CS352 Project 2: Wireshark

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1.)

Trace File located within folder

2.)

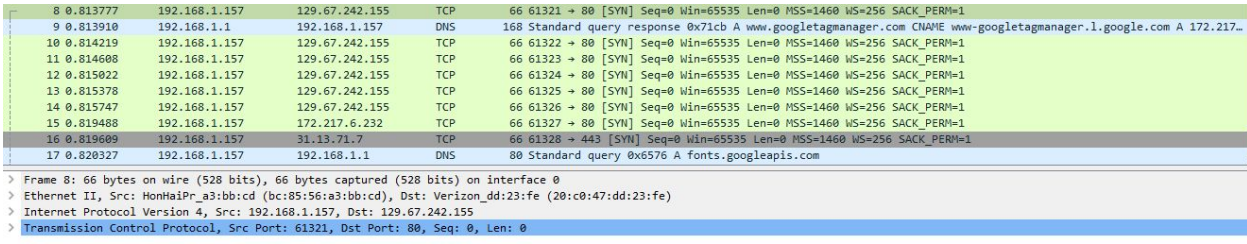
A. The most common is TCP (Transmission Control Protocol)

B. TCP sets up a connection and HTTP transfers data through that connection

C.

3.)

A. 16 0.819609 192.168.1.157 31.13.71.7 TCP 66 61328 → 443 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM=1



a.

B.

Layer	**Protocol**
Network	IP
Transport	TCP
Application	HTTP

4.)

A.

```
Wireless LAN adapter Wi-Fi:

   Connection-specific DNS Suffix  . : fios-router.home
   Description . . . . . . . . . . . : Ralink RT3290 802.11bgn Wi-Fi Adapter
   Physical Address. . . . . . . . . : BC-85-56-A3-BB-CD
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes
   Link-local IPv6 Address . . . . . : fe80::60b0:b4d9:d90a:bc51%8(Preferred)
   IPv4 Address. . . . . . . . . . . : 192.168.1.157(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Lease Obtained. . . . . . . . . . : Saturday, July 13, 2019 6:54:28 PM
   Lease Expires . . . . . . . . . . : Monday, July 15, 2019 10:00:13 PM
   Default Gateway . . . . . . . . . : 192.168.1.1
   DHCP Server . . . . . . . . . . . : 192.168.1.1
   DHCPv6 IAID . . . . . . . . . . . : 62686550
   DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-22-2C-06-2B-6C-3B-E5-8D-A7-C1
   DNS Servers . . . . . . . . . . . : 192.168.1.1
   NetBIOS over Tcpip. . . . . . . . : Enabled
   Connection-specific DNS Suffix Search List :
                                       fios-router.home
```

B. I can find the MAC address in the trace. The MAC address for my machine is BC:85:56:A3:BB:CD

```
> Frame 125: 54 bytes on wire (432 bits), 54 bytes captured (432 bits) on interface 0
v Ethernet II, Src: HonHaiPr_a3:bb:cd (bc:85:56:a3:bb:cd), Dst: Verizon_dd:23:fe (20:c0:47:dd:23:fe)
  > Destination: Verizon_dd:23:fe (20:c0:47:dd:23:fe)
  > Source: HonHaiPr_a3:bb:cd (bc:85:56:a3:bb:cd)
    Type: IPv4 (0x0800)
> Internet Protocol Version 4, Src: 192.168.1.157, Dst: 31.13.71.36
> Transmission Control Protocol, Src Port: 61339, Dst Port: 443, Seq: 1, Ack: 1, Len: 0
```

a.

C. No, the destination is the Verizon router since that is the provider for my internet service. We are connecting to this device because we need to travel through a series of routers to get to that web service. Therefore, from my machine I must first connect to a device that will allow me to reach the router of the web server.

5.)

A. I did get 4 replies. The time refers to how long it took for the ping and acknowledgements to get through.

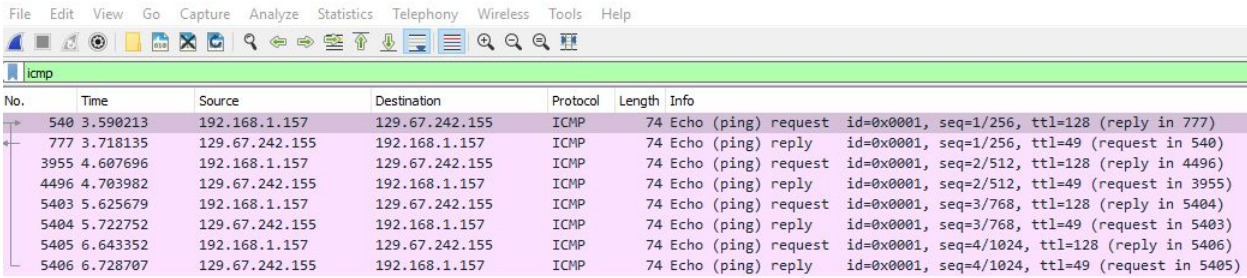
a.

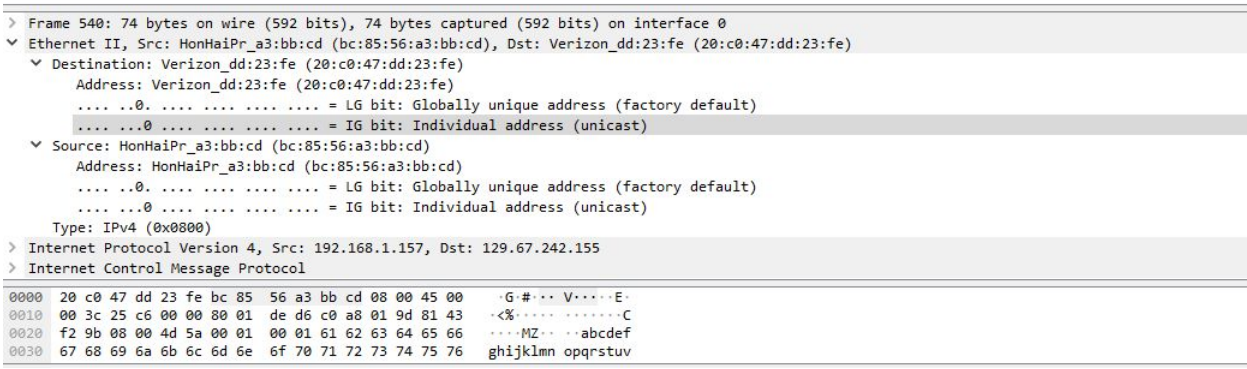
```
C:¥Users¥nikit>ping www.ox.ac.uk

Pinging www.ox.ac.uk [129.67.242.155] with 32 bytes of data:
Reply from 129.67.242.155: bytes=32 time=128ms TTL=49
Reply from 129.67.242.155: bytes=32 time=96ms TTL=49
Reply from 129.67.242.155: bytes=32 time=97ms TTL=49
Reply from 129.67.242.155: bytes=32 time=85ms TTL=49

Ping statistics for 129.67.242.155:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 85ms, Maximum = 128ms, Average = 101ms
```

b.





B. The time is greater than in part A. This is because New Zealand is where this server is located. Since NZ is further away than the UK, we can see that it takes longer to reach this website. 2(Distance / Propagation Factor) = RTT.

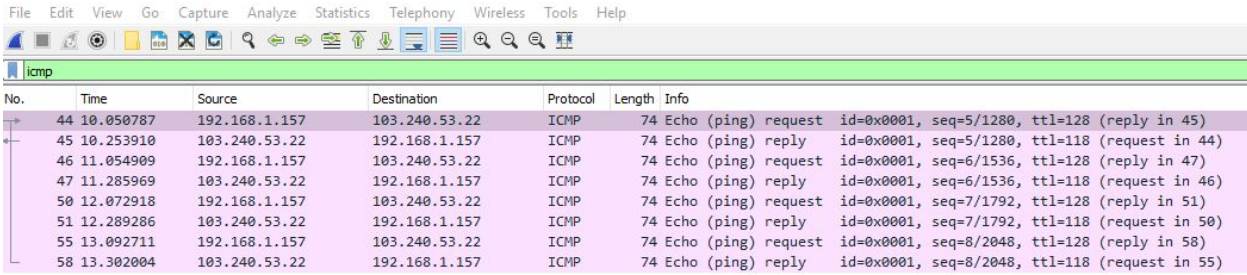
a.

```
C:¥Users¥nikit>ping www.lincoln.ac.nz

Pinging www.lincoln.ac.nz [103.240.53.22] with 32 bytes of data:
Reply from 103.240.53.22: bytes=32 time=203ms TTL=118
Reply from 103.240.53.22: bytes=32 time=231ms TTL=118
Reply from 103.240.53.22: bytes=32 time=216ms TTL=118
Reply from 103.240.53.22: bytes=32 time=209ms TTL=118

Ping statistics for 103.240.53.22:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 203ms, Maximum = 231ms, Average = 214ms
```

b.



No.	Time	Source	Destination	Protocol	Length	Info
44	10.050787	192.168.1.157	103.240.53.22	ICMP	74	Echo (ping) request id=0x0001, seq=5/1280, ttl=128 (reply in 45)
45	10.253910	103.240.53.22	192.168.1.157	ICMP	74	Echo (ping) reply id=0x0001, seq=5/1280, ttl=118 (request in 44)
46	11.054909	192.168.1.157	103.240.53.22	ICMP	74	Echo (ping) request id=0x0001, seq=6/1536, ttl=128 (reply in 47)
47	11.285969	103.240.53.22	192.168.1.157	ICMP	74	Echo (ping) reply id=0x0001, seq=6/1536, ttl=118 (request in 46)
50	12.072918	192.168.1.157	103.240.53.22	ICMP	74	Echo (ping) request id=0x0001, seq=7/1792, ttl=128 (reply in 51)
51	12.289286	103.240.53.22	192.168.1.157	ICMP	74	Echo (ping) reply id=0x0001, seq=7/1792, ttl=118 (request in 50)
55	13.092711	192.168.1.157	103.240.53.22	ICMP	74	Echo (ping) request id=0x0001, seq=8/2048, ttl=128 (reply in 58)
58	13.302004	103.240.53.22	192.168.1.157	ICMP	74	Echo (ping) reply id=0x0001, seq=8/2048, ttl=118 (request in 55)

```
> Frame 44: 74 bytes on wire (592 bits), 74 bytes captured (592 bits) on interface 0
> Ethernet II, Src: HonHaiPr_a3:bb:cd (bc:85:56:a3:bb:cd), Dst: Verizon_dd:23:fe (20:c0:47:dd:23:fe)
> Internet Protocol Version 4, Src: 192.168.1.157, Dst: 103.240.53.22
> Internet Control Message Protocol
```

```
0000  20 c0 47 dd 23 fe bc 85  56 a3 bb cd 08 00 45 00    ·G·#··· V·····E·
0010  00 3c 73 d2 00 00 80 01  67 a3 c0 a8 01 9d 67 f0   ·<s····· g·····g·
0020  35 16 08 00 4d 56 00 01  00 05 61 62 63 64 65 66   5···MV·· ··abcdef
0030  67 68 69 6a 6b 6c 6d 6e  6f 70 71 72 73 74 75 76   ghijklmn opqrstuv
```