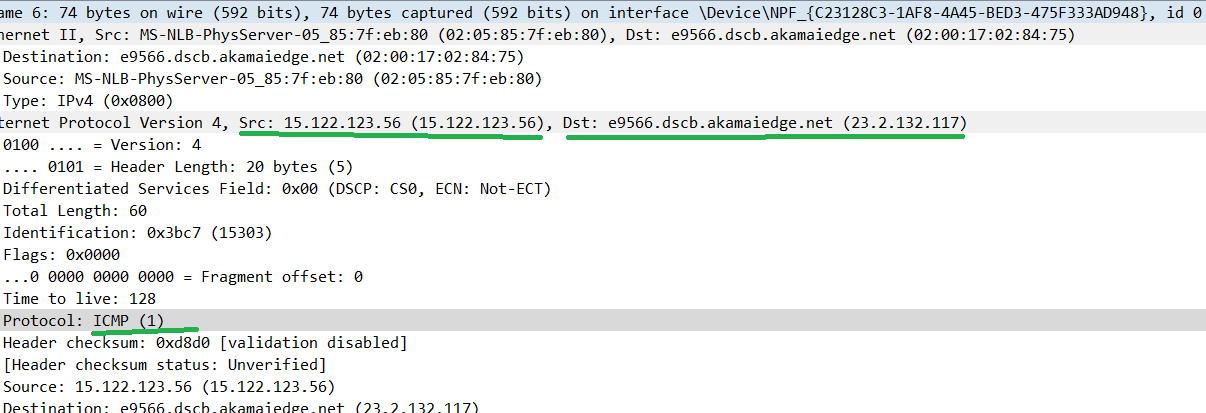
1.

a. source IP address is 15.122.123.56, destination IP address is 23.2.132.117



b. the upper-layer protocol is ICMP.

c. IP header length is 20 bytes.

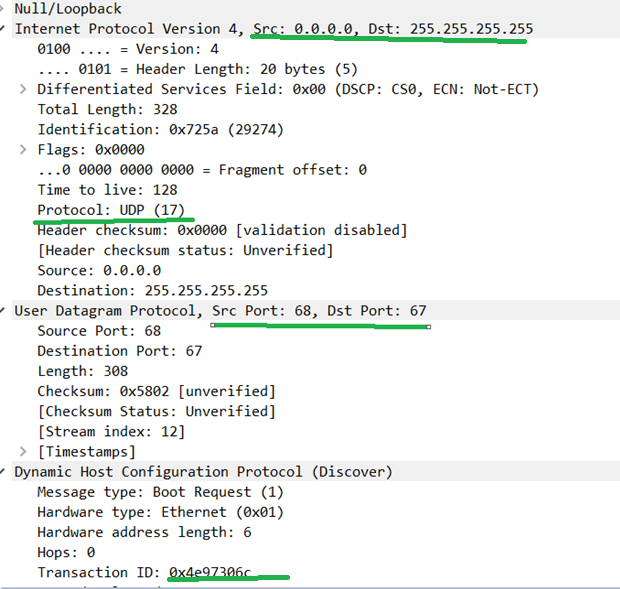
d. payload length for IP packet is total length 60 – header length 20 = 40

e. TTL is acronym of Time To Live, value is 128 in the IP packet. The TTL value is set by sender, reduced by every router on the route to the destination, if the value is reduced to zero before it reach the destination, the packet is discarded.

f. the source IP and destination IP addresses shows whether the packet is if IPv4 or IPv6 format.

2.

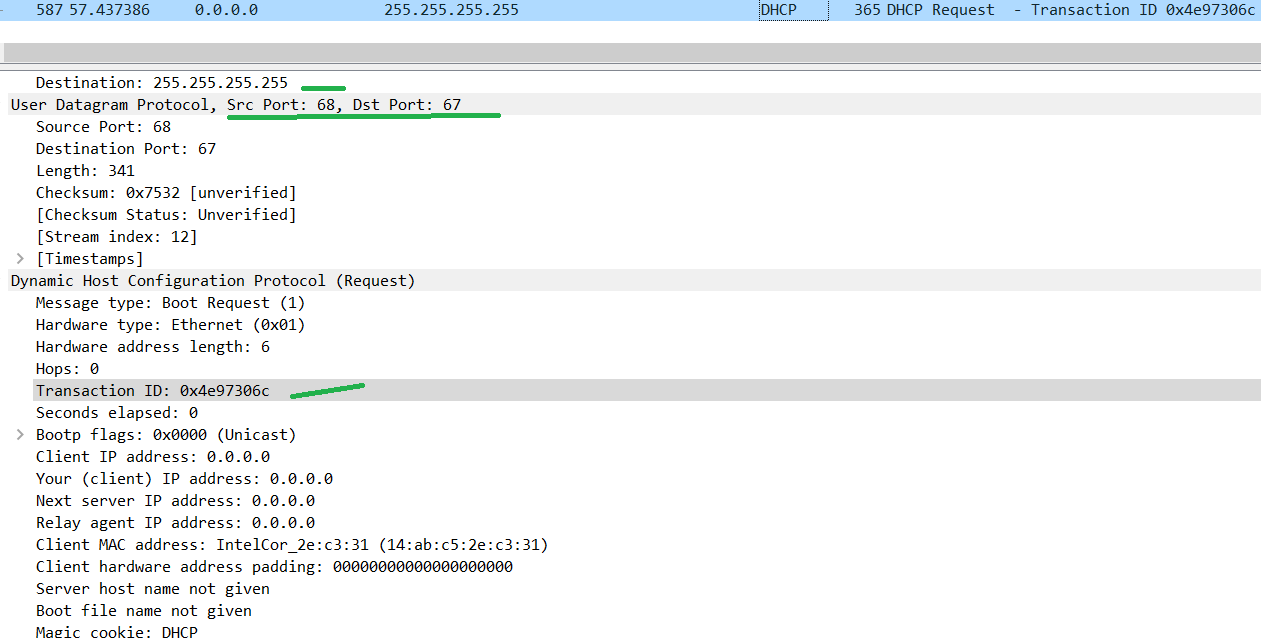
a. we can see from following screenshot, DHCP uses UDP in the transport layer. The reason it uses UDP rather than TCP is due to the nature of TCP and UDP, TCP transport requires pre-established connection while UDP does not, since the client server does not have an IP address therefore does not have internet access yet, it is impossible to establish a connection at the time.



b. source port is 68 and destination port is 67 as shown in the User Datagram Protocol section above.

c. the transaction ID in the discovery packet is 0x4e97306c.

e. source IP is 0.0.0.0, destination IP is 255.255.255.255, Your (client) IP address is 0.0.0.0, transaction ID is 0x4e97306c, and lifetime (Time To Live) is 128



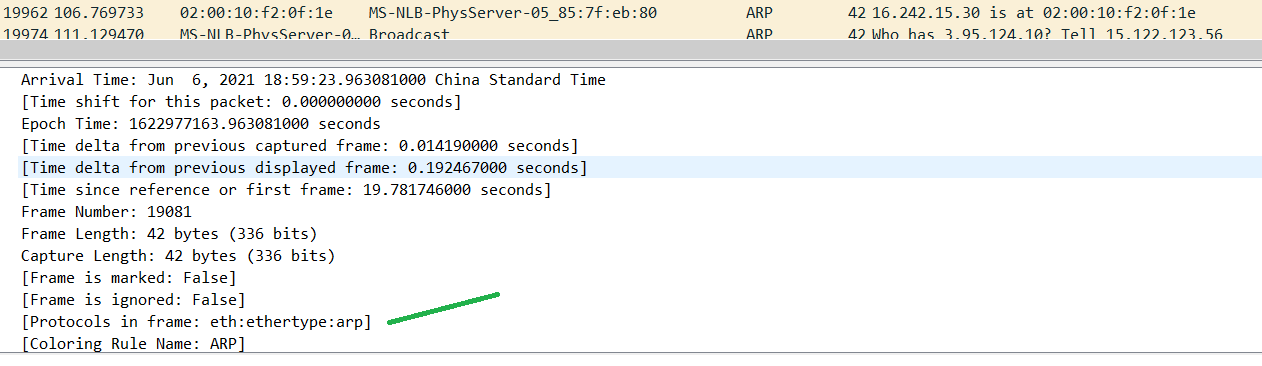
f. for unknown reason, I cannot find the offer packet but a second discovery packet as below.

Text

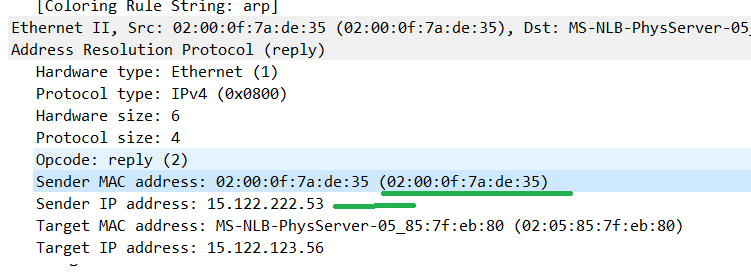
Description automatically generated

3.

a. the protocol is ARP. The broadcast MAC address is 02:05:85:7f:eb:80. The IP address is 15.122.222.53 for which the request was intended to find out MAC



b. the sender’s IP is 15.122.222.53, with MAC 02:00:0f:7a:de:35



4. a. source MAC is 14:ab:c5:2e:c3:31, destination MAC is c4:44:7d:bb:52:ed

