CYBER SECURITY INTERNSHIP

Task 5: Capture and Analyze Network Traffic Using Wireshark

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Objective

The objective of this task is to capture live network packets using Wireshark, identify multiple protocols from the captured traffic, and analyze their purpose and details.

Introduction

Wireshark is a powerful network protocol analyzer that allows for real-time packet capturing and detailed inspection of network traffic. In this task, Wireshark was used to monitor live traffic, apply protocol filters, and study the structure and purpose of different network protocols.

Tools and Environment

Tool Used: Wireshark

OS: Windows 11

Protocols Analyzed: HTTP, DNS, TCP, UDP, ICMPv6

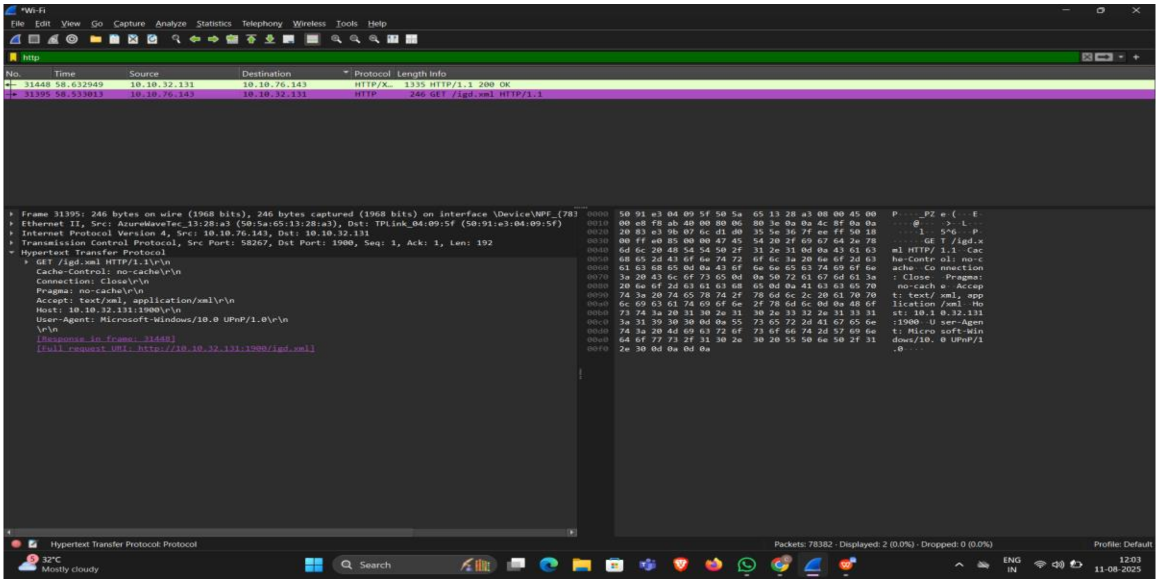
Steps Followed (Clear and Detailed)

1. Step 1: Opened Wireshark and selected the active network interface (Wi-Fi).
2. Step 2: Started capturing live network traffic.
3. Step 3: Generated traffic by browsing websites, triggering DNS lookups, and allowing network services to generate UDP and ICMPv6 packets.
4. Step 4: Stopped capture after ~2 minutes.
5. Step 5: Applied filters in Wireshark for HTTP, DNS, TCP, UDP, and ICMPv6 traffic.
6. Step 6: Analyzed packet details including source/destination IPs, ports, and packet purpose.

Protocols Identified

HTTP

Used for transferring web content between clients and servers. Example: HTTP GET request for /igd.xml.


*Wi-Fi
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
http

```
No.    Time         Source          Destination     Protocol  Length Info
 31448 58.632949    10.10.32.131    10.10.76.143    HTTP/X…   1335 HTTP/1.1 200 OK
 31395 58.533013    10.10.76.143    10.10.32.131    HTTP       246 GET /igd.xml HTTP/1.1
```

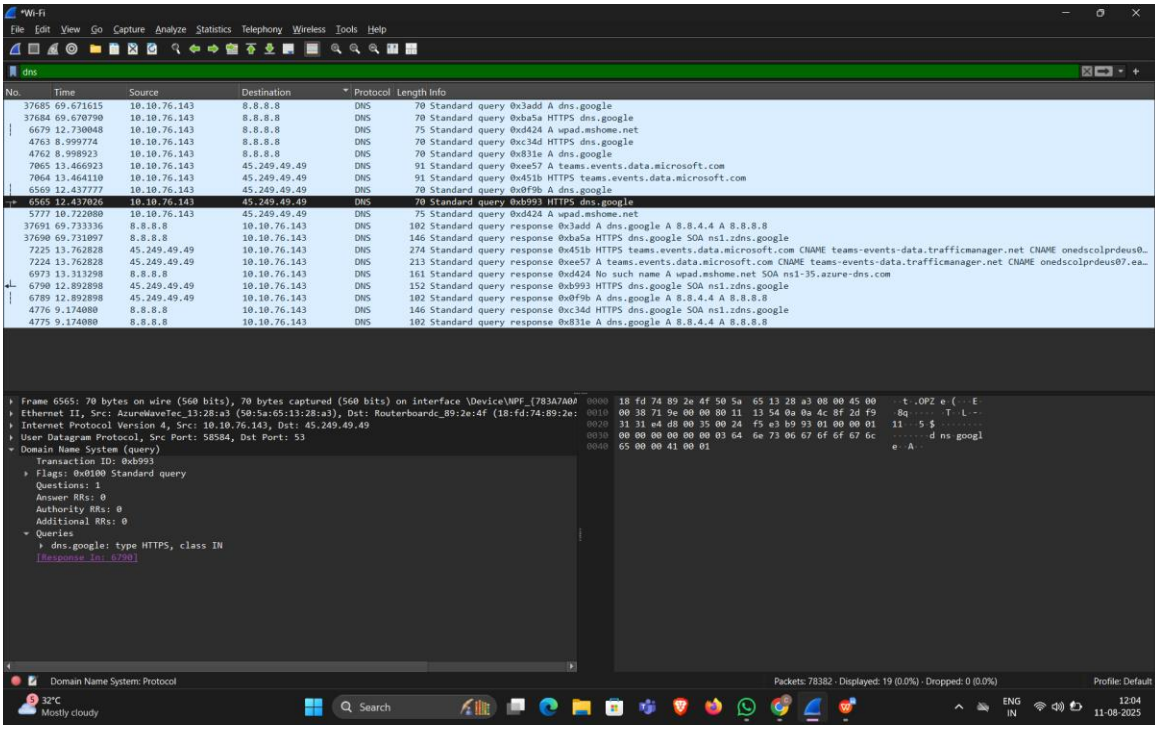
```
▸ Frame 31395: 246 bytes on wire (1968 bits), 246 bytes captured (1968 bits) on interface \Device\NPF_{783
▸ Ethernet II, Src: AzureWaveTec_13:28:a3 (50:5a:65:13:28:a3), Dst: TPLink_04:09:5f (50:91:e3:04:09:5f)
▸ Internet Protocol Version 4, Src: 10.10.76.143, Dst: 10.10.32.131
▸ Transmission Control Protocol, Src Port: 58267, Dst Port: 1900, Seq: 1, Ack: 1, Len: 192
▾ Hypertext Transfer Protocol
  ▸ GET /igd.xml HTTP/1.1\r\n
    Cache-Control: no-cache\r\n
    Connection: Close\r\n
    Pragma: no-cache\r\n
    Accept: text/xml, application/xml\r\n
    Host: 10.10.32.131:1900\r\n
    User-Agent: Microsoft-Windows/10.0 UPnP/1.0\r\n
    \r\n
    [Response in frame: 31448]
    [Full request URI: http://10.10.32.131:1900/igd.xml]
```

```
0000  50 91 e3 04 09 5f 50 5a  65 13 28 a3 08 00 45 00   P····_PZ e·(···E·
0010  00 e8 f8 ab 40 00 80 06  80 3e 0a 0a 4c 8f 0a 0a   ····@··· ·>··L···
0020  20 83 e3 9b 07 6c d1 d0  35 5e 36 7f ee ff 50 18    ····l·· 5^6···P·
0030  00 ff e0 85 00 00 47 45  54 20 2f 69 67 64 2e 78   ······GE T /igd.x
0040  6d 6c 20 48 54 54 50 2f  31 2e 31 0d 0a 43 61 63   ml HTTP/ 1.1··Cac
0050  68 65 2d 43 6f 6e 74 72  6f 6c 3a 20 6e 6f 2d 63   he-Contr ol: no-c
0060  61 63 68 65 0d 0a 43 6f  6e 6e 65 63 74 69 6f 6e   ache··Co nnection
0070  3a 20 43 6c 6f 73 65 0d  0a 50 72 61 67 6d 61 3a   : Close· ·Pragma:
0080  20 6e 6f 2d 63 61 63 68  65 0d 0a 41 63 63 65 70    no-cach e··Accep
0090  74 3a 20 74 65 78 74 2f  78 6d 6c 2c 20 61 70 70   t: text/ xml, app
00a0  6c 69 63 61 74 69 6f 6e  2f 78 6d 6c 0d 0a 48 6f   lication /xml··Ho
00b0  73 74 3a 20 31 30 2e 31  30 2e 33 32 2e 31 33 31   st: 10.1 0.32.131
00c0  3a 31 39 30 30 0d 0a 55  73 65 72 2d 41 67 65 6e   :1900··U ser-Agen
00d0  74 3a 20 4d 69 63 72 6f  73 6f 66 74 2d 57 69 6e   t: Micro soft-Win
00e0  64 6f 77 73 2f 31 30 2e  30 20 55 50 6e 50 2f 31   dows/10. 0 UPnP/1
00f0  2e 30 0d 0a 0d 0a                                  .0····
```

Hypertext Transfer Protocol: Protocol — Packets: 78382 · Displayed: 2 (0.0%) · Dropped: 0 (0.0%) — Profile: Default

DNS

Resolves domain names into IP addresses. Example: Query to dns.google (8.8.8.8).


*Wi-Fi
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
dns

```
No.    Time         Source          Destination     Protocol  Length Info
 37685 69.671615    10.10.76.143    8.8.8.8         DNS        70 Standard query 0x3add A dns.google
 37684 69.670790    10.10.76.143    8.8.8.8         DNS        70 Standard query 0xba5a HTTPS dns.google
  6679 12.730048    10.10.76.143    8.8.8.8         DNS        75 Standard query 0xd424 A wpad.mshome.net
  4763 8.999774     10.10.76.143    8.8.8.8         DNS        70 Standard query 0xc34d HTTPS dns.google
  4762 8.998923     10.10.76.143    8.8.8.8         DNS        70 Standard query 0x831e A dns.google
  7065 13.466923    10.10.76.143    45.249.49.49    DNS        91 Standard query 0xee57 A teams.events.data.microsoft.com
  7064 13.464110    10.10.76.143    45.249.49.49    DNS        91 Standard query 0x451b HTTPS teams.events.data.microsoft.com
  6569 12.437777    10.10.76.143    45.249.49.49    DNS        70 Standard query 0x0f9b A dns.google
  6565 12.437026    10.10.76.143    45.249.49.49    DNS        70 Standard query 0xb993 HTTPS dns.google
  5777 10.722080    10.10.76.143    45.249.49.49    DNS        75 Standard query 0xd424 A wpad.mshome.net
 37691 69.733336    8.8.8.8         10.10.76.143    DNS       102 Standard query response 0x3add A dns.google A 8.8.4.4 A 8.8.8.8
 37690 69.731097    8.8.8.8         10.10.76.143    DNS       146 Standard query response 0xba5a HTTPS dns.google SOA ns1.zdns.google
  7225 13.762828    45.249.49.49    10.10.76.143    DNS       274 Standard query response 0x451b HTTPS teams.events.data.microsoft.com CNAME teams-events-data.trafficmanager.net CNAME onedscolprdeus0…
  7224 13.762828    45.249.49.49    10.10.76.143    DNS       213 Standard query response 0xee57 A teams.events.data.microsoft.com CNAME teams-events-data.trafficmanager.net CNAME onedscolprdeus07.ea…
  6973 13.313298    8.8.8.8         10.10.76.143    DNS       161 Standard query response 0xd424 No such name A wpad.mshome.net SOA ns1-35.azure-dns.com
  6790 12.892898    45.249.49.49    10.10.76.143    DNS       152 Standard query response 0xb993 HTTPS dns.google SOA ns1.zdns.google
  6789 12.892898    45.249.49.49    10.10.76.143    DNS       102 Standard query response 0x0f9b A dns.google A 8.8.4.4 A 8.8.8.8
  4776 9.174080     8.8.8.8         10.10.76.143    DNS       146 Standard query response 0xc34d HTTPS dns.google SOA ns1.zdns.google
  4775 9.174080     8.8.8.8         10.10.76.143    DNS       102 Standard query response 0x831e A dns.google A 8.8.4.4 A 8.8.8.8
```

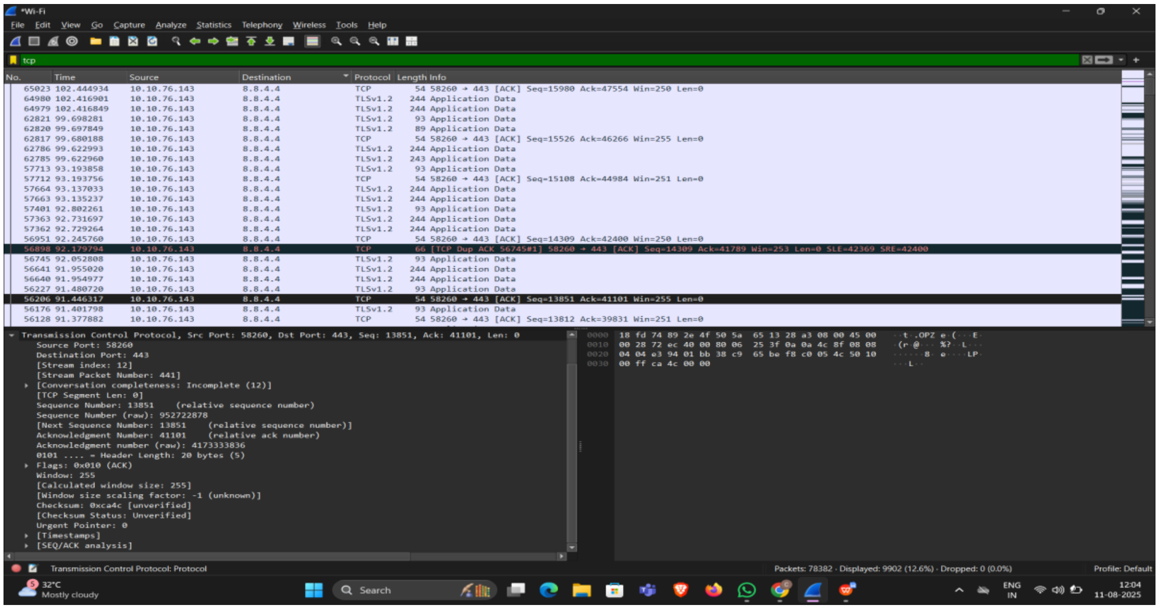
```
▸ Frame 6565: 70 bytes on wire (560 bits), 70 bytes captured (560 bits) on interface \Device\NPF_{783A7A0A
▸ Ethernet II, Src: AzureWaveTec_13:28:a3 (50:5a:65:13:28:a3), Dst: Routerboardc_89:2e:4f (18:fd:74:89:2e:
▸ Internet Protocol Version 4, Src: 10.10.76.143, Dst: 45.249.49.49
▸ User Datagram Protocol, Src Port: 58584, Dst Port: 53
▾ Domain Name System (query)
    Transaction ID: 0xb993
  ▸ Flags: 0x0100 Standard query
    Questions: 1
    Answer RRs: 0
    Authority RRs: 0
    Additional RRs: 0
  ▾ Queries
    ▸ dns.google: type HTTPS, class IN
    [Response In: 6790]
```

```
0000  18 fd 74 89 2e 4f 50 5a  65 13 28 a3 08 00 45 00   ··t·.OPZ e·(···E·
0010  00 38 71 9e 00 00 80 11  13 54 0a 0a 4c 8f 2d f9   ·8q····· ·T··L·-·
0020  31 31 e4 d8 00 35 00 24  f5 e3 b9 93 01 00 00 01   11···5·$ ········
0030  00 00 00 00 00 00 03 64  6e 73 06 67 6f 6f 67 6c   ·······d ns·googl
0040  65 00 00 41 00 01                                  e··A··
```

Domain Name System: Protocol — Packets: 78382 · Displayed: 19 (0.0%) · Dropped: 0 (0.0%) — Profile: Default

TCP

Ensures reliable data transmission between devices. Example: TCP ACK packet during handshake.



*Wi-Fi

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tcp

```
No.   Time        Source         Destination  Protocol Length Info
65023 102.444934  10.10.76.143   8.8.4.4      TCP        54 58260 → 443 [ACK] Seq=15980 Ack=47554 Win=250 Len=0
64980 102.416901  10.10.76.143   8.8.4.4      TLSv1.2   244 Application Data
64979 102.416849  10.10.76.143   8.8.4.4      TLSv1.2   244 Application Data
62821 99.698281   10.10.76.143   8.8.4.4      TLSv1.2    93 Application Data
62820 99.697849   10.10.76.143   8.8.4.4      TLSv1.2    89 Application Data
62817 99.680188   10.10.76.143   8.8.4.4      TCP        54 58260 → 443 [ACK] Seq=15526 Ack=46266 Win=255 Len=0
62786 99.622993   10.10.76.143   8.8.4.4      TLSv1.2   244 Application Data
62785 99.622960   10.10.76.143   8.8.4.4      TLSv1.2   243 Application Data
57713 93.193858   10.10.76.143   8.8.4.4      TLSv1.2    93 Application Data
57712 93.193756   10.10.76.143   8.8.4.4      TCP        54 58260 → 443 [ACK] Seq=15108 Ack=44984 Win=251 Len=0
57664 93.137033   10.10.76.143   8.8.4.4      TLSv1.2   244 Application Data
57663 93.135237   10.10.76.143   8.8.4.4      TLSv1.2   244 Application Data
57401 92.802261   10.10.76.143   8.8.4.4      TLSv1.2    93 Application Data
57363 92.731697   10.10.76.143   8.8.4.4      TLSv1.2   244 Application Data
57362 92.729264   10.10.76.143   8.8.4.4      TLSv1.2   244 Application Data
56951 92.245760   10.10.76.143   8.8.4.4      TCP        54 58260 → 443 [ACK] Seq=14309 Ack=42400 Win=250 Len=0
56898 92.179794   10.10.76.143   8.8.4.4      TCP        66 [TCP Dup ACK 56745#1] 58260 → 443 [ACK] Seq=14309 Ack=41789 Win=253 Len=0 SLE=42369 SRE=42400
56745 92.052808   10.10.76.143   8.8.4.4      TLSv1.2    93 Application Data
56641 91.955020   10.10.76.143   8.8.4.4      TLSv1.2   244 Application Data
56640 91.954977   10.10.76.143   8.8.4.4      TLSv1.2   244 Application Data
56227 91.480720   10.10.76.143   8.8.4.4      TLSv1.2    93 Application Data
56206 91.446317   10.10.76.143   8.8.4.4      TCP        54 58260 → 443 [ACK] Seq=13851 Ack=41101 Win=255 Len=0
56176 91.401798   10.10.76.143   8.8.4.4      TLSv1.2    93 Application Data
56128 91.377882   10.10.76.143   8.8.4.4      TCP        54 58260 → 443 [ACK] Seq=13812 Ack=39831 Win=251 Len=0
```

```
Transmission Control Protocol, Src Port: 58260, Dst Port: 443, Seq: 13851, Ack: 41101, Len: 0
    Source Port: 58260
    Destination Port: 443
    [Stream index: 12]
    [Stream Packet Number: 441]
  [Conversation completeness: Incomplete (12)]
    [TCP Segment Len: 0]
    Sequence Number: 13851    (relative sequence number)
    Sequence Number (raw): 952722878
    [Next Sequence Number: 13851    (relative sequence number)]
    Acknowledgment Number: 41101    (relative ack number)
    Acknowledgment number (raw): 4173333836
    0101 .... = Header Length: 20 bytes (5)
  Flags: 0x010 (ACK)
    Window: 255
    [Calculated window size: 255]
    [Window size scaling factor: -1 (unknown)]
    Checksum: 0xca4c [unverified]
    [Checksum Status: Unverified]
    Urgent Pointer: 0
  [Timestamps]
  [SEQ/ACK analysis]
```

```
0000  18 fd 74 89 2e 4f 50 5a  65 13 28 a3 08 00 45 00   ··t·.OPZ e·(···E·
0010  00 28 72 ec 40 00 80 06  25 3f 0a 0a 4c 8f 08 08   ·(r·@··· %?··L···
0020  04 04 e3 94 01 bb 38 c9  65 be f8 c0 05 4c 50 10   ······8· e····LP·
0030  00 ff ca 4c 00 00                                  ···L··
```

Transmission Control Protocol: Protocol

Packets: 78382 · Displayed: 9902 (12.6%) · Dropped: 0 (0.0%)

Profile: Default

32°C
Mostly cloudy

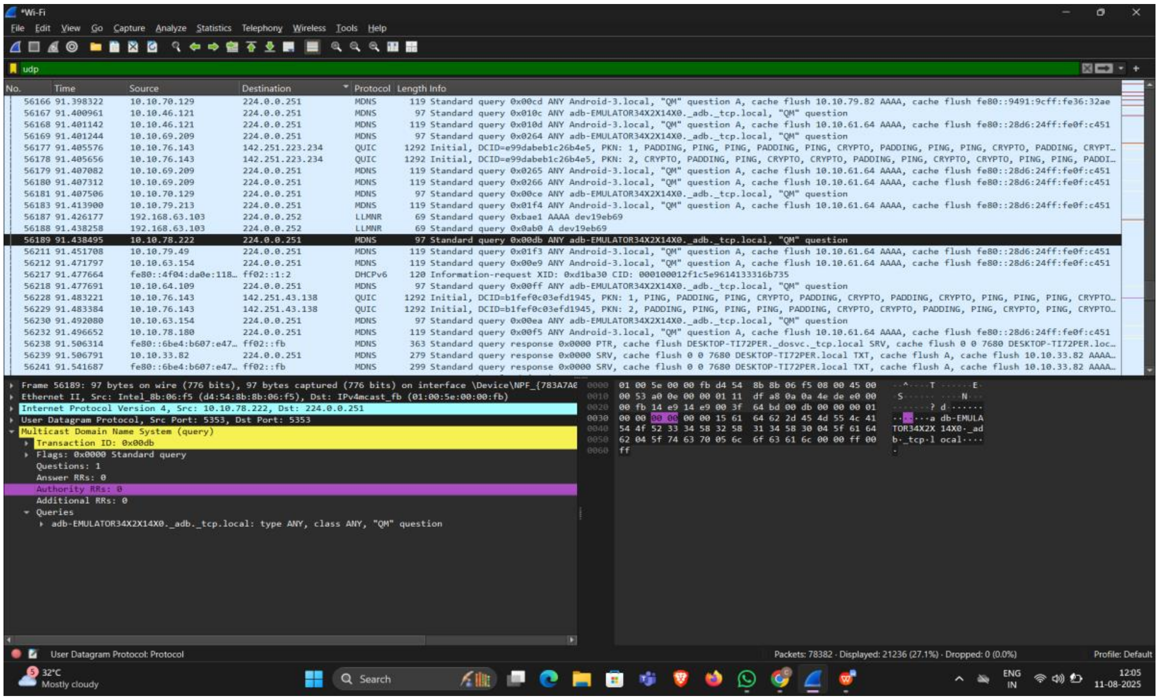
Search

ENG
IN

12:04
11-08-2025

UDP

Connectionless protocol for fast data transfer. Example: mDNS response from a local network device.



*Wi-Fi

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udp

```
No.   Time       Source                  Destination      Protocol Length Info
56166 91.398322  10.10.70.129            224.0.0.251      MDNS      119 Standard query 0x00cd ANY Android-3.local, "QM" question A, cache flush 10.10.79.82 AAAA, cache flush fe80::9491:9cff:fe36:32ae
56167 91.400961  10.10.46.121            224.0.0.251      MDNS       97 Standard query 0x010c ANY adb-EMULATOR34X2X14X0._adb._tcp.local, "QM" question
56168 91.401142  10.10.46.121            224.0.0.251      MDNS      119 Standard query 0x010d ANY Android-3.local, "QM" question A, cache flush 10.10.61.64 AAAA, cache flush fe80::28d6:24ff:fe0f:c451
56169 91.401244  10.10.69.209            224.0.0.251      MDNS       97 Standard query 0x0264 ANY adb-EMULATOR34X2X14X0._adb._tcp.local, "QM" question
56177 91.405576  10.10.76.143            142.251.223.234  QUIC     1292 Initial, DCID=e99dabeb1c26b4e5, PKN: 1, PADDING, PING, PING, PADDING, PING, CRYPTO, PADDING, PING, PING, CRYPTO, PADDING, CRYPT…
56178 91.405656  10.10.76.143            142.251.223.234  QUIC     1292 Initial, DCID=e99dabeb1c26b4e5, PKN: 2, CRYPTO, PADDING, PING, CRYPTO, CRYPTO, PADDING, PING, CRYPTO, CRYPTO, PING, PING, PADDI…
56179 91.407082  10.10.69.209            224.0.0.251      MDNS      119 Standard query 0x0265 ANY Android-3.local, "QM" question A, cache flush 10.10.61.64 AAAA, cache flush fe80::28d6:24ff:fe0f:c451
56180 91.407312  10.10.69.209            224.0.0.251      MDNS      119 Standard query 0x0266 ANY Android-3.local, "QM" question A, cache flush 10.10.61.64 AAAA, cache flush fe80::28d6:24ff:fe0f:c451
56181 91.407506  10.10.70.129            224.0.0.251      MDNS       97 Standard query 0x00ce ANY adb-EMULATOR34X2X14X0._adb._tcp.local, "QM" question
56183 91.413900  10.10.79.213            224.0.0.251      MDNS      119 Standard query 0x01f4 ANY Android-3.local, "QM" question A, cache flush 10.10.61.64 AAAA, cache flush fe80::28d6:24ff:fe0f:c451
56187 91.426177  192.168.63.103          224.0.0.252      LLMNR      69 Standard query 0xbae1 AAAA dev19eb69
56188 91.438258  192.168.63.103          224.0.0.252      LLMNR      69 Standard query 0x0ab0 A dev19eb69
56189 91.438495  10.10.78.222            224.0.0.251      MDNS       97 Standard query 0x00db ANY adb-EMULATOR34X2X14X0._adb._tcp.local, "QM" question
56211 91.451708  10.10.79.49             224.0.0.251      MDNS      119 Standard query 0x01f3 ANY Android-3.local, "QM" question A, cache flush 10.10.61.64 AAAA, cache flush fe80::28d6:24ff:fe0f:c451
56212 91.471797  10.10.63.154            224.0.0.251      MDNS      119 Standard query 0x00e9 ANY Android-3.local, "QM" question A, cache flush 10.10.61.64 AAAA, cache flush fe80::28d6:24ff:fe0f:c451
56217 91.477664  fe80::4f04:da0e:118…    ff02::1:2        DHCPv6    120 Information-request XID: 0xd1ba30 CID: 000100012f1c5e9614133316b735
56218 91.477691  10.10.64.109            224.0.0.251      MDNS       97 Standard query 0x00ff ANY adb-EMULATOR34X2X14X0._adb._tcp.local, "QM" question
56228 91.483221  10.10.76.143            142.251.43.138   QUIC     1292 Initial, DCID=b1fef0c03efd1945, PKN: 1, PING, PADDING, PING, CRYPTO, PADDING, CRYPTO, PADDING, CRYPTO, PING, PING, PING, CRYPTO…
56229 91.483384  10.10.76.143            142.251.43.138   QUIC     1292 Initial, DCID=b1fef0c03efd1945, PKN: 2, PADDING, PING, PING, PING, PADDING, CRYPTO, CRYPTO, PADDING, PING, CRYPTO, PING, CRYPTO…
56230 91.492080  10.10.63.154            224.0.0.251      MDNS       97 Standard query 0x00ea ANY adb-EMULATOR34X2X14X0._adb._tcp.local, "QM" question
56232 91.496652  10.10.78.180            224.0.0.251      MDNS      119 Standard query 0x00f5 ANY Android-3.local, "QM" question A, cache flush 10.10.61.64 AAAA, cache flush fe80::28d6:24ff:fe0f:c451
56238 91.506314  fe80::6be4:b607:e47…    ff02::fb         MDNS      363 Standard query response 0x0000 PTR, cache flush DESKTOP-TI72PER._dosvc._tcp.local SRV, cache flush 0 0 7680 DESKTOP-TI72PER.loc…
56239 91.506791  10.10.33.82             224.0.0.251      MDNS      279 Standard query response 0x0000 SRV, cache flush 0 0 7680 DESKTOP-TI72PER.local TXT, cache flush A, cache flush 10.10.33.82 AAAA…
56241 91.541687  fe80::6be4:b607:e47…    ff02::fb         MDNS      299 Standard query response 0x0000 SRV, cache flush 0 0 7680 DESKTOP-TI72PER.local TXT, cache flush A, cache flush 10.10.33.82 AAAA…
```

```
  Frame 56189: 97 bytes on wire (776 bits), 97 bytes captured (776 bits) on interface \Device\NPF_{783A7A€
  Ethernet II, Src: Intel_8b:06:f5 (d4:54:8b:8b:06:f5), Dst: IPv4mcast_fb (01:00:5e:00:00:fb)
  Internet Protocol Version 4, Src: 10.10.78.222, Dst: 224.0.0.251
  User Datagram Protocol, Src Port: 5353, Dst Port: 5353
  Multicast Domain Name System (query)
    Transaction ID: 0x00db
    Flags: 0x0000 Standard query
    Questions: 1
    Answer RRs: 0
    Authority RRs: 0
    Additional RRs: 0
    Queries
      adb-EMULATOR34X2X14X0._adb._tcp.local: type ANY, class ANY, "QM" question
```

```
0000  01 00 5e 00 00 fb d4 54  8b 8b 06 f5 08 00 45 00   ··^····T ······E·
0010  00 53 a0 0e 00 00 01 11  df a8 0a 0a 4e de e0 00   ·S······ ····N···
0020  00 fb 14 e9 14 e9 00 3f  64 bd 00 db 00 00 00 01   ·······? d·······
0030  00 00 00 00 00 00 15 61  64 62 2d 45 4d 55 4c 41   ·······a db-EMULA
0040  54 4f 52 33 34 58 32 58  31 34 58 30 04 5f 61 64   TOR34X2X 14X0·_ad
0050  62 04 5f 74 63 70 05 6c  6f 63 61 6c 00 00 ff 00   b·_tcp·l ocal····
0060  ff                                                 ·
```

User Datagram Protocol: Protocol

Packets: 78382 · Displayed: 21236 (27.1%) · Dropped: 0 (0.0%)

Profile: Default

32°C
Mostly cloudy

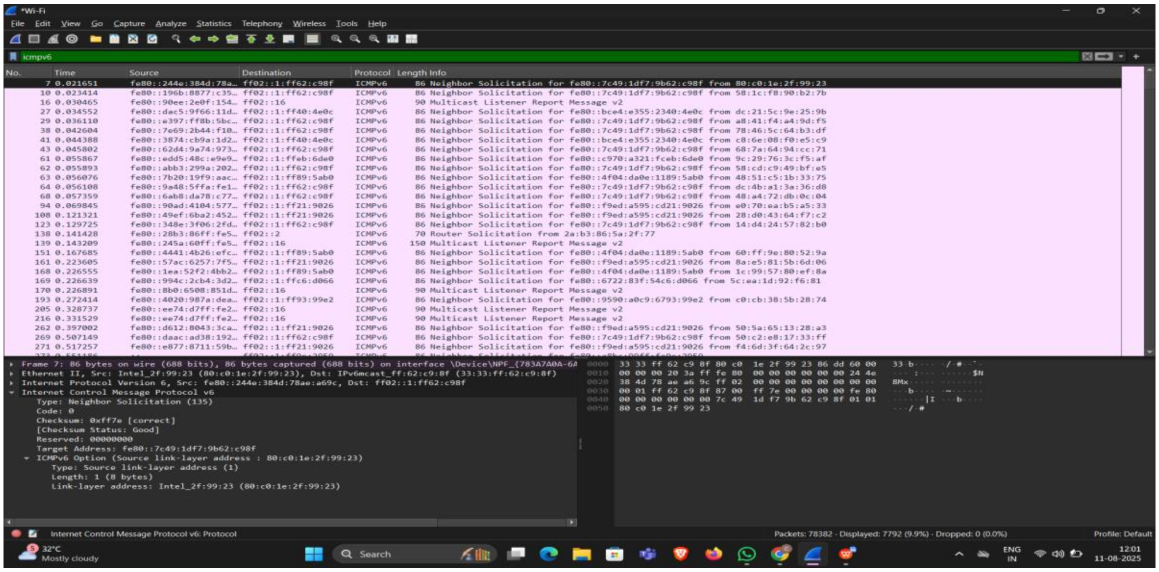
Search

ENG
IN

12:05
11-08-2025

ICMPv6

Used in IPv6 networks for diagnostic and neighbor discovery purposes. Example: Neighbor Solicitation.


*Wi-Fi
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
icmpv6

```
No.  Time      Source                  Destination         Protocol Length Info
   7 0.021651  fe80::244e:384d:78a…  ff02::1:ff62:c98f   ICMPv6    86 Neighbor Solicitation for fe80::7c49:1df7:9b62:c98f from 80:c0:1e:2f:99:23
  10 0.023414  fe80::196b:8877:c35…  ff02::1:ff62:c98f   ICMPv6    86 Neighbor Solicitation for fe80::7c49:1df7:9b62:c98f from 58:1c:f8:90:b2:7b
  16 0.030465  fe80::90ee:2e0f:154…  ff02::16            ICMPv6    90 Multicast Listener Report Message v2
  27 0.034552  fe80::dac5:9f66:11d…  ff02::1:ff40:4e0c   ICMPv6    86 Neighbor Solicitation for fe80::bce4:e355:2340:4e0c from dc:21:5c:9e:25:9b
  29 0.036110  fe80::e397:ff8b:5bc…  ff02::1:ff62:c98f   ICMPv6    86 Neighbor Solicitation for fe80::7c49:1df7:9b62:c98f from a8:41:f4:a4:9d:f5
  38 0.042604  fe80::7e69:2b44:f10…  ff02::1:ff62:c98f   ICMPv6    86 Neighbor Solicitation for fe80::7c49:1df7:9b62:c98f from 78:46:5c:64:b3:df
  41 0.044388  fe80::3874:cb9a:1d2…  ff02::1:ff40:4e0c   ICMPv6    86 Neighbor Solicitation for fe80::bce4:e355:2340:4e0c from c8:6e:08:f0:e5:c9
  43 0.045802  fe80::62d4:9a74:973…  ff02::1:ff62:c98f   ICMPv6    86 Neighbor Solicitation for fe80::7c49:1df7:9b62:c98f from 68:7a:64:94:cc:71
  61 0.055867  fe80::edd5:48c:e9e9…  ff02::1:ffeb:6de0   ICMPv6    86 Neighbor Solicitation for fe80::c970:a321:fceb:6de0 from 9c:29:76:3c:f5:af
  62 0.055893  fe80::abb3:299a:202…  ff02::1:ff62:c98f   ICMPv6    86 Neighbor Solicitation for fe80::7c49:1df7:9b62:c98f from 58:cd:c9:49:bf:e5
  63 0.056076  fe80::7b20:19f9:aac…  ff02::1:ff89:5ab0   ICMPv6    86 Neighbor Solicitation for fe80::4f04:da0e:1189:5ab0 from 48:51:c5:1b:33:75
  64 0.056108  fe80::9a48:5ffa:fe1…  ff02::1:ff62:c98f   ICMPv6    86 Neighbor Solicitation for fe80::7c49:1df7:9b62:c98f from dc:4b:a1:3a:36:d8
  68 0.057359  fe80::6ab8:da78:c77…  ff02::1:ff62:c98f   ICMPv6    86 Neighbor Solicitation for fe80::7c49:1df7:9b62:c98f from 48:a4:72:db:0c:04
  94 0.069845  fe80::90ad:4104:577…  ff02::1:ff21:9026   ICMPv6    86 Neighbor Solicitation for fe80::f9ed:a595:cd21:9026 from e0:70:ea:b5:a5:33
 108 0.121321  fe80::49ef:6ba2:452…  ff02::1:ff21:9026   ICMPv6    86 Neighbor Solicitation for fe80::f9ed:a595:cd21:9026 from 28:d0:43:64:f7:c2
 123 0.129725  fe80::348e:3f06:2fd…  ff02::1:ff62:c98f   ICMPv6    86 Neighbor Solicitation for fe80::7c49:1df7:9b62:c98f from 14:d4:24:57:82:b0
 138 0.141428  fe80::28b3:86ff:fe5…  ff02::2             ICMPv6    70 Router Solicitation from 2a:b3:86:5a:2f:77
 139 0.143209  fe80::245a:60ff:fe5…  ff02::16            ICMPv6   150 Multicast Listener Report Message v2
 151 0.167685  fe80::4441:4b26:efc…  ff02::1:ff89:5ab0   ICMPv6    86 Neighbor Solicitation for fe80::4f04:da0e:1189:5ab0 from 60:ff:9e:80:52:9a
 161 0.223605  fe80::57ac:6257:7f5…  ff02::1:ff21:9026   ICMPv6    86 Neighbor Solicitation for fe80::f9ed:a595:cd21:9026 from 8a:e5:81:5b:6d:06
 168 0.226555  fe80::1ea:52f2:4bb2…  ff02::1:ff89:5ab0   ICMPv6    86 Neighbor Solicitation for fe80::4f04:da0e:1189:5ab0 from 1c:99:57:80:ef:8a
 169 0.226639  fe80::994c:2cb4:3d2…  ff02::1:ffc6:d066   ICMPv6    86 Neighbor Solicitation for fe80::6722:83f:54c6:d066 from 5c:ea:1d:92:f6:81
 170 0.226891  fe80::8b0:6508:851d…  ff02::16            ICMPv6    90 Multicast Listener Report Message v2
 193 0.272414  fe80::4020:987a:dea…  ff02::1:ff93:99e2   ICMPv6    86 Neighbor Solicitation for fe80::9590:a0c9:6793:99e2 from c0:cb:38:5b:28:74
 205 0.328737  fe80::ee74:d7ff:fe2…  ff02::16            ICMPv6    90 Multicast Listener Report Message v2
 216 0.331529  fe80::ee74:d7ff:fe2…  ff02::16            ICMPv6    90 Multicast Listener Report Message v2
 262 0.397002  fe80::d612:8043:3ca…  ff02::1:ff21:9026   ICMPv6    86 Neighbor Solicitation for fe80::f9ed:a595:cd21:9026 from 50:5a:65:13:28:a3
 269 0.507149  fe80::daac:ad38:192…  ff02::1:ff62:c98f   ICMPv6    86 Neighbor Solicitation for fe80::7c49:1df7:9b62:c98f from 50:c2:e8:17:33:ff
 271 0.517257  fe80::e877:8711:59b…  ff02::1:ff21:9026   ICMPv6    86 Neighbor Solicitation for fe80::f9ed:a595:cd21:9026 from f4:6d:3f:64:2c:97
```

```
▸ Frame 7: 86 bytes on wire (688 bits), 86 bytes captured (688 bits) on interface \Device\NPF_{783A7A0A-6A
▸ Ethernet II, Src: Intel_2f:99:23 (80:c0:1e:2f:99:23), Dst: IPv6mcast_ff:62:c9:8f (33:33:ff:62:c9:8f)
▸ Internet Protocol Version 6, Src: fe80::244e:384d:78ae:a69c, Dst: ff02::1:ff62:c98f
▾ Internet Control Message Protocol v6
    Type: Neighbor Solicitation (135)
    Code: 0
    Checksum: 0xff7e [correct]
    [Checksum Status: Good]
    Reserved: 00000000
    Target Address: fe80::7c49:1df7:9b62:c98f
  ▾ ICMPv6 Option (Source link-layer address : 80:c0:1e:2f:99:23)
      Type: Source link-layer address (1)
      Length: 1 (8 bytes)
      Link-layer address: Intel_2f:99:23 (80:c0:1e:2f:99:23)
```

```
0000  33 33 ff 62 c9 8f 80 c0  1e 2f 99 23 86 dd 60 00
0010  00 00 00 20 3a ff fe 80  00 00 00 00 00 00 24 4e
0020  38 4d 78 ae a6 9c ff 02  00 00 00 00 00 00 00 00
0030  00 01 ff 62 c9 8f 87 00  ff 7e 00 00 00 00 fe 80
0040  00 00 00 00 00 00 7c 49  1d f7 9b 62 c9 8f 01 01
0050  80 c0 1e 2f 99 23
```

Internet Control Message Protocol v6: Protocol

Packets: 78382 · Displayed: 7792 (9.9%) · Dropped: 0 (0.0%)

Profile: Default

Learning Outcomes

- Learned how to capture and filter live network traffic using Wireshark.
- Understood the differences between TCP and UDP.
- Gained practical knowledge of DNS resolution, HTTP communication, and ICMPv6 diagnostics.
- Learned how to interpret packet details for network troubleshooting.

Conclusion

This task provided practical experience with network protocol analysis using Wireshark. By capturing, filtering, and studying different protocols, I gained a better understanding of how data flows across networks and the roles of various protocols in communication.