

CN LAB10

1) What is the 48-bit Ethernet address of your computer?

Ans) Source Address : 30:e3:7a:0f:97:cc

2) What is the 48-bit destination address in the Ethernet frame? Is this the Ethernet address of gaia.cs.umass.edu? (Hint: the answer is no). What device has this as its Ethernet address? [Note: this is an important question, and one that students sometimes get wrong. Re-read pages 468-469 in the text and make sure you understand the answer here]

Ans) Destination Address: 74:04:2b:dd:8f:6b.

3) Give the hexadecimal value for the two-byte Frame type field. What upper layer protocol does this correspond to?

Ans) 0x00000800(IPv4)

4) How many bytes from the very start of the Ethernet frame does the ASCII “G” in “GET” appear in the Ethernet frame?

Ans) 47

5) Is this the Ethernet address of gaia.cs.umass.edu? (Hint: the answer is no). What device has this as its Ethernet address?

Ans) It is the address of router.

6) What is the destination address in the Ethernet frame? Is this the Ethernet address of your computer?

Ans) Destination address of Ethernet Frame: 30:e3:7a:0f:97:cc. Yes, It's my computer Ethernet address (checked using ipconfig in cmd).

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Microsoft Windows [Version 10.0.17763.404]
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C:\Users\prati>getmac

Physical Address      Transport Name
=====
EC-8E-B5-58-AF-29     Media disconnected
30-E3-7A-0F-97-CC     \Device\Tcpip_{EAE46B1C-33BF-4D6A-9A3E-E41C57A393CD}
0A-00-27-00-00-08     \Device\Tcpip_{344783F6-CD50-4F56-94DA-D0A0CBA1D6F8}
02-00-4C-4F-4F-50     \Device\Tcpip_{992B1761-A2FB-499A-8B2D-8DD91E82ABFC}

C:\Users\prati>
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7) Give the hexadecimal value for the two-byte Frame type field. What upper layer protocol does this correspond to?

Ans) The hex value of this field is 0x00000800(IPv4). It corresponds to the IP protocol.

8) How many bytes from the very start of the Ethernet frame does the ASCII “O” in “OK” (i.e., the HTTP response code) appear in the Ethernet frame?

Ans) 4f

9) Write down the contents of your computer’s ARP cache. What is the meaning of each column value?

Ans)

```
C:\Users\prati>arp -a

Interface: 192.168.56.1 --- 0x8
    Internet Address      Physical Address          Type
    192.168.56.255        ff-ff-ff-ff-ff-ff        static
    224.0.0.22            01-00-5e-00-00-16        static
    224.0.0.251          01-00-5e-00-00-fb        static
    224.0.0.252          01-00-5e-00-00-fc        static
    239.255.255.250       01-00-5e-7f-ff-fa        static

Interface: 169.254.6.170 --- 0xd
    Internet Address      Physical Address          Type
    169.254.255.255       ff-ff-ff-ff-ff-ff        static
    224.0.0.22            01-00-5e-00-00-16        static
    224.0.0.251          01-00-5e-00-00-fb        static
    224.0.0.252          01-00-5e-00-00-fc        static
    239.255.255.250       01-00-5e-7f-ff-fa        static
    255.255.255.255       ff-ff-ff-ff-ff-ff        static

Interface: 192.168.43.106 --- 0x14
    Internet Address      Physical Address          Type
    192.168.43.1          74-04-2b-dd-8f-6b        dynamic
    192.168.43.255        ff-ff-ff-ff-ff-ff        static
    224.0.0.22            01-00-5e-00-00-16        static
    224.0.0.251          01-00-5e-00-00-fb        static
    224.0.0.252          01-00-5e-00-00-fc        static
    239.255.255.250       01-00-5e-7f-ff-fa        static
    255.255.255.255       ff-ff-ff-ff-ff-ff        static
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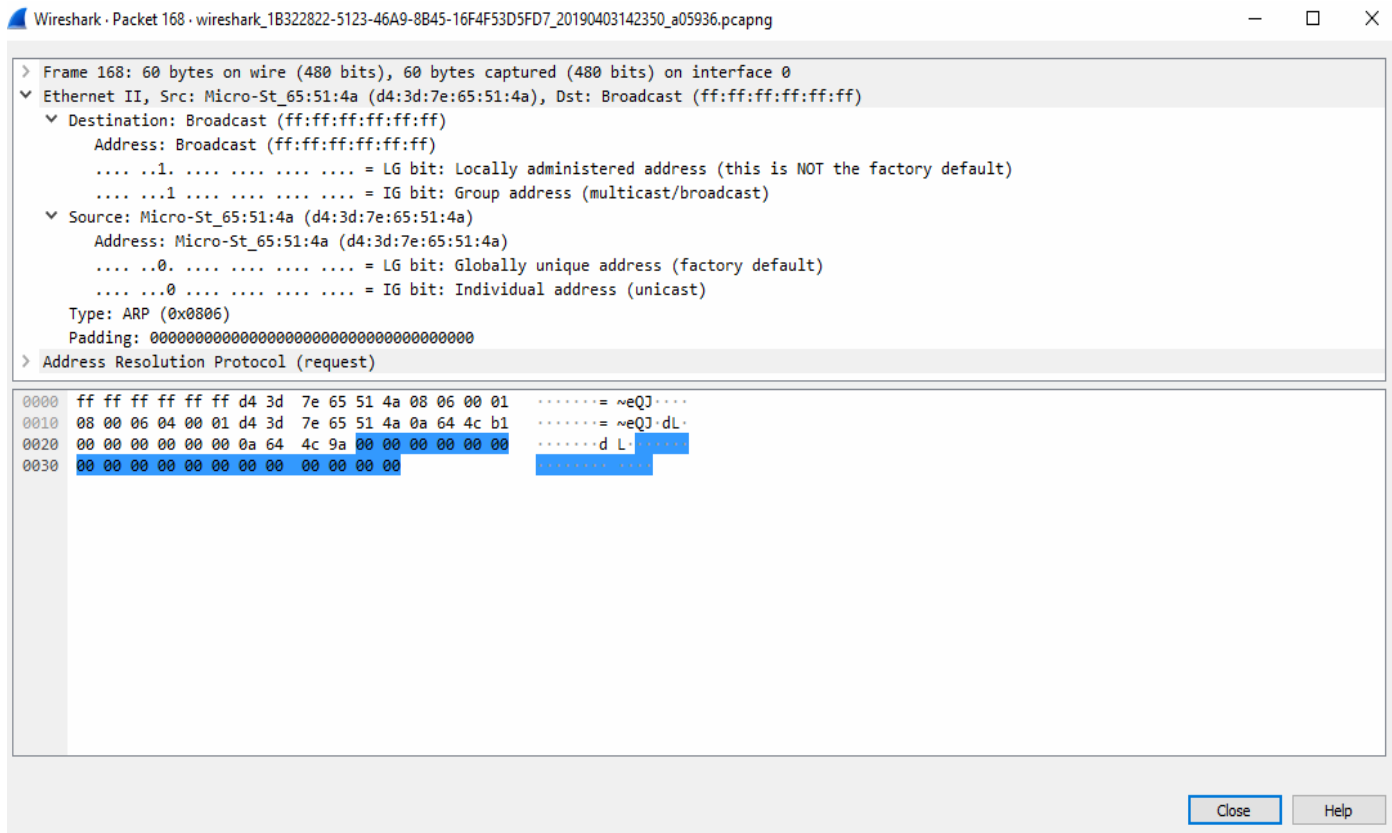
Internet Address: IP address

Physical Address: the MAC address

Type: The protocol type

10) What are the hexadecimal values for the source and destination addresses in the Ethernet frame containing the ARP request message?

Ans)



11) Give the hexadecimal value for the two-byte Ethernet Frame type field. What upper layer protocol does this correspond to?

Ans) 0x00000806(ARP)

12)

a) How many bytes from the very beginning of the Ethernet frame does the ARP opcode field begin?

Ans) 20 bytes

b) What is the value of the opcode field within the ARP-payload part of the Ethernet frame in which an ARP request is made?

Ans) 0x0001

c) Does the ARP message contain the IP address of the sender?

Ans) Yes , IP Address: 10.100.76.35