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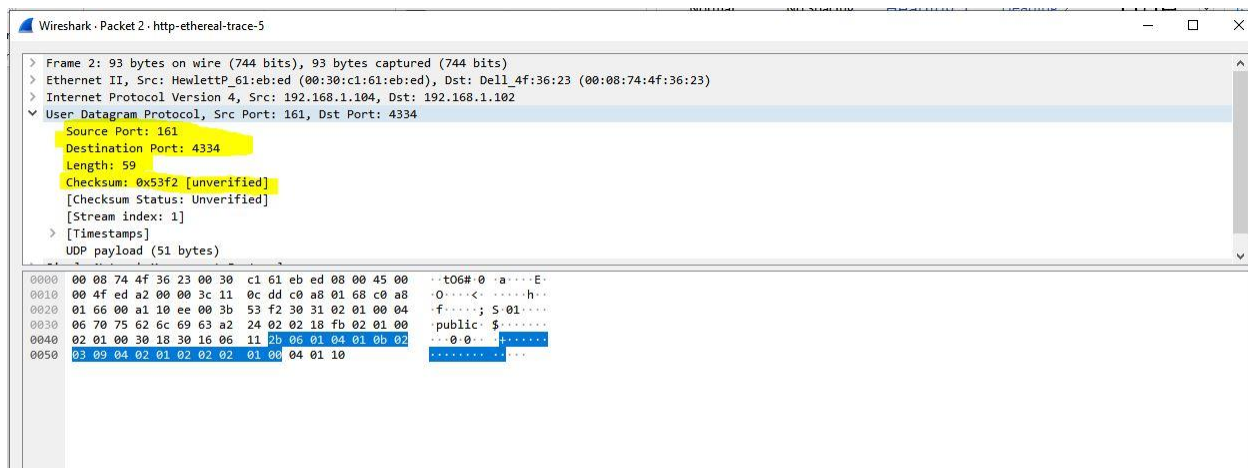
Roll no: 19P-0061

Section: 5-B

UDP TASKS

1. 4 Fields in UDP header:

- Source Port
- Destination Port
- Length
- Checksum



2.

UDP header is 16 hexadecimal characters long; 16 hex = 64 bits = 8 bytes.

```
Wireshark · Packet 2 · http-ethereal-trace-5

> Frame 2: 93 bytes on wire (744 bits), 93 bytes captured (744 bits)
> Ethernet II, Src: HewlettP_61:eb:ed (00:30:c1:61:eb:ed), Dst: Dell_4f:36:23 (00:08:74:4f:36:23)
> Internet Protocol Version 4, Src: 192.168.1.104, Dst: 192.168.1.102
> User Datagram Protocol, Src Port: 161, Dst Port: 4334
  Source Port: 161
  Destination Port: 4334
  Length: 59
  Checksum: 0x53f2 [unverified]
  [Checksum Status: Unverified]
  [Stream index: 1]
  [Timestamps]
  UDP payload (51 bytes)

0000 00 08 74 4f 36 23 00 30 c1 61 eb ed 08 00 45 00  ..t06# 0 a....E-
0010 00 4f ed a2 00 00 3c 11 0c dd c0 a8 01 68 c0 a8  -O....<....h..
0020 01 66 00 a1 10 ee 00 3b 53 f2 30 31 02 01 00 04  -f.....;S;01....
0030 06 70 75 62 6c 69 63 a2 24 02 02 18 fb 02 01 00  -public $.....
0040 02 01 00 30 18 30 16 06 11 2b 06 01 04 01 0b 02  --0-0- ++++++
0050 03 09 04 02 01 02 02 02 01 00 04 01 10  ....

```

3.

Value in the length field is size in bytes of the entire segment i.e., “**header+payload**”.

We do not need to specify header length separately because all UDP headers are of the same size.

My captured packet shows length = 59 and payload = 51; 59 - 8 = 51 bytes.

```
Wireshark · Packet 2 · http-ethereal-trace-5

> Frame 2: 93 bytes on wire (744 bits), 93 bytes captured (744 bits)
> Ethernet II, Src: HewlettP_61:eb:ed (00:30:c1:61:eb:ed), Dst: Dell_4f:36:23 (00:08:74:4f:36:23)
> Internet Protocol Version 4, Src: 192.168.1.104, Dst: 192.168.1.102
> User Datagram Protocol, Src Port: 161, Dst Port: 4334
  Source Port: 161
  Destination Port: 4334
  Length: 59
  Checksum: 0x53f2 [unverified]
  [Checksum Status: Unverified]
  [Stream index: 1]
  [Timestamps]
  UDP payload (51 bytes)

0000 00 08 74 4f 36 23 00 30 c1 61 eb ed 08 00 45 00  ..t06# 0 a....E-
0010 00 4f ed a2 00 00 3c 11 0c dd c0 a8 01 68 c0 a8  -O....<....h..
0020 01 66 00 a1 10 ee 00 3b 53 f2 30 31 02 01 00 04  -f.....;S;01....
0030 06 70 75 62 6c 69 63 a2 24 02 02 18 fb 02 01 00  -public $.....
0040 02 01 00 30 18 30 16 06 11 2b 06 01 04 01 0b 02  --0-0- ++++++
0050 03 09 04 02 01 02 02 02 01 00 04 01 10  ....

```

4.

Max size of UDP payload is

$(2^{16})-1$

We also need to deduct an extra 8 bytes for the header. So, the maximum size of the payload can be 65527 bytes.

5.

The largest possible port number is **$(2^{16})-1$** which is equal to **65535 bytes**.

6.

The protocol number for UDP is 11 in hexadecimal which is equal to 17 in decimal.

Wireshark · Packet 2 · http-ethereal-trace-5

```
> Frame 2: 93 bytes on wire (744 bits), 93 bytes captured (744 bits) on 0
> Ethernet II, Src: HewlettP_61:eb:ed (00:30:c1:61:eb:ed), Dst: Dell_4f:36:23 (00:08:74:4f:36:23)
> Internet Protocol Version 4, Src: 192.168.1.104, Dst: 192.168.1.102
  0100 .... = Version: 4
  .... 0101 = Header Length: 20 bytes (5)
  > Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
    Total Length: 79
    Identification: 0xeda2 (60834)
  > Flags: 0x00
    Fragment Offset: 0
    Time to Live: 60
    Protocol: UDP (17)
```

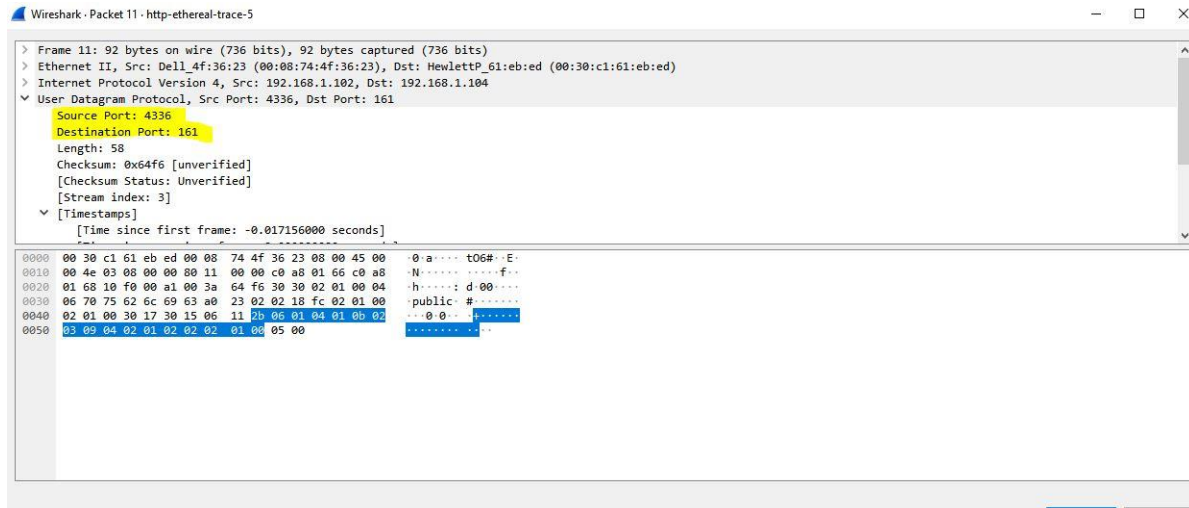
0000	00 08 74 4f 36 23 00 30	c1 61 eb ed 08 00 45 00	..t06#0.a....E.
0010	00 4f ed a2 00 00 3c 11	0c dd c0 a8 01 68 c0 a8	.O....<.....h..
0020	01 66 00 a1 10 ee 00 3b	53 f2 30 31 02 01 00 04	.f.....;S-01....
0030	06 70 75 62 6c 69 63 a2	24 02 02 18 fb 02 01 00	.public.\$.....
0040	02 01 00 30 18 30 16 06	11 2b 06 01 04 01 0b 02	...0-0-...+.....
0050	03 09 04 02 01 02 02 02	01 00 04 01 10

7.

Packet 1

Source port:4336

Destination Port:161



Packet 2

Source Port:161

Destination Port:4337

