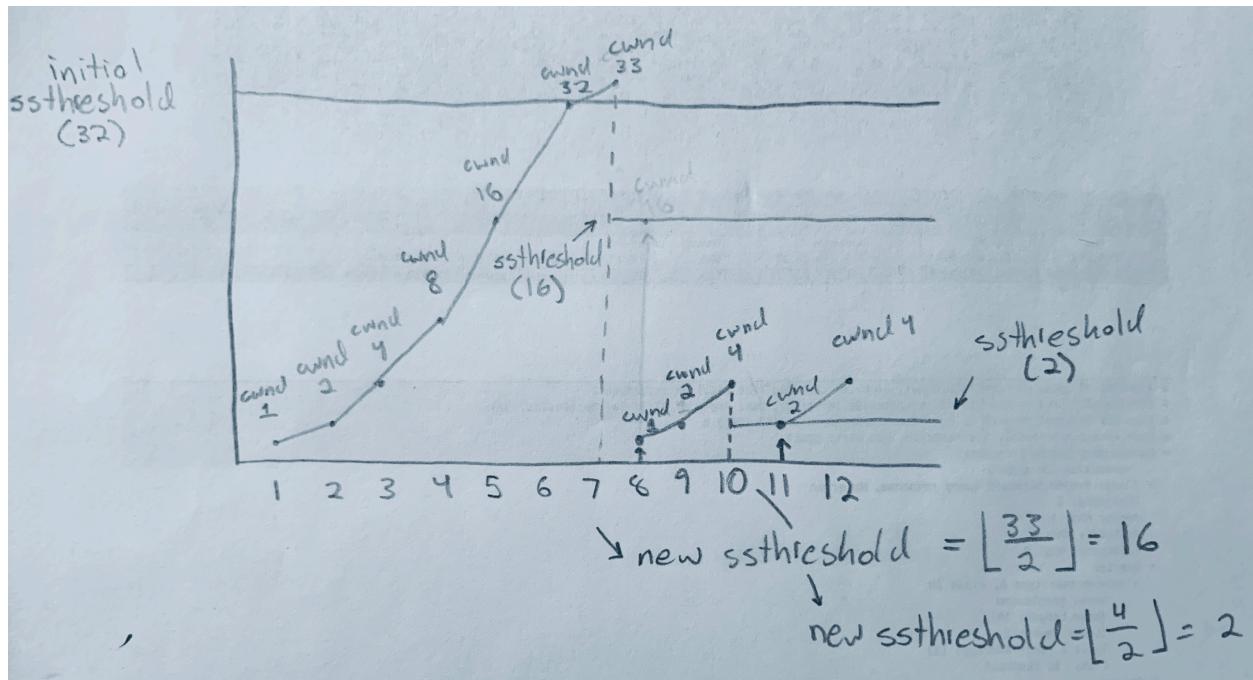


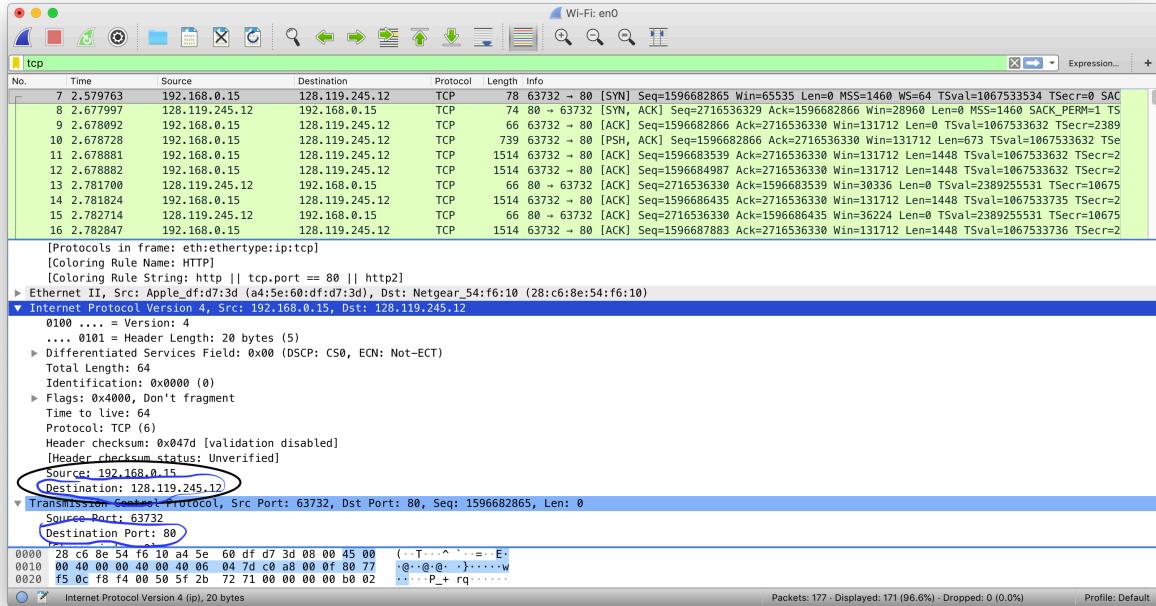
## HW2

### Part 1

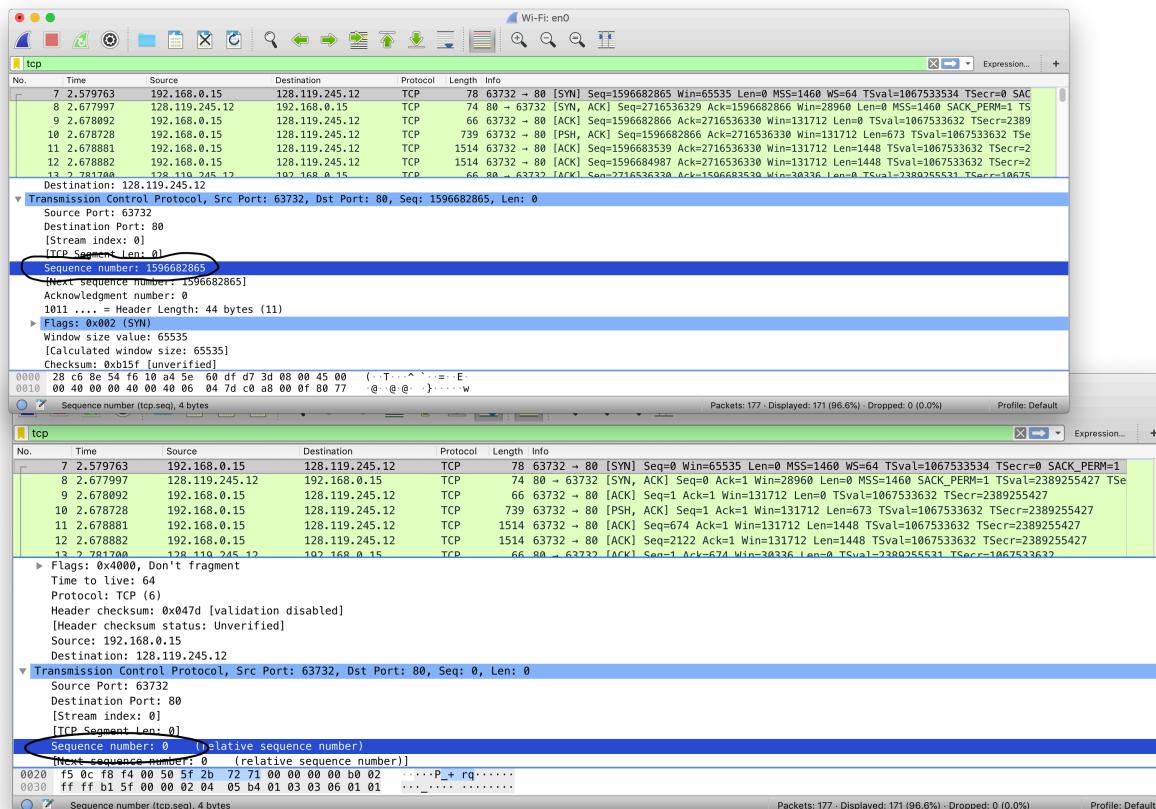
1. TCP uses a 3-way connection establishment because a requirement of the protocol is two-way data transfer. If only a 2-way connection was established, only one of the two devices in a connection could send data at a time.
2. The corresponding information for the segment from Host B to Host A would be:
  - Source port: y
  - Destination port: x
  - Seq no.: 426
  - Ack no.: 261
3.
  - a. Before the 8th transmission starts, the CWND is 1 (since using tahoe protocol) and the ssthreshold is 16.
  - b. Before the 11th transmission starts, the CWND is 2 (since using reno protocol) and the ssthreshold is 2.
  - c. Since there was no loss, the ssthreshold remains the same at 2. The congestion window ended up at 4 on the 12th, so after that would have been 8.



4. The IP address and port used to receive the file were 128.119.245.12:80, respectively. This is shown below, circled in blue.



5. The actual sequence number of the TCP SYN segment used to initiate the connection was 1596682865 and the relative sequence number was 0, as shown below, circled in black.



6. The actual sequence number of the TCP SYNACK segment used to initiate the connection was 2716536329 and the relative sequence number was 0, as shown below, circled in black. The value of the acknowledgment field in the SYNACK segment was 1, meaning set. This is also circled in black in the third image. The flags segment is the ones that identifies this segment as a SYNACK. It is shown highlighted above the black circle in the third image.

