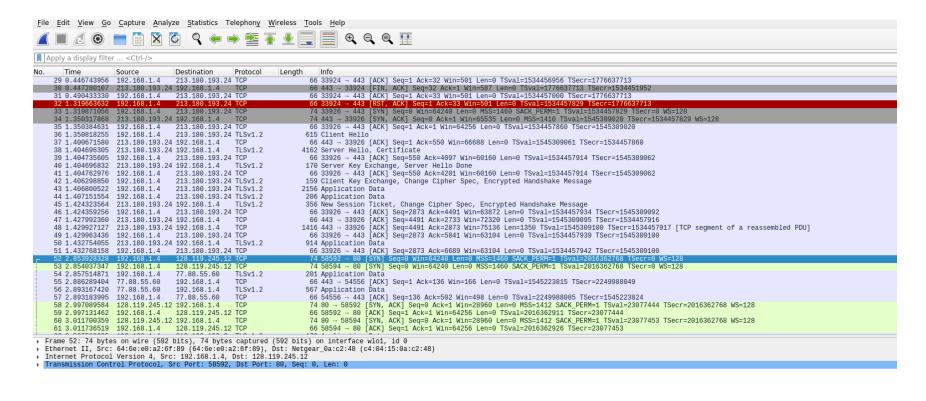
## Home work 6

## 1

1. Src: 192.168.1.4, Src Port: 58592



2. Dst: 128.119.245.12, Port: 80 во всех случаях (Dst видно на скрине из 1 задания, Src из скрина ниже)

```
11.432/100130 192.100.1.4 215.100.133.24 1UP 74.50522 - 80 [SVN] Seq=0 Min-64230 Lene MSS-1460 SACK PERH-I TSu1-2010302708 Sept-0 Min-64230 Lene MSS-1460 SACK PERH-I TSu1-2010302708 Sept-0 Min-64230 Lene MSS-1460 SACK PERH-I TSu1-2010302708 Sept-0 MS-128 Sept-0 Min-64230 Lene MSS-1460 SACK PERH-I TSu1-2010302708 Sept-0 MS-128 Sept-0 Min-64230 Lene MSS-1460 SACK PERH-I TSu1-2010302708 Sept-0 MS-128 Sept-0 Min-64230 Lene MSS-1460 SACK PERH-I TSu1-2010302708 Sept-0 MS-128 Sept
```

3. номер 52, в группе 0. проставлен флаг 0х002

Home work 6

```
74 58592 -- 80 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 SACK_PERM=1 TSval=2016362768 TSecr=0 WS=128
74 58594 -- 80 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 SACK_PERM=1 TSval=2016362768 TSecr=0 WS=128
201 Application Data
66 443 -- 54556 [ACK] Seq=1 Ack=136 Win=166 Len=0 TSval=1545223815 TSecr=2249988049
                                                                             128.119.245.12
      53 2.854037347
                                          192.168.1.4
      54 2.857514871 192.168.1.4
     55 2.886289404
                                                                            192.168.1.4
                                         77.88.55.60
                                                                                                               TCP
                                                                                                                                                    66 443 → 54556 [ACK] Seq=1 Ack=136 Win=166 Len=0 TSval=1545223815 TSecr=2249988049
567 Application Data
66 54556 → 443 [ACK] Seq=136 Ack=502 Win=498 Len=0 TSval=2249988085 TSecr=1545223824
74 80 → 58592 [SYN, ACK] Seq=0 Ack=1 Win=28960 Len=0 MSS=1412 SACK_PERM=1 TSval=23077444 TSecr=2016362768
66 58592 → 80 [ACK] Seq=1 Ack=1 Win=64256 Len=0 TSval=2016362911 TSecr=23077444
74 80 → 58594 [SYN, ACK] Seq=0 Ack=1 Win=28960 Len=0 MSS=1412 SACK_PERM=1 TSval=23077453 TSecr=2016362768
66 58594 → 80 [ACK] Seq=1 Ack=1 Win=64256 Len=0 TSval=2016362926 TSecr=23077453
172 Application Data
1542 Application Data
66 443 → 41900 [ACK] Seq=1 Ack=107 Win=668 Len=0 TSval=81492902 TSecr=1010450051
                                                                            192.168.1.4
77.88.55.60
                                         77.88.55.60
192.168.1.4
     56 2.893167420
                                                                                                                TLSv1.2
      57 2.893183995
                                         128.119.245.12 192.168.1.4
     58 2.997089584
                                                                                                                TCP
     59 2.997131462
60 3.011700359
                                         192.168.1.4 128.119.245.12 TCP
128.119.245.12 192.168.1.4 TCP
                                        192.168.1.4
192.168.1.4
                                                                           128.119.245.12 TCP
213.180.193.2... TLSv1.2
     61 3.011736519
     63 3.505662313 192.168.1.4
                                                                            213.180.193.2... TLSv1.2
      64 3.532270543 213.180.193.2... 192.168.1.4
Frame 52: 74 bytes on wire (592 bits), 74 bytes captured (592 bits) on interface wlo1, id 0
Ethernet II, Src: 64:6e:e0:a2:6f:89 (64:6e:e0:a2:6f:89), Dst: Netgear_0a:c2:48 (c4:04:15:0a:c2:48)
Internet Protocol Version 4, Src: 192.168.1.4, Dst: 128.119.245.12
Transmission Control Protocol, Src Port: 58592, Dst Port: 80, Seq: 0, Len: 0
Source Port: 58592
      Destination Port: 80
[Stream index: 5]
[TCP Segment Len: 0]
       Sequence number: 0 (relative sequence number)
Sequence number (raw): 1972277960
       [Next sequence number: 1 (relative sequence number)]
Acknowledgment number: 0
      Acknowledgment number (raw): 0
1010 .... = Header Length: 40 bytes (10)
Flags: 0x002 (SYN)
       Window size value: 64240
       [Calculated window size: 64240]
Checksum: 0x375f [unverified]
[Checksum Status: Unverified]
        c4 04 15 0a c2 48 64 6e e0 a2 6f 89 08 00 45 00 00 3c 61 5a 40 00 40 06 a2 31 c0 a8 01 04 80 77
                                                                                                                             ·<aZ@·@· ·1··
       f5 0c e4 e0 00 50 75 8e 92 c8 00 00 00 00 00 00 fa fa f0 37 5f 00 00 02 04 05 b4 04 02 08 0a 78 2f
                                                                                                                             ....Pu. ....x/
        41 10 00 00 00 00 01 03 03 07
```

4. 58, Acknowledgment number (raw): 1972277961 = [Sequence number (raw): 1972277960 из первого запроса] + 1. Флаг Flags: 0x012 (SYN, ACK)

```
51 1.42768358 192.168.1.4 213.180.193.24 TCP 66 33926 - 443 [ACK] Seq=2873 Ack=6889 Min=63164 Lene® TSVal=1534657942 TSecr=1545399189 74 5852.285282828 192.168.1.4 128.119.245.12 TCP 74 5852.285282828 192.168.1.4 17.89.55.69 1 TLV1.2 27 48582.2852 189 [SN] Seq=6 Min=6240 Lene® MSS=1408 GACK_PERM=1 TSVal=251362788 TSecr=6 MS=128 192.2852818 192.168.1.4 17.89.55.69 1 TLV1.2 27 52.285283949 77.88.55.69 1 12.168.1.4 TLV1.2 27 52.285283949 77.88.55.69 1 12.168.1.4 TLV1.2 28 52.285283949 78.285283949 78.285283949 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.28528394 78.285283
```

5. номер 71

6. 71-76. на первом скрина времена отправок, на втором — времена получения. нужные Ask получаются из рассмотрения Seq и Ack

```
70 3.556391108 192.168.1.4 213.180.193.2... ICP 66 41900 - 443 [ACK] Seq=1583 Ack=390 Win=499 Len=0 ISVal=1010450102 ISecr=81492919
71 3.799166401 192.168.1.4 128.119.245.12 TCP 707 58592 - 80 [PSH, ACK] Seq=1 Ack=1 Win=64256 Len=2800 TSVal=2016363714 TSecr=23077444 [TCP segment of a reassembled PDU]
72 3.799224430 192.168.1.4 128.119.245.12 TCP 2866 58592 - 80 [PSH, ACK] Seq=642 Ack=1 Win=64256 Len=2800 TSVal=2016363714 TSecr=23077444 [TCP segment of a reassembled PDU]
73 3.799233653 192.168.1.4 128.119.245.12 TCP 2866 58592 - 80 [PSH, ACK] Seq=642 Ack=1 Win=64256 Len=2800 TSVal=2016363714 TSecr=23077444 [TCP segment of a reassembled PDU]
74 3.803501379 192.168.1.4 128.119.245.12 TCP 2866 58592 - 80 [PSH, ACK] Seq=6242 Ack=1 Win=64256 Len=2800 TSVal=2016363718 TSecr=23077444 [TCP segment of a reassembled PDU]
75 3.803516959 192.168.1.4 128.119.245.12 TCP 2866 58592 - 80 [PSH, ACK] Seq=9042 Ack=1 Win=64256 Len=2800 TSVal=2016363718 TSecr=23077444 [TCP segment of a reassembled PDU]
76 3.804395808 192.168.1.4 128.119.245.12 TCP 1466 58592 - 80 [ACK] Seq=11842 Ack=1 Win=64256 Len=1400 TSVal=2016363719 TSecr=23077444 [TCP segment of a reassembled PDU]
```

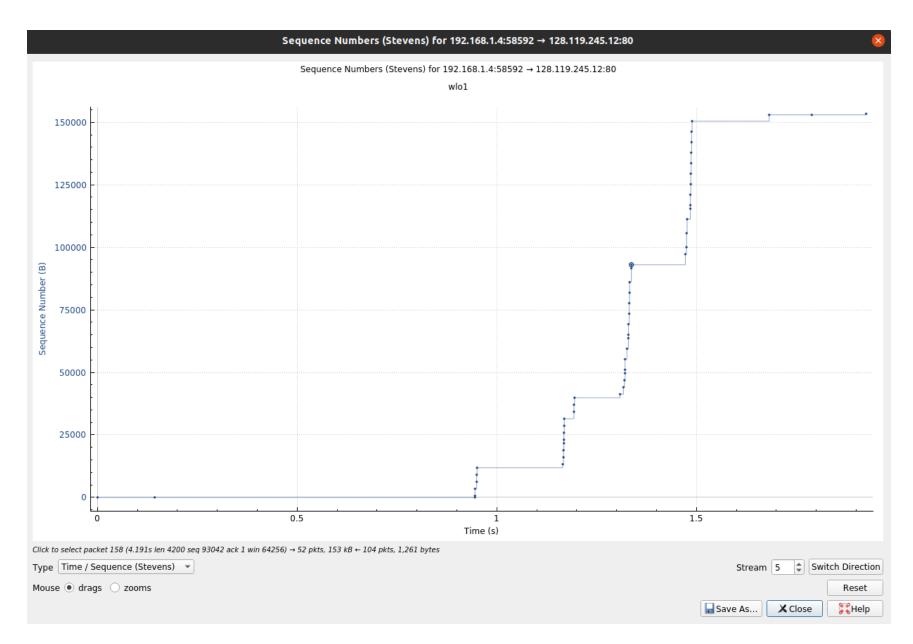
Home work 6 2

```
71 3.79916491 192.168.1.4 128.119.245.12 TCP 767 58592 - 80 [PSH, ACK] Seq:1 ACK=1 Win=64256 Len=641 TSval=2816363714 TSccr=23077444 [TCP segment of a reassembled PDU] 73 3.79923463 192.168.1.4 128.119.245.12 TCP 2866 58592 - 80 [PSH, ACK] Seq=3424 Ack=1 Win=64256 Len=2800 TSval=2916363714 TSccr=23077444 [TCP segment of a reassembled PDU] 74 3.893561379 192.168.1.4 128.119.245.12 TCP 2866 58592 - 80 [PSH, ACK] Seq=3424 Ack=1 Win=64256 Len=2800 TSval=2916363714 TSccr=23077444 [TCP segment of a reassembled PDU] 75 3.89351695 192.168.1.4 128.119.245.12 TCP 2866 58592 - 80 [PSH, ACK] Seq=3424 Ack=1 Win=64256 Len=2800 TSval=2916363718 TSccr=23077444 [TCP segment of a reassembled PDU] 76 3.89435868 192.168.1.4 128.119.245.12 TCP 2866 58592 - 80 [PSH, ACK] Seq=1342 Ack=1 Win=64256 Len=2800 TSval=2916363718 TSccr=23077444 [TCP segment of a reassembled PDU] 77 4.018969162 128.119.245.12 192.168.1.4 TCP 66 80 - 58592 [ACK] Seq=1 Ack=642 Win=64256 Len=800 TSval=2916363718 TSccr=23077444 [TCP segment of a reassembled PDU] 79 4.028831948 128.119.245.12 192.168.1.4 TCP 66 80 - 58592 [ACK] Seq=1 Ack=642 Win=64256 Len=2800 TSval=291636393 TSccr=23077444 [TCP segment of a reassembled PDU] 79 4.028831948 128.119.245.12 192.168.1.4 TCP 66 80 - 58592 [ACK] Seq=1 Ack=642 Win=64256 Len=2800 TSval=291636393 TSccr=23077444 [TCP segment of a reassembled PDU] 79 4.028831948 128.119.245.12 192.168.1.4 TCP 66 80 - 58592 [ACK] Seq=1 Ack=642 Win=64256 Len=2800 TSval=291636393 TSccr=23078388 [TCP segment of a reassembled PDU] 79 4.02883251 192.168.1.4 TCP 66 80 - 58592 [ACK] Seq=1 Ack=642 Win=64256 Len=2800 TSval=291636393 TSccr=23078388 [TCP segment of a reassembled PDU] 79 4.02886551 192.168.1.4 TCP 66 80 - 58592 [ACK] Seq=1 Ack=642 Win=64256 Len=2800 TSval=291636393 TSccr=23078388 [TCP segment of a reassembled PDU] 79 4.02886551 192.168.1.4 TCP 66 80 - 58592 [ACK] Seq=1 Ack=642 Win=64256 Len=2800 TSval=2916363714 [TCP segment of a reassembled PDU] 79 4.02882515 128.119.245.12 192.168.1.4 TCP 66 80 - 58592 [ACK] Seq=1 Ack=642 Win=64256 Len
```

RTT будут равны разнице между Time второго скрина соотв. строк с Time первого скрина

7. Время отправки первого SYN: 2.853928328, последнего АСК: 4.778896785, размер данных: 152138 байт. Тогда пропускная способность 79034.022322164 байт/сек

2



Home work 6