Lab TCP

1. `192.168.1.102`

Transmission Control Protocol, Src Port: 1161, Dst Port: 80, Seq: 164041, Ack: 1, Len: 50
    Source Port: 1161

2.

9 06:44:25.867722 192.168.1.102   128.119.245.12   HTTP   104 POST /ethereal-labs/lab3-1-reply.htm HTTP/1.1 (text/plain)

    Source Port: 1161

3. my client computer's IP address is 192.168.1.8 and the TCP port is 60706

4.

62 1161 → 80 [SYN] Seq=0 Win=16384 Len=0 MSS=1460 SACK_PERM

Transmission Control Protocol, Src Port: 1161, Dst Port: 80, Seq: 0, Len: 0

Flags: 0x002 (SYN)
    000. .... = Reserved: Not set
    ...0 .... = Accurate ECN: Not set
    .... 0... .... = Congestion Window Reduced: Not set
    .... .0.. .... = ECN-Echo: Not set
    .... ..0. .... = Urgent: Not set
    ....0 .... = Acknowledgment: Not set
    .... 0... = Push: Not set
    .... .0.. = Reset: Not set

Seq is 0   ....1. = Syn: Set   syn flag is set to 1

5.

62 80 → 1161 [SYN, ACK] Seq=0 Ack=1 Win=5840 Len=0 MSS=1460 SACK_PERM

Transmission Control Protocol, Src Port: 80, Dst Port: 1161, Seq: 0, Ack: 1, Len: 0
    Source Port: 80
    Destination Port: 1161
    [Stream index: 0]
    [Stream Packet Number: 2]
    [Conversation completeness: Incomplete, DATA (15)]
    [TCP Segment Len: 0]
    Sequence Number: 0   (relative sequence number)
    Sequence Number (raw): 883061785
    [Next Sequence Number: 1   (relative sequence number)]
    Acknowledgment Number: 1   (relative ack number)
    Acknowledgment number (raw): 232129013
    0111 .... = Header Length: 28 bytes (7)
    Flags: 0x012 (SYN, ACK)
        000. .... = Reserved: Not set
        ...0 .... = Accurate ECN: Not set
        .... 0... .... = Congestion Window Reduced: Not set
        .... .0.. .... = ECN-Echo: Not set
        .... ..0. .... = Urgent: Not set
        ....1 .... = Acknowledgment: Set
        .... 0... = Push: Not set
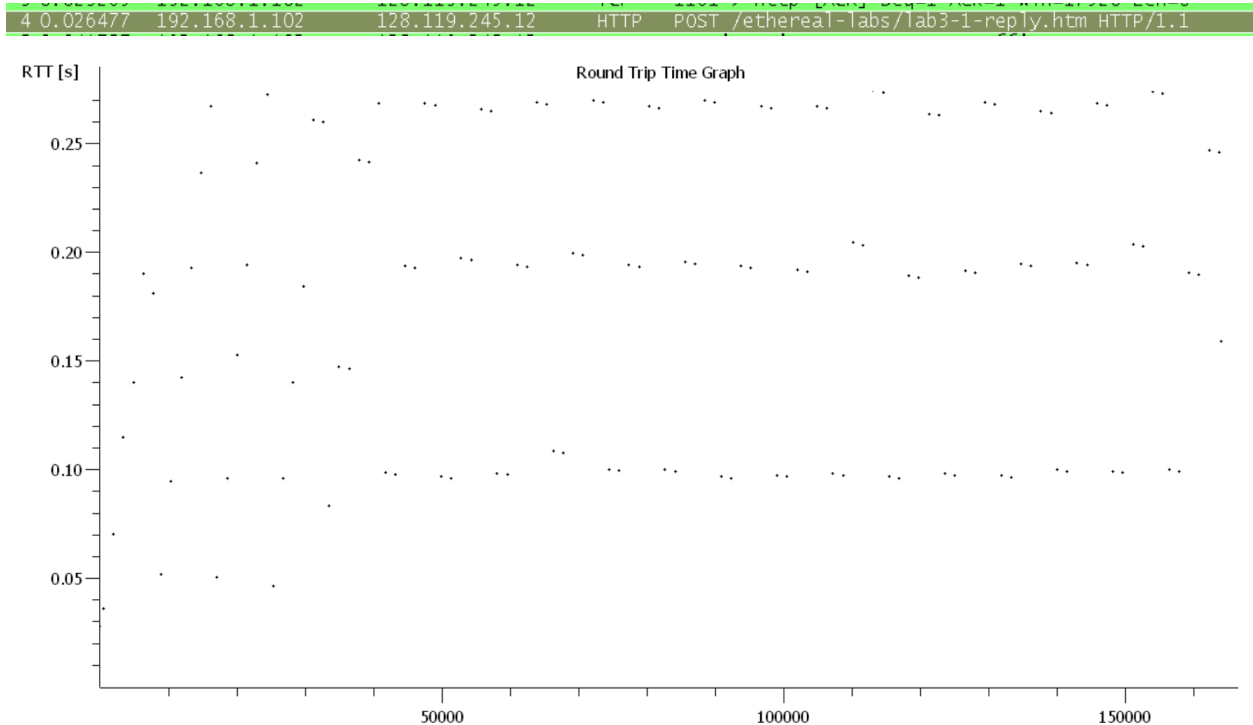   .... .0.. = Reset: Not set
        1 = Syn: Set

6.

5 06:44:20.612118 192.168.1.102   128.119.245.12   TCP   1514 1161 → 80 [PSH, ACK] Seq=566 Ack=1 Win=17520 Len=1460 [TCP PDU reassembled in 199]

```
Dp····PO ST /ethe
real-lab s/lab3-1
-reply.h tm HTTP/   ▼ Flags: 0x018 (PSH, ACK)
```

7.

```
4 0.026477  192.168.1.102        128.119.245.12      HTTP   POST /ethereal-labs/lab3-1-reply.htm HTTP/1.1
```


Round Trip Time Graph
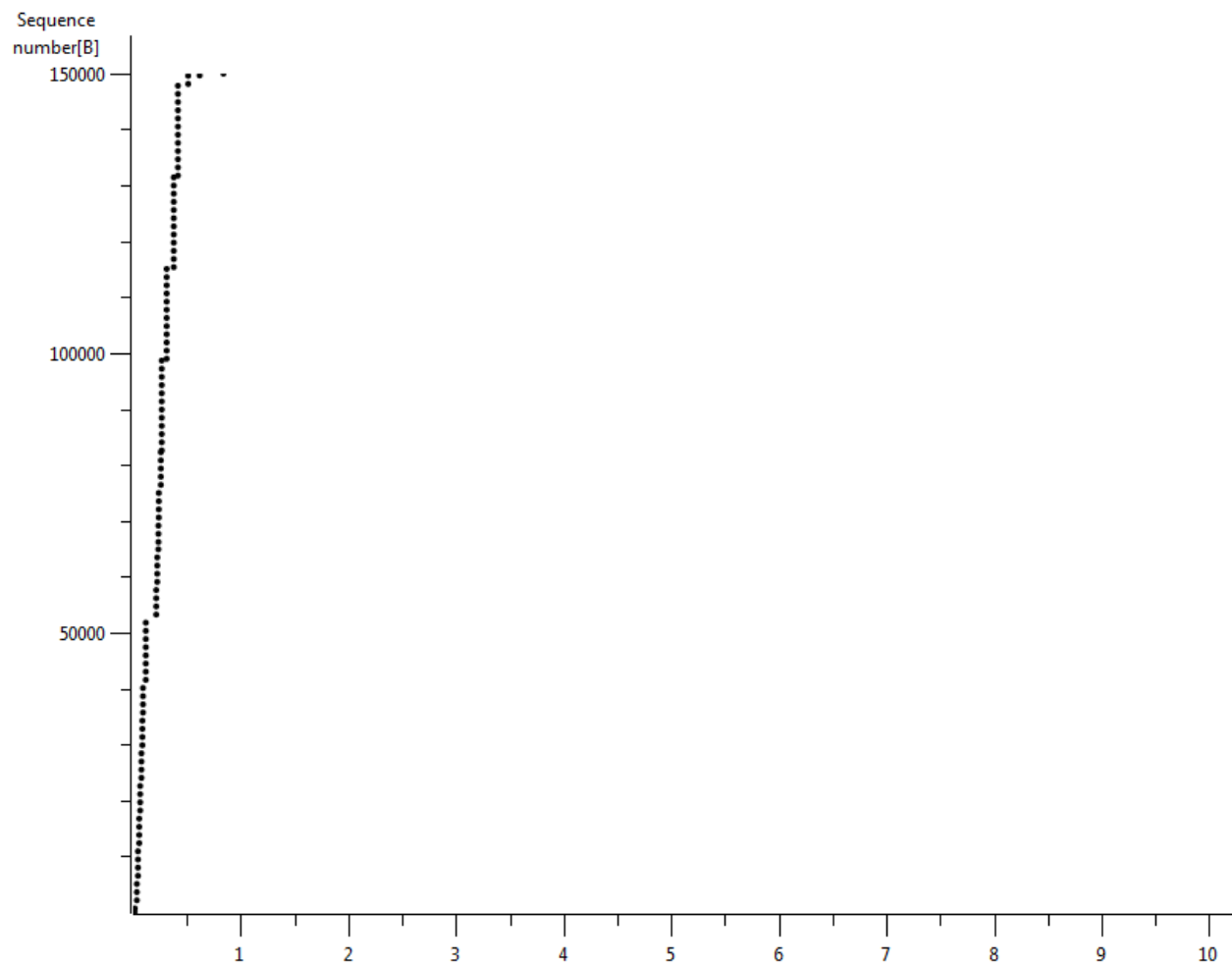
8. length of each of the first TCP segment is 708 . The rest of the segments are all 1514
9. minimum amount of available buffer space is 65535. The sender is never throttled because we never reach full capacity
10.No, no segments were ever retransmitted. This is shown by the fact that an old Acknowledgement number was never sent back in order to re-request old packets
11.The receiver is acking 432 bits. There are cases where the receiver acks every other segment. This is shown when more than one ack occurs in a row
12.The throughput is = value of last ack(149,629) / time since first frame (93517.6)

13.

The TCP slowstart phase starts at 5000, ends at 10000. Congestion takes over at 10000.

14. Already above