Lab Report

CSE361, Computer Networking

Name:	Saifeldin Tamer Mohamed Elsayes	ID:	22P0233

Lab No: (7)   Experiment Title: Wireshark Lab IP

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| 494 | 221994227 | 0.0.0.0 | 255.255.255.255 | DHCP | 342 DHCP Discover   Transaction ID 0xd5517ec4 |
| 521 | 24.630819 | 192.168.1.1 | 255.255.255.255 | DHCP | 324 DHCP Offer   - Transaction ID 0xd5517ec4 |

1.1 Is this DHCP Discover message sent out using UDP or TCP as the underlying transport protocol?
UDP

1.2 What is the source IP address used in the IP datagram containing the Discover message? Is there anything special about this address? Explain.
Source: 0.0.0.0 special as The client does not yet have an IP address, so it uses 0.0.0.0 as a placeholder.

1.3 What is the destination IP address used in the datagram containing the Discover message. Is there anything special about this address? Explain.
The destination IP address is 255.255.255.255. This is the limited broadcast address, which ensures the datagram is delivered to every host on the local physical network, allowing it to reach any available DHCP server

1.4 What is the value in the transaction ID field of this DHCP Discover message?
0xd5517ec4.

1.5 Now inspect the options field in the DHCP Discover message. What are five pieces of information (beyond an IP address) that the client is suggesting or requesting to receive from the DHCP server as part of this DHCP transaction?
Subnet Mask, Classless Static Route, Router, Domain Name Server, Domain Name.

1.6 How do you know that this Offer message is being sent in response to the DHCP Discover message you studied in questions 1-5 above?
The Offer message contains the exact same Transaction ID (0xd5517ec4) as the Discover message, which is the mechanism used to link requests and responses in DHCP.

1.7 What is the source IP address used in the IP datagram containing the Offer message? Is there anything special about this address? Explain
Source: 192.168.1.1 special as This is the server offering the configuration

1.8 What is the destination IP address used in the datagram containing the Offer message? Is there anything special about this address? Explain.
Destination: 255.255.255.255 special as Client have fully configured its IP.

1.9 Now inspect the options field in the DHCP Offer message. What are five pieces of information that the DHCP server is providing to the DHCP client in the DHCP Offer message?
DHCP Message Type, DHCP Server Identifier, IP Address Lease Time, Renewal Time Value, Rebinding Time Value.

1.10 What is the UDP source port number in the IP datagram containing the first DHCP Request message in your trace? What is the UDP destination port number being used?
Source Port: 68
Destination Port: 67

1.11 What is the source IP address in the IP datagram containing this Request message? Is there anything special about this address? Explain.

Source: 0.0.0.0 special as The Client still not fully configured.

1.12 What is the destination IP address used in the datagram containing this Request message. Is there anything special about this address? Explain.
Destination: 255.255.255.255 special as Client broadcasts acceptance of the offer.

1.13 What is the value in the transaction ID field of this DHCP Request message? Does it match the transaction IDs of the earlier Discover and Offer messages?\
Transaction ID: 0xd5517ec4 Same Transaction ID as Discover and Offer.

1.14 What differences do you see between the entries in the 'parameter request list' option in this Request message and the same list option in the earlier Discover message?
Request message list is shorter.

1.15 What is the source IP address in the IP datagram containing this ACK message? Is there anything special about this address? Explain.
Source: 192.168.1.1 special as This is the server confirms the configuration.

1.16 What is the destination IP address used in the datagram containing this ACK message. Is there anything special about this address? Explain.
Destination: 255.255.255.255 special as Client have fully configured its IP.

1.17 What is the name of the field in the DHCP ACK message (as indicated in the Wireshark window) that contains the assigned client IP address?
192.168.1.154

1.18 For how long a time (the so-called "lease time") has the DHPC server assigned this IP address to the client?
IP Address Lease Time: 1 Day (86400)

1.19 What is the IP address (returned by the DHCP server to the DHCP client in this DHCP ACK message) of the first-hop router on the default path from the client to the rest of the Internet?
Router: 192.168.1.1