Cisco IOS “ip igmp”和“ip igmp静态组” join-group命令使用

目录

简介

本文如何描述**ip igmp join-group**和**ip igmp**在Cisco IOS内的静态**组**function命令。

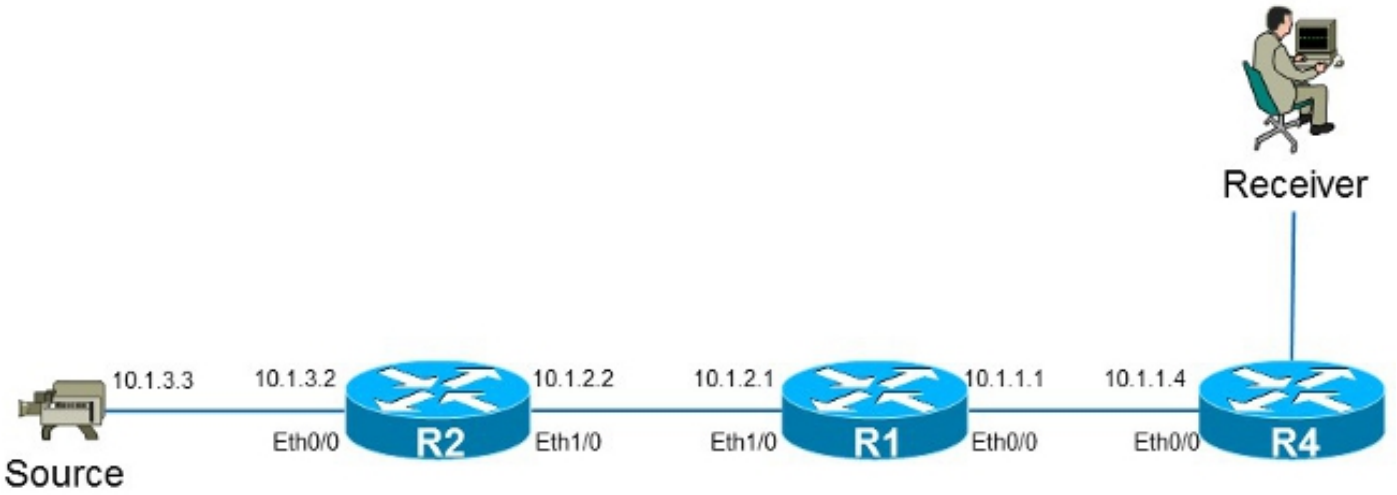
请静态参加IGMP组

如果路由器有**ip igmp join-group命令**在任何接口，路由器变为组播流的一个接收方。此命令用于为了切换组播数据流向此路由器，不用一台实时直接连接的接收器或，不用发送PIM加入要求组播流的独立于协议的组播(PIM)邻接下行。然而，因为此路由器加入组播流，所有组播信息包被踢对CPU。这能导致高CPU，或者能导致速率防幅器(若有)或(CoPP)将点击的控制层面保护。

您能使用为了吸引此路由器的组播流的一更加好的替代方案是配置interface命令**ip igmp的静态组**。用此命令，路由器在接口能仍然吸引组播流和转发它，但是路由器不变为数据流的一个接收方。

如果路由器用此命令是在该接口的PIM指定路由器(DR) **join-group** interface命令的**ip igmp**和**ip igmp static-group命令**原因PIM发送加入请求上行往来源或往聚合点(RP)，但是这只发生。为了保证命令生效并且吸引组播数据流，请使用on命令是该特定网络的DR的路由器。或者，您能做使用命令PIM博士为了执行此，配置**ip pim dr优先级**on命令接口和保证的路由器有最高的PIM DR优先级值在该网络的所有PIM路由器。

示例如下：



在本例中，有一来源用IP地址10.1.3.3和组的232.1.1.1一个接收方。

接收方是活跃的

这是在路由器R1的组播转发条目：

```
R1#show ip mroute 232.1.1.1 10.1.3.3
IP Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group, C - Connected,
       L - Local, P - Pruned, R - RP-bit set, F - Register flag,
       T - SPT-bit set, J - Join SPT, M - MSDP created entry, E - Extranet,
       X - Proxy Join Timer Running, A - Candidate for MSDP Advertisement,
       U - URD, I - Received Source Specific Host Report,
       Z - Multicast Tunnel, z - MDT-data group sender,
       Y - Joined MDT-data group, y - Sending to MDT-data group,
       G - Received BGP C-Mroute, g - Sent BGP C-Mroute,
       Q - Received BGP S-A Route, q - Sent BGP S-A Route,
       V - RD & Vector, v - Vector
Outgoing interface flags: H - Hardware switched, A - Assert winner
Timers: Uptime/Expires
Interface state: Interface, Next-Hop or VCD, State/Mode

(10.1.3.3, 232.1.1.1), 01:54:48/00:02:54, flags: sT
Incoming interface: Ethernet1/0, RPF nbr 10.1.2.2
Outgoing interface list:
  Ethernet0/0, Forward/Sparse-Dense, 01:54:48/00:02:54
```

如输出所显示，接口Ethernet0/0在流出接口列表(油)，并且(10.1.3.3， 232.1.1.1)组播数据流转发对接口Ethernet0/0。

这在组播转发情报基地(MFIB)条目可能也被观察：

```
R1#show ip mfib 232.1.1.1 10.1.3.3
Entry Flags:    C - Directly Connected, S - Signal, IA - Inherit A flag,
                ET - Data Rate Exceeds Threshold, K - Keepalive
                DDE - Data Driven Event, HW - Hardware Installed
I/O Item Flags: IC - Internal Copy, NP - Not platform switched,
                 NS - Negate Signalling, SP - Signal Present,
                A - Accept, F - Forward, RA - MRIB Accept, RF - MRIB Forward,
                MA - MFIB Accept
Forwarding Counts: Pkt Count/Pkts per second/Avg Pkt Size/Kbits per second
Other counts:      Total/RPF failed/Other drops
I/O Item Counts:    FS Pkt Count/PS Pkt Count
Default
```

```
(10.1.3.3,232.1.1.1) Flags:
  SW Forwarding: 0/0/0/0, Other: 0/0/0
  Ethernet1/0 Flags: A
  Ethernet0/0 Flags: F NS
    Pkts: 0/0
```

IGMP加入命令

如果路由器R1不收到一个PIM加入要求从路由器R4的组播流(因故)，则组播流不流。一个可能的来源是PIM没有允许形成在路由器R1和R4之间的结邻，因为路由器属于不同的管理域。解决方案将转发从路由器R1的流量往路由器R4在一个静态方式。

ip igmp join-group命令在路由器R1的接口Ethernet0/0使用。这允许路由器R1发送PIM加入请求上行(对来源或RP)和吸引组播流(10.1.3.3， 232.1.1.1)。因为此接口在油，此流量然后转发对接口Ethernet0/0。然而，流量也被踢对CPU。

```
R1#show running-config interface Ethernet 0/0
!
interface Ethernet0/0
ip address 10.1.1.1 255.255.255.0
ip pim sparse-dense-mode
 ip igmp join-group 232.1.1.1 source 10.1.3.3
endR1#show ip mroute 232.1.1.1 10.1.3.3
IP Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group, C - Connected,
       L - Local, P - Pruned, R - RP-bit set, F - Register flag,
       T - SPT-bit set, J - Join SPT, M - MSDP created entry, E - Extranet,
       X - Proxy Join Timer Running, A - Candidate for MSDP Advertisement,
       U - URD, I - Received Source Specific Host Report,
       Z - Multicast Tunnel, z - MDT-data group sender,
       Y - Joined MDT-data group, y - Sending to MDT-data group,
       G - Received BGP C-Mroute, g - Sent BGP C-Mroute,
       Q - Received BGP S-A Route, q - Sent BGP S-A Route,
       V - RD & Vector, v - Vector
Outgoing interface flags: H - Hardware switched, A - Assert winner
Timers: Uptime/Expires
Interface state: Interface, Next-Hop or VCD, State/Mode

(10.1.3.3, 232.1.1.1), 00:09:30/00:02:19, flags: sLTI
Incoming interface: Ethernet1/0, RPF nbr 10.1.2.2
Outgoing interface list:
   Ethernet0/0, Forward/Sparse-Dense, 00:00:40/00:02:19
```

L标志意味着组播数据流被踢。接口Ethernet0/0在油，因此流量被踢对CPU并且转发对接口Ethernet0/0。

MFIB条目显示*内部拷贝*(ICS)标志。这意味着此流的数据包被踢对CPU。

```
R1#show ip mfib 232.1.1.1 10.1.3.3
Entry Flags:    C - Directly Connected, S - Signal, IA - Inherit A flag,
                ET - Data Rate Exceeds Threshold, K - Keepalive
                DDE - Data Driven Event, HW - Hardware Installed
I/O Item Flags: IC - Internal Copy, NP - Not platform switched,
                NS - Negate Signalling, SP - Signal Present,
                A - Accept, F - Forward, RA - MRIB Accept, RF - MRIB Forward,
                MA - MFIB Accept
Forwarding Counts: Pkt Count/Pkts per second/Avg Pkt Size/Kbits per second
Other counts:     Total/RPF failed/Other drops
I/O Item Counts:   FS Pkt Count/PS Pkt Count
Default
```

```
(10.1.3.3,232.1.1.1) Flags:
  SW Forwarding: 0/0/0/0, Other: 0/0/0
  Ethernet1/0 Flags: A
  Ethernet0/0 Flags: F IC NS
    Pkts: 0/0
```

由于所有此组播流的流量被踢，能引起不需要的副作用，如前所述。

警告：除非用于测试环境，请勿使用**ip igmp join-group命令**。

static命令的IGMP

ip igmp static-group命令在一个静态方式用于，解决方案为了转发从路由器R1的流量往路由器R4。在此方案中，路由器R1发送PIM加入请求上行(对来源或RP)并且吸引组播流(10.1.3.3，232.1.1.1)。此流量然后转发对接口Ethernet0/0，因为此接口在油，但是流量没有被踢对CPU。

```
R1#show running-config interface Ethernet 0/0
!
interface Ethernet0/0
ip address 10.1.1.1 255.255.255.0
ip pim sparse-dense-mode
 ip igmp static-group 232.1.1.1 source 10.1.3.3
endR1#show ip mroute 232.1.1.1 10.1.3.3
IP Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group, C - Connected,
       L - Local, P - Pruned, R - RP-bit set, F - Register flag,
       T - SPT-bit set, J - Join SPT, M - MSDP created entry, E - Extranet,
       X - Proxy Join Timer Running, A - Candidate for MSDP Advertisement,
       U - URD, I - Received Source Specific Host Report,
       Z - Multicast Tunnel, z - MDT-data group sender,
       Y - Joined MDT-data group, y - Sending to MDT-data group,
       G - Received BGP C-Mroute, g - Sent BGP C-Mroute,
       Q - Received BGP S-A Route, q - Sent BGP S-A Route,
       V - RD & Vector, v - Vector
Outgoing interface flags: H - Hardware switched, A - Assert winner
Timers: Uptime/Expires
Interface state: Interface, Next-Hop or VCD, State/Mode

(10.1.3.3, 232.1.1.1), 00:07:41/stopped, flags: sTI
Incoming interface: Ethernet1/0, RPF nbr 10.1.2.2
Outgoing interface list:
Ethernet0/0, Forward/Sparse-Dense, 00:05:06/00:00:53
```

*L*标志不再出现。流量在此路由器没有被踢，但是转发对在油的接口。

同样地， MFB条目不显示*ICS*标志：

```
R1#show ip mfib 232.1.1.1 10.1.3.3
Entry Flags:   C - Directly Connected, S - Signal, IA - Inherit A flag,
               ET - Data Rate Exceeds Threshold, K - Keepalive
               DDE - Data Driven Event, HW - Hardware Installed
I/O Item Flags: IC - Internal Copy, NP - Not platform switched,
               NS - Negate Signalling, SP - Signal Present,
               A - Accept, F - Forward, RA - MRIB Accept, RF - MRIB Forward,
               MA - MFIB Accept
Forwarding Counts: Pkt Count/Pkts per second/Avg Pkt Size/Kbits per second
Other counts:     Total/RPF failed/Other drops
I/O Item Counts:   FS Pkt Count/PS Pkt Count
Default
```

```
(10.1.3.3,232.1.1.1) Flags:
  SW Forwarding: 0/0/0/0, Other: 0/0/0
  Ethernet1/0 Flags: A
  Ethernet0/0 Flags: F NS
    Pkts: 0/0
```

PIM DR角色

如果路由器R1不是接口的Etherent0/0， PIM DR **ip igmp static-group命令**和**ip igmp join-group命令不**生效。

示例如下：

```
R1#show running-config interface Ethernet 0/0
!
interface Ethernet0/0
ip address 10.1.1.1 255.255.255.0
ip pim sparse-dense-mode
ip igmp static-group 232.1.1.1 source 10.1.3.3
end
```

> **注意**：命令不允许来源将指定的(PIM SSM)，或者将指定的来源(PIM稀疏的Mode/PIM Bidir模式)。

```
R1#show ip mroute 232.1.1.1 10.1.3.3
IP Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group, C - Connected,
       L - Local, P - Pruned, R - RP-bit set, F - Register flag,
       T - SPT-bit set, J - Join SPT, M - MSDP created entry, E - Extranet,
       X - Proxy Join Timer Running, A - Candidate for MSDP Advertisement,
       U - URD, I - Received Source Specific Host Report,
       Z - Multicast Tunnel, z - MDT-data group sender,
       Y - Joined MDT-data group, y - Sending to MDT-data group,
       G - Received BGP C-Mroute, g - Sent BGP C-Mroute,
       Q - Received BGP S-A Route, q - Sent BGP S-A Route,
       V - RD & Vector, v - Vector
Outgoing interface flags: H - Hardware switched, A - Assert winner
Timers: Uptime/Expires
Interface state: Interface, Next-Hop or VCD, State/Mode

(10.1.3.3, 232.1.1.1), 00:00:30/00:02:29, flags: sPT
Incoming interface: Ethernet1/0, RPF nbr 10.1.2.2
 Outgoing interface list: Null
```

接口Ethernet0/0不在油。这是因为路由器R1不是在链路的PIM DR用**ip igmp static-group命令**：

```
R1#show ip pim interface ethernet 0/0

Address         Interface              Ver/   Nbr    Query DR     DR
                                       Mode   Count Intvl Prior
10.1.1.1        Ethernet0/0            v2/SD 1     30     1     10.1.1.4
```

路由器R1也不发送PIM加入请求上行。因为组播条目未命中，这是明显的在路由器R2 ：

```
R2#show ip mroute 232.1.1.1 10.1.3.3
Group 232.1.1.1 not found
```

这是可以观察的输出，当路由器R1是在接口Ethernet0/0的PIM DR ：

```
R1#show ip pim interface ethernet 0/0
```

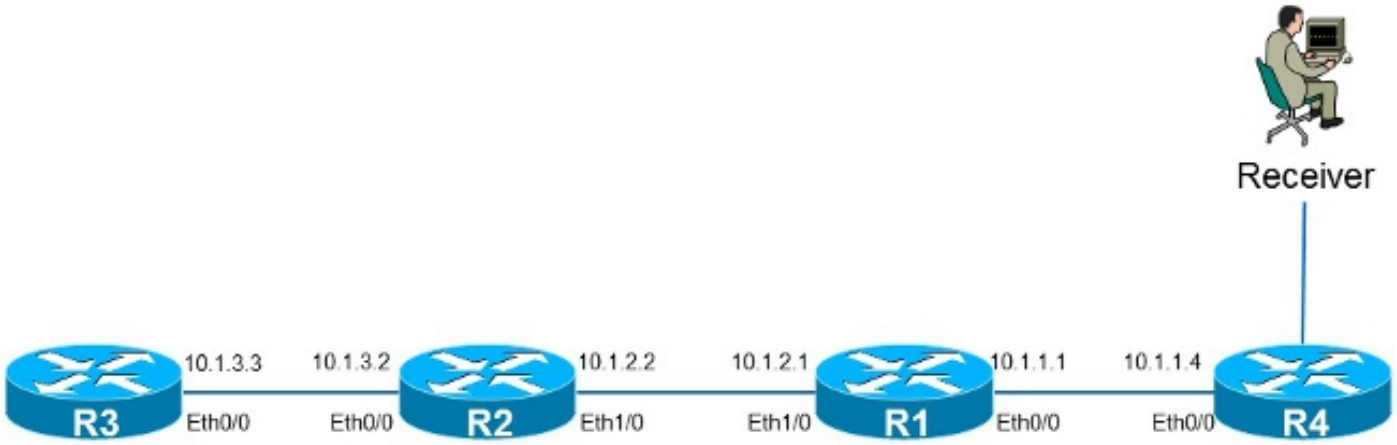
```
Address         Interface              Ver/   Nbr    Query DR     DR
                                       Mode   Count  Intvl Prior
10.1.1.1         Ethernet0/0            v2/SD 1      30     1     10.1.1.1R1#show ip mroute
232.1.1.1 10.1.3.3
IP Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group, C - Connected,
       L - Local, P - Pruned, R - RP-bit set, F - Register flag,
       T - SPT-bit set, J - Join SPT, M - MSDP created entry, E - Extranet,
       X - Proxy Join Timer Running, A - Candidate for MSDP Advertisement,
       U - URD, I - Received Source Specific Host Report,
       Z - Multicast Tunnel, z - MDT-data group sender,
       Y - Joined MDT-data group, y - Sending to MDT-data group,
       G - Received BGP C-Mroute, g - Sent BGP C-Mroute,
       Q - Received BGP S-A Route, q - Sent BGP S-A Route,
       V - RD & Vector, v - Vector
Outgoing interface flags: H - Hardware switched, A - Assert winner
Timers: Uptime/Expires
Interface state: Interface, Next-Hop or VCD, State/Mode

(10.1.3.3, 232.1.1.1), 00:02:39/00:02:55, flags: sTI
Incoming interface: Ethernet1/0, RPF nbr 10.1.2.2
Outgoing interface list:
  Ethernet0/0, Forward/Sparse-Dense, 00:00:04/00:02:55
```

安全使用*ip igmp join-group*命令

为了排除故障问题，您也许希望执行测验与组播，实验室的均等外部。在这种情况下，请保证您使用**ip igmp join-group命令**以安全方式。原因您应该使用**ip igmp join-group命令**在**ip igmp static-group命令**是，因为组播信息包被踢。同样地，如果执行一ping与组播目的地，路由器用命令是组播流的一个接收方，并且能回复到ping。

示例如下：



来源**10.1.3.3**是在路由器R3的一个IP地址。如果在路由器R1放置on命令Ethernet0/0接口并且从路由器R3 ping，则路由器R1能回复到ping。同样地，您可执行测验，好象在路由器R1的一台直接连接的接收器。**ip igmp join-group命令**在路由器R1的Ethernet0/0接口被放置，并且来源指定为了保证路由器R1只踢从该来源的流量(和响应对它)。

```
R1#show running-config interface Ethernet 0/0
!
interface Ethernet0/0
ip address 10.1.1.1 255.255.255.0
ip pim sparse-dense-mode
ip igmp join-group 232.1.1.1 source 10.1.3.3
```

```
endR3#ping 232.1.1.1 source 10.1.3.3
Type escape sequence to abort.
Sending 1, 100-byte ICMP Echos to 232.1.1.1, timeout is 2 seconds:
Packet sent with a source address of 10.1.3.3

Reply to request 0 from 10.1.1.1, 2 ms
R3#
```

debug ip icmp命令在路由器R1表明ping到达，并且路由器R1发送回复：

```
R1#debug ip icmp
ICMP packet debugging is on
R1#

*Oct 30 11:35:41.133: ICMP: echo reply sent, src 10.1.1.1, dst 10.1.3.3,
topology BASE, dscp 0 topoid 0
```

关于命令使用的重要提示

除非对于测试目的在实验室或一临时测验在真实网络，最佳实践不是使用**ip igmp join-group命令**。在所有测验完成后，请删除命令。如果必须只静态转发组播数据流，请使用**ip igmp static-group命令**。