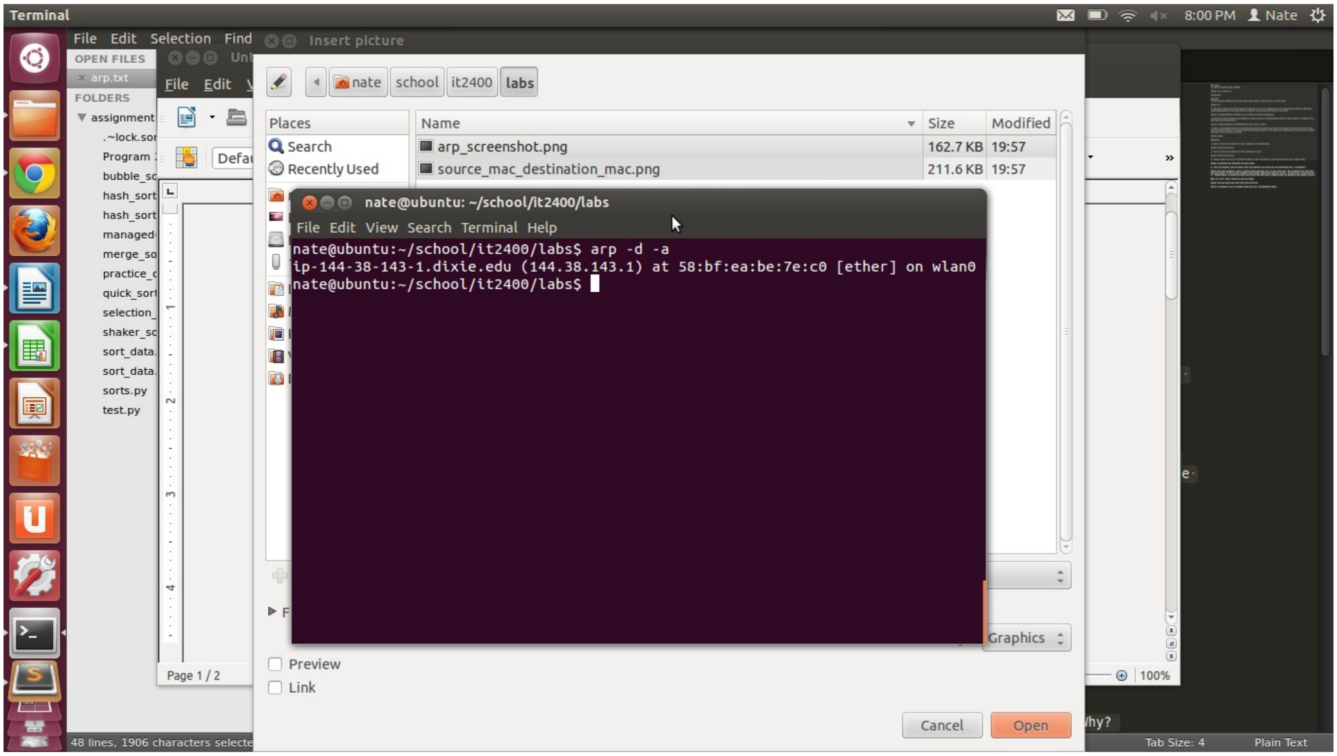
ARP CACHE

3. Does the address ever change?

Answer: No it does not.

Screenshot:



Name	Size	Modified
arp_screenshot.png	162.7 KB	19:57
source_mac_destination_mac.png	211.6 KB	19:57

nate@ubuntu: ~/school/it2400/labs

```
nate@ubuntu:~/school/it2400/labs$ arp -d -a
ip-144-38-143-1.dixie.edu (144.38.143.1) at 58:bf:ea:be:7e:c0 [ether] on wlan0
nate@ubuntu:~/school/it2400/labs$ 
```

SWITCHES

1. How many mac addresses does the switch know about? (you may have to count them)

Answer: 19

2. What port should the switch forward frames out of if it is tagged with the following mac address: 000d.ed8e.a780? Hypothesize why you think that mac address listed more than once in the table?

Answer: FastEthernet0/6; Because it is a switch to switch connection.

3. Why are so many different mac addresses listed out port FastEthernet0/1? What do you suppose is plugged in at the other end of that port?

Answer: Probably because FastEthernet0/1 plugs into a switch.

4. What is the maximum number of MAC addresses that the switch can store?(it is given in that file) What do you think the switch does if it learns about mac addresses after it has maxed out? (Hypothesize and then go to google and see if you can find an answer)

Answer: 2048;

WIRESHARK

1. What is the 48 bit address of your computer? (in hexadecimal)

Answer: 18:03:73:b1:9c:5d

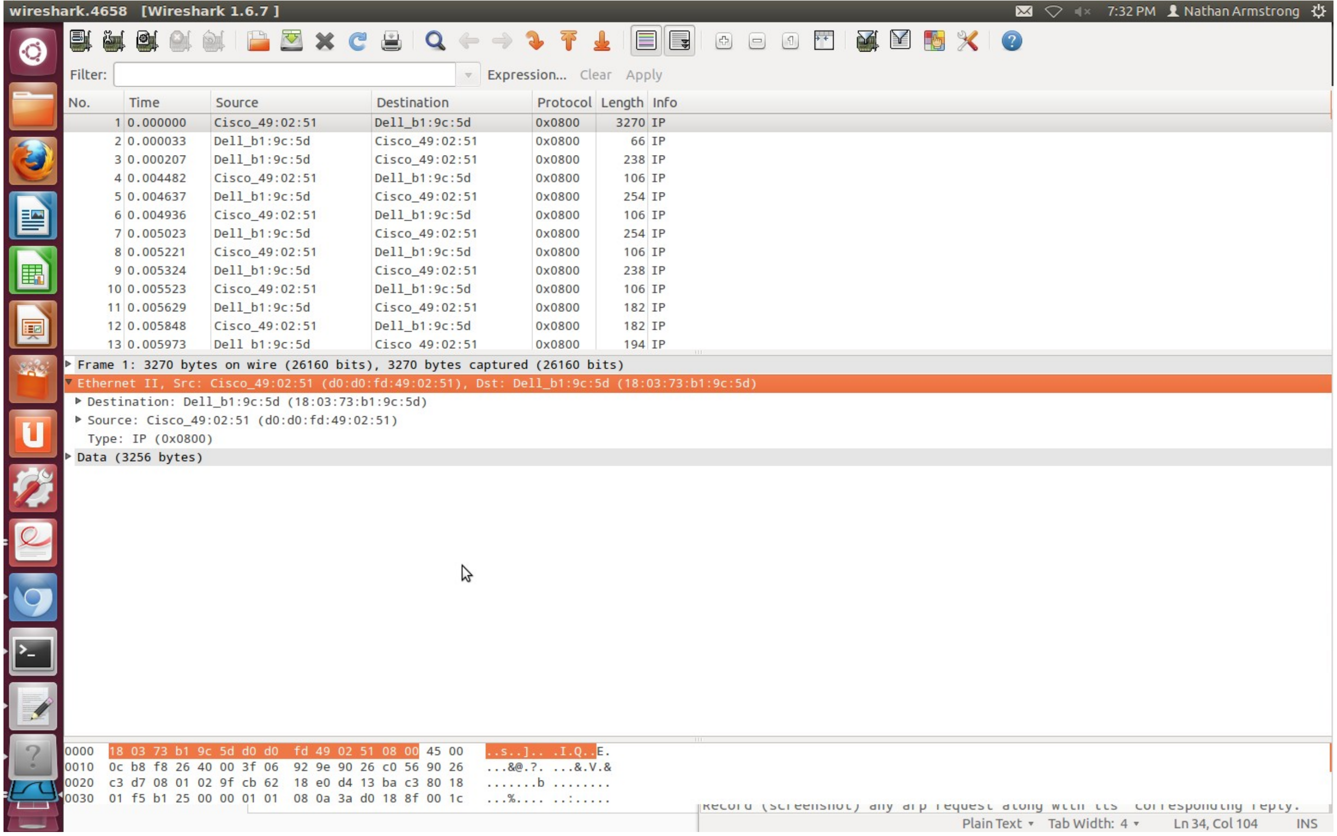
2. What is the 48 bit address of the destination? (hex)

Answer: d0:d0:fd_49:02:51

3. Capture again and visit a different website, does the answer to the above question ever change? Why?

Answer: No because mac addresses are hard-coded.

4. Find the response from the above frame and identify the source mac and destination mac. (screenshot)



No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	Cisco_49:02:51	Dell_b1:9c:5d	0x0800	3270	IP
2	0.000033	Dell_b1:9c:5d	Cisco_49:02:51	0x0800	66	IP
3	0.000207	Dell_b1:9c:5d	Cisco_49:02:51	0x0800	238	IP
4	0.004482	Cisco_49:02:51	Dell_b1:9c:5d	0x0800	106	IP
5	0.004637	Dell_b1:9c:5d	Cisco_49:02:51	0x0800	254	IP
6	0.004936	Cisco_49:02:51	Dell_b1:9c:5d	0x0800	106	IP
7	0.005023	Dell_b1:9c:5d	Cisco_49:02:51	0x0800	254	IP
8	0.005221	Cisco_49:02:51	Dell_b1:9c:5d	0x0800	106	IP
9	0.005324	Dell_b1:9c:5d	Cisco_49:02:51	0x0800	238	IP
10	0.005523	Cisco_49:02:51	Dell_b1:9c:5d	0x0800	106	IP
11	0.005629	Dell_b1:9c:5d	Cisco_49:02:51	0x0800	182	IP
12	0.005848	Cisco_49:02:51	Dell_b1:9c:5d	0x0800	182	IP
13	0.005973	Dell_b1:9c:5d	Cisco_49:02:51	0x0800	194	IP

```
▶ Frame 1: 3270 bytes on wire (26160 bits), 3270 bytes captured (26160 bits)
▼ Ethernet II, Src: Cisco_49:02:51 (d0:d0:fd:49:02:51), Dst: Dell_b1:9c:5d (18:03:73:b1:9c:5d)
  ▶ Destination: Dell_b1:9c:5d (18:03:73:b1:9c:5d)
  ▶ Source: Cisco_49:02:51 (d0:d0:fd:49:02:51)
    Type: IP (0x0800)
▶ Data (3256 bytes)
```

```
0000  18 03 73 b1 9c 5d d0 d0  fd 49 02 51 08 00 45 00   ..s..].. .I.Q..E.
0010  0c b8 f8 26 40 00 3f 06  92 9e 90 26 c0 56 90 26   ...&@.?. ...&.V.&
0020  c3 d7 08 01 02 9f cb 62  18 e0 d4 13 ba c3 80 18   .......b ........
0030  01 f5 b1 25 00 00 01 01  08 0a 3a d0 18 8f 00 1c   ...%.... ..:.....
```

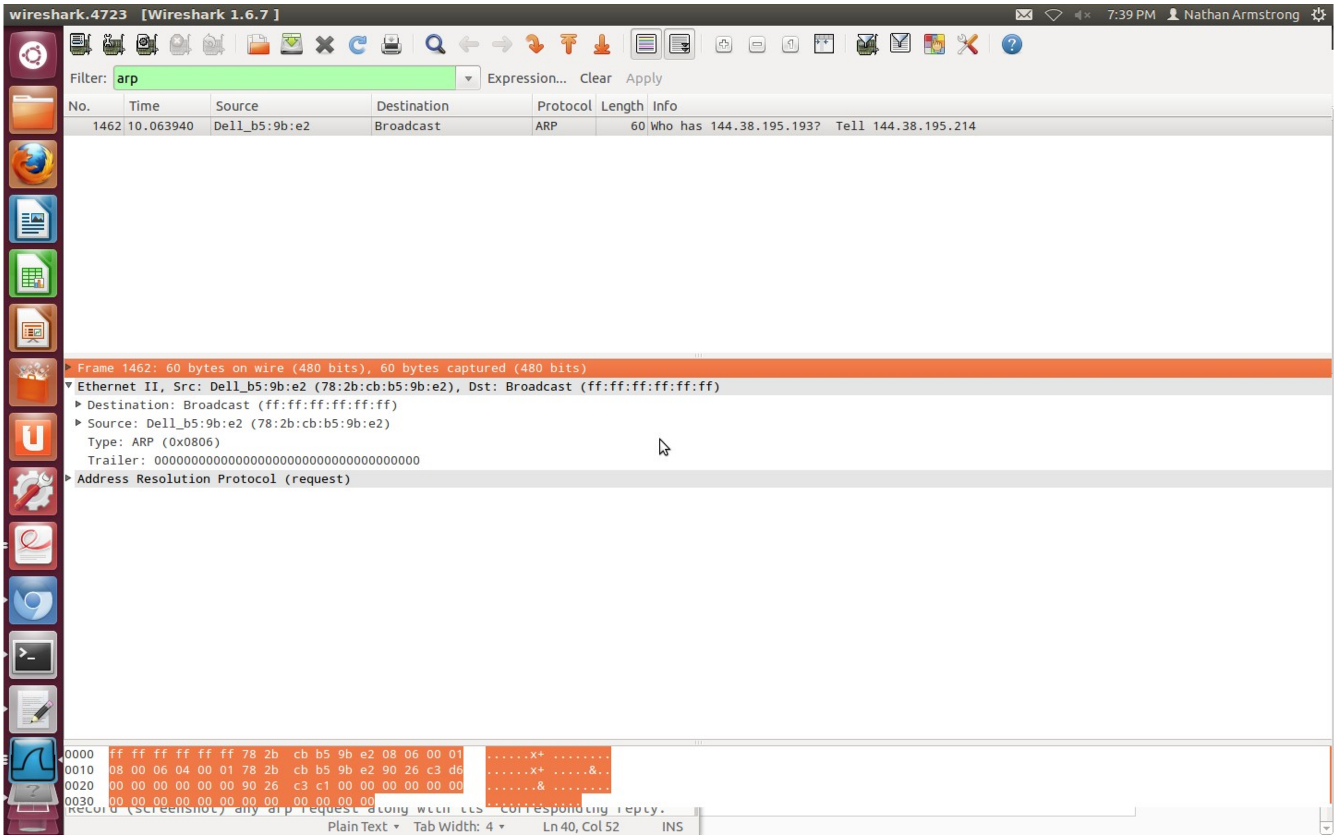
Record (screenshot) any arp request along with its corresponding reply.

Before you close wireshark, start a capture again and type ‘arp’ in the filter box. Now wireshark will only show you arp traffic. If you on your windows VM you should readily see some arp traffic. If you do not, issue the arp -d * command again, to delete all your arp entries and then visit a website again to generate some network traffic.

What is in the ‘Info’ section of any arp frame?

Answer: Who has 144.38.195.193? Tell 144.38.195.214

Record (screenshot) any arp request along with its’ corresponding reply.



Filter: arp

No.	Time	Source	Destination	Protocol	Length	Info
1462	10.063940	Dell_b5:9b:e2	Broadcast	ARP	60	Who has 144.38.195.193? Tell 144.38.195.214

```
▸ Frame 1462: 60 bytes on wire (480 bits), 60 bytes captured (480 bits)
▾ Ethernet II, Src: Dell_b5:9b:e2 (78:2b:cb:b5:9b:e2), Dst: Broadcast (ff:ff:ff:ff:ff:ff)
  ▸ Destination: Broadcast (ff:ff:ff:ff:ff:ff)
  ▸ Source: Dell_b5:9b:e2 (78:2b:cb:b5:9b:e2)
    Type: ARP (0x0806)
    Trailer: 000000000000000000000000000000000000
▸ Address Resolution Protocol (request)
```

```
0000  ff ff ff ff ff ff 78 2b  cb b5 9b e2 08 06 00 01   ......x+ ........
0010  08 00 06 04 00 01 78 2b  cb b5 9b e2 90 26 c3 d6   ......x+ .....&..
0020  00 00 00 00 00 00 90 26  c3 c1 00 00 00 00 00 00   .......& ........
0030  00 00 00 00 00 00 00 00  00 00 00 00               ........ ....
```