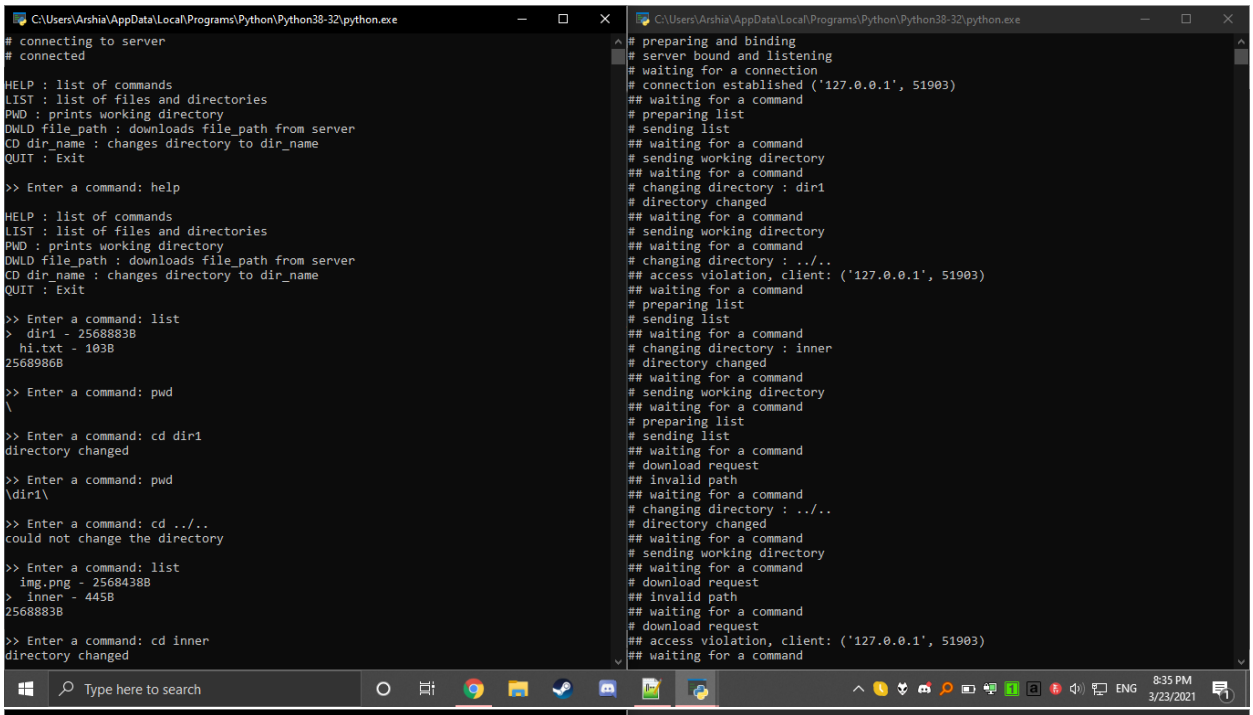
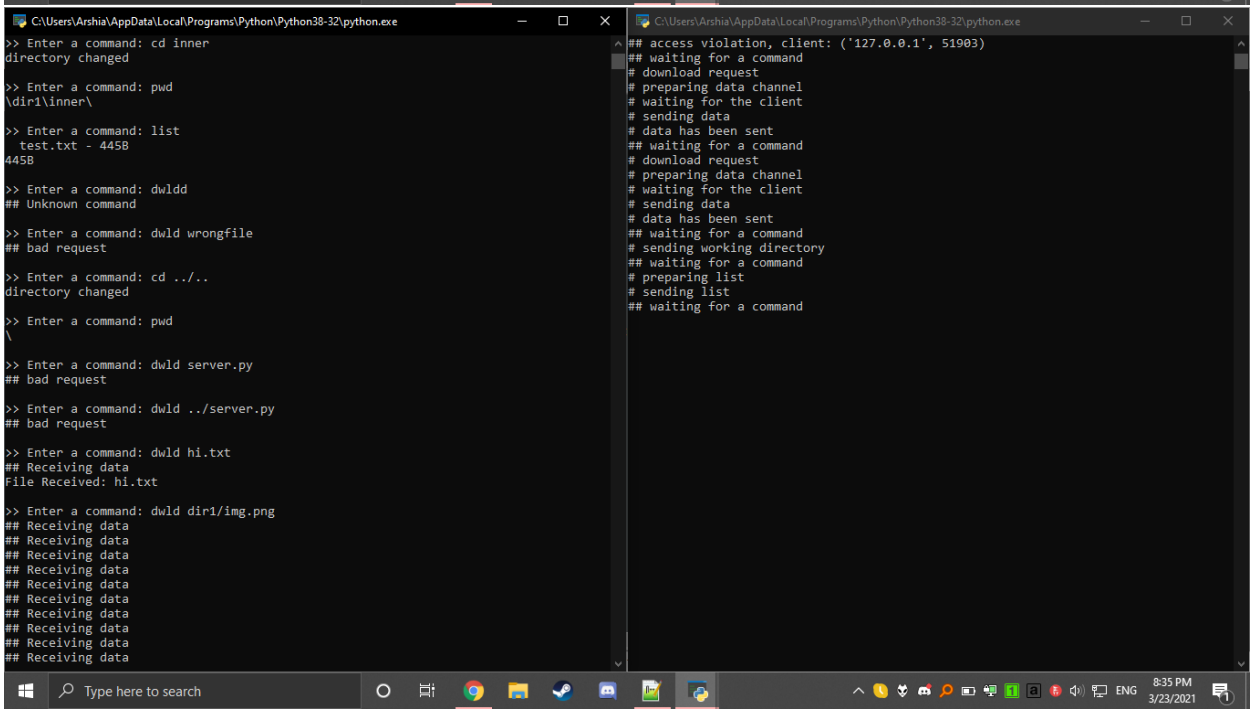
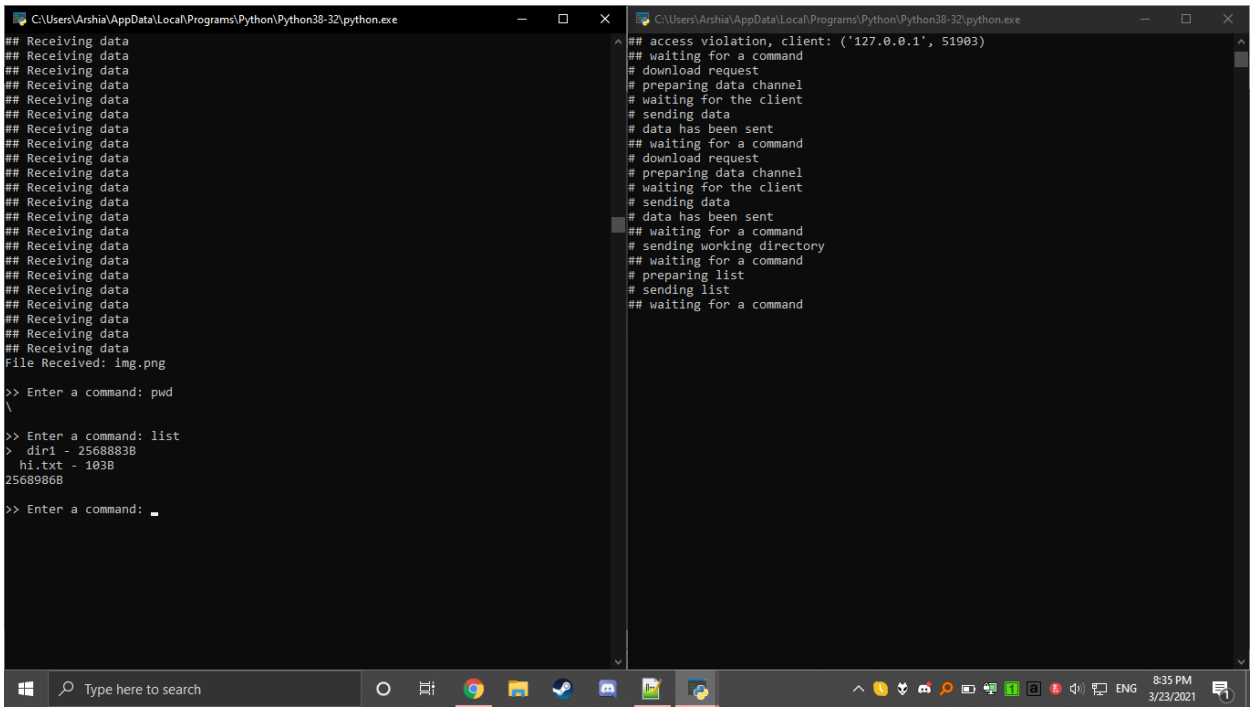
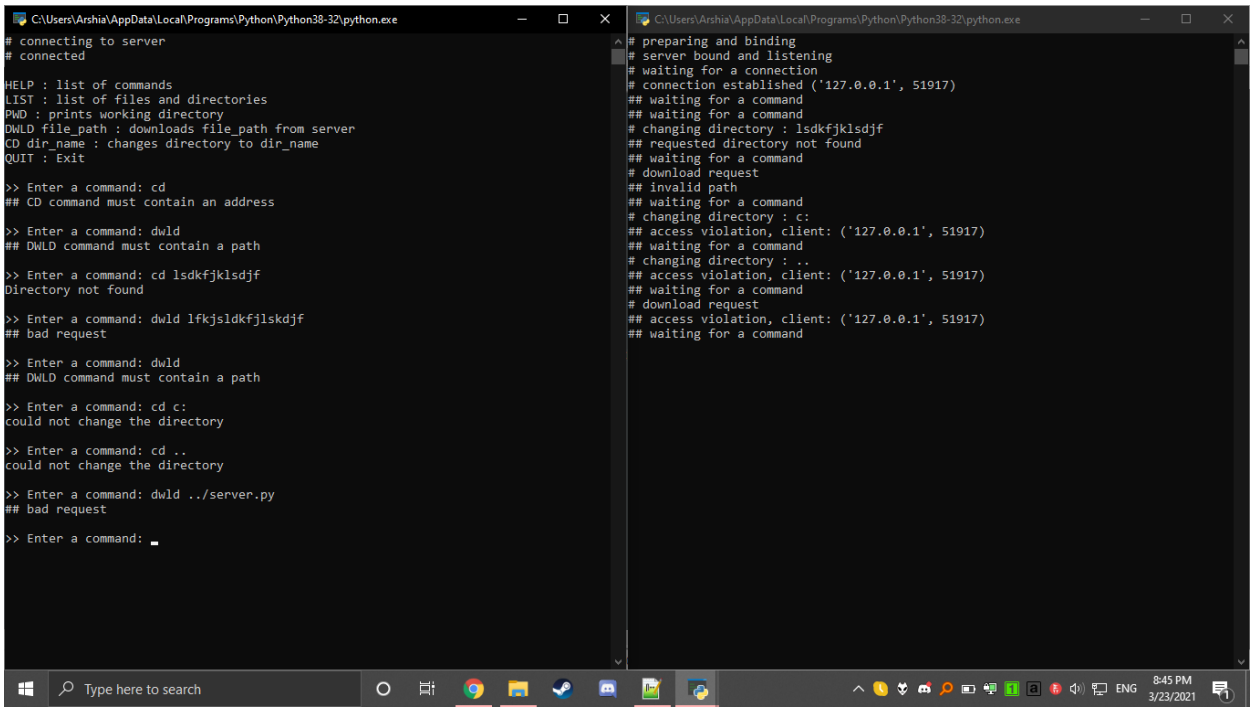
دلیل اینکه سرور پورت رندم را انتخاب و برای کلاینت ارسال میکند (به این حالت Passive mode گویند) این است که معمولا کلاینت ها پشت یک Firewall یا NAT قرار دارند، و به همین علت تعداد معدودی از پورت ها برای دسترسی هاست خارجی به کلاینت باز هستند و احتمال اینکه در Active mode پورت رندم انتخاب شده توسط کلاینت توسط فایروال بلاک باشد زیاد است و سرور نتواند کانال دیتا را متصل و فایل ارسال کند.

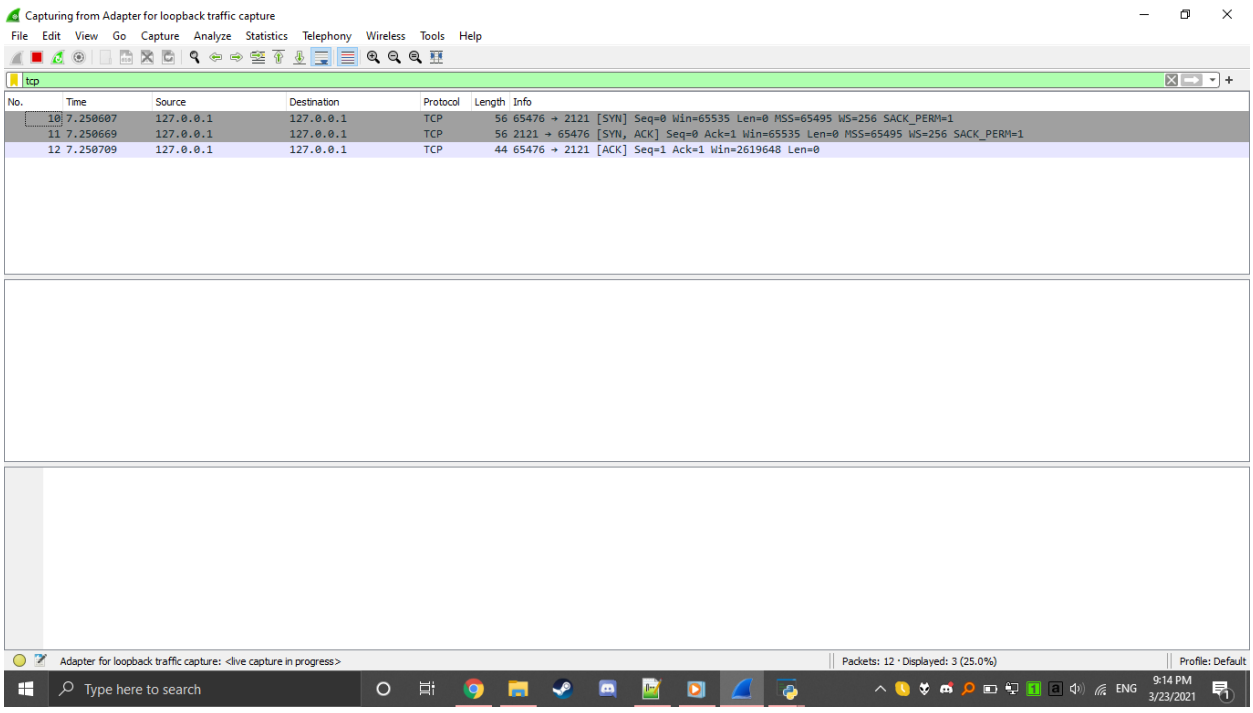

C:\Users\Arshia\AppData\Local\Programs\Python\Python38-32\python.exe
connecting to server
connected
HELP : list of commands
LIST : list of files and directories
PWD : prints working directory
DWLD file_path : downloads file_path from server
CD dir_name : changes directory to dir_name
QUIT : Exit
>> Enter a command: help
HELP : list of commands
LIST : list of files and directories
PWD : prints working directory
DWLD file_path : downloads file_path from server
CD dir_name : changes directory to dir_name
QUIT : Exit
>> Enter a command: list
> dir1 - 2568883B
hi.txt - 103B
2568986B
>> Enter a command: pwd
\
>> Enter a command: cd dir1
directory changed
>> Enter a command: pwd
\dir1\
>> Enter a command: cd ../..
could not change the directory
>> Enter a command: list
img.png - 2568438B
> inner - 445B
2568883B
>> Enter a command: cd inner
directory changed
C:\Users\Arshia\AppData\Local\Programs\Python\Python38-32\python.exe
preparing and binding
server bound and listening
waiting for a connection
connection established ('127.0.0.1', 51903)
waiting for a command
preparing list
sending list
waiting for a command
sending working directory
waiting for a command
changing directory : dir1
directory changed
waiting for a command
sending working directory
waiting for a command
changing directory : ../..
access violation, client: ('127.0.0.1', 51903)
waiting for a command
preparing list
sending list
waiting for a command
changing directory : inner
directory changed
waiting for a command
sending working directory
waiting for a command
preparing list
sending list
waiting for a command
download request
invalid path
waiting for a command
changing directory : ../..
directory changed
waiting for a command
sending working directory
waiting for a command
download request
invalid path
waiting for a command
download request
access violation, client: ('127.0.0.1', 51903)
waiting for a command
Type here to search
ENG
8:35 PM
3/23/2021

C:\Users\Arshia\AppData\Local\Programs\Python\Python38-32\python.exe
>> Enter a command: cd inner
directory changed
>> Enter a command: pwd
\dir1\inner\
>> Enter a command: list
test.txt - 445B
445B
>> Enter a command: dwldd
Unknown command
>> Enter a command: dwld wrongfile
bad request
>> Enter a command: cd ../..
directory changed
>> Enter a command: pwd
\
>> Enter a command: dwld server.py
bad request
>> Enter a command: dwld ../server.py
bad request
>> Enter a command: dwld hi.txt
Receiving data
File Received: hi.txt
>> Enter a command: dwld dir1/img.png
Receiving data
Receiving data
Receiving data
Receiving data
Receiving data
Receiving data
Receiving data
Receiving data
Receiving data
Receiving data
C:\Users\Arshia\AppData\Local\Programs\Python\Python38-32\python.exe
access violation, client: ('127.0.0.1', 51903)
waiting for a command
download request
preparing data channel
waiting for the client
sending data
data has been sent
waiting for a command
download request
preparing data channel
waiting for the client
sending data
data has been sent
waiting for a command
sending working directory
waiting for a command
preparing list
sending list
waiting for a command
Type here to search
ENG
8:35 PM
3/23/2021


C:\Users\Arshia\AppData\Local\Programs\Python\Python38-32\python.exe
Receiving data
File Received: img.png
>> Enter a command: pwd
\
>> Enter a command: list
> dir1 - 2568883B
hi.txt - 103B
2568986B
>> Enter a command:
C:\Users\Arshia\AppData\Local\Programs\Python\Python38-32\python.exe
access violation, client: ('127.0.0.1', 51903)
waiting for a command
download request
preparing data channel
waiting for the client
sending data
data has been sent
waiting for a command
sending working directory
preparing list
sending list
Type here to search
ENG
8:35 PM
3/23/2021

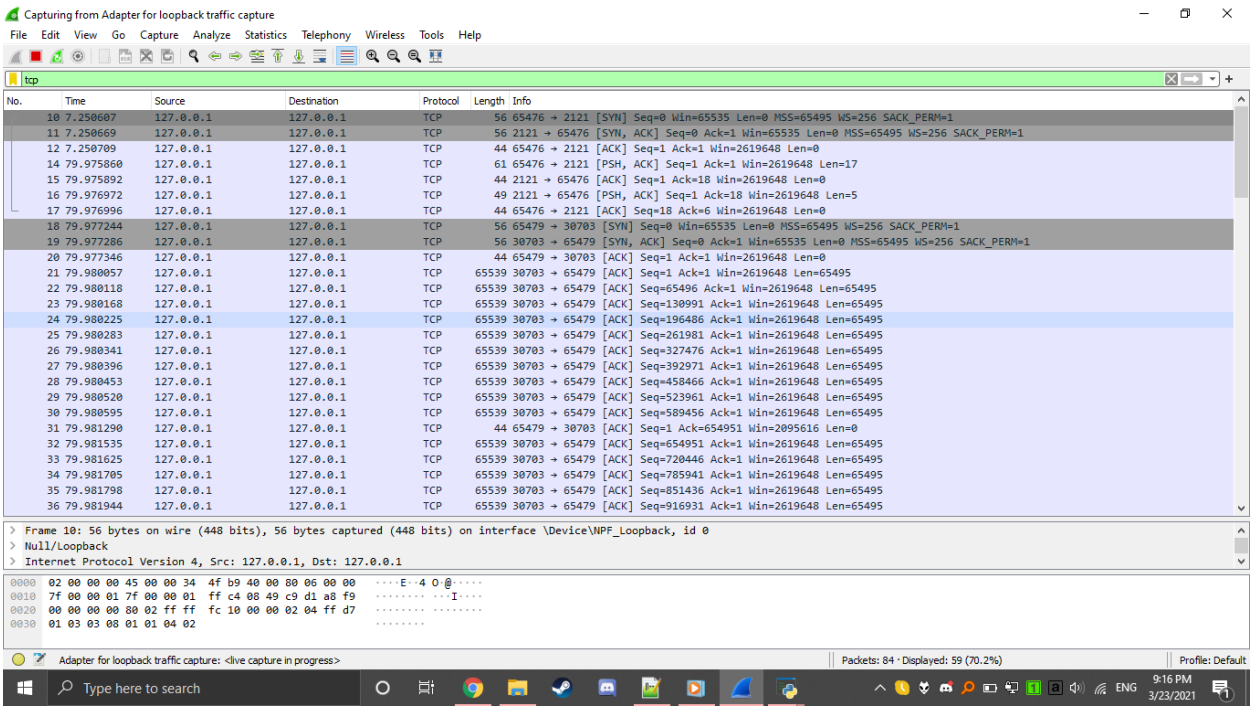
بخش امتیازی

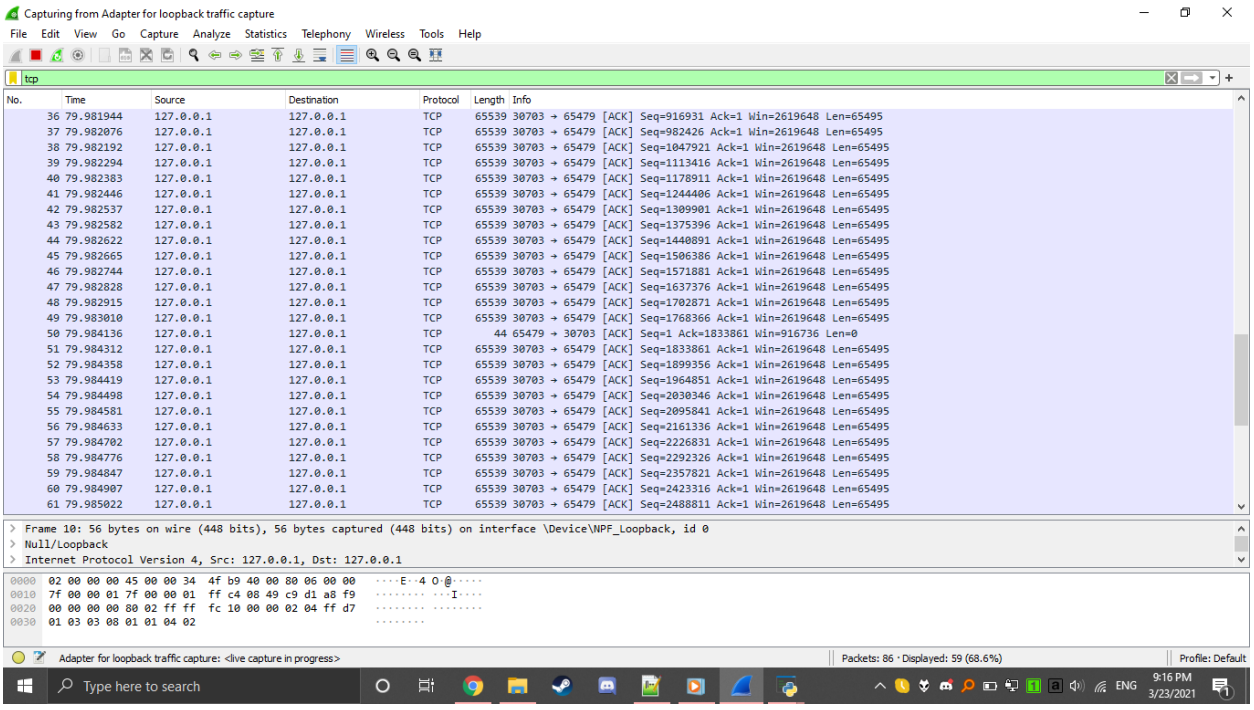

C:\Users\Arshia\AppData\Local\Programs\Python\Python38-32\python.exe
connecting to server
connected
HELP : list of commands
LIST : list of files and directories
PWD : prints working directory
DWLD file_path : downloads file_path from server
CD dir_name : changes directory to dir_name
QUIT : Exit
>> Enter a command: cd
CD command must contain an address
>> Enter a command: dwld
DWLD command must contain a path
>> Enter a command: cd lsdkfjklsdjf
Directory not found
>> Enter a command: dwld lfkjsldkfjlskdjf
bad request
>> Enter a command: dwld
DWLD command must contain a path
>> Enter a command: cd c:
could not change the directory
>> Enter a command: cd ..
could not change the directory
>> Enter a command: dwld ../server.py
bad request
>> Enter a command:
C:\Users\Arshia\AppData\Local\Programs\Python\Python38-32\python.exe
preparing and binding
server bound and listening
waiting for a connection
connection established ('127.0.0.1', 51917)
waiting for a command
changing directory : lsdkfjklsdjf
requested directory not found
download request
invalid path
changing directory : c:
access violation, client: ('127.0.0.1', 51917)
changing directory : ..
access violation, client: ('127.0.0.1', 51917)
access violation, client: ('127.0.0.1', 51917)
Type here to search
ENG
8:45 PM
3/23/2021

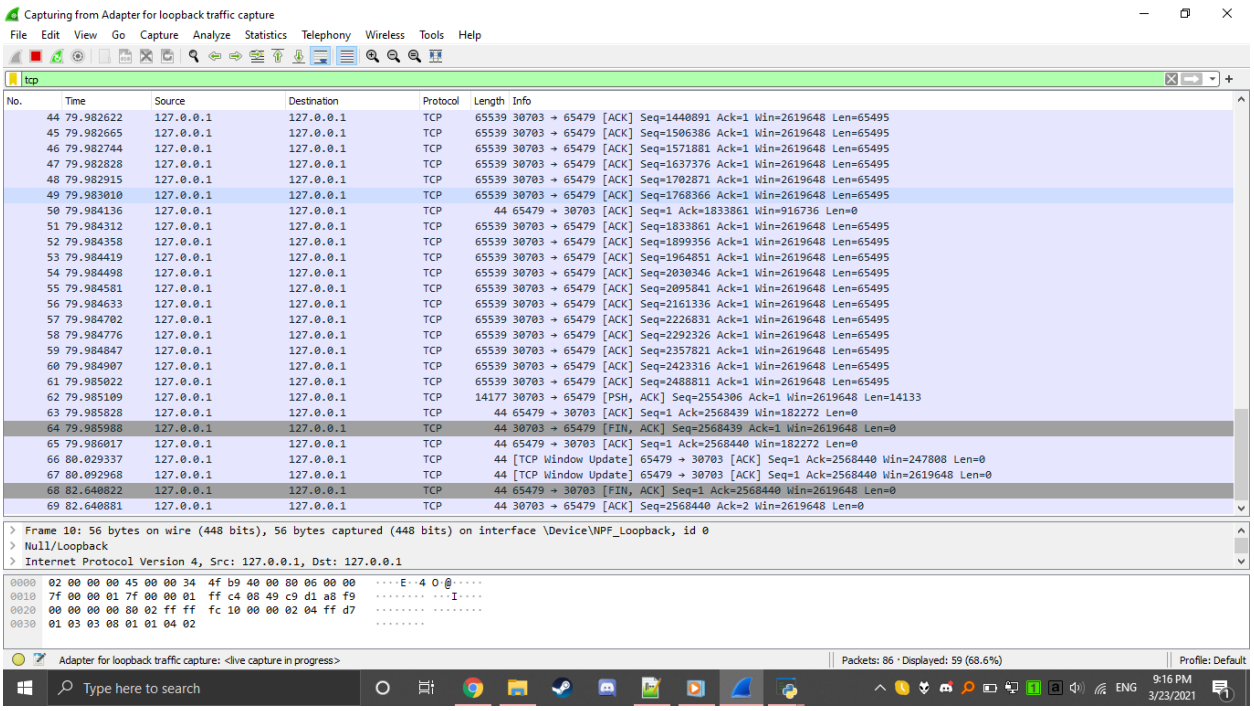
بخش وایرشارک



محدودیت سایز بسته ها در TCP در حدود ۶۵۵۳۶ بایت است، TCP دیتا را به بسته های مختلف تقسیم میکند و آن هارا ارسال میکند


Capturing from Adapter for loopback traffic capture
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
tcp
No. Time Source Destination Protocol Length Info
10 7.250607 127.0.0.1 127.0.0.1 TCP 56 65476 → 2121 [SYN] Seq=0 Win=65535 Len=0 MSS=65495 WS=256 SACK_PERM=1
11 7.250669 127.0.0.1 127.0.0.1 TCP 56 2121 → 65476 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=65495 WS=256 SACK_PERM=1
12 7.250709 127.0.0.1 127.0.0.1 TCP 44 65476 → 2121 [ACK] Seq=1 Ack=1 Win=2619648 Len=0
14 79.975860 127.0.0.1 127.0.0.1 TCP 61 65476 → 2121 [PSH, ACK] Seq=1 Ack=1 Win=2619648 Len=17
15 79.975892 127.0.0.1 127.0.0.1 TCP 44 2121 → 65476 [ACK] Seq=1 Ack=18 Win=2619648 Len=0
16 79.976972 127.0.0.1 127.0.0.1 TCP 49 2121 → 65476 [PSH, ACK] Seq=1 Ack=18 Win=2619648 Len=5
17 79.976996 127.0.0.1 127.0.0.1 TCP 44 65476 → 2121 [ACK] Seq=18 Ack=6 Win=2619648 Len=0
18 79.977244 127.0.0.1 127.0.0.1 TCP 56 65479 → 30703 [SYN] Seq=0 Win=65535 Len=0 MSS=65495 WS=256 SACK_PERM=1
19 79.977286 127.0.0.1 127.0.0.1 TCP 56 30703 → 65479 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=65495 WS=256 SACK_PERM=1
20 79.977346 127.0.0.1 127.0.0.1 TCP 44 65479 → 30703 [ACK] Seq=1 Ack=1 Win=2619648 Len=0
21 79.980057 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1 Ack=1 Win=2619648 Len=65495
22 79.980118 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=65496 Ack=1 Win=2619648 Len=65495
23 79.980168 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=130991 Ack=1 Win=2619648 Len=65495
24 79.980225 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=196486 Ack=1 Win=2619648 Len=65495
25 79.980283 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=261981 Ack=1 Win=2619648 Len=65495
26 79.980341 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=327476 Ack=1 Win=2619648 Len=65495
27 79.980396 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=392971 Ack=1 Win=2619648 Len=65495
28 79.980453 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=458466 Ack=1 Win=2619648 Len=65495
29 79.980520 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=523961 Ack=1 Win=2619648 Len=65495
30 79.980595 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=589456 Ack=1 Win=2619648 Len=65495
31 79.981290 127.0.0.1 127.0.0.1 TCP 44 65479 → 30703 [ACK] Seq=1 Ack=654951 Win=2095616 Len=0
32 79.981535 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=654951 Ack=1 Win=2619648 Len=65495
33 79.981625 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=720446 Ack=1 Win=2619648 Len=65495
34 79.981705 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=785941 Ack=1 Win=2619648 Len=65495
35 79.981798 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=851436 Ack=1 Win=2619648 Len=65495
36 79.981944 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=916931 Ack=1 Win=2619648 Len=65495
Frame 10: 56 bytes on wire (448 bits), 56 bytes captured (448 bits) on interface \Device\NPF_Loopback, id 0
Null/Loopback
Internet Protocol Version 4, Src: 127.0.0.1, Dst: 127.0.0.1
0000 02 00 00 00 45 00 00 34 4f b9 40 00 80 06 00 00
0010 7f 00 00 01 7f 00 00 01 ff c4 08 49 c9 d1 a8 f9
0020 00 00 00 00 80 02 ff ff fc 10 00 00 02 04 ff d7
0030 01 03 03 08 01 01 04 02
Adapter for loopback traffic capture: <live capture in progress>
Packets: 84 · Displayed: 59 (70.2%)
Profile: Default
Type here to search
ENG
9:16 PM
3/23/2021


Capturing from Adapter for loopback traffic capture
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
tcp
No. Time Source Destination Protocol Length Info
36 79.981944 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=916931 Ack=1 Win=2619648 Len=65495
37 79.982076 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=982426 Ack=1 Win=2619648 Len=65495
38 79.982192 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1047921 Ack=1 Win=2619648 Len=65495
39 79.982294 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1113416 Ack=1 Win=2619648 Len=65495
40 79.982383 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1178911 Ack=1 Win=2619648 Len=65495
41 79.982446 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1244406 Ack=1 Win=2619648 Len=65495
42 79.982537 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1309901 Ack=1 Win=2619648 Len=65495
43 79.982582 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1375396 Ack=1 Win=2619648 Len=65495
44 79.982622 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1440891 Ack=1 Win=2619648 Len=65495
45 79.982665 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1506386 Ack=1 Win=2619648 Len=65495
46 79.982744 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1571881 Ack=1 Win=2619648 Len=65495
47 79.982828 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1637376 Ack=1 Win=2619648 Len=65495
48 79.982915 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1702871 Ack=1 Win=2619648 Len=65495
49 79.983010 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1768366 Ack=1 Win=2619648 Len=65495
50 79.984136 127.0.0.1 127.0.0.1 TCP 44 65479 → 30703 [ACK] Seq=1 Ack=1833861 Win=916736 Len=0
51 79.984312 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1833861 Ack=1 Win=2619648 Len=65495
52 79.984358 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1899356 Ack=1 Win=2619648 Len=65495
53 79.984419 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1964851 Ack=1 Win=2619648 Len=65495
54 79.984498 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=2030346 Ack=1 Win=2619648 Len=65495
55 79.984581 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=2095841 Ack=1 Win=2619648 Len=65495
56 79.984633 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=2161336 Ack=1 Win=2619648 Len=65495
57 79.984702 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=2226831 Ack=1 Win=2619648 Len=65495
58 79.984776 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=2292326 Ack=1 Win=2619648 Len=65495
59 79.984847 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=2357821 Ack=1 Win=2619648 Len=65495
60 79.984907 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=2423316 Ack=1 Win=2619648 Len=65495
61 79.985022 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=2488811 Ack=1 Win=2619648 Len=65495
Frame 10: 56 bytes on wire (448 bits), 56 bytes captured (448 bits) on interface \Device\NPF_Loopback, id 0
Null/Loopback
Internet Protocol Version 4, Src: 127.0.0.1, Dst: 127.0.0.1
0000 02 00 00 00 45 00 00 34 4f b9 40 00 80 06 00 00
0010 7f 00 00 01 7f 00 00 01 ff c4 08 49 c9 d1 a8 f9
0020 00 00 00 00 80 02 ff ff fc 10 00 00 02 04 ff d7
0030 01 03 03 08 01 01 04 02
Adapter for loopback traffic capture: <live capture in progress>
Packets: 86 · Displayed: 59 (68.6%)
Profile: Default
Type here to search
ENG
9:16 PM
3/23/2021


Capturing from Adapter for loopback traffic capture
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
tcp
No. Time Source Destination Protocol Length Info
44 79.982622 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1440891 Ack=1 Win=2619648 Len=65495
45 79.982665 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1506386 Ack=1 Win=2619648 Len=65495
46 79.982744 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1571881 Ack=1 Win=2619648 Len=65495
47 79.982828 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1637376 Ack=1 Win=2619648 Len=65495
48 79.982915 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1702871 Ack=1 Win=2619648 Len=65495
49 79.983010 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1768366 Ack=1 Win=2619648 Len=65495
50 79.984136 127.0.0.1 127.0.0.1 TCP 44 65479 → 30703 [ACK] Seq=1 Ack=1833861 Win=916736 Len=0
51 79.984312 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1833861 Ack=1 Win=2619648 Len=65495
52 79.984358 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1899356 Ack=1 Win=2619648 Len=65495
53 79.984419 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=1964851 Ack=1 Win=2619648 Len=65495
54 79.984498 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=2030346 Ack=1 Win=2619648 Len=65495
55 79.984581 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=2095841 Ack=1 Win=2619648 Len=65495
56 79.984633 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=2161336 Ack=1 Win=2619648 Len=65495
57 79.984702 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=2226831 Ack=1 Win=2619648 Len=65495
58 79.984776 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=2292326 Ack=1 Win=2619648 Len=65495
59 79.984847 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=2357821 Ack=1 Win=2619648 Len=65495
60 79.984907 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=2423316 Ack=1 Win=2619648 Len=65495
61 79.985022 127.0.0.1 127.0.0.1 TCP 65539 30703 → 65479 [ACK] Seq=2488811 Ack=1 Win=2619648 Len=65495
62 79.985109 127.0.0.1 127.0.0.1 TCP 14177 30703 → 65479 [PSH, ACK] Seq=2554306 Ack=1 Win=2619648 Len=14133
63 79.985828 127.0.0.1 127.0.0.1 TCP 44 65479 → 30703 [ACK] Seq=1 Ack=2568439 Win=182272 Len=0
64 79.985988 127.0.0.1 127.0.0.1 TCP 44 30703 → 65479 [FIN, ACK] Seq=2568439 Ack=1 Win=2619648 Len=0
65 79.986017 127.0.0.1 127.0.0.1 TCP 44 65479 → 30703 [ACK] Seq=1 Ack=2568440 Win=182272 Len=0
66 80.029337 127.0.0.1 127.0.0.1 TCP 44 [TCP Window Update] 65479 → 30703 [ACK] Seq=1 Ack=2568440 Win=247808 Len=0
67 80.092968 127.0.0.1 127.0.0.1 TCP 44 [TCP Window Update] 65479 → 30703 [ACK] Seq=1 Ack=2568440 Win=2619648 Len=0
68 82.640822 127.0.0.1 127.0.0.1 TCP 44 65479 → 30703 [FIN, ACK] Seq=1 Ack=2568440 Win=2619648 Len=0
69 82.640881 127.0.0.1 127.0.0.1 TCP 44 30703 → 65479 [ACK] Seq=2568440 Ack=2 Win=2619648 Len=0
Frame 10: 56 bytes on wire (448 bits), 56 bytes captured (448 bits) on interface \Device\NPF_Loopback, id 0
Null/Loopback
Internet Protocol Version 4, Src: 127.0.0.1, Dst: 127.0.0.1
0000 02 00 00 00 45 00 00 34 4f b9 40 00 80 06 00 00
0010 7f 00 00 01 7f 00 00 01 ff c4 08 49 c9 d1 a8 f9
0020 00 00 00 00 80 02 ff ff fc 10 00 00 02 04 ff d7
0030 01 03 03 08 01 01 04 02
Adapter for loopback traffic capture: <live capture in progress>
Packets: 86 · Displayed: 59 (68.6%)
Profile: Default
Type here to search
ENG
9:16 PM
3/23/2021