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PACKET ANALYZER TOOL

AIM:

To Analyse the network packet transmission using packet analyzer tool (Wireshark).

PROCEDURE:

1. Capture the packets (TCP / UDP / HTTP)
2. Filter those packets
3. Inspect those packets

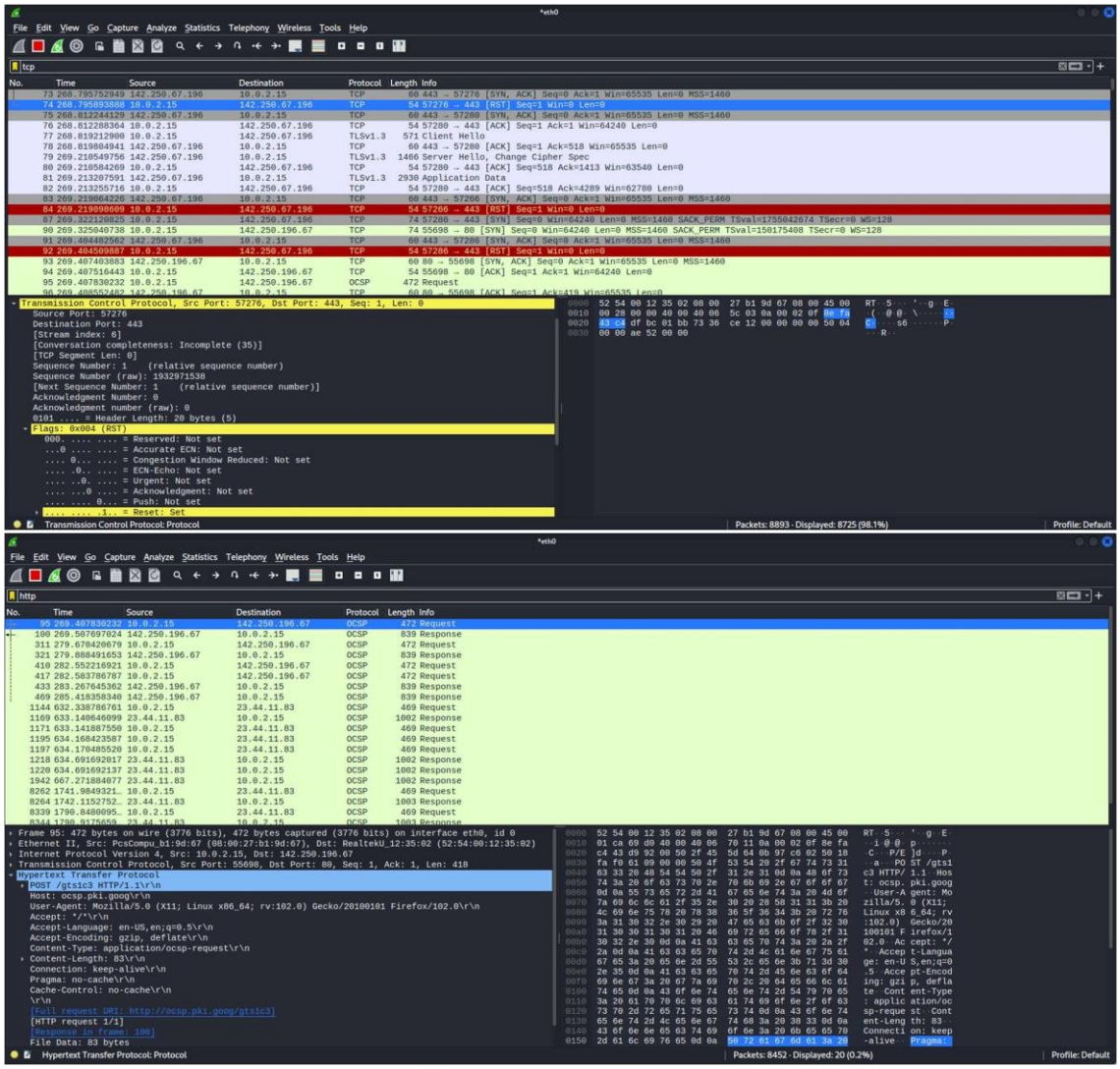
Step 1: Install and open WireShark .

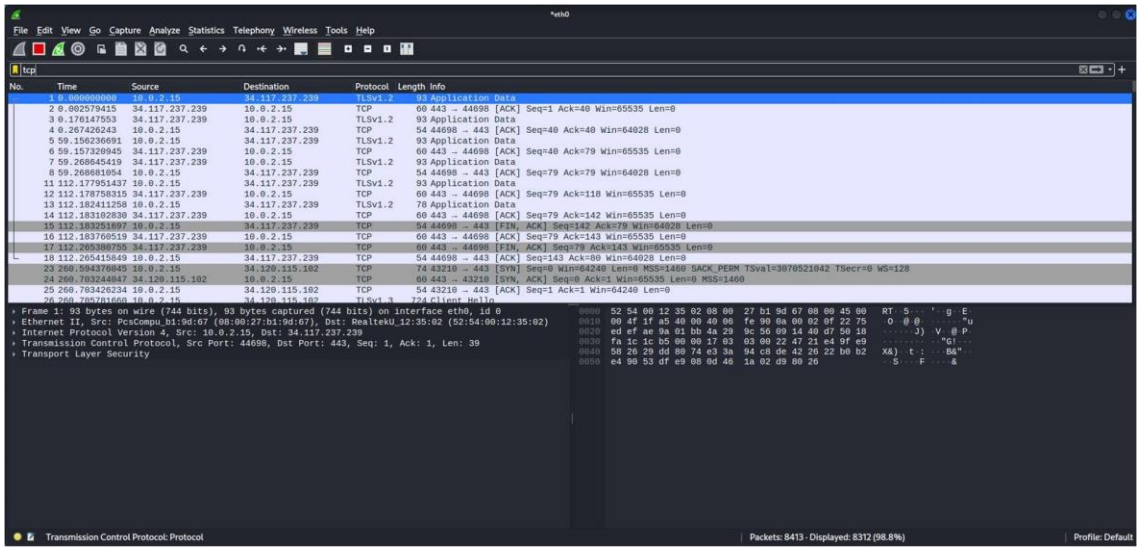
Step 2: To capture TCP / UDP /HTTP Packet.

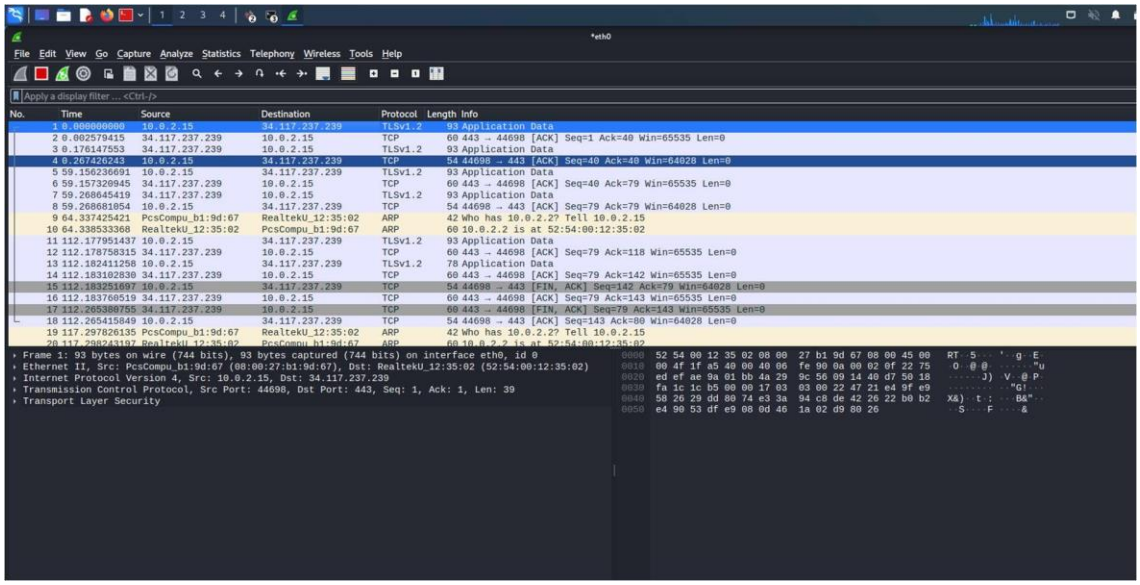
Step 3: to Filter TCP / UDP /HTTP Packet.

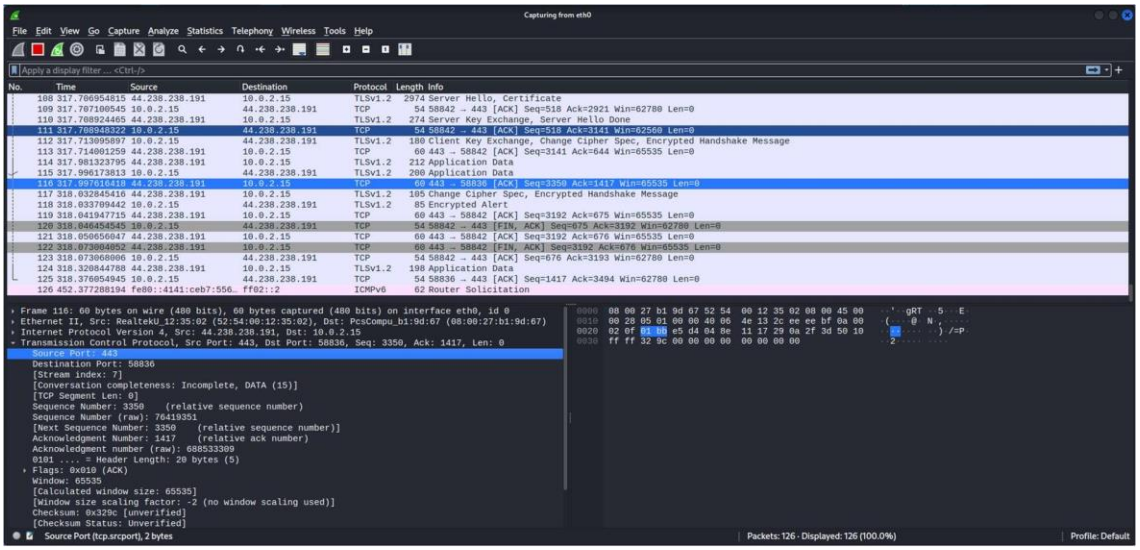
Step4: to inspect the TCP / UDP /HTTP Packet.

OUTPUT


*eth0
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
tcp
No. Time Source Destination Protocol Length Info
73 268.795752949 142.250.67.196 10.0.2.15 TCP 60 443 → 57276 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=1460
74 268.795893888 10.0.2.15 142.250.67.196 TCP 54 57276 → 443 [RST] Seq=1 Win=0 Len=0
75 268.812244129 142.250.67.196 10.0.2.15 TCP 60 443 → 57280 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=1460
76 268.812288364 10.0.2.15 142.250.67.196 TCP 54 57280 → 443 [ACK] Seq=1 Ack=1 Win=64240 Len=0
77 268.819212900 10.0.2.15 142.250.67.196 TLSv1.3 571 Client Hello
78 268.819804941 142.250.67.196 10.0.2.15 TCP 60 443 → 57280 [ACK] Seq=1 Ack=518 Win=65535 Len=0
79 269.210549756 142.250.67.196 10.0.2.15 TLSv1.3 1466 Server Hello, Change Cipher Spec
80 269.210584269 10.0.2.15 142.250.67.196 TCP 54 57280 → 443 [ACK] Seq=518 Ack=1413 Win=63540 Len=0
81 269.213207591 142.250.67.196 10.0.2.15 TLSv1.3 2930 Application Data
82 269.213255716 10.0.2.15 142.250.67.196 TCP 54 57280 → 443 [ACK] Seq=518 Ack=4289 Win=62780 Len=0
83 269.219064226 142.250.67.196 10.0.2.15 TCP 60 443 → 57266 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=1460
84 269.219098609 10.0.2.15 142.250.67.196 TCP 54 57266 → 443 [RST] Seq=1 Win=0 Len=0
87 269.322126928 10.0.2.15 142.250.67.196 TCP 74 57286 → 443 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 SACK_PERM TSval=1755042074 TSecr=0 WS=128
90 269.325040738 10.0.2.15 142.250.196.67 TCP 74 55698 → 80 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 SACK_PERM TSval=150175408 TSecr=0 WS=128
91 269.404482562 142.250.67.196 10.0.2.15 TCP 60 443 → 57286 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=1460
92 269.404509887 10.0.2.15 142.250.67.196 TCP 54 57286 → 443 [RST] Seq=1 Win=0 Len=0
93 269.407403883 142.250.196.67 10.0.2.15 TCP 60 80 → 55698 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=1460
94 269.407516443 10.0.2.15 142.250.196.67 TCP 54 55698 → 80 [ACK] Seq=1 Ack=1 Win=64240 Len=0
95 269.407830232 10.0.2.15 142.250.196.67 OCSP 472 Request
96 269.408552482 142.250.196.67 10.0.2.15 TCP 60 80 → 55698 [ACK] Seq=1 Ack=419 Win=65535 Len=0
Transmission Control Protocol, Src Port: 57276, Dst Port: 443, Seq: 1, Len: 0
Source Port: 57276
Destination Port: 443
[Stream index: 6]
[Conversation completeness: Incomplete (35)]
[TCP Segment Len: 0]
Sequence Number: 1 (relative sequence number)
Sequence Number (raw): 1932971538
[Next Sequence Number: 1 (relative sequence number)]
Acknowledgment Number: 0
Acknowledgment number (raw): 0
0101 .... = Header Length: 20 bytes (5)
Flags: 0x004 (RST)
000. .... = Reserved: Not set
...0 .... = Accurate ECN: Not set
.... 0... .... = Congestion Window Reduced: Not set
.... .0.. .... = ECN-Echo: Not set
.... ..0. .... = Urgent: Not set
....0 .... = Acknowledgment: Not set
.... 0... = Push: Not set
.... .1.. = Reset: Set
0000 52 54 00 12 35 02 08 00 27 b1 9d 67 08 00 45 00 RT··5··· '··g··E·
0010 00 28 00 00 40 00 40 06 5c 03 0a 00 02 0f 8e fa ·(··@·@· \·····
0020 43 c4 df bc 01 bb 73 36 ce 12 00 00 00 00 50 04 C·····s6 ····P·
0030 00 00 ae 52 00 00 ···R··
Transmission Control Protocol: Protocol
Packets: 8893 · Displayed: 8725 (98.1%)
Profile: Default
*eth0
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
http
No. Time Source Destination Protocol Length Info
95 269.407830232 10.0.2.15 142.250.196.67 OCSP 472 Request
100 269.507697024 142.250.196.67 10.0.2.15 OCSP 839 Response
311 279.670420679 10.0.2.15 142.250.196.67 OCSP 472 Request
321 279.888491653 142.250.196.67 10.0.2.15 OCSP 839 Response
410 282.552216921 10.0.2.15 142.250.196.67 OCSP 472 Request
417 282.583786787 10.0.2.15 142.250.196.67 OCSP 472 Request
433 283.267645362 142.250.196.67 10.0.2.15 OCSP 839 Response
469 285.418358340 142.250.196.67 10.0.2.15 OCSP 839 Response
1144 632.338786761 10.0.2.15 23.44.11.83 OCSP 469 Request
1169 633.140646099 23.44.11.83 10.0.2.15 OCSP 1002 Response
1171 633.141887550 10.0.2.15 23.44.11.83 OCSP 469 Request
1195 634.168423587 10.0.2.15 23.44.11.83 OCSP 469 Request
1197 634.170485520 10.0.2.15 23.44.11.83 OCSP 469 Request
1218 634.691692017 23.44.11.83 10.0.2.15 OCSP 1002 Response
1220 634.691692137 23.44.11.83 10.0.2.15 OCSP 1002 Response
1942 667.271804077 23.44.11.83 10.0.2.15 OCSP 1002 Response
8262 1741.9849321… 10.0.2.15 23.44.11.83 OCSP 469 Request
8264 1742.1152752… 23.44.11.83 10.0.2.15 OCSP 1003 Response
8339 1790.8480095… 10.0.2.15 23.44.11.83 OCSP 469 Request
8344 1790.9175650… 23.44.11.83 10.0.2.15 OCSP 1003 Response
Frame 95: 472 bytes on wire (3776 bits), 472 bytes captured (3776 bits) on interface eth0, id 0
Ethernet II, Src: PcsCompu_b1:9d:67 (08:00:27:b1:9d:67), Dst: RealtekU_12:35:02 (52:54:00:12:35:02)
Internet Protocol Version 4, Src: 10.0.2.15, Dst: 142.250.196.67
Transmission Control Protocol, Src Port: 55698, Dst Port: 80, Seq: 1, Ack: 1, Len: 418
Hypertext Transfer Protocol
POST /gts1c3 HTTP/1.1\r\n
Host: ocsp.pki.goog\r\n
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:102.0) Gecko/20100101 Firefox/102.0\r\n
Accept: */*\r\n
Accept-Language: en-US,en;q=0.5\r\n
Accept-Encoding: gzip, deflate\r\n
Content-Type: application/ocsp-request\r\n
Content-Length: 83\r\n
Connection: keep-alive\r\n
Pragma: no-cache\r\n
Cache-Control: no-cache\r\n
\r\n
[Full request URI: http://ocsp.pki.goog/gts1c3]
[HTTP request 1/1]
[Response in frame: 100]
File Data: 83 bytes
0000 52 54 00 12 35 02 08 00 27 b1 9d 67 08 00 45 00 RT··5··· '··g··E·
0010 01 ca 69 d0 40 00 40 06 70 11 0a 00 02 0f 8e fa ··i·@·@· p·····
0020 c4 43 d9 92 00 50 2f 45 5d 64 0b 97 c6 02 50 18 ·C···P/E]d····P·
0030 fa f0 61 09 00 00 50 4f 53 54 20 2f 67 74 73 31 ··a···PO ST /gts1
0040 63 33 20 48 54 54 50 2f 31 2e 31 0d 0a 48 6f 73 c3 HTTP/ 1.1··Hos
0050 74 3a 20 6f 63 73 70 2e 70 6b 69 2e 67 6f 6f 67 t: ocsp. pki.goog
0060 0d 0a 55 73 65 72 2d 41 67 65 6e 74 3a 20 4d 6f ··User-A gent: Mo
0070 7a 69 6c 6c 61 2f 35 2e 30 20 28 58 31 31 3b 20 zilla/5. 0 (X11;
0080 4c 69 6e 75 78 20 78 38 36 5f 36 34 3b 20 72 76 Linux x8 6_64; rv
0090 3a 31 30 32 2e 30 29 20 47 65 63 6b 6f 2f 32 30 :102.0) Gecko/20
00a0 31 30 30 31 30 31 20 46 69 72 65 66 6f 78 2f 31 100101 F irefox/1
00b0 30 32 2e 30 0d 0a 41 63 63 65 70 74 3a 20 2a 2f 02.0··Ac cept: */
00c0 2a 0d 0a 41 63 63 65 70 74 2d 4c 61 6e 67 75 61 *··Accep t-Langua
00d0 67 65 3a 20 65 6e 2d 55 53 2c 65 6e 3b 71 3d 30 ge: en-U S,en;q=0
00e0 2e 35 0d 0a 41 63 63 65 70 74 2d 45 6e 63 6f 64 .5··Acce pt-Encod
00f0 69 6e 67 3a 20 67 7a 69 70 2c 20 64 65 66 6c 61 ing: gzi p, defla
0100 74 65 0d 0a 43 6f 6e 74 65 6e 74 2d 54 79 70 65 te··Cont ent-Type
0110 3a 20 61 70 70 6c 69 63 61 74 69 6f 6e 2f 6f 63 : applic ation/oc
0120 73 70 2d 72 65 71 75 65 73 74 0d 0a 43 6f 6e 74 sp-reque st··Cont
0130 65 6e 74 2d 4c 65 6e 67 74 68 3a 20 38 33 0d 0a ent-Leng th: 83··
0140 43 6f 6e 6e 65 63 74 69 6f 6e 3a 20 6b 65 65 70 Connecti on: keep
0150 2d 61 6c 69 76 65 0d 0a 50 72 61 67 6d 61 3a 20 -alive·· Pragma:
Hypertext Transfer Protocol: Protocol
Packets: 8452 · Displayed: 20 (0.2%)
Profile: Default


*eth0
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
tcp
No. Time Source Destination Protocol Length Info
1 0.000000000 10.0.2.15 34.117.237.239 TLSv1.2 93 Application Data
2 0.002579415 34.117.237.239 10.0.2.15 TCP 60 443 → 44698 [ACK] Seq=1 Ack=40 Win=65535 Len=0
3 0.176147553 34.117.237.239 10.0.2.15 TLSv1.2 93 Application Data
4 0.267426243 10.0.2.15 34.117.237.239 TCP 54 44698 → 443 [ACK] Seq=40 Ack=40 Win=64028 Len=0
5 59.156236691 10.0.2.15 34.117.237.239 TLSv1.2 93 Application Data
6 59.157320945 34.117.237.239 10.0.2.15 TCP 60 443 → 44698 [ACK] Seq=40 Ack=79 Win=65535 Len=0
7 59.268645419 34.117.237.239 10.0.2.15 TLSv1.2 93 Application Data
8 59.268681054 10.0.2.15 34.117.237.239 TCP 54 44698 → 443 [ACK] Seq=79 Ack=79 Win=64028 Len=0
11 112.177951437 10.0.2.15 34.117.237.239 TLSv1.2 93 Application Data
12 112.178758315 34.117.237.239 10.0.2.15 TCP 60 443 → 44698 [ACK] Seq=79 Ack=118 Win=65535 Len=0
13 112.182411258 10.0.2.15 34.117.237.239 TLSv1.2 78 Application Data
14 112.183102830 34.117.237.239 10.0.2.15 TCP 60 443 → 44698 [ACK] Seq=79 Ack=142 Win=65535 Len=0
15 112.183251697 10.0.2.15 34.117.237.239 TCP 54 44698 → 443 [FIN, ACK] Seq=142 Ack=79 Win=64028 Len=0
16 112.183760519 34.117.237.239 10.0.2.15 TCP 60 443 → 44698 [ACK] Seq=79 Ack=143 Win=65535 Len=0
17 112.265380755 34.117.237.239 10.0.2.15 TCP 60 443 → 44698 [FIN, ACK] Seq=79 Ack=143 Win=65535 Len=0
18 112.265415849 10.0.2.15 34.117.237.239 TCP 54 44698 → 443 [ACK] Seq=143 Ack=80 Win=64028 Len=0
23 260.594376845 10.0.2.15 34.120.115.102 TCP 74 43210 → 443 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 SACK_PERM TSval=3070521042 TSecr=0 WS=128
24 260.703244947 34.120.115.102 10.0.2.15 TCP 60 443 → 43210 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=1460
25 260.703426234 10.0.2.15 34.120.115.102 TCP 54 43210 → 443 [ACK] Seq=1 Ack=1 Win=64240 Len=0
26 260.705781660 10.0.2.15 34.120.115.102 TLSv1.3 724 Client Hello
Frame 1: 93 bytes on wire (744 bits), 93 bytes captured (744 bits) on interface eth0, id 0
Ethernet II, Src: PcsCompu_b1:9d:67 (08:00:27:b1:9d:67), Dst: RealtekU_12:35:02 (52:54:00:12:35:02)
Internet Protocol Version 4, Src: 10.0.2.15, Dst: 34.117.237.239
Transmission Control Protocol, Src Port: 44698, Dst Port: 443, Seq: 1, Ack: 1, Len: 39
Transport Layer Security
0000 52 54 00 12 35 02 08 00 27 b1 9d 67 08 00 45 00 RT 5 ' g E
0010 00 4f 1f a5 40 00 40 06 fe 90 0a 00 02 0f 22 75 O @ @ "u
0020 ed ef ae 9a 01 bb 4a 29 9c 56 09 14 40 d7 50 18 J) V @ P
0030 fa 1c 1c b5 00 00 17 03 03 00 22 47 21 e4 9f e9 "G!
0040 58 26 29 dd 80 74 e3 3a 94 c8 de 42 26 22 b0 b2 X&) t : B&"
0050 e4 90 53 df e9 08 0d 46 1a 02 d9 80 26 S F &
Transmission Control Protocol: Protocol
Packets: 8413 · Displayed: 8312 (98.8%)
Profile: Default


*eth0
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Apply a display filter ... <Ctrl-/>
No. Time Source Destination Protocol Length Info
1 0.000000000 10.0.2.15 34.117.237.239 TLSv1.2 93 Application Data
2 0.002579415 34.117.237.239 10.0.2.15 TCP 60 443 → 44698 [ACK] Seq=1 Ack=40 Win=65535 Len=0
3 0.176147553 34.117.237.239 10.0.2.15 TLSv1.2 93 Application Data
4 0.267426243 10.0.2.15 34.117.237.239 TCP 54 44698 → 443 [ACK] Seq=40 Ack=40 Win=64028 Len=0
5 59.156236691 10.0.2.15 34.117.237.239 TLSv1.2 93 Application Data
6 59.157320945 34.117.237.239 10.0.2.15 TCP 60 443 → 44698 [ACK] Seq=40 Ack=79 Win=65535 Len=0
7 59.268645419 34.117.237.239 10.0.2.15 TLSv1.2 93 Application Data
8 59.268681054 10.0.2.15 34.117.237.239 TCP 54 44698 → 443 [ACK] Seq=79 Ack=79 Win=64028 Len=0
9 64.337426234 PcsCompu_b1:9d:67 RealtekU_12:35:02 ARP 42 Who has 10.0.2.2? Tell 10.0.2.15
10 64.338533368 RealtekU_12:35:02 PcsCompu_b1:9d:67 ARP 60 10.0.2.2 is at 52:54:00:12:35:02
11 112.177951437 10.0.2.15 34.117.237.239 TLSv1.2 93 Application Data
12 112.178758315 34.117.237.239 10.0.2.15 TCP 60 443 → 44698 [ACK] Seq=79 Ack=118 Win=65535 Len=0
13 112.182411258 10.0.2.15 34.117.237.239 TLSv1.2 78 Application Data
14 112.183102830 34.117.237.239 10.0.2.15 TCP 60 443 → 44698 [ACK] Seq=79 Ack=142 Win=65535 Len=0
15 112.183251697 10.0.2.15 34.117.237.239 TCP 54 44698 → 443 [FIN, ACK] Seq=142 Ack=79 Win=64028 Len=0
16 112.183760519 34.117.237.239 10.0.2.15 TCP 60 443 → 44698 [ACK] Seq=79 Ack=143 Win=65535 Len=0
17 112.265380755 34.117.237.239 10.0.2.15 TCP 60 443 → 44698 [FIN, ACK] Seq=79 Ack=143 Win=65535 Len=0
18 112.265415849 10.0.2.15 34.117.237.239 TCP 54 44698 → 443 [ACK] Seq=143 Ack=80 Win=64028 Len=0
19 117.297826135 PcsCompu_b1:9d:67 RealtekU_12:35:02 ARP 42 Who has 10.0.2.2? Tell 10.0.2.15
20 117.298243197 RealtekU_12:35:02 PcsCompu_b1:9d:67 ARP 60 10.0.2.2 is at 52:54:00:12:35:02
Frame 1: 93 bytes on wire (744 bits), 93 bytes captured (744 bits) on interface eth0, id 0
Ethernet II, Src: PcsCompu_b1:9d:67 (08:00:27:b1:9d:67), Dst: RealtekU_12:35:02 (52:54:00:12:35:02)
Internet Protocol Version 4, Src: 10.0.2.15, Dst: 34.117.237.239
Transmission Control Protocol, Src Port: 44698, Dst Port: 443, Seq: 1, Ack: 1, Len: 39
Transport Layer Security
0000 52 54 00 12 35 02 08 00 27 b1 9d 67 08 00 45 00 RT 5 ' g E
0010 00 4f 1f a5 40 00 40 06 fe 90 0a 00 02 0f 22 75 O @ @ "u
0020 ed ef ae 9a 01 bb 4a 29 9c 56 09 14 40 d7 50 18 J) V @ P
0030 fa 1c 1c b5 00 00 17 03 03 00 22 47 21 e4 9f e9 "G!
0040 58 26 29 dd 80 74 e3 3a 94 c8 de 42 26 22 b0 b2 X&) t : B&"
0050 e4 90 53 df e9 08 0d 46 1a 02 d9 80 26 S F &



Result

Hence the analysing of the network packet transmission using packet analyzer tool (Wireshark) is performed successfully.