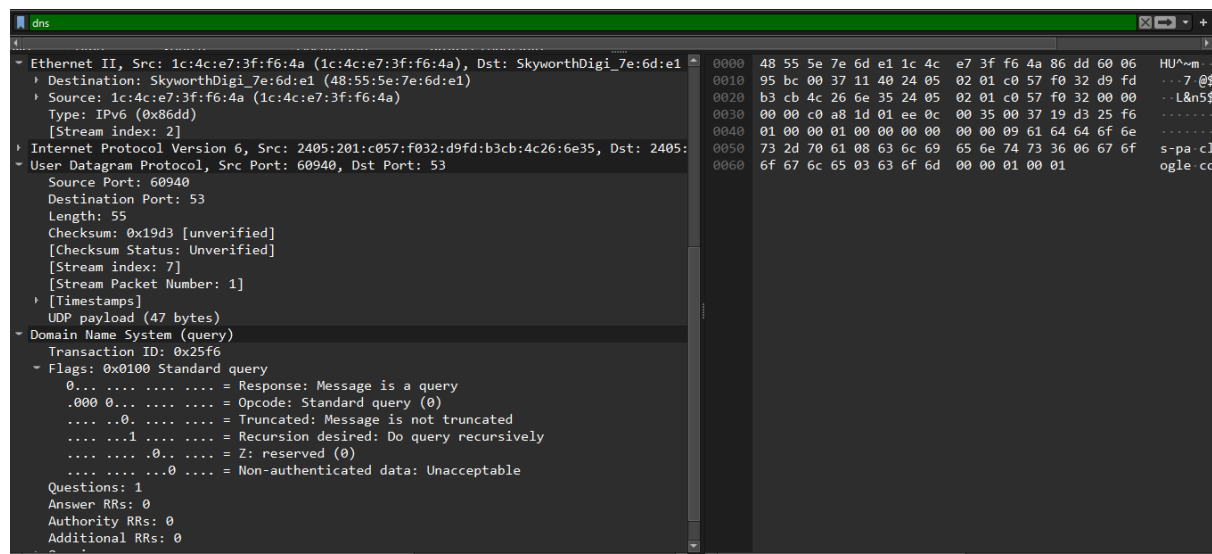
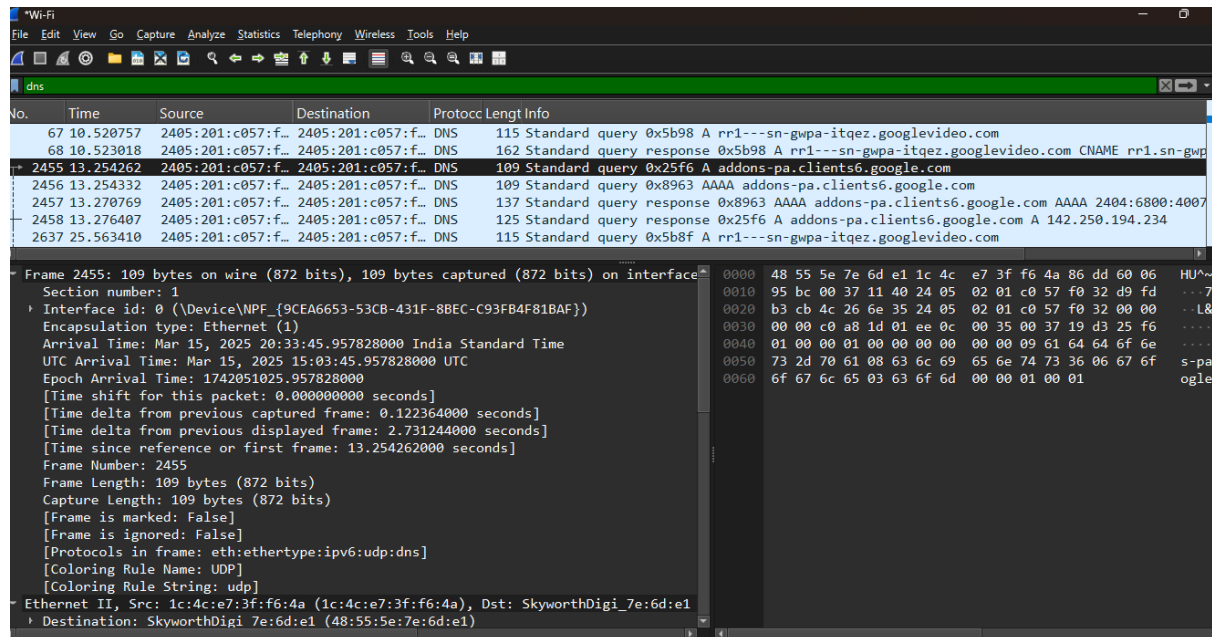


2 . Use Wireshark to capture and analyze DNS, TCP, UDP traffic and packet header, packet flow, options and flags .

DNS PACKETS FOR a RECORD OF GOOGLE.COM:



TCP packets :

Wireshark packet capture showing a TCP ACK packet (3305) from 2405:201:c057:f... to 2001:b28:f23f:9....

| No. | Time | Source | Destination | Protocol | Length | Info |
|------|----------|--------------------|--------------------|----------|--------|--|
| 3303 | 4.538614 | 2405:201:c057:f... | 2001:b28:f23f:9... | TLSv... | 241 | Application Data |
| 3304 | 4.611650 | 2001:b28:f23f:9... | 2405:201:c057:f... | TLSv... | 187 | Application Data |
| 3305 | 4.660239 | 2405:201:c057:f... | 2001:b28:f23f:9... | TCP | 74 | 60719 → 443 [ACK] Seq=468 Ack=340 Win=2068 Len=0 |
| 3310 | 5.413844 | 2405:201:c057:f... | 2001:b28:f23f:9... | TLSv... | 289 | Application Data |

Frame 3305: 74 bytes on wire (592 bits), 74 bytes captured (592 bits) on interface \...
 Ethernet II, Src: 1c:4c:e7:3f:f6:4a (1c:4c:e7:3f:f6:4a), Dst: SkyworthDigi_7e:6d:e1
 Destination: SkyworthDigi_7e:6d:e1 (48:55:5e:7e:6d:e1)
 Source: 1c:4c:e7:3f:f6:4a (1c:4c:e7:3f:f6:4a)
 Type: IPv6 (0x86dd)
 [Stream index: 0]
 Internet Protocol Version 6, Src: 2405:201:c057:f032:d9fd:b3cb:4c26:6e35, Dst: 2001:
 Transmission Control Protocol, Src Port: 60719, Dst Port: 443, Seq: 468, Ack: 340, L
 Source Port: 60719
 Destination Port: 443
 [Stream index: 0]
 [Stream Packet Number: 9]
 [Conversation completeness: Incomplete (12)]
 [TCP Segment Len: 0]
 Sequence Number: 468 (relative sequence number)
 Sequence Number (raw): 2086644641
 [Next Sequence Number: 468 (relative sequence number)]
 Acknowledgment Number: 340 (relative ack number)
 Acknowledgment number (raw): 3009207896
 0101 = Header Length: 20 bytes (5)
 Flags: 0x010 (ACK)
 Window: 2068
 [Calculated window size: 2068]
 [Window size scaling factor: -1 (unknown)]

Wireshark packet capture showing a TCP ACK packet (3305) from 2405:201:c057:f... to 2001:b28:f23f:9....

| No. | Time | Source | Destination | Protocol | Length | Info |
|------|----------|--------------------|--------------------|----------|--------|--|
| 3303 | 4.538614 | 2405:201:c057:f... | 2001:b28:f23f:9... | TLSv... | 241 | Application Data |
| 3304 | 4.611650 | 2001:b28:f23f:9... | 2405:201:c057:f... | TLSv... | 187 | Application Data |
| 3305 | 4.660239 | 2405:201:c057:f... | 2001:b28:f23f:9... | TCP | 74 | 60719 → 443 [ACK] Seq=468 Ack=340 Win=2068 Len=0 |
| 3310 | 5.413844 | 2405:201:c057:f... | 2001:b28:f23f:9... | TLSv... | 289 | Application Data |

[Next Sequence Number: 468 (relative sequence number)]
 Acknowledgment Number: 340 (relative ack number)
 Acknowledgment number (raw): 3009207896
 0101 = Header Length: 20 bytes (5)
 Flags: 0x010 (ACK)
 000. = Reserved: Not set
 ...0 = Accurate ECN: Not set
 0... = Congestion Window Reduced: Not set
0.. = ECN-Echo: Not set
0. = Urgent: Not set
1 = Acknowledgment: Set
0... = Push: Not set
0.. = Reset: Not set
0. = Syn: Not set
0 = Fin: Not set
 [TCP Flags:A....]
 Window: 2068
 [Calculated window size: 2068]
 [Window size scaling factor: -1 (unknown)]
 Checksum: 0xb66e [unverified]
 [Checksum Status: Unverified]
 Urgent Pointer: 0
 [Timestamps]
 [SEQ/ACK analysis]

UDP PACKETS :

Capturing from Wi-Fi

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udp

| No. | Time | Source | Destination | Protocol | Length | Info |
|-----|----------|--------------------|--------------------|----------|--------|--------------------|
| 1 | 0.000000 | 2405:201:c057:f... | 2404:6800:4002:... | UDP | 91 | 57017 → 443 Len=29 |

Frame 1: 91 bytes on wire (728 bits), 91 bytes captured (728 bits) on interface \Device\NPF_{9CEA6653-53CB-431F-8BEC-C93FB4F81BAF}

Section number: 1

- Interface id: 0 (\Device\NPF_{9CEA6653-53CB-431F-8BEC-C93FB4F81BAF})
- Encapsulation type: Ethernet (1)
- Arrival Time: Mar 15, 2025 20:41:05.362940000 India Standard Time
- UTC Arrival Time: Mar 15, 2025 15:11:05.362940000 UTC
- Epoch Arrival Time: 1742051465.362940000
- [Time shift for this packet: 0.000000000 seconds]
- [Time delta from previous captured frame: 0.000000000 seconds]
- [Time delta from previous displayed frame: 0.000000000 seconds]
- [Time since reference or first frame: 0.000000000 seconds]
- Frame Number: 1
- Frame Length: 91 bytes (728 bits)
- Capture Length: 91 bytes (728 bits)
- [Frame is marked: False]
- [Frame is ignored: False]
- [Protocols in frame: eth:ethertype:ipv6:udp:data]
- [Coloring Rule Name: UDP]
- [Coloring Rule String: udp]

Ethernet II, Src: 1c:4c:e7:3f:f6:4a (1c:4c:e7:3f:f6:4a), Dst: SkyworthDigi_7e:6d:e1 (48:55:5e:7e:6d:e1)

- Destination: SkyworthDigi_7e:6d:e1 (48:55:5e:7e:6d:e1)
 -0. = LG bit: Globally unique address (factory default)
 -0. = IG bit: Individual address (unicast)
- Source: 1c:4c:e7:3f:f6:4a (1c:4c:e7:3f:f6:4a)
 -0. = LG bit: Globally unique address (factory default)
 -0. = IG bit: Individual address (unicast)

Type: IPv6 (0x86dd)

Capturing from Wi-Fi

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udp

| No. | Time | Source | Destination | Protocol | Length | Info |
|-----|----------|--------------------|--------------------|----------|--------|--------------------|
| 1 | 0.000000 | 2405:201:c057:f... | 2404:6800:4002:... | UDP | 91 | 57017 → 443 Len=29 |
| 2 | 0.066694 | 2404:6800:4002:... | 2405:201:c057:f... | UDP | 87 | 443 → 57017 Len=25 |
| 11 | 0.837725 | 2405:201:c057:f... | 2404:6800:4002:... | UDP | 91 | 49758 → 443 Len=29 |
| 12 | 0.911100 | 2404:6800:4002:... | 2405:201:c057:f... | UDP | 87 | 443 → 49758 Len=25 |

[Frame is marked: False]

[Frame is ignored: False]

[Protocols in frame: eth:ethertype:ipv6:udp:data]

[Coloring Rule Name: UDP]

[Coloring Rule String: udp]

Ethernet II, Src: 1c:4c:e7:3f:f6:4a (1c:4c:e7:3f:f6:4a), Dst: SkyworthDigi_7e:6d:e1 (48:55:5e:7e:6d:e1)

- Destination: SkyworthDigi_7e:6d:e1 (48:55:5e:7e:6d:e1)
 -0. = LG bit: Globally unique address (factory default)
 -0. = IG bit: Individual address (unicast)
- Source: 1c:4c:e7:3f:f6:4a (1c:4c:e7:3f:f6:4a)
 -0. = LG bit: Globally unique address (factory default)
 -0. = IG bit: Individual address (unicast)

Type: IPv6 (0x86dd)

[Stream index: 0]

Internet Protocol Version 6, Src: 2405:201:c057:f032:d9fd:b3cb:4c26:6e35, Dst: 2404:6800:4002:82b::200a

0110 = Version: 6

- ... 0000 0000 = Traffic Class: 0x00 (DSCP: CS0, ECN: Not-ECT)
- ... 0011 1010 1000 0000 0101 = Flow Label: 0x3a805

Payload Length: 37

Next Header: UDP (17)

Hop Limit: 64

- Source Address: 2405:201:c057:f032:d9fd:b3cb:4c26:6e35
- Destination Address: 2404:6800:4002:82b::200a

[Stream index: 3]

CLIENT REQUEST :

