CS305-2022Spring Lab7 Report

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Lab Time：Thursday 10:20 a.m. to 12:10 p.m.

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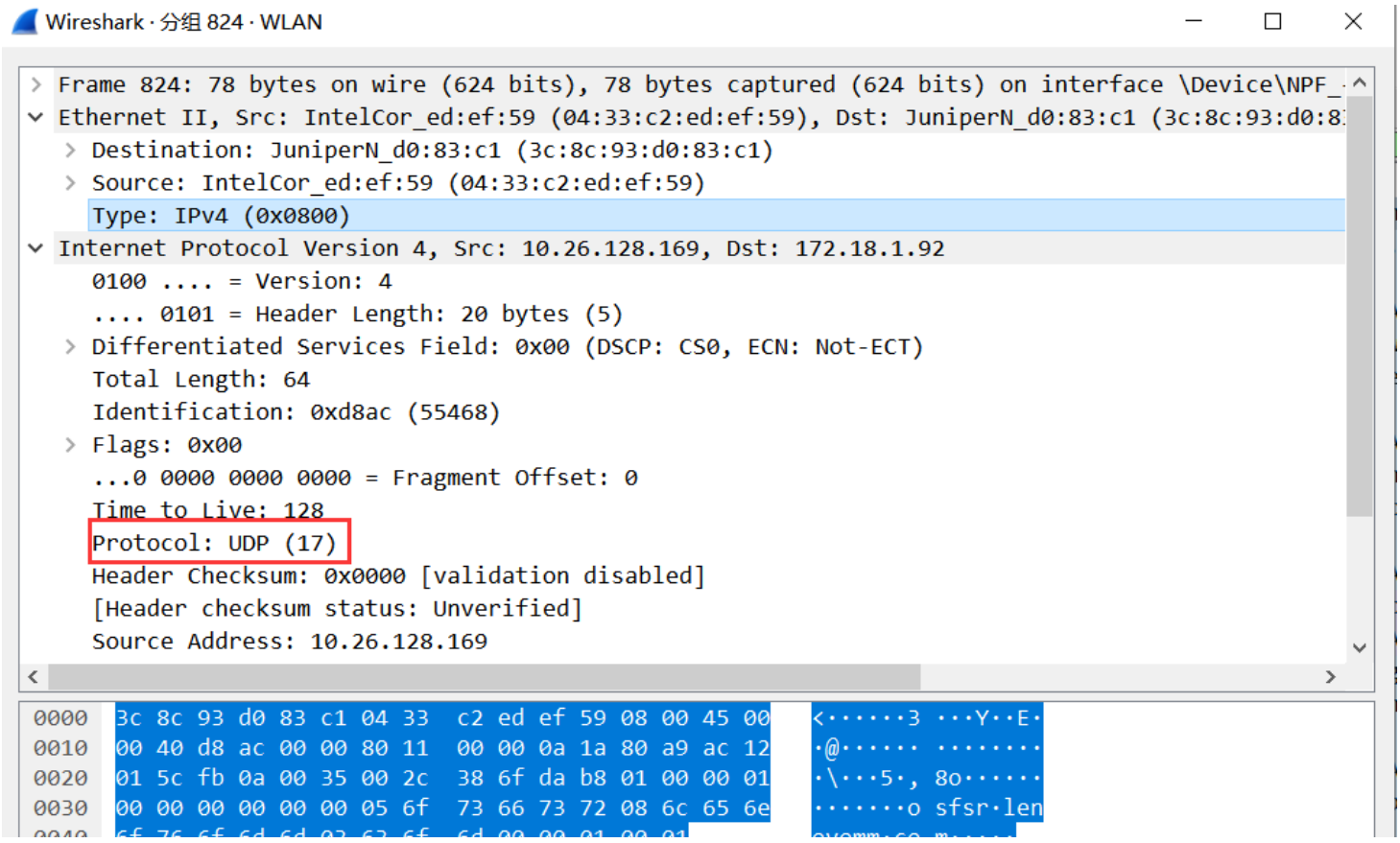
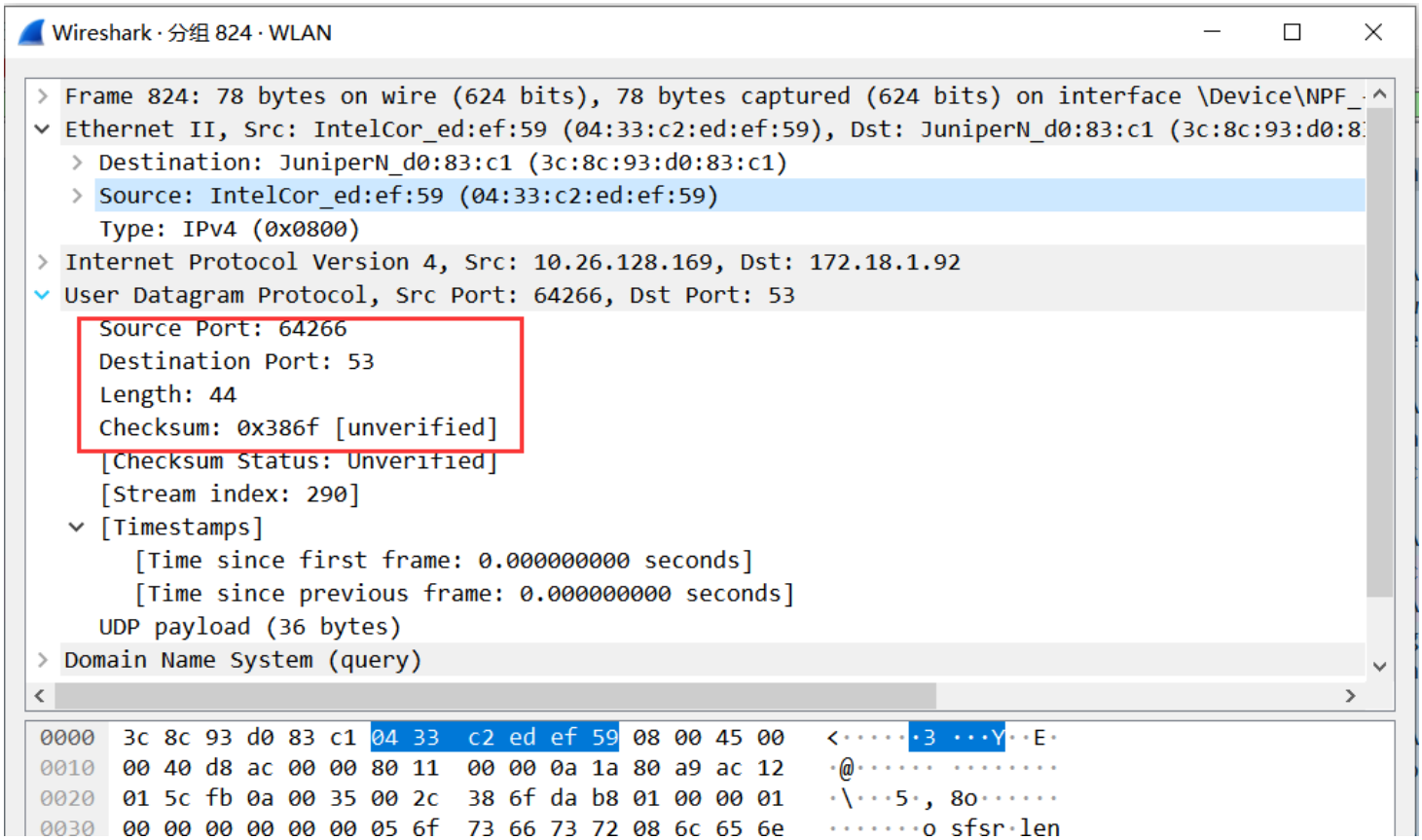
Practice7-1: UDP Packet

Select one UDP packet first:



Then open the header:



- (1)There are 4 fields in the headers.
- (2)Names and values
  - Source Port: 64266
  - Destination Port: 53
  - Length: 44
  - Checksum: 0x386f
- (3)Length:
  - Source Port: 2 bytes
  - Destination Port: 2 bytes
  - Length: 2 bytes
  - Checksum: 2 bytes
- (4)MaxLength: 8 bytes since 4 * 2 = 8 bytes.
- (5)Max Destination Port: Consider there are 16 bits in the destination field, the maximum port is 2^16 - 1 = 65535.
- (6)Protocol ID: 17 in decimal, 0x11 in hexadecimal

Practice7-2: Questions in `Wireshark_TCP_v7.0.pdf`

Q4. Sequence number

First use display filter to get the ip address of `gaia.cs.umass.edu`:

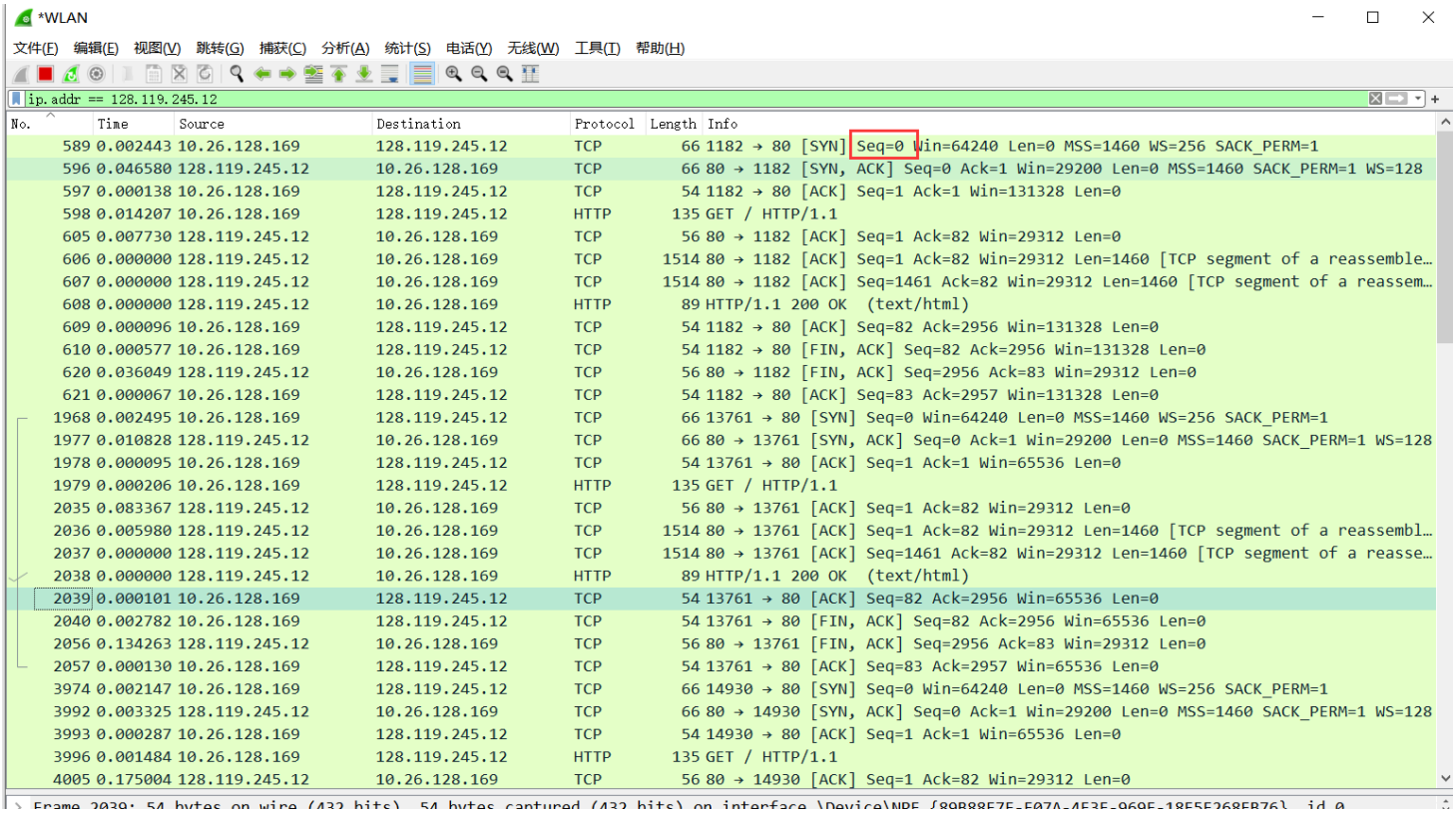
```
http.host == "gaia.cs.umass.edu"
```

We get the ip address is `128.119.245.12`.

Then use this in the display filter:

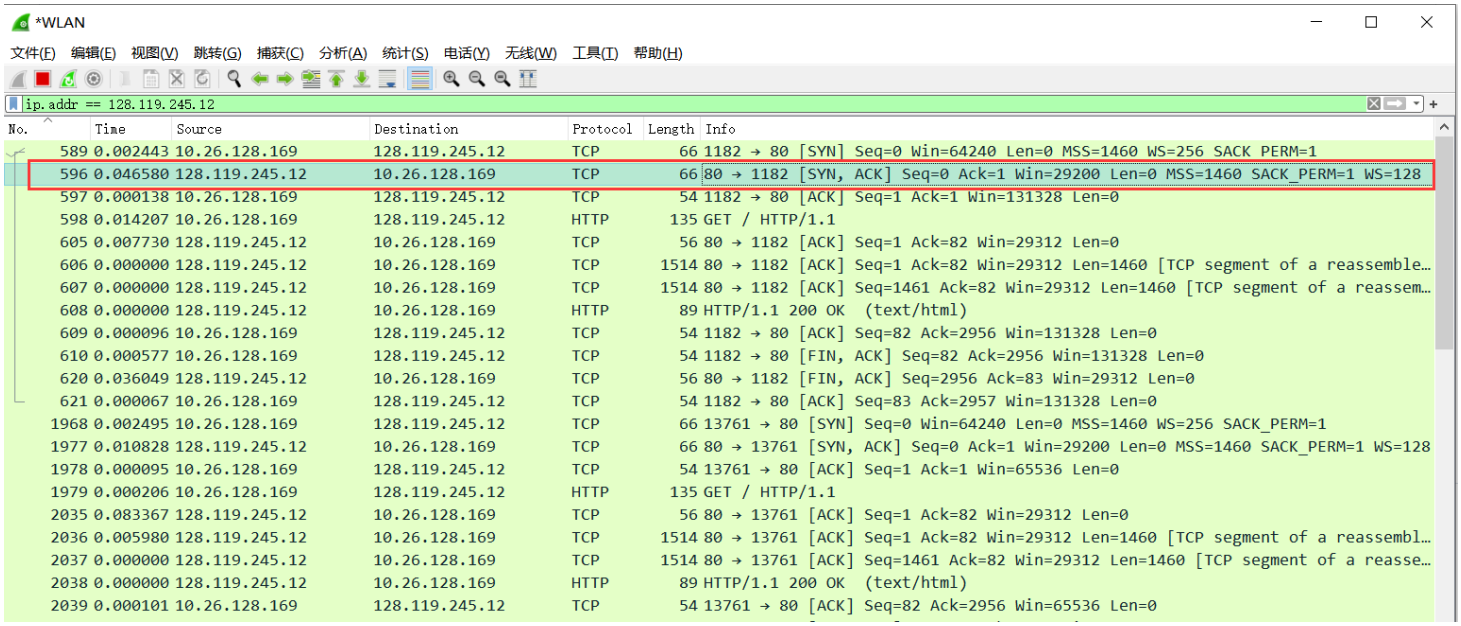
```
ip.addr == 128.119.245.12
```

We can get the initial sequence number is 0.

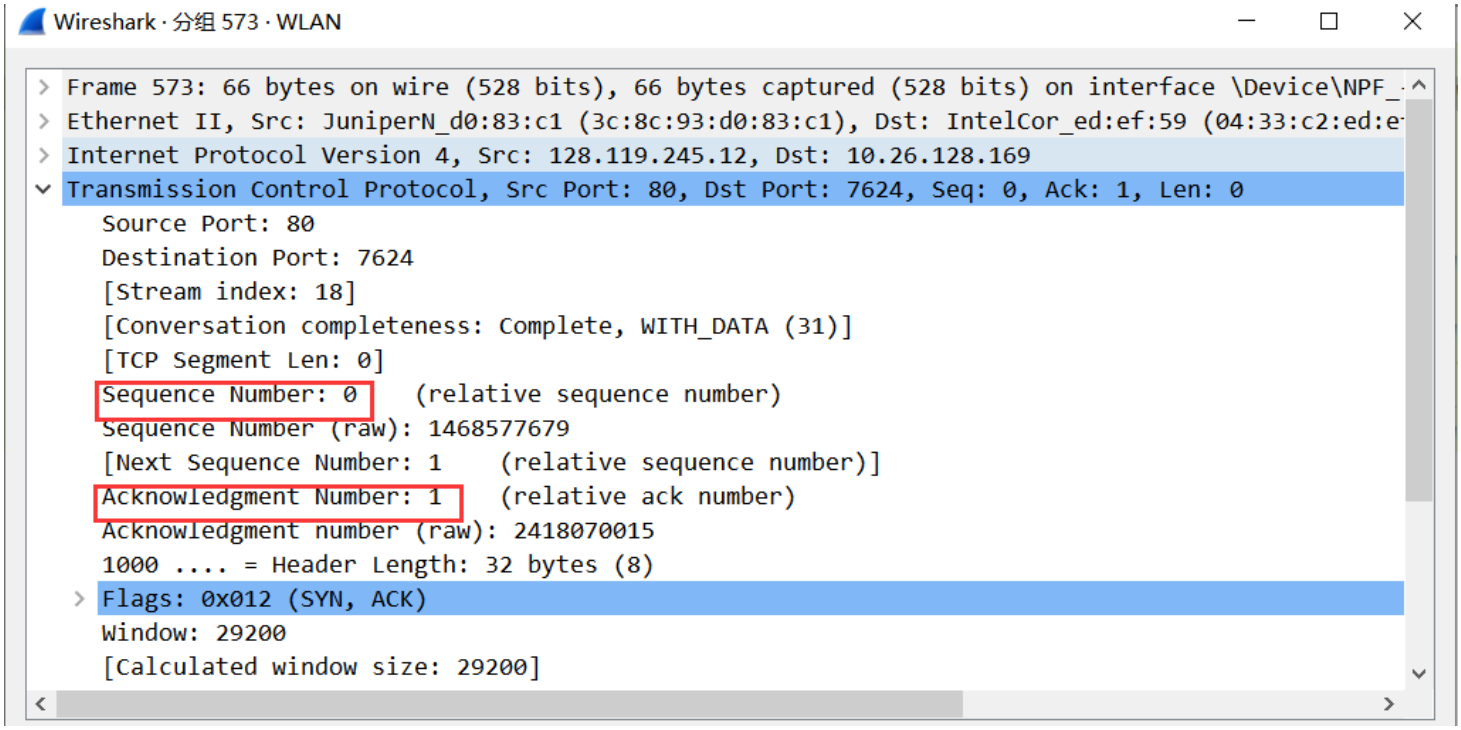


Q5. SYNACK fields

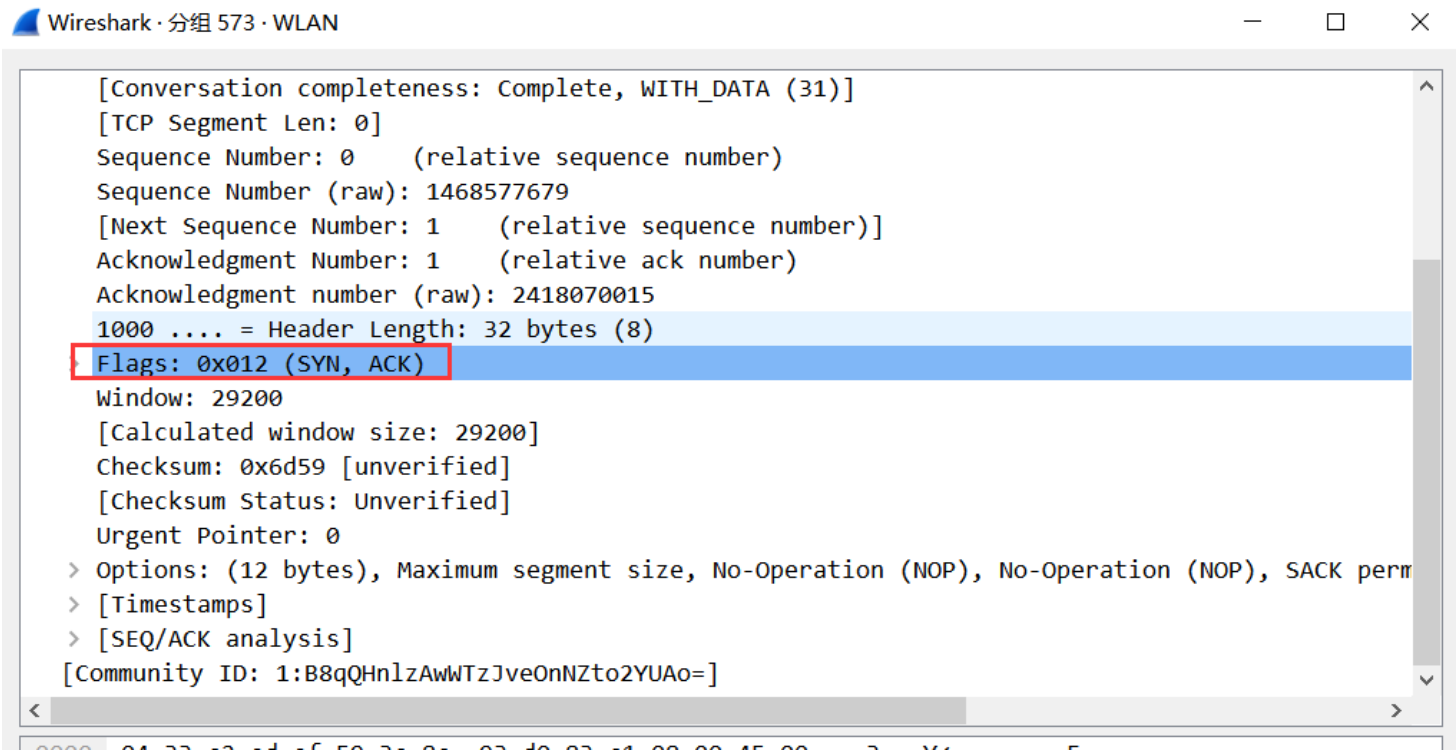
Select one SYNACK packet:



- Sequence number: 0
- Acknowledgement value: 1

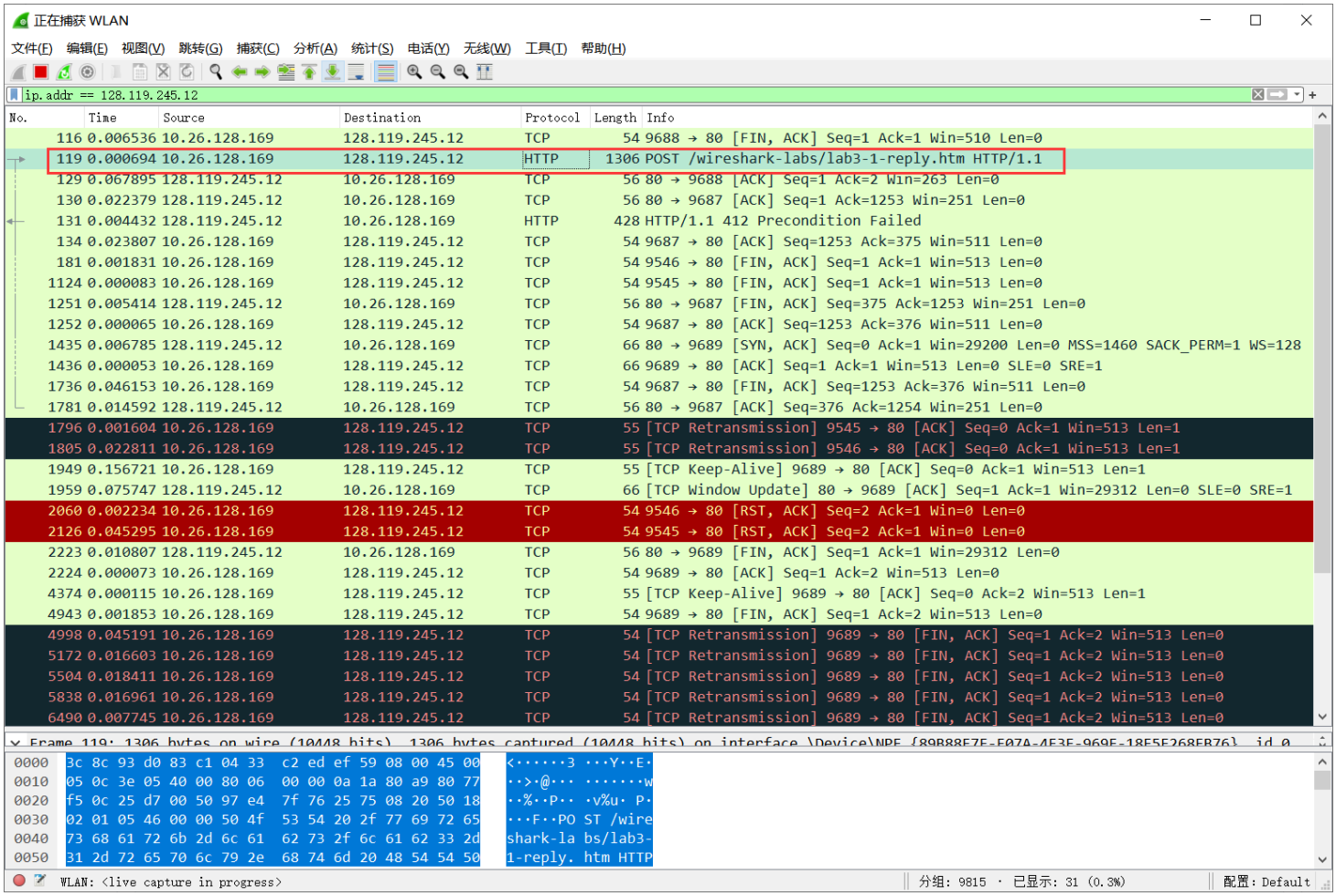


- The value is determined by increasing 1 to the initial sequence number.
- The flag is set as (SYN, ACK), to identify the SYNACK segment.

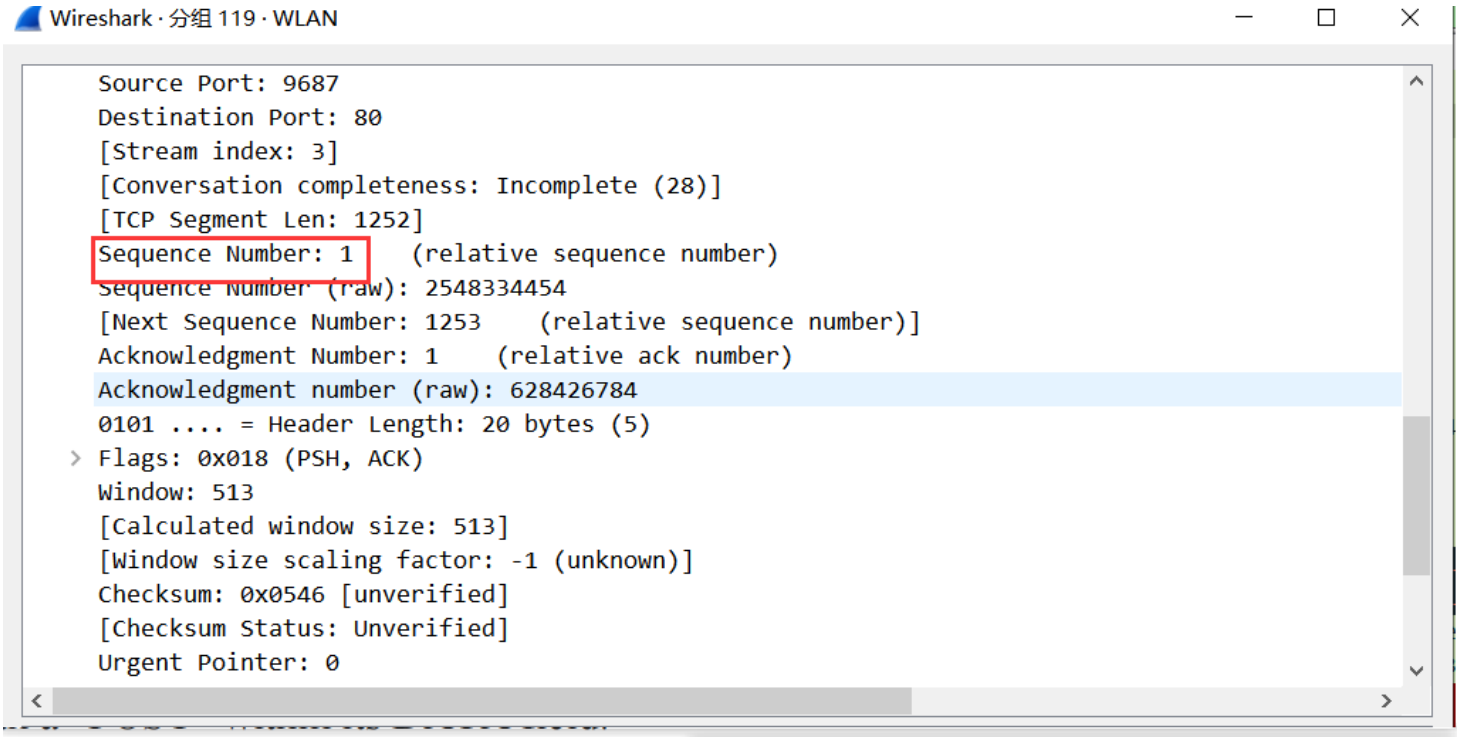


Q6. POST

Select one PST packet:

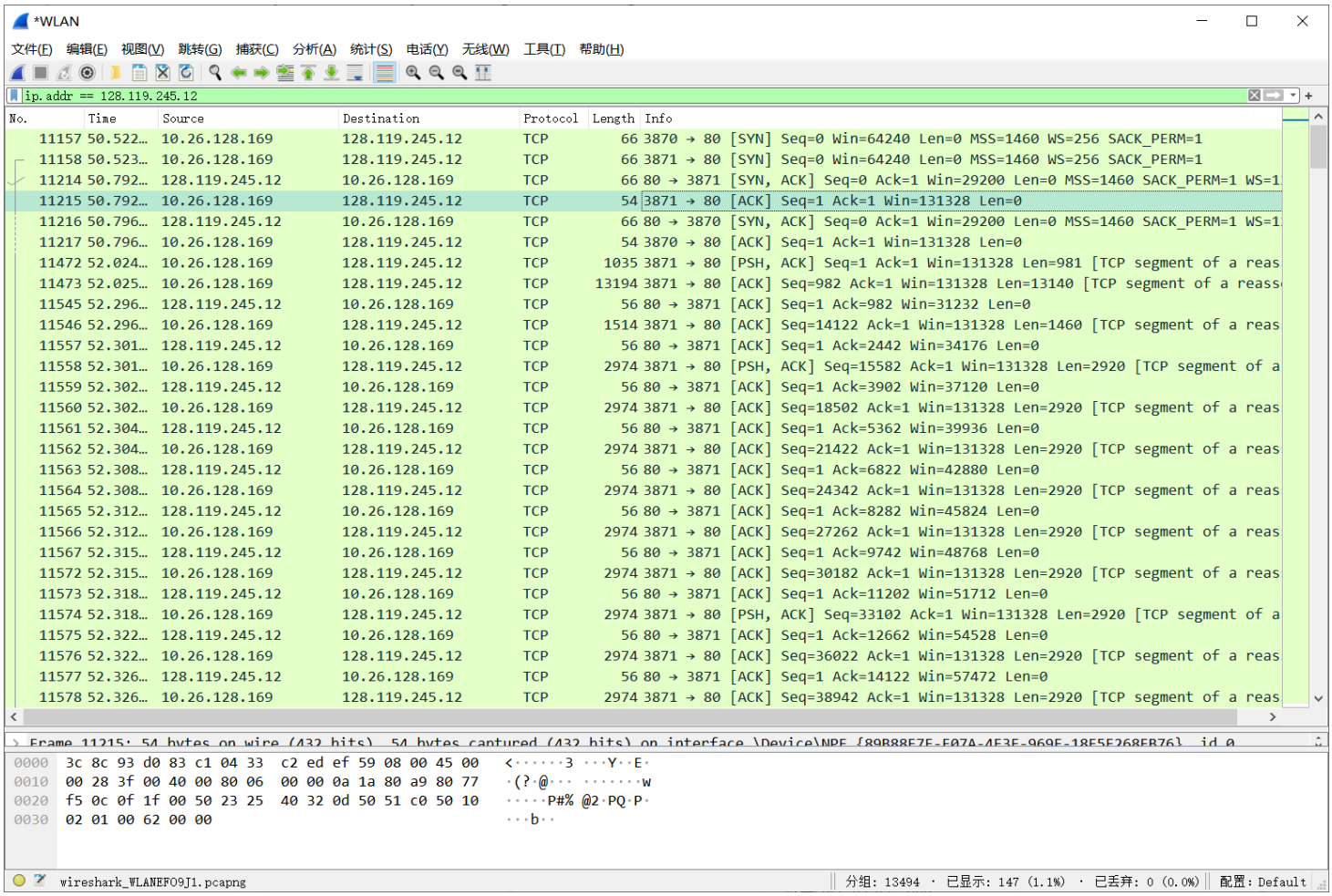


Here is the sequence number, it is 1:



Q7. POST, TCP, RTT

Consider the first six segments:



Their sequence numbers are: 1, 982, 2442, 3902, 5362, 6822

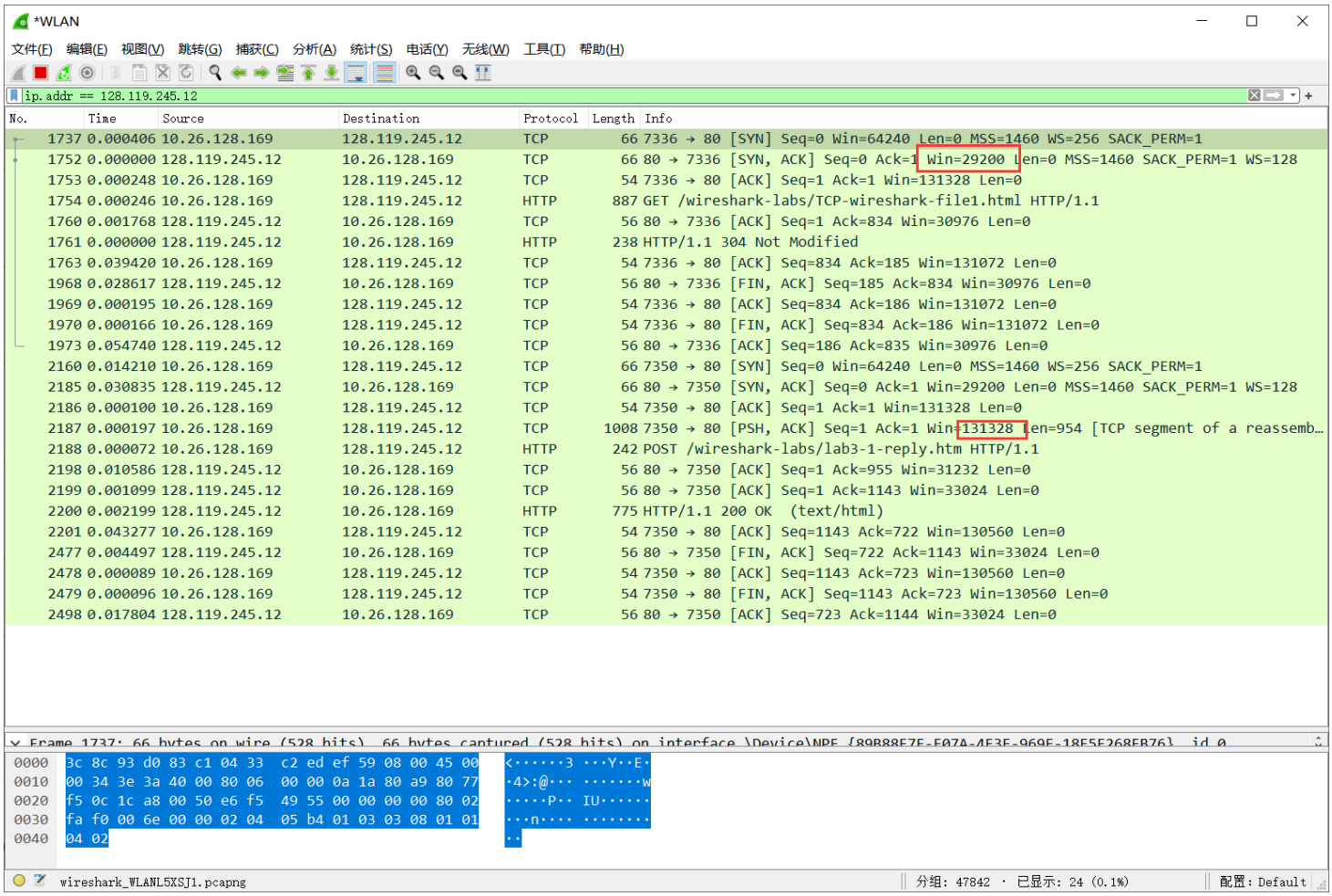
Their sent time are: 50.792192s, 52.025106s, 52.296217s, 52.301677s, 52.302708s, 52.304825s

Their ACK received time are: 50.796298s, 52.296150s, 52.301602s, 52.302651s, 52.304747s, 52.308065s

Thus RTT are: 0.004106s, 0.003044s, 0.005385s, 0.000974s, 0.002039s, 0.003240s

Q9. Buffer space

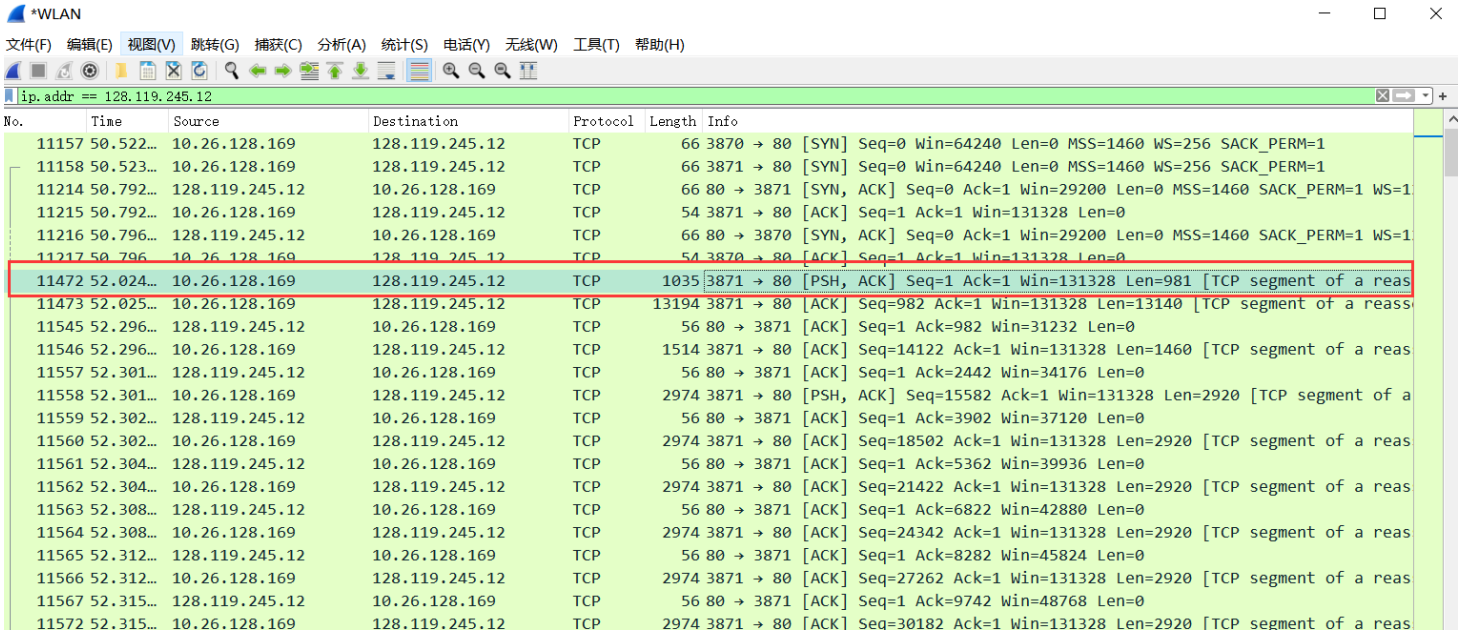
The minimum buffer space is 29200, and maximum is 131328.



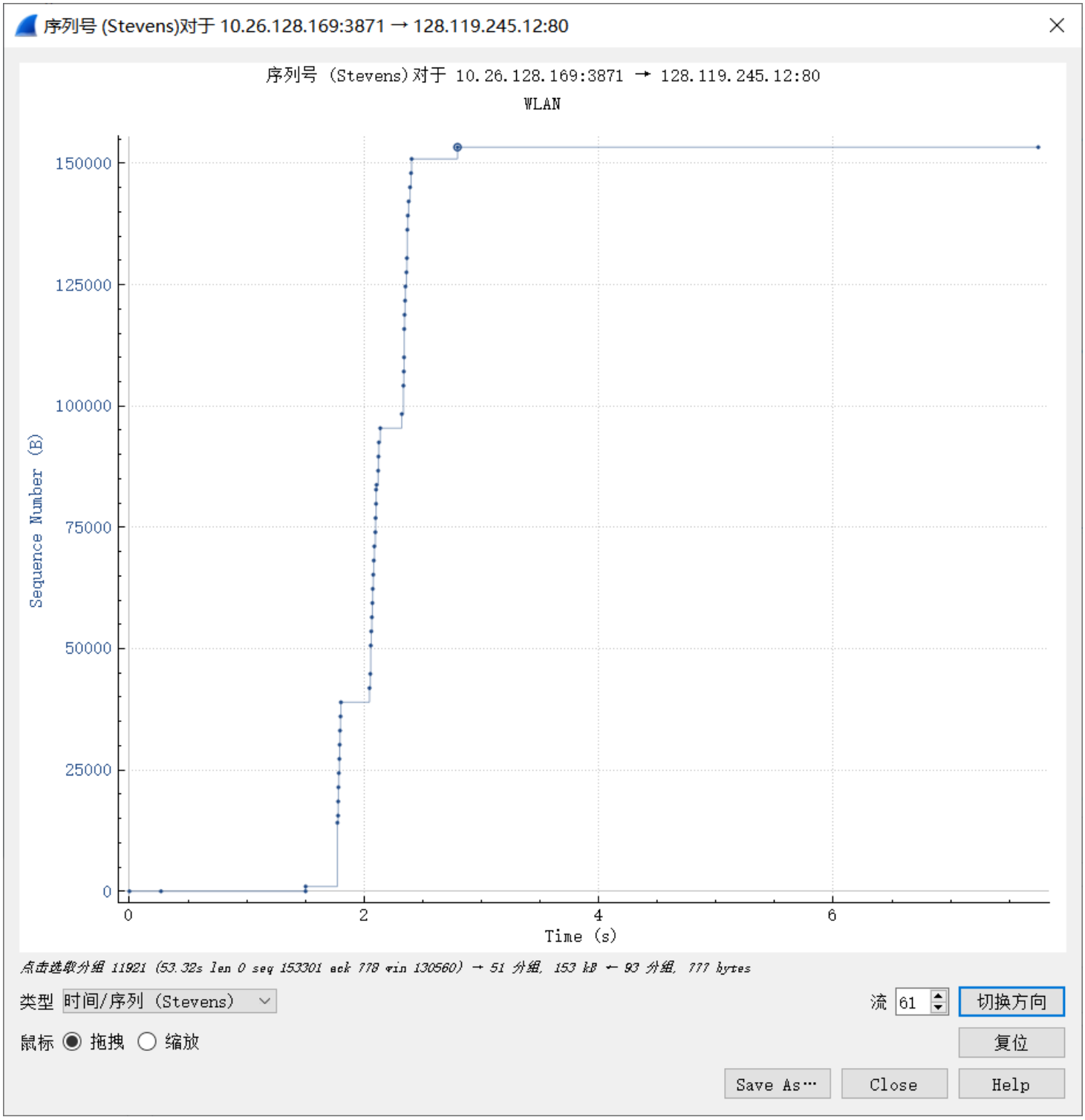
The lack of receiver buffer space does not throttle the sender.

Q10 Retransmission

Select one TCP packet with PSH and ACK:



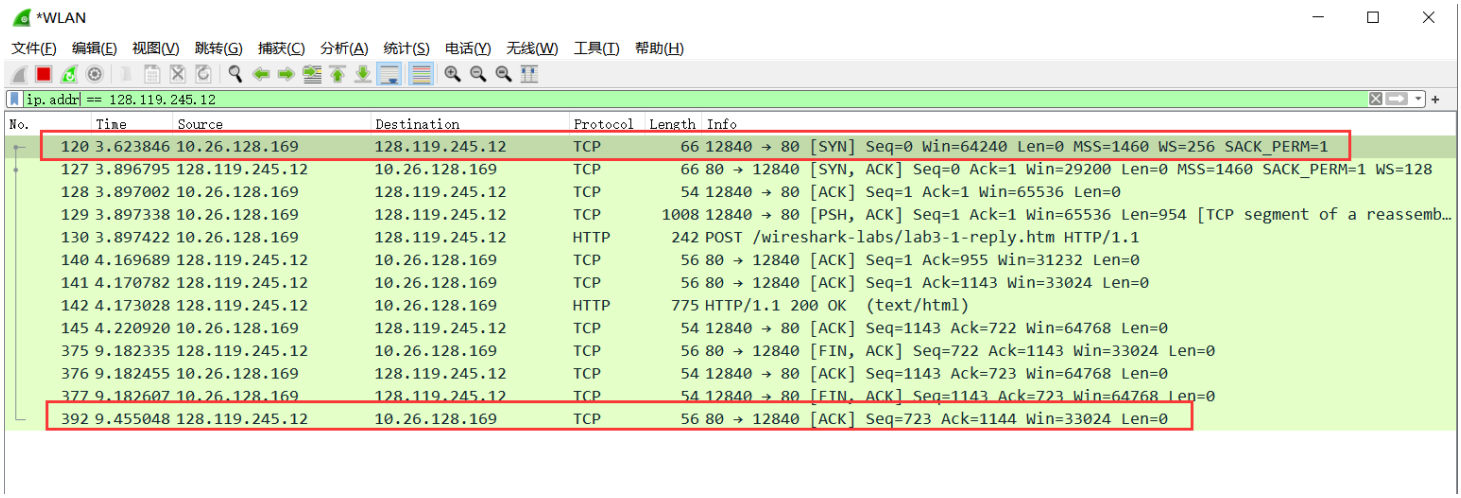
Then consider the Time/Sequence Graph.



We can see that the sequence number is increased with time. Thus there is no data retransmission. If there is retransmission, the sequence number will have a "local minimum".

Q12 Throughput

First and last TCP packet:



Time = 9.455048 - 3.623846 = 5.831202 s

Amount of data transferred: 1144 - 0 = 1144 bytes

Throughput = 1144 / 5.831202 = 196 bytes/sec