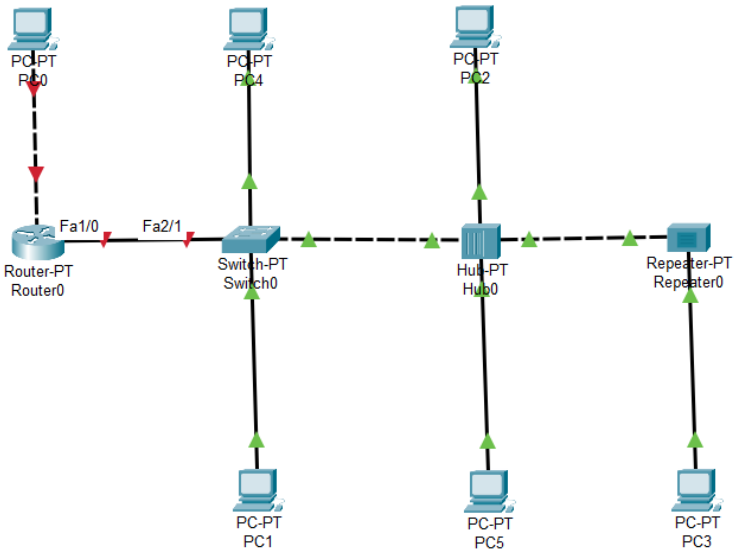
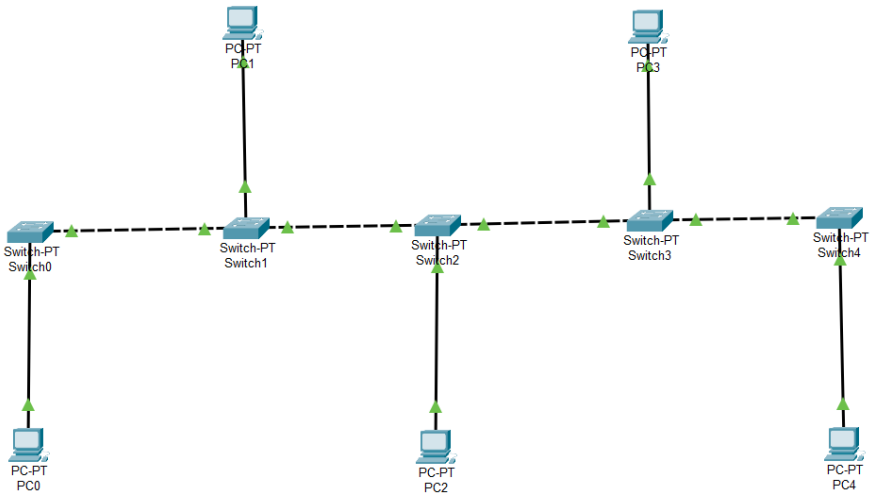
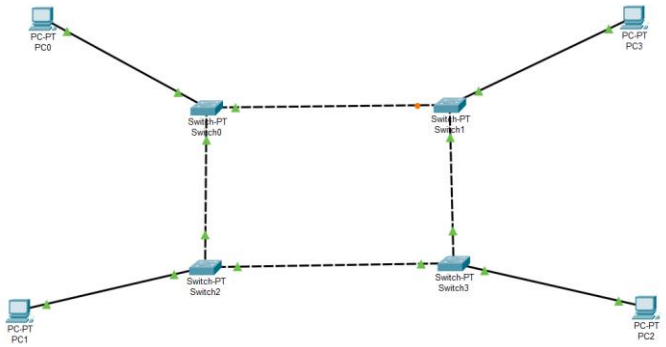
Network devices



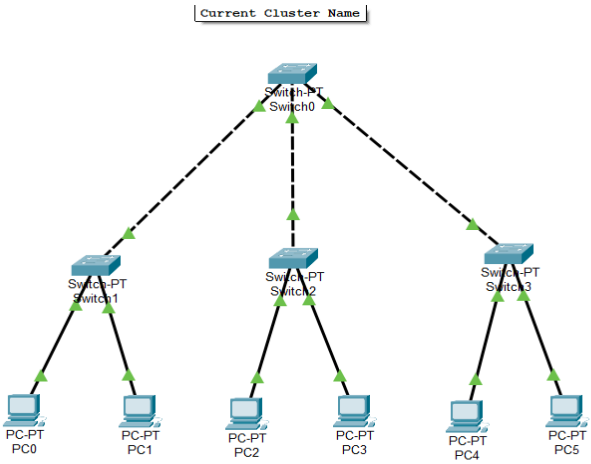

Bus topology



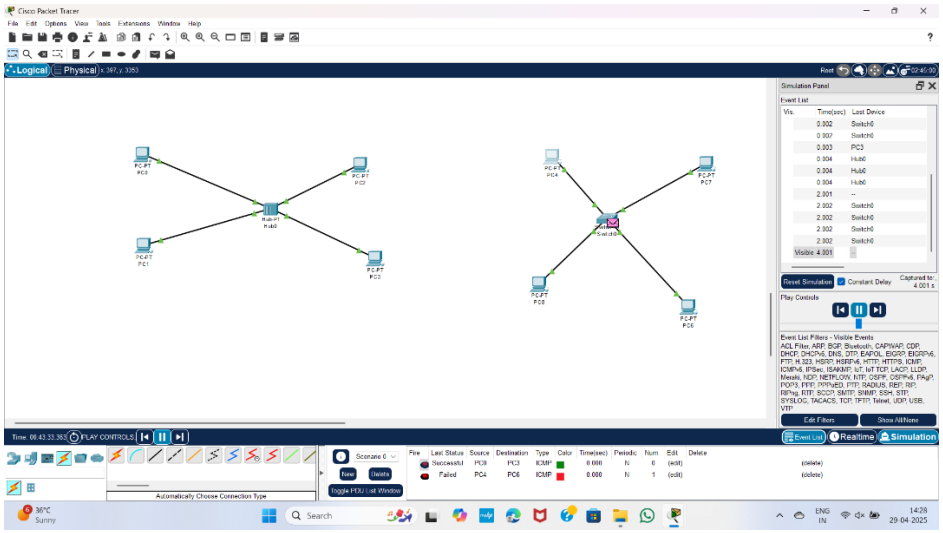

Ring topology



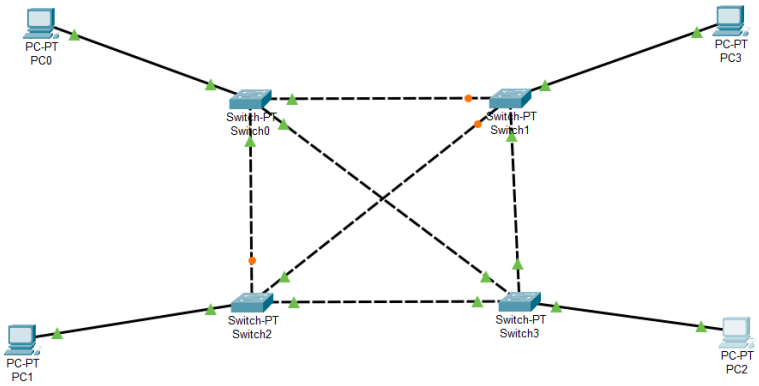
## Tree topology



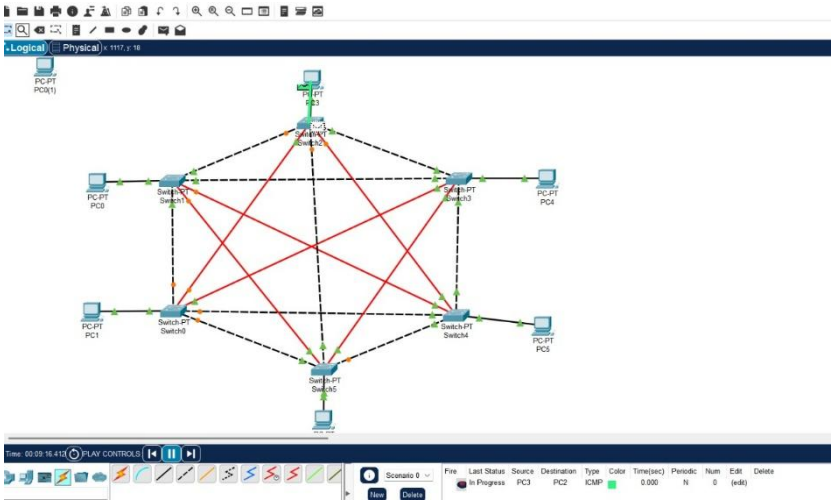

## Star topology



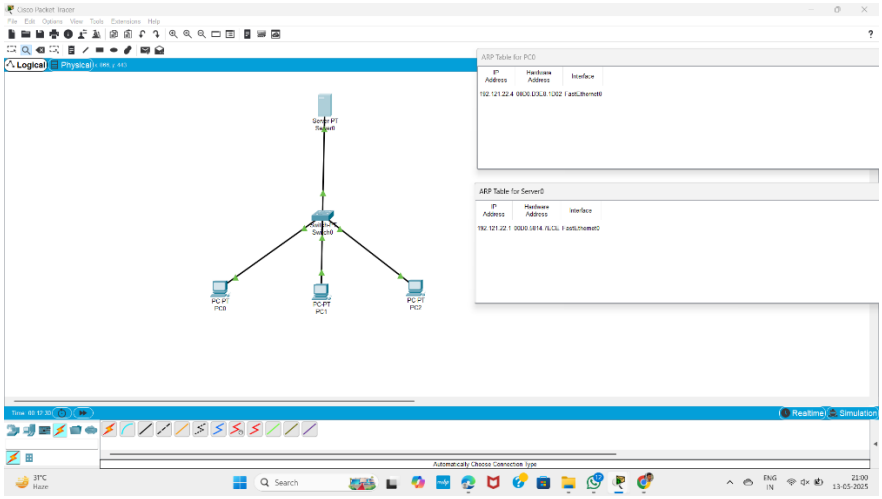
## Mesh topology



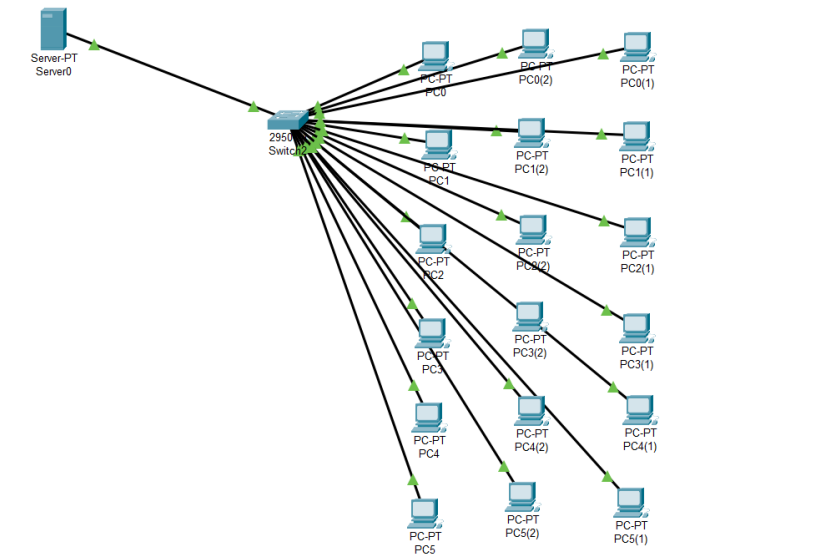
Hybrid topology



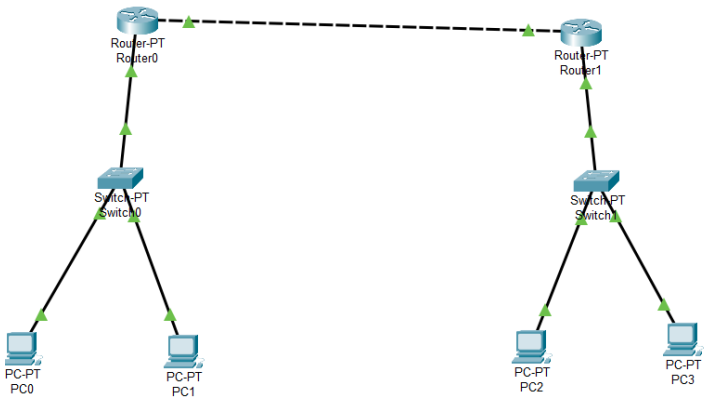
Data link layer traffic simulation of ARP



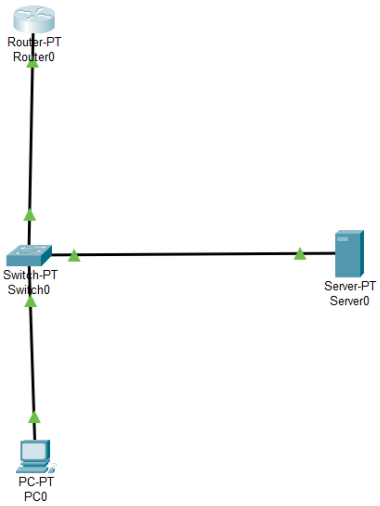
Computer lab



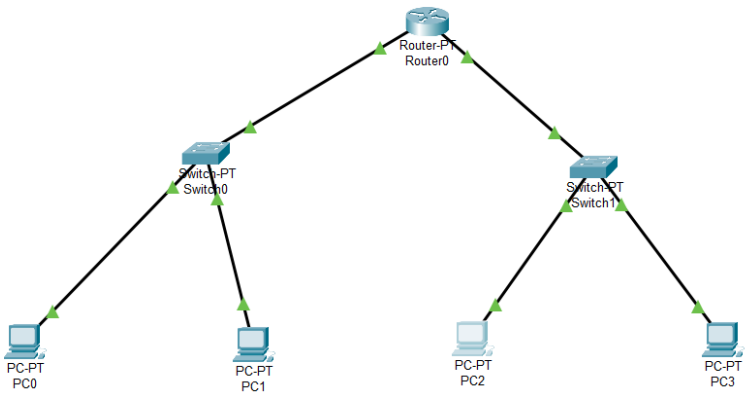
Static router



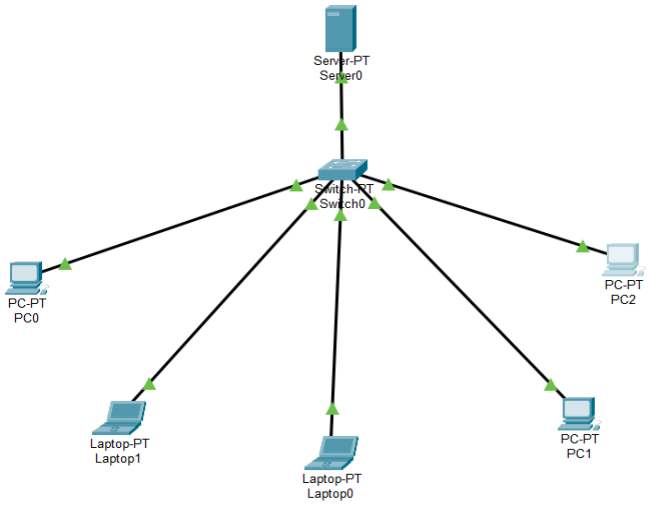

TCP



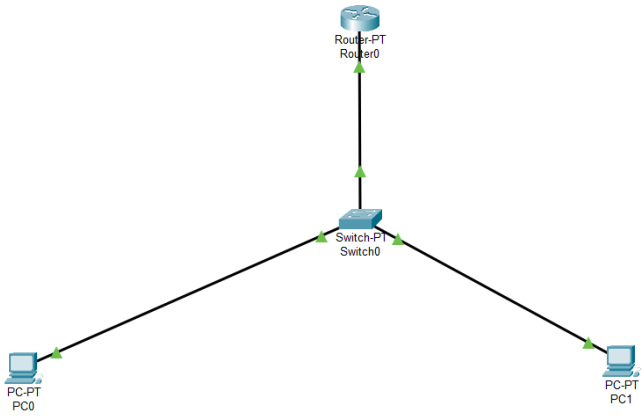

Subnetting



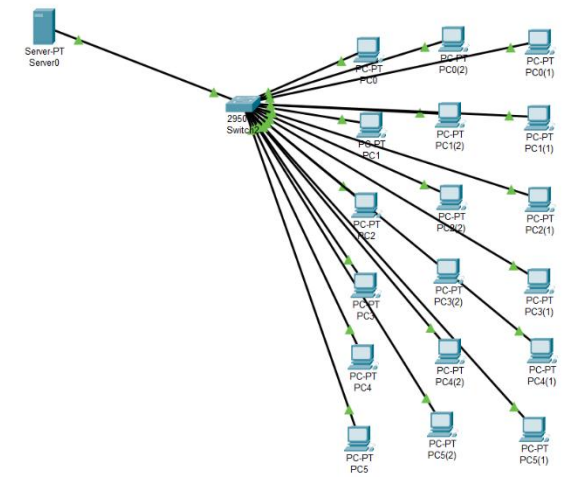
DHCP



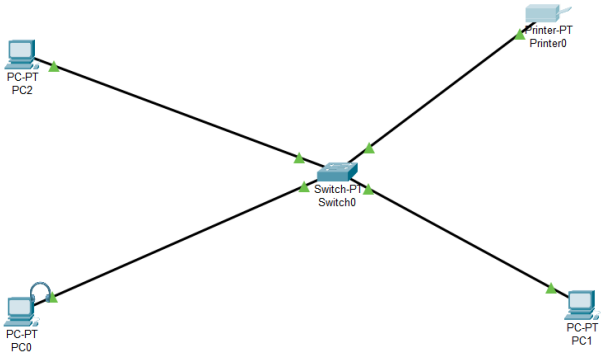

FIREWALL



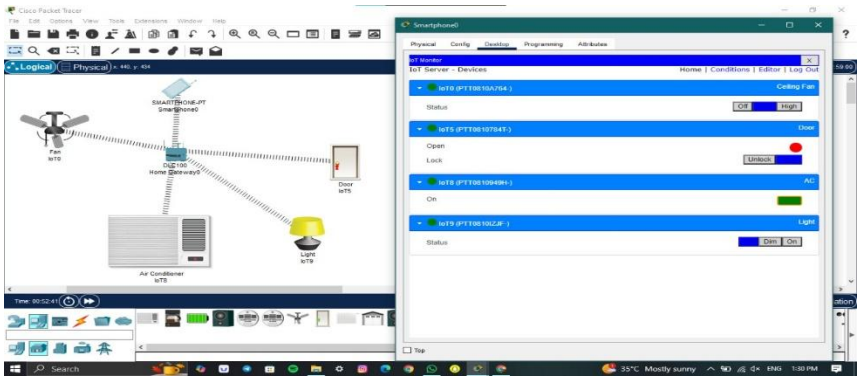

COMPUTER LAB



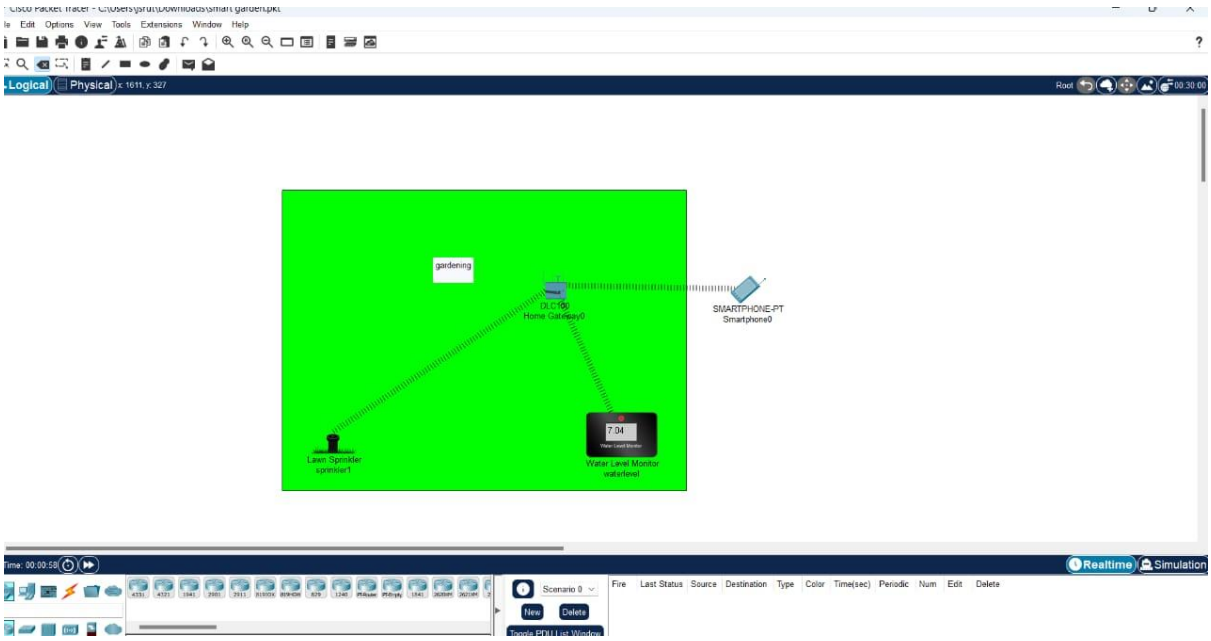
## MULTIMEDIA



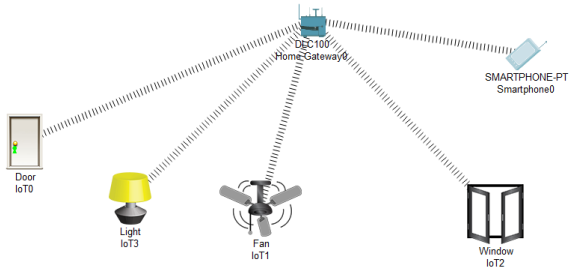

## SMART HOME

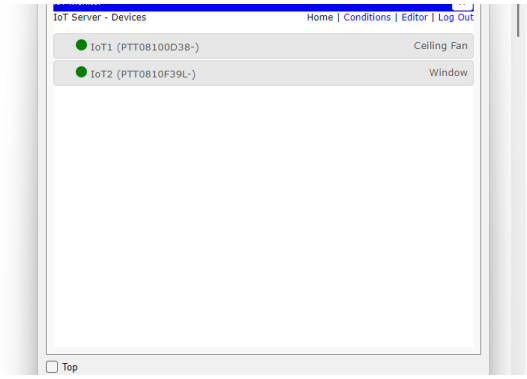


## SMART GARDEN

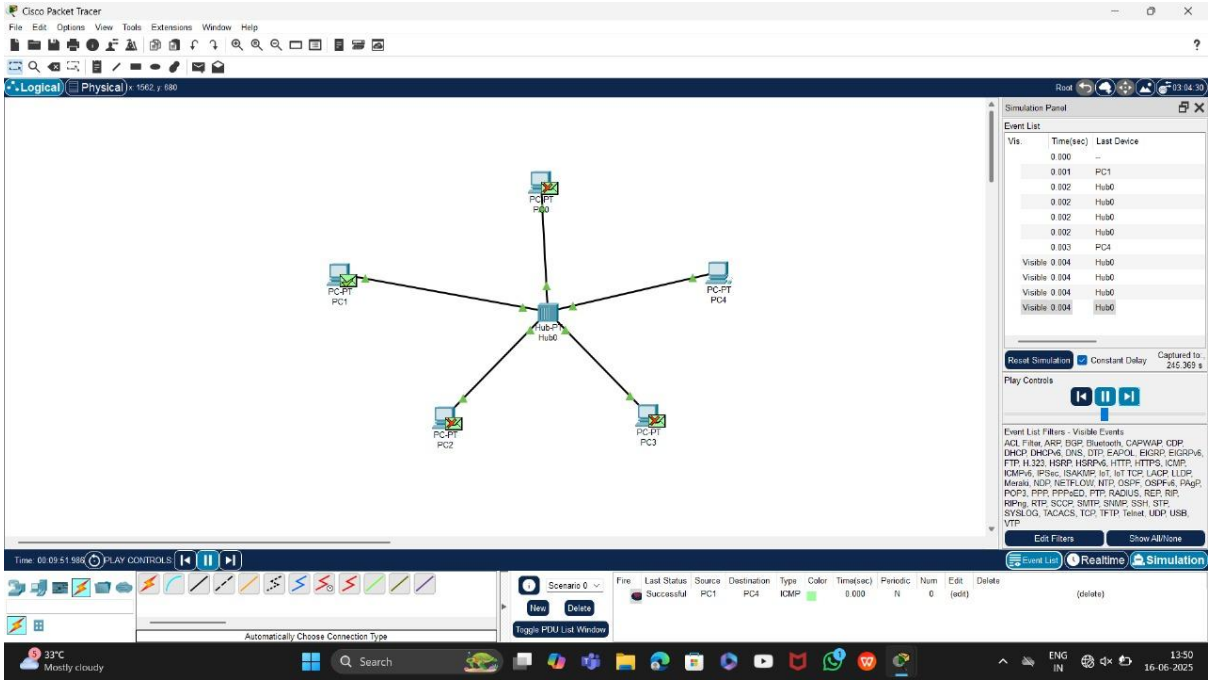


## SMART NETWORK DEVICES

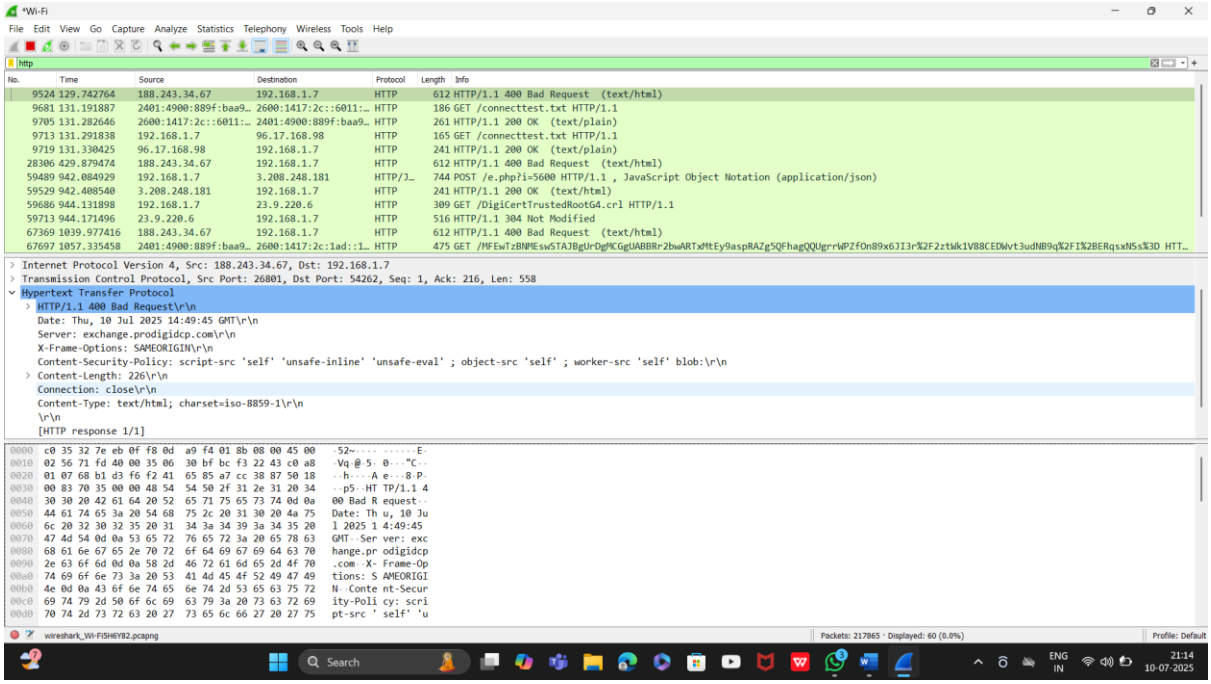


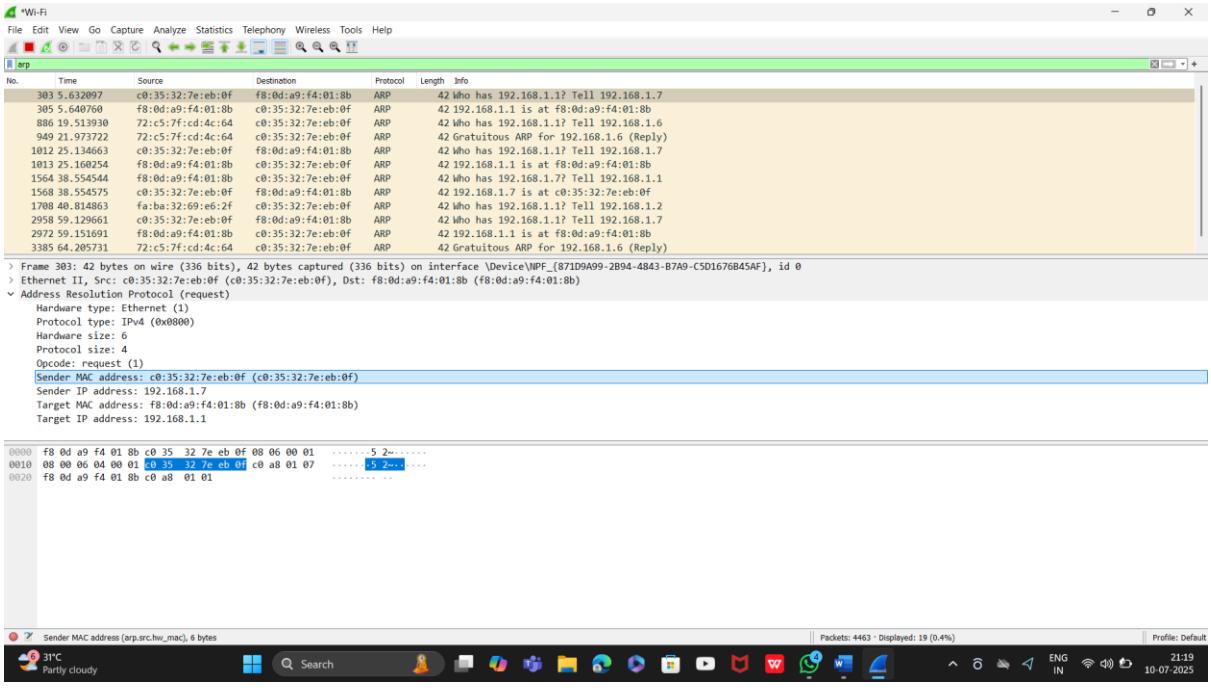

## CSMA/CD



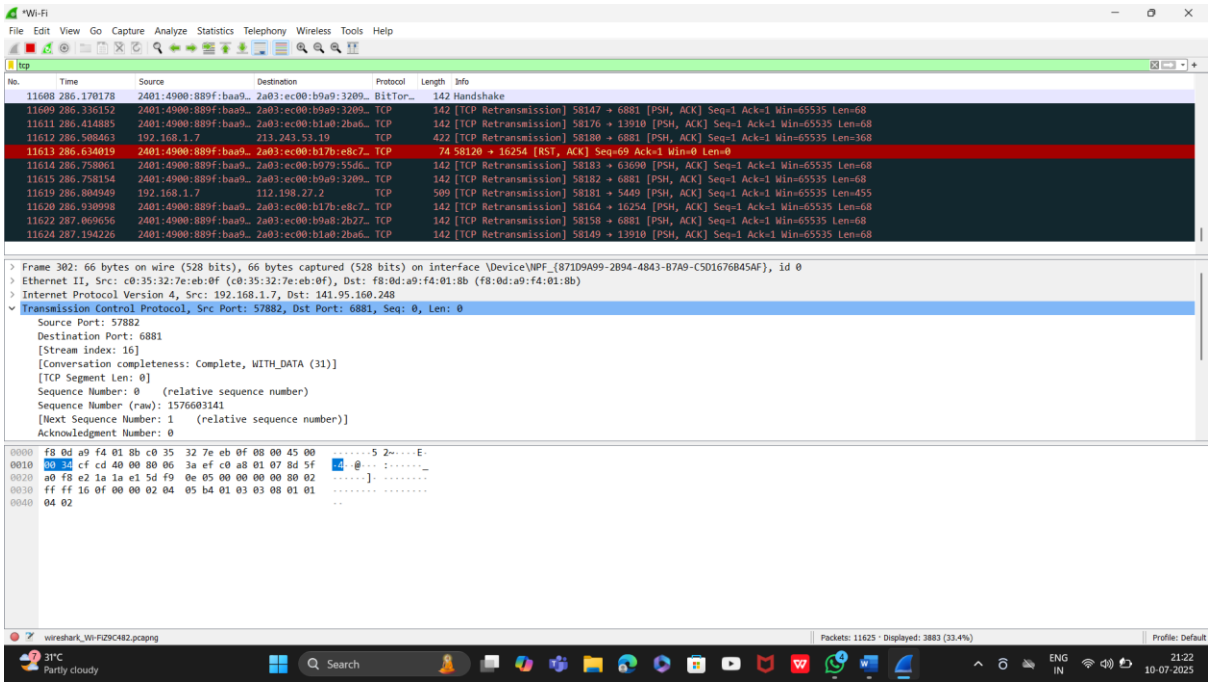
## HTTP


*Wi-Fi
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
http
No. Time Source Destination Protocol Length Info
9524 129.742764 188.243.34.67 192.168.1.7 HTTP 612 HTTP/1.1 400 Bad Request (text/html)
9681 131.191887 2401:4900:889f:baa9… 2600:1417:2c::6011:… HTTP 186 GET /connecttest.txt HTTP/1.1
9705 131.282646 2600:1417:2c::6011:… 2401:4900:889f:baa9… HTTP 261 HTTP/1.1 200 OK (text/plain)
9713 131.291838 192.168.1.7 96.17.168.98 HTTP 165 GET /connecttest.txt HTTP/1.1
9719 131.330425 96.17.168.98 192.168.1.7 HTTP 241 HTTP/1.1 200 OK (text/plain)
28306 429.879474 188.243.34.67 192.168.1.7 HTTP 612 HTTP/1.1 400 Bad Request (text/html)
59489 942.084929 192.168.1.7 3.208.248.181 HTTP/J… 744 POST /e.php?i=5600 HTTP/1.1 , JavaScript Object Notation (application/json)
59529 942.408540 3.208.248.181 192.168.1.7 HTTP 241 HTTP/1.1 200 OK (text/html)
59686 944.131898 192.168.1.7 23.9.220.6 HTTP 309 GET /DigiCertTrustedRootG4.crl HTTP/1.1
59713 944.171496 23.9.220.6 192.168.1.7 HTTP 516 HTTP/1.1 304 Not Modified
67369 1039.977416 188.243.34.67 192.168.1.7 HTTP 612 HTTP/1.1 400 Bad Request (text/html)
67697 1057.335458 2401:4900:889f:baa9… 2600:1417:2c:1ad::1… HTTP 475 GET /MFEwTzBNMEswSTAJBgUrDgMCGgUABBRr2bwARTxMtEy9aspRAZg5QFhagQQUgrrWPZfOn89x6JI3r%2F2ztWk1V88CEDWvt3udNB9q%2FI%2BERqsxNSs%3D HTT…
Internet Protocol Version 4, Src: 188.243.34.67, Dst: 192.168.1.7
Transmission Control Protocol, Src Port: 26801, Dst Port: 54262, Seq: 1, Ack: 216, Len: 558
Hypertext Transfer Protocol
HTTP/1.1 400 Bad Request\r\n
Date: Thu, 10 Jul 2025 14:49:45 GMT\r\n
Server: exchange.prodigidcp.com\r\n
X-Frame-Options: SAMEORIGIN\r\n
Content-Security-Policy: script-src 'self' 'unsafe-inline' 'unsafe-eval' ; object-src 'self' ; worker-src 'self' blob:\r\n
Content-Length: 226\r\n
Connection: close\r\n
Content-Type: text/html; charset=iso-8859-1\r\n
\r\n
[HTTP response 1/1]
0000 c0 35 32 7e eb 0f f8 0d a9 f4 01 8b 08 00 45 00 ·52~···· ·····E·
0010 02 56 71 fd 40 00 35 06 30 bf bc f3 22 43 c0 a8 ·Vq·@·5· 0···"C··
0020 01 07 68 b1 d3 f6 f2 41 65 85 a7 cc 38 87 50 18 ··h····A e···8·P·
0030 00 83 70 35 00 00 48 54 54 50 2f 31 2e 31 20 34 ··p5··HT TP/1.1 4
0040 30 30 20 42 61 64 20 52 65 71 75 65 73 74 0d 0a 00 Bad R equest··
0050 44 61 74 65 3a 20 54 68 75 2c 20 31 30 20 4a 75 Date: Th u, 10 Ju
0060 6c 20 32 30 32 35 20 31 34 3a 34 39 3a 34 35 20 l 2025 1 4:49:45
0070 47 4d 54 0d 0a 53 65 72 76 65 72 3a 20 65 78 63 GMT··Ser ver: exc
0080 68 61 6e 67 65 2e 70 72 6f 64 69 67 69 64 63 70 hange.pr odigidcp
0090 2e 63 6f 6d 0d 0a 58 2d 46 72 61 6d 65 2d 4f 70 .com··X- Frame-Op
00a0 74 69 6f 6e 73 3a 20 53 41 4d 45 4f 52 49 47 49 tions: S AMEORIGI
00b0 4e 0d 0a 43 6f 6e 74 65 6e 74 2d 53 65 63 75 72 N··Conte nt-Secur
00c0 69 74 79 2d 50 6f 6c 69 63 79 3a 20 73 63 72 69 ity-Poli cy: scri
00d0 70 74 2d 73 72 63 20 27 73 65 6c 66 27 20 27 75 pt-src ' self' 'u
wireshark_Wi-FiSH6Y82.pcapng
Packets: 217865 · Displayed: 60 (0.0%)
Profile: Default
Search
ENG IN
21:14 10-07-2025

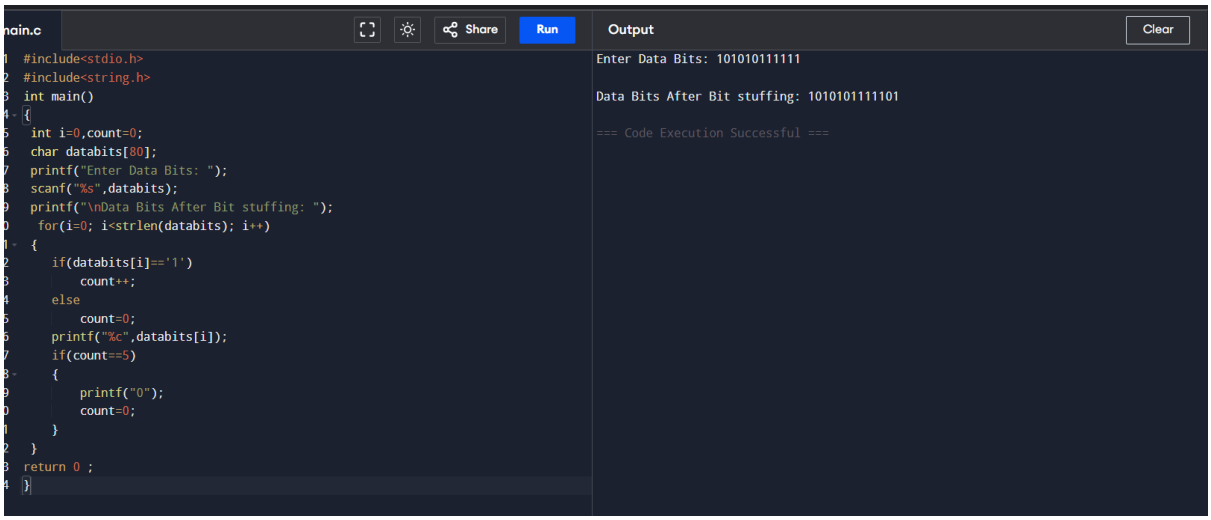
## Arp


*Wi-Fi
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
arp
No. Time Source Destination Protocol Length Info
303 5.632097 c0:35:32:7e:eb:0f f8:0d:a9:f4:01:8b ARP 42 Who has 192.168.1.1? Tell 192.168.1.7
305 5.640760 f8:0d:a9:f4:01:8b c0:35:32:7e:eb:0f ARP 42 192.168.1.1 is at f8:0d:a9:f4:01:8b
886 19.513930 72:c5:7f:cd:4c:64 c0:35:32:7e:eb:0f ARP 42 Who has 192.168.1.1? Tell 192.168.1.6
949 21.973722 72:c5:7f:cd:4c:64 c0:35:32:7e:eb:0f ARP 42 Gratuitous ARP for 192.168.1.6 (Reply)
1012 25.134663 c0:35:32:7e:eb:0f f8:0d:a9:f4:01:8b ARP 42 Who has 192.168.1.1? Tell 192.168.1.7
1013 25.160254 f8:0d:a9:f4:01:8b c0:35:32:7e:eb:0f ARP 42 192.168.1.1 is at f8:0d:a9:f4:01:8b
1564 38.554544 f8:0d:a9:f4:01:8b c0:35:32:7e:eb:0f ARP 42 Who has 192.168.1.7? Tell 192.168.1.1
1568 38.554575 c0:35:32:7e:eb:0f f8:0d:a9:f4:01:8b ARP 42 192.168.1.7 is at c0:35:32:7e:eb:0f
1708 40.814863 fa:ba:32:69:e6:2f c0:35:32:7e:eb:0f ARP 42 Who has 192.168.1.1? Tell 192.168.1.2
2958 59.129661 c0:35:32:7e:eb:0f f8:0d:a9:f4:01:8b ARP 42 Who has 192.168.1.1? Tell 192.168.1.7
2972 59.151691 f8:0d:a9:f4:01:8b c0:35:32:7e:eb:0f ARP 42 192.168.1.1 is at f8:0d:a9:f4:01:8b
3385 64.205731 72:c5:7f:cd:4c:64 c0:35:32:7e:eb:0f ARP 42 Gratuitous ARP for 192.168.1.6 (Reply)
Frame 303: 42 bytes on wire (336 bits), 42 bytes captured (336 bits) on interface \Device\NPF_{871D9A99-2B94-4843-B7A9-C5D1676B45AF}, id 0
Ethernet II, Src: c0:35:32:7e:eb:0f (c0:35:32:7e:eb:0f), Dst: f8:0d:a9:f4:01:8b (f8:0d:a9:f4:01:8b)
Address Resolution Protocol (request)
Hardware type: Ethernet (1)
Protocol type: IPv4 (0x0800)
Hardware size: 6
Protocol size: 4
Opcode: request (1)
Sender MAC address: c0:35:32:7e:eb:0f (c0:35:32:7e:eb:0f)
Sender IP address: 192.168.1.7
Target MAC address: f8:0d:a9:f4:01:8b (f8:0d:a9:f4:01:8b)
Target IP address: 192.168.1.1
0000 f8 0d a9 f4 01 8b c0 35 32 7e eb 0f 08 06 00 01 ·····5 2~····
0010 08 00 06 04 00 01 c0 35 32 7e eb 0f c0 a8 01 07 ·····5 2~····
0020 f8 0d a9 f4 01 8b c0 a8 01 01 ····· ··
Sender MAC address (arp.src.hw_mac), 6 bytes
Packets: 4463 · Displayed: 19 (0.4%)
Profile: Default
31°C Partly cloudy
Search
ENG IN
21:19 10-07-2025

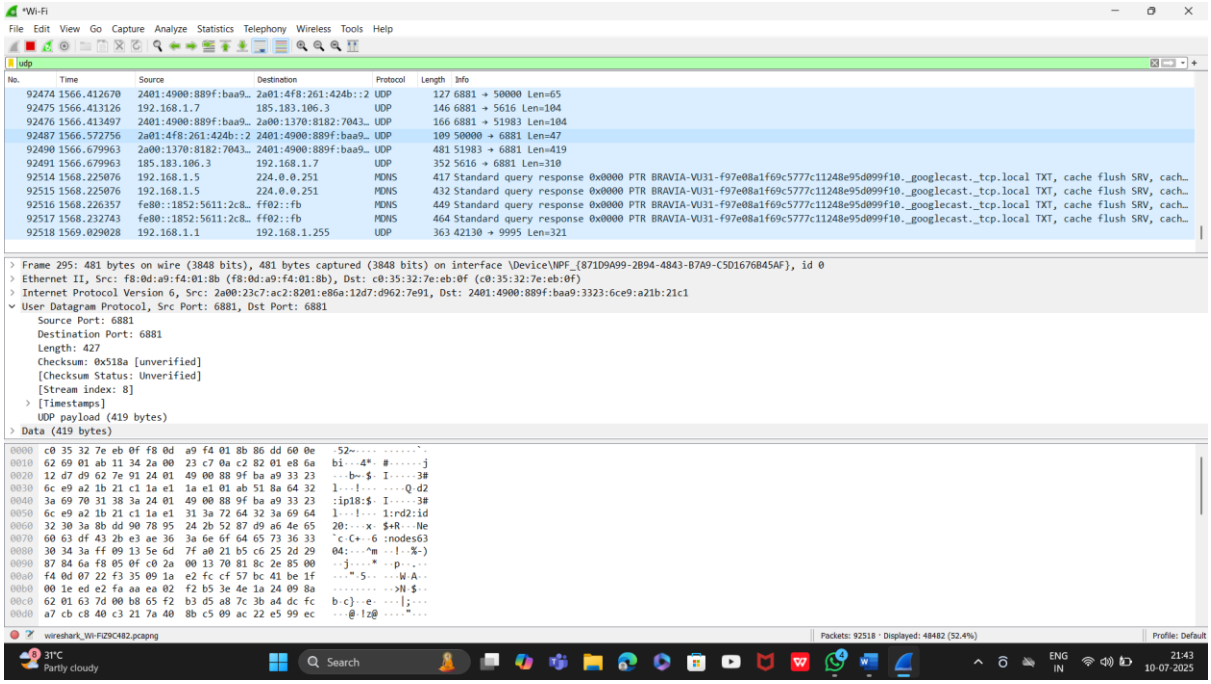
## TCP



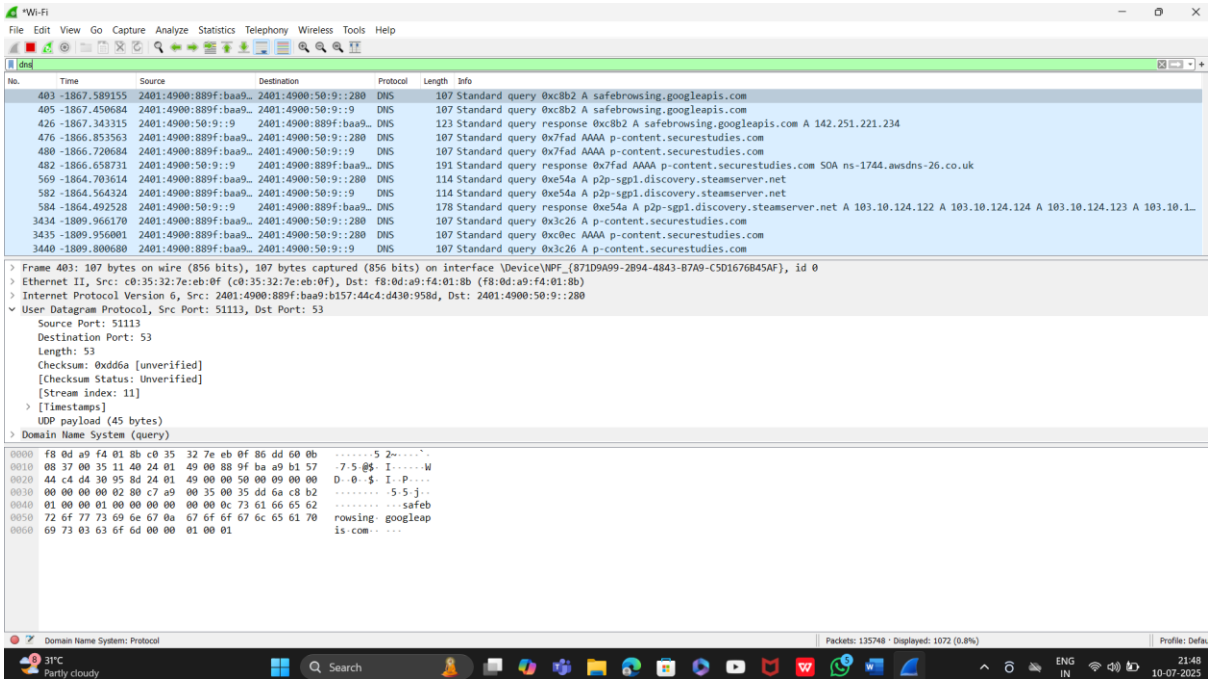

## BIT STUFFING



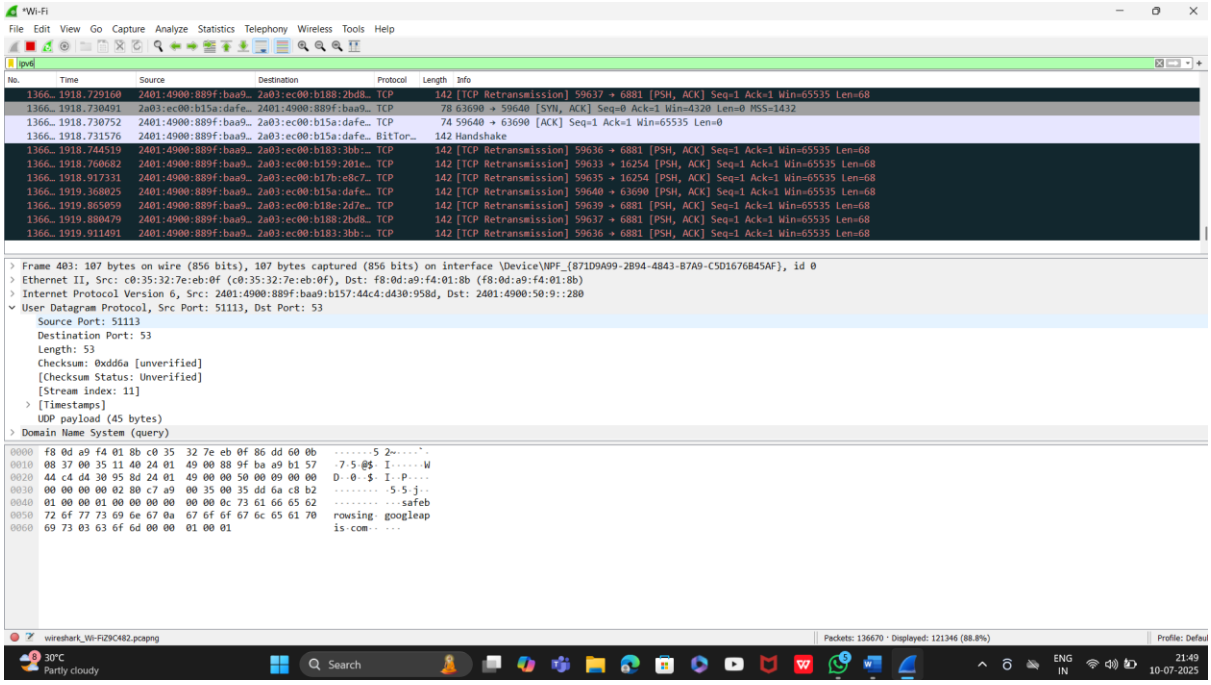
## UDP


*Wi-Fi
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
udp
No. Time Source Destination Protocol Length Info
92474 1566.412670 2401:4900:889f:baa9… 2a01:4f8:261:424b::2 UDP 127 6881 → 50000 Len=65
92475 1566.413126 192.168.1.7 185.183.106.3 UDP 146 6881 → 5616 Len=104
92476 1566.413497 2401:4900:889f:baa9… 2a00:1370:8182:7043… UDP 166 6881 → 51983 Len=104
92487 1566.572756 2a01:4f8:261:424b::2 2401:4900:889f:baa9… UDP 109 50000 → 6881 Len=47
92490 1566.679963 2a00:1370:8182:7043… 2401:4900:889f:baa9… UDP 481 51983 → 6881 Len=419
92491 1566.679963 185.183.106.3 192.168.1.7 UDP 352 5616 → 6881 Len=310
92514 1568.225076 192.168.1.5 224.0.0.251 MDNS 417 Standard query response 0x0000 PTR BRAVIA-VU31-f97e08a1f69c5777c11248e95d099f10._googlecast._tcp.local TXT, cache flush SRV, cach…
92515 1568.225076 192.168.1.5 224.0.0.251 MDNS 432 Standard query response 0x0000 PTR BRAVIA-VU31-f97e08a1f69c5777c11248e95d099f10._googlecast._tcp.local TXT, cache flush SRV, cach…
92516 1568.226357 fe80::1852:5611:2c8… ff02::fb MDNS 449 Standard query response 0x0000 PTR BRAVIA-VU31-f97e08a1f69c5777c11248e95d099f10._googlecast._tcp.local TXT, cache flush SRV, cach…
92517 1568.232743 fe80::1852:5611:2c8… ff02::fb MDNS 464 Standard query response 0x0000 PTR BRAVIA-VU31-f97e08a1f69c5777c11248e95d099f10._googlecast._tcp.local TXT, cache flush SRV, cach…
92518 1569.029028 192.168.1.1 192.168.1.255 UDP 363 42130 → 9995 Len=321
Frame 295: 481 bytes on wire (3848 bits), 481 bytes captured (3848 bits) on interface \Device\NPF_{871D9A99-2B94-4843-B7A9-C5D1676B45AF}, id 0
Ethernet II, Src: f8:0d:a9:f4:01:8b (f8:0d:a9:f4:01:8b), Dst: c0:35:32:7e:eb:0f (c0:35:32:7e:eb:0f)
Internet Protocol Version 6, Src: 2a00:23c7:ac2:8201:e86a:12d7:d962:7e91, Dst: 2401:4900:889f:baa9:3323:6ce9:a21b:21c1
User Datagram Protocol, Src Port: 6881, Dst Port: 6881
Source Port: 6881
Destination Port: 6881
Length: 427
Checksum: 0x518a [unverified]
[Checksum Status: Unverified]
[Stream index: 8]
[Timestamps]
UDP payload (419 bytes)
Data (419 bytes)
0000 c0 35 32 7e eb 0f f8 0d a9 f4 01 8b 86 dd 60 0e
0010 62 69 01 ab 11 34 2a 00 23 c7 0a c2 82 01 e8 6a
0020 12 d7 d9 62 7e 91 24 01 49 00 88 9f ba a9 33 23
0030 6c e9 a2 1b 21 c1 1a e1 1a e1 01 ab 51 8a 64 32
0040 3a 69 70 31 38 3a 24 01 49 00 88 9f ba a9 33 23
0050 6c e9 a2 1b 21 c1 1a e1 31 3a 72 64 32 3a 69 64
0060 32 30 3a 8b dd 90 78 95 24 2b 52 87 d9 a6 4e 65
0070 60 63 df 43 2b e3 ae 36 3a 6e 6f 64 65 73 36 33
0080 30 34 3a ff 09 13 5e 6d 7f a0 21 b5 c6 25 2d 29
0090 87 84 6a f8 05 0f c0 2a 00 13 70 81 8c 2e 85 00
00a0 f4 0d 07 22 f3 35 09 1a e2 fc cf 57 bc 41 be 1f
00b0 00 1e ed e2 fa aa ea 02 f2 b5 3e 4e 1a 24 09 8a
00c0 62 01 63 7d 00 b8 65 f2 b3 d5 a8 7c 3b a4 dc fc
00d0 a7 cb c8 40 c3 21 7a 40 8b c5 09 ac 22 e5 99 ec
wireshark_Wi-FiZ9C482.pcapng
Packets: 92518 · Displayed: 48482 (52.4%)
Profile: Default
31°C
Partly cloudy
Search
ENG
IN
21:43
10-07-2025

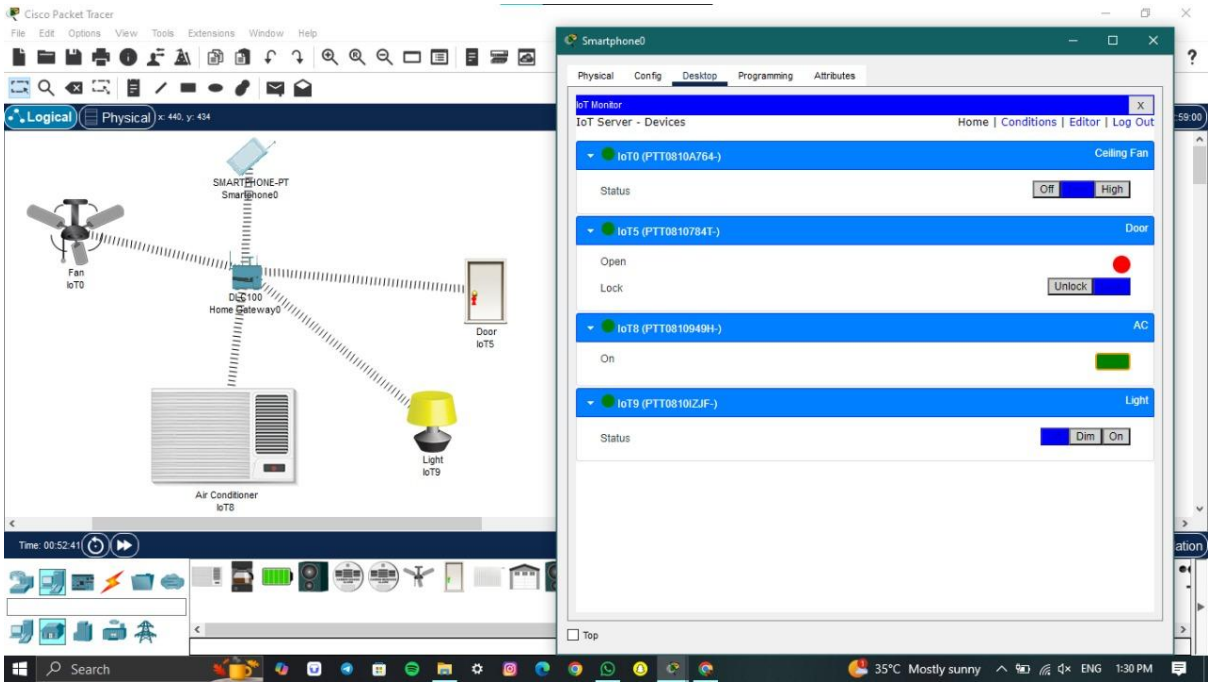
## DNS


*Wi-Fi
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
dns
No. Time Source Destination Protocol Length Info
403 -1867.589155 2401:4900:889f:baa9… 2401:4900:50:9::280 DNS 107 Standard query 0xc8b2 A safebrowsing.googleapis.com
405 -1867.450684 2401:4900:889f:baa9… 2401:4900:50:9::9 DNS 107 Standard query 0xc8b2 A safebrowsing.googleapis.com
426 -1867.343315 2401:4900:50:9::9 2401:4900:889f:baa9… DNS 123 Standard query response 0xc8b2 A safebrowsing.googleapis.com A 142.251.221.234
476 -1866.853563 2401:4900:889f:baa9… 2401:4900:50:9::280 DNS 107 Standard query 0x7fad AAAA p-content.securestudies.com
480 -1866.720684 2401:4900:889f:baa9… 2401:4900:50:9::9 DNS 107 Standard query 0x7fad AAAA p-content.securestudies.com
482 -1866.658731 2401:4900:50:9::9 2401:4900:889f:baa9… DNS 191 Standard query response 0x7fad AAAA p-content.securestudies.com SOA ns-1744.awsdns-26.co.uk
569 -1864.703614 2401:4900:889f:baa9… 2401:4900:50:9::280 DNS 114 Standard query 0xe54a A p2p-sgp1.discovery.steamserver.net
582 -1864.564324 2401:4900:889f:baa9… 2401:4900:50:9::9 DNS 114 Standard query 0xe54a A p2p-sgp1.discovery.steamserver.net
584 -1864.492528 2401:4900:50:9::9 2401:4900:889f:baa9… DNS 178 Standard query response 0xe54a A p2p-sgp1.discovery.steamserver.net A 103.10.124.122 A 103.10.124.124 A 103.10.124.123 A 103.10.1…
3434 -1809.966170 2401:4900:889f:baa9… 2401:4900:50:9::280 DNS 107 Standard query 0x3c26 A p-content.securestudies.com
3435 -1809.956001 2401:4900:889f:baa9… 2401:4900:50:9::280 DNS 107 Standard query 0xc0ec AAAA p-content.securestudies.com
3440 -1809.800680 2401:4900:889f:baa9… 2401:4900:50:9::9 DNS 107 Standard query 0x3c26 A p-content.securestudies.com
Frame 403: 107 bytes on wire (856 bits), 107 bytes captured (856 bits) on interface \Device\NPF_{871D9A99-2B94-4843-B7A9-C5D1676B45AF}, id 0
Ethernet II, Src: c0:35:32:7e:eb:0f (c0:35:32:7e:eb:0f), Dst: f8:0d:a9:f4:01:8b (f8:0d:a9:f4:01:8b)
Internet Protocol Version 6, Src: 2401:4900:889f:baa9:b157:44c4:d430:958d, Dst: 2401:4900:50:9::280
User Datagram Protocol, Src Port: 51113, Dst Port: 53
Source Port: 51113
Destination Port: 53
Length: 53
Checksum: 0xdd6a [unverified]
[Checksum Status: Unverified]
[Stream index: 11]
[Timestamps]
UDP payload (45 bytes)
Domain Name System (query)
0000 f8 0d a9 f4 01 8b c0 35 32 7e eb 0f 86 dd 60 0b
0010 08 37 00 35 11 40 24 01 49 00 88 9f ba a9 b1 57
0020 44 c4 d4 30 95 8d 24 01 49 00 00 50 00 09 00 00
0030 00 00 00 00 02 80 c7 a9 00 35 00 35 dd 6a c8 b2
0040 01 00 00 01 00 00 00 00 00 00 0c 73 61 66 65 62
0050 72 6f 77 73 69 6e 67 0a 67 6f 6f 67 6c 65 61 70
0060 69 73 03 63 6f 6d 00 00 01 00 01
rowsing· googleap
is·com·· ···
Domain Name System: Protocol
Packets: 135748 · Displayed: 1072 (0.8%)
Profile: Defau
31°C
Partly cloudy
Search
ENG
IN
21:48
10-07-2025

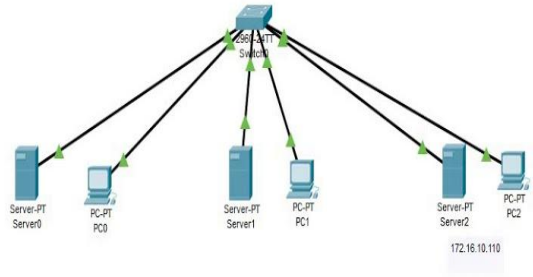
IPV6




Control of fan,light



## WLAN



## AAA server