

# 知 SR88-X系列路由器Hello报文类型不一致导致ISIS邻居无法建立问题经验案例

IS-IS 何理 2016-07-23 发表

客户侧SR88-X路由器与对端中兴设备直连，但是ISIS邻居一直无法建立，状态一直处于init状态：

```
System ID: GSLJY-PE-RT01-ZM600018
Interface: GE1/1/7          Circuit Id: 001
State: Init HoldTime: 7s   Type: L2     PRI: --
```

首先查看接口配置正常：

```
interface GigabitEthernet1/1/7
port link-mode route
description TO-[GSLJY-PE-RT01-ZM600018]GE-0/1/1-622M
ip address 11.76.1.17 255.255.255.252
isis enable 100
isis circuit-level level-2
isis circuit-type p2p
isis cost 2000 level-2
isis timer hello 3
mpls enable
mpls ldp enable
bfd min-transmit-interval 500
bfd min-receive-interval 500
bfd detect-multiplier 8
```

在SR88-X侧debug isis adj 收集hello报文交互过程发现如下：

我们收到对端发过来的hello报文为未经过填充的small-hello：

```
*Jul 2 14:36:50:339 2016 GSYCB-PE-RT01-H3C8812F ISIS/7/ISISDBG: -MDC=1;
ISIS-100-ADJ: Receive a P2P Hello packet from(0110.7725.5214) on circuit(GigabitEthernet1/1/7)
```

```
*Jul 2 14:36:50:339 2016 GSYCB-PE-RT01-H3C8812F ISIS/7/ISISDBG: -MDC=1;
ISIS-100-ADJ:
0000: 83 14 01 00 11 01 00 03 02 01 10 77 25 52 14 00
0010: 09 00 2a 01 81 01 cc 01 04 03 49 00 01 84 04 0b
0020: 4c 01 12 f0 05 02 00 00 00 03
```

但是我们自身发出去的是标准hello包是经过填充到MTU大小的：

```
*Jul 2 14:36:51:012 2016 GSYCB-PE-RT01-H3C8812F ISIS/7/ISISDBG: -MDC=1;
ISIS-100-ADJ: Send a P2P Hello packet on circuit(GigabitEthernet1/1/7)
```

```
*Jul 2 14:36:51:016 2016 GSYCB-PE-RT01-H3C8812F ISIS/7/ISISDBG: -MDC=1;
ISIS-100-ADJ:
0000: 83 14 01 06 11 01 00 00 02 01 10 77 25 52 52 01
0010: 2c 05 d9 01 01 04 03 49 00 01 84 04 0b 4c 01 11
0020: 81 01 cc d3 03 00 00 00 f0 0f 01 00 00 00 11 01
0030: 10 77 25 52 14 00 00 00 03 08 ff 00 00 00 00 00
0040: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0050: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0060: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0070: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0080: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0090: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00a0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00b0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00c0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00d0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

```
00e0: 00 00 00 00 00 00 00 00 00 00 00 00 00
00f0: 00 00 00 00 00 00 00 00
```

所以两边hello报文格式不一致导致ISIS邻居建立失败。

ISIS协议报文直接封装在链路层报文头后面，无法实现协议报文在IP层的自动分片。因此，运行IS-IS的路由器与对端路由器建立邻居关系时，会发送达到链路MTU大小的Hello报文，双方进行MTU大小的通信协商，来保证建立邻居双方接口MTU的一致性，从而避免双方MTU大小不一致导致较小的PDU可以通过，但是较大的PDU无法通过。当双方邻居路由器MTU大小一样的时候，为了避免发送过大的Hello报文浪费带宽，可以配置接口发送不加入填充CLV的小型Hello报文。

修改本端isis hello包类型为 small-hello后ISIS邻居建立正常；

命令：isis small-hello