TUGAS 2
Jaringan Komunikasi

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Lakukan Capturing Data menggunakan Wireshark dan Netstat pada saat web browsing dan online streaming lalu analisis hasil tersebut.

Langkah pertama yang harus dilakukan saat capturing data adalah menginstal wireshark lalu buka browser dan pergi ke suatu web yang akan kita coba. Setelah itu jalan kan wireshark kurang lebih selama 2-3 menit. Lakukan hal yang sama dengan menggunakan command prompt. Begitu juga dengan saat online streaming , putar video lalu capturing data tersebut

Data yang di dapat dari hasil percobaan :

Browsing

Source	Destination	Info
IP Addres	IP Addres	
172.20.10.2	103.7.1.190	50648 → 80 [ACK] Seq=2425 Ack=362402 Win=64400 Len=0
172.20.10.2	94.31.29.55	50663 → 443 [RST] Seq=537 Win=0 Len=0
172.20.10.2	103.7.1.190	[TCP Dup ACK 4250#1] 50648 → 80 [ACK] Seq=2425 Ack=350114 Win=64400 Len=0
172.20.10.2	216.58.203.227	Client Hello
172.20.10.2	216.58.203.227	50670 → 443 [ACK] Seq=1 Ack=1 Win=66048 Len=0
172.20.10.2	54.231.114.169	50671 → 80 [SYN] Seq=0 Win=8192 Len=0 MSS=1460 WS=256 SACK_PERM=1

IP Addres Source	172.20.10.2
IP Addres Destination	103.7.1.191
MAC Addres Source	ac:b5:7d:bd:8c:77
MAC Addres Destination	3a:af:61:7c:cf:64

Streaming

Source	Destination	Info
IP Addres	IP Addres	
172.20.10.2	54.230.156.179	[TCP Keep-Alive] 50929 → 443 [ACK] Seq=1 Ack=1 Win=254 Len=1
172.20.10.2	112.215.207.12	51112 → 443 [ACK] Seq=2 Ack=2 Win=1082 Len=0
172.20.10.2	172.20.10.15	Name query NB WPAD<00>
172.20.10.2	172.217.27.14	50944 → 80 [ACK] Seq=1 Ack=1 Win=258 Len=1
74.125.130.156	172.20.10.2	43 → 50993 [ACK] Seq=1 Ack=356 Win=811 Len=0
112.215.207.12	172.20.10.2	443 → 51111 [RST] Seq=2 Win=0 Len=0

IP Addres Source	172.20.10.2
IP Addres Destination	54.169.164.211
MAC Addres Source	ac:b5:7d:bd:8c:77
MAC Addres Destination	3a:af:61:7c:cf:64

Pada saat Browsing

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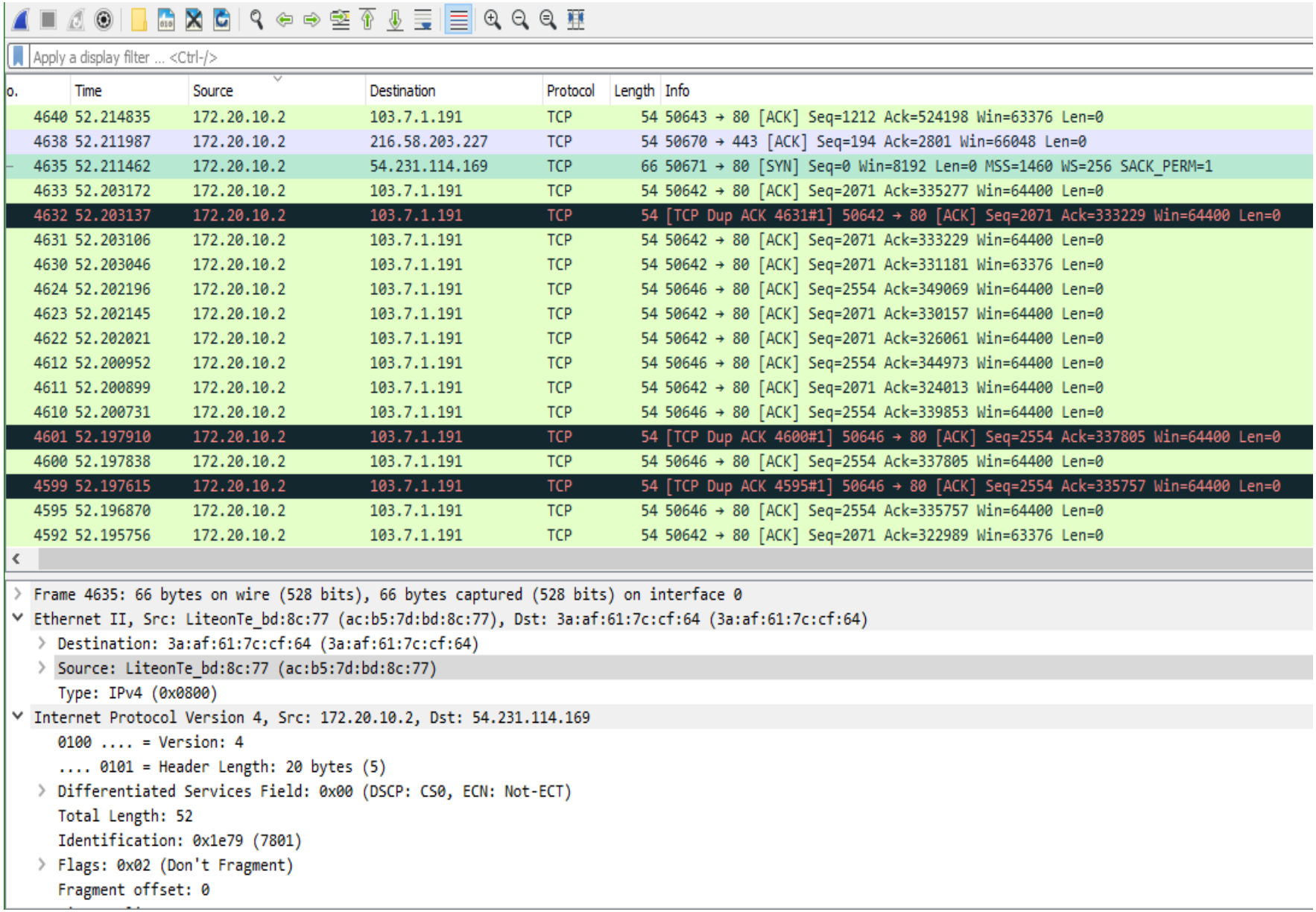
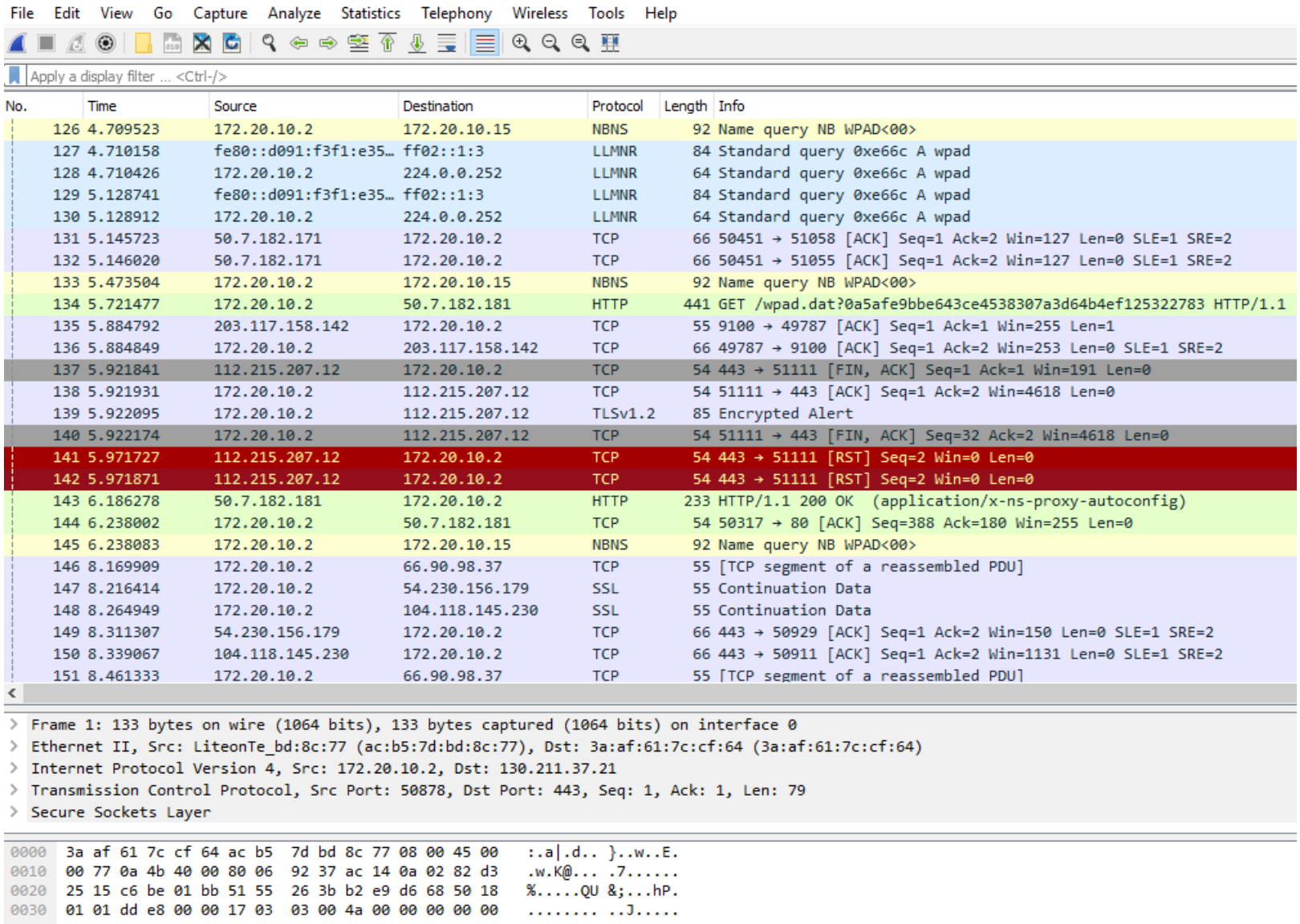
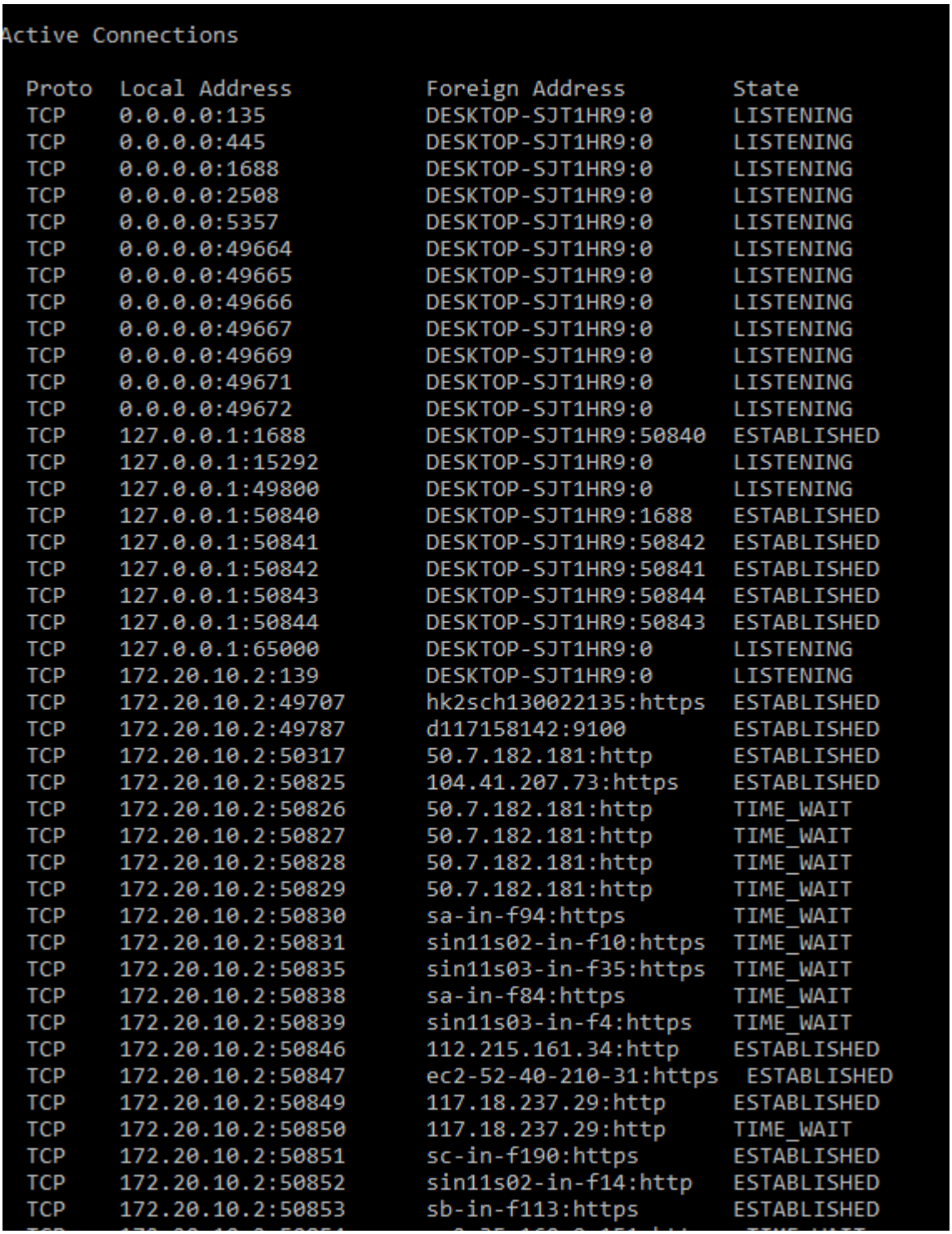
Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    0.0.0.0:135            DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:445            DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:1688           DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:2508           DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:5357           DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:49664          DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:49665          DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:49666          DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:49667          DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:49669          DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:49671          DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:49672          DESKTOP-SJT1HR9:0      LISTENING
  TCP    127.0.0.1:1688         DESKTOP-SJT1HR9:50700  ESTABLISHED
  TCP    127.0.0.1:15292        DESKTOP-SJT1HR9:0      LISTENING
  TCP    127.0.0.1:49800        DESKTOP-SJT1HR9:0      LISTENING
  TCP    127.0.0.1:50576        DESKTOP-SJT1HR9:50577  ESTABLISHED
  TCP    127.0.0.1:50577        DESKTOP-SJT1HR9:50576  ESTABLISHED
  TCP    127.0.0.1:50578        DESKTOP-SJT1HR9:50579  ESTABLISHED
  TCP    127.0.0.1:50579        DESKTOP-SJT1HR9:50578  ESTABLISHED
  TCP    127.0.0.1:50700        DESKTOP-SJT1HR9:1688   ESTABLISHED
  TCP    127.0.0.1:65000        DESKTOP-SJT1HR9:0      LISTENING
  TCP    172.20.10.2:139        DESKTOP-SJT1HR9:0      LISTENING
  TCP    172.20.10.2:49707      hk2sch130022135:https  ESTABLISHED
  TCP    172.20.10.2:49787      d117158142:9100        ESTABLISHED
  TCP    172.20.10.2:50317      50.7.182.181:http      ESTABLISHED
  TCP    172.20.10.2:50581      112.215.161.34:http    ESTABLISHED
  TCP    172.20.10.2:50582      ec2-35-161-157-65:https  ESTABLISHED
  TCP    172.20.10.2:50584      117.18.237.29:http     ESTABLISHED
  TCP    172.20.10.2:50585      117.18.237.29:http     TIME_WAIT
  TCP    172.20.10.2:50589      sin11s01-in-f4:https   ESTABLISHED
  TCP    172.20.10.2:50590      sb-in-f139:http        ESTABLISHED
  TCP    172.20.10.2:50591      sb-in-f94:https        ESTABLISHED
  TCP    172.20.10.2:50592      sin10s07-in-f97:https  ESTABLISHED
  TCP    172.20.10.2:50593      sin11s03-in-f35:https  ESTABLISHED
  TCP    172.20.10.2:50595      sb-in-f139:https       ESTABLISHED
  TCP    172.20.10.2:50596      sa-in-f101:https       ESTABLISHED
  TCP    172.20.10.2:50598      sc-in-f113:https       ESTABLISHED
```


Apply a display filter ... <Ctrl-/>
o. Time Source Destination Protocol Length Info
4640 52.214835 172.20.10.2 103.7.1.191 TCP 54 50643 → 80 [ACK] Seq=1212 Ack=524198 Win=63376 Len=0
4638 52.211987 172.20.10.2 216.58.203.227 TCP 54 50670 → 443 [ACK] Seq=194 Ack=2801 Win=66048 Len=0
4635 52.211462 172.20.10.2 54.231.114.169 TCP 66 50671 → 80 [SYN] Seq=0 Win=8192 Len=0 MSS=1460 WS=256 SACK_PERM=1
4633 52.203172 172.20.10.2 103.7.1.191 TCP 54 50642 → 80 [ACK] Seq=2071 Ack=335277 Win=64400 Len=0
4632 52.203137 172.20.10.2 103.7.1.191 TCP 54 [TCP Dup ACK 4631#1] 50642 → 80 [ACK] Seq=2071 Ack=333229 Win=64400 Len=0
4631 52.203106 172.20.10.2 103.7.1.191 TCP 54 50642 → 80 [ACK] Seq=2071 Ack=333229 Win=64400 Len=0
4630 52.203046 172.20.10.2 103.7.1.191 TCP 54 50642 → 80 [ACK] Seq=2071 Ack=331181 Win=63376 Len=0
4624 52.202196 172.20.10.2 103.7.1.191 TCP 54 50646 → 80 [ACK] Seq=2554 Ack=349069 Win=64400 Len=0
4623 52.202145 172.20.10.2 103.7.1.191 TCP 54 50642 → 80 [ACK] Seq=2071 Ack=330157 Win=64400 Len=0
4622 52.202021 172.20.10.2 103.7.1.191 TCP 54 50642 → 80 [ACK] Seq=2071 Ack=326061 Win=64400 Len=0
4612 52.200952 172.20.10.2 103.7.1.191 TCP 54 50646 → 80 [ACK] Seq=2554 Ack=344973 Win=64400 Len=0
4611 52.200899 172.20.10.2 103.7.1.191 TCP 54 50642 → 80 [ACK] Seq=2071 Ack=324013 Win=64400 Len=0
4610 52.200731 172.20.10.2 103.7.1.191 TCP 54 50646 → 80 [ACK] Seq=2554 Ack=339853 Win=64400 Len=0
4601 52.197910 172.20.10.2 103.7.1.191 TCP 54 [TCP Dup ACK 4600#1] 50646 → 80 [ACK] Seq=2554 Ack=337805 Win=64400 Len=0
4600 52.197838 172.20.10.2 103.7.1.191 TCP 54 50646 → 80 [ACK] Seq=2554 Ack=337805 Win=64400 Len=0
4599 52.197615 172.20.10.2 103.7.1.191 TCP 54 [TCP Dup ACK 4595#1] 50646 → 80 [ACK] Seq=2554 Ack=335757 Win=64400 Len=0
4595 52.196870 172.20.10.2 103.7.1.191 TCP 54 50646 → 80 [ACK] Seq=2554 Ack=335757 Win=64400 Len=0
4592 52.195756 172.20.10.2 103.7.1.191 TCP 54 50642 → 80 [ACK] Seq=2071 Ack=322989 Win=63376 Len=0
Frame 4635: 66 bytes on wire (528 bits), 66 bytes captured (528 bits) on interface 0
Ethernet II, Src: LiteonTe_bd:8c:77 (ac:b5:7d:bd:8c:77), Dst: 3a:af:61:7c:cf:64 (3a:af:61:7c:cf:64)
Destination: 3a:af:61:7c:cf:64 (3a:af:61:7c:cf:64)
Source: LiteonTe_bd:8c:77 (ac:b5:7d:bd:8c:77)
Type: IPv4 (0x0800)
Internet Protocol Version 4, Src: 172.20.10.2, Dst: 54.231.114.169
0100 .... = Version: 4
.... 0101 = Header Length: 20 bytes (5)
Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
Total Length: 52
Identification: 0x1e79 (7801)
Flags: 0x02 (Don't Fragment)
Fragment offset: 0

Pada Saat Streaming





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  TCP    0.0.0.0:1688           DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:2508           DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:5357           DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:49664          DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:49665          DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:49666          DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:49667          DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:49669          DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:49671          DESKTOP-SJT1HR9:0      LISTENING
  TCP    0.0.0.0:49672          DESKTOP-SJT1HR9:0      LISTENING
  TCP    127.0.0.1:1688         DESKTOP-SJT1HR9:50840  ESTABLISHED
  TCP    127.0.0.1:15292        DESKTOP-SJT1HR9:0      LISTENING
  TCP    127.0.0.1:49800        DESKTOP-SJT1HR9:0      LISTENING
  TCP    127.0.0.1:50840        DESKTOP-SJT1HR9:1688   ESTABLISHED
  TCP    127.0.0.1:50841        DESKTOP-SJT1HR9:50842  ESTABLISHED
  TCP    127.0.0.1:50842        DESKTOP-SJT1HR9:50841  ESTABLISHED
  TCP    127.0.0.1:50843        DESKTOP-SJT1HR9:50844  ESTABLISHED
  TCP    127.0.0.1:50844        DESKTOP-SJT1HR9:50843  ESTABLISHED
  TCP    127.0.0.1:65000        DESKTOP-SJT1HR9:0      LISTENING
  TCP    172.20.10.2:139        DESKTOP-SJT1HR9:0      LISTENING
  TCP    172.20.10.2:49707      hk2sch130022135:https  ESTABLISHED
  TCP    172.20.10.2:49787      d117158142:9100        ESTABLISHED
  TCP    172.20.10.2:50317      50.7.182.181:http      ESTABLISHED
  TCP    172.20.10.2:50825      104.41.207.73:https    ESTABLISHED
  TCP    172.20.10.2:50826      50.7.182.181:http      TIME_WAIT
  TCP    172.20.10.2:50827      50.7.182.181:http      TIME_WAIT
  TCP    172.20.10.2:50828      50.7.182.181:http      TIME_WAIT
  TCP    172.20.10.2:50829      50.7.182.181:http      TIME_WAIT
  TCP    172.20.10.2:50830      sa-in-f94:https        TIME_WAIT
  TCP    172.20.10.2:50831      sin11s02-in-f10:https  TIME_WAIT
  TCP    172.20.10.2:50835      sin11s03-in-f35:https  TIME_WAIT
  TCP    172.20.10.2:50838      sa-in-f84:https        TIME_WAIT
  TCP    172.20.10.2:50839      sin11s03-in-f4:https   TIME_WAIT
  TCP    172.20.10.2:50846      112.215.161.34:http    ESTABLISHED
  TCP    172.20.10.2:50847      ec2-52-40-210-31:https  ESTABLISHED
  TCP    172.20.10.2:50849      117.18.237.29:http     ESTABLISHED
  TCP    172.20.10.2:50850      117.18.237.29:http     TIME_WAIT
  TCP    172.20.10.2:50851      sc-in-f190:https       ESTABLISHED
  TCP    172.20.10.2:50852      sin11s02-in-f14:http   ESTABLISHED
  TCP    172.20.10.2:50853      sb-in-f113:https       ESTABLISHED
```

Dari screenshot diatas kita ketahui bahwa data di wireshark lebih complete dan lebih rumit. Sedangkan pada netstat hanya menampilkan tujuan atau rute yang dilalui oleh data tersebut. dan kita tidak tau apa proses yang terjadi dan hubungan seperti apa , tapi dalam wireshark semua data bisa di dapatkan dengan sangat jelas dan rinci.