在交換機上配置網際網路組管理協定(IGMP)或組 播偵聽程式發現(MLD)監聽

目標

組播是一種網路層技術,用於將資料包從一台主機傳輸到網路中的選定主機。在較低層,交換 機在所有埠上廣播組播流量,即使只有一台主機需要接收該流量。網際網路群組管理協定 (IGMP)窺探用於將網際網路通訊協定第4版(IPv4)多點傳播流量轉送到所需主機。另一方面 ,組播偵聽程式發現(MLD)監聽用於將網際網路協定第6版(IPv6)組播流量轉發到所需主機。

啟用IGMP後,它會檢測IPv4路由器與連線到介面的組播主機之間交換的IGMP消息。然後 ,它維護一個表,該表限制IPv4組播流量並將其動態轉發到需要接收這些流量的部分。

以下配置是配置IGMP的前提條件。

1. 設定虛擬區域網路(VLAN)。

2. 啟用網橋組播過濾。

啟用MLD後,它會檢測IPv6路由器和連線到介面的組播主機之間交換的MLD消息。然後,它 維護一個表,該表限制IPv6組播流量並將其動態轉發到需要接收它們的埠。

適用裝置

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

軟體版本

• 2.2.0.66

配置IGMP監聽

步驟1.登入到基於Web的實用程式,然後選擇Multicast > IPv4 Multicast Configuration > IGMP Snooping。

	Getting Started									
	Dashboard									
	Configuration Wizards									
	Search									
Þ	Status and Statistics									
•	Administration									
•	Port Management									
•	▶ Smartport									
•	VI AN Management									
	Spanning Tree									
- -	MAC Address Tables									
Ċ	Nulticast									
Ľ	Mulucast									
	Properties									
	MAC Group Address									
	IP Multicast Group Address									
	 IPv4 Multicast Configuration 									
	IGMP Snooping									
	IGMP Interface Settings									
	IGMP VLAN Settings									
	IGMP Proxy									
1	 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									
۲	IP Configuration									
۲	Security									
۲	Access Control									
۲	Quality of Service									
•	SNMP									

步驟2.選中IGMP監聽狀態的Enable覈取方塊。全域性啟用此功能後,監控網路流量的裝置可 以確定哪些主機已請求接收組播流量。



步驟3.(可選)選中IGMP查詢器狀態的Enable覈取方塊以啟用IGMP查詢器。

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

步驟4.按一下Apply。

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

步驟5.在IGMP監聽表下,點選與IGMP監聽表上的VLAN ID對應的單選按鈕。

	IGMP Snooping Table												
		Entry No.	VLAN ID	IGMP Snooping	Status	MRouter Ports	Immediate Last	LastMember	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.)								

步驟6.按一下「Edit」。

IG	IGMP Snooping Table											
	Entry No.	VLAN ID	IGMP Snooping	IMP Snooping Status		Immediate	Last Member	IGMP Querier S	tatus	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	
E	Copy Set	ings	Edit.									

步驟7.從VLAN ID下拉選單中選擇所需的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 v
Apply Close	

步驟8.選中IGMP監聽狀態的Enable覈取方塊,以確定所選VLAN下的哪些主機已請求傳送組 播流量。IGMP監聽的狀態顯示在Operational IGMP Snooping Status欄位中。

	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				

步驟9.(可選)要允許組播路由器自動學習連線的埠,請選中MRouter Ports Auto Learn的 Enable覈取方塊。

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	

步驟10。(可選)若要縮短交換器封鎖不屬於其成員連線埠的MLD流量所需的時間,請勾選 「立即離開」的「啟用」覈取方塊。

VLAN ID:	1 •
IGMP Snooping Status:	Enable
MRouter Ports Auto Learn:	Enable
Immediate Leave:	Enable
Section 2014 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
	O 0ser Delined 192.168.1.104 ▼
Apply Close	

步驟11.設定最後一個成員查詢計數器。這是交換機等待接收來自組特定消息的響應的時間間隔。時間範圍從100到25500ms。預設值為1000ms。

使用查詢魯棒性(2) — 如果將此裝置選為查詢器,則將IGMP魯棒性變數設定為預設值。預設 值為 2。

User Defined — 選擇User Defined單選按鈕,並輸入在裝置假定組沒有更多成員之前(如果 裝置被選為查詢器)傳送的IGMP組特定查詢數。您可以輸入1到7之間的任何值。 步驟12.(可選)選中IGMP Querier Status覈取方塊以讓此裝置作為查詢器工作。查詢器傳送 查詢消息以發現哪些網路裝置是給定組播組的成員。

	VLAN ID:	1	¥		
	IGMP Snooping Status:		Enable		
	MRouter Ports Auto Learn:	1	Enable		
	Immediate Leave:		Enable		
•	Last Member Query Counter:	•	Use Query Rol User Defined	oustness (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				

步驟13.(可選)選中IGMP查詢器選擇覈取方塊以選擇此裝置作為查詢器。網路中只能有一個 IGMP查詢器。

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	

步驟14。(可選)選擇裝置成為所選查詢器時使用的IGMP查詢器版本。如果VLAN中有執行 源特定IP組播轉發的交換機和/或組播路由器,請按一下v3。

附註:在此範例中,選擇了版本2。它允許成員查詢為常規查詢和組特定查詢。一般成員查詢 用於確定站點訂閱的所有組播組。組特定成員查詢用於確定是否存在特定組的訂戶。

	VLAN ID:	1	T
	IGMP Snooping Status:	1	Enable
	MRouter Ports Auto Learn:	1	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		

步驟15.設定IGMP查詢器源IP地址。它顯示所選查詢器的IP地址。

自動 — 自動確定查詢器的源IP地址。

使用者定義 — 允許您選擇查詢器的IP地址。

附註:在本示例中,選擇了Auto。

	VLAN ID:	1	T		
	IGMP Snooping Status:	1	Enable		
	MRouter Ports Auto Learn:	1	Enable		
	Immediate Leave:		Enable		
0	Last Member Query Counter:	•	Use Query Rob User Defined	pustness (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				

步驟16.按一下Apply。

VLAN ID:	1	T
IGMP Snooping Status:		Enable
MRouter Ports Auto Learn:	1	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 V
Apply Close		

您現在應該已配置IGMP監聽。

設定MLD窺探

步驟1.登入基於Web的實用程式,並在右上角的Display Mode下拉選單中選擇Advanced。

cisco Language:	English	1	Display Mode:	Basic	•	Logout	About	Help
				Basic				0
				Advance	ed			

步驟2.選擇Multicast > 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
ii inuuudat Oroup Address
IPv4 Multicast Configuration
IPv4 Multicast Configuration IPv6 Multicast Configuration
 ► IPv4 Multicast Configuration ▼ IPv6 Multicast Configuration MLD Snooping
 IPv4 Multicast Configuration IPv6 Multicast Configuration MLD Snooping MLD Interface Settings
 ► IPv4 Multicast Configuration ▼ IPv6 Multicast Configuration MLD Snooping MLD Interface Settings MLD VLAN Settings
 ► IPv4 Multicast Configuration ▼ IPv6 Multicast Configuration ■ MLD Snooping ■ MLD Interface Settings ■ MLD VLAN Settings ■ MLD Proxy
 IPv4 Multicast Configuration IPv6 Multicast Configuration MLD Snooping MLD Interface Settings MLD VLAN Settings MLD Proxy IGMP/MLD Snooping IP Multicast Group
 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
 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
 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
 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
 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
 IPv4 Multicast Configuration IPv6 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
 IPv4 Multicast Configuration IPv6 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

步驟3.選中MLD監聽狀態覈取方塊。當全域性啟用MLD監聽時,監控網路流量的裝置可以確定 哪些主機已請求接收組播流量。僅當同時啟用MLD監聽和網橋組播過濾時,裝置才會執行 MLD監聽。

附註:在此案例中,橋接組播過濾當前已啟用。

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

步驟4.選中MLD Querier Status覈取方塊以啟用MLD Querier。

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

步驟5.按一下Apply。

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

步驟6.點選與MLD監聽表上的VLAN ID對應的單選按鈕。

ML	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
•	1	1	Disabled	Disabled	Enabled	Disabled	2	Disabled	Disabled	Enabled	vi
0	2	4	Disabled	Disabled	Enabled	Disabled	2	Disabled	Disabled	Enabled	v1
	Copy Set	ings	Edit)							

步驟7.按一下Edit。

ML	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
•			Disabled	Disabled	Enabled	Disabled		Disabled	Disabled	Enabled	
	2	4	Disabled	Disabled	Enabled	Disabled	2	Disabled	Disabled	Enabled	v1
	Copy Set	ings	Edit								

步驟8.(可選)選擇要應用MLD監聽的VLAN ID。

ð	VLAN ID: MLD Snooping Status: MRouter Ports Auto Learn: Immediate Leave:		Enable Enable Enable	
1	East member addry obunter.	ŏ	User Defined	(Range: 1 - 7)
	MLD Querier Status:		Enable	
	MLD Querier Election:	1	Enable	
	MLD Querier Version:	•	v1	
		0	V2	
	Apply Close			

步驟9.(可選)選中Enable覈取方塊以檢視MLD監聽狀態。此選項監控網路流量,以確定哪些

主機請求傳送組播流量。

VLAN ID: MLD Snooping Status: MRouter Ports Auto Learn: Immediate Leave:	 1 ▼ Enable Enable Enable Nable Nable
	User Defined (Range: 1 - 7)
MLD Querier Status: MLD Querier Election: MLD Querier Version:	 Enable v1 v2
Apply Close	

步驟10。(可選)選中Mrouter Ports Auto Learn覈取方塊。此選項可自動學習Mrouter所連線 的連線埠。Mrouter是設計用於正確路由多點傳送封包的路由器。

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

步驟11.選中Immediate Leave的Enable覈取方塊,以便在收到IGMP Group Leave消息的情況 下,快速阻止傳送到成員埠的組播流。

VLAN ID:	1 •
MLD Snooping Status:	Enable
MRouter Ports Auto Learn:	Enable
Immediate Leave:	Enable
Stast 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	

步驟12.設定最後一個成員查詢計數器。

使用查詢穩健性(2) — 將查詢穩健性設定為預設值。預設值為2。

使用者定義 — 允許您指定在交換器假定組中不再有成員之前要傳送的多個IGMP組特定查詢。

步驟13.(可選)選中MLD Querier Status的Enable覈取方塊,以使此裝置作為查詢器工作。 查詢器傳送查詢消息以發現哪些網路裝置是給定組播組的成員。

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	

步驟14.(可選)選中MLD Querier Selection覈取方塊,選擇此裝置作為查詢器。網路中只能 有一個IGMP查詢器。

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	

步驟15。(可選)選擇裝置成為所選查詢器時使用的MLD查詢器版本。如果VLAN中有執行源 特定IP組播轉發的交換機和/或組播路由器,請選擇v2。

附註:在此範例中,選擇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 Enable v1 v2

步驟16.按一下Apply。

	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			

現在,您應該在交換機上成功配置MLD。