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Cliente- Servidor FTP

Usando sockets em Python 3.7

Para executar o Servidor:

```
python serv.py <numero da porta>
```

Cliente:

```
python cli.py <URLservidor> <numero porta> (se executado localmente, então  
URLservidor = localhost)
```

Exemplo:

```
python serv.py 50000
```

-

```
python cli.py localhost 50000
```

Comandos

```
'get <nome>' download arquivo do servidor
```

```
'put <nome>' upload arquivo para servidor
```

```
'ls' lista os arquivos no servidor
```

```
'quit' desconecta
```

Exemplos de teste feito com o sistema:

*Adapter for loopback traffic capture

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

Apply a display filter ... <Ctrl-/> Expression...

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	127.0.0.1	127.0.0.1	TCP	67	62264 → 50000 [PSH, ACK] Seq=1 Ack=1 Win=10231 Len=23
2	0.000089	127.0.0.1	127.0.0.1	TCP	44	50000 → 62264 [ACK] Seq=1 Ack=24 Win=10233 Len=0
3	0.003921	127.0.0.1	127.0.0.1	TCP	59	50000 → 62264 [PSH, ACK] Seq=1 Ack=24 Win=10233 Len=15
4	0.003995	127.0.0.1	127.0.0.1	TCP	44	62264 → 50000 [ACK] Seq=24 Ack=16 Win=10231 Len=0
5	0.007425	127.0.0.1	127.0.0.1	TCP	56	62347 → 62346 [SYN] Seq=0 Win=65535 Len=0 MSS=65495 WS=256 SACK_PERM=1
6	0.007538	127.0.0.1	127.0.0.1	TCP	56	62346 → 62347 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=65495 WS=256 SACK_PERM=1
7	0.007617	127.0.0.1	127.0.0.1	TCP	44	62347 → 62346 [ACK] Seq=1 Ack=1 Win=2619648 Len=0
8	0.009257	127.0.0.1	127.0.0.1	TCP	765	62347 → 62346 [PSH, ACK] Seq=1 Ack=1 Win=2619648 Len=721
9	0.009333	127.0.0.1	127.0.0.1	TCP	44	62346 → 62347 [ACK] Seq=1 Ack=722 Win=2619648 Len=0
10	0.013145	127.0.0.1	127.0.0.1	TCP	44	62347 → 62346 [FIN, ACK] Seq=722 Ack=1 Win=2619648 Len=0
11	0.013222	127.0.0.1	127.0.0.1	TCP	44	62346 → 62347 [ACK] Seq=1 Ack=723 Win=2619648 Len=0
12	0.018318	127.0.0.1	127.0.0.1	TCP	44	62346 → 62347 [RST, ACK] Seq=1 Ack=723 Win=0 Len=0
13	10.928933	192.168.0.104	192.168.0.255	UDP	76	57621 → 57621 Len=44
14	30.699331	192.168.0.104	239.255.255.250	SSDP	206	M-SEARCH * HTTP/1.1
15	31.700036	192.168.0.104	239.255.255.250	SSDP	206	M-SEARCH * HTTP/1.1
16	32.700575	192.168.0.104	239.255.255.250	SSDP	206	M-SEARCH * HTTP/1.1
17	33.701151	192.168.0.104	239.255.255.250	SSDP	206	M-SEARCH * HTTP/1.1
18	39.643997	:::1	:::1	WireGu...	84	Handshake Initiation, sender=0x00000020[Malformed Packet]
19	40.934104	192.168.0.104	192.168.0.255	UDP	76	57621 → 57621 Len=44

[Header checksum status: Unverified]
Source: 127.0.0.1
Destination: 127.0.0.1

Transmission Control Protocol, Src Port: 62264, Dst Port: 50000, Seq: 1, Ack: 1, Len: 23
Source Port: 62264
Destination Port: 50000
[Stream index: 0]
[TCP Segment Len: 23]
Sequence number: 1 (relative sequence number)
[Next sequence number: 24 (relative sequence number)]
Acknowledgment number: 1 (relative ack number)
0101 = Header Length: 20 bytes (5)
> Flags: 0x018 (PSH, ACK)
Window size value: 10231
[Calculated window size: 10231]
[Window size scaling factor: -1 (unknown)]

0000 02 00 00 00 45 00 00 3f e3 83 40 00 80 06 00 00E...?..@....
0010 7f 00 00 01 7f 00 00 01 f3 38 c3 50 c9 ca e3 478.P...G
0020 54 2e 03 56 50 18 27 f7 c2 90 00 00 30 30 30 30 T..VP..'...0000
0030 30 30 30 30 31 33 70 75 74 20 74 65 73 74 65 2e 000013pu t teste.
0040 74 78 74txt

Exemplo de captura via Wireshark para comando put para upload do arquivo no servidor.
Servidor iniciado na porta 50000. Porta do cliente: 62264.

- Layout das mensagens trocadas armazenadas no arquivo server.log.