Mạng Máy Tính

Lab6

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I.Questions

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

```
> Source: AmbitMicrosy_a9:3d:68 (00:d0:59:a9:3d:68)
```

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.]

```
Destination: LinksysGroup_da:af:73 (00:06:25:da:af:73)
```

It's not gaia.cs.umass.edu it LinksysGroup_da:af:73

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

```
Type: IPv4 (0x0800)
[Stream index: 1]
```

4. How many bytes from the very start of the Ethernet frame does the ASCII "G" in "GET" appear in the Ethernet frame?

```
0000  00 06 25 da af 73 00 d0  59 a9 3d 68 08 00 45 00   ··%··s·· Y·=h··E·
0010  02 a0 00 fa 40 00 80 06  bf c8 c0 a8 01 69 80 77   ····@··· ·····i·w
0020  f5 0c 04 22 00 50 65 14  99 a7 ac a5 3f b4 50 18   ···"·Pe· ····?·P·
0030  fa f0 7e 4f 00 00 47 45  54 20 2f 65 74 68 65 72   ··~O··GE T /ether
```

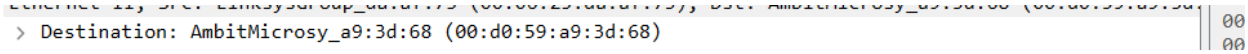
It 54 byte

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

```
> Source: LinksysGroup_da:af:73 (00:06:25:da:af:73)
```

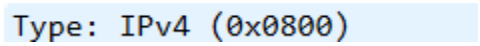
it basically this is the address of the linksysGroup_da:af:73

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

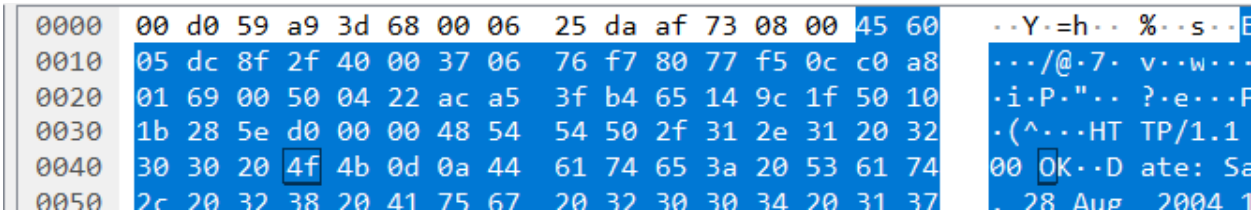


Yes this is the Ethernet address of my computer

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



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?



It’s 54

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

```
C:\Users\Ryusui>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: 192.168.26.76 --- 0xf
  Internet Address      Physical Address      Type
  192.168.26.61         82-20-fb-77-cd-f7     dynamic
  192.168.26.255        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
```

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

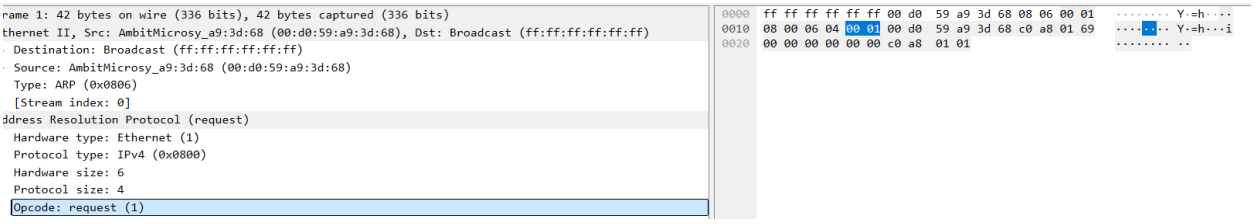
```
> Destination: Broadcast (ff:ff:ff:ff:ff:ff)
> Source: AmbitMicrosy_a9:3d:68 (00:d0:59:a9:3d:68)
```

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

```
Type: ARP (0x0806)
```

12. Download the ARP specification from ftp://ftp.rfc-editor.org/in-notes/std/std37.txt. A readable, detailed discussion of ARP is also at http://www.erg.abdn.ac.uk/users/gorry/course/inet-pages/arp.html.

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



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?

00 01

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

```
> Source: AmbitMicrosy_a9:3d:68 (00:d0:59:a9:3d:68)
```

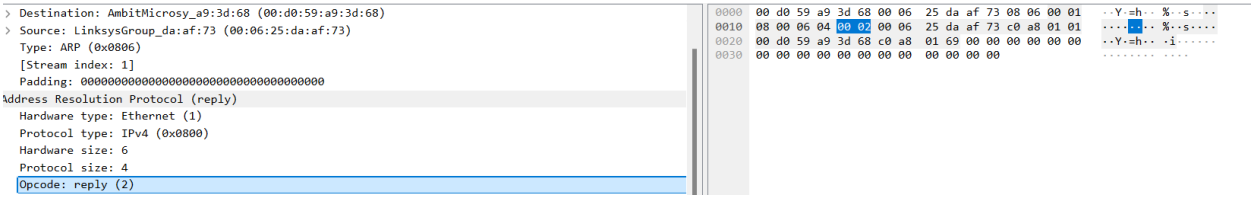
it have the source that is the sender that is my computer

d. Where in the ARP request does the “question” appear – the Ethernet address of the machine whose corresponding IP address is being queried?

```
Target MAC address: 00:00:00_00:00:00 (00:00:00:00:00:00)
Target IP address: 192.168.1.1
```

13. Now find the ARP reply that was sent in response to the ARP request.

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



20 bytes

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

00 02

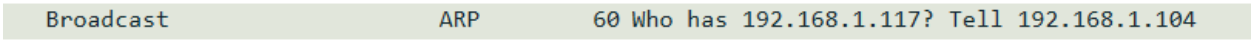
c. Where in the ARP message does the “answer” to the earlier ARP request appear – the IP address of the machine having the Ethernet address whose corresponding IP address is being queried?

```
Target MAC address: AmbitMicrosy_a9:3d:68 (00:d0:59:a9:3d:68)
Target IP address: 192.168.1.105
```

14. What are the hexadecimal values for the source and destination addresses in the Ethernet frame containing the ARP reply message?

```
Destination: AmbitMicrosy_a9:3d:68 (00:d0:59:a9:3d:68)
Source: LinksysGroup_da:af:73 (00:06:25:da:af:73)
```

15. Open the ethernet-ethereal-trace-1 trace file in http://gaia.cs.umass.edu/wireshark-labs/wireshark-traces.zip. The first and second ARP packets in this trace correspond to an ARP request sent by the computer running Wireshark, and the ARP reply sent to the computer running Wireshark by the computer with the ARP-requested Ethernet address. But there is yet another computer on this network, as indicated by packet 6 – another ARP request. Why is there no ARP reply (sent in response to the ARP request in packet 6) in the packet trace?



The destination is broadcast so it doesn't know who has the ip ethernet