Department of Computer Science and Engineering
U18CSI5201_Computer Networks Laboratory

Reg: no:22BCS308 **Exp: no: 4**

Simulation of Data Link layer and Network Layer Protocols.

Aim:

To Simulate the Data Link layer and Network Layer Protocols using the Wireshark application.

TCP Protocol:

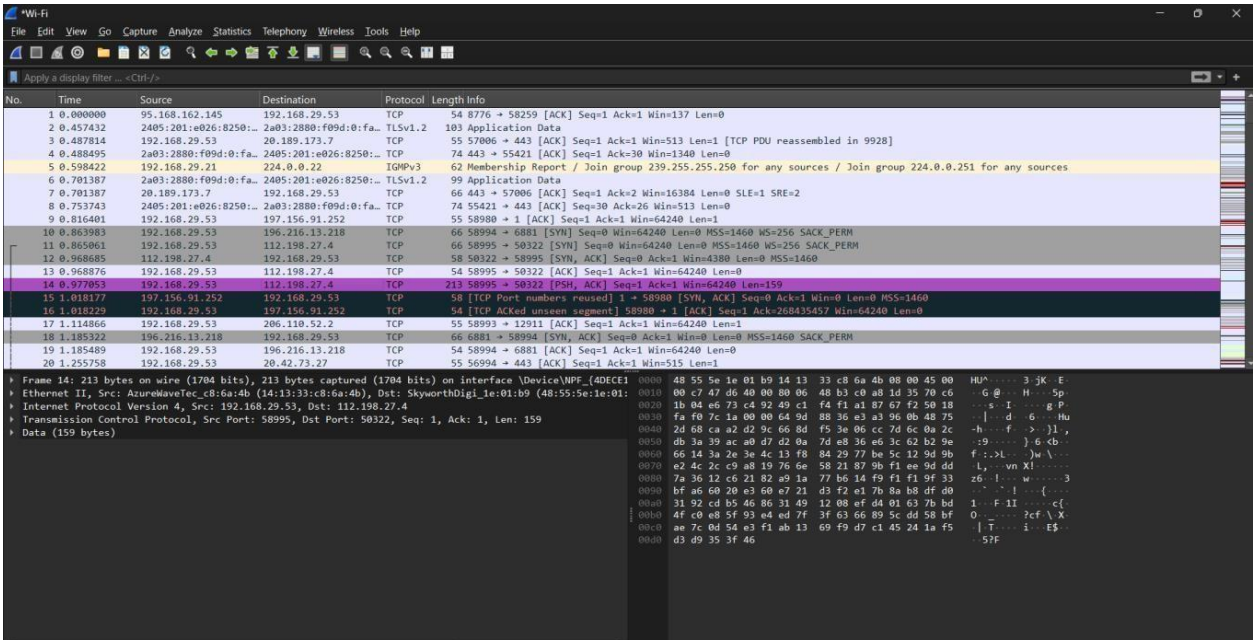
a. Demonstrate the frame transmission scenario using Sniffing tool.

Sol:

1. Choose the network interface to monitor, such as the Wi-Fi interface if you're connected via Wi-Fi.

2. With Wireshark running, perform activities that generate network traffic.

3. To capture TCP packets, initiate any task that involves TCP communication.
4. Wireshark captures traffic as frames, with each frame representing a network packet for analysis.



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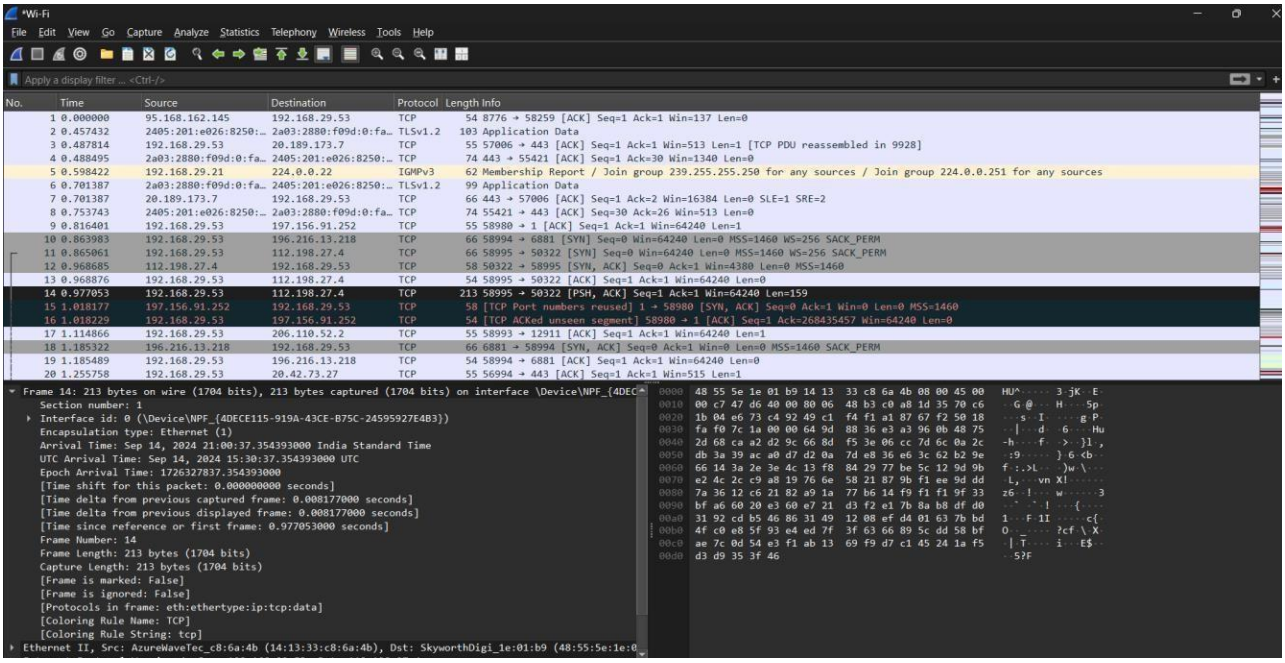

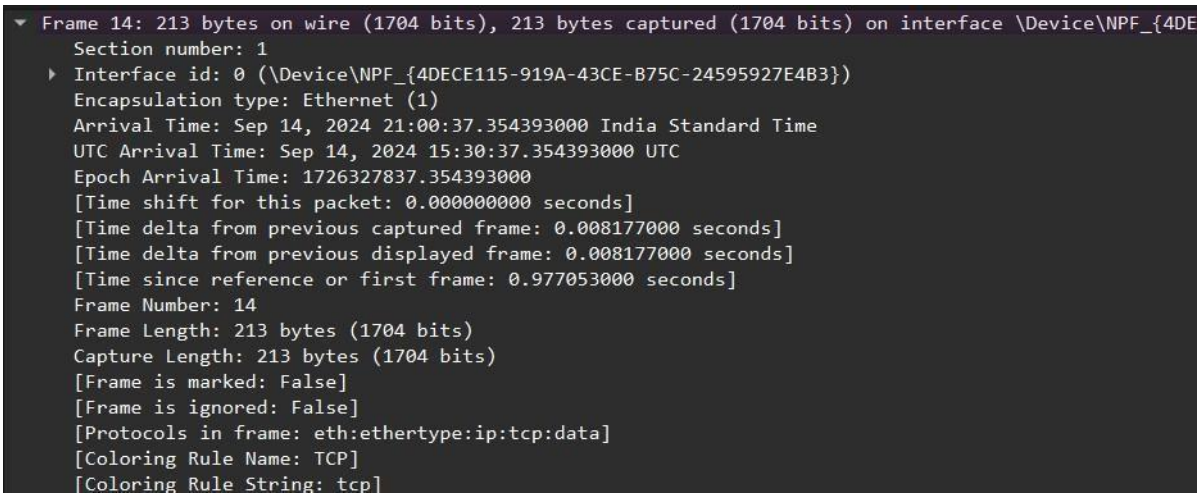

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b. Demonstrate the packet transmission scenario using Sniffing tool.

Sol:

```
▾ Internet Protocol Version 4, Src: 192.168.29.53, Dst: 112.198.27.4
    0100 .... = Version: 4
    .... 0101 = Header Length: 20 bytes (5)
  ▸ Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
    Total Length: 199
    Identification: 0x47d6 (18390)
  ▸ 010. .... = Flags: 0x2, Don't fragment
    ...0 0000 0000 0000 = Fragment Offset: 0
    Time to Live: 128
    Protocol: TCP (6)
    Header Checksum: 0x48b3 [validation disabled]
    [Header checksum status: Unverified]
    Source Address: 192.168.29.53
    Destination Address: 112.198.27.4
    [Stream index: 5]
▾ Transmission Control Protocol, Src Port: 58995, Dst Port: 50322, Seq: 1, Ack: 1, Len: 159
    Source Port: 58995
    Destination Port: 50322
    [Stream index: 5]
    [Stream Packet Number: 4]
  ▸ [Conversation completeness: Complete, WITH_DATA (47)]
    [TCP Segment Len: 159]
    Sequence Number: 1    (relative sequence number)
    Sequence Number (raw): 1237447921
    [Next Sequence Number: 160    (relative sequence number)]
    Acknowledgment Number: 1    (relative ack number)
    Acknowledgment number (raw): 2710005746
    0101 .... = Header Length: 20 bytes (5)
  ▸ Flags: 0x018 (PSH, ACK)
    Window: 64240
    [Calculated window size: 64240]
    [Window size scaling factor: -2 (no window scaling used)]
    Checksum: 0x7c1a [unverified]
    [Checksum Status: Unverified]
    Urgent Pointer: 0
  ▸ [Timestamps]
  ▸ [SEQ/ACK analysis]
    TCP payload (159 bytes)
```

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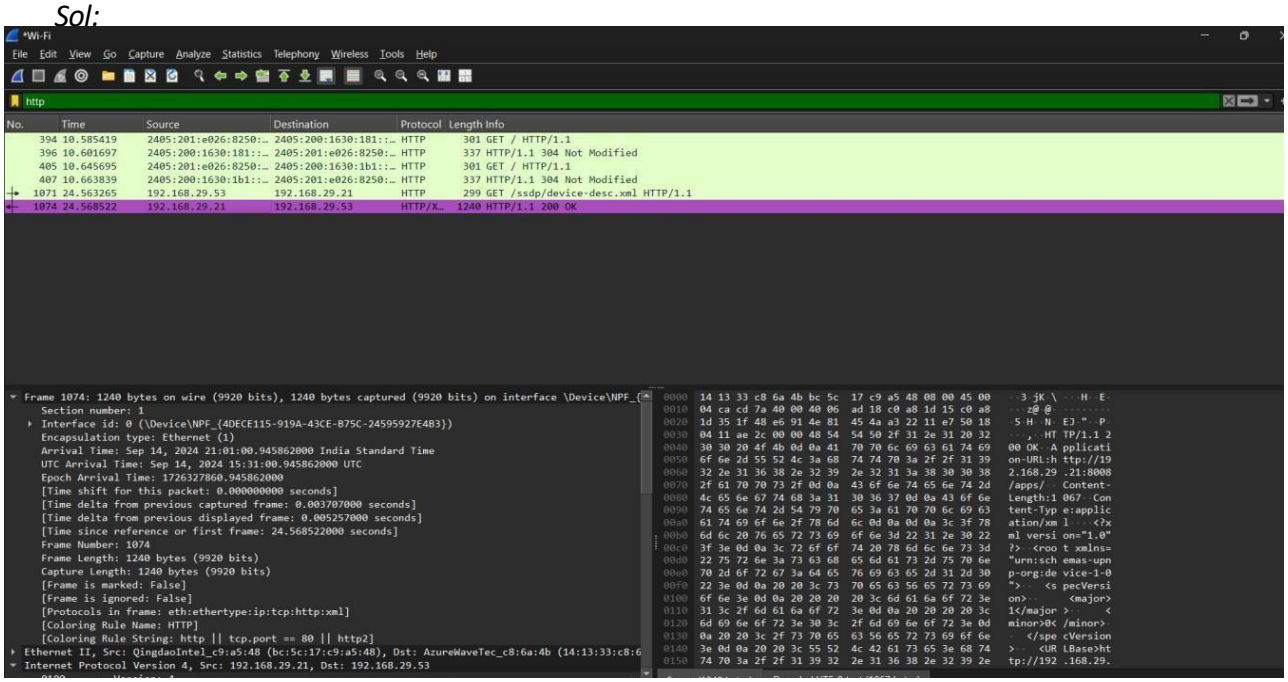
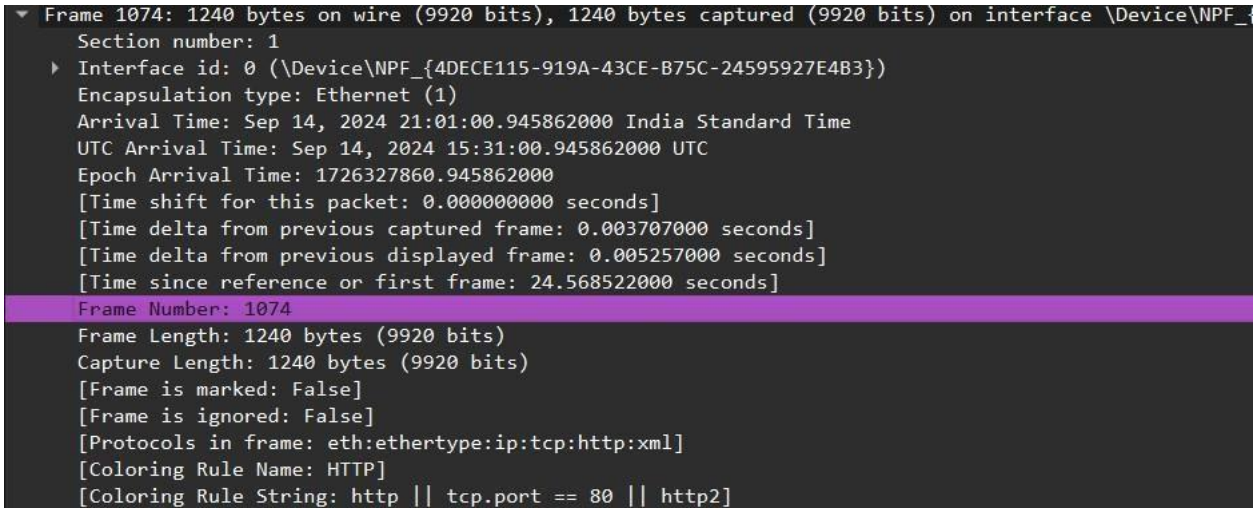
HTTP protocol:

a. Demonstrate the frame transmission scenario using Sniffing tool.

Sol:





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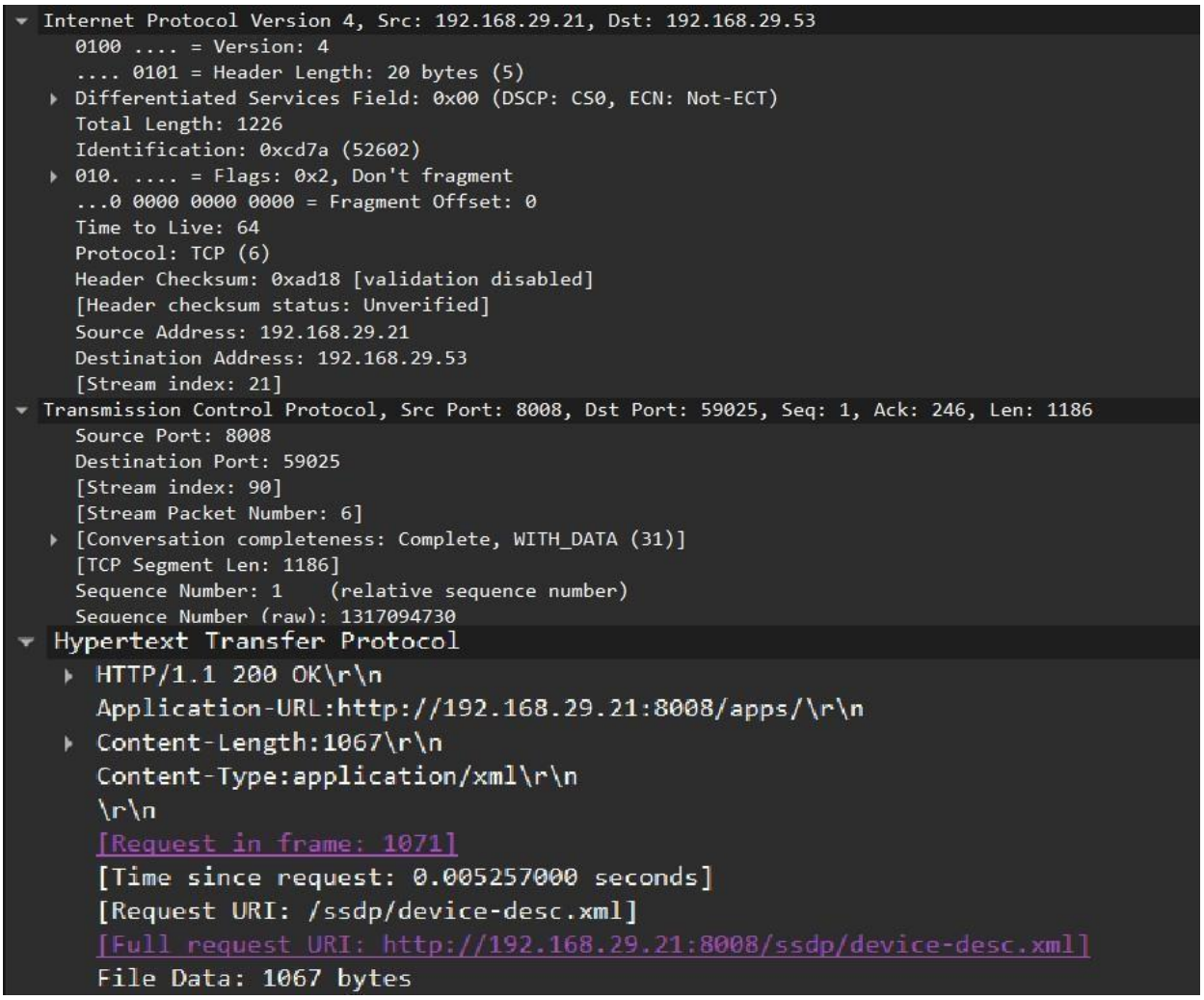
b. Demonstrate the packet transmission scenario using Sniffing tool.

Sol:



Result:

The Experiment was successfully completed and demonstrated packet and frame transmission.