

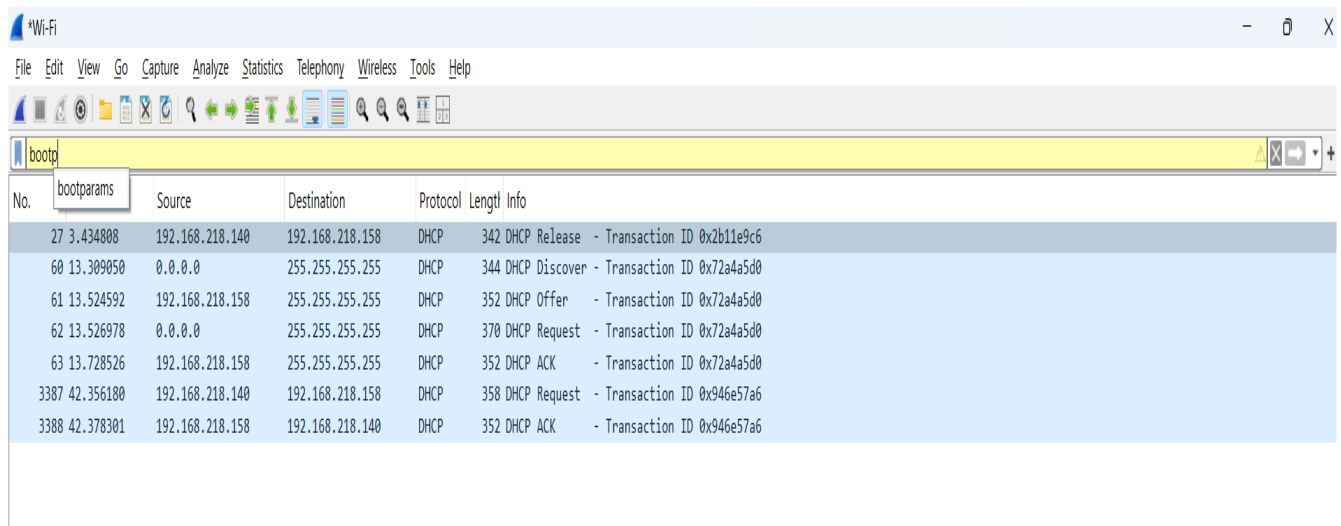
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Registration No:21BCE0527

Network Training Programme

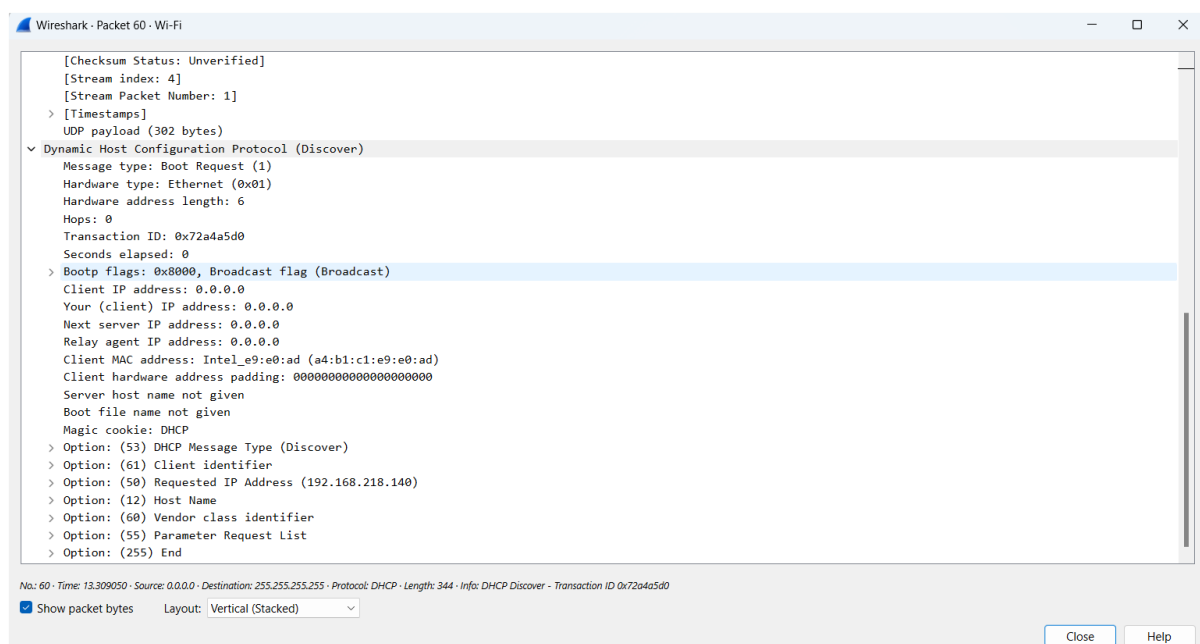
Module 5

Q4. Use Wireshark to capture DHCP Discover, Offer, Request, and Acknowledge messages and explain the process.



No.	bootp	Source	Destination	Protocol	Length	Info
27	3.434808	192.168.218.140	192.168.218.158	DHCP	342	DHCP Release - Transaction ID 0x2b11e9c6
60	13.309050	0.0.0.0	255.255.255.255	DHCP	344	DHCP Discover - Transaction ID 0x72a4a5d0
61	13.524592	192.168.218.158	255.255.255.255	DHCP	352	DHCP Offer - Transaction ID 0x72a4a5d0
62	13.526978	0.0.0.0	255.255.255.255	DHCP	370	DHCP Request - Transaction ID 0x72a4a5d0
63	13.728526	192.168.218.158	255.255.255.255	DHCP	352	DHCP ACK - Transaction ID 0x72a4a5d0
3387	42.356180	192.168.218.140	192.168.218.158	DHCP	358	DHCP Request - Transaction ID 0x946e57a6
3388	42.378301	192.168.218.158	192.168.218.140	DHCP	352	DHCP ACK - Transaction ID 0x946e57a6

DHPC Discover



Wireshark - Packet 60 - Wi-Fi

[Checksum Status: Unverified]
[Stream index: 4]
[Stream Packet Number: 1]
> [Timestamps]
UDP payload (302 bytes)

Dynamic Host Configuration Protocol (Discover)

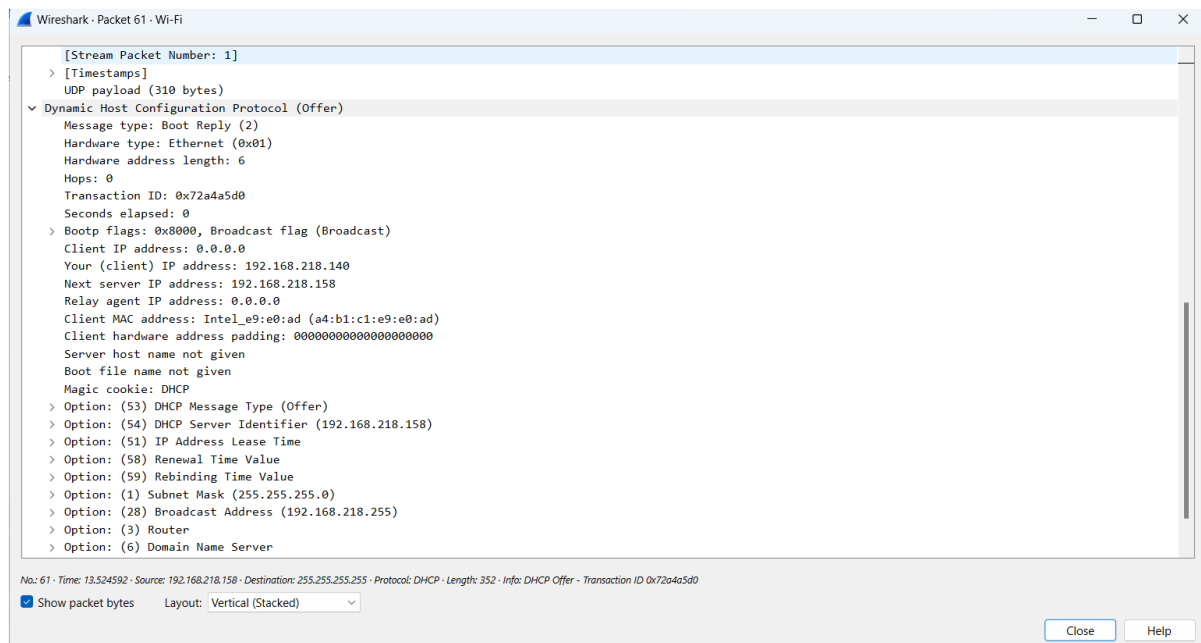
- Message type: Boot Request (1)
- Hardware type: Ethernet (0x01)
- Hardware address length: 6
- Hops: 0
- Transaction ID: 0x72a4a5d0
- Seconds elapsed: 0
- Bootp flags: 0x8000, Broadcast flag (Broadcast)
- Client IP address: 0.0.0.0
- Your (client) IP address: 0.0.0.0
- Next server IP address: 0.0.0.0
- Relay agent IP address: 0.0.0.0
- Client MAC address: Intel_e9:e0:ad (a4:b1:c1:e9:e0:ad)
- Client hardware address padding: 00000000000000000000
- Server host name not given
- Boot file name not given
- Magic cookie: DHCP
- > Option: (53) DHCP Message Type (Discover)
- > Option: (61) Client identifier
- > Option: (50) Requested IP Address (192.168.218.140)
- > Option: (12) Host Name
- > Option: (60) Vendor class identifier
- > Option: (55) Parameter Request List
- > Option: (255) End

No.: 60 - Time: 13.309050 - Source: 0.0.0.0 - Destination: 255.255.255.255 - Protocol: DHCP - Length: 344 - Info: DHCP Discover - Transaction ID 0x72a4a5d0

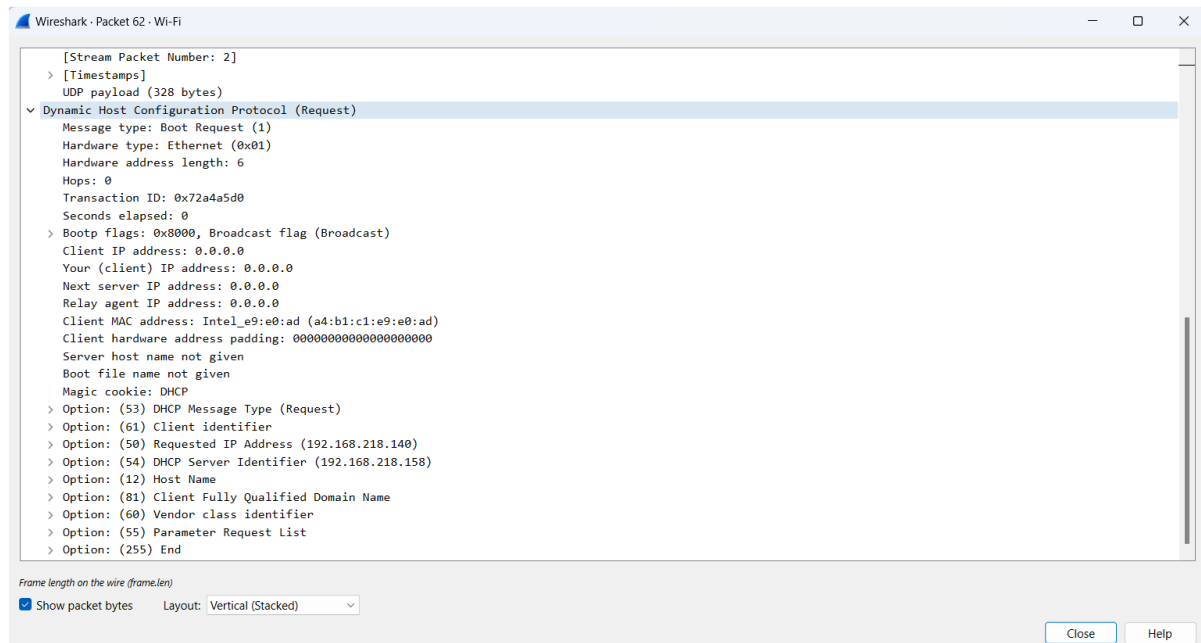
☒ Show packet bytes Layout: Vertical (Stacked)

Close Help

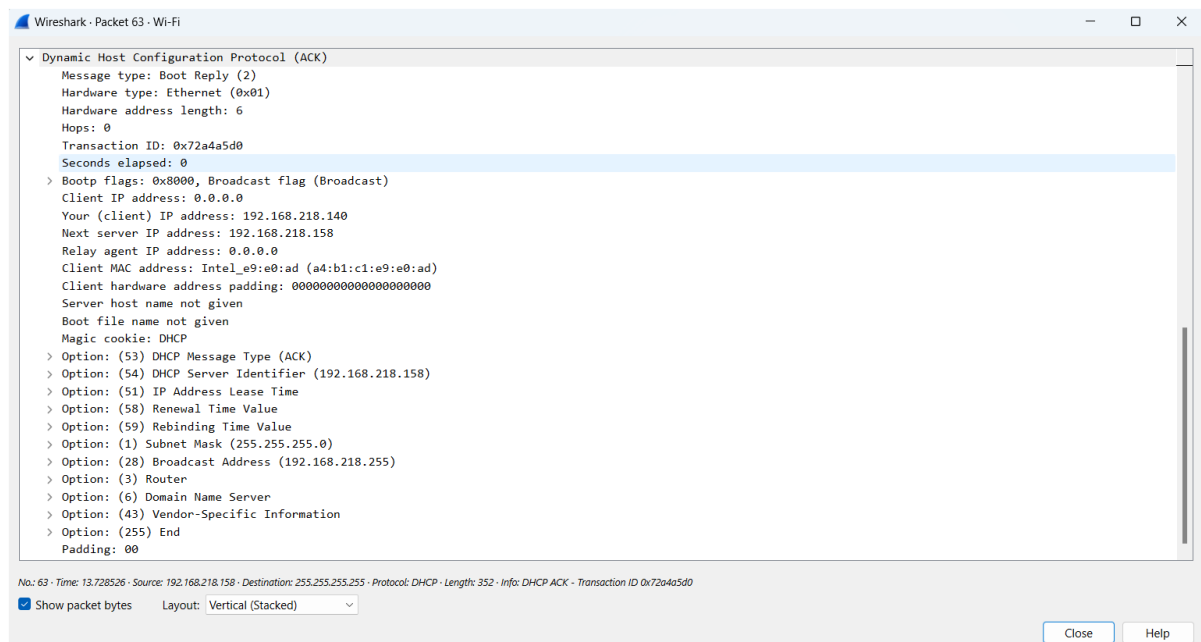
DHPC Offer



DHPC Request



DHPC ACK



Process:

- 1.DHCP Discover: When a client joins a network, he broadcasts DHCP Discover messages in search of DHCP servers. That message means, “I am looking for an IP address and going at is any DHCP server available”.
- 2.DHCP Offer: The DHCP servers within the network accept and respond with a proposed IP address together with other configurations in the DHCP Offer message which goes to the client. It means, “I am a DHCP server and I can offer you the service of assigning this particular IP address to you”.
- 3.DHCP Request: The client broadcasts a default DHCP Request message indicating a willingness to accept a particular offer made by one of the DHCP servers. He permits other DHCP servers to retract their offers. What that statement means is, “I want to use the above stated IP address which one particular DHCP server is willing to provide”.
- 4.DHCP Acknowledge (ACK): After the processing is complete, the preferred DHCP server issues a DHCP Acknowledge message which contains the period of lease and other relevant data in a configuration option. This signifies the granted request and enables the user to utilize the specified IP for the corresponding period of time.

Key Learnings:

1. DHCP automates IP allocation, avoiding conflicts.
2. The process follows a DORA sequence (Discover, Offer, Request, Acknowledge).
3. Captured packets show transaction between client and DHCP server.