Project 2

Wireshark Lab: DHCP

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CSIT-340-11 Computer Networks

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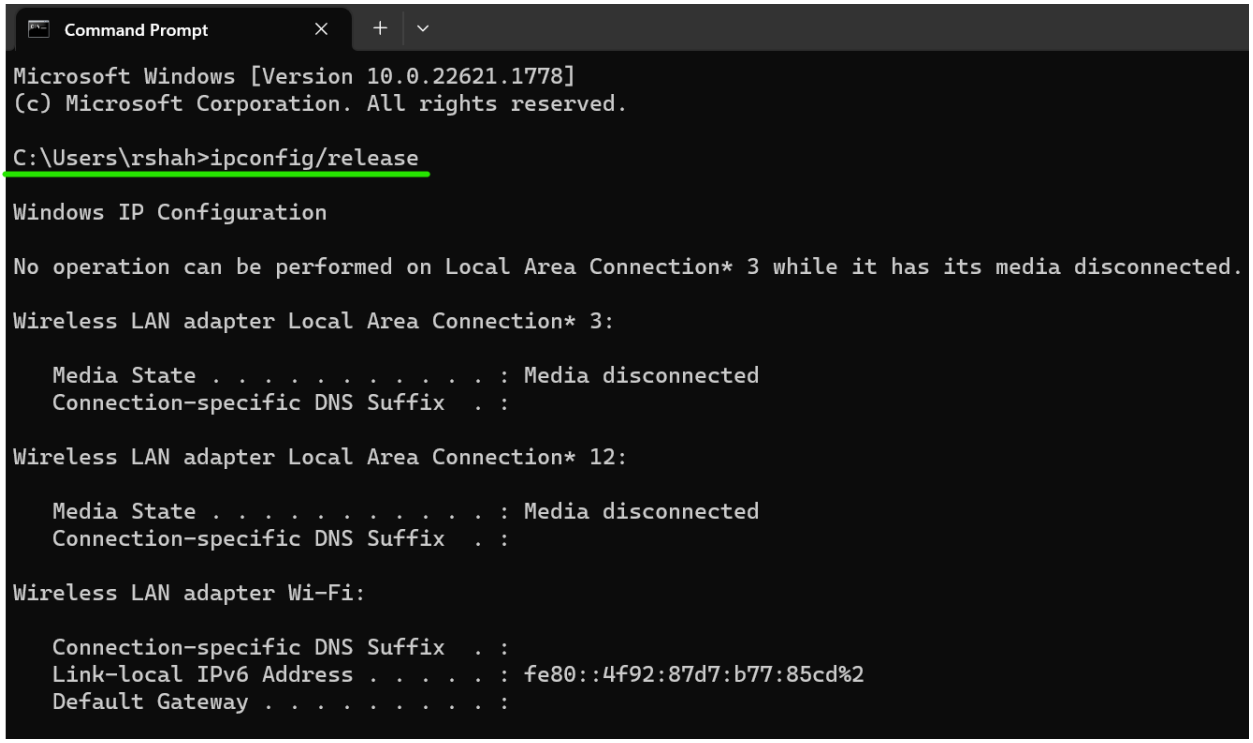
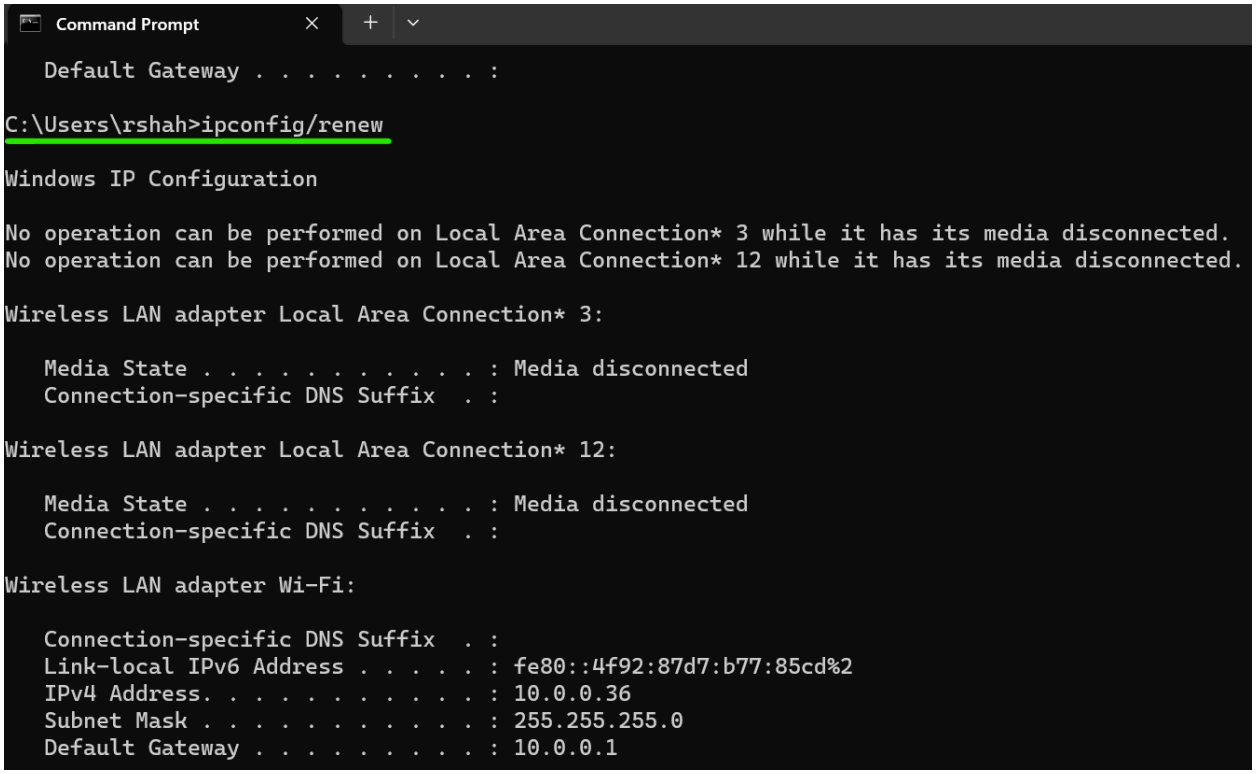
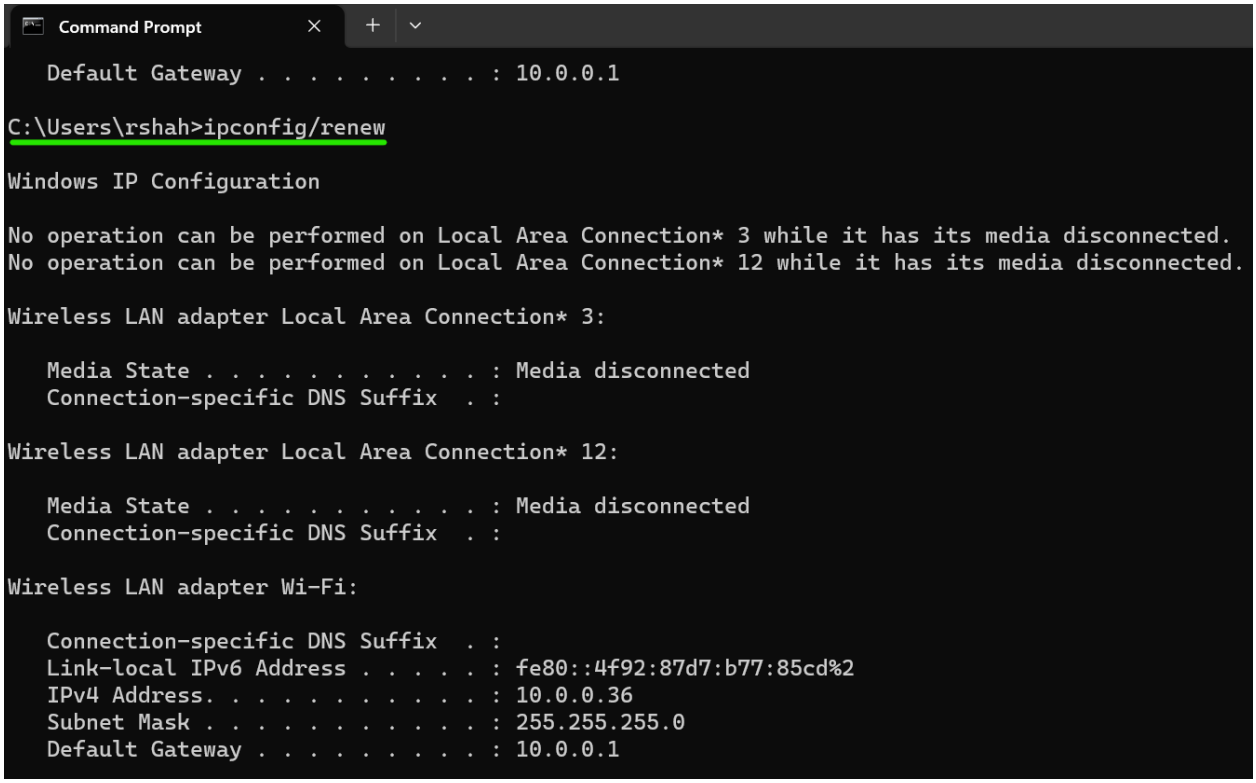
Enter “ipconfig/release” in command prompt:



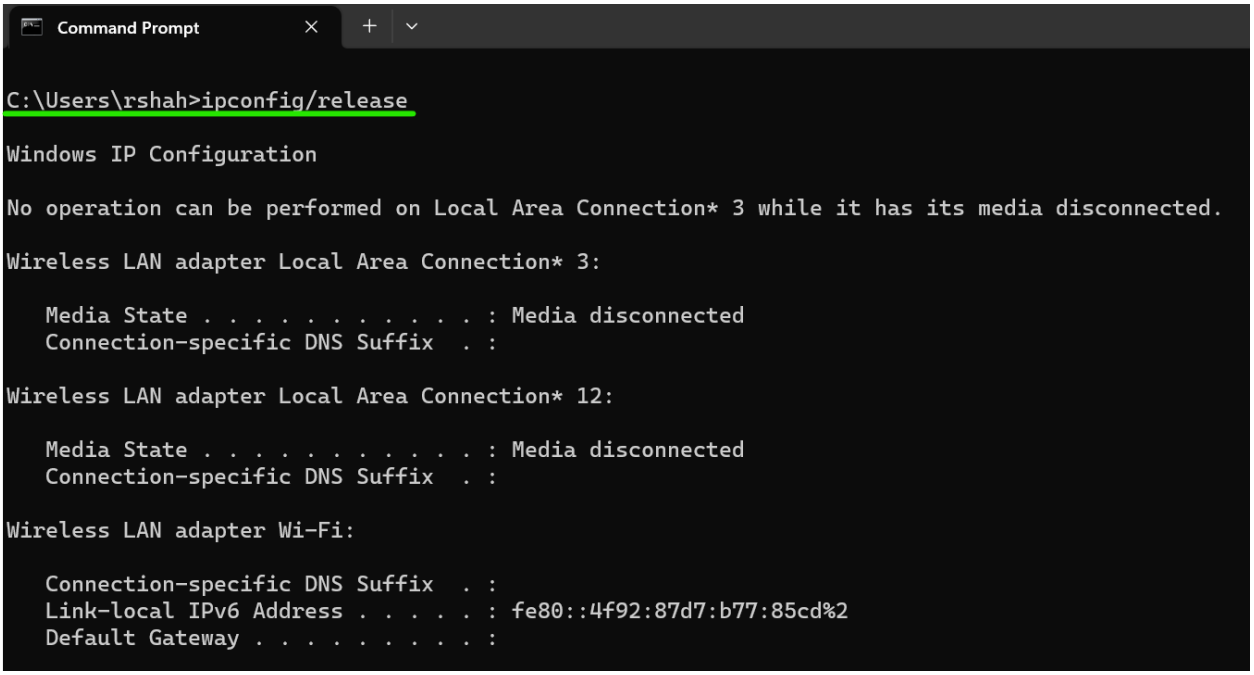
Enter “ipconfig/renew” in command prompt:



Enter the same command “ipconfig/renew” again:



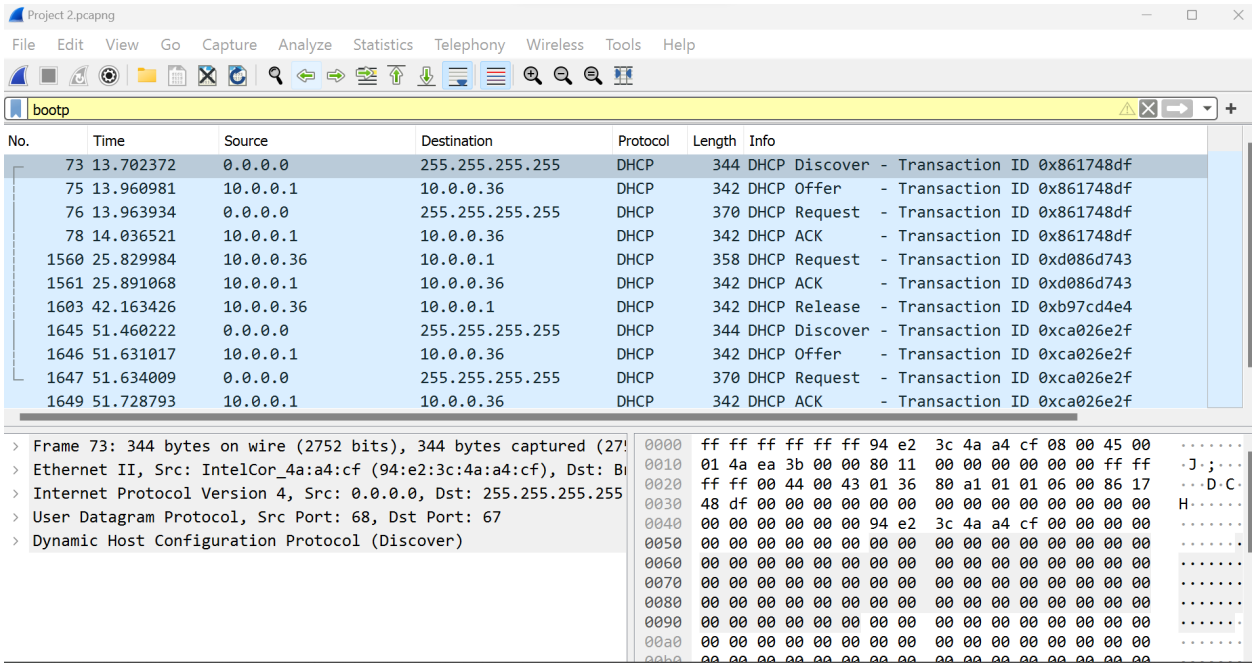
Enter “ipconfig/release” command:



Enter “ipconfig/renew” command:

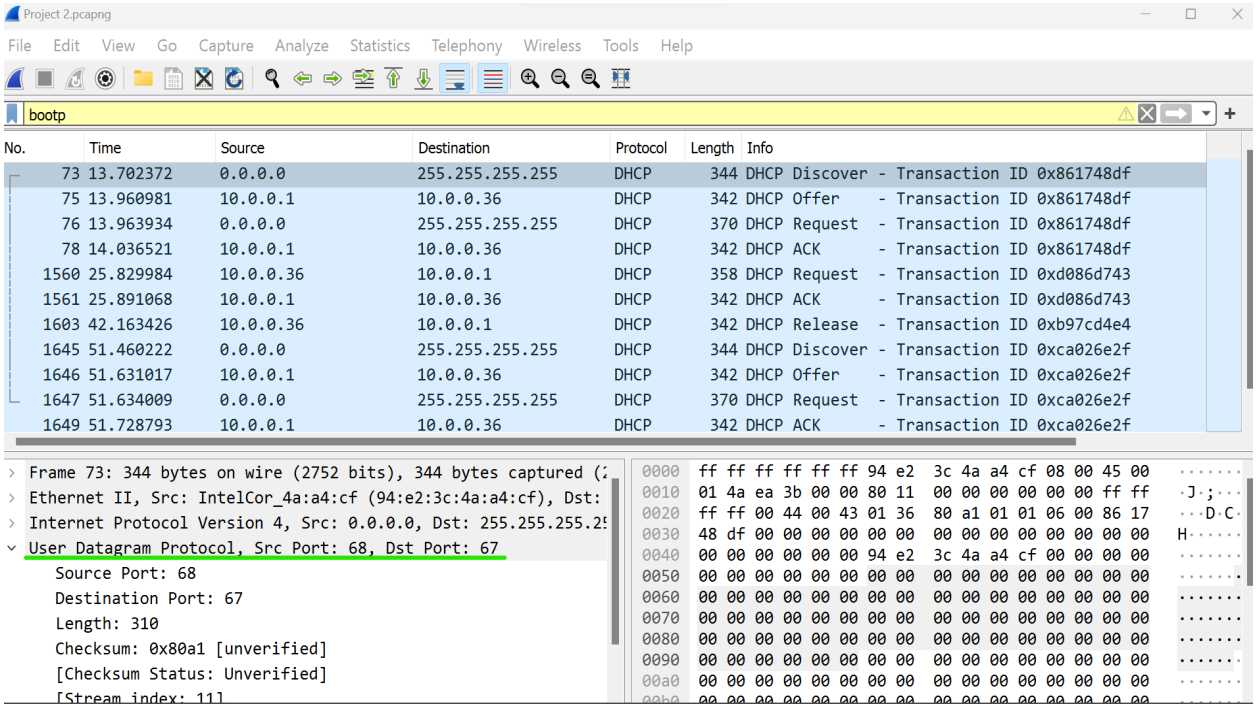
```
Command Prompt
   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::4f92:87d7:b77:85cd%2
   Default Gateway . . . . . . . . . :

C:\Users\rshah>ipconfig/renew

Windows IP Configuration

No operation can be performed on Local Area Connection* 3 while it has its media disconnected.
No operation can be performed on Local Area Connection* 12 while it has its media disconnected.

Wireless LAN adapter Local Area Connection* 3:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 12:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::4f92:87d7:b77:85cd%2
   IPv4 Address. . . . . . . . . . . : 10.0.0.36
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 10.0.0.1

C:\Users\rshah>
```

To see only DHCP packets, enter “bootp”:

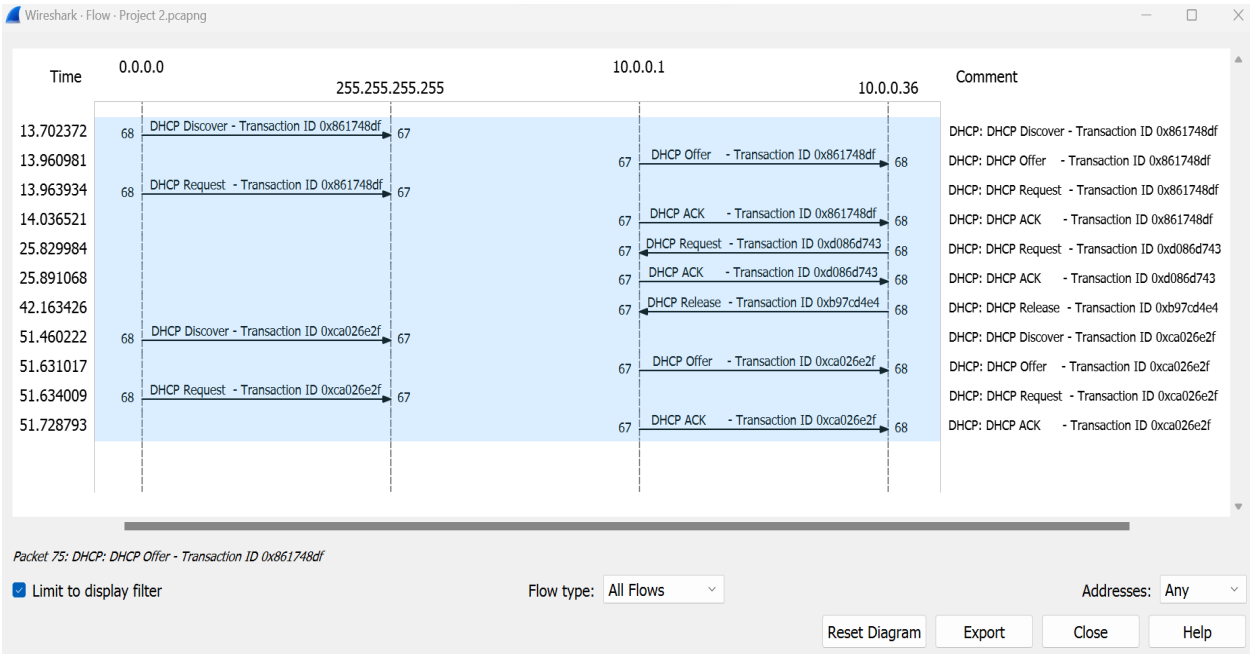


1. **Are DHCP messages sent over UDP or TCP?**

   DHCP messages are sent over UDP.



2. **Draw a timing datagram illustrating the sequence of the first four-packet Discover/Offer/Request/ACK DHCP exchange between the client and server. For each packet, indicate the source and destination port number. Are the port numbers the same as in the example given in this lab assignment?**



Discover - Src Port: 68 Dst Port: 67

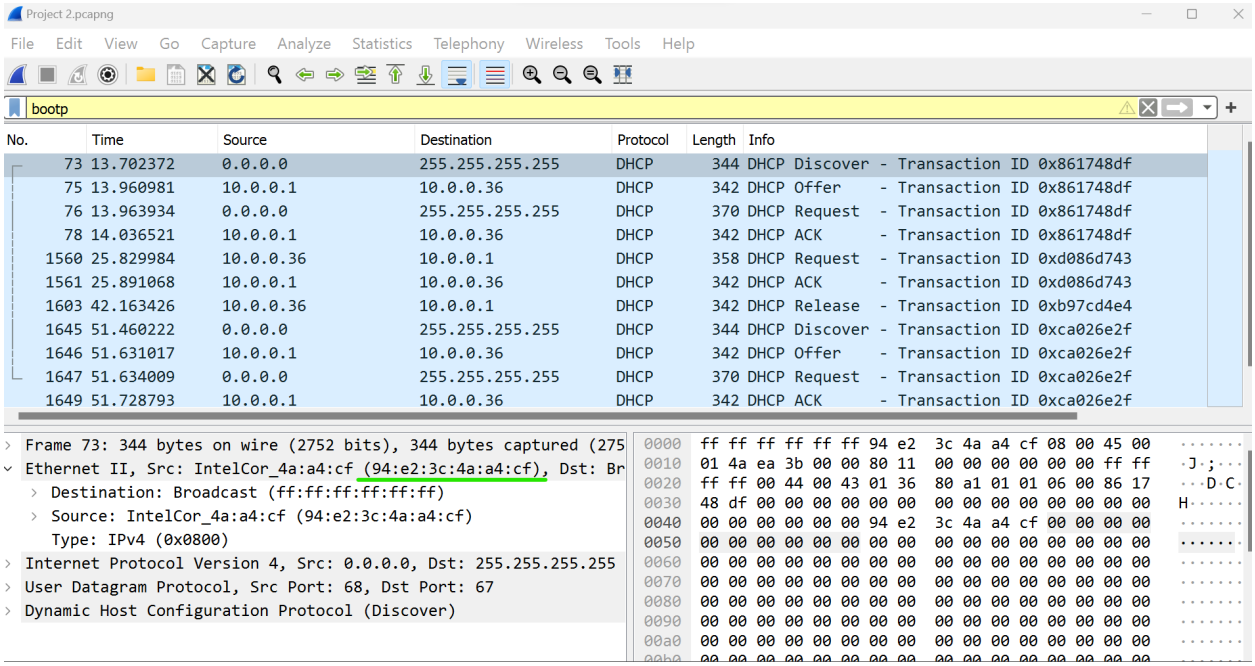
Offer - Src Port: 67 Dst Port: 68

Request - Src Port: 68 Dst Port: 67

ACK - Src Port: 67 Dst Port: 68

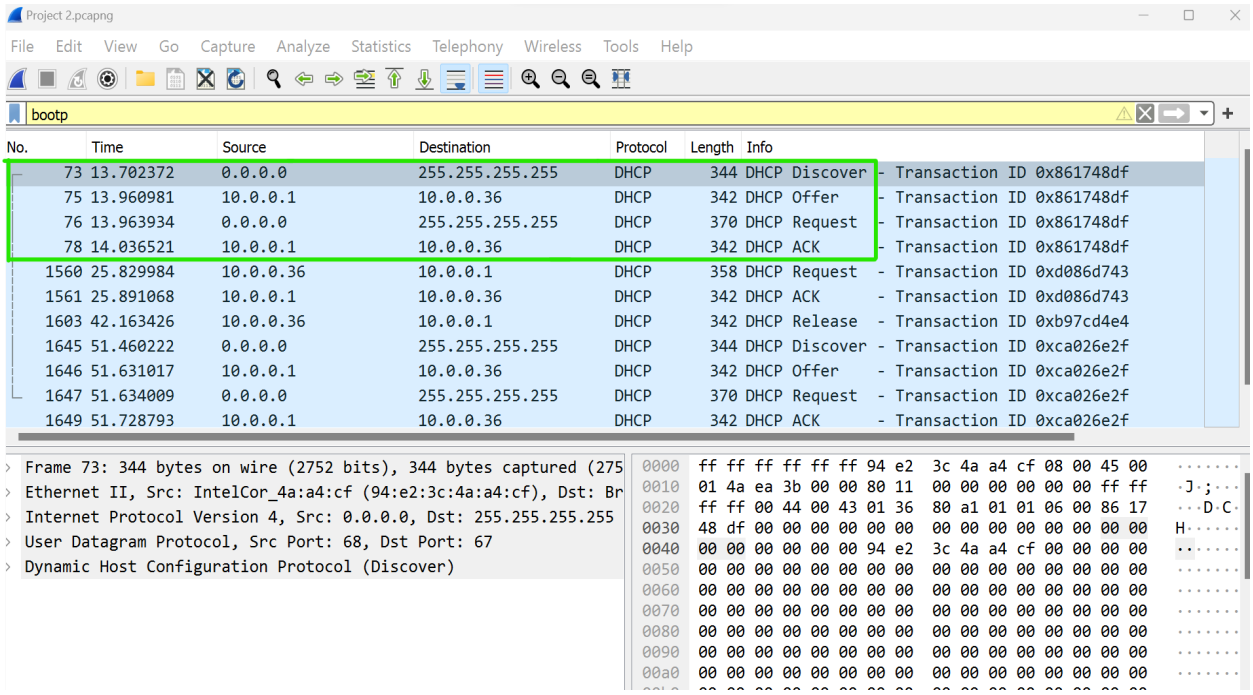
The port numbers are the same as in the example given.

3. **What is the link-layer (e.gEthernet) address of your host?**



The link-layer address of my host is 94:e2:3c:4a:a4:cf

4. **A host uses DHCP to obtain an IP address, among other things. But a host's IP address is not confirmed until the end of the four-message exchange! If the IP address is not set until the end of the four-message exchange, then what values are used in the IP datagrams in the four-message exchange? For each of the four DHCP messages (Discover/Offer/Request/ACK DHCP), indicate the source and destination IP addresses that are carried in the encapsulating IP datagram.**



Discover - Source: 0.0.0.0 Destination: 255.255.255.255

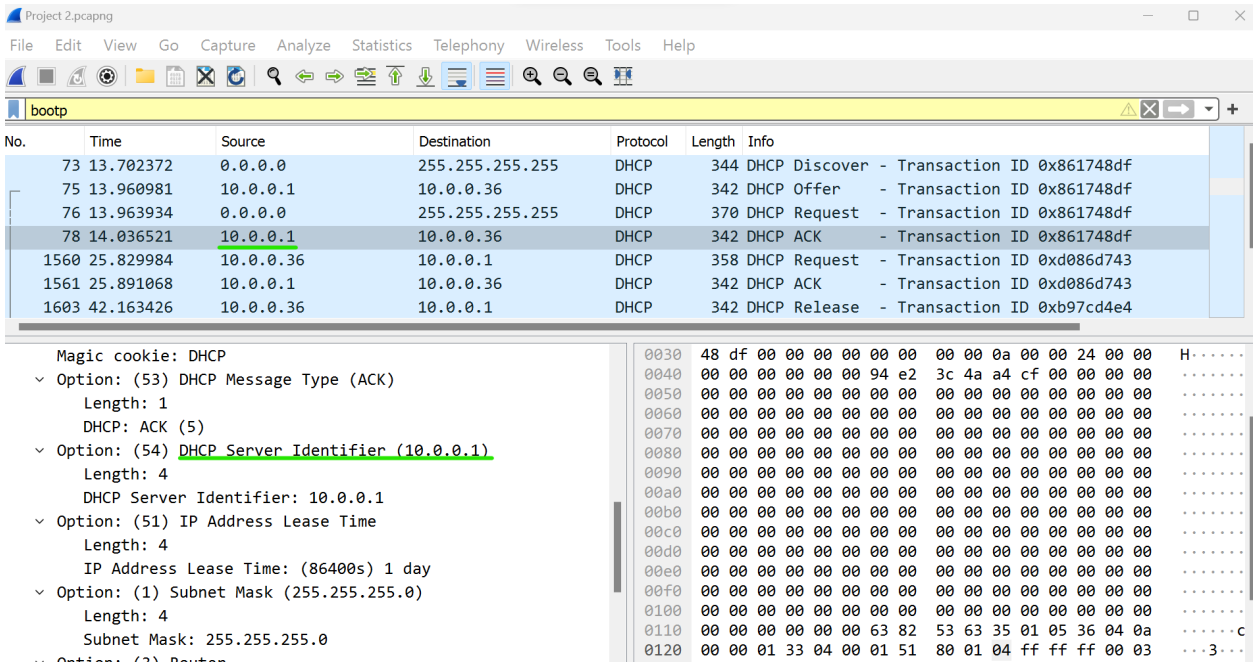
Offer - Source: 10.0.0.1 Destination: 10.0.0.36

Request - Source: 0.0.0.0 Destination: 255.255.255.255

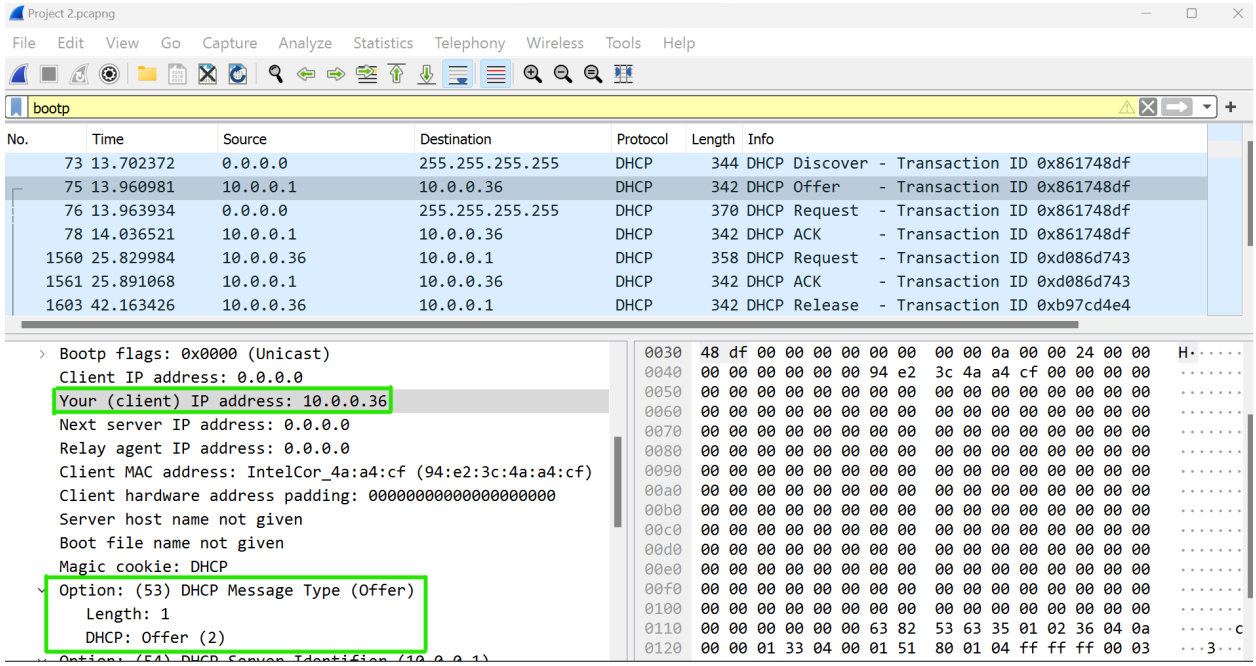
ACK DHCP - Source: 10.0.0.1 Destination: 10.0.0.36

5. **What is the IP address of your DHCP server?**

The IP address of my DHCP server is 10.0.0.1



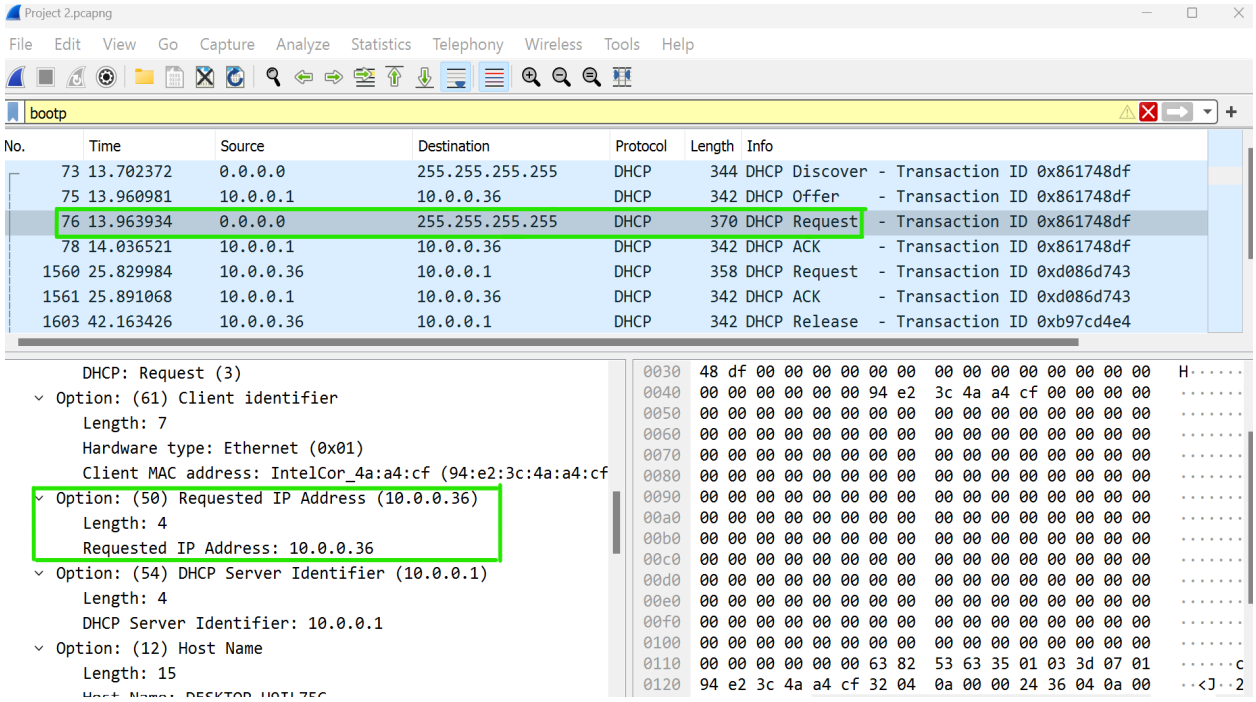
6. What IP address is the DHCP server offering to your host in the DHCP offer message? Indicate which DHCP message contains the offered DHCP address.



The IP address in which the DHCP server is offering to my host in the DHCP Offer message is 10.0.0.36

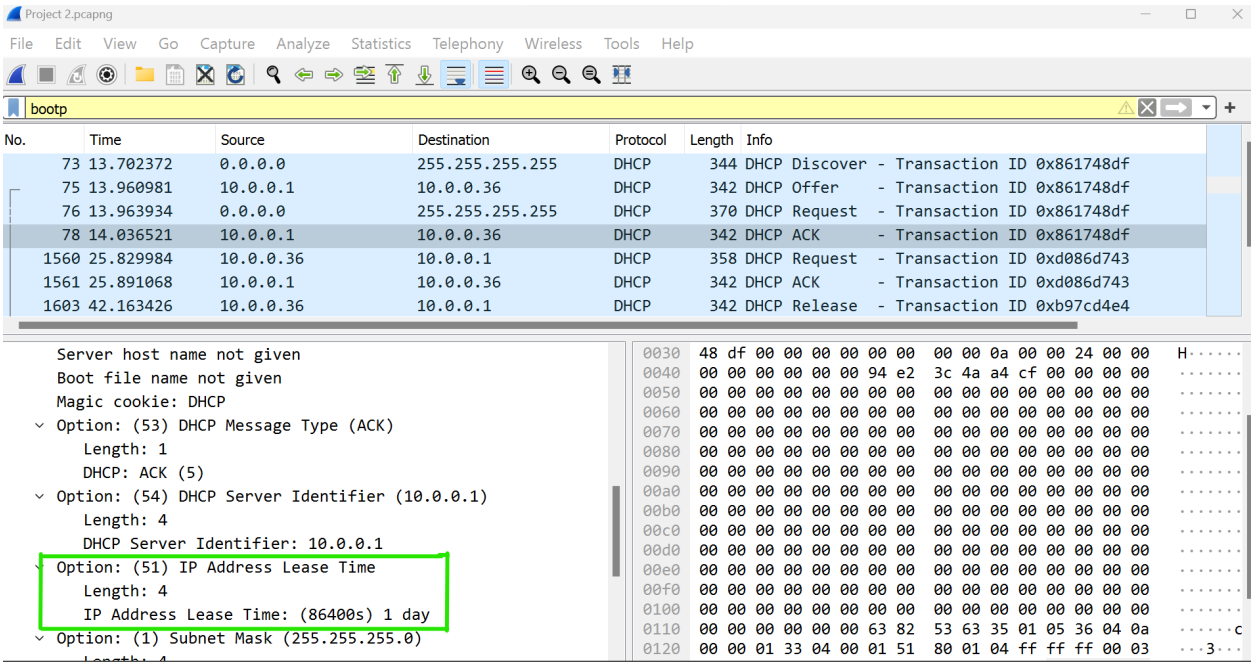
Option 53 contains the DHCP message type with length of 1 and the DHCP offer is (2).

7. **In the DHCP trace file noted in footnote 2, the DHCP server offers a specific IP address to the client (see also question 8. above). In the client's response to the first server OFFER message, does the client accept this IP address? Where in the client's RESPONSE is the client's requested address?**



The client accepts the IP address given in the offer message within the request message. After being offered the IP address 10.0.0.36 in the offer message, the client sent back a message further requesting that specific IP address.

12. Explain the purpose of the lease time. How long is the lease time in your experiment?



The purpose of lease time is to tell the client how long they can use the specific IP address assigned by the server before they will have to be assigned a new one. The lease time in my experiment is (86400s) 1 day.