

WEBSITE: <http://info.cern.ch>

## NETWORK TRAFFIC:

No.	Time	Source	Destination	Protocol	Length	Info
2526	52.768614	2401:f40:133d:36:5...	2001:1458:201:a4:...	HTTP	519	GET / HTTP/1.1
2540	52.963517	2001:1458:201:a4:...	2401:f40:133d:36:5...	HTTP	964	HTTP/1.1 200 OK (text/html)
2554	53.040644	2401:f40:133d:36:5...	2001:1458:201:a4:...	HTTP	460	GET /favicon.ico HTTP/1.1
2575	53.236586	2001:1458:201:a4:...	2401:f40:133d:36:5...	HTTP	332	HTTP/1.1 200 OK (image/vnd.microsoft.icon)
41339	933.459662	192.168.0.186	23.10.239.251	HTTP	419	GET /ME8wTTBLMEkwRzAHBgUrDgMCGgQU36oS4yxCUGT4p9Cgs5HQEKVWkMEFLE%2Bw2kD%2BL9HAdSYJhoIAu9jZCvDAhAHF3kR...
41344	933.496612	23.10.239.251	192.168.0.186	OCSP	792	Response

## HTTP REQUEST:

1. This falls under DATA LINK LAYER. It captured an Ethernet frame (Frame 2526) containing 519 bytes.

▼ Frame 2526: Packet, 519 bytes on wire (4152 bits), 519 bytes captured (4152 bits) on interface en0, id 0
Section number: 1
> Interface id: 0 (en0)
Encapsulation type: Ethernet (1)
Arrival Time: Nov 4, 2025 20:53:24.872208000 +0000 UTC
UTC Arrival Time: Nov 4, 2025 14:53:24.872208000 UTC
Epoch Arrival Time: 1762268004.872208000
[Time shift for this packet: 0.000000000 seconds]
[Time delta from previous captured frame: 234.000 microseconds]
[Time since reference or first frame: 52.768614000 seconds]
Frame Number: 2526
Frame Length: 519 bytes (4152 bits)
Capture Length: 519 bytes (4152 bits)
[Frame is marked: False]
[Frame is ignored: False]
[Protocols in frame: eth:ethertype:ipv6:tcp:http]
Character encoding: ASCII (0)
[Coloring Rule Name: HTTP]
[Coloring Rule String: http    tcp.port == 80    http2]

2. This falls under DATA LINK LAYER. It defines MAC-level addressing and the packet is sent from 12:79:ee:e1:6e:4a to 78:8c:b5:60:5e:37 using the Ethernet II.

▼ Ethernet II, Src: TP-Link_60:5e:37 (12:79:ee:e1:6e:4a), Dst: TP-Link_60:5e:37 (78:8c:b5:60:5e:37)
▼ Destination: TP-Link_60:5e:37 (78:8c:b5:60:5e:37)
.... ..0. .... .... .... = LG bit: Globally unique address (factory default)
.... ..0. .... .... .... = IG bit: Individual address (unicast)
▼ Source: 12:79:ee:e1:6e:4a (12:79:ee:e1:6e:4a)
.... ..1. .... .... .... = LG bit: Locally administered address (this is NOT the factory default)
.... ..0. .... .... .... = IG bit: Individual address (unicast)
Type: IPv6 (0x86dd)
[Stream index: 0]

3. This falls under NETWORK LAYER. It Encapsulates the logical (IP) routing info. Here Next Header = TCP (6) indicates the next layer is TCP.

```
Internet Protocol Version 6, Src: 2401:f40:133d:36:5d49:3830:71d3:d477, Dst: 2001:1458:201:a4::100:1a0
  0110 .... = Version: 6
  .... 0000 0000 .... .... .... .... = Traffic Class: 0x00 (DSCP: CS0, ECN: Not-ECT)
  .... 1111 0000 0100 0000 0000 = Flow Label: 0xf0400
  Payload Length: 465
  Next Header: TCP (6)
  Hop Limit: 64
  > Source Address: 2401:f40:133d:36:5d49:3830:71d3:d477
  > Destination Address: 2001:1458:201:a4::100:1a0
  [Stream index: 52]
```

4. This falls under TRANSPORT LAYER. Here source port 56280 and destination port 80 .

```
Transmission Control Protocol, Src Port: 56280, Dst Port: 80, Seq: 1, Ack: 1, Len: 433
  Source Port: 56280
  Destination Port: 80
  [Stream index: 38]
  [Stream Packet Number: 4]
  > [Conversation completeness: Complete, WITH_DATA (31)]
  [TCP Segment Len: 433]
  Sequence Number: 1    (relative sequence number)
  Sequence Number (raw): 725669535
  [Next Sequence Number: 434    (relative sequence number)]
  Acknowledgment Number: 1    (relative ack number)
  Acknowledgment number (raw): 925671537
  1000 .... = Header Length: 32 bytes (8)
  Flags: 0x018 (PSH, ACK)
  Window: 2068
  [Calculated window size: 132352]
  [Window size scaling factor: 64]
  Checksum: 0xddaa [unverified]
  [Checksum Status: Unverified]
  Urgent Pointer: 0
  > Options: (12 bytes), No-Operation (NOP), No-Operation (NOP), Timestamps
  > [Timestamps]
  > [SEQ/ACK analysis]
  [Client Contiguous Streams: 1]
  [Server Contiguous Streams: 1]
  TCP payload (433 bytes)
```

5. This falls under APPLICATION LAYER. Here GET / HTTP/1.1 request to info.cern.ch with headers means that the web browser's request for a webpage.

```

▼ Hypertext Transfer Protocol
  > GET / HTTP/1.1\r\n
    Host: info.cern.ch\r\n
    Connection: keep-alive\r\n
    Upgrade-Insecure-Requests: 1\r\n
    User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/140.0.0.0 Safari/537.36\r\n
    Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b...
    Accept-Encoding: gzip, deflate\r\n
    Accept-Language: en-US,en;q=0.9\r\n
  \r\n
  [Response in frame: 2540]
  [Full request URI: http://info.cern.ch/]

```

## HTTP RESPONSE:

1. This falls under DATA LINK LAYER. It captured an Ethernet frame (Frame 2540) containing 964 bytes.

```

▼ Frame 2540: Packet, 964 bytes on wire (7712 bits), 964 bytes captured (7712 bits) on interface en0, id 0
  Section number: 1
  > Interface id: 0 (en0)
    Encapsulation type: Ethernet (1)
    Arrival Time: Nov 4, 2025 20:53:25.067111000 +06
    UTC Arrival Time: Nov 4, 2025 14:53:25.067111000 UTC
    Epoch Arrival Time: 1762268005.067111000
    [Time shift for this packet: 0.00000000 seconds]
    [Time delta from previous captured frame: 1.608000 milliseconds]
    [Time delta from previous displayed frame: 194.903000 milliseconds]
    [Time since reference or first frame: 52.963517000 seconds]
    Frame Number: 2540
    Frame Length: 964 bytes (7712 bits)
    Capture Length: 964 bytes (7712 bits)
    [Frame is marked: False]
    [Frame is ignored: False]
    [Protocols in frame: eth:ethertype:ipv6:tcp:http:data-text-lines]
    Character encoding: ASCII (0)
    [Coloring Rule Name: HTTP]
    [Coloring Rule String: http || tcp.port == 80 || http2]

```

2. This falls under DATA LINK LAYER. It defines MAC-level addressing and the packet is sent from 78:8c:b5:60:5e:37 to 12:79:ee:e1:6e:4a using the Ethernet II.

```

▼ Ethernet II, Src: TPLink_60:5e:37 (78:8c:b5:60:5e:37), Dst: 12:79:ee:e1:6e:4a (12:79:ee:e1:6e:4a)
  > Destination: 12:79:ee:e1:6e:4a (12:79:ee:e1:6e:4a)
    .... ..1. .... .... .... = LG bit: Locally administered address (this is NOT the factory default)
    .... ..0. .... .... .... = IG bit: Individual address (unicast)
  > Source: TPLink_60:5e:37 (78:8c:b5:60:5e:37)
    .... ..0. .... .... .... = LG bit: Globally unique address (factory default)
    .... ..0. .... .... .... = IG bit: Individual address (unicast)
  Type: IPv6 (0x86dd)
  [Stream index: 0]

```

3. This falls under NETWORK LAYER. It Encapsulates the logical (IP) routing info. Here Next Header = TCP (6) indicates the next layer is TC

```
Internet Protocol Version 6, Src: 2001:1458:201:a4::100:1a0, Dst: 2401:f40:133d:36:5d49:3830:71d3:d477
  0110 .... = Version: 6
  < .... 0000 0000 .... .... .... .... = Traffic Class: 0x00 (DSCP: CS0, ECN: Not-ECT)
    .... 0000 00.. .... .... .... .... = Differentiated Services Codepoint: Default (0)
      .... ..00 .... .... .... .... .... = Explicit Congestion Notification: Not ECN-Capable Transport (0)
      .... 1100 1010 0110 0101 0101 = Flow Label: 0xca655
  Payload Length: 910
  Next Header: TCP (6)
  Hop Limit: 46
  > Source Address: 2001:1458:201:a4::100:1a0
  > Destination Address: 2401:f40:133d:36:5d49:3830:71d3:d477
  [Stream index: 52]
```

4. This falls under TRANSPORT LAYER. Here source port 56280 and destination port 80

```
Transmission Control Protocol, Src Port: 80, Dst Port: 56280, Seq: 1, Ack: 434, Len: 878
  Source Port: 80
  Destination Port: 56280
  [Stream index: 38]
  [Stream Packet Number: 6]
  > [Conversation completeness: Complete, WITH_DATA (31)]
    [TCP Segment Len: 878]
    Sequence Number: 1      (relative sequence number)
    Sequence Number (raw): 925671537
    [Next Sequence Number: 879      (relative sequence number)]
    Acknowledgment Number: 434      (relative ack number)
    Acknowledgment number (raw): 725669968
    1000 .... = Header Length: 32 bytes (8)
  > Flags: 0x018 (PSH, ACK)
    Window: 254
    [Calculated window size: 32512]
    [Window size scaling factor: 128]
    Checksum: 0xfc8c [unverified]
    [Checksum Status: Unverified]
    Urgent Pointer: 0
  > Options: (12 bytes), No-Operation (NOP), No-Operation (NOP), Timestamps
  > [Timestamps]
  > [SEQ/ACK analysis]
    [Client Contiguous Streams: 1]
    [Server Contiguous Streams: 1]
    TCP payload (878 bytes)
```

5. This falls under APPLICATION LAYER. It contains HTTP/1.1 200 OK message, meaning the web server successfully processed the client's GET request.

```
Hypertext Transfer Protocol
  > HTTP/1.1 200 OK\r\n
  Date: Tue, 04 Nov 2025 14:53:25 GMT\r\n
  Server: Apache\r\n
  Last-Modified: Wed, 05 Feb 2014 16:00:31 GMT\r\n
  ETag: "286-4f1aadb3105c0"\r\n
  Accept-Ranges: bytes\r\n
  > Content-Length: 646\r\n
  Connection: close\r\n
  Content-Type: text/html\r\n
  \r\n
  [Request in frame: 2526]
  [Time since request: 194.903000 milliseconds]
  [Request URI: /]
  [Full request URL: http://info.cern.ch/]
  File Data: 646 bytes
```