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Section: BCS-5B

Course Name: Computer Networks LAB

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Lab Task:

1.What is the source and destination port numbers?

```
Internet Protocol Version 4, Src: 192.168.1.122, Dst: 64.233.1
Transmission Control Protocol, Src Port: 60643, Dst Port: 80,
    Source Port: 60643
    Destination Port: 80
    [Stream index: 0]
    [Conversation completeness: Complete, WITH_DATA (31)]
    [TCP Segment Len: 0]
```

2. What is the sequence number of the TCP SYN segment that is used to initiate the TCP connection?

```
Transmission Control Protocol, Src Port: 60643, Dst Port: 80, Seq: 0, Len: 0
   Source Port: 60643
   Destination Port: 80
   [Stream index: 0]
   [Conversation completeness: Complete, WITH_DATA (31)]
   [TCP Segment Len: 0]
   Sequence Number: 0    (relative sequence number)
```

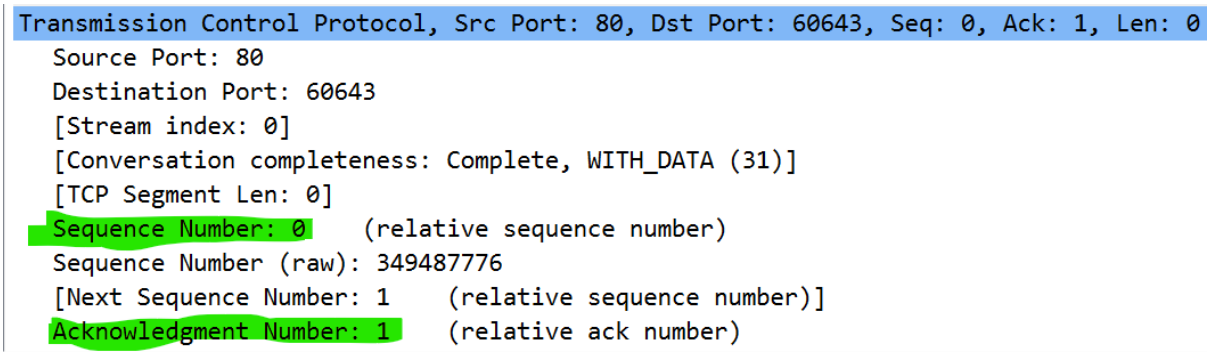
SYN is 0.

What is it in the segment that identifies the segment as a SYN segment?

```
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
```

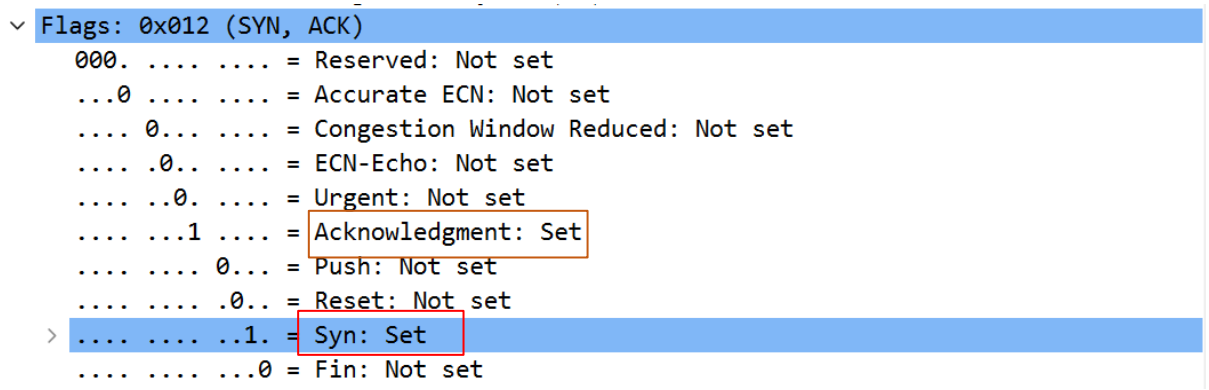
The flags identifies the segment as a SYN segment. We check the syn flag if it is set and all other are not set then it is SYN segment.

3. What is the sequence number of the SYNACK segment sent by the server to the client computer in reply to the SYN? What is the value of the Acknowledgement field in the SYNACK segment?



The sequence number of SYNACK is 0. And the acknowledgement value is 1.

How did server determine that value? What is it in the segment that identifies the segment as a SYNACK segment?



The server determine it through flags. The value of acknowledgment flag and SYN flag identifies this as SYNACK. If they both are set then this SYNACK segment.

4. What is the length of each of the first six TCP segments?

TCP 1 length = 0.

```
Transmission Control Protocol, Src Port: 80, Dst Port: 60643, Seq: 1, Ack: 192, Len: 0
```

TCP 2 Length: 245

```
Transmission Control Protocol, Src Port: 80, Dst Port: 60643, Seq: 1, Ack: 192, Len: 245
```

TCP 3 Length: 0

```
Transmission Control Protocol, Src Port: 60643, Dst Port: 80, Seq: 192, Ack: 246, Len: 0
```

TCP 4 Length: 1368

```
Transmission Control Protocol, Src Port: 80, Dst Port: 60643, Seq: 246, Ack: 192, Len: 1368
```

TCP 5 Length: 1368

```
Transmission Control Protocol, Src Port: 80, Dst Port: 60643, Seq: 1614, Ack: 192, Len: 1368
```

TCP 6 Length: 0

```
Transmission Control Protocol, Src Port: 60643, Dst Port: 80, Seq: 192, Ack: 2982, Len: 0
```

5. Are there any retransmitted segments in the trace file? What did you check for (in the trace) in order to answer this question?

Ans: Yes, there are several segments that are retransmitted. We check sequence number of the packtes to answer this question.