在交换机上配置互联网组管理协议(IGMP)或组播 侦听程序发现(MLD)监听

目标

组播是一种网络层技术,用于将数据包从一台主机传输到网络中的选定主机。在下层,交换机 在所有端口上广播组播流量,即使只有一台主机需要接收该流量。互联网组管理协议 (IGMP)监听用于将互联网协议第4版(IPv4)组播流量转发到所需主机。另一方面,组播侦听程 序发现(MLD)监听用于将互联网协议第6版(IPv6)组播流量转发到所需主机。

启用IGMP后,它会检测IPv4路由器和连接到接口的组播主机之间交换的IGMP消息。然后 ,它维护一个表,该表限制IPv4组播流量,并将其动态转发到需要接收这些流量的部分。

以下配置是配置IGMP的必备条件。

- 1. 配置虚拟局域网(VLAN)。
- 2. 启用网桥组播过滤。

启用MLD后,它会检测IPv6路由器和连接到接口的组播主机之间交换的MLD消息。然后,它 维护一个表,该表限制IPv6组播流量,并将其动态转发到需要接收这些流量的端口。

适用设备

- Sx250 系列
- Sx350 系列
- SG350X 系列
- Sx550X 系列

软件版本

• 2.2.0.66

配置IGMP监听

步骤1.登录到基于Web的实用程序,然后选择Multicast > IPv4 Multicast Configuration > IGMP Snooping。

Getting Started								
Dashboard								
Configuration Wizards								
Search								
 Status and Statistics 								
 Administration 								
 Port Management 								
 Smartport 								
VLAN Management								
Spanning Tree								
 MAC Address Tables 								
 Multicast 								
Properties								
MAC Group Address								
IP Multicast Group Address								
 IPv4 Multicast Configuration 								
IGMP Snooping								
IGMP Interface Settings								
IGMP VLAN Settings								
IGMP VLAN Settings IGMP Proxy								
IGMP VLAN Settings IGMP Proxy IPv6 Multicast Configuration								
IGMP VLAN Settings IGMP Proxy IPv6 Multicast Configuration MLD Snooping								
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IGMP VLAN Settings IGMP Proxy IPv6 Multicast Configuration MLD Snooping MLD Interface Settings MLD VLAN Settings MLD Proxy IGMP/MLD Snooping IP Multicast Group								
IGMP VLAN Settings IGMP Proxy IPv6 Multicast Configuration MLD Snooping MLD Interface Settings MLD VLAN Settings MLD VLAN Settings MLD Proxy IGMP/MLD Snooping IP Multicast Group Multicast Router Port								
IGMP VLAN Settings IGMP Proxy IPv6 Multicast Configuration MLD Snooping MLD Interface Settings MLD VLAN Settings MLD VLAN Settings MLD Proxy IGMP/MLD Snooping IP Multicast Group Multicast Router Port Forward All								
IGMP VLAN Settings IGMP Proxy IPv6 Multicast Configuration MLD Snooping MLD Interface Settings MLD VLAN Settings MLD Proxy IGMP/MLD Snooping IP Multicast Group Multicast Router Port Forward All Unregistered Multicast								
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IGMP VLAN Settings IGMP Proxy IPv6 Multicast Configuration MLD Snooping MLD Interface Settings MLD VLAN Settings MLD Proxy IGMP/MLD Snooping IP Multicast Group Multicast Router Port Forward All Unregistered Multicast IP Configuration Security								
IGMP VLAN Settings IGMP Proxy IPv6 Multicast Configuration MLD Snooping MLD Interface Settings MLD VLAN Settings MLD Proxy IGMP/MLD Snooping IP Multicast Group Multicast Router Port Forward All Unregistered Multicast IP Configuration Security Access Control								
IGMP VLAN Settings IGMP Proxy IPv6 Multicast Configuration MLD Snooping MLD Interface Settings MLD VLAN Settings MLD Proxy IGMP/MLD Snooping IP Multicast Group Multicast Router Port Forward All Unregistered Multicast IP Configuration Security Access Control Quality of Service								

步骤2.选中IGMP监听状态的启用复选框。当全局启用此功能时,监控网络流量的设备可以确 定已请求接收组播流量的主机。



步骤3.(可选)选中IGMP查询器状态的启用复选框以启用IGMP查询器。

IGMP Snooping IGMP Snooping is only operational when Bridge Multicast Filtering is enabled. Bridge Multicast Filtering is currently enabled.
IGMP Snooping Status: C Enable
Apply Cancel IGMP Snooping IP Multicast Group

步骤4.单击"**应用"**。

MLD Snooping MLD Snooping is only operational when Bridge Multicast Filtering is enabled. Bridge Multicast Filtering is currently enabled.
MLD Snooping Status: C Enable MLD Querier Status: C Enable
Apply Cancel MLD Snooping IP Multicast Group

步骤5.在IGMP监听表下,点击与IGMP监听表上的VLAN ID对应的单选按钮。

IGMP Snooping Table													
		Entry No.	VLAN ID	IGMP Snooping	Status	MRouter Ports Immediat		Immediate LastMember I	IGMP Querier Status		IGMP Querier	IGMP Querier	Querier
	-			Administrative	Operational	Auto Learn	Leave	Query Counter	Administrative	Operational	Election	Version	IP Address
(•	1											
N	-	2	4	Disabled	Disabled	Enabled	Disabled	2	Disabled	Disabled	Enabled	v2	
Ī		Copy Set	ings	Edt.)								

步骤6.单击"编**辑"**。

IG	IGMP Snooping Table											
	Entry No.	VLAN ID	IGMP Snooping	/P Snooping Status		MRouter Ports Immediate		IGMP Querier Status		IGMP Querier	IGMP Querier	Querier
			Administrative	Operational	Auto Learn	Leave	Query Counter	Administrative	Operational	Election	Version	IP Address
0												
0	2	4	Disabled	Disabled	Enabled	Disabled	2	Disabled	Disabled	Enabled	v2	
	Copy Set	ings	Edt.									

步骤7.从VLAN ID下拉列表中选择所需的VLAN。

VLAN ID: IGMP Snooping Status: MRouter Ports Auto Learn: Immediate Leave: Last Member Query Counter:	 Enable Enable Enable Use Query Robustness (2) User Defined (Range: 1 - 7)
IGMP Querier Status: IGMP Querier Election: IGMP Querier Version: Querier Source IP Address:	 Enable Enable v2 v3 Auto User Defined 192.168.1.104 ▼
Apply Close	

步骤8.选中IGMP监听状态的启用复选框,以确定所选VLAN下哪些主机已请求发送组播流量。 IGMP监听的状态显示在Operational IGMP Snooping Status字段中。

	VLAN ID:	1	T		
	IGMP Snooping Status:		Enable		
	MRouter Ports Auto Learn:	•	Enable		
	Immediate Leave:		Enable		
•	Last Member Query Counter:	•	Use Query Rob User Defined	ustness (2)	(Range: 1 - 7)
	IGMP Querier Status:		Enable		
	IGMP Querier Election:		Enable		
	IGMP Querier Version:	•	v2 v3		
	Querier Source IP Address:	•	Auto User Defined	192.168.1.104 •	
	Apply Close				

步骤9.(可选)要允许组播路由器自动学习连接的端口,请选中MRouter Ports Auto Learn的 Enable复选框。

VLAN ID: IGMP Snooping Status: MRouter Ports Auto Learn: Immediate Leave:	1 ▼ ✓ Enable ✓ Enable ■ Enable
Last Member Query Counter:	Use Query Robustness (2) User Defined (Range: 1 - 7)
IGMP Querier Status:	Enable
IGMP Querier Election: IGMP Querier Version:	 Enable v2
Querier Source IP Address:	v3
	User Defined 192.168.1.104 T
Apply Close	

第10步。(可选)要缩短交换机阻止不属于其成员端口的MLD流量所花费的时间,请选中 Enable复选框以立即离开。

	VLAN ID:	1	T		
	IGMP Snooping Status:	1	Enable		
	MRouter Ports Auto Learn:		Enable		
	Immediate Leave:		Enable		
•	Last Member Query Counter:	۲	Use Query Rol	oustness (2)	
		\bigcirc	User Defined		(Range: 1 - 7)
	IGMP Querier Status:		Enable		
	IGMP Querier Election:	1	Enable		
	IGMP Querier Version:	۲	v2		
		0	V3		
	Querier Source IP Address:	۲	Auto		
		0	User Defined	192.168.1.104 🔻	
	Apply Close				

步骤11.设置最后一个成员查询计数器。这是交换机等待从组特定消息接收响应的间隔。时间 范围为100至25500ms。默认值为1000ms。

使用查询稳健性(2) — 如果此设备被选为查询器,则将IGMP稳健性变量设置为默认值。默认 值为 2。

用户定义(User Defined) — 选择用户定义(User Defined)单选按钮,并输入在设备假设组没有 更多成员之前发送的IGMP组特定查询数(如果设备被选为查询器)。您可以输入1到7之间的 任意值。 第12步。(可选)选中IGMP查询器状态复选框,使此设备作为查询器工作。查询器发送查询 消息以发现哪些网络设备是给定组播组的成员。

VLAN ID: IGMP Snooping Status: MRouter Ports Auto Learn: Immediate Leave:	1	▼ Enable Enable Enable		
Last Member Query Counter:	•	Use Query Rol User Defined	oustness (2)	(Range: 1 - 7)
IGMP Querier Status:		Enable		
IGMP Querier Election:	1	Enable		
IGMP Querier Version:	•	v2 v3		
Querier Source IP Address:	•	Auto User Defined	192.168.1.104 💌	
Apply Close				

步骤13.(可选)选中IGMP查询器选举复选框以选择此设备作为查询器。网络中只能有一个 IGMP查询器。

VLAN ID:	1 •
IGMP Snooping Status:	Enable
MRouter Ports Auto Learn:	Enable
Immediate Leave:	Enable
Last Member Query Counter:	 Use Query Robustness (2) User Defined (Range: 1 - 7)
IGMP Querier Status:	Enable
IGMP Querier Election:	Enable
IGMP Querier Version:	 ● v2 ● v3
Querier Source IP Address:	 ● Auto ● User Defined 192.168.1.104 ▼
Apply Close	

步骤14.(可选)选择设备成为所选查询器时使用的IGMP查询器版本。如果VLAN中有执行源 特定IP组播转发的交换机和/或组播路由器,请单击v3。

注意:在本例中,选择版本2。它允许成员身份查询是常规查询和组特定查询。一般成员查询 用于确定站点订阅的所有组播组。组特定成员查询用于确定特定组是否存在订用服务器。

VLAN ID: IGMP Snooping Status: MRouter Ports Auto Learn:	1 ▼ ✓ Enable
Immediate Leave:	Enable
Counter:	Use Query Robustness (2) User Defined (Range: 1 - 7)
IGMP Querier Status:	Enable
IGMP Querier Election:	Enable
IGWP Querier version.	● V2 ● V3
Querier Source IP Address:	 ● Auto ● User Defined 192.168.1.104 ▼
Apply Close	

步骤15.设置IGMP查询器源IP地址。它显示所选查询器的IP地址。

自动 — 自动确定查询器的源IP地址。

用户定义 — 允许您选择查询器的IP地址。

注意:在本例中,选择了Auto。

	VLAN ID:	T	
	IGMP Snooping Status:	Enable	
	MRouter Ports Auto Learn:	Enable	
	Immediate Leave:	Enable	
•	Last Member Query Counter:	Use Query Robustness (2 User Defined	(Range: 1 - 7)
	IGMP Querier Status:	Enable	
	IGMP Querier Election:	Enable	
	IGMP Querier Version:	v2 v3	
	Querier Source IP Address:	Auto User Defined 192.168.	.104 v
	Apply Close		

步骤16.单击"**应用"**。

VLAN ID		1	¥		
IGMP Sn	ooping Status:	1	Enable		
MRouter	Ports Auto Learn:	1	Enable		
Immedia	te Leave:		Enable		
🌣 Last Men	nber Query Counter:	•	Use Query Rob User Defined	ustness (2)	(Range: 1 - 7)
IGMP Qu	erier Status:		Enable		
IGMP Qu	erier Election:		Enable		
IGMP Qu	erier Version:	•	v2 v3		
Querier S	Source IP Address:	•	Auto User Defined	192.168.1.104 •	
Apply	Close				

您现在应已配置IGMP监听。

配置MLD监听

步骤1.登录基于Web的实用程序,然后在右上部的"显示模式"下拉列表中选择"高级"。

cisco Language:	English	•	Display Mode:	Basic	•	Logout	About	Help
				Basic				a
				Advance	d			

步骤2. ChooseMulticast > IPv6 Multicast Configuration > MLD Snooping。

Getting Started
Dashboard
Configuration Wizards
Search
 Status and Statistics
 Administration
 Port Management
Smartport
 VLAN Management
Spanning Tree
MAC Address Tables
▼ Multicast
Properties
MAC Group Address
IP Multicast Group Address
IPv4 Multicast Configuration
 IPv6 Multicast Configuration
MLD Snooping
MLD Interface Settings
MLD VLAN Settings
MLD Proxy
IGMP/MLD Snooping IP Multicast Group
Multicast Router Port
Forward All
Unregistered Multicast
 IP Configuration
 Security
 Access Control
 Quality of Service
▶ SNMP

步骤3.选中MLD Snooping Status复选框。当MLD监听全局启用时,监控网络流量的设备可以 确定哪些主机已请求接收组播流量。设备仅在启用MLD监听和网桥组播过滤时执行MLD监听

注意:在此场景中,网桥组播过滤当前已启用。

o

MLD Snooping
MLD Snooping is only operational when Bridge Multicast Filtering is enabled. Bridge Multicast Filtering is currently enabled.
MLD Snooping Status Enable
MLD Querier Status: 🖉 Enable
Apply Cancel MLD Snooping IP Multicast Group

步骤4.选中MLD查询器状态复选框以启用MLD查询器。

MLD Snooping MLD Snooping is only operational when Bridge Multicast Filtering is enabled. Bridge Multicast Filtering is currently enabled.
MLD Snooping Status: Enable MLD Querier Status: Enable
Apply Cancel MLD Snooping IP Multicast Group

步骤5.单击"**应用"**。

MLD Snooping MLD Snooping is only operational when Bridge Multicast Filtering is enabled. Bridge Multicast Filtering is currently enabled.
MLD Snooping Status: Enable MLD Querier Status: Enable
Apply Cancel MLD Snooping IP Multicast Group

步骤6.点击与MLD监听表上的VLAN ID对应的单选按钮。

ML	MLD Snooping Table										
	Entry No.	VLAN ID	MLD Snooping	MLD Snooping Status		Immediate Last Member		MLD Querier Status		MLD Querier	MLD Querier
			Administrative	Operational	Auto Learn	Leave	Query Counter	Administrative	Operational	Election	Version
	1	1	Disabled	Disabled	Enabled	Disabled	2	Disabled	Disabled	Enabled	v1
0	2	4	Disabled	Disabled	Enabled	Disabled	2	Disabled	Disabled	Enabled	v1
	Copy Settings Edit										

步骤7.单击"编**辑"**。

ML	MLD Snooping Table										
	Entry No.	VLAN ID	MLD Snooping	Status	MRouter Ports	Immediate	Last Member	MLD Querier St	atus	MLD Querier	MLD Querier
			Administrative	Operational	Auto Learn	Leave	Query Counter	Administrative	Operational	Election	Version
0											
	2	4	Disabled	Disabled	Enabled	Disabled	2	Disabled	Disabled	Enabled	v1
	Copy Set	ings	Edit								

步骤8.(可选)选择要应用MLD监听的VLAN ID。

VLAN ID: MLD Snooping Status:		Enable	
Immediate Leave:		Enable	
Last Member Query Counter:	•	Use Query Robustness (2) User Defined	(Range: 1 - 7)
MLD Querier Status: MLD Querier Election: MLD Querier Version:	 <	Enable Enable v1 v2	
Apply Close			

已请求发送组播流量的主机。

VLAN ID: MLD Snooping Status: MRouter Ports Auto Learn: Immediate Leave: Aast Member Query Counter:	1 ▼ Image: Enable Enable Enable Use Query Robustness (2) User Defined (Range: 1 - 7)
MLD Querier Status: MLD Querier Election: MLD Querier Version: Apply Close	 Enable v1 v2

步骤10.(可选)选中Mrouter Ports Auto Learn复选框。此选项可自动学习Mrouter所连接的端 口。Mrouter是一种路由器,用于正确路由组播数据包。

VLAN ID:	1 •
MLD Snooping Status:	Enable
MRouter Ports Auto Learn:	Enable
Immediate Leave:	Enable
Last Member Query Counter:	 Use Query Robustness (2)
	User Defined (Range: 1 - 7)
MLD Querier Status:	Enable
MLD Querier Election:	Enable
MLD Querier Version:	● v1
	● V2
Apply Close	

步骤11.选中立即离开的启用复选框,以在收到IGMP组离开消息时快速阻止发送到成员端口的 组播流。

VLAN ID: MLD Snooping Status: MRouter Ports Auto Learn: Immediate Leave:	1 ▼ ✓ Enable ✓ Enable	
Last Member Query Counter	 Use Query Robustness (2) User Defined (Range: 1 - 1) 	7)
MLD Querier Status: MLD Querier Election: MLD Querier Version:	 Enable v1 v2 	
Apply Close		

步骤12.设置最后一个成员查询计数器。

使用查询稳健性(2) — 将查询稳健性设置为默认值。默认值为2。

用户定义 — 允许您指定在交换机假定组中不再有成员之前要发送的多个IGMP组特定查询。

第13步。(可选)选中MLD查询器状态的启用复选框,使此设备作为查询器工作。查询器发送查询消息以发现哪些网络设备是给定组播组的成员。

VLAN ID:	1 •
MLD Snooping Status:	Enable
MRouter Ports Auto Learn:	Enable
Immediate Leave:	Enable
Search 2012 Counter:	Use Query Robustness (2)
	User Defined (Range: 1 - 7)
MLD Querier Status: MLD Querier Election:	Enable Enable
MLD Querier Version:	● v1 ● v2

第14步。(可选)选中MLD查询器选举复选框以选择此设备作为查询器。网络中只能有一个 IGMP查询器。

VLAN ID: MLD Snooping Status: MRouter Ports Auto Learn:	1 ▼ ✓ Enable ✓ Enable
Immediate Leave:	Enable
Last Member Query Counter:	 Use Query Robustness (2)
	User Defined (Range: 1 - 7)
MLD Querier Status:	Enable
MLD Querier Election:	Enable
MLD Querier Version:	● v1
	○ v2
Apply Close	

步骤15.(可选)选择设备成为所选查询器时使用的MLD查询器版本。如果VLAN中有执行源 特定IP组播转发的交换机和/或组播路由器,请选择v2。

注意:在本例中,选择v1。

	VLAN ID: MLD Snooping Status: MRouter Ports Auto Learn: Immediate Leave: Last Member Query Counter:	 1 ▼ ✓ Enable ✓ Enable ● Use Query Robustness (2) ● User Defined (Range: 1 - 7)
	MLD Querier Status: MLD Querier Election: MLD Querier Version: Apply Close	 Enable v1 v2

步骤16.单击"**应用"**。

	VLAN ID: MLD Snooping Status: MRouter Ports Auto Learn: Immediate Leave:	1	▼ Enable Enable Enable	
	Last Member Query Counter:	•	Use Query Robustness (2) User Defined	(Range: 1 - 7)
	MLD Querier Status: MLD Querier Election: MLD Querier Version:	 <	Enable Enable v1 v2	
(Apply Close			

现在,您应该已在交换机上成功配置MLD。