

## 知 某局点S5130-EI下联PC提示地址冲突

ARP 刘雨 2021-12-14 发表

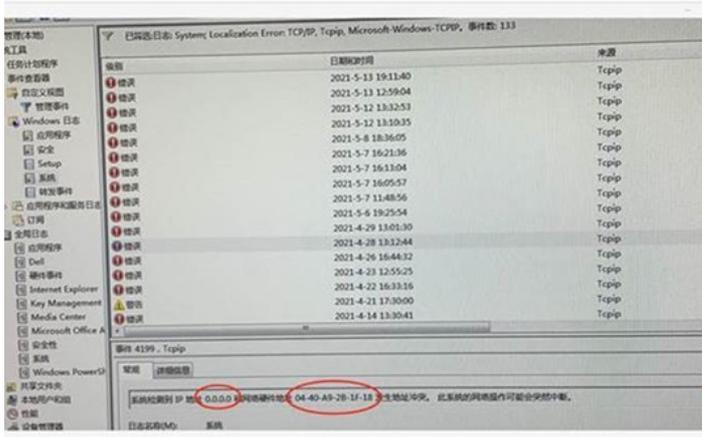
### 组网及说明

S5130-EI作为楼层接入设备，下联PC，PC上的IP地址是静态配置的。

## 问题描述

现场每个楼层都有部分用户反馈，开机或者休眠后，电脑提示IP地址冲突等一会儿，又可以正常入网。

出现问题的用户电脑系统日志，所有日志显示都是为：系统检测到IP地址为0.0.0.0和硬件地址冲突（硬件地址是S5130 H3C交换机的MAC地址）



## 过程分析

现场抓包发现，S5130-EI交换机会给PC发送源IP为0.0.0.0的arp报文。

在用户电脑开机或者休眠恢复时，准备重新加入网的时候，电脑的IP为系统保留地址IP 0.0.0.0/169.254.XX，但在电脑入网之前，立即就收到“H3C交换机”定向发送的ARP报文（源：交换机MAC+源IP：0.0.0.0），此时电脑检测到0.0.0.0 IP地址和系统的保留地址一样，产生冲突提示。

1232 190.139181	Dell_F2:01:af	Broadcast	ARP	42 who has 192.168.236.254? Tell 192.168.236.238
1233 191.170569	NewMCTe_2f:30:a0	Dell_F2:01:af	ARP	60 who has 192.168.244.238? Tell 0.0.0.0
1234 192.167491	Dell_F2:01:af	Broadcast	ARP	42 who has 192.168.236.254? Tell 192.168.236.238
1235 192.167511	Dell_F2:01:af	Broadcast	ARP	42 who has 192.168.236.254? Tell 192.168.236.238
1236 192.173558	NewMCTe_2f:30:a0	Dell_F2:01:af	ARP	60 who has 192.168.244.238? Tell 0.0.0.0
1237 192.839653	Dell_F2:01:af	Broadcast	ARP	42 who has 192.168.236.254? Tell 192.168.236.238
1238 192.839668	Dell_F2:01:af	Broadcast	ARP	42 who has 192.168.236.254? Tell 192.168.236.238
1239 193.172236	NewMCTe_2f:30:a0	Dell_F2:01:af	ARP	60 who has 192.168.244.238? Tell 0.0.0.0
1240 193.838470	Dell_F2:01:af	Broadcast	ARP	42 who has 192.168.236.254? Tell 192.168.236.238
1241 193.838477	Dell_F2:01:af	Broadcast	ARP	42 who has 192.168.236.254? Tell 192.168.236.238
1242 194.173126	NewMCTe_2f:30:a0	Dell_F2:01:af	ARP	60 who has 192.168.244.238? Tell 0.0.0.0
1246 195.174221	NewMCTe_2f:30:a0	Dell_F2:01:af	ARP	60 who has 192.168.244.238? Tell 0.0.0.0
1250 196.175803	NewMCTe_2f:30:a0	Dell_F2:01:af	ARP	60 who has 192.168.244.238? Tell 0.0.0.0
1255 197.175953	NewMCTe_2f:30:a0	Dell_F2:01:af	ARP	60 who has 192.168.244.238? Tell 0.0.0.0
1259 198.171687	Dell_F2:01:af	Broadcast	ARP	42 who has 192.168.236.254? Tell 192.168.236.238
1260 198.171707	Dell_F2:01:af	Broadcast	ARP	42 who has 192.168.236.254? Tell 192.168.236.238
1261 198.176048	NewMCTe_2f:30:a0	Dell_F2:01:af	ARP	60 who has 192.168.244.238? Tell 0.0.0.0
1262 198.838611	Dell_F2:01:af	Broadcast	ARP	42 who has 192.168.236.254? Tell 192.168.236.238
1263 198.838614	Dell_F2:01:af	Broadcast	ARP	42 who has 192.168.236.254? Tell 192.168.236.238
1267 199.177772	NewMCTe_2f:30:a0	Dell_F2:01:af	ARP	60 who has 192.168.244.238? Tell 0.0.0.0
1268 199.838648	Dell_F2:01:af	Broadcast	ARP	42 who has 192.168.236.254? Tell 192.168.236.238
1269 199.838656	Dell_F2:01:af	Broadcast	ARP	42 who has 192.168.236.254? Tell 192.168.236.238

经排查发现，现场5130上vlan224配置了arp snooping：

ARP Snooping表项的老化时间为25分钟，有效时间为15分钟。如果一个ARP Snooping表项自最后一次更新后12分钟内没有收到ARP更新报文，设备会向外主动发送一个ARP请求进行探测；但现场5130做二层交换机，vlan并没有配置地址，因此发送这个arp探测时，使用的源地址只能填充0.0.0.0。

实验室用三台交换机复现出来了类似的现象：

Sw1 (100.100.100.101) ---sw2 (只二层透传，配置arp snooping) ---sw3 (100.100.100.102)

在正常情况下在sw2上查看arp snooping表项为：

```
[2074-S7500E]dis arp snooping vlan 100
```

IP address	MAC address	VLAN ID	Interface	Aging Status
100.100.100.102	84d9-3123-a801	100	GE1/4/0/4	15 Valid
100.100.100.101	84d9-3123-b801	100	GE1/4/0/1	15 Valid

当老化时间到了12分钟，在SW1和SW2上可以收到如下arp报文：

```
<2032-s10504>*May 30 21:01:59:597 2021 2032-s10504 ARP/7/ARP_RCV: -MDC=1-Chassis=1-Slot=4; Received an ARP message, operation: 1, sender MAC: 3c8c-40c6-7e00, sender IP: 0.0.0.0, target MAC: 84d9-3123-b801, target IP: 100.100.100.101  
源IP为全0，源mac为SW2的mac地址，目的ip目的mac均为SW1上的地址。
```

综上，现场PC收到源IP全0的arp请求的原因是，在二层交换机上开启了arp snooping，设备在12分钟内没有收到arp更新就会发出源IP全0的arp探测报文，如果在12分钟内，有arp更新则不会发。

## 解决方法

- 1、配置vlan-interface地址;
- 2、取消arp snooping。

