

知 WX6112E作为DHCP server用户手机无法获取地址经验案例

DHCP

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WX6112E的机框作为DHCP server，用户采用本地转发模式。现场测试手机都获取不到地址，但是电脑获取地址正常。电脑获取地址后无法ping通网关。

手机MAC地址：20ab-3727-0f8e 电脑MAC：c417-fed1-88b6

在交换主控上收集debug信息对比，如下：

手机debug信息

DHCPServer: Receive DHCPDISCOVER from 20AB-3727-0F8E.

*Nov 28 10:26:58:643 2017 AHJH-WX6112E-B DHCPSPD/7/DHCPS_PACKET:

Rx, interface Vlan-interface85

Message type: request

Hardware type: 1, Hardware address length: 6

Hops: 0, Transaction ID: 1973605646

Seconds: 51, Broadcast flag: 0

Client IP address: 0.0.0.0 Your IP address: 0.0.0.0

Server IP address: 0.0.0.0 Relay agent IP address: 0.0.0.0

Client hardware address: 20ab-3727-0f8e

Server host name: Not Configured, Boot file name: Not Configured

DHCP message type: DHCP Discover

*Nov 28 10:26:58:643 2017 AHJH-WX6112E-B DHCPSPD/7/DHCPS_EVENT:

DHCPServer: Assign used lease from global pool.

*Nov 28 10:26:58:644 2017 AHJH-WX6112E-B DHCPSPD/7/DHCPS_PACKET:

Tx, interface Vlan-interface85

Message type: reply

Hardware type: 1, Hardware address length: 6

Hops: 0, Transaction ID: 1973605646

Seconds: 0, Broadcast flag: 0

Client IP address: 0.0.0.0 Your IP address: 172.85.2.175

Server IP address: 0.0.0.0 Relay agent IP address: 0.0.0.0

Client hardware address: 20ab-3727-0f8e

Server host name: Not Configured, Boot file name: Not Configured

DHCP message type: DHCP Offer

再无其他信息

电脑debug信息

*Nov 28 10:25:45:818 2017 AHJH-WX6112E-B DHCPSPD/7/DHCPS_EVENT:

DHCPServer: Receive DHCPREQUEST from C417-FED1-88B6.

*Nov 28 10:25:45:818 2017 AHJH-WX6112E-B DHCPSPD/7/DHCPS_PACKET:

Rx, interface Vlan-interface85

Message type: request

Hardware type: 1, Hardware address length: 6

Hops: 0, Transaction ID: 2613464159

Seconds: 0, Broadcast flag: 1

Client IP address: 0.0.0.0 Your IP address: 0.0.0.0

Server IP address: 0.0.0.0 Relay agent IP address: 0.0.0.0

Client hardware address: c417-fed1-88b6

Server host name: Not Configured, Boot file name: Not Configured

DHCP message type: DHCP Request

*Nov 28 10:25:45:819 2017 AHJH-WX6112E-B DHCPSPD/7/DHCPS_EVENT:

DHCPServer: Acknowledge the DHCPREQUEST message.

*Nov 28 10:25:45:819 2017 AHJH-WX6112E-B DHCPSPD/7/DHCPS_PACKET:

Tx, interface Vlan-interface85

Message type: reply

Hardware type: 1, Hardware address length: 6

Hops: 0, Transaction ID: 2613464159

Seconds: 0, Broadcast flag: 1

Client IP address: 0.0.0.0 Your IP address: 172.85.2.160

Server IP address: 0.0.0.0 Relay agent IP address: 0.0.0.0

Client hardware address: c417-fed1-88b6

Server host name: Not Configured, Boot file name: Not Configured

DHCP message type: DHCP Ack

从上述信息可以看出，手机获取地址的过程中，电脑没有收到dhcp request报文。电脑获取的过程中正常，达到了最后的dhcp ack过程。

查看设备的配置：

```
interface Vlan-interface85
ip address 172.85.0.1 255.255.255.0
#
dhcp server ip-pool vlan85pool
network 172.85.0.0 mask 255.255.0.0
gateway-list 172.85.0.1
dns-list 61.132.163.68 202.102.192.68
expired day 7
```

发现网关的地址掩码和地址池的掩码不一样。那为什么电脑可以正常获取地址呢？我们对比两个debug信息发现。电脑和手机发送报文的Broadcast flag字段数值不一样。flag字段代表dhcp报文类型不同。如果flag为1，代表终端要求dhcp服务器回复的dhcp offer为广播报文，如果flag为0，代表终端要求dhcp服务器回复的dhcp offer为单播报文。同理dhcp request的flag字段和dhcp discover字段的flag字段一样。

电脑发送的报文的Broadcast flag字段为1，和dhcp服务器交互的dhcp报文都是广播报文。因本地转发，dhcp server和电脑之间的链路，vlan都已经打通，广播可达，所以pc能获取到地址。手机发送的报文的Broadcast flag字段为0，发送给dhcp服务器的dhcp discover报文是广播报文，服务器回复的offer报文是单播报文。因dhcp server上172.85.0.1 地址掩码错误的配置成了24位，与172.85.2.175地址不是同网段，导致报文无法二层可达，最终手机无法获取地址。因网关地址和172.85.2.160地址也不是同网段，所以电脑无法ping通网关。

修改网关掩码和地址池掩码一致即可解决问题。