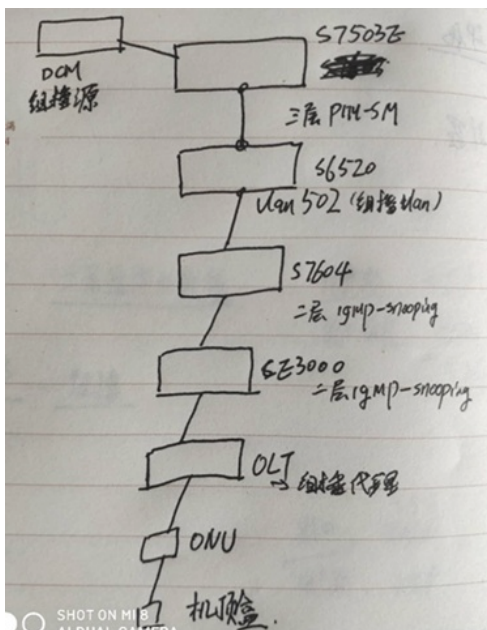


## 某局点S6520X组播表项老化不更新导致黑屏

IGMP Snooping 刘雨 2020-06-01 发表

### 组网及说明



7503和6520之间是三层组播 pim sm协议，下联是组播vlan502，网关在6520上。下联的设备7604和C E3000通过二层透传，配置igmp-snooping。

### 问题描述

客户反馈igmp group表项会因为计时器时间结束导致表项被删除，导致用户在看电视的时候出现黑屏的情况，以232.0.8.21为例：

|             |                |          |          |
|-------------|----------------|----------|----------|
| 232.0.3.135 | 192.168.22.167 | 00:00:08 | 00:02:01 |
| 232.0.8.1   | 192.168.22.193 | 3w:1d    | 00:01:55 |
| 232.0.8.2   | 192.168.22.166 | 3w:5d    | 00:02:03 |
| 232.0.8.3   | 192.168.22.166 | 5w:2d    | 00:01:55 |
| 232.0.8.4   | 192.168.22.187 | 19:19:14 | 00:01:55 |
| 232.0.8.6   | 192.168.22.166 | 05:28:14 | 00:01:55 |
| 232.0.8.21  | 192.168.20.85  | 00:02:06 | 00:01:17 |
| 232.0.8.23  | 192.168.22.166 | 3w:6d    | 00:01:55 |
| 232.0.8.24  | 192.168.22.166 | 2w:4d    | 00:02:06 |
| 232.0.8.100 | 192.168.22.186 | 00:00:40 | 00:02:00 |
| 232.0.8.101 | 192.168.22.199 | 01:05:05 | 00:01:44 |

### 过程分析

现场对6520设备的1/0/23和1/0/24物理口做了流镜像，同步进行了display igmp group的查看。发现结果如下：

(1) 设备一直都有收到IGMP的报告报文。查询间隔默认为60秒，查询最大响应时间为10秒，抓包中可以看到基本1分钟能正常收到一个IGMP成员报告报文。

| No.   | Time                       | Source         | Destination | Protocol Length | Info                                  |
|-------|----------------------------|----------------|-------------|-----------------|---------------------------------------|
| 1487  | 2020-05-21 11:31:42.647190 | 192.168.20.85  | 232.0.8.21  | IGMPv2          | 56 Membership Report group 232.0.8.21 |
| 3129  | 2020-05-21 11:32:42.540307 | 192.168.21.112 | 232.0.8.21  | IGMPv2          | 56 Membership Report group 232.0.8.21 |
| 4956  | 2020-05-21 11:33:42.311795 | 192.168.20.85  | 232.0.8.21  | IGMPv2          | 56 Membership Report group 232.0.8.21 |
| 6809  | 2020-05-21 11:34:42.530939 | 192.168.20.85  | 232.0.8.21  | IGMPv2          | 56 Membership Report group 232.0.8.21 |
| 8472  | 2020-05-21 11:35:42.575976 | 192.168.20.85  | 232.0.8.21  | IGMPv2          | 56 Membership Report group 232.0.8.21 |
| 10160 | 2020-05-21 11:36:42.577748 | 192.168.20.85  | 232.0.8.21  | IGMPv2          | 56 Membership Report group 232.0.8.21 |
| 12001 | 2020-05-21 11:37:42.488935 | 192.168.20.85  | 232.0.8.21  | IGMPv2          | 56 Membership Report group 232.0.8.21 |
| 14069 | 2020-05-21 11:38:42.503157 | 192.168.20.85  | 232.0.8.21  | IGMPv2          | 56 Membership Report group 232.0.8.21 |
| 16028 | 2020-05-21 11:39:42.505414 | 192.168.20.85  | 232.0.8.21  | IGMPv2          | 56 Membership Report group 232.0.8.21 |
| 17889 | 2020-05-21 11:40:42.688998 | 192.168.21.112 | 232.0.8.21  | IGMPv2          | 56 Membership Report group 232.0.8.21 |
| 19550 | 2020-05-21 11:41:41.897718 | 192.168.20.85  | 232.0.8.21  | IGMPv2          | 56 Membership Report group 232.0.8.21 |
| 21342 | 2020-05-21 11:42:41.873372 | 192.168.20.85  | 232.0.8.21  | IGMPv2          | 56 Membership Report group 232.0.8.21 |
| 23043 | 2020-05-21 11:43:41.856921 | 192.168.20.85  | 232.0.8.21  | IGMPv2          | 56 Membership Report group 232.0.8.21 |
| 24780 | 2020-05-21 11:44:41.880100 | 192.168.20.85  | 232.0.8.21  | IGMPv2          | 56 Membership Report group 232.0.8.21 |
| 26463 | 2020-05-21 11:45:41.832896 | 192.168.20.85  | 232.0.8.21  | IGMPv2          | 56 Membership Report group 232.0.8.21 |
| 28150 | 2020-05-21 11:46:41.906595 | 192.168.20.85  | 232.0.8.21  | IGMPv2          | 56 Membership Report group 232.0.8.21 |
| 30022 | 2020-05-21 11:47:41.834486 | 192.168.20.85  | 232.0.8.21  | IGMPv2          | 56 Membership Report group 232.0.8.21 |
| 31535 | 2020-05-21 11:48:41.849850 | 192.168.20.85  | 232.0.8.21  | IGMPv2          | 56 Membership Report group 232.0.8.21 |

(2) 但是有一段时间，大概5分钟时间内。老化时间未发生任何更新，还在继续减少。

```

<WD_IPTV_S6520>dis igmp group | include 232.0.8.21
232.0.8.21 192.168.20.85 00:31:01 00:05:08
<WD_IPTV_S6520>dis igmp group | include 232.0.8.21
232.0.8.21 192.168.20.85 00:32:01 00:04:09
<WD_IPTV_S6520>dis igmp group | include 232.0.8.21
232.0.8.21 192.168.20.85 00:33:01 00:03:09
<WD_IPTV_S6520>dis igmp group | include 232.0.8.21
232.0.8.21 192.168.20.85 00:34:00 00:02:10
<WD_IPTV_S6520>dis igmp group | include 232.0.8.21
232.0.8.21 192.168.20.85 00:35:06 00:01:04
<WD_IPTV_S6520>dis igmp group | include 232.0.8.21
232.0.8.21 192.168.20.85 00:36:00 00:00:10

```

根据对比结果，设备收到了报文，但是未进行组播项的更新。

(3) 现场将最大发送间隔和响应间隔时长修改为10秒（默认为1秒），且将健壮性系数配置为5（默认为2），测试依旧存在表项异常老化的情况。

```

[Sysname] interface vlan-interface 502
[Sysname-Vlan-interface100] igmp robust-count 5 //缺省为2

```

默认老化时间为协议规定的表项老化时间 = 健壮系数 x 查询间隔 + 最大响应时间

按照现场修改后的参数，老化时间为5分10秒

(4) 我们在实验室测试只要收到report报文就会更新老化时间：

```

*Feb 9 05:13:07:145 2013 5560x-3 IGMP/7/REPORT: Received IGMPv2 report for group 234.0.0.6
on interface Vlan-interface410(41.1.1.254) (G161026)
*Feb 9 05:13:07:145 2013 5560x-3 IGMP/7/REPORT: Process IS_EX packet for EXCLUDE group(
234.0.0.6) on interface Vlan-interface410(41.1.1.254) (G116916)

display igmp group
IGMP groups in total: 2
Vlan-interface410(41.1.1.254):
IGMP groups reported in total: 2
Group address Last reporter Uptime Expires
234.0.0.6 41.1.1.1 00:02:53 00:04:19
239.255.255.254 41.1.1.1 1d:02h 00:02:18

```

(5) 让现场开debug，发现debug里面就有间隔几分钟没有上CPU的现象

```

*Mar 6 20:57:00:012 2013 WD_IPTV_S6520 IGMP/7/TIMER: Set V2 host timer for group(232.0.
*Mar 6 20:57:00:012 2013 WD_IPTV_S6520 IGMP/7/TIMER: Set group aging timer for group(23
*Mar 6 20:57:45:986 2013 WD_IPTV_S6520 IGMP/7/REPORT: Received IGMPv2 report for group
*Mar 6 20:57:45:986 2013 WD_IPTV_S6520 IGMP/7/REPORT: Process IS_EX packet for EXCLUDE
*Mar 6 20:57:45:986 2013 WD_IPTV_S6520 IGMP/7/TIMER: Set V2 host timer for group(232.0.
*Mar 6 20:57:45:986 2013 WD_IPTV_S6520 IGMP/7/TIMER: Set group aging timer for group(23
*Mar 6 20:58:46:198 2013 WD_IPTV_S6520 IGMP/7/REPORT: Received IGMPv2 report for group
*Mar 6 20:58:46:198 2013 WD_IPTV_S6520 IGMP/7/REPORT: Process IS_EX packet for EXCLUDE
*Mar 6 20:58:46:199 2013 WD_IPTV_S6520 IGMP/7/TIMER: Set V2 host timer for group(232.0.
*Mar 6 20:58:46:199 2013 WD_IPTV_S6520 IGMP/7/TIMER: Set group aging timer for group(23
*Mar 6 20:59:46:086 2013 WD_IPTV_S6520 IGMP/7/REPORT: Received IGMPv2 report for group
*Mar 6 20:59:46:086 2013 WD_IPTV_S6520 IGMP/7/REPORT: Process IS_EX packet for EXCLUDE
*Mar 6 20:59:46:086 2013 WD_IPTV_S6520 IGMP/7/TIMER: Set V2 host timer for group(232.0.
*Mar 6 20:59:46:086 2013 WD_IPTV_S6520 IGMP/7/TIMER: Set group aging timer for group(23
*Mar 6 21:03:45:864 2013 WD_IPTV_S6520 IGMP/7/REPORT: Received IGMPv2 report for group
*Mar 6 21:03:45:864 2013 WD_IPTV_S6520 IGMP/7/REPORT: Process IS_EX packet for EXCLUDE
*Mar 6 21:03:45:864 2013 WD_IPTV_S6520 IGMP/7/TIMER: Set V2 host timer for group(232.0.
*Mar 6 21:03:45:864 2013 WD_IPTV_S6520 IGMP/7/TIMER: Set group aging timer for group(23
*Mar 6 21:06:46:130 2013 WD_IPTV_S6520 IGMP/7/REPORT: Received IGMPv2 report for group
*Mar 6 21:06:46:130 2013 WD_IPTV_S6520 IGMP/7/REPORT: Process IS_EX packet for EXCLUDE
*Mar 6 21:06:46:130 2013 WD_IPTV_S6520 IGMP/7/TIMER: Set V2 host timer for group(232.0.
*Mar 6 21:06:46:130 2013 WD_IPTV_S6520 IGMP/7/TIMER: Set group aging timer for group(23

```

(6) 查看设备诊断，有上送CPU报文超限记录：

```

16 IPV4_IGMP 19 35121556 2678290 100 S On SMAC 8 512

```

## 解决方法

通过debug命令调一下IGMP报文上送限速，默认是100pps，调成200观察。

设置命令：

```

[30HC-1-probe]debug rxtx softcar 16 pps 200 slot 1

```

调整后现场反馈正常。