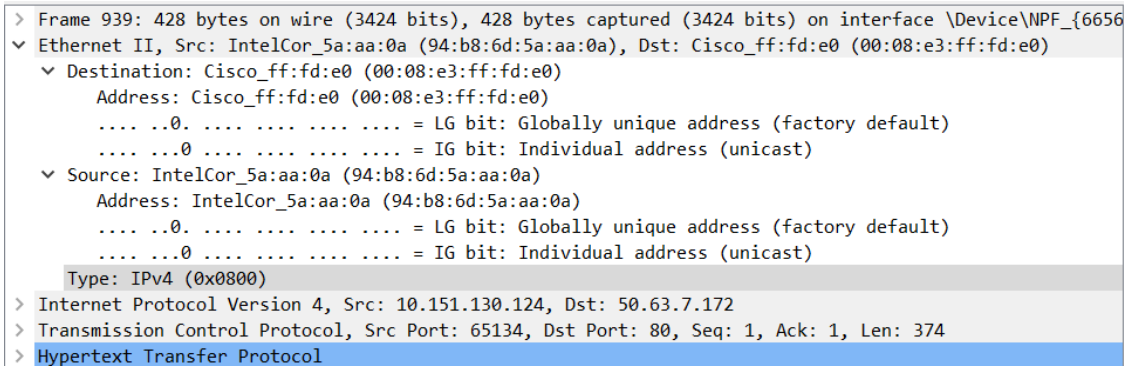
Jed Alcantara
G00846927
Lab 3



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

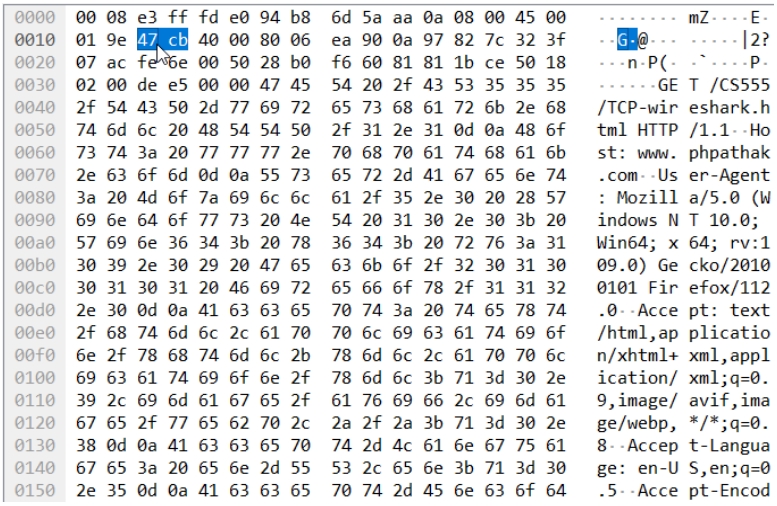
The source mac address is a 48 bit address that is 94:b8:6d:5a:aa:0a.

2. What is the 48 bit destination MAC address in your Ethernet header? Which device does this MAC address correspond to?

The destination mac address is a 48 bit address that is 00:08:e3:ff:fd:e0.

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

The hexadecimal value for the two-byte Frame type field is 0x0800, IPv4. The upper layer protocol it corresponds to is IPv4.



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

G appears after 72bits or 9Bytes.

5. Print the contents of your computer's ARP cache. You can remove the names of personal devices if they appear in the cache if you want.

```
jad@jaddys-pc:~/CS455_Computer_Communications_and_Networking/CS455_Computer_Communications_and_Networking/l4$ arp -a
jaddys-pc.mshome.net (172.21.64.1) at 00:15:5d:22:04:4f [ether] on eth0
jad@jaddys-pc:~/CS455_Computer_Communications_and_Networking/CS455_Computer_Communications_and_Networking/l4$
```

6. Show the output of the command that prints the ARP cache to show that it is empty.

```
jad@jaddys-pc:~/CS455_Computer_Communications_and_Networking/CS455_Computer_Communications_and_Networking/l4$ sudo ip -s -s neigh flush all
172.21.64.1 dev eth0 lladdr 00:15:5d:22:04:4f used 951/951/919 probes 1 STALE

*** Round 1, deleting 1 entries ***
*** Flush is complete after 1 round ***
```

7.Include a screenshot of the ARP request and response from your capture.

2949	17.931604	IntelCor_5a:aa:0a	Google_ae:a8:60	ARP	42	Who has 10.151.128.85? Tell 10.151.130.124
2950	17.988586	Google_ae:a8:60	IntelCor_5a:aa:0a	ARP	60	10.151.128.85 is at ac:67:84:ae:a8:60

```
> Frame 2949: 42 bytes on wire (336 bits), 42 bytes captured (336 bits) on interface \Device\NPF_{6656015
> Ethernet II, Src: IntelCor_5a:aa:0a (94:b8:6d:5a:aa:0a), Dst: Google_ae:a8:60 (ac:67:84:ae:a8:60)
v Address Resolution Protocol (request)
    Hardware type: Ethernet (1)
    Protocol type: IPv4 (0x0800)
    Hardware size: 6
    Protocol size: 4
    Opcode: request (1)
    Sender MAC address: IntelCor_5a:aa:0a (94:b8:6d:5a:aa:0a)
    Sender IP address: 10.151.130.124
    Target MAC address: Google_ae:a8:60 (ac:67:84:ae:a8:60)
    Target IP address: 10.151.128.85
```

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

The source ip address is 10.151.130.124.

The destination ip address is 10.151.128.85.

9. What are the source and destination MAC addresses for your ARP response?

The source hexadecimal value is 94:b8:6d:5a:aa:0a.

The destination hexadecimal value is ac:67:84:ae:a8:60.

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

The ARP request with question appears from the sender, and it’s asking for the target MAC address: Target MAC address: Google_ae:a8:60 (ac:67:84:ae:a8:60) with an ip of 10.151.128.85

11. 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?

The ARP message has an answer for this MAC address: Sender MAC address: IntelCor_5a:aa:0a (94:b8:6d:5a:aa:0a) with an ip of 10.151.130.124.