password:*****
```

Note: The commands may vary depending on the exact model of your switch. In this example, the SG350X switch is accessed through Telnet.

Step 2. From the Privileged EXEC mode of the switch, enter the Global Configuration mode by entering **configure**.

Step 3. To globally enable IGMP snooping on the switch, entering the following:

```
SG350X#configure
SG350X(config)#ip igmp snooping
SG350X(config)#
```

Step 4. (Optional) To globally enable IGMP snooping querier, enter the following:

```
SG350X#configure
SG350X(config)#ip igmp snooping
SG350X(config)#ip igmp snooping querier
SG350X(config)#
```

You should now have successfully configured the global IGMP snooping settings on your switch.

Configure IGMP Snooping Settings on a VLAN

Step 1. To enable IGMP snooping on a specific VLAN, enter the following:

- `vlan-id` — Specifies the VLAN ID value. The range is from one up to 4094.

```
SG350X#configure
SG350X(config)#ip igmp snooping
SG350X(config)#ip igmp snooping querier
SG350X(config)#ip igmp snooping vlan 30
SG350X(config)#
```

Note: In this scenario, the IGMP snooping settings for VLAN 30 are being configured.

Step 2. (Optional) To allow the multicast router to automatically learn the connected ports, enter the following:

```
SG350X(config)#ip igmp snooping vlan 30
SG350X(config)#ip igmp snooping vlan 30 mrouter learn pim-dvmrp
SG350X(config)#
```

Step 3. (Optional) To enable the IGMP snooping Immediate Leave processing on a VLAN, enter the following:

```
SG350X(config)#ip igmp snooping vlan 30
SG350X(config)#ip igmp snooping vlan 30 mrouter learn pim-dvmrp
SG350X(config)#ip igmp snooping vlan 30 immediate-leave
SG350X(config)#
```

Step 4. In the Global Configuration mode, enter the VLAN Interface Configuration context by entering the following:

```
SG350X(config)#ip igmp snooping vlan 30
SG350X(config)#ip igmp snooping vlan 30 mrouter learn pim-dvmrp
SG350X(config)#ip igmp snooping vlan 30 immediate-leave
SG350X(config)#interface vlan 30
SG350X(config-if)#
```

Step 5. To configure the IGMP last member query counter, enter the following:

- count — The number of times that group or group-source-specific queries are sent upon receipt of a message indicating a leave. The range is from one to seven.

```
SG350X(config)#ip igmp snooping vlan 30
SG350X(config)#ip igmp snooping vlan 30 mrouter learn pim-dvmrp
SG350X(config)#ip igmp snooping vlan 30 immediate-leave
SG350X(config)#interface vlan 30
SG350X(config-if)#ip igmp last-member-query-count 3
SG350X(config-if)#
```

Note: In this example, the last member query counter is set to 3.

Step 6. Enter the **exit** command to go back to the Global Configuration mode:

```
SG350X(config)#ip igmp snooping vlan 30
SG350X(config)#ip igmp snooping vlan 30 mrouter learn pim-dvmrp
SG350X(config)#ip igmp snooping vlan 30 immediate-leave
SG350X(config)#interface vlan 30
SG350X(config-if)#ip igmp last-member-query-count 3
SG350X(config-if)#exit
SG350X(config)#
```

Step 7. To enable the IGMP Snooping querier on a specific VLAN, enter the following:

```
SG350X(config)#ip igmp snooping vlan 30
SG350X(config)#ip igmp snooping vlan 30 mrouter learn pim-dvmrp
SG350X(config)#ip igmp snooping vlan 30 immediate-leave
SG350X(config)#interface vlan 30
SG350X(config-if)#ip igmp last-member-query-count 3
SG350X(config-if)#exit
SG350X(config)#ip igmp snooping vlan 30 querier
SG350X(config)#
```

Step 8. To enable IGMP querier election mechanism of an IGMP snooping querier on a specific VLAN, enter the following:

```
SG350X(config)#ip igmp snooping vlan 30 querier
SG350X(config)#ip igmp snooping vlan 30 querier election
SG350X(config)#
```

Step 9. To configure the IGMP version of an IGMP Snooping querier on a specific VLAN, enter the following:

```
SG350X(config)#ip igmp snooping vlan 30 querier
SG350X(config)#ip igmp snooping vlan 30 querier election
SG350X(config)#ip igmp snooping vlan 30 querier version 3
SG350X(config)#
```

Note: In this example, version 3 is used.

Step 10. To define the source IP address that the IGMP snooping querier uses, enter the following:

Note: If an IP address is configured for the VLAN, it is used as the source address of the IGMP snooping querier. If there are multiple IP addresses, the minimum IP address defined on the VLAN is used.

```
SG350X(config)#ip igmp snooping vlan 30 querier
SG350X(config)#ip igmp snooping vlan 30 querier election
SG350X(config)#ip igmp snooping vlan 30 querier version 3
SG350X(config)#ip igmp snooping vlan 30 querier 192.168.100.112
SG350X(config)#ip igmp snooping vlan 30 querier address 192.168.100.112
SG350X(config)#
```

Note: In this example, 192.168.100.112 is used. If an IP address is not configured by this command, and no IP address is configured for the VLAN of the querier, the querier is disabled.

Step 11. Enter the **exit** command to go back to the Privileged EXEC mode:

```
SG350X#configure
SG350X(config)#ip igmp snooping
SG350X(config)#ip igmp snooping querier
SG350X(config)#ip igmp snooping vlan 30
SG350X(config)#ip igmp snooping vlan 30 mrouter learn pim-dvmrp
SG350X(config)#ip igmp snooping vlan 30 immediate-leave
SG350X(config)#interface vlan 30
SG350X(config-if)#ip igmp last-member-query-count 3
SG350X(config-if)#exit
SG350X(config)#ip igmp snooping vlan 30 querier
SG350X(config)#ip igmp snooping vlan 30 querier election
SG350X(config)#ip igmp snooping vlan 30 querier version 3
SG350X(config)#ip igmp snooping vlan 30 querier 192.168.100.112
SG350X(config)#ip igmp snooping vlan 30 querier address 192.168.100.112
SG350X(config)#exit
SG350X#
```

You should now have successfully configured the IGMP snooping settings on your switch through the CLI.

Display IGMP Snooping Settings on a VLAN

Step 1. To display the IGMP snooping configuration for a specific VLAN, enter the following:

```
SG350X#show ip igmp snooping interface 30
IGMP Snooping is globally enabled
IGMP Snooping Querier is globally enabled
VLAN 30
  IGMP Snooping is enabled
  IGMP snooping last immediate leave: enable
  Automatic learning of Multicast router ports is enabled
  IGMP Snooping Querier is enabled
  IGMP Snooping Querier operation state: is not running
  IGMP Snooping Querier version: 3
  IGMP Snooping Querier election is enabled
  IGMP Snooping Querier address : 192.168.100.112
  IGMP snooping robustness: admin 2 oper 2
  IGMP snooping query interval: admin 125 sec oper 125 sec
  IGMP snooping query maximum response: admin 10 sec oper 10 sec
  IGMP snooping last member query counter: admin 3 oper 2
  IGMP snooping last member query interval: admin 1000 msec oper 1000 msec
SG350X#
```

Note: In this example, the IGMP snooping settings for VLAN 30 are displayed.

Step 2. (Optional) In the Privileged EXEC mode of the switch, save the configured settings to the startup configuration file by entering the following:

```
SG350X#copy running-config startup-config  
Overwrite file [startup-config]... (Y/N)[N] ?
```

Step 3. (Optional) Press **Y** for Yes or **N** for No on your keyboard once the Overwrite file [startup-config]... prompt appears.

```
SG350X#copy running-config startup-config  
Overwrite file [startup-config]... (Y/N)[N] ?Y  
22-Sep-2017 04:09:18 %COPY-1-FILECOPY: Files Copy - source URL running-config des  
tination URL flash://system/configuration/startup-config  
22-Sep-2017 04:09:20 %COPY-N-TRAP: The copy operation was completed successfully  
SG350X#
```

You should now have displayed the IGMP settings on a VLAN on your switch through the CLI.

[View a video related to this article...](#)

[Click here to view other Tech Talks from Cisco](#)