



Lab Report

CSE361, Computer networks

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Lab No: (4) Experiment Title: Wireshark Lab:UDP v8.1

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1. Select the first UDP segment in your trace. What is the packet number4 of this segment in the trace file?

```
15 22:34:40.807265 10.0.0.44 → 75.75.75.75 DNS 77 Standard query 0x3c29 A gaia.cs.umass.edu
```

15

What type of application-layer payload or protocol message is being carried in this UDP segment? L

DNS

look at the details of this packet in Wireshark. 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.) What are the names of these fields?

```
User Datagram Protocol, Src Port: 58350, Dst Port: 53
Source Port: 58350
Destination Port: 53
Length: 43
Checksum: 0xc31d [unverified]
```

1. By consulting the displayed information in Wireshark's packet content field for this packet (or by consulting the textbook), what is the length (in bytes) of each of the UDP header fields?

source port: e3 ee

Destination: 00 35

Length: 00 2b

checksum: c3 1d

```
User Datagram Protocol, Src Port: 58350, Dst Port: 53
Source Port: 58350
Destination Port: 53
Length: 43
Checksum: 0xc31d [unverified]
```

2. 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.

```
▼ User Datagram Protocol, Src Port: 58350, Dst Port: 53
  Source Port: 58350
  Destination Port: 53
  Length: 43
  Checksum: 0xc31d [unverified]
  [Checksum Status: Unverified]
  [Stream index: 1]
  [Stream Packet Number: 1]
  ▶ [Timestamps]
  UDP payload (35 bytes)
```

The subtraction of length - the 8 bytes of the 4 headers = $43 - 8 = 35$

3. 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)

UDP payload is $65,535 - 8 = 65,527$ bytes.

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

the largest source port number = 65,535.

5. What is the protocol number for UDP? Give your answer in 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).

```
0100 .... = Version: 4
.... 0101 = Header Length: 20 bytes (5)
▶ Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
Total Length: 63
Identification: 0x4c16 (19478)
▶ 000. .... = Flags: 0x0
...0 0000 0000 0000 = Fragment Offset: 0
Time to Live: 255
Protocol: UDP (17)
```

UDP(17)

6. Examine the 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). What is the packet number⁵ of the first of these two UDP segments in the trace file?

→	15	22:34:40.807265	10.0.0.44	75.75.75.75	DNS	77	Standard query 0x3c29 A gaia.cs.umass.edu
←	17	22:34:40.831173	75.75.75.75	10.0.0.44	DNS	93	Standard query response 0x3c29 A gaia.cs.umass.edu A 128.119.245.12

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What is the value in the source port field in this UDP segment?

► User Datagram Protocol, Src Port: 58350, Dst Port: 53

58350

What is the value in the destination port field in this UDP segment?

► User Datagram Protocol, Src Port: 58350, Dst Port: 53

53

What is the packet number⁶ of the second of these two UDP segments in the trace file?

→	15	22:34:40.807265	10.0.0.44	75.75.75.75	DNS	77	Standard query 0x3c29 A gaia.cs.umass.edu
←	17	22:34:40.831173	75.75.75.75	10.0.0.44	DNS	93	Standard query response 0x3c29 A gaia.cs.umass.edu A 128.119.245.12

17

What is the value in the source port field in this second UDP segment?

User Datagram Protocol, Src Port: 53, Dst Port: 58350

53

What is the value in the destination port field in this second UDP segment? Describe the relationship between the port numbers in the two packets.

User Datagram Protocol, Src Port: 53, Dst Port: 58350

58350