

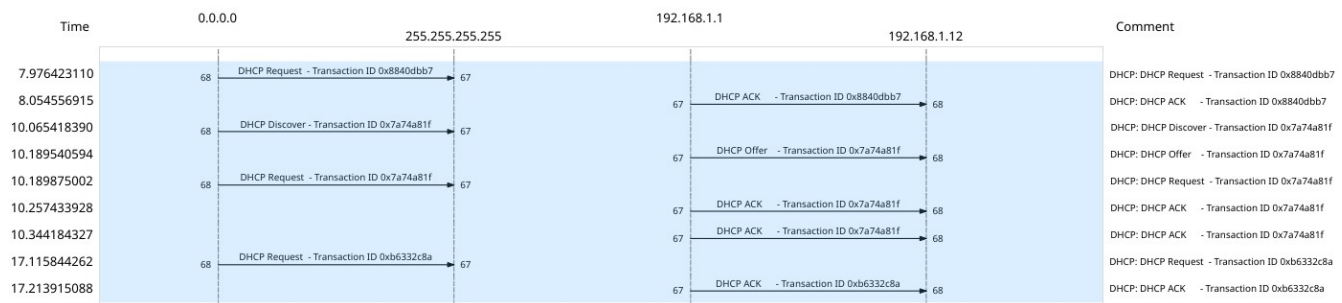
Assignment – 1 (DHCP)

1. Are DHCP messages sent over UDP or TCP?

A. 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 numbers.

A.



3. What is the link-layer (e.g., Ethernet) address of your host?

A. Ethernet address of my host is b8:9a:2a:71:fa:4d

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

A. Both DHCP messages differ in the DHCP Message Type field, and the DHCP Request message contains the DHCP server identifier field value.

5. 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. The Transaction-ID value in each of the first four DHCP messages is 0x7a74a81f.

The Transaction-ID in the second set (Request/ACK) set of DHCP message is 0xb6332c8a.

The Transaction-ID field in DHCP messages serves to uniquely identify each DHCP transaction, prevent duplicate responses from DHCP servers, and enhance message integrity and security.

6. 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.

A.

No.	Time	Source	Destination	Protocol	Length	Info
33	7.976423110	0.0.0.0	255.255.255.255	DHCP	324	DHCP Request - Transaction ID 0x8840dbb7
34	8.054556915	192.168.1.1	192.168.1.12	DHCP	328	DHCP ACK - Transaction ID 0x8840dbb7
90	10.065418390	0.0.0.0	255.255.255.255	DHCP	342	DHCP Discover - Transaction ID 0x7a74a81f
92	10.189540594	192.168.1.1	192.168.1.12	DHCP	328	DHCP Offer - Transaction ID 0x7a74a81f
93	10.189875002	0.0.0.0	255.255.255.255	DHCP	342	DHCP Request - Transaction ID 0x7a74a81f
95	10.257433928	192.168.1.1	192.168.1.12	DHCP	328	DHCP ACK - Transaction ID 0x7a74a81f
97	10.344184327	192.168.1.1	192.168.1.12	DHCP	328	DHCP ACK - Transaction ID 0x7a74a81f
174	17.115844262	0.0.0.0	255.255.255.255	DHCP	324	DHCP Request - Transaction ID 0xb6332c8a
175	17.213915088	192.168.1.1	192.168.1.12	DHCP	328	DHCP ACK - Transaction ID 0xb6332c8a

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

A. The IP address of my DHCP server is 192.168.1.1

8. 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.

A. DHCP server is offering 192.168.1.12 IP address to my host in the DHCP Offer message.

The DHCP Offer message contains the offered DHCP address.

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

A. The purpose of the lease time is to tell the client how long they can use the specific IP address by the server before they will have to be assigned a new one.

The lease time in my experiment is 86400 seconds.

10. Were any ARP packets sent or received during the DHCP packet-exchange period? If so, explain the purpose of those ARP packets.

A. During the DHCP packet-exchange period, ARP packets were sent.

The purpose of these ARP packets is that before offering an IP address to a

client, the DHCP server issues an ARP request to ensure that the offered IP address is not already in use by another workstation.