1. Are DHCP messages sent over UDP or TCP?

UDP.

1. 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, indicated the source and destination port numbers. Are the port numbers the same as in the example given in this lab assignment?
2. What is the link-layer (e.g., Ethernet) address of your host?

A screen shot of a computer

Description automatically generated

1. What values in the DHCP discover message differentiate this message from the DHCP request message?

A close up of a message

Description automatically generated

1. What is the value of the Transaction-ID in each of the first four (Discover/Offer/Request/ACK) DHCP messages? What are the values of the Transaction-ID in the second set (Request/ACK) set of DHCP messages? What is the purpose of the Transaction-ID field

A screenshot of a computer

Description automatically generated?

1. 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

The DCHP client and server both use 255.255.255.255 as the destination address. The client uses source IP address 0.0.0.0, while the server uses its actual IP address as the source.

1. What is the IP address of your DHCP server?

192.168.1.1

1. 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.

192.168.1.101, and it was contained in the DHCP offer packet.

1. In the example screenshot in this assignment, there is no relay agent between the host and the DHCP server. What values in the trace indicate the absence of a relay agent? Is there a relay agent in your experiment? If so what is the IP address of the agent?

Nope. 0.0.0.o means no relay

1. Explain the purpose of the router and subnet mask lines in the DHCP offer message.

The IP address for the router identifies the default internet gateway. The subnet mask defines the subnet that is available.

1. 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?

Yes the client accepts.

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

8 days – it’s there so that the DHCP server knows not to give it to anyone else while, so brief network disruptions don’t cause the client to lose the IP.

1. What is the purpose of the DHCP release message? Does the DHCP server issue an acknowledgment of receipt of the client’s DHCP request? What would happen if the client’s DHCP release message is lost?

Says that you don’t want the IP anymore. Nothing happens, the DHCP server just holds onto it until the end of the lease and adds it to the DHCP pool.

1. Clear the bootp filter from your Wireshark window. Were any ARP packets sent or received during the DHCP packet-exchange period? If so, explain the purpose of those ARP packets.

Yes, there was arp packets just to find which server is the IP address using the MAC address.