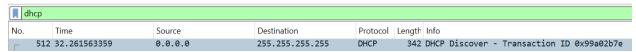
## **Assignment 9**

## **DHCP**

- **1.** The DHCP Discover message is sent out using **UDP** as the underlying transport protocol.
- 2. Source IP address: 0.0.0.0

The 0.0.0.0 IP address indicates that the source hasn't been allotted any IP address yet and therefore it is using the default IP address as 0.0.0.0



3. Destination IP address: 255,255,255.255

This means that just like a network broadcast IP this message will be transmitted to all network adapters on the local network segment.

4. Transaction ID: 0x99a02b7e

Transaction ID: 0x99a02b7e

- **5.** The pieces of information that the client is suggesting or requesting to receive from the DHCP server as part of this DHCP transaction are:
- a. DHCP message type
- b. Host Name
- c. Parameter Request List
  - > Option: (53) DHCP Message Type (Discover)
  - > Option: (50) Requested IP Address (10.250.61.42)
  - > Option: (12) Host Name
  - > Option: (55) Parameter Request List
  - > Option: (255) End
- 6. The Discover and the offer message has the same transaction IDs (i.e. 0x99a02b7e)



7. Source IP address: 10.250.61.250

This is the IP address of the DHCP server.

dhcp							
No.	Time	Source	Destination	Protocol	Length In	nfo	
512	32.261563359	0.0.0.0	255.255.255.255	DHCP	342 DI	HCP Discover	- Transaction ID 0x99a02b7e
<sub>-</sub> 513	3 32.262360757	10.250.61.250	10.250.61.60	DHCP	316 DH	HCP Offer	- Transaction ID 0x99a02b7e

8. Destination IP address: 10.250.61.60

This is the new IP address that will be allotted to the client.

- **9.** The pieces of information that the DHCP server is providing to the DHCP client in the DHCP offer message are:
- a. DHCP Message Type (Offer)
- b. DHCP Server Identifier (10.240.200.1)
- c. IP Address Lease Time
- d. Subnet Mask (255.255.248.0)
- e. Domain Name server
- f. Router
  - > Option: (51) IP Address Lease Time
  - > Option: (53) DHCP Message Type (Offer)
  - > Option: (1) Subnet Mask (255.255.255.0)
  - > Option: (54) DHCP Server Identifier (10.250.61.250)
  - > Option: (3) Router
  - > Option: (6) Domain Name Server
  - > Option: (255) End

## 10. UDP Source Port: 68

UDP Destination Port: 67

L 515 32.262791570	0.0.0.0	255.255.255.255	DHCP	342 DHCP Request	- Transaction ID 0x99a02b7e
516 32.263695737	10.250.61.250	10.250.61.60	DHCP	316 DHCP ACK	- Transaction ID 0x99a02b7e
∨ User Datagram Protocol,	Src Port: 68, Dst Por	t: 67			ff ff ff ff ff d8 5e d3 54
Source Port: 68					01 48 00 00 00 00 80 11 39 96 ff ff 00 44 00 43 01 34 63 8c
Destination Port: 67					2h 7a aa aa aa aa aa aa aa aa

**11.** Source IP address: **0.0.0.0** 

It would be 0.0.0.0 because the host doesn't have an IP address assigned to it yet.

12. Destination IP address: 255.255.255.255

This means that just like a network broadcast IP this message will be transmitted to all network adapters on the local network segment.

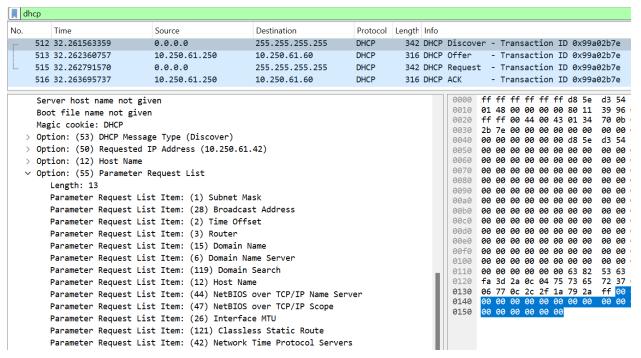
13. Transaction ID: 0x99a02b7e

L	515 32.262791570 516 32.263695737	0.0.0.0 10.250.61.250	255.255.255.255 10.250.61.60	DHCP DHCP	342 DHCP Request 316 DHCP ACK	- Transaction ID 0x99a02b7e - Transaction ID 0x99a02b7e	
	Transaction ID: 0x99	9a02b7e			0000	ff ff ff ff ff d8 5e d3 54	ŀ

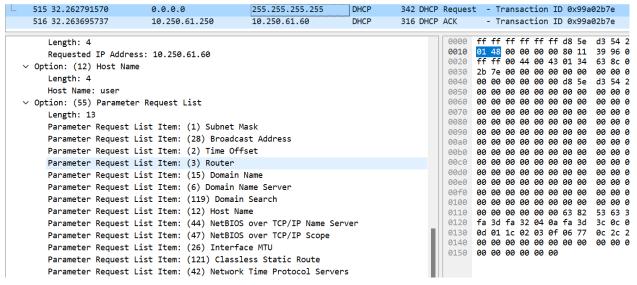
Yes, it matches the transaction ID of the earlier Discover message and Offer message.

**14.** There is **no difference** between the entries in the '**Parameter Request List**' option in the request message and the same list option in the earlier Discover message.

The Discover message



## The Request message

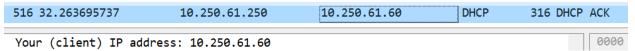


15. Source IP address: 10.250.61.250

This is the IP address of the DHCP server.

16. Destination IP address: 10.250.61.60

This is the new IP address that will be allotted to the client.



- **17.** The name of the field in the DHCP ACK message that contains the assigned client IP address is: **Your (client) IP address**
- **18.** The DHCP server assigned this IP address to the client for **2 hours**.

∨ Option: (51) IP Address Lease Time

Length: 4

IP Address Lease Time: 2 hours (7200)

**19.** The IP address of the first-hop router on the default path from the client to the rest of the Internet is: **10.250.61.250** 

∨ Option: (3) Router

Length: 4

Router: 10.250.61.250