Universidad del Valle de Guatemala
Redes
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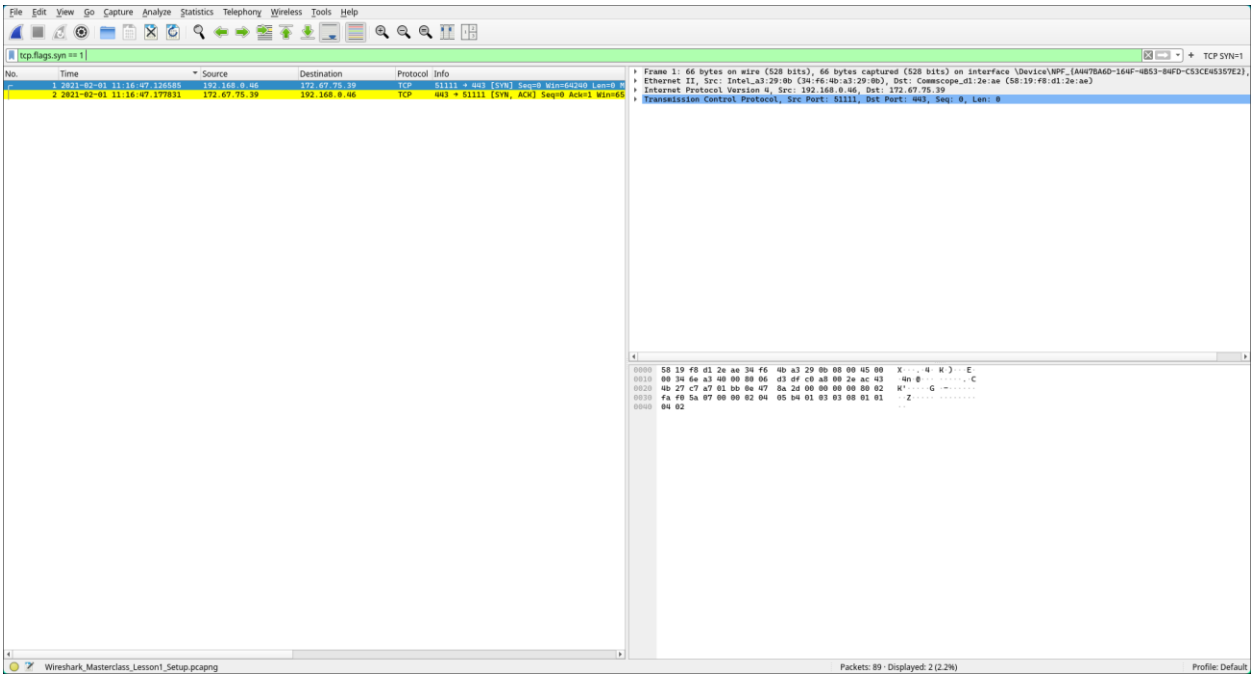
Laboratorio 1

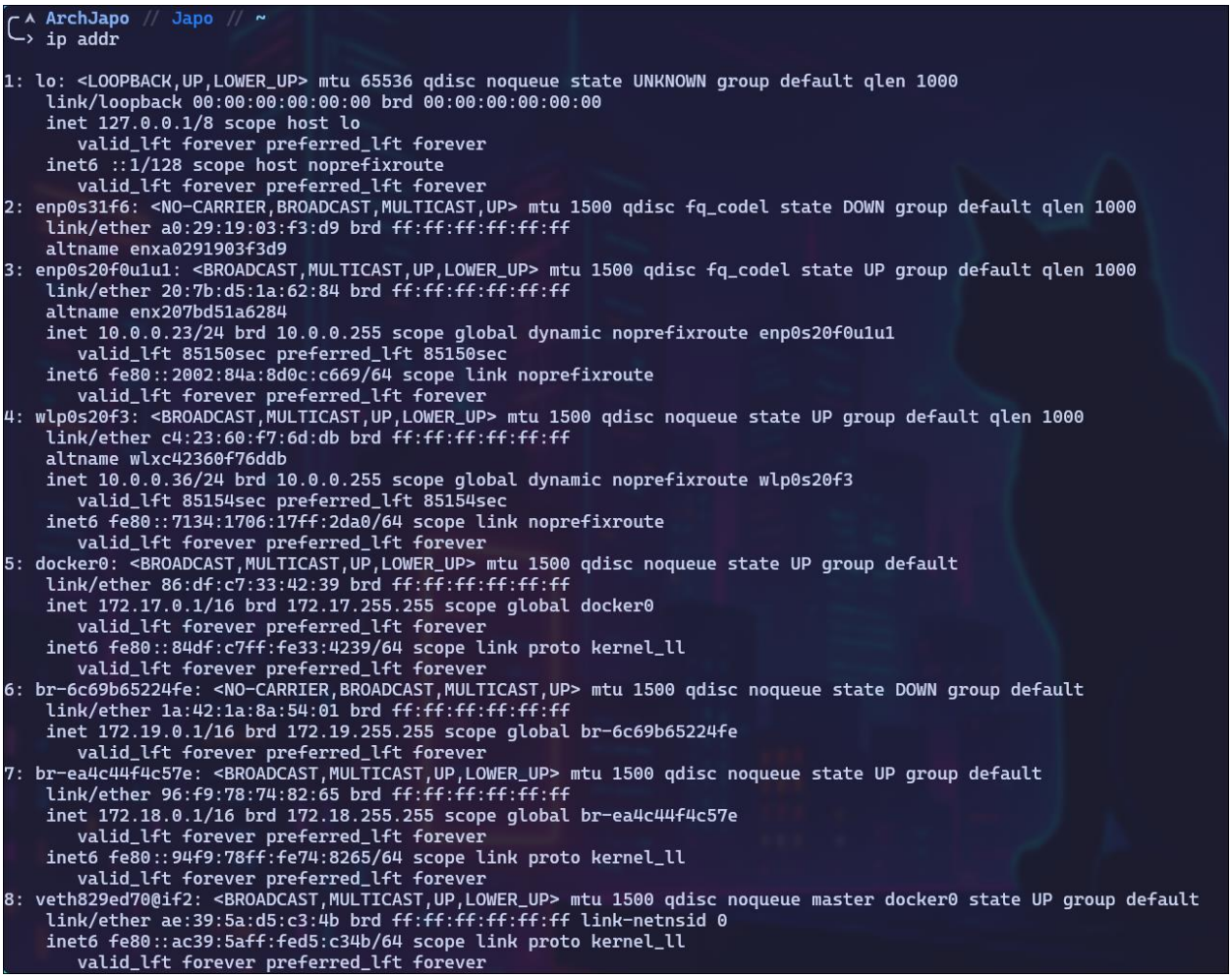
Parte 1.1



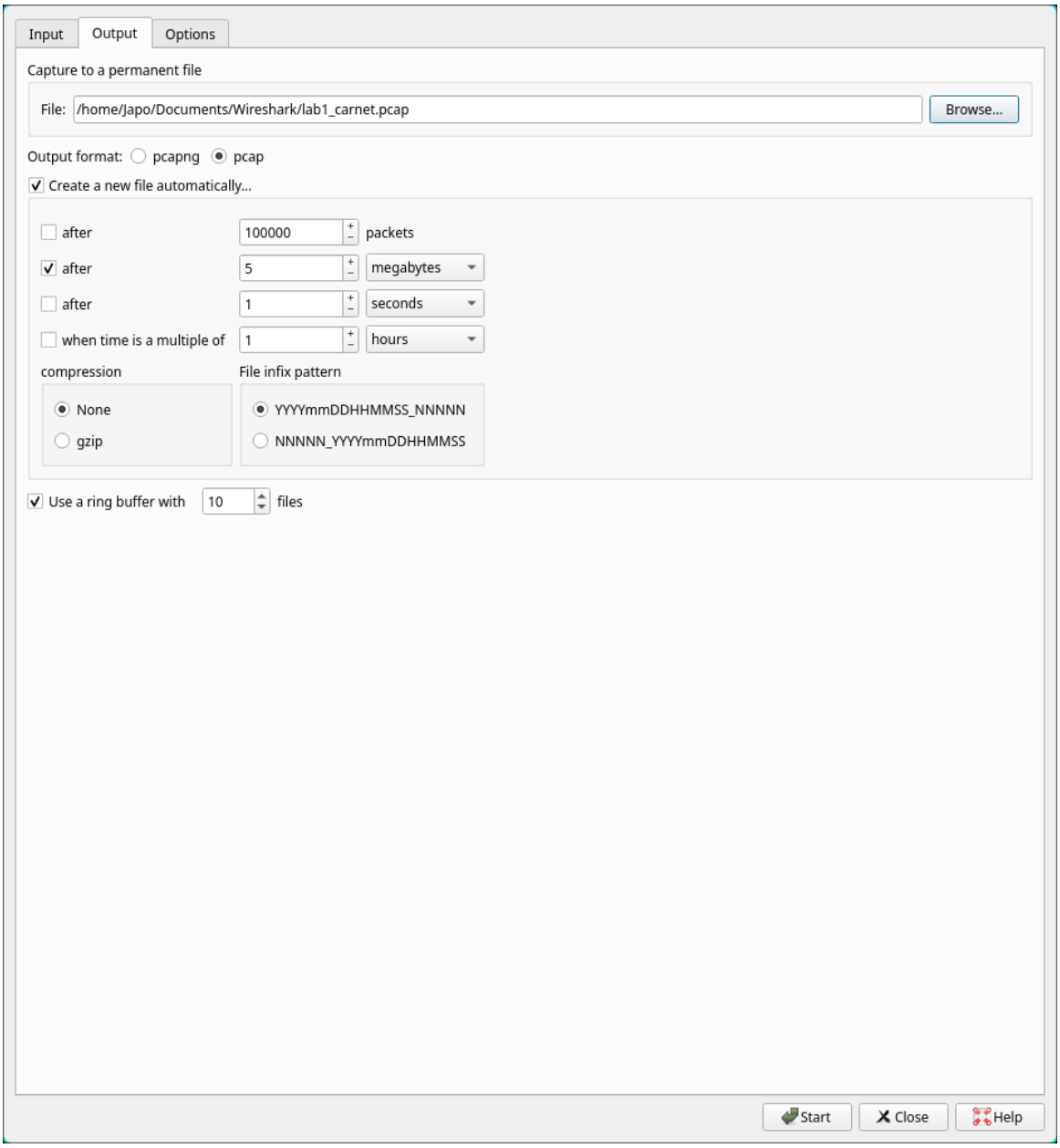
Part1 1.2

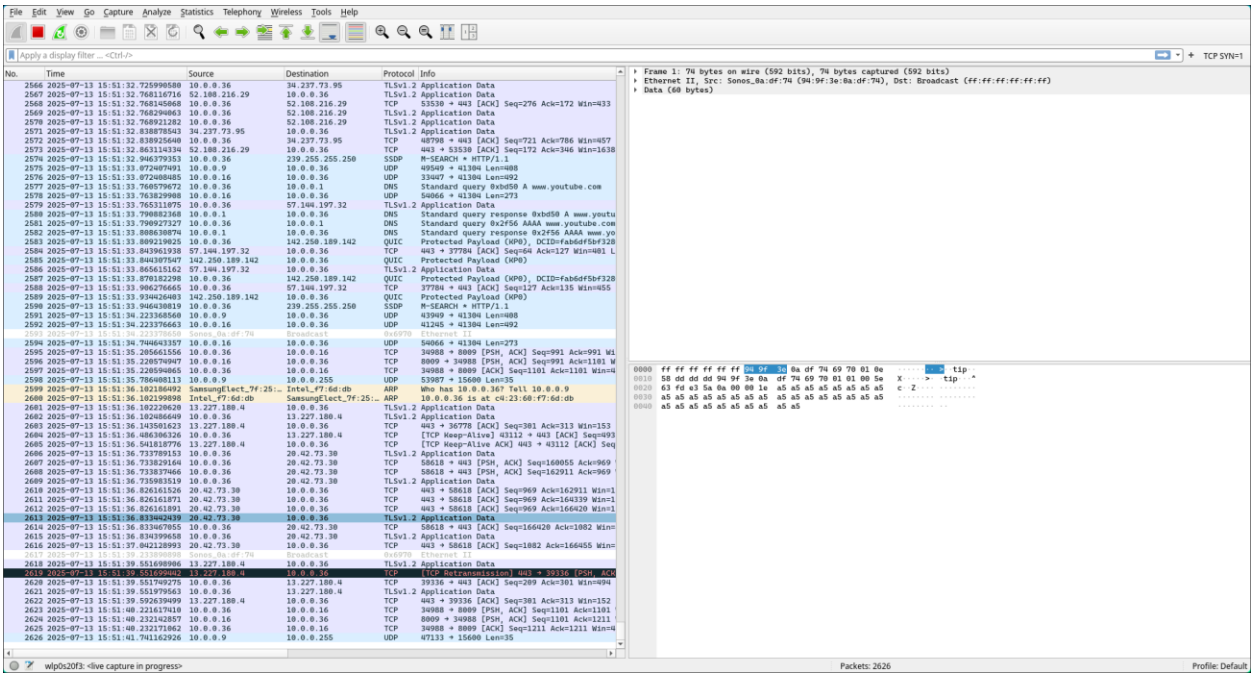
A) Dado que para arch linux el comando ifconfig está deprecado, se utilizará ‘ip addr’

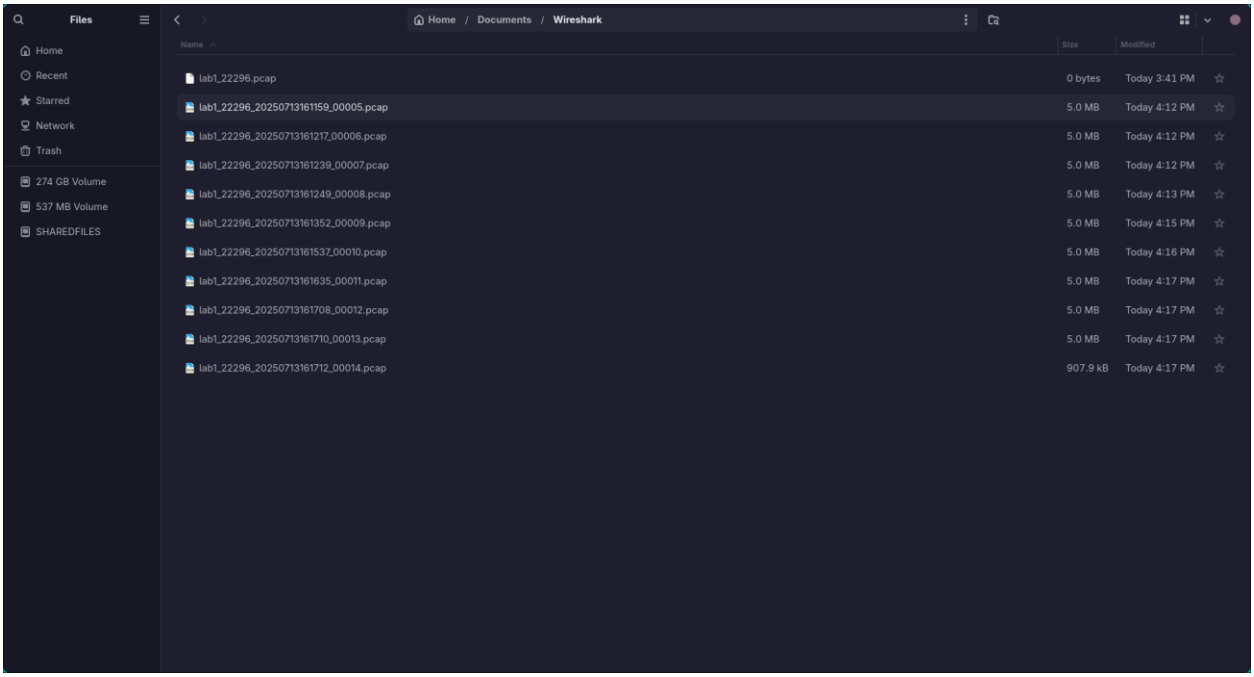
El comando muestra todas las interfaces de internet que se encuentran en la máquina, con su correspondiente dirección Ip. Entre estas interfaces se pueden encontrar interfaces físicas como la interfaz de wi-fi e internet y también interfaces virtuales como lo es la interfaz de docker, bridges, entre otras.


ArchJapo // Japo // ~
ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
inet 127.0.0.1/8 scope host lo
valid_lft forever preferred_lft forever
inet6 ::1/128 scope host noprefixroute
valid_lft forever preferred_lft forever
2: enp0s31f6: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc fq_codel state DOWN group default qlen 1000
link/ether a0:29:19:03:f3:d9 brd ff:ff:ff:ff:ff:ff
altname enxa0291903f3d9
3: enp0s20f0u1u1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
link/ether 20:7b:d5:1a:62:84 brd ff:ff:ff:ff:ff:ff
altname enx207bd51a6284
inet 10.0.0.23/24 brd 10.0.0.255 scope global dynamic noprefixroute enp0s20f0u1u1
valid_lft 85150sec preferred_lft 85150sec
inet6 fe80::2002:84a:8d0c:c669/64 scope link noprefixroute
valid_lft forever preferred_lft forever
4: wlp0s20f3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
link/ether c4:23:60:f7:6d:db brd ff:ff:ff:ff:ff:ff
altname wlxc42360f76ddb
inet 10.0.0.36/24 brd 10.0.0.255 scope global dynamic noprefixroute wlp0s20f3
valid_lft 85154sec preferred_lft 85154sec
inet6 fe80::7134:1706:17ff:2da0/64 scope link noprefixroute
valid_lft forever preferred_lft forever
5: docker0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default
link/ether 86:df:c7:33:42:39 brd ff:ff:ff:ff:ff:ff
inet 172.17.0.1/16 brd 172.17.255.255 scope global docker0
valid_lft forever preferred_lft forever
inet6 fe80::84df:c7ff:fe33:4239/64 scope link proto kernel_ll
valid_lft forever preferred_lft forever
6: br-6c69b65224fe: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN group default
link/ether 1a:42:1a:8a:54:01 brd ff:ff:ff:ff:ff:ff
inet 172.19.0.1/16 brd 172.19.255.255 scope global br-6c69b65224fe
valid_lft forever preferred_lft forever
7: br-ea4c44f4c57e: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default
link/ether 96:f9:78:74:82:65 brd ff:ff:ff:ff:ff:ff
inet 172.18.0.1/16 brd 172.18.255.255 scope global br-ea4c44f4c57e
valid_lft forever preferred_lft forever
inet6 fe80::94f9:78ff:fe74:8265/64 scope link proto kernel_ll
valid_lft forever preferred_lft forever
8: veth829ed70@if2: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue master docker0 state UP group default
link/ether ae:39:5a:d5:c3:4b brd ff:ff:ff:ff:ff:ff link-netnsid 0
inet6 fe80::ac39:5aff:fed5:c34b/64 scope link proto kernel_ll
valid_lft forever preferred_lft forever

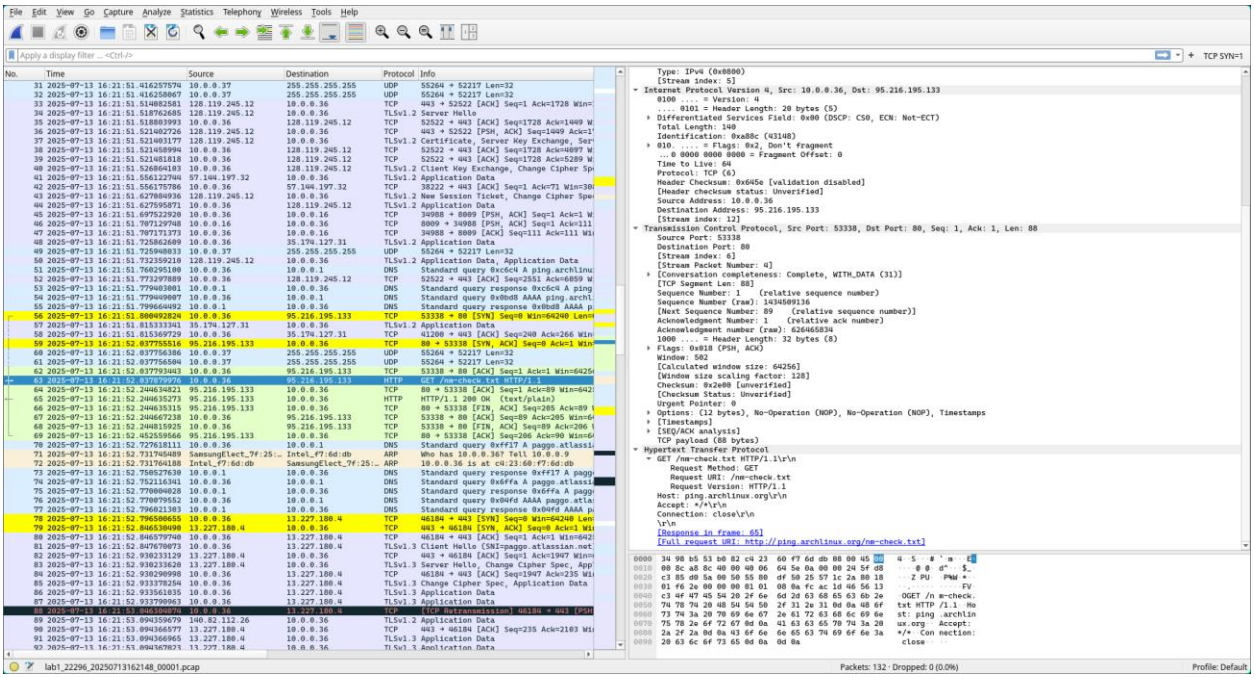
B)


Input
Output
Options
Capture to a permanent file
File: /home/Japo/Documents/Wireshark/lab1_carnet.pcap
Browse...
Output format: pcapng pcap
Create a new file automatically...
after 100000 packets
after 5 megabytes
after 1 seconds
when time is a multiple of 1 hours
compression
None
gzip
File infix pattern
YYYYmmDDHHMMSS_NNNNN
NNNNN_YYYYmmDDHHMMSS
Use a ring buffer with 10 files
Start
Close
Help


File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Apply a display filter ... <Ctrl-/>
TCP SYN=1
No. Time Source Destination Protocol Info
2566 2025-07-13 15:51:32.725990580 10.0.0.36 34.237.73.95 TLSv1.2 Application Data
2567 2025-07-13 15:51:32.768116716 52.108.216.29 10.0.0.36 TLSv1.2 Application Data
2568 2025-07-13 15:51:32.768145068 10.0.0.36 52.108.216.29 TCP 53530 → 443 [ACK] Seq=276 Ack=172 Win=433
2569 2025-07-13 15:51:32.768294063 10.0.0.36 52.108.216.29 TLSv1.2 Application Data
2570 2025-07-13 15:51:32.768921282 10.0.0.36 52.108.216.29 TLSv1.2 Application Data
2571 2025-07-13 15:51:32.838878543 34.237.73.95 10.0.0.36 TLSv1.2 Application Data
2572 2025-07-13 15:51:32.838925640 10.0.0.36 34.237.73.95 TCP 48798 → 443 [ACK] Seq=721 Ack=786 Win=457
2573 2025-07-13 15:51:32.863114334 52.108.216.29 10.0.0.36 TCP 443 → 53530 [ACK] Seq=172 Ack=346 Win=1638
2574 2025-07-13 15:51:32.946379353 10.0.0.36 239.255.255.250 SSDP M-SEARCH * HTTP/1.1
2575 2025-07-13 15:51:33.072407491 10.0.0.9 10.0.0.36 UDP 49549 → 41304 Len=488
2576 2025-07-13 15:51:33.072408485 10.0.0.16 10.0.0.36 UDP 33407 → 41304 Len=492
2577 2025-07-13 15:51:33.760579672 10.0.0.36 10.0.0.1 DNS Standard query 0xbd50 A www.youtube.com
2578 2025-07-13 15:51:33.763829908 10.0.0.16 10.0.0.36 UDP 54066 → 41304 Len=273
2579 2025-07-13 15:51:33.765311075 10.0.0.36 57.144.197.32 TLSv1.2 Application Data
2580 2025-07-13 15:51:33.790882368 10.0.0.1 10.0.0.36 DNS Standard query response 0xbd50 A www.youtu
2581 2025-07-13 15:51:33.790927327 10.0.0.36 10.0.0.1 DNS Standard query 0x2f56 AAAA www.youtube.com
2582 2025-07-13 15:51:33.808630074 10.0.0.1 10.0.0.36 DNS Standard query response 0x2f56 AAAA www.yo
2583 2025-07-13 15:51:33.809219025 10.0.0.36 142.250.189.142 QUIC Protected Payload (KP0), DCID=fab6df5bf328
2584 2025-07-13 15:51:33.843961938 57.144.197.32 10.0.0.36 TCP 443 → 37784 [ACK] Seq=64 Ack=127 Win=481 L
2585 2025-07-13 15:51:33.844107547 142.250.189.142 10.0.0.36 QUIC Protected Payload (KP0)
2586 2025-07-13 15:51:33.865615162 57.144.197.32 10.0.0.36 TLSv1.2 Application Data
2587 2025-07-13 15:51:33.870182298 10.0.0.36 142.250.189.142 QUIC Protected Payload (KP0), DCID=fab6df5bf328
2588 2025-07-13 15:51:33.906276665 10.0.0.36 57.144.197.32 TCP 37784 → 443 [ACK] Seq=127 Ack=135 Win=455
2589 2025-07-13 15:51:33.934426403 142.250.189.142 10.0.0.36 QUIC Protected Payload (KP0)
2590 2025-07-13 15:51:33.946430819 10.0.0.36 239.255.255.250 SSDP M-SEARCH * HTTP/1.1
2591 2025-07-13 15:51:34.223368560 10.0.0.9 10.0.0.36 UDP 43949 → 41304 Len=488
2592 2025-07-13 15:51:34.223376663 10.0.0.16 10.0.0.36 UDP 41245 → 41304 Len=492
2593 2025-07-13 15:51:34.743378458 Sonos_0a:df:74 Broadcast 0x6970 Ethernet II
2594 2025-07-13 15:51:34.744643357 10.0.0.16 10.0.0.36 UDP 54066 → 41304 Len=273
2595 2025-07-13 15:51:35.205661556 10.0.0.36 10.0.0.16 TCP 34988 → 8009 [PSH, ACK] Seq=991 Ack=991 Wi
2596 2025-07-13 15:51:35.220574947 10.0.0.16 10.0.0.36 TCP 8009 → 34988 [PSH, ACK] Seq=991 Ack=1101 W
2597 2025-07-13 15:51:35.220594065 10.0.0.36 10.0.0.16 TCP 34988 → 8009 [ACK] Seq=1101 Ack=1101 Win=4
2598 2025-07-13 15:51:35.786408113 10.0.0.9 10.0.0.255 UDP 53987 → 15600 Len=35
2599 2025-07-13 15:51:36.102186492 SamsungElect_7f:25:… Intel_f7:6d:db ARP Who has 10.0.0.36? Tell 10.0.0.9
2600 2025-07-13 15:51:36.102199898 Intel_f7:6d:db SamsungElect_7f:25:… ARP 10.0.0.36 is at c4:23:60:f7:6d:db
2601 2025-07-13 15:51:36.102220620 13.227.180.4 10.0.0.36 TLSv1.2 Application Data
2602 2025-07-13 15:51:36.102486649 10.0.0.36 13.227.180.4 TLSv1.2 Application Data
2603 2025-07-13 15:51:36.143501623 13.227.180.4 10.0.0.36 TCP 443 → 36778 [ACK] Seq=301 Ack=313 Win=153
2604 2025-07-13 15:51:36.486306326 10.0.0.36 13.227.180.4 TCP [TCP Keep-Alive] 43112 → 443 [ACK] Seq=493
2605 2025-07-13 15:51:36.541818776 13.227.180.4 10.0.0.36 TCP [TCP Keep-Alive ACK] 443 → 43112 [ACK] Seq
2606 2025-07-13 15:51:36.733789153 10.0.0.36 20.42.73.30 TLSv1.2 Application Data
2607 2025-07-13 15:51:36.733829164 10.0.0.36 20.42.73.30 TCP 58618 → 443 [PSH, ACK] Seq=160055 Ack=969
2608 2025-07-13 15:51:36.733837466 10.0.0.36 20.42.73.30 TCP 58618 → 443 [PSH, ACK] Seq=162911 Ack=969
2609 2025-07-13 15:51:36.735983519 10.0.0.36 20.42.73.30 TLSv1.2 Application Data
2610 2025-07-13 15:51:36.826161526 20.42.73.30 10.0.0.36 TCP 443 → 58618 [ACK] Seq=969 Ack=162911 Win=1
2611 2025-07-13 15:51:36.826161871 20.42.73.30 10.0.0.36 TCP 443 → 58618 [ACK] Seq=969 Ack=164339 Win=1
2612 2025-07-13 15:51:36.826161891 20.42.73.30 10.0.0.36 TCP 443 → 58618 [ACK] Seq=969 Ack=166420 Win=1
2613 2025-07-13 15:51:36.833442439 20.42.73.30 10.0.0.36 TLSv1.2 Application Data
2614 2025-07-13 15:51:36.833467055 10.0.0.36 20.42.73.30 TCP 58618 → 443 [ACK] Seq=166420 Ack=1082 Win=
2615 2025-07-13 15:51:36.834399658 10.0.0.36 20.42.73.30 TLSv1.2 Application Data
2616 2025-07-13 15:51:37.042128993 20.42.73.30 10.0.0.36 TCP 443 → 58618 [ACK] Seq=1082 Ack=166455 Win=
2617 2025-07-13 15:51:37.743380858 Sonos_0a:df:74 Broadcast 0x6970 Ethernet II
2618 2025-07-13 15:51:39.551698906 13.227.180.4 10.0.0.36 TLSv1.2 Application Data
2619 2025-07-13 15:51:39.551699442 13.227.180.4 10.0.0.36 TCP [TCP Retransmission] 443 → 39336 [PSH, ACK
2620 2025-07-13 15:51:39.551799275 10.0.0.36 13.227.180.4 TCP 39336 → 443 [ACK] Seq=209 Ack=301 Win=494
2621 2025-07-13 15:51:39.551979563 10.0.0.36 13.227.180.4 TLSv1.2 Application Data
2622 2025-07-13 15:51:39.592639499 13.227.180.4 10.0.0.36 TCP 443 → 39336 [ACK] Seq=301 Ack=313 Win=152
2623 2025-07-13 15:51:40.221617410 10.0.0.36 10.0.0.16 TCP 34988 → 8009 [PSH, ACK] Seq=1101 Ack=1101
2624 2025-07-13 15:51:40.232142857 10.0.0.16 10.0.0.36 TCP 8009 → 34988 [PSH, ACK] Seq=1101 Ack=1211
2625 2025-07-13 15:51:40.232171062 10.0.0.36 10.0.0.16 TCP 34988 → 8009 [ACK] Seq=1211 Ack=1211 Win=4
2626 2025-07-13 15:51:41.741162926 10.0.0.9 10.0.0.255 UDP 47133 → 15600 Len=35
Frame 1: 74 bytes on wire (592 bits), 74 bytes captured (592 bits)
Ethernet II, Src: Sonos_0a:df:74 (94:9f:3e:0a:df:74), Dst: Broadcast (ff:ff:ff:ff:ff:ff)
Data (60 bytes)
0000 ff ff ff ff ff ff 94 9f 3e 0a df 74 69 70 01 0e
0010 58 dd dd dd 94 9f 3e 0a df 74 69 70 01 01 00 5e
0020 63 fd e3 5a 0a 00 00 1e a5 a5 a5 a5 a5 a5 a5 a5
0030 a5 a5 a5 a5 a5 a5 a5 a5 a5 a5 a5 a5 a5 a5 a5 a5
0040 a5 a5 a5 a5 a5 a5 a5 a5 a5 a5
wlp0s20f3: <live capture in progress>
Packets: 2626
Profile: Default


Files
Home
Recent
Starred
Network
Trash
274 GB Volume
537 MB Volume
SHAREDFILES
Home / Documents / Wireshark
Name
Size
Modified
lab1_22296.pcap 0 bytes Today 3:41 PM
lab1_22296_20250713161159_00005.pcap 5.0 MB Today 4:12 PM
lab1_22296_20250713161217_00006.pcap 5.0 MB Today 4:12 PM
lab1_22296_20250713161239_00007.pcap 5.0 MB Today 4:12 PM
lab1_22296_20250713161249_00008.pcap 5.0 MB Today 4:13 PM
lab1_22296_20250713161352_00009.pcap 5.0 MB Today 4:15 PM
lab1_22296_20250713161537_00010.pcap 5.0 MB Today 4:16 PM
lab1_22296_20250713161635_00011.pcap 5.0 MB Today 4:17 PM
lab1_22296_20250713161708_00012.pcap 5.0 MB Today 4:17 PM
lab1_22296_20250713161710_00013.pcap 5.0 MB Today 4:17 PM
lab1_22296_20250713161712_00014.pcap 907.9 kB Today 4:17 PM

Parte 1.3



a) El navegador envío una petición HTTP con versión 1.1
b) El servidor de igual forma respondió con HTTP 1.1
c) El servidor no especifica qué lenguajes acepta
d) Se devolvieron 25 bytes por parte del servidor
e)

En el cliente (p. ej., resolución DNS lenta, bloqueo de antivirus).

En la red intermedia (colas en tu router, pérdidas en un enlace Wi-Fi, congestión del ISP).

En el servidor (procesamiento lento, disco sobrecargado).

Discusión sobre la actividad

Durante la actividad se tuvo la oportunidad de aprender sobre la importancia de la buena codificación de un mensaje y del establecimiento de un protocolo de comunicación para la correcta transmisión de un mensaje entre diferentes ‘nodos’.

En la segunda parte se pudo observar la increible cantidad de paquetes que se transmiten por la red para algo que superficialmente parece tan sencillo y simple, incluso cuando la computadora no está haciendo nada, se están transmitiendo paquetes.

Conclusiones

- El protocolo es un elemento esencial en la comunicación, no solo de redes informáticas, sino también entre personas.
- Hay códigos más robustos que otros los cuales no dan lugar a dudas en el mensaje final.
- El incluir un conmutador en la red permite que no se hagan tantas conexiones para conectar todos los clientes entre sí.