UFU 45 ANOS

Prática 4 - Wireshark LAB – UDP

Redes de Comunicações I

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Outubro 2023

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.**

São 4 campos: Source Port (Porta de Origem); Destination Port (Porta de Destino); Length (Comprimento); e Checksum.

```
User Datagram Protocol, Src Port: 4334, Dst Port: 161
    Source Port: 4334
    Destination Port: 161
    Length: 58
    Checksum: 0x65f8 [unverified]
    [Checksum Status: Unverified]
    [Stream index: 1]
  > [Timestamps]
    UDP payload (50 bytes)
```

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.**

Cada campo do cabeçalho possui um comprimento de 2 bytes, totalizando 8 bytes de cabeçalho.

```
User Datagram Protocol, Src Port: 4334, Dst Port: 161
    Source Port: 4334
    Destination Port: 161
    Length: 58
    Checksum: 0x65f8 [unverified]
```

```
0000  00 30 c1 61 eb ed 00 08  74 4f 36 23 08 00 45 00   ·0·a···· tO6#··E·
0010  00 4e 02 fd 00 00 80 11  00 00 c0 a8 01 66 c0 a8   ·N····· ·····f··
0020  01 68 10 ee 00 a1 00 3a  65 f8 30 30 02 01 00 04   ·h·····: e·00····
0030  06 70 75 62 6c 69 63 a0  23 02 02 18 fb 02 01 00   ·public· #·······
0040  02 01 00 30 17 30 15 06  11 2b 06 01 04 01 0b 02   ···0·0·· ·+······
0050  03 09 04 02 01 02 02 02  01 00 05 00              ········ ····
```

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.**

O campo de comprimento se refere ao comprimento total do pacote UDP, cabeçalho mais dados. O comprimento do pacote que eu capturei é de 58 bytes, desses, são 8 do cabeçalho e 50 dos dados.

```
User Datagram Protocol, Src Port: 4334, Dst Port: 161
    Source Port: 4334
    Destination Port: 161
    Length: 58
    Checksum: 0x65f8 [unverified]
    [Checksum Status: Unverified]
    [Stream index: 1]
  > [Timestamps]
    UDP payload (50 bytes)
```

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)**

   O número máximo de bytes que podem ser incluídos num UDP payload mais os bytes do cabeçalho é $(2^{16} - 1)$ bytes. Ou seja, são 65535 bytes, menos os 8 bytes do cabeçalho, totalizando 65527 bytes para o payload.

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

   O maior número possível para a porta de origem é $(2^{16} - 1)$, ou seja, 65535.

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).**

   O número de protocolo para o UDP é 0x11 hex, que é equivalente ao 17 em decimal.

```
Internet Protocol Version 4, Src: 192.168.1.102, Dst: 192.168.1.104
    0100 .... = Version: 4
    .... 0101 = Header Length: 20 bytes (5)
  > Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
    Total Length: 78
    Identification: 0x02fd (765)
  > 000. .... = Flags: 0x0
    ...0 0000 0000 0000 = Fragment Offset: 0
    Time to Live: 128
    Protocol: UDP (17)
    Header Checksum: 0x0000 [validation disabled]
```

```
0000  00 30 c1 61 eb ed 00 08  74 4f 36 23 08 00 45 00   ·0·a···· tO6#··E·
0010  00 4e 02 fd 00 00 80 11  00 00 c0 a8 01 66 c0 a8   ·N····· ·····f··
0020  01 68 10 ee 00 a1 00 3a  65 f8 30 30 02 01 00 04   ·h·····: e·00····
0030  06 70 75 62 6c 69 63 a0  23 02 02 18 fb 02 01 00   ·public· #·······
0040  02 01 00 30 17 30 15 06  11 2b 06 01 04 01 0b 02   ···0·0·· ·+······
0050  03 09 04 02 01 02 02 02  01 00 05 00              ········ ····
```

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.**

   A porta de origem do pacote UDP é enviada pelo host e é a mesma da porta de destino da resposta do pacote, e o mesmo se vale para a porta de destino do pacote UDP é a mesma da porta de origem do pacote de resposta.