# Thực hành Tìm hiểu FTP Active và Passive mode

## - Nhóm 9 –

**Thành viên:**

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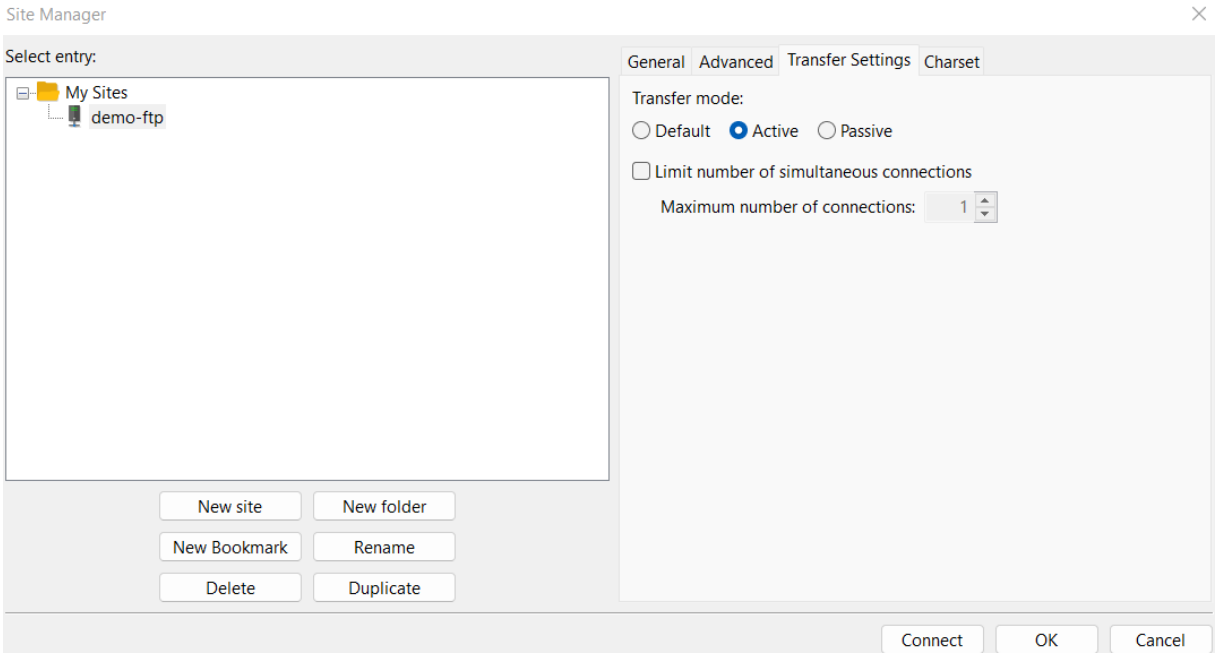
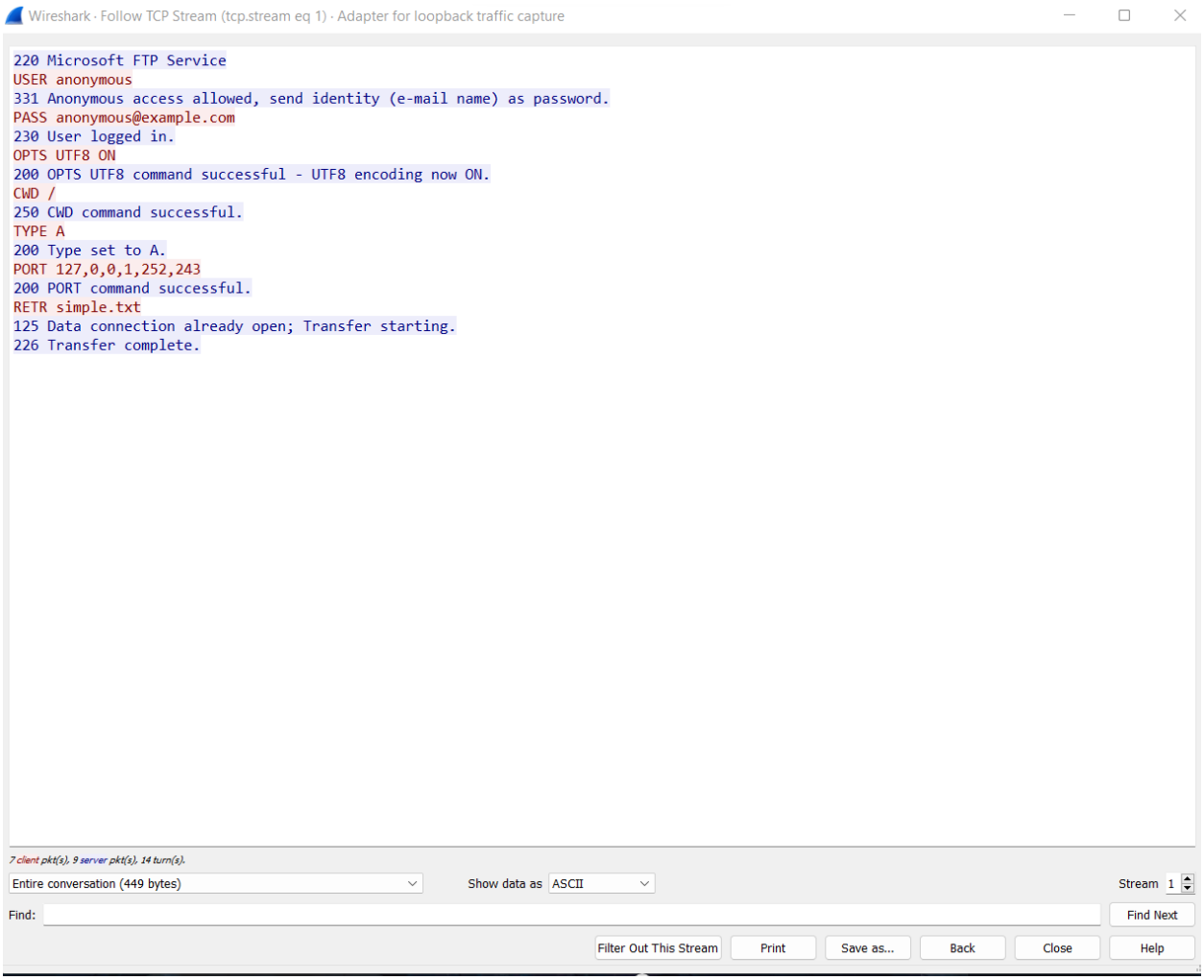
### 1. FTP Server Active Mode

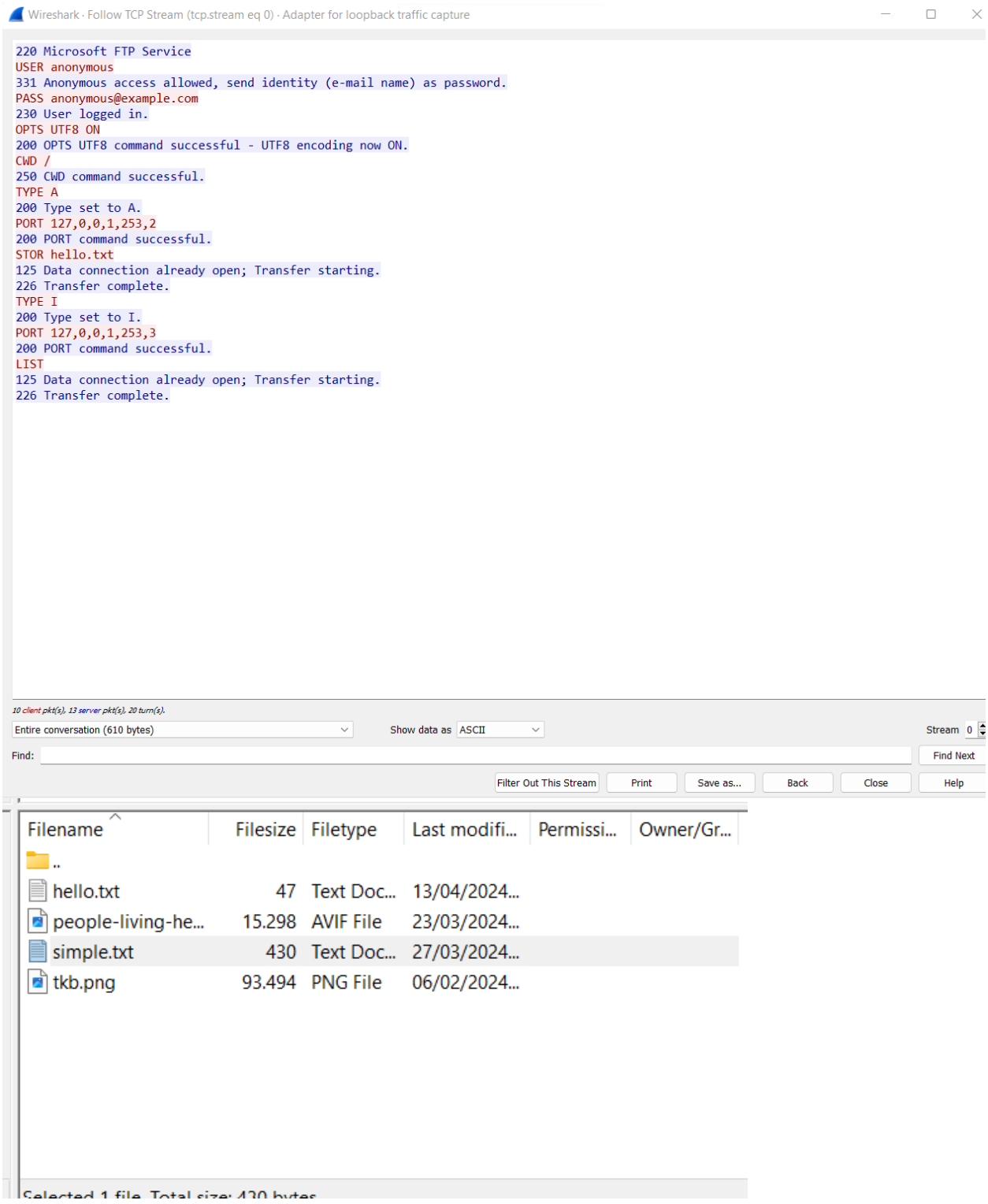
- Chuyển transfer sang chế độ passive:




- Download file simple.txt từ server về:

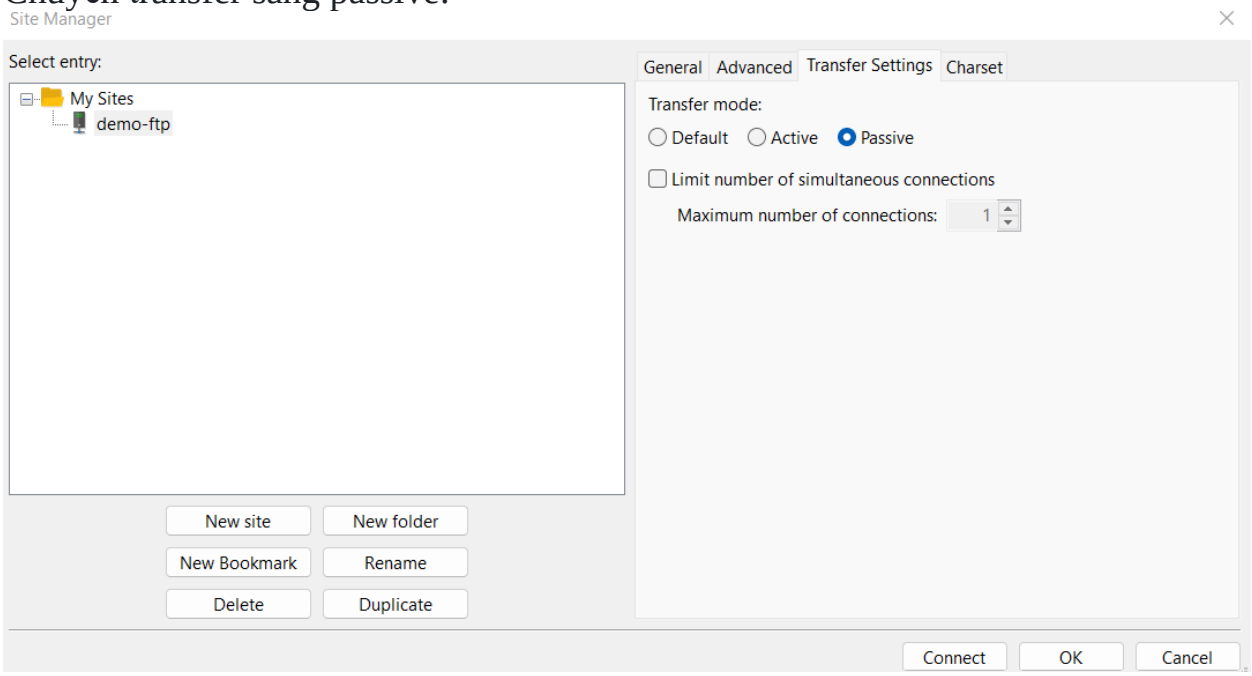



- Upload file hello.txt lên server:

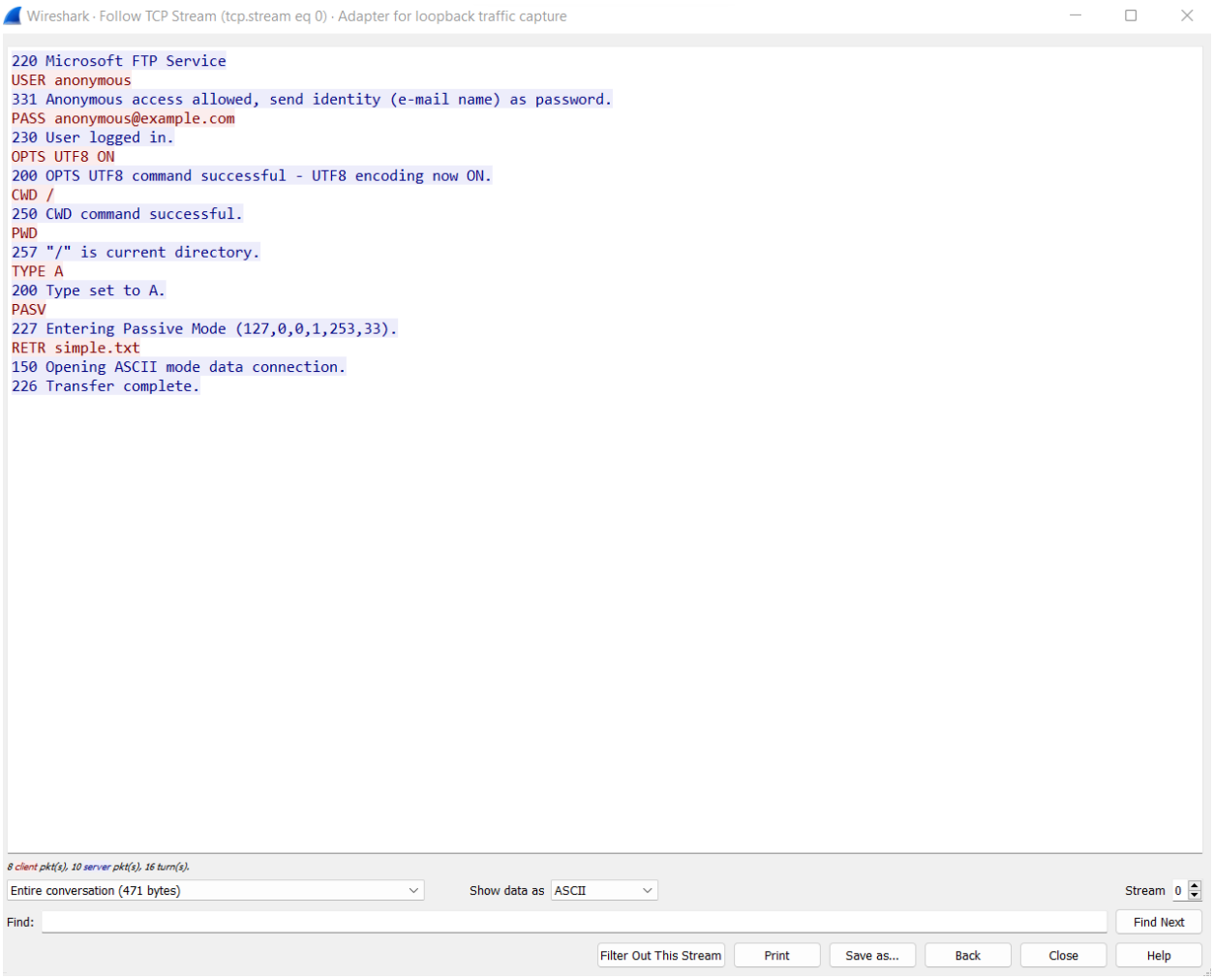

Wireshark · Follow TCP Stream (tcp.stream eq 0) · Adapter for loopback traffic capture
220 Microsoft FTP Service
USER anonymous
331 Anonymous access allowed, send identity (e-mail name) as password.
PASS anonymous@example.com
230 User logged in.
OPTS UTF8 ON
200 OPTS UTF8 command successful - UTF8 encoding now ON.
CWD /
250 CWD command successful.
TYPE A
200 Type set to A.
PORT 127,0,0,1,253,2
200 PORT command successful.
STOR hello.txt
125 Data connection already open; Transfer starting.
226 Transfer complete.
TYPE I
200 Type set to I.
PORT 127,0,0,1,253,3
200 PORT command successful.
LIST
125 Data connection already open; Transfer starting.
226 Transfer complete.
10 client pkt(s), 13 server pkt(s), 20 turn(s).
Entire conversation (610 bytes)
Show data as ASCII
Stream 0
Find:
Find Next
Filter Out This Stream
Print
Save as...
Back
Close
Help
Filename
Filesize
Filetype
Last modifi...
Permissi...
Owner/Gr...
..
hello.txt 47 Text Doc... 13/04/2024...
people-living-he... 15.298 AVIF File 23/03/2024...
simple.txt 430 Text Doc... 27/03/2024...
tkb.png 93.494 PNG File 06/02/2024...
Selected 1 file. Total size: 420 bytes

## 2. FTP Server Passive Mode

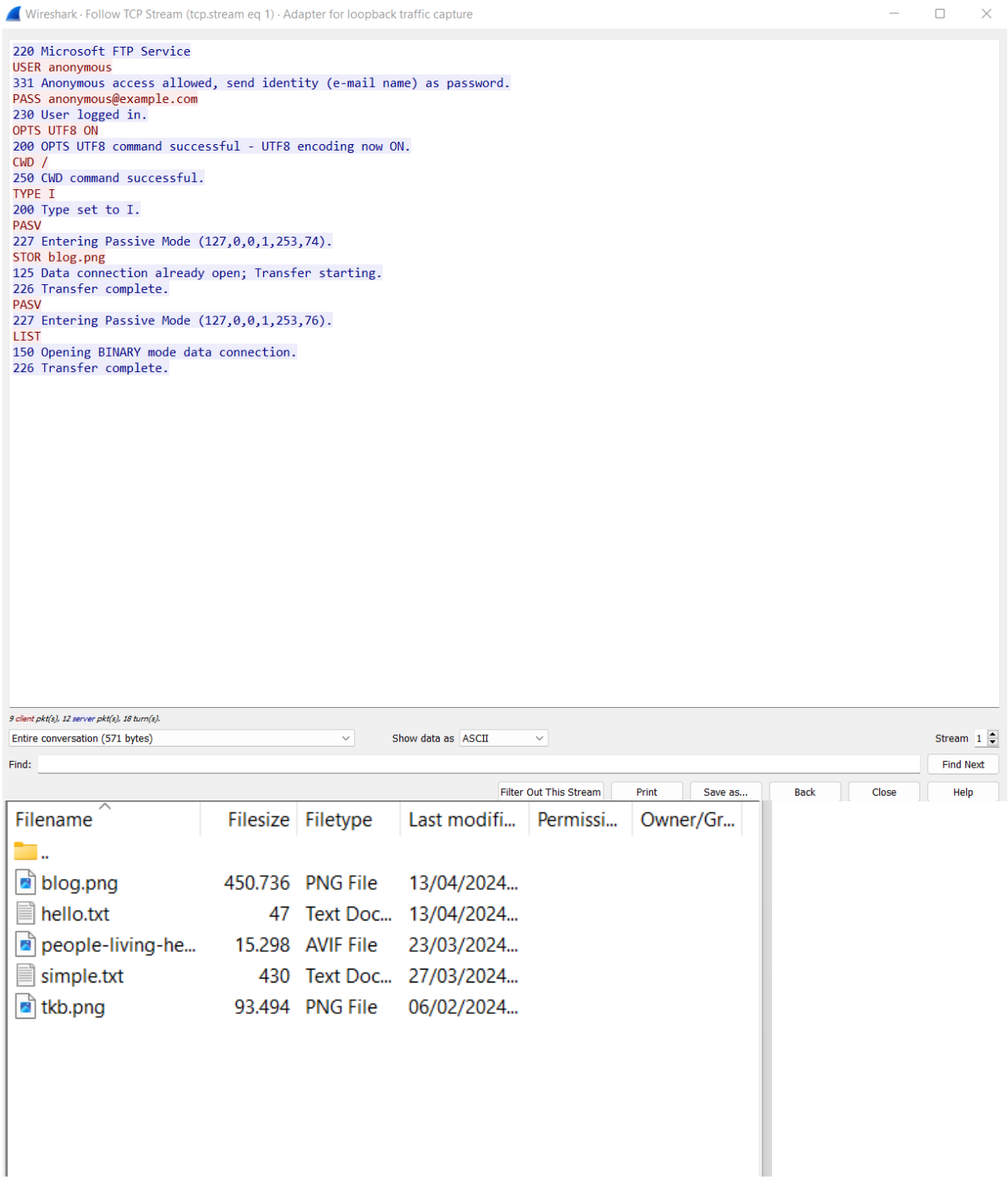
- Chuyển transfer sang passive:




- Download file simple.txt về:




- Upload file blog.png lên server:



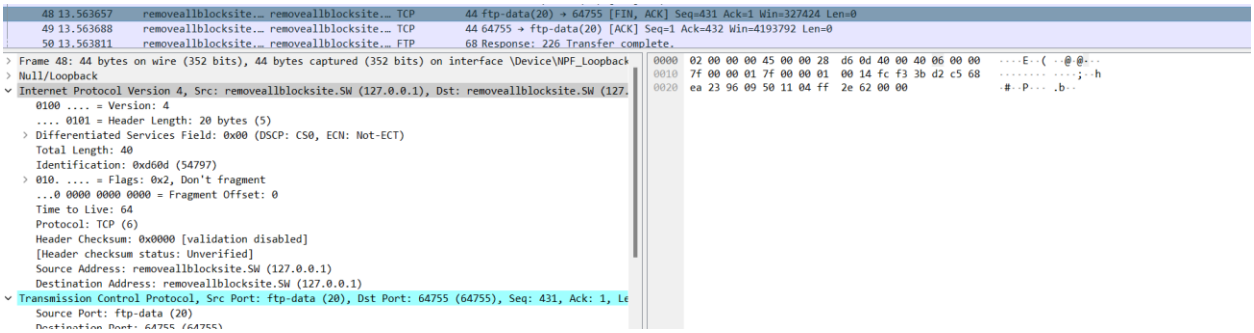

## 3. So sánh

- Trong Active mode, client sẽ gửi request đến server yêu cầu PORT chứa địa chỉ IP và và cổng, sau đó server sẽ chủ động kết nối đến client theo như cổng đã chọn và truyền dữ liệu trên cổng này.

- Như trong file pcap của ftp-active-download, client sẽ dùng port 64754 để thiết lập kết nối đến port 21 của ftp server.

```
Length  Info
    56 64754 → ftp(21) [SYN] Seq=0 Win=65535 Len=0 MSS=65495 WS=256 SACK_PERM
    56 ftp(21) → 64754 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=65495 WS=256 SACK
    44 64754 → ftp(21) [ACK] Seq=1 Ack=1 Win=327424 Len=0
    71 Response: 220 Microsoft FTP Service
    44 64754 → ftp(21) [ACK] Seq=1 Ack=28 Win=327424 Len=0
    60 Request: USER anonymous
    44 ftp(21) → 64754 [ACK] Seq=28 Ack=17 Win=2161152 Len=0
   116 Response: 331 Anonymous access allowed, send identity (e-mail name) as passw
    44 64754 → ftp(21) [ACK] Seq=17 Ack=100 Win=327168 Len=0
    72 Request: PASS anonymous@example.com
```

- Sau đó là dùng port 64755 như yêu cầu PORT 127,0,0,1,252,243 -> 252 x 256 + 243 =64755 để kết nối port 20 của ftp để truyền data

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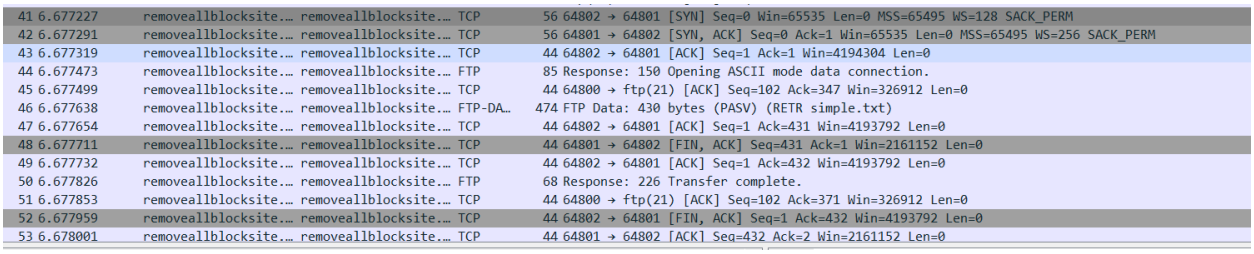
- Còn đối với Passive mode, khi một client muốn truyền hay nhận dữ liệu thì client sẽ gửi yêu cầu PASV ( Passive ) đến server và server sẽ phản hồi về cổng mà nó đang lắng nghe, sau đó client sẽ thực hiện kết nối đến cổng này.
- Trong file ftp-passive-download, server respone cổng 64801 để kết nối:

```
    50 Request: PASV
    44 ftp(21) → 64800 [ACK] Seq=259 Ack=85 Win=2161152 Len=0
    91 Response: 227 Entering Passive Mode (127,0,0,1,253,33).
    44 64800 → ftp(21) [ACK] Seq=85 Ack=306 Win=327168 Len=0
```

- Client dùng port 64802 để kết nối 64801 để nhận dữ liệu:



| | | | | | |
|---|---|---|---|---|---|
| 41 | 6.677227 | removeallblocksite.… | removeallblocksite.… | TCP | 56 64802 → 64801 [SYN] Seq=0 Win=65535 Len=0 MSS=65495 WS=128 SACK_PERM |
| 42 | 6.677291 | removeallblocksite.… | removeallblocksite.… | TCP | 56 64801 → 64802 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=65495 WS=256 SACK_PERM |
| 43 | 6.677319 | removeallblocksite.… | removeallblocksite.… | TCP | 44 64802 → 64801 [ACK] Seq=1 Ack=1 Win=4194304 Len=0 |
| 44 | 6.677473 | removeallblocksite.… | removeallblocksite.… | FTP | 85 Response: 150 Opening ASCII mode data connection. |
| 45 | 6.677499 | removeallblocksite.… | removeallblocksite.… | TCP | 44 64800 → ftp(21) [ACK] Seq=102 Ack=347 Win=326912 Len=0 |
| 46 | 6.677638 | removeallblocksite.… | removeallblocksite.… | FTP-DA… | 474 FTP Data: 430 bytes (PASV) (RETR simple.txt) |
| 47 | 6.677654 | removeallblocksite.… | removeallblocksite.… | TCP | 44 64802 → 64801 [ACK] Seq=1 Ack=431 Win=4193792 Len=0 |
| 48 | 6.677711 | removeallblocksite.… | removeallblocksite.… | TCP | 44 64801 → 64802 [FIN, ACK] Seq=431 Ack=1 Win=2161152 Len=0 |
| 49 | 6.677732 | removeallblocksite.… | removeallblocksite.… | TCP | 44 64802 → 64801 [ACK] Seq=1 Ack=432 Win=4193792 Len=0 |
| 50 | 6.677826 | removeallblocksite.… | removeallblocksite.… | FTP | 68 Response: 226 Transfer complete. |
| 51 | 6.677853 | removeallblocksite.… | removeallblocksite.… | TCP | 44 64800 → ftp(21) [ACK] Seq=102 Ack=371 Win=326912 Len=0 |
| 52 | 6.677959 | removeallblocksite.… | removeallblocksite.… | TCP | 44 64802 → 64801 [FIN, ACK] Seq=1 Ack=432 Win=4193792 Len=0 |
| 53 | 6.678001 | removeallblocksite.… | removeallblocksite.… | TCP | 44 64801 → 64802 [ACK] Seq=432 Ack=2 Win=2161152 Len=0 |