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CS 145 THWMXY-HONOR

CS145 Lab Exercise 3: Wireshark Lab - Internet Protocol and Traceroute Operation

1. 9 routers, not including the server hosting the Philippine Daily Inquirer.

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Terminal
traceroute to www.inquirer.net (104.20.30.186), 30 hops max, 60 byte packets
 1 10.40.80.1 (10.40.80.1) 0.622 ms 0.782 ms 0.939 ms
 2 10.255.0.149 (10.255.0.149) 0.505 ms 0.789 ms 1.006 ms
 3 nat.upd.edu.ph (10.16.1.2) 0.278 ms 0.275 ms 0.266 ms
 4 border-gateway.upd.edu.ph (202.92.128.254) 1.010 ms 1.052 ms 0.964 ms
 5 111.125.73.1 (111.125.73.1) 2.134 ms 2.119 ms 2.139 ms
 6 202.69.178.97 (202.69.178.97) 1.852 ms 1.896 ms 1.847 ms
 7 202.69.174.26 (202.69.174.26) 12.997 ms 12.566 ms 12.573 ms
 8 202.69.178.42 (202.69.178.42) 1.868 ms 1.858 ms 1.850 ms
 9 117.58.222.128 (117.58.222.128) 21.825 ms 21.776 ms 21.804 ms
10 104.20.30.186 (104.20.30.186) 21.582 ms 22.848 ms 22.839 ms

CS145THWMXYHONOR@t3-25 ~$ traceroute www.inquirer.net
traceroute to www.inquirer.net (104.20.31.186), 30 hops max, 60 byte packets
 1 10.40.80.1 (10.40.80.1) 0.511 ms 0.941 ms 1.115 ms
 2 10.255.0.149 (10.255.0.149) 0.518 ms 0.782 ms 0.964 ms
 3 nat.upd.edu.ph (10.16.1.2) 0.240 ms 0.252 ms 0.242 ms
 4 border-gateway.upd.edu.ph (202.92.128.254) 1.093 ms 1.084 ms 1.056 ms
 5 111.125.73.1 (111.125.73.1) 2.324 ms 2.173 ms 2.309 ms
 6 202.69.178.97 (202.69.178.97) 1.867 ms 1.717 ms 1.661 ms
 7 202.69.174.26 (202.69.174.26) 1.675 ms 1.756 ms 1.741 ms
 8 202.69.178.42 (202.69.178.42) 1.621 ms 1.652 ms 1.599 ms
 9 117.58.222.128 (117.58.222.128) 21.608 ms 21.600 ms 21.683 ms
10 104.20.31.186 (104.20.31.186) 21.425 ms 21.523 ms 21.605 ms
```

2. Packet #7

Filter: udp

No.	Time	Source	Destination	Protocol	Length	Info
3	3.719652000	10.40.80.35	10.32.1.7	DNS	76	Standard query 0x4068
4	3.719713000	10.40.80.35	10.32.1.7	DNS	76	Standard query 0x4068
5	3.720345000	10.32.1.7	10.40.80.35	DNS	250	Standard query response 0x4068
6	3.720345000	10.32.1.7	10.40.80.35	DNS	274	Standard query response 0x4068
7	3.743855000	10.40.80.35	104.20.30.186	UDP	74	Source port: 43222
8	3.743891000	10.40.80.35	104.20.30.186	UDP	74	Source port: 46673
9	3.743926000	10.40.80.35	104.20.30.186	UDP	74	Source port: 57327
10	3.743951000	10.40.80.35	104.20.30.186	UDP	74	Source port: 33886
11	3.743981000	10.40.80.35	104.20.30.186	UDP	74	Source port: 37535
12	3.744003000	10.40.80.35	104.20.30.186	UDP	74	Source port: 57261
13	3.744022000	10.40.80.35	104.20.30.186	UDP	74	Source port: 54893
14	3.744040000	10.40.80.35	104.20.30.186	UDP	74	Source port: 46060

Frame 7: 74 bytes on wire (592 bits), 74 bytes captured (592 bits) on interface 0

Ethernet II, Src: WistronI_c6:55:e6 (f8:0f:41:c6:55:e6), Dst: Cisco_f6:ec:48 (c0:62:6b:f6:ec:48)

Internet Protocol Version 4, Src: 10.40.80.35 (10.40.80.35), Dst: 104.20.30.186 (104.20.30.186)

Version: 4

Header length: 20 bytes

Differentiated Services Field: 0x00 (DSCP 0x00: Default; ECN: 0x00: Not-ECT (Not ECN-Capable Transport))

Total Length: 60

Identification: 0x8327 (33575)

Flags: 0x00

Fragment offset: 0

Time to live: 1

Protocol: UDP (17)

Header checksum: 0x5571 [validation disabled]

Source: 10.40.80.35 (10.40.80.35)

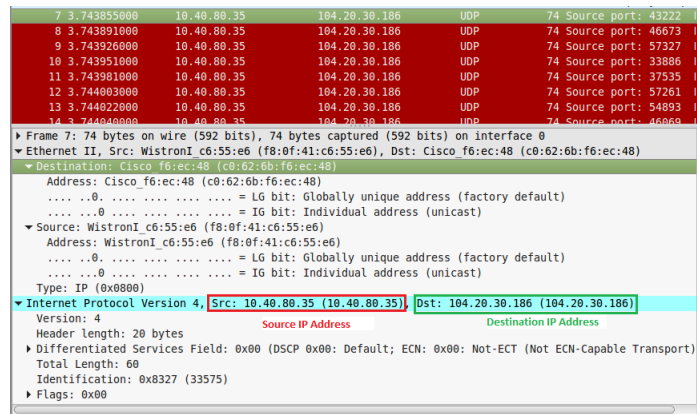
Destination: 104.20.30.186 (104.20.30.186)

[Source GeoIP: Unknown]

[Destination GeoIP: Unknown]

User Datagram Protocol, Src Port: 43222 (43222), Dst Port: traceroute (33434)

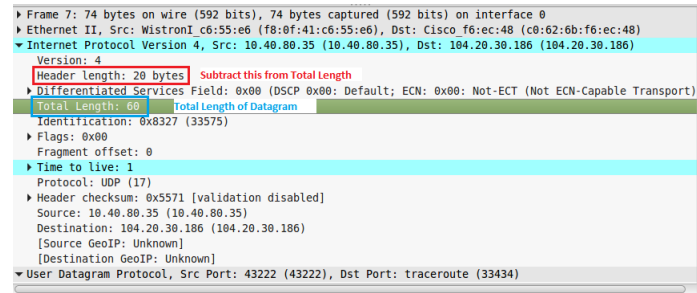
3. IP Address (Computer): 10.40.80.35
IP Address (Website): 104.20.30.186



4. IP Header: **20 bytes**

IP Datagram Payload: **40 bytes**

As annotated, the total length of the IP Datagram is 60 bytes. To get the payload, subtract the IP Header bytes from the total length of the datagram. Hence, $60 - 20 = 40$ bytes.



5. The Identification and the Checksum. They are as follows:

- Packet #7: 0x8327 (Identification), 0x5571 (Checksum)
- Packet #8: 0x8328 (Identification), 0x5570 (Checksum)
- Packet #9: 0x8329 (Identification), 0x556f (Checksum)

6. The Internet Protocol Version, Header Length, Differentiated Services Field, Flags, TTL, Protocol, Source, and Destination.

7. The values in the Identification field increase by 1 each succeeding packet.