

Lab Assignment: 3

Computer Network

Q-1 :Write down the contents of your computer's ARP cache. What is the meaning of each column value? Hint: to see ARP cache write a command (arp -a) in CMD.

Do the following4:

- Clear your ARP cache, as described above. (Find how to delete ARP cache content)
- Next, make sure your browser's cache is empty. To do this under Mozilla Firefox V3, select Tools->Clear Recent History and check the box for Cache. For Internet Explorer, select Tools->Internet Options->Delete Files.
- Start up the Wireshark packet sniffer and try to catch ARP request & reply packet .if not, repeat procedure above again.
- Enter the following URL into your browser

<http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-lab-file3.html>

<http://gaia.cs.umass.edu/wireshark-labs/HTTP-ethereal-lab-file3.html>

Q-2: What are the hexadecimal values for the source and destination addresses in the Ethernet frame containing the ARP request message?

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

Study ARP request packet by searching about it. And answer the following Questions:

Q-4: How many bytes from the very beginning of the Ethernet frame does the ARP opcode field begin?

Q-5:What is the value of the opcode field within the ARP-payload part of the Ethernet frame in which an ARP request is made?

Q-6: Does the ARP message contain the IP address of the sender?

Q-7:Where in the ARP request does the “question” appear – the Ethernet address of the machine whose corresponding IP address is being queried?

Now find the ARP reply that was sent in response to the ARP request from wireshark packet capture.

Answer the following Questions:

Q-8: How many bytes from the very beginning of the Ethernet frame does the ARP opcode field begin?

Q-9: What is the value of the opcode field within the ARP-payload part of the Ethernet frame in which an ARP response is made?

Q-10: 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?

Q-11: What are the hexadecimal values for the source and destination addresses in the Ethernet frame containing the ARP reply message?

Q-12: Is there multiple packets for ARP request and ARP reply ? Justify your answer.

Extra Credit

(That we are not going to answer of your Questions/ Doubts/ why/how/problems, if you want to Do, Do it by yourself and obviously you will get Extra Credit ;-))

EX-1. The arp command:

```
arp -s InetAddr EtherAddr
```

allows you to manually add an entry to the ARP cache that resolves the IP address InetAddr to the physical address EtherAddr. What would happen if, when you manually added an entry, you entered the correct IP address, but the wrong Ethernet address for that remote interface?

EX-2. What is the default amount of time that an entry remains in your ARP cache before being removed. You can determine this empirically (by monitoring the cache contents) or by looking this up in your operation system documentation. Indicate how/where you determined this value. Or by searching about it.