VIETNAM NATIONAL UNIVERSITY HO CHI MINH CITY
HO CHI MINH CITY UNIVERSITY OF TECHNOLOGY
FACULTY OF COMPUTER SCIENCE AND ENGINEERING

COMPUTER NETWORKS (LAB)

Report lab 4b

Wireshark Lab: UDP v8.0

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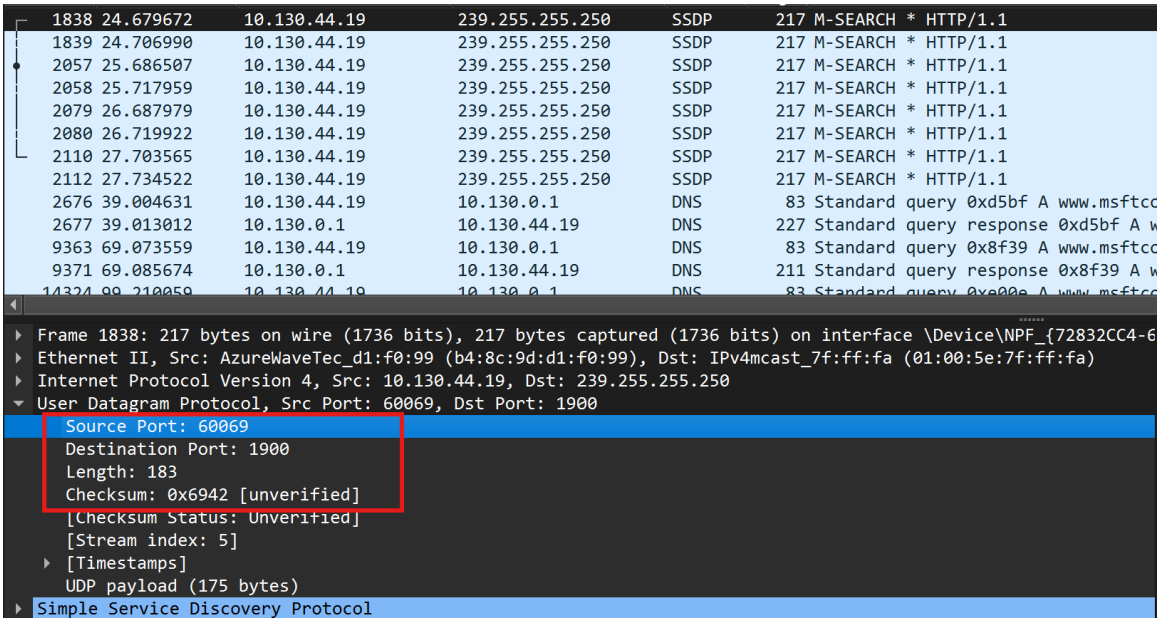
Contents

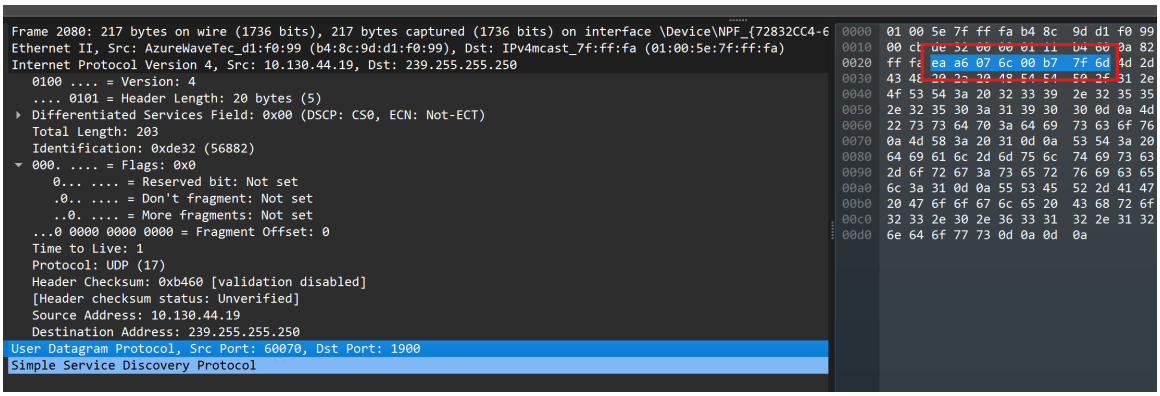
1 Exercise

- **Question 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.

  There are 4 fields in my the UDP header: Source port, destination port, length, checksum.



- **Question 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. The length of UDP headers are always 8 bytes. Hence, the length of each UDP header fields is 2 bytes.



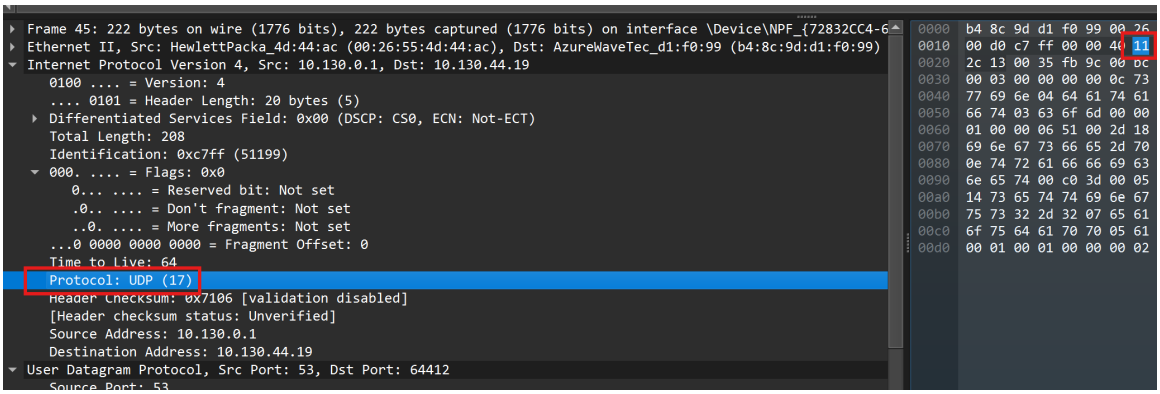
- **Question 3:** The value in the Length field is the length of what? (You can consult the text for this answer). Verify your claim with your captured UDP packet.
  The length field is the length of header plus data. As showing in the picture below: Legth = header length + payload length = 8 + 175 = 182 (bytes).

```
User Datagram Protocol, Src Port: 60070, Dst Port: 1900
    Source Port: 60070
    Destination Port: 1900
    Length: 183
    Checksum: 0x7f6d [unverified]
    [Checksum Status: Unverified]
    [Stream index: 6]
  ▸ [Timestamps]
    UDP payload (175 bytes)
```

- **Question 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)
  Maximum length of UDP payload = Maximum datagram length - Header length = 65535 - 8 = 65527 (bytes).

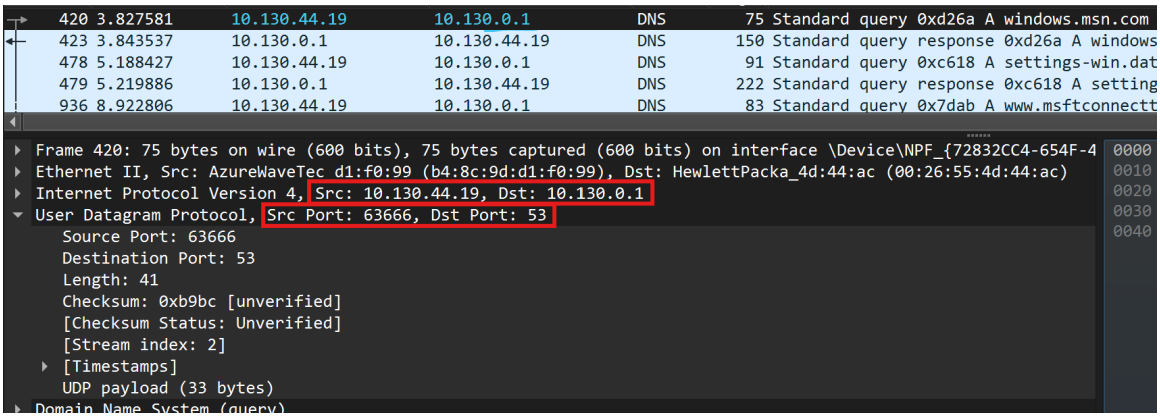
- **Question 5:** What is the largest possible source port number? (Hint: see the hint in 4.)
  Source port number is limited by 16 bits. Hence, the largest possible source port number is $2^{16} - 1 = 65535$.

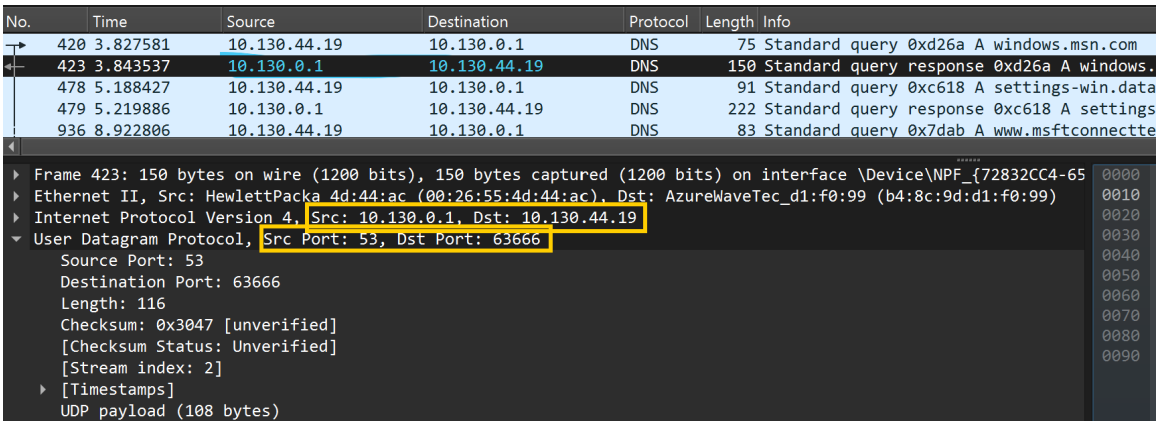
- **Question 6:** What is the protocol number for UDP? Give your answer in both hexadecimal and decimal notation. To answer this question, you'll need to look into the Protocol field of the IP datagram containing this UDP segment (see Figure 4.13 in the text, and the discussion of IP header fields).
  The protocol number for UDP: 17 (decimal) or 0x11 (hexadecimal).



- **Question 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.

The source port of the sender and the destination port of the recevier are the same (63666), the destination port of the sender and the source port of the receiver are the same (53).




No. Time Source Destination Protocol Length Info
420 3.827581 10.130.44.19 10.130.0.1 DNS 75 Standard query 0xd26a A windows.msn.com
423 3.843537 10.130.0.1 10.130.44.19 DNS 150 Standard query response 0xd26a A windows.
478 5.188427 10.130.44.19 10.130.0.1 DNS 91 Standard query 0xc618 A settings-win.data
479 5.219886 10.130.0.1 10.130.44.19 DNS 222 Standard query response 0xc618 A settings
936 8.922806 10.130.44.19 10.130.0.1 DNS 83 Standard query 0x7dab A www.msftconnectte
Frame 423: 150 bytes on wire (1200 bits), 150 bytes captured (1200 bits) on interface \Device\NPF_{72832CC4-65
Ethernet II, Src: HewlettPacka 4d:44:ac (00:26:55:4d:44:ac), Dst: AzureWaveTec_d1:f0:99 (b4:8c:9d:d1:f0:99)
Internet Protocol Version 4, Src: 10.130.0.1, Dst: 10.130.44.19
User Datagram Protocol, Src Port: 53, Dst Port: 63666
Source Port: 53
Destination Port: 63666
Length: 116
Checksum: 0x3047 [unverified]
[Checksum Status: Unverified]
[Stream index: 2]
[Timestamps]
UDP payload (108 bytes)
0000
0010
0020
0030
0040
0050
0060
0070
0080
0090