COMPUTER NETWORKS

ASSIGNMENT 3

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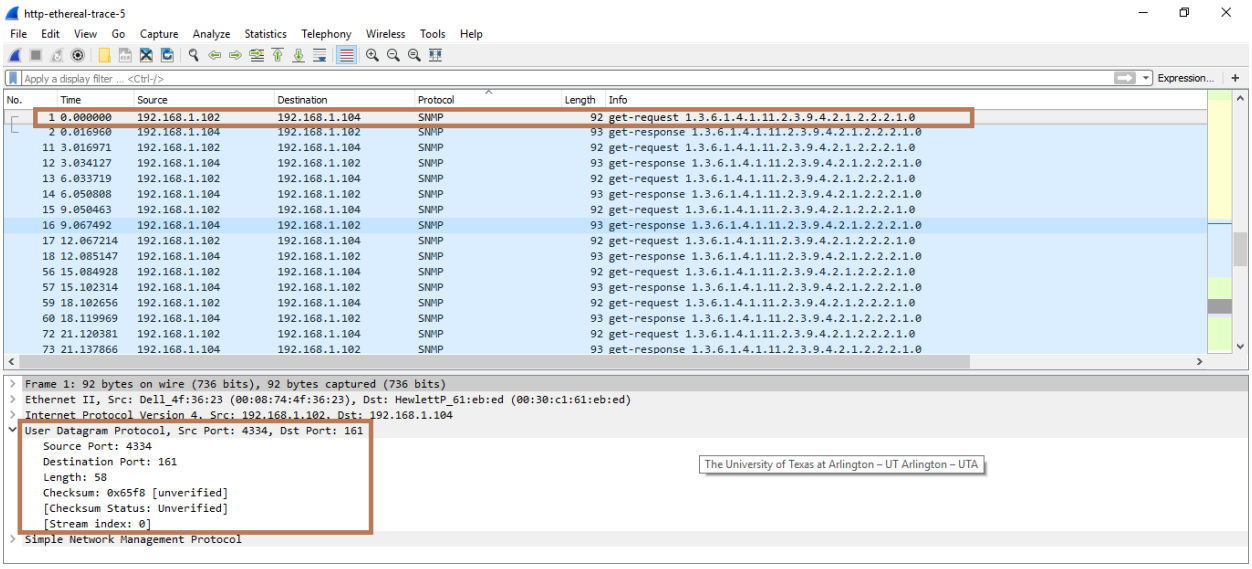
QUESTION 1: -

1.Select one UDP packet from your trace. From this packet, determine how many fields there are in the UDP header. (You shouldn't look in the textbook! Answer these questions directly from what you observe in the packet trace.) Name these fields.

Answer: The screenshot describes the first packet of the UDP in the captured file.
It explains in the information section that it has UDP fields.
The UDP packet contains four fields in the UDP header.
They are as follows :

- Source Port
- Destination Port
- Length
- Checksum



QUESTION 2:

2.By consulting the displayed information in Wireshark's packet content field for this packet, determine the length (in bytes) of each of the UDP header fields.

Answer: The length(in bytes) of each of the UDP header fields are as follows:

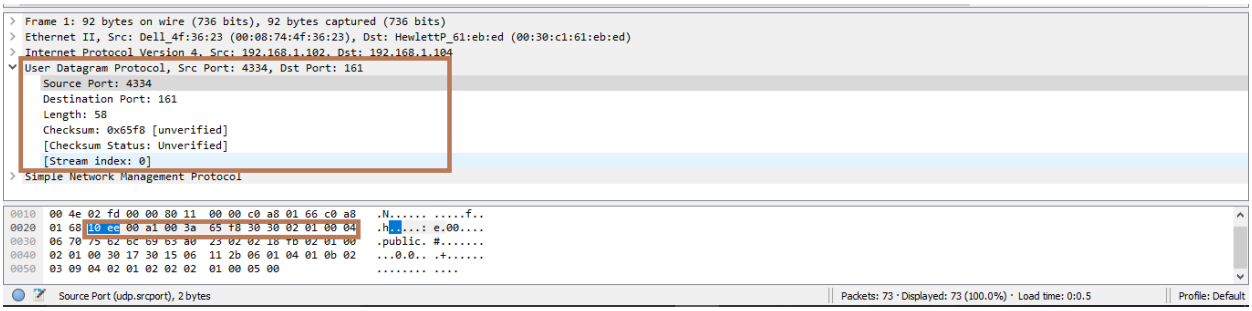
Each field has 2 bytes.

Source port: 2 bytes

Destination port: 2 bytes

Length: 2 bytes

Checksum: 2 bytes



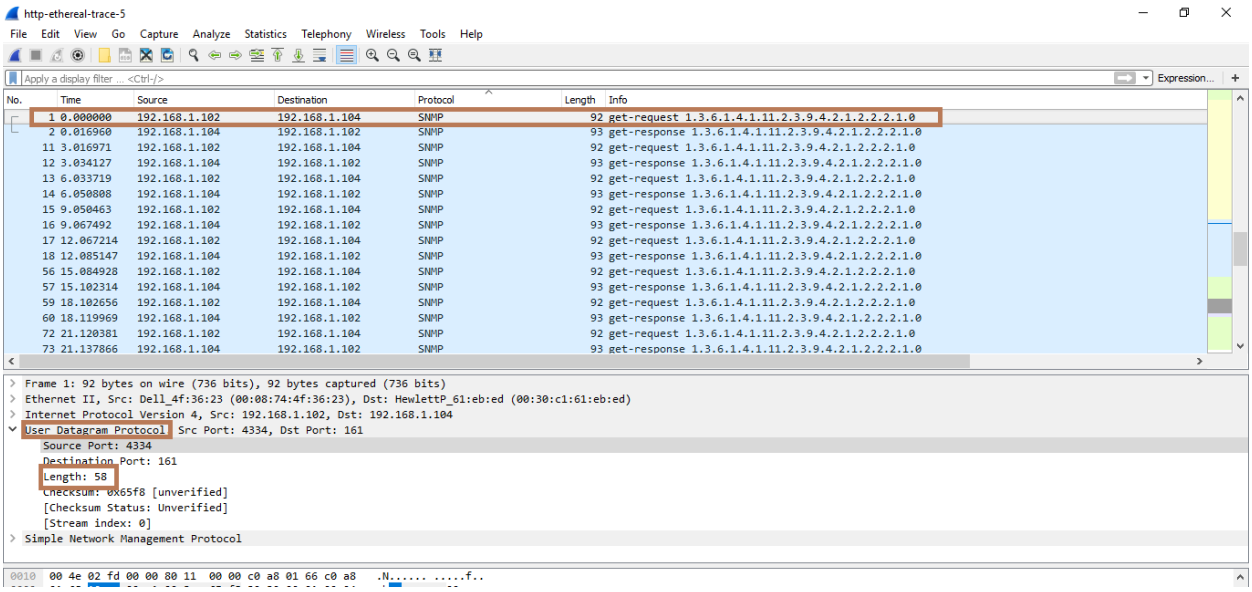
This explains that the UDP packet header and each of its fields contain only 2 bytes.

QUESTION 3

3.The value in the Length field is the length of what? (You can consult the text for this answer). Verify your claim with your captured UDP packet.

Answer: The value of the Length field in the Length- UDP packet is 58 bytes.

The length field provides the number of bytes in the UDP segment (header information + data information) which explains that 8 bytes are the sum of the header bytes and the remaining data bytes encapsulated in the UDP packet itself.



QUESTION 4

4. What is the maximum number of bytes that can be included in a UDP payload? (Hint: the answer to this question can be determined by your answer to 2. above)

Answer:

The maximum possible number of bytes that can be included in a UDP payload are 2^16 = 65535.The bytes already used by the header field is 8 bytes. Thus, the maximum payload would be 65535-8 = 65527.

QUESTION 5

5. What is the largest possible source port number? (Hint: see the hint in 4.)

Answer:

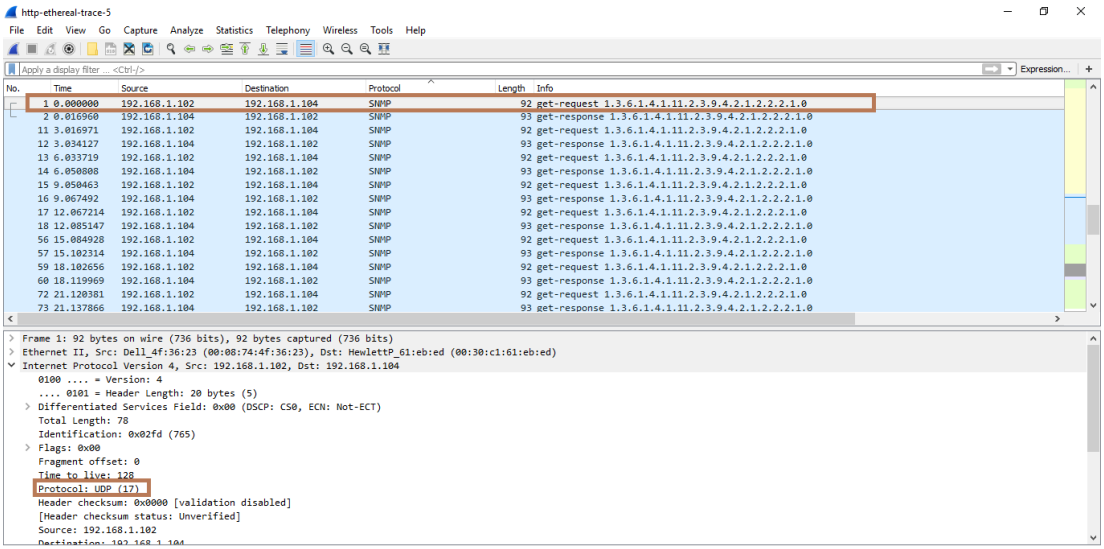
The largest possible source port number = 2^16 = 65535.

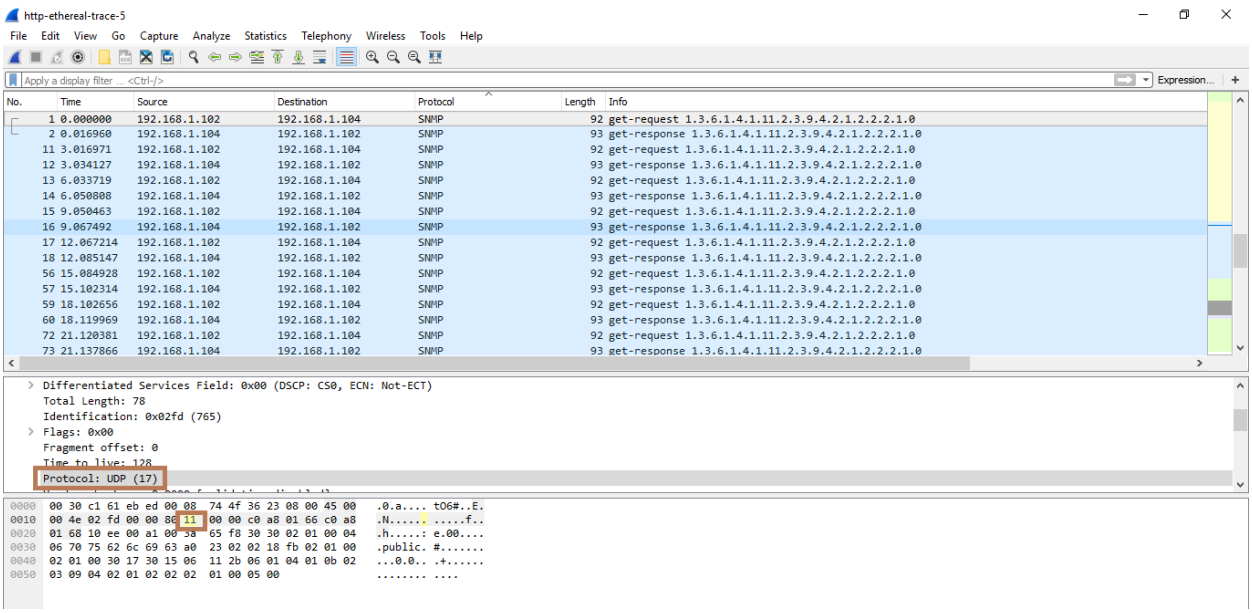
QUESTION 6

6. What is the protocol number for UDP? Give your answer in both hexadecimal and decimal notation. To answer this question, you'll need to look into the Protocol field of the IP datagram containing this UDP segment (see Figure 4.13 in the text, and the discussion of IP header fields).

Answer:

The protocol number for UDP is 17 in decimal notation that is equivalent to 0x11 in the hexadecimal notation. The screenshot describes the UDP protocol number as 17.





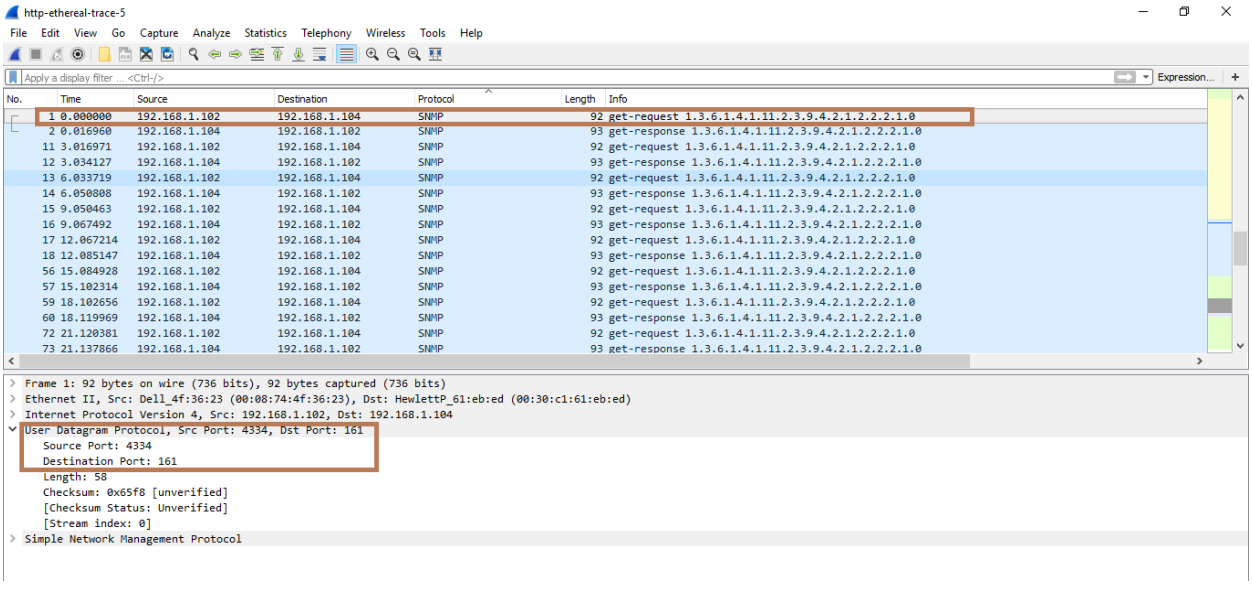
QUESTION 7

7. Examine a pair of UDP packets in which your host sends the first UDP packet and the second UDP packet is a reply to this first UDP packet. (Hint: for a second packet to be sent in response to a first packet, the sender of the first packet should be the destination of the second packet). Describe the relationship between the port numbers in the two packets.

Answer:

The relationship between these two port numbers in these two packets are the source port on the send message will act as a destination port of the receive message.

The destination port is used to the send message acts as the source port for the receive message. UDP sent from the host are as follows



UDP reply to the host