

Exercise 1

1. The IP address of gaia.cs.umass.edu is 128.119.245.12
port number used for this connection is 80

, Src Port: 80 (80), I

the IP address and TCP port number used by the client computer (source) that is transferring the file to gaia.cs.umass.edu is 192.168.1.102 and 1161

Destination: 192.168.1.102 (192.168.1.102)

Destination Port: 1161 (1161)

2. the sequence number is 232129013

3.

No.	Sequence	Length (bytes)	Time sent	Time received	Sample RTT	Estimated RTT
1	232129013	565	0.02648	0.05394	0.02746	0.02746
2	232129578	1460	0.04173	0.0773	0.03556	0.02847
3	232131038	1460	0.05403	0.12409	0.07006	0.03367
4	232132498	1460	0.05469	0.16912	0.11443	0.04377
5	232133958	1460	0.07741	0.2173	0.13989	0.05578
6	232135418	1460	0.07816	0.2678	0.18966	0.07251
All	Estimate	To	10 ⁻⁵			



4

above

5. The minimum advertised window is 5840, lack of receiver buffer space does not seem to be an issue with this connection since we find when the congestion window has grown to a reasonable size, the receiver advertised window is very large.

6.

I think there are not any retransmitted segments in the trace file

because I tried to find a repeat entry for that segment which is retransmitted with the same sequence number but I failed

7. In general, receiver will typically ack each pack individually(Just like in the beginning).But at segment #60, we find ack is acknowledging two segments, that is because Tcp used Delayed Ack where the receiver waits a moment and sends a cumulative ack for all the received segment in that moment(Based on the lecture notes and Section 3.5 of the text)

8.

Throughput = total data/total time

The total amount data transmitted can be computed by the difference between the sequence number of the first TCP segment and the acknowledged sequence number

of the last ACK

Which is Total data = $164091 - 1 = 164090$

Total time = $5.455830 - 0.026477 = 5.4294$

So throughput is $164090/5.4294 = 30.222$ KByte/sec.

Exercise 2

1.] Seq=2818463618

2.] Seq=1247095790 Ack=2818463619 \

That ack is the private seq +1

3. Seq=2818463619 Ack=1247095791

There is no data included in this last segment

4. they both close the active since #305, #304, we find seq and ack didn't add 1 which means they're all closed and type should be Simultaneous

5. client: $2818463653 - 2818463618 - 2 = 33$ bytes which is the difference between final ack and first ack (2 represent Fin and Syn)

server: $1247095832 - 1247095790 - 2 = 40$ Bytes which is the difference between final seq and second seq