

# CP372 Assignment 1

- What is the IP address and TCP port number used by your client computer (source) to transfer files to gaia.cs.umass.edu? (Please include a screenshot and highlight your answer on that screenshot for each address)

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	192.168.0.235	128.119.245.12	TCP	78	55292 → 80 [SYN] Seq=0 Win=65535 Len=0 MSS=1460

IP: 192.168.0.235

Port: 55292

- What is the IP address of gaia.cs.umass.edu? On what port number is it sending and receiving connection? (Please include a screenshot and highlight your answer on that screenshot) (2 points on IP address and 1 point on port number)

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	192.168.0.235	128.119.245.12	TCP	78	55292
2	0.046898	128.119.245.12	192.168.0.235	TCP	74	80 → 55292

IP: 128.119.245.12

Port: 80

- What is the sequence number of the TCP SYN segment that is used to initiate the TCP connection between your client computer and gaia.cs.umass.edu? (Please include a screenshot and highlight your answer on that screenshot for each address) (2 points total, 1 point on Sequence number of TCP SYN segment and 1 point on what identifies the segment as a SYN segment)

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	192.168.0.235	128.119.245.12	TCP	78	55292 → 80 [SYN] Seq=0 Win=65535
2	0.046898	128.119.245.12	192.168.0.235	TCP	74	80 → 55292 [SYN, ACK] Seq=0 Ack=1
3	0.047073	192.168.0.235	128.119.245.12	TCP	66	55292 → 80 [ACK] Seq=1 Ack=1
4	0.047427	192.168.0.235	128.119.245.12	TCP	752	55292 → 80 [PSH, ACK] Seq=1 Ack=1
5	0.047552	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK] Seq=687 Ack=2135
6	0.047555	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK] Seq=2135 Ack=3583
7	0.047558	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK] Seq=3583 Ack=5031
8	0.047562	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK] Seq=5031 Ack=6479
9	0.047565	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK] Seq=6479 Ack=7911

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er the file to  
pt). (2 points total, 1 point

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60 WS=64 TSval=909962395 TSecr=0 SACK_PERM
```

g TCP segments for this  
points total, 1 point on IP

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→ 80  
5292
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tion between the client  
(what screenshot)? What is  
quence number of the

Sequence number  
n

10	0.047567	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]	Seq=7927	Ack=16615
11	0.047570	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]	Seq=9375	Ack=16615
12	0.047572	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]	Seq=10823	Ack=16615
13	0.047575	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]	Seq=12271	Ack=16615
14	0.090068	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]	Seq=1	Ack=6
15	0.090070	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]	Seq=1	Ack=6
16	0.090071	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]	Seq=1	Ack=6
17	0.090071	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]	Seq=1	Ack=6
18	0.090072	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]	Seq=1	Ack=6
19	0.090072	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]	Seq=1	Ack=6
20	0.090072	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]	Seq=1	Ack=6
21	0.090072	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]	Seq=1	Ack=6
22	0.090073	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]	Seq=1	Ack=6
23	0.090073	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]	Seq=1	Ack=6
24	0.090325	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]	Seq=13719	Ack=16615
25	0.090407	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]	Seq=15167	Ack=16615
26	0.090413	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]	Seq=16615	Ack=16615

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▼ Transmission Control Protocol, Src Port: 55292, Dst Port: 80, Seq: 0, Len: 0
  Source Port: 55292
  Destination Port: 80
  [Stream index: 0]
  [Conversation completeness: Incomplete, DATA (15)]
  [TCP Segment Len: 0]
  Sequence Number: 0 (relative sequence number)
  Sequence Number (raw): 944447079
  [Next Sequence Number: 1 (relative sequence number)]
  Acknowledgment Number: 0
  Acknowledgment number (raw): 0
  1011 .... = Header Length: 44 bytes (11)
  ▼ 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
    > .... .... .1. = Syn: Set
    .... .... 0 = Fin: Not set
    [TCP Flags: ....S.]
  Windows: GEEF2E

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4. What is the sequence number of the SYNACK segment sent by gaia.cs.umass.edu to the reply to the SYN? What is the value of the Acknowledgement field in the SYNACK segment? (highlight your answer on that screenshot) What is it in the segment that is a SYNACK segment? (3 points total, 1 point on each question)

Sequence  
ACK #

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▼ Transmission Control Protocol, Src Port: 80, Dst Port: 55292, Seq: 0, Ack: 1, Len: 0
  Source Port: 80
  Destination Port: 55292
  [Stream index: 0]
  [Conversation completeness: Incomplete, DATA (15)]
  [TCP Segment Len: 0]
  Sequence Number: 0 (relative sequence number)
  Sequence Number (raw): 3300780289
  [Next Sequence Number: 1 (relative sequence number)]
  Acknowledgment Number: 1 (relative ack number)
  Acknowledgment number (raw): 944447080
  1010 .... = Header Length: 40 bytes (10)
  ▼ Flags: 0x012 (SYN, ACK)

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U  
act that that  
sequence number is  
and the SYN flag  
set indicates  
this segment  
a SYN segment

the client computer in  
ment? (Please include a  
that identifies the

enue #: 0

F:1

Sequence

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  
 .... .... .0.... .... = Fin: Not set  
 [TCP Flags: ....A..S.]  
 Window: 28960  
 Calculated window size: 28960

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 both  
 ACK  
 the S  
 a SY  
 Segm

5. What is the sequence number of the TCP segment containing the HTTP POST command (Please include a screenshot and highlight your answer on that screenshot).(0.5 point)

No.	Time	Source	Destination	Protocol	Length	Info
150	0.171955	192.168.0.235	128.119.245.12	HTTP	347	POST /wireshark-labs/lab3-1-reply.htm HTTP/1.1 (text/plain)

▼ Transmission Control Protocol, Src Port: 55292, Dst Port: 80, Seq: 152727, Ack: 1, Len: 281  
 Source Port: 55292  
 Destination Port: 80  
 [Stream index: 0]  
 [Conversation completeness: Incomplete, DATA (15)]  
 [TCP Segment Len: 281]  
 Sequence Number: 152727 (relative sequence number)  
 Sequence Number (raw): 944599806  
 [Next Sequence Number: 153008 (relative sequence number)]  
 Acknowledgment Number: 1 (relative ack number)  
 Acknowledgment number (raw): 3300780290  
 1000 .... = Header Length: 32 bytes (8)  
 > Flags: 0x018 (PSH, ACK)

Sequence #: 152727

6. What is the minimum amount of available buffer space advertised at the receiver for (Please include a screenshot and highlight your answer on that screenshot). (1 point)

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	192.168.0.235	128.119.245.12	TCP	78	55292 → 80 [SYN] Seq=0
2	0.046898	128.119.245.12	192.168.0.235	TCP	74	80 → 55292 [SYN, ACK]

▼ Transmission Control Protocol, Src Port: 80, Dst Port: 55292, Seq: 0, Ack: 1, Len: 0  
 Source Port: 80  
 Destination Port: 55292  
 [Stream index: 0]  
 [Conversation completeness: Incomplete, DATA (15)]  
 [TCP Segment Len: 0]  
 Sequence Number: 0 (relative sequence number)  
 Sequence Number (raw): 3300780289  
 [Next Sequence Number: 1 (relative sequence number)]

- flags or  
SYN and  
are 1  
segment is  
NACK  
event.

and? (Please include a

the entire trace?

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Next Sequence Number: 1 (relative sequence number)
Acknowledgment Number: 1 (relative ack number)
Acknowledgment number (raw): 944447080
1010 .... = Header Length: 40 bytes (10)
> Flags: 0x012 (SYN, ACK)
Window: 28960
[Calculated window size: 28960]
Checksum: 0x7bb8 [unverified]
[Checksum Status: Unverified]

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min buffer space : 28960 bytes

7. How much data does the receiver typically acknowledge in an ACK? To answer this question, please record the acknowledgment number and the acknowledged data of acknowledgments generated by the receiver in the table below and state the data size most? (Please include a screenshot and highlight your answer on that screenshot) (3.0 each row in the table and 0.5 point for the final answer)

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	192.168.0.235	128.119.245.12	TCP	78	55292 → 80 [SYN]
2	0.046898	128.119.245.12	192.168.0.235	TCP	74	80 → 55292 [SYN,
3	0.047073	192.168.0.235	128.119.245.12	TCP	66	55292 → 80 [ACK]
4	0.047427	192.168.0.235	128.119.245.12	TCP	752	55292 → 80 [PSH,
5	0.047552	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]
6	0.047555	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]
7	0.047558	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]
8	0.047562	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]
9	0.047565	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]
10	0.047567	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]
11	0.047570	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]
12	0.047572	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]
13	0.047575	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]
14	0.090068	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]
15	0.090070	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]
16	0.090071	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]
17	0.090071	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]
18	0.090072	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]
19	0.090072	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]
20	0.090072	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]
21	0.090072	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]
22	0.090073	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]
23	0.090073	128.119.245.12	192.168.0.235	TCP	66	80 → 55292 [ACK]
24	0.090325	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]
25	0.090407	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]
26	0.090410	192.168.0.235	128.119.245.12	TCP	1514	55292 → 80 [ACK]

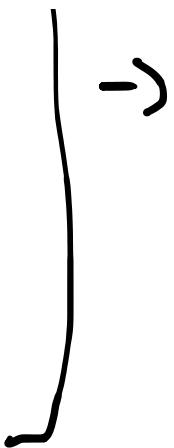
ACK 1	66
ACK 2	752
ACK 3	1514
ACK 4	1514
ACK 5	1514

7

most common #:

the first 12  
e that appears the  
5 points) [0.25 point for

NUMBER	ACK-NUM
ACK 6	1514
ACK 7	1514
ACK 8	1514
ACK 9	1514
ACK 10	1514
ACK 11	1514
ACK 12	66



1514 bytes

