Computer Networks Lab

ASSIGNMENT – 5

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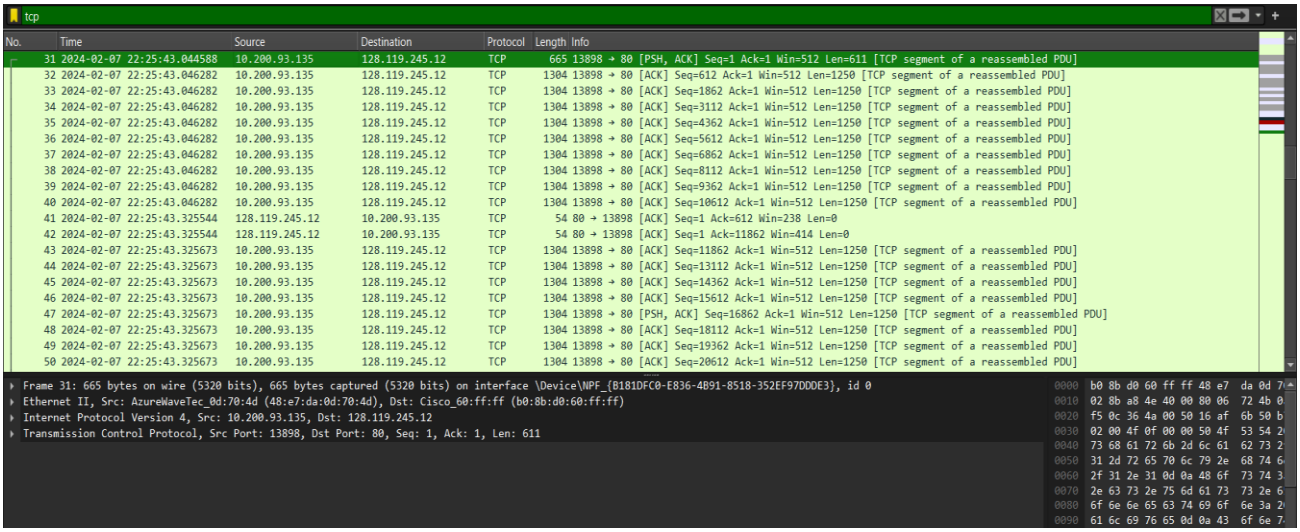
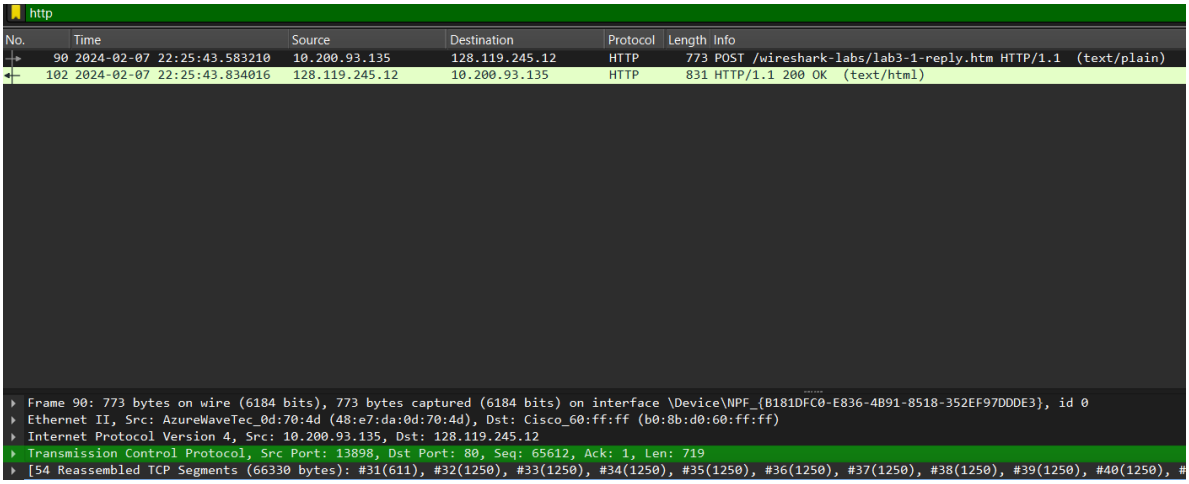
PART – 1



PART – 2

1.



- IP address of source – 10.200.93.135

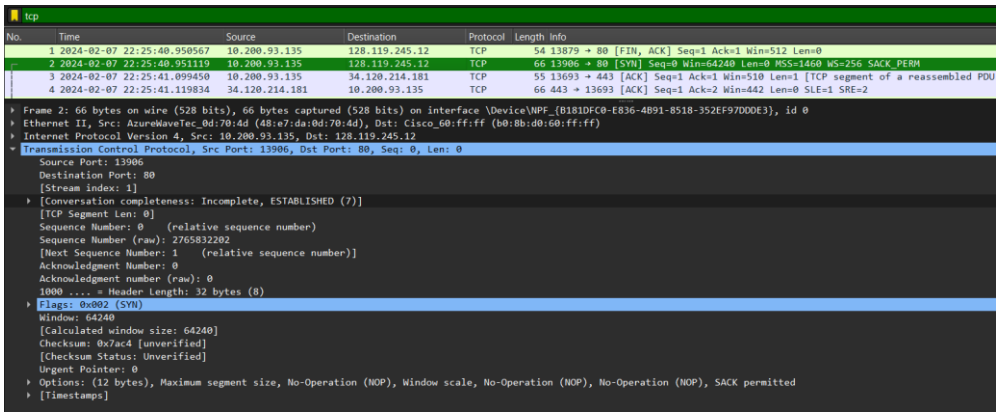
- TCP port number - 13898

2. From the above screenshot we can see

- IP address of destination (gaia.cs.umass.edu) - 128.119.245.12
- Dst port number – 80

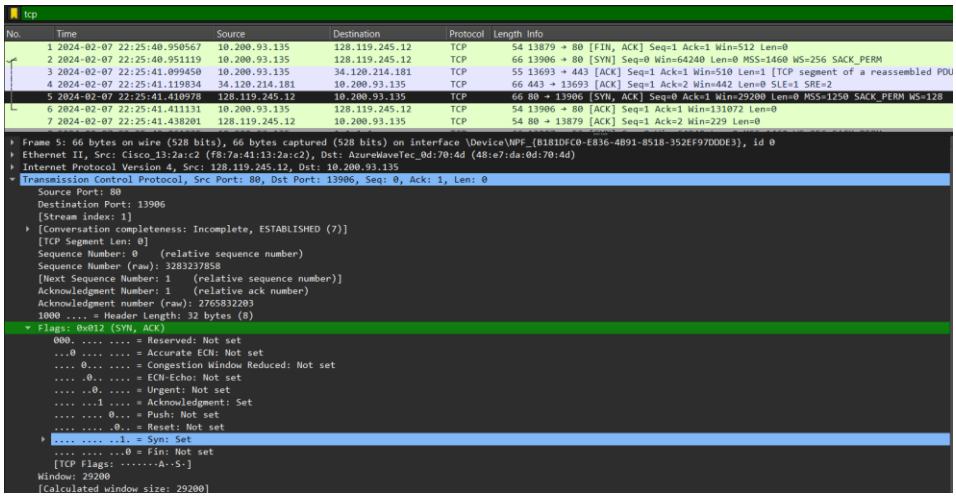
PART – 3

1.



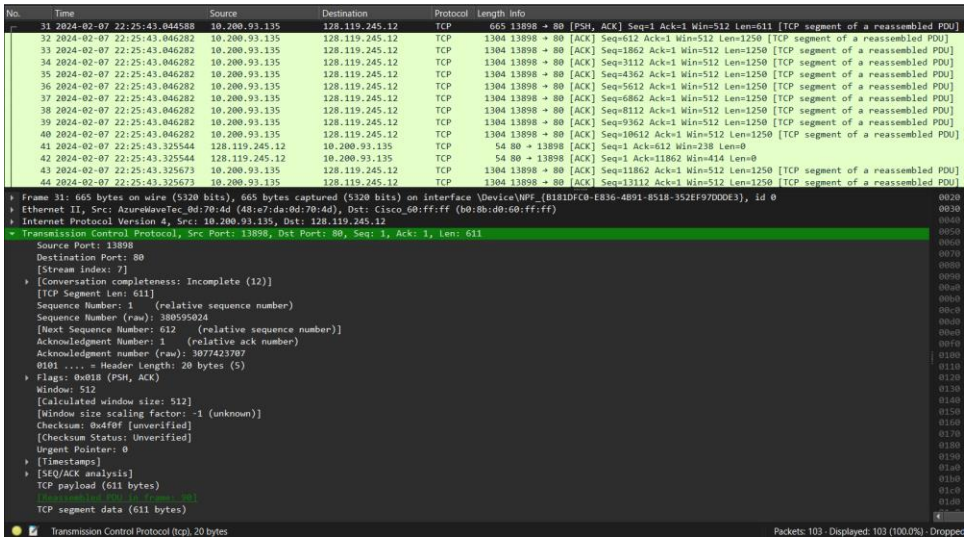
- Sequence number (Seq = 0) is used to initiate the TCP connection between client and destination (gain.cs.umass.edu)
- With the help of Flags we can identify this TCP segment as SYN segment

2.



- Sequence number of the SYNACK segment is 0 (Seq = 0)
- With the help of Flags in the headers and info we can identify this TCP segment as [SYN, ACK] segment
- Value of the Acknowledgement field (Ack = 1)
- ACK = SEQ+1 [SEQ from [SYN] packet]

3.



- Sequence number of the TCP segment is 1 (Seq = 01)
- Bytes of data contained in the payload (data) field of this TCP segment is 611 bytes
- No, it is segmented into 54 segments

4.

I) First segment in the data-transfer part is – 22:25:43.044588

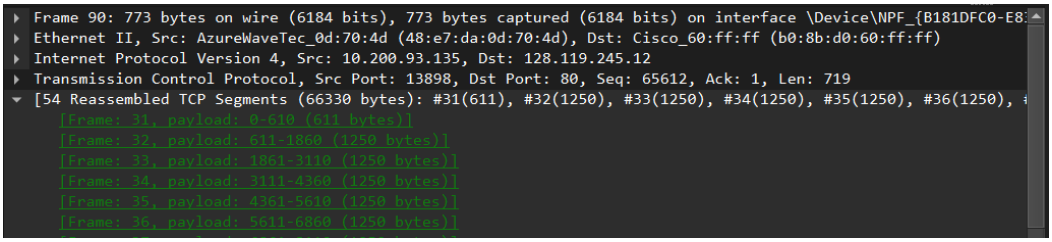
II) Time at which ACK for this first data-containing segment received – 22:25:43.325544

III) The RTT to ACK the segment was: 0.280956000 seconds

IV) RTT value of the second data-carrying TCP segment and its ACK

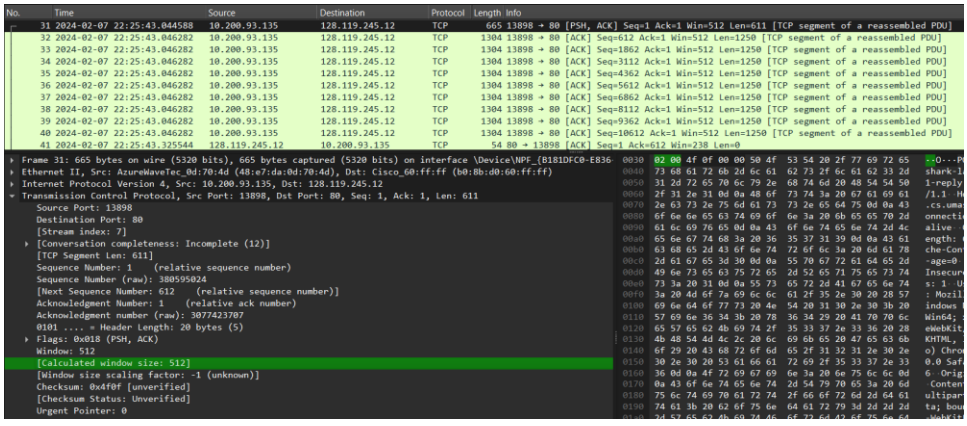
[The RTT to ACK the segment was: 0.279262000 seconds]

5.



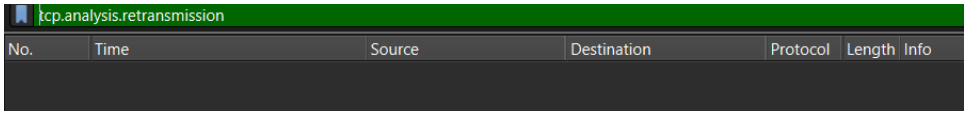
- Length of first data carrying TCP segment – Header (20) + Payload (611) = 631
- Length of 2nd ,3rd ,4th data carrying TCP segments – Header (20) + Payload (1250) = 1270

6.



- Window size: 512, There is enough reviever buffer space, but the TCP Payload is 1250 bytes. It doesn't throttle the sender.

7.



NO, there are no retransmitted segments in the trace file. We can check this by searching for tcp.analysis.retransmission in the filter

8. For the First ten packets – 1250 * 9 + 611 = 11861 bytes

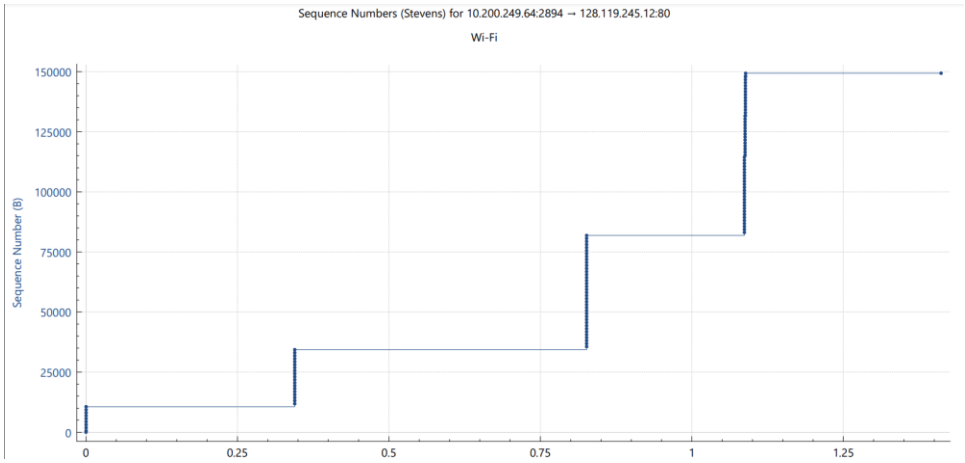
9. Throughput = Content Length / Time taken

Throughput = 149321 / (0.39717 – 0.18018)

= 149321 / 0.21699 => 688146.919 bytes per sec

It is calculated by dividing total data with time difference between first data packet sent and last ACK received.

PART – 4



Slow start phase begins at t=0s and ends at t=1.25s (roughly). Congestion avoidance takes place at t=1.25s.