Hatoun Aldahami

**Part1:**

Task 2:

First packet contains GET method

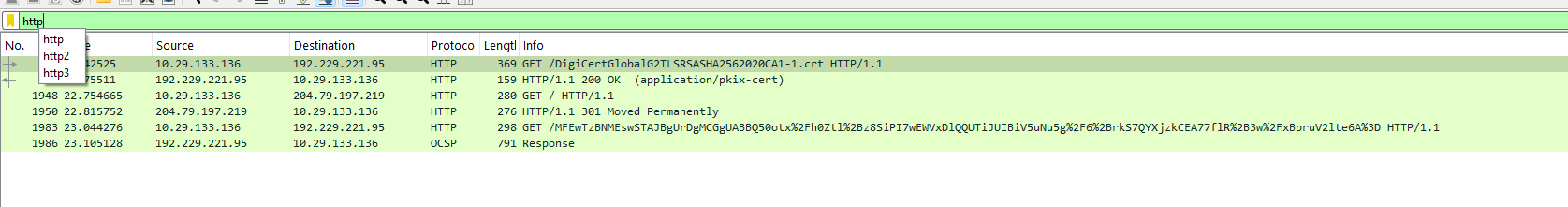
Second packet: RESPONSE 200 OK

3rd packet is GET method

4th packet: RESPONSE 301 Moved permanently

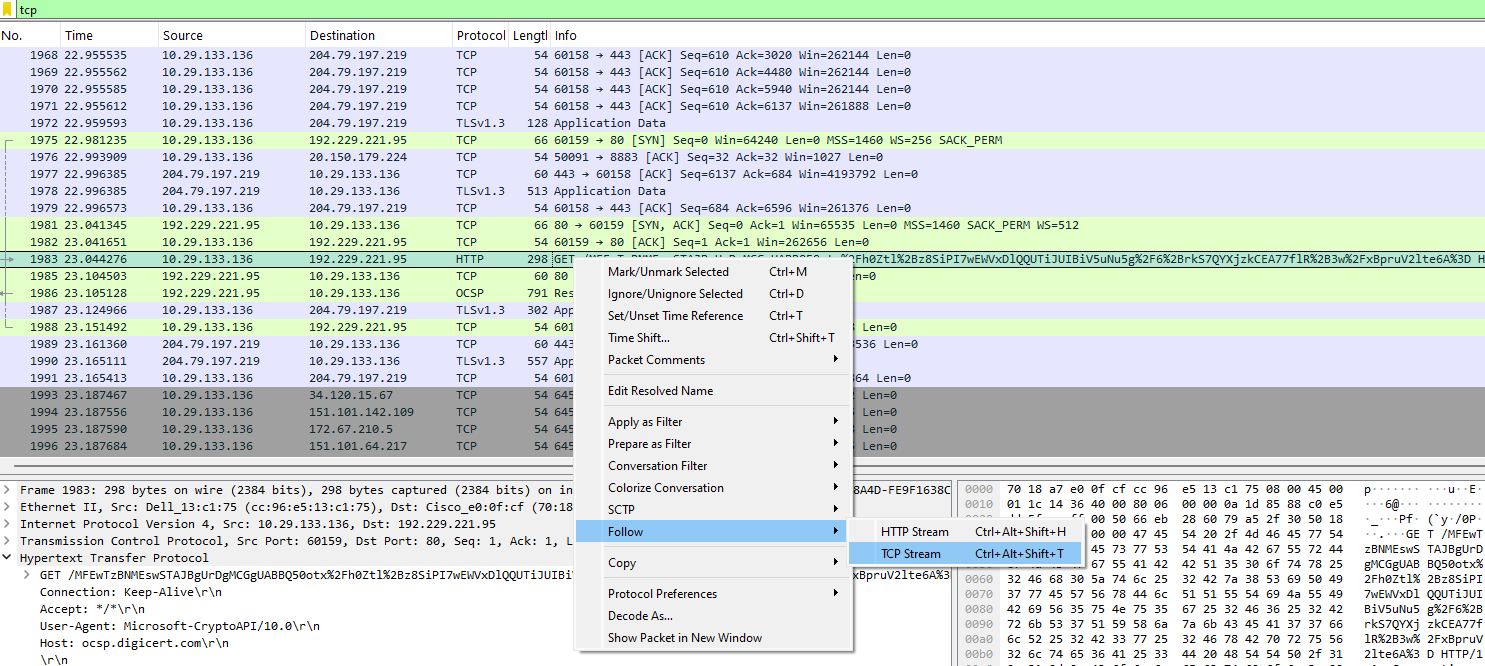
5th packet: GET method

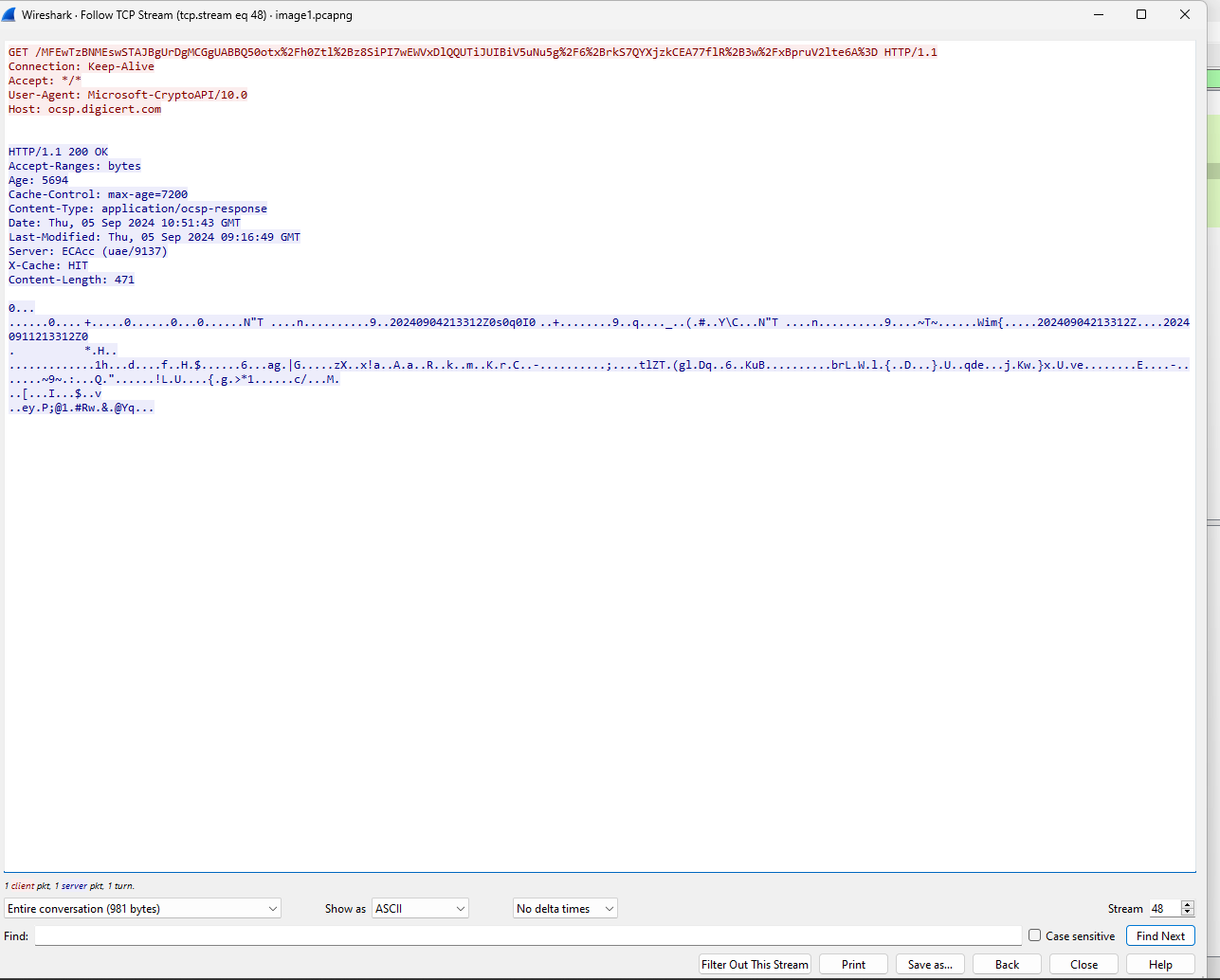
FOR THE URL: [Full request URI: <http://ocsp.digicert.com/MFEwTzBNMEswSTAJBgUrDgMCGgUABBQ50otx%2Fh0Ztl%2Bz8SiPI7wEWVxDlQQUTiJUIBiV5uNu5g%2F6%2BrkS7QYXjzkCEA77flR%2B3w%2FxBpruV2lte6A%3D>]



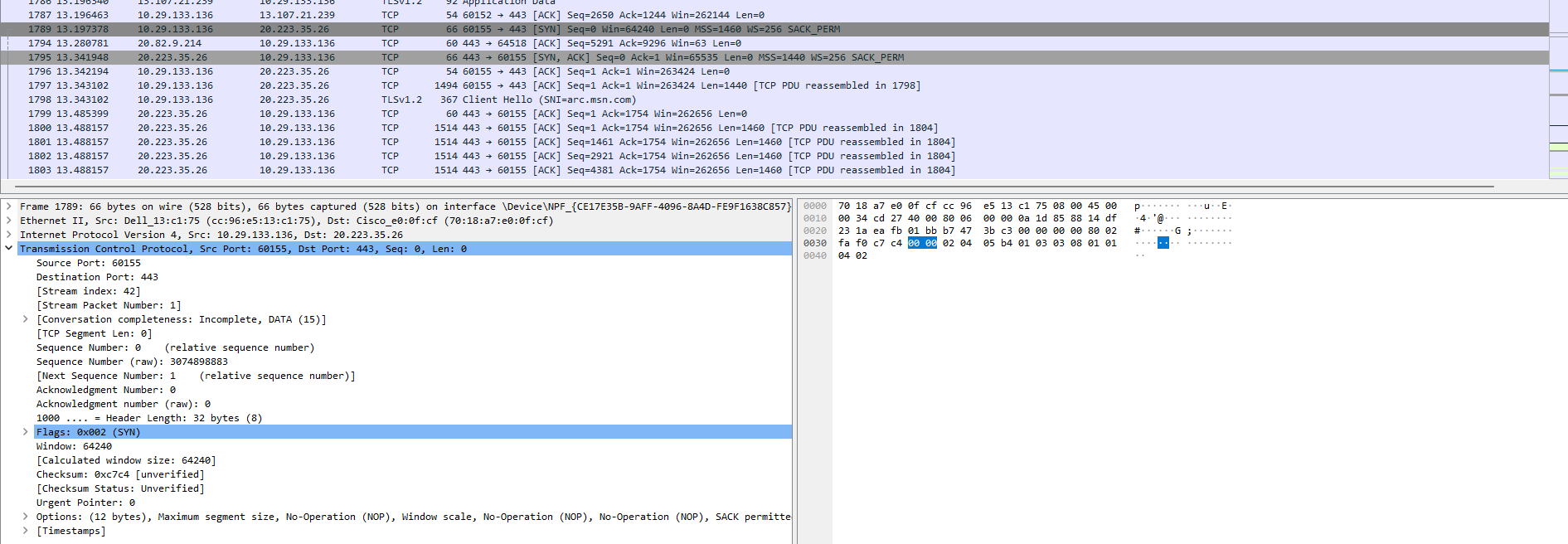
**Part2**

Task 1:

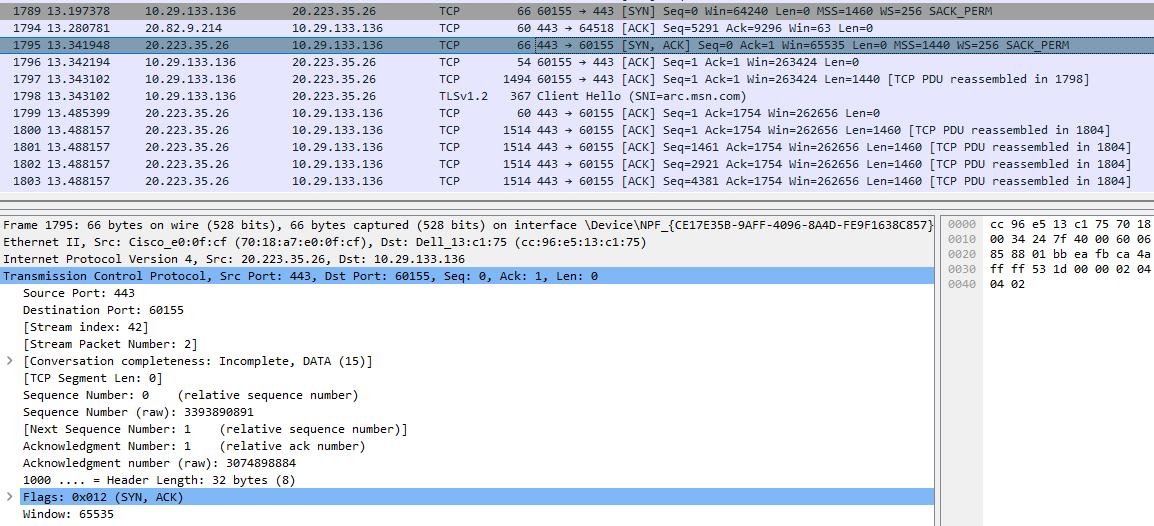




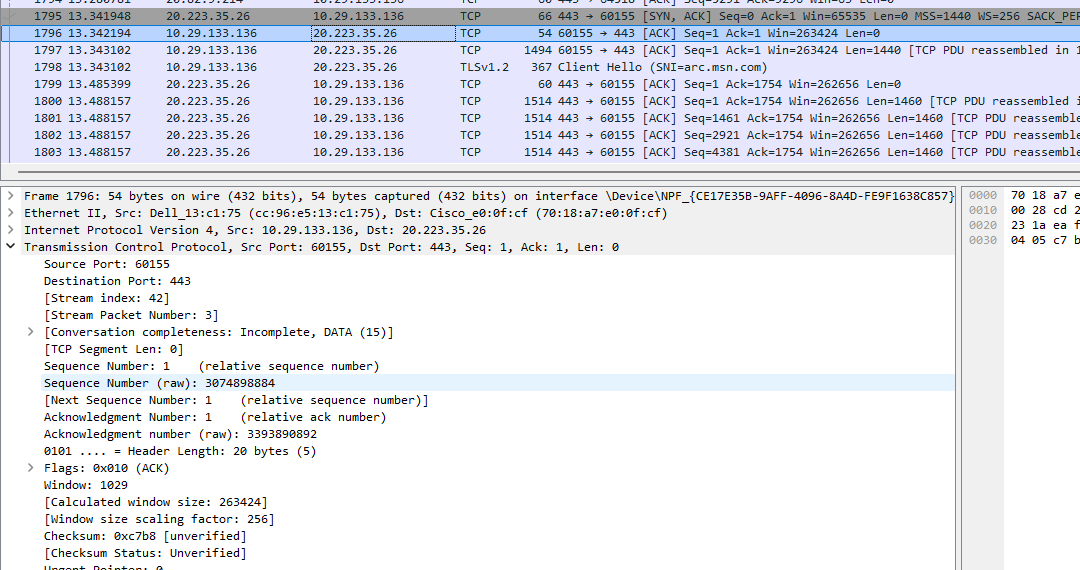
Task 2:



SYN WITH sequence number 0 and ack number 0

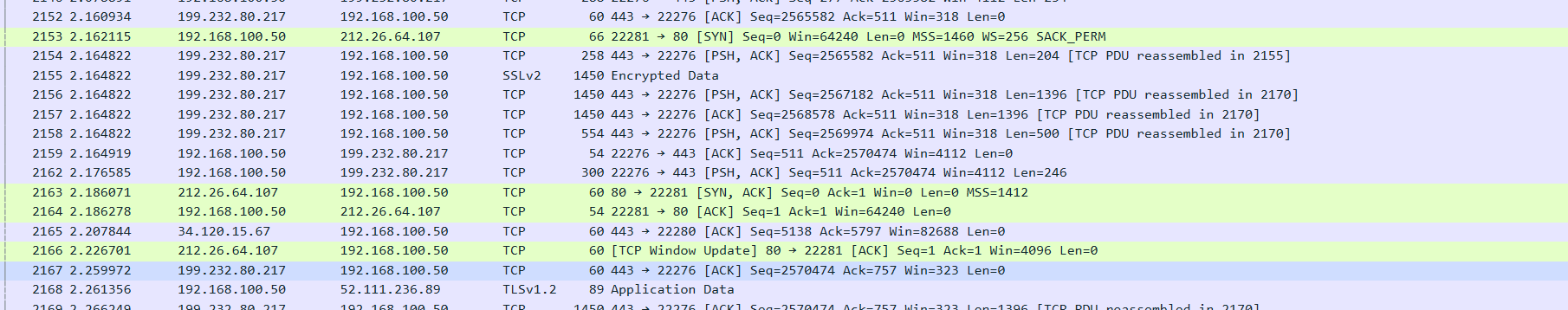


SYN-ACK with sequence number 0 and ack number 1



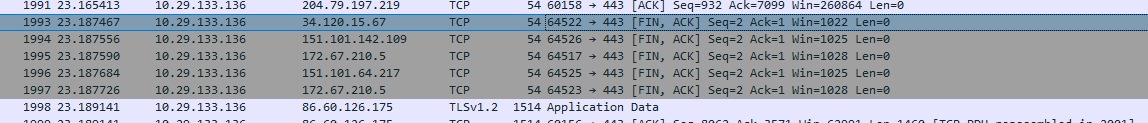
ACK with sequence number 1 and ack number 1

Step 3 (This analysis was done using a separate Wireshark capture ):

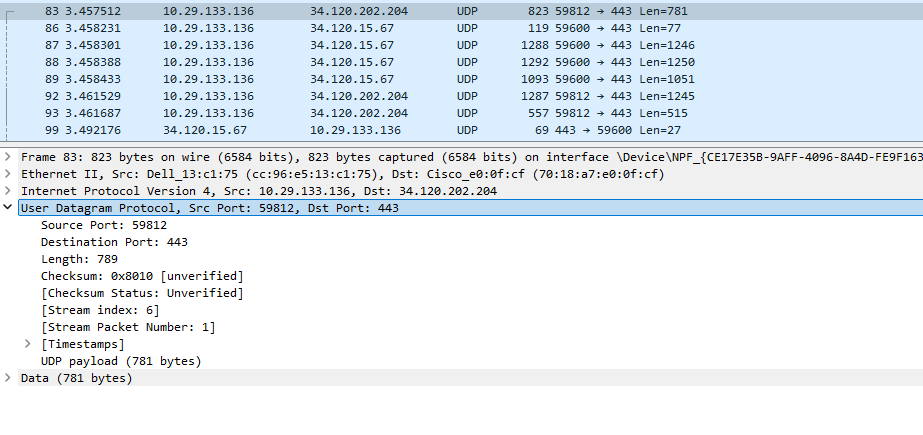


After the TCP handshake (SYN, SYN-ACK, ACK), the client (192.168.100.50) and server (212.26.64.107) start exchanging data.

Step 4:



**Part 3:**



source :59812

Det: 443

Length:789

Data: Data […]: 48eab85633532542011b7ed041d118418b0c8ce58f2bfd088f1f37148b22de5fd1e1e948aa0f1f8ada41b74d66f00392f8c9603314d33e3d84d364c9dde0332c7edd738748908151059c5e1a154495fc13847cf3123e18e254ef8f32f8081b0a7ae06b52d16f1e4872f14fbf9735bc0f4b7

Comparison:

TCP has a more complex header, including fields for sequence numbers, acknowledgments, and window size, but UDP has a simpler header, as I saw in the capture, with just essential information such as source and destination ports. This results in faster transmission but no built-in error-checking.

**Part 4:**

|  |  |  |
| --- | --- | --- |
|  | TCP | UDP |
| Reliability | TCP is reliable. During the capture, I saw TCP perform a three-way handshake (SYN, SYN-ACK, ACK), ensuring both the client and server are ready to communicate. It also resends lost packets, making sure data is delivered accurately. | UDP is not reliable. In the case of real-time communications like video or voice, UDP doesn't wait for packet acknowledgment, meaning some packets may be lost, but this is acceptable in media streaming where speed matters more than accuracy. |
| Data integrity and ordering | TCP ensures that data is received in the correct order by using sequence numbers and acknowledgments, which I observed in the packet capture. This is why TCP is used in file transfers. | UDP does not guarantee order or retransmission of lost packets. |
| use case | file transfer | video games or online meetings like zoom or google meet |
| performance | slower than UDP but reliable | faster but can lose data |