

**Project 2**

**Wireshark Lab: DHCP**

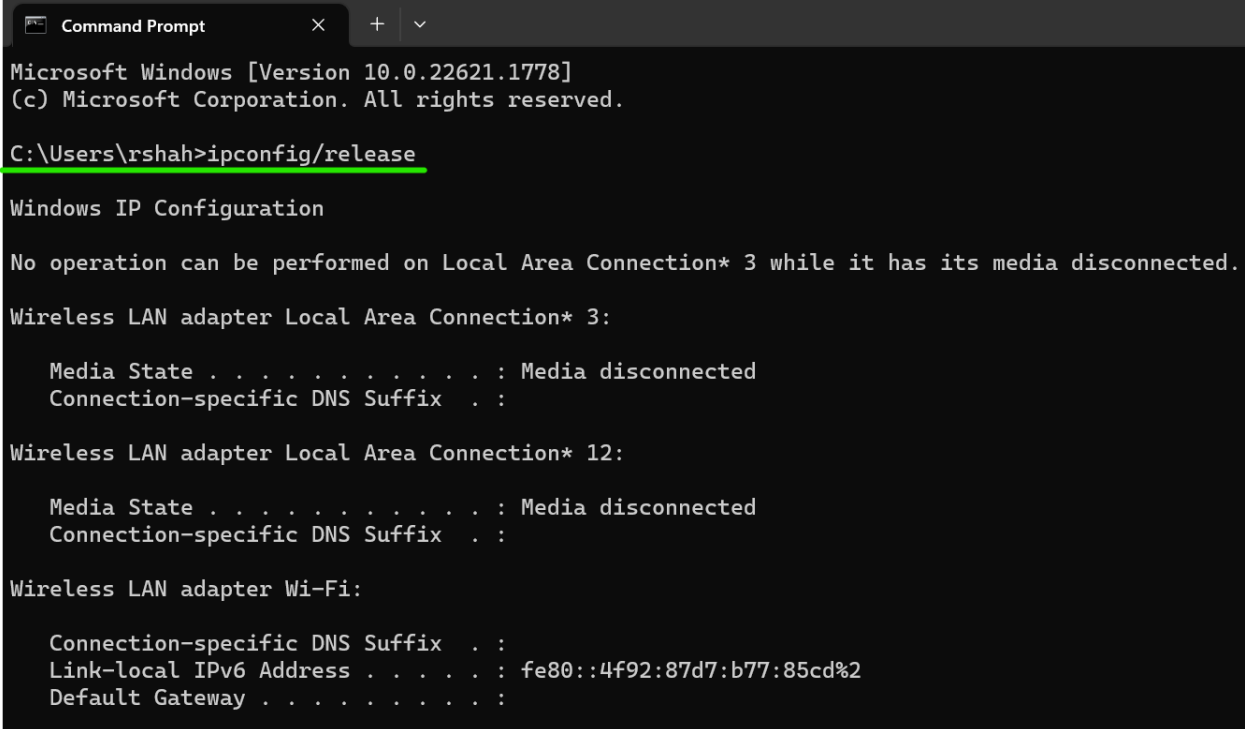
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CSIT-340-11 Computer Networks

Summer 2023

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Enter “ipconfig/release” in command prompt:



```
Command Prompt
Microsoft Windows [Version 10.0.22621.1778]
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C:\Users\rshah>ipconfig/release

Windows IP Configuration

No operation can be performed on Local Area Connection* 3 while it has its media disconnected.

Wireless LAN adapter Local Area Connection* 3:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 12:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::4f92:87d7:b77:85cd%2
    Default Gateway . . . . . :
```

Enter “ipconfig/renew” in command prompt:

```

Command Prompt
Default Gateway . . . . . :

C:\Users\rshah>ipconfig/renew

Windows IP Configuration

No operation can be performed on Local Area Connection* 3 while it has its media disconnected.
No operation can be performed on Local Area Connection* 12 while it has its media disconnected.

Wireless LAN adapter Local Area Connection* 3:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 12:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::4f92:87d7:b77:85cd%2
    IPv4 Address. . . . . : 10.0.0.36
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.0.0.1

```

Enter the same command “ipconfig/renew” again:

```

Command Prompt
Default Gateway . . . . . : 10.0.0.1

C:\Users\rshah>ipconfig/renew

Windows IP Configuration

No operation can be performed on Local Area Connection* 3 while it has its media disconnected.
No operation can be performed on Local Area Connection* 12 while it has its media disconnected.

Wireless LAN adapter Local Area Connection* 3:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 12:

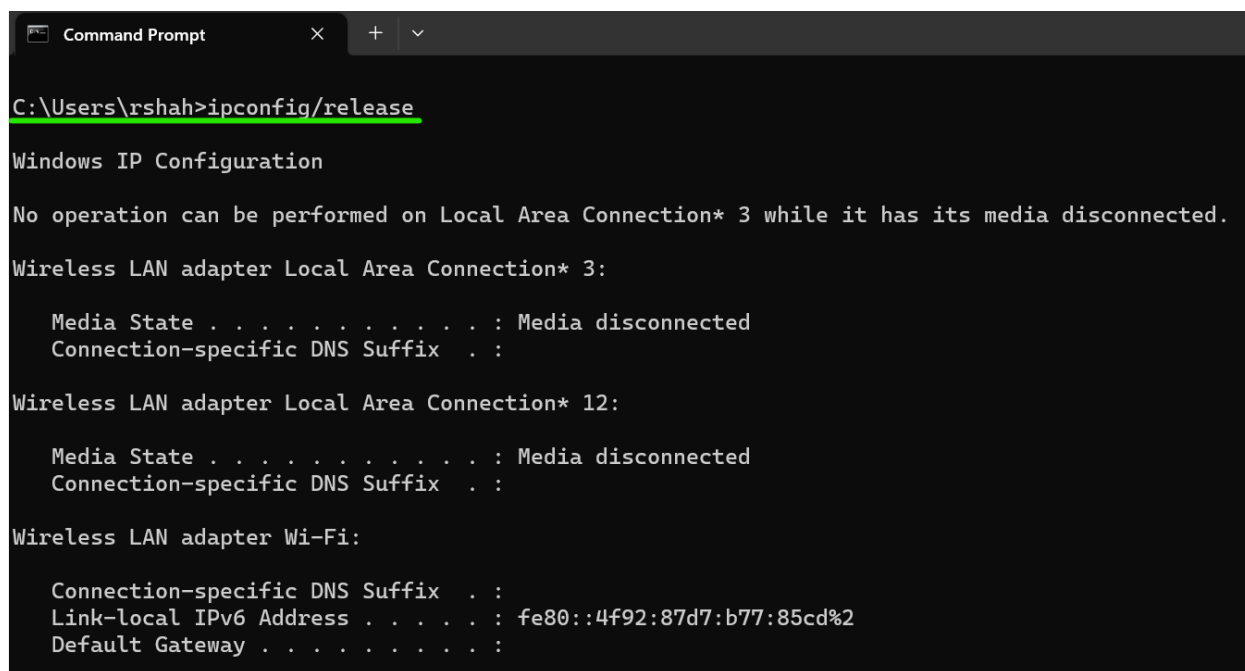
    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::4f92:87d7:b77:85cd%2
    IPv4 Address. . . . . : 10.0.0.36
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.0.0.1

```

Enter “ipconfig/release” command:



```
Command Prompt
C:\Users\rshah>ipconfig/release

Windows IP Configuration

No operation can be performed on Local Area Connection* 3 while it has its media disconnected.

Wireless LAN adapter Local Area Connection* 3:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 12:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::4f92:87d7:b77:85cd%2
    Default Gateway . . . . . :
```

Enter “ipconfig/renew” command:

```

Command Prompt

Connection-specific DNS Suffix . : 
Link-local IPv6 Address . . . . . : fe80::4f92:87d7:b77:85cd%2
Default Gateway . . . . . : 

C:\Users\rshah>ipconfig/renew

Windows IP Configuration

No operation can be performed on Local Area Connection* 3 while it has its media disconnected.
No operation can be performed on Local Area Connection* 12 while it has its media disconnected.

Wireless LAN adapter Local Area Connection* 3:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . : 

Wireless LAN adapter Local Area Connection* 12:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . : 

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix . : 
    Link-local IPv6 Address . . . . . : fe80::4f92:87d7:b77:85cd%2
    IPv4 Address. . . . . : 10.0.0.36
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.0.0.1

C:\Users\rshah>

```

To see only DHCP packets, enter “bootp”:

Project 2.pcapng

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bootp

No.	Time	Source	Destination	Protocol	Length	Info
73	13.702372	0.0.0.0	255.255.255.255	DHCP	344	DHCP Discover - Transaction ID 0x861748df
75	13.960981	10.0.0.1	10.0.0.36	DHCP	342	DHCP Offer - Transaction ID 0x861748df
76	13.963934	0.0.0.0	255.255.255.255	DHCP	370	DHCP Request - Transaction ID 0x861748df
78	14.036521	10.0.0.1	10.0.0.36	DHCP	342	DHCP ACK - Transaction ID 0x861748df
1560	25.829984	10.0.0.36	10.0.0.1	DHCP	358	DHCP Request - Transaction ID 0xd086d743
1561	25.891068	10.0.0.1	10.0.0.36	DHCP	342	DHCP ACK - Transaction ID 0xd086d743
1603	42.163426	10.0.0.36	10.0.0.1	DHCP	342	DHCP Release - Transaction ID 0xb97cd4e4
1645	51.460222	0.0.0.0	255.255.255.255	DHCP	344	DHCP Discover - Transaction ID 0xca026e2f
1646	51.631017	10.0.0.1	10.0.0.36	DHCP	342	DHCP Offer - Transaction ID 0xca026e2f
1647	51.634009	0.0.0.0	255.255.255.255	DHCP	370	DHCP Request - Transaction ID 0xca026e2f
1649	51.728793	10.0.0.1	10.0.0.36	DHCP	342	DHCP ACK - Transaction ID 0xca026e2f

> Frame 73: 344 bytes on wire (2752 bits), 344 bytes captured (2752 bits) on interface 0

> Ethernet II, Src: IntelCor\_4a:a4:cf (94:e2:3c:4a:a4:cf), Dst: Broadcast

> Internet Protocol Version 4, Src: 0.0.0.0, Dst: 255.255.255.255

> User Datagram Protocol, Src Port: 68, Dst Port: 67

> Dynamic Host Configuration Protocol (Discover)

0000 ff ff ff ff ff 94 e2 3c 4a a4 cf 08 00 45 00 .....  
0010 01 4a ea 3b 00 00 80 11 00 00 00 00 00 ff ff ..J;...  
0020 ff ff 00 44 00 43 01 36 80 a1 01 01 06 00 86 17 ...D.C.  
0030 48 df 00 00 00 00 00 00 00 00 00 00 00 00 00 H.....  
0040 00 00 00 00 00 00 94 e2 3c 4a a4 cf 00 00 00 00 .....  
0050 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
0060 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
0070 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
0080 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
0090 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
00a0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
00b0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....

## 1. Are DHCP messages sent over UDP or TCP?

DHCP messages are sent over UDP.

No.	Time	Source	Destination	Protocol	Length	Info
73	13.702372	0.0.0.0	255.255.255.255	DHCP	344	DHCP Discover - Transaction ID 0x861748df
75	13.960981	10.0.0.1	10.0.0.36	DHCP	342	DHCP Offer - Transaction ID 0x861748df
76	13.963934	0.0.0.0	255.255.255.255	DHCP	370	DHCP Request - Transaction ID 0x861748df
78	14.036521	10.0.0.1	10.0.0.36	DHCP	342	DHCP ACK - Transaction ID 0x861748df
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1561	25.891068	10.0.0.1	10.0.0.36	DHCP	342	DHCP ACK - Transaction ID 0xd086d743
1603	42.163426	10.0.0.36	10.0.0.1	DHCP	342	DHCP Release - Transaction ID 0xb97cd4e4
1645	51.460222	0.0.0.0	255.255.255.255	DHCP	344	DHCP Discover - Transaction ID 0xca026e2f
1646	51.631017	10.0.0.1	10.0.0.36	DHCP	342	DHCP Offer - Transaction ID 0xca026e2f
1647	51.634009	0.0.0.0	255.255.255.255	DHCP	370	DHCP Request - Transaction ID 0xca026e2f
1649	51.728793	10.0.0.1	10.0.0.36	DHCP	342	DHCP ACK - Transaction ID 0xca026e2f

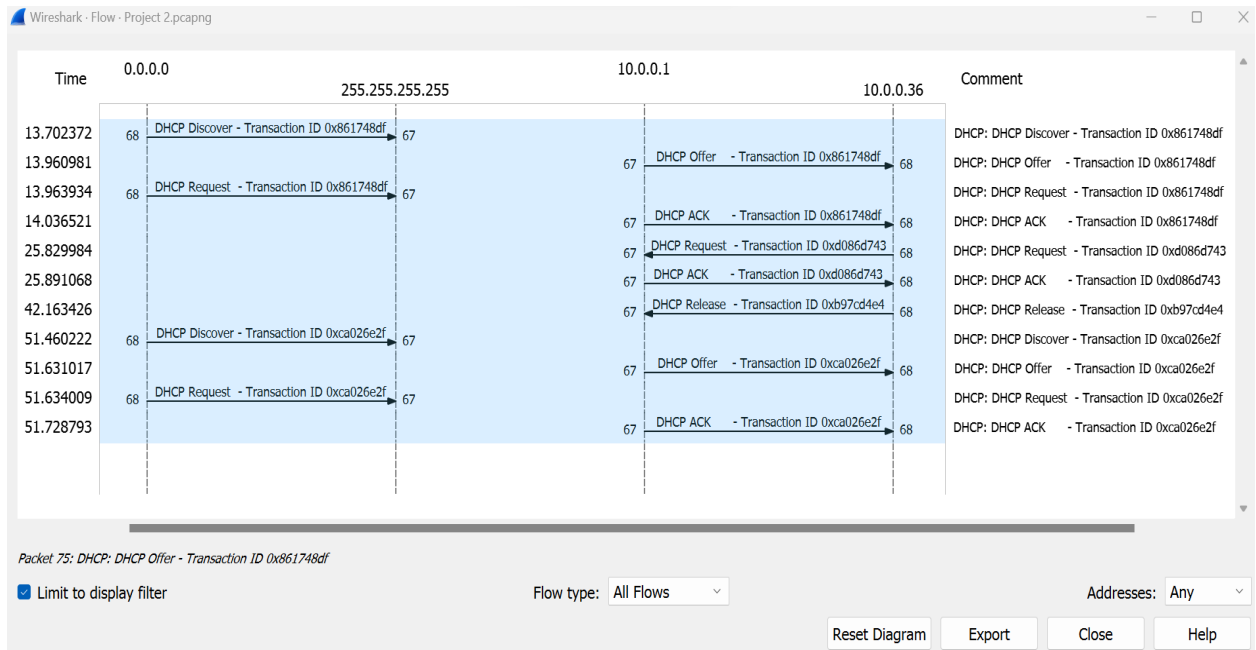
Details	Hex Data
> Frame 73: 344 bytes on wire (2752 bits), 344 bytes captured (:) > Ethernet II, Src: IntelCor_4a:a4:cf (94:e2:3c:4a:a4:cf), Dst: > Internet Protocol Version 4, Src: 0.0.0.0, Dst: 255.255.255.255 > <u>User Datagram Protocol, Src Port: 68, Dst Port: 67</u> Source Port: 68 Destination Port: 67 Length: 310 Checksum: 0x80a1 [unverified] [Checksum Status: Unverified] [Stream index: 11]	0000 ff ff ff ff ff ff 94 e2 3c 4a a4 cf 08 00 45 00 ..... 0010 01 4a ea 3b 00 00 80 11 00 00 00 00 00 00 ff ff .J;... 0020 ff ff 00 44 00 43 01 36 80 a1 01 01 06 00 86 17 ...D.C. 0030 48 df 00 00 00 00 00 00 00 00 00 00 00 00 00 00 H..... 0040 00 00 00 00 00 00 94 e2 3c 4a a4 cf 00 00 00 00 ..... 0050 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..... 0060 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..... 0070 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..... 0080 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..... 0090 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..... 00a0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..... 00b0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....

## 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 number. Are the port numbers

the same as in the example given in this lab assignment?



Discover - Src Port: 68 Dst Port: 67

Offer - Src Port: 67 Dst Port: 68

Request - Src Port: 68 Dst Port: 67

ACK - Src Port: 67 Dst Port: 68

The port numbers are the same as in the example given.

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

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bootp

No.	Time	Source	Destination	Protocol	Length	Info
73	13.702372	0.0.0.0	255.255.255.255	DHCP	344	DHCP Discover - Transaction ID 0x861748df
75	13.960981	10.0.0.1	10.0.0.36	DHCP	342	DHCP Offer - Transaction ID 0x861748df
76	13.963934	0.0.0.0	255.255.255.255	DHCP	370	DHCP Request - Transaction ID 0x861748df
78	14.036521	10.0.0.1	10.0.0.36	DHCP	342	DHCP ACK - Transaction ID 0x861748df
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1603	42.163426	10.0.0.36	10.0.0.1	DHCP	342	DHCP Release - Transaction ID 0xb97cd4e4
1645	51.460222	0.0.0.0	255.255.255.255	DHCP	344	DHCP Discover - Transaction ID 0xca026e2f
1646	51.631017	10.0.0.1	10.0.0.36	DHCP	342	DHCP Offer - Transaction ID 0xca026e2f
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> Frame 73: 344 bytes on wire (2752 bits), 344 bytes captured (2752 bits) on interface 0

> Ethernet II, Src: IntelCor\_4a:a4:cf (94:e2:3c:4a:a4:cf), Dst: Broadcast (ff:ff:ff:ff:ff:ff)

> Destination: Broadcast (ff:ff:ff:ff:ff:ff)

> Source: IntelCor\_4a:a4:cf (94:e2:3c:4a:a4:cf)

> Type: IPv4 (0x0800)

> Internet Protocol Version 4, Src: 0.0.0.0, Dst: 255.255.255.255

> User Datagram Protocol, Src Port: 68, Dst Port: 67

> Dynamic Host Configuration Protocol (Discover)

0000 ff ff ff ff ff ff 94 e2 3c 4a a4 cf 08 00 45 00 .....  
 0010 01 4a ea 3b 00 00 80 11 00 00 00 00 00 00 ff ff .J;...  
 0020 ff ff 00 44 00 43 01 36 80 a1 01 01 06 00 86 17 ...D.C.  
 0030 48 df 00 00 00 00 00 00 00 00 00 00 00 00 00 00 H.....  
 0040 00 00 00 00 00 00 94 e2 3c 4a a4 cf 00 00 00 00 .....  
 0050 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0060 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0070 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0080 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0090 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00a0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00b0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....

The link-layer address of my host is 94:e2:3c:4a:a4:cf

4. A 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.



Project 2.pcapng

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bootp

No.	Time	Source	Destination	Protocol	Length	Info
73	13.702372	0.0.0.0	255.255.255.255	DHCP	344	DHCP Discover - Transaction ID 0x861748df
75	13.960981	10.0.0.1	10.0.0.36	DHCP	342	DHCP Offer - Transaction ID 0x861748df
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1561	25.891068	10.0.0.1	10.0.0.36	DHCP	342	DHCP ACK - Transaction ID 0xd086d743
1603	42.163426	10.0.0.36	10.0.0.1	DHCP	342	DHCP Release - Transaction ID 0xb97cd4e4
1645	51.460222	0.0.0.0	255.255.255.255	DHCP	344	DHCP Discover - Transaction ID 0xca026e2f
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1649	51.728793	10.0.0.1	10.0.0.36	DHCP	342	DHCP ACK - Transaction ID 0xca026e2f

> Frame 73: 344 bytes on wire (2752 bits), 344 bytes captured (2752 bits) on interface 0

> Ethernet II, Src: IntelCor\_4a:a4:cf (94:e2:3c:4a:a4:cf), Dst: Broadcast

> Internet Protocol Version 4, Src: 0.0.0.0, Dst: 255.255.255.255

> User Datagram Protocol, Src Port: 68, Dst Port: 67

> Dynamic Host Configuration Protocol (Discover)

0000 ff ff ff ff ff 94 e2 3c 4a a4 cf 08 00 45 00 .....  
 0010 01 4a ea 3b 00 00 80 11 00 00 00 00 00 ff ff .J;...  
 0020 ff ff 00 44 00 43 01 36 80 a1 01 01 06 00 86 17 ...D.C..  
 0030 48 df 00 00 00 00 00 00 00 00 00 00 00 00 00 H.....  
 0040 00 00 00 00 00 00 94 e2 3c 4a a4 cf 00 00 00 00 .....  
 0050 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0060 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0070 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0080 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0090 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00a0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....

Discover - Source: 0.0.0.0 Destination: 255.255.255.255

Offer - Source: 10.0.0.1 Destination: 10.0.0.36

Request - Source: 0.0.0.0 Destination: 255.255.255.255

ACK DHCP - Source: 10.0.0.1 Destination: 10.0.0.36

## 5. What is the IP address of your DHCP server?

The IP address of my DHCP server is 10.0.0.1

Project 2.pcapng

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bootp

No.	Time	Source	Destination	Protocol	Length	Info
73	13.702372	0.0.0.0	255.255.255.255	DHCP	344	DHCP Discover - Transaction ID 0x861748df
75	13.960981	10.0.0.1	10.0.0.36	DHCP	342	DHCP Offer - Transaction ID 0x861748df
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1561	25.891068	10.0.0.1	10.0.0.36	DHCP	342	DHCP ACK - Transaction ID 0xd086d743
1603	42.163426	10.0.0.36	10.0.0.1	DHCP	342	DHCP Release - Transaction ID 0xb97cd4e4

Magic cookie: DHCP

- Option: (53) DHCP Message Type (ACK)
  - Length: 1
  - DHCP: ACK (5)
- Option: (54) DHCP Server Identifier (10.0.0.1)
  - Length: 4
  - DHCP Server Identifier: 10.0.0.1
- Option: (51) IP Address Lease Time
  - Length: 4
  - IP Address Lease Time: (86400s) 1 day
- Option: (1) Subnet Mask (255.255.255.0)
  - Length: 4
  - Subnet Mask: 255.255.255.0

0030 48 df 00 00 00 00 00 00 00 00 0a 00 00 24 00 00 H.....  
 0040 00 00 00 00 00 00 94 e2 3c 4a a4 cf 00 00 00 00 .....  
 0050 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0060 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0070 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0080 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0090 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00a0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00b0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00c0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00d0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00e0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00f0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0100 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0110 00 00 00 00 00 00 63 82 53 63 35 01 05 36 04 0a .....C  
 0120 00 00 01 33 04 00 01 51 80 01 04 ff ff ff 00 03 ...3...

6. 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.

Project 2.pcapng

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bootp

No.	Time	Source	Destination	Protocol	Length	Info
73	13.702372	0.0.0.0	255.255.255.255	DHCP	344	DHCP Discover - Transaction ID 0x861748df
75	13.960981	10.0.0.1	10.0.0.36	DHCP	342	DHCP Offer - Transaction ID 0x861748df
76	13.963934	0.0.0.0	255.255.255.255	DHCP	370	DHCP Request - Transaction ID 0x861748df
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1603	42.163426	10.0.0.36	10.0.0.1	DHCP	342	DHCP Release - Transaction ID 0xb97cd4e4

> Bootp flags: 0x0000 (Unicast)  
 Client IP address: 0.0.0.0  
 Your (client) IP address: 10.0.0.36  
 Next server IP address: 0.0.0.0  
 Relay agent IP address: 0.0.0.0  
 Client MAC address: IntelCor\_4a:a4:cf (94:e2:3c:4a:a4:cf)  
 Client hardware address padding: 00000000000000000000  
 Server host name not given  
 Boot file name not given  
 Magic cookie: DHCP

- Option: (53) DHCP Message Type (Offer)
  - Length: 1
  - DHCP: Offer (2)

0030 48 df 00 00 00 00 00 00 00 00 0a 00 00 24 00 00 H.....  
 0040 00 00 00 00 00 00 94 e2 3c 4a a4 cf 00 00 00 00 .....  
 0050 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0060 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0070 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0080 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0090 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00a0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00b0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00c0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00d0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00e0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00f0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0100 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0110 00 00 00 00 00 00 63 82 53 63 35 01 02 36 04 0a .....C  
 0120 00 00 01 33 04 00 01 51 80 01 04 ff ff ff 00 03 ...3...

The IP address in which the DHCP server is offering to my host in the DHCP Offer message is 10.0.0.36

Option 53 contains the DHCP message type with length of 1 and the DHCP offer is (2).

7. 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?

Project 2.pcapng

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bootp

No.	Time	Source	Destination	Protocol	Length	Info
73	13.702372	0.0.0.0	255.255.255.255	DHCP	344	DHCP Discover - Transaction ID 0x861748df
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76	13.963934	0.0.0.0	255.255.255.255	DHCP	370	DHCP Request - Transaction ID 0x861748df
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1560	25.829984	10.0.0.36	10.0.0.1	DHCP	358	DHCP Request - Transaction ID 0xd086d743
1561	25.891068	10.0.0.1	10.0.0.36	DHCP	342	DHCP ACK - Transaction ID 0xd086d743
1603	42.163426	10.0.0.36	10.0.0.1	DHCP	342	DHCP Release - Transaction ID 0xb97cd4e4

DHCP: Request (3)

- Option: (61) Client identifier
  - Length: 7
  - Hardware type: Ethernet (0x01)
  - Client MAC address: IntelCor\_4a:a4:cf (94:e2:3c:4a:a4:cf)
- Option: (50) Requested IP Address (10.0.0.36)
  - Length: 4
  - Requested IP Address: 10.0.0.36
- Option: (54) DHCP Server Identifier (10.0.0.1)
  - Length: 4
  - DHCP Server Identifier: 10.0.0.1
- Option: (12) Host Name
  - Length: 15
  - Host Name: DESKTOP-HAT175C

0030 48 df 00 00 00 00 00 00 00 00 00 00 00 00 00 00 H.....  
 0040 00 00 00 00 00 00 94 e2 3c 4a a4 cf 00 00 00 00 .....  
 0050 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0060 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0070 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0080 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0090 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00a0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00b0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00c0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00d0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00e0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 00f0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0100 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
 0110 00 00 00 00 00 00 00 63 82 53 63 35 01 03 3d 07 01 .....c  
 0120 94 e2 3c 4a a4 cf 32 04 0a 00 00 24 36 04 0a 00 ...<J...2

The client accepts the IP address given in the offer message within the request message.

After being offered the IP address 10.0.0.36 in the offer message, the client sent back a message further requesting that specific IP address.

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

Project 2.pcapng						
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help						
bootp						
No.	Time	Source	Destination	Protocol	Length	Info
73	13.702372	0.0.0.0	255.255.255.255	DHCP	344	DHCP Discover - Transaction ID 0x861748df
75	13.960981	10.0.0.1	10.0.0.36	DHCP	342	DHCP Offer - Transaction ID 0x861748df
76	13.963934	0.0.0.0	255.255.255.255	DHCP	370	DHCP Request - Transaction ID 0x861748df
78	14.036521	10.0.0.1	10.0.0.36	DHCP	342	DHCP ACK - Transaction ID 0x861748df
1560	25.829984	10.0.0.36	10.0.0.1	DHCP	358	DHCP Request - Transaction ID 0xd086d743
1561	25.891068	10.0.0.1	10.0.0.36	DHCP	342	DHCP ACK - Transaction ID 0xd086d743
1603	42.163426	10.0.0.36	10.0.0.1	DHCP	342	DHCP Release - Transaction ID 0xb97cd4e4

Server host name not given	0030	48 df 00 00 00 00 00 00 00 00 0a 00 00 24 00 00	H.....
Boot file name not given	0040	00 00 00 00 00 00 94 e2 3c 4a a4 cf 00 00 00 00	.....
Magic cookie: DHCP	0050	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
Option: (53) DHCP Message Type (ACK)	0060	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
Length: 1	0070	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
DHCP: ACK (5)	0080	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
Option: (54) DHCP Server Identifier (10.0.0.1)	0090	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
Length: 4	00a0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
DHCP Server Identifier: 10.0.0.1	00b0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
Option: (51) IP Address Lease Time	00c0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
Length: 4	00d0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
IP Address Lease Time: (86400s) 1 day	00e0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
Option: (1) Subnet Mask (255.255.255.0)	00f0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
Length: 4	0100	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
	0110	00 00 00 00 00 00 63 82 53 63 35 01 05 36 04 0a	.....c
	0120	00 00 01 33 04 00 01 51 80 01 04 ff ff ff 00 03	...3...

The purpose of lease time is to tell the client how long they can use the specific IP address assigned by the server before they will have to be assigned a new one. The lease time in my experiment is (86400s) 1 day.