

Reykjavik Univeristy

Department of Computer Science



Only Connect

Tölvusamskipti (T-409-TSAM)

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Part 1 - Always check the cables

a)

```
[oliveremil@Olivers-MacBook-Pro ~ % ping 130.208.246.98
PING 130.208.246.98 (130.208.246.98): 56 data bytes
64 bytes from 130.208.246.98: icmp_seq=0 ttl=52 time=6.026 ms
64 bytes from 130.208.246.98: icmp_seq=1 ttl=52 time=7.095 ms
64 bytes from 130.208.246.98: icmp_seq=2 ttl=52 time=7.142 ms
64 bytes from 130.208.246.98: icmp_seq=3 ttl=52 time=22.441 ms
64 bytes from 130.208.246.98: icmp_seq=4 ttl=52 time=9.928 ms
64 bytes from 130.208.246.98: icmp_seq=5 ttl=52 time=51.499 ms
64 bytes from 130.208.246.98: icmp_seq=6 ttl=52 time=97.330 ms
64 bytes from 130.208.246.98: icmp_seq=7 ttl=52 time=141.497 ms
64 bytes from 130.208.246.98: icmp_seq=8 ttl=52 time=6.895 ms
64 bytes from 130.208.246.98: icmp_seq=9 ttl=52 time=8.214 ms
64 bytes from 130.208.246.98: icmp_seq=10 ttl=52 time=8.976 ms
64 bytes from 130.208.246.98: icmp_seq=11 ttl=52 time=5.480 ms
^C
--- 130.208.246.98 ping statistics ---
12 packets transmitted, 12 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 5.480/31.044/141.497/42.375 ms
[oliveremil@Olivers-MacBook-Pro ~ % sudo nmap -sS 130.208.246.98
Starting Nmap 7.95 ( https://nmap.org ) at 2025-09-02 18:05 GMT
Nmap scan report for 130.208.246.98
Host is up (0.029s latency).
Not shown: 882 filtered tcp ports (no-response), 116 closed tcp ports (reset)
PORT      STATE SERVICE
22/tcp    open  ssh
4002/tcp  open  mlchat-proxy

Nmap done: 1 IP address (1 host up) scanned in 11.25 seconds
oliveremil@Olivers-MacBook-Pro ~ %
```

b)

```
[oliveremil@Olivers-MacBook-Pro ~ % ncat 130.208.246.98 4002
Hello
Are you Listening
This is fun
```

Terminal 1 Local Terminal

```
[oliver23@tsam:~$ ncat -ln 4002
Hello
Are you Listening
This is fun
```

Terminal 2 Listener server side

c)

```

oliveremil@Olivers-MacBook-Pro ~ % sudo tcpdump -vax -i en0 'port 4002'
tcpdump: listening on en0, link-type EN10MB (Ethernet), snapshot length 524288 bytes
18:22:36.566061 IP (tos 0x0, ttl 64, id 0, offset 0, flags [DF], proto TCP (6), length 95)
  192.168.1.78.53534 > 130.208.246.98.pxc-sprv-ft: Flags [P.], cksum 0x410b (correct), seq 3867958874:3867958917, ack 389688851, win 2059, options [nop,nop,TS val 532707305 ecr 674716167], length 43
    0x0000: 4500 005f 0000 4000 4006 ff6f c0a8 014e  E...0.0..0...N
    0x0010: 82d0 f662 d11e 0fa2 e68c 5e5a 173a 0ed3  ...b.....^Z...
    0x0020: 8018 080b 410b 0000 0101 080a 1fc0 77e9  ...A.....w.
    0x0030: 2837 5a07 5265 6d65 6d62 6572 2074 6f20  (7Z.Remember.to.
    0x0040: 6368 6563 6b20 666f 7220 6e65 7477 6f72  check.for.networ
    0x0050: 6b20 636f 6e6e 6563 7469 7669 7479 0a    k.connectivity.
18:22:36.563932 IP (tos 0x0, ttl 51, id 13329, offset 0, flags [DF], proto TCP (6), length 52)
  130.208.246.98.pxc-sprv-ft > 192.168.1.78.53534: Flags [.], cksum 0xbfb8f (correct), ack 43, win 509, options [nop,nop,TS val 674721350 ecr 532707305], length 0
    0x0000: 4500 0034 3411 4000 3306 d889 82d0 f662  E..4.0.3.....b
    0x0010: c0a8 014e 0fa2 d11e 173a 0ed3 e68c 5e85  ...N.....^..
    0x0020: 8018 01fd bf8f 0000 0101 080a 2837 6e46  .....(7nF
    0x0030: 1fc0 77e9  ....w.

```

Here is the terminal after typing in the client terminal

d)

```

[oliver23@tsam:~$ ncat -ln 4000 --exec /bin/bash

```

Terminal 1 server side

```

oliveremil@Olivers-MacBook-Pro ~ % ncat 130.208.246.98 4000

whoami
oliver23

```

Terminal 2 Shell command

```

oliveremil@Olivers-MacBook-Pro ~ % sudo tcpdump -vAX -i en0 'port 4000'

tcpdump: listening on en0, link-type EN10MB (Ethernet), snapshot length 524288 bytes
18:33:58.374312 IP (tos 0x0, ttl 64, id 0, offset 0, flags [DF], proto TCP (6), length 59)
 192.168.1.78.53612 > 130.208.246.98.terabase: Flags [P.], cksum 0xea7b (correct), seq 1709189412:1709189419, ack 1347725008, win 2859, options [nop,nop,TS val 1648248025 ecr 675394619], length 7
 0x0000: 4500 003b 0000 4000 4006 ff93 c0a8 014e E...@.@.....N
 0x0010: 82d0 f662 d16c 0fa0 65e0 2924 5054 a6d0 ...b.l..e.)$PT..
 0x0020: 8010 000b ea7b 0000 0101 000a 623e 44d9 ....{.....b>D.
 0x0030: 2841 b43b 7768 6f61 6d69 0a (A;whoami.
18:33:58.478332 IP (tos 0x0, ttl 51, id 39507, offset 0, flags [DF], proto TCP (6), length 52)
 130.208.246.98.terabase > 192.168.1.78.53612: Flags [.], cksum 0x2cca (correct), ack 7, win 510, options [nop,nop,TS val 675403317 ecr 1648248025], length 0
 0x0000: 4500 0034 9a53 4000 3306 7247 82d0 f662 E..4.S0.3.rG...b
 0x0010: c0a8 014e 0fa0 d16c 5054 a6d0 65e0 292b ...N...1PT..e.)+
 0x0020: 8010 01fe 2cca 0000 0101 000a 2841 d635 .....[A.5
 0x0030: 623e 44d9 b>D.
18:33:58.478337 IP (tos 0x0, ttl 51, id 39508, offset 0, flags [DF], proto TCP (6), length 61)
 130.208.246.98.terabase > 192.168.1.78.53612: Flags [P.], cksum 0xb22f (correct), seq 1:10, ack 7, win 510, options [nop,nop,TS val 675403318 ecr 1648248025], length 9
 0x0000: 4500 003d 9a54 4000 3306 723d 82d0 f662 E...T0.3.r=...b
 0x0010: c0a8 014e 0fa0 d16c 5054 a6d0 65e0 292b ...N...1PT..e.)+
 0x0020: 8010 01fe b22f 0000 0101 000a 2841 d635 .....[A.6
 0x0030: 623e 44d9 6f6c 6976 6572 3233 0a b>D.oliver23.
18:33:58.478602 IP (tos 0x0, ttl 64, id 0, offset 0, flags [DF], proto TCP (6), length 52)
 192.168.1.78.53612 > 130.208.246.98.terabase: Flags [P.], cksum 0x264b (correct), ack 10, win 2859, options [nop,nop,TS val 1648248129 ecr 675403318], length 0
 0x0000: 4500 0034 0000 4000 4006 ff9a c0a8 014e E..4..@.@.....N
 0x0010: 82d0 f662 d16c 0fa0 65e0 292b 5054 a6d9 ...b.l..e.)+PT..
 0x0020: 8010 000b 264b 0000 0101 000a 623e 4541 ....$K.....b>EA
 0x0030: 2841 d636 (A.6

```

Terminal 3 tcpdump

Part 2 - Network Programming

```

oliveremil@Olivers-MacBook-Pro assignment1 % ./server 4000
Listening on port: 4000
Client connected on server
SYS who

```

oliveremil console Aug 20 18:09

a)

Terminal 1, the listener

```

oliveremil@Olivers-MacBook-Pro assignment1 % ncat 127.0.0.1 4000
SYS who

```

Terminal 2, ncat + SYS command

```

oliveremil@Olivers-MacBook-Pro assignment1 % sudo tcpdump -AX -i lo0 'host 127.0.0.1 and port 4000'

tcpdump: verbose output suppressed, use -v[v]... for full protocol decode
listening on lo0, link-type NULL (BSD loopback), snapshot length 524288 bytes
19:16:27.743131 IP localhost.53924 > localhost.terabase: Flags [P.], seq 2243173582:2243173590, ack 487912040, win 6380, options [nop,nop,TS val 1154639683 ecr 324020992], length 8
 0x0000: 4500 003c 0000 4000 4006 0000 7f00 0001 E..<..@.@.....h
 0x0010: 7f00 0001 d2a4 0fa0 85b4 1cde 1d14 f268 .....D.gC
 0x0020: 8018 18ec fe30 0000 0101 000a 44d2 6743 ....0.....D.gC
 0x0030: 1350 2000 5359 5320 7768 6f0a .P+.SYS.who.
19:16:27.743286 IP localhost.terabase > localhost.53924: Flags [P.], ack 8, win 6380, options [nop,nop,TS val 324029264 ecr 1154639683], length 0
 0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@.@.....h....
 0x0010: 7f00 0001 0fa0 d2a4 1d14 f268 85b4 1cd6 .....{.....PKP
 0x0020: 8010 18ec fe28 0000 0101 000a 1350 4b50 .....D.gC
 0x0030: 44d2 6743

```

Terminal 3, tcpdump

Part 3 - Client

Here come the terminal screenshots for Part 3, the code can be found in the zip file.

```
oliveremil@Olivers-MacBook-Pro assignment1 % ./server 4000
Listening on port: 4000
Client connected on server
SYS uname

Darwin
Client closed connection: 4
```

```
oliveremil@Olivers-MacBook-Pro assignment1 % cd Client
oliveremil@Olivers-MacBook-Pro Client % g++ -Wall -std=c++11 client.cpp -o client
oliveremil@Olivers-MacBook-Pro Client % ./client 127.0.0.1 4000
Enter command to run on server: uname
Command sent.
oliveremil@Olivers-MacBook-Pro Client %
```

```
oliveremil@Olivers-MacBook-Pro assignment1 % sudo tcpdump -AX -i lo0 'host 127.0.0.1 and port 4000'
Password:
tcpdump: verbose output suppressed, use -v[v]... for full protocol decode
listening on lo0, link-type NULL (BSD loopback), snapshot length 524288 bytes
20:07:24.180607 IP localhost.54460 > localhost.terabase: Flags [P.], seq 1493466422:1493466432, ack 424382971, win 6380, options [nop,nop,TS val 222982997 ecr 3928507564], length 10
 0x0000: 4500 003e 0000 4000 4006 0000 7f00 0001 E...@.@.....
 0x0010: 7f00 0001 d4bc 0fa0 5904 7d36 194a 597b .....Y.J6.JY{
 0x0020: 8018 18ec fe32 0000 0101 080a 0d4a 7355 .....2.....JSU
 0x0030: ea28 44ac 5359 5320 756e 616d 650a .(D.SYS.uname.
20:07:24.180716 IP localhost.54460 > localhost.terabase: Flags [F.], seq 10, ack 1, win 6380, options [nop,nop,TS val 222982997 ecr 3928507564], length 0
 0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@.@.....
 0x0010: 7f00 0001 d4bc 0fa0 5904 7d40 194a 597b .....Y.]0.JY{
 0x0020: 8011 18ec fe28 0000 0101 080a 0d4a 7355 .....JSU
 0x0030: ea28 44ac .(D.
20:07:24.180807 IP localhost.terabase > localhost.54460: Flags [.], ack 10, win 6380, options [nop,nop,TS val 3928553900 ecr 222982997], length 0
 0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@.@.....
 0x0010: 7f00 0001 0fa0 d4bc 194a 597b 5904 7d40 .....JY{Y.)@
 0x0020: 8010 18ec fe28 0000 0101 080a ea28 f9ac .....JY{Y.)@
 0x0030: 0d4a 7355 .....JSU
20:07:24.180852 IP localhost.terabase > localhost.54460: Flags [.], ack 11, win 6380, options [nop,nop,TS val 3928553900 ecr 222982997], length 0
 0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@.@.....
 0x0010: 7f00 0001 0fa0 d4bc 194a 597b 5904 7d41 .....JY{Y.)A
 0x0020: 8010 18ec fe28 0000 0101 080a ea28 f9ac .....JY{Y.)A
 0x0030: 0d4a 7355 .....JSU
20:07:24.197052 IP localhost.terabase > localhost.54460: Flags [F.], seq 1, ack 11, win 6380, options [nop,nop,TS val 3928553916 ecr 222982997], length 0
 0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@.@.....
 0x0010: 7f00 0001 0fa0 d4bc 194a 597b 5904 7d41 .....JY{Y.)A
 0x0020: 8011 18ec fe28 0000 0101 080a ea28 f9bc .....JY{Y.)A
 0x0030: 0d4a 7355 .....JSU
20:07:24.197160 IP localhost.54460 > localhost.terabase: Flags [.], ack 2, win 6380, options [nop,nop,TS val 222983013 ecr 3928553916], length 0
 0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@.@.....
 0x0010: 7f00 0001 d4bc 0fa0 5904 7d41 194a 597c .....Y.)A.JY|
 0x0020: 8010 18ec fe28 0000 0101 080a 0d4a 7365 .....Jse
 0x0030: ea28 f9bc .(.
```

Part 4 - Client -Server Backdoor

Here come the terminal screenshots for Part 4, the code can be found in the zip file

```
oliveremil@Olivers-MacBook-Pro ClientServerBackdoorPart4 % ./server 4000
Listening on port: 4000
Client connected on server
SYS ls -sal

Executing: ls -sal
Response sent, connection closed: 4
Client connected on server
SYS who
```

```

oliveremil@Olivers-MacBook-Pro ClientServerBackdoorPart4 % ./client 127.0.0.1 4000
cmd> ls -sal
total 376
 0 drwxr-xr-x@ 7 oliveremil staff   224 Sep  2 20:35 .
 0 drwxr-xr-x@ 6 oliveremil staff   192 Sep  2 20:25 ..
112 -rwxr-xr-x@ 1 oliveremil staff 54360 Sep  2 20:30 client
 8 -rw-r--r--@ 1 oliveremil staff  2448 Sep  2 20:19 client.cpp
 8 -rw-r--r--@ 1 oliveremil staff   253 Sep  2 20:19 README.md
232 -rwxr-xr-x@ 1 oliveremil staff 11696 Sep  2 20:35 server
16 -rw-r--r--@ 1 oliveremil staff   5672 Sep  2 20:34 server.cpp
cmd> who
oliveremil          console          Aug 20 18:09

```

The tcpdump takes more than one screen for the ls -sal command, so I will leave a part of it in a screenshot, and I will also have a copy and paste of the full terminal output below.

```

oliveremil@Olivers-MacBook-Pro assignment1 % sudo tcpdump -AX -i lo0 'host 127.0.0.1 and port 4000'

Password:
tcpdump: verbose output suppressed, use -v[v]... for full protocol decode
listening on lo0, link-type NULL (BSD loopback), snapshot length 524288 bytes
20:41:00.540901 IP localhost.54765 > localhost.terabase: Flags [S], seq 113888087, win 65535, options [mss 16344,nop,wscale 6,nop,nop,TS val 2344109233 ecr 0,sackOK,eol], length 0
 0x0000: 4500 0040 0000 4000 4006 0000 7f00 0001  E..@.@.....
 0x0010: 7f00 0001 d5ed 0fa0 06c9 cb57 0000 0000  .....W....
 0x0020: b002 ffff fe34 0000 0204 3fd8 0103 0306  ....4...?....
 0x0030: 0101 080a 8bb8 44b1 0000 0000 0402 0000  ....D.....
20:41:00.541121 IP localhost.terabase > localhost.54765: Flags [S.], seq 3792102593, ack 113888088, win 65535, options [mss 16344,nop,wscale 6,nop,nop,TS val 99299184 ecr 2344109233,sackOK,eol], length 0
 0x0000: 4500 0040 0000 4000 4006 0000 7f00 0001  E..@.@.....
 0x0010: 7f00 0001 0fa0 d5ed e206 e4c1 06c9 cb58  .....X.....
 0x0020: b012 ffff fe34 0000 0204 3fd8 0103 0306  ....4...7....
 0x0030: 0101 080a 05eb 2f70 8bb8 44b1 0402 0000  ....p..D.....
20:41:00.541160 IP localhost.54765 > localhost.terabase: Flags [.], ack 1, win 6380, options [nop,nop,TS val 2344109233 ecr 99299184], length 0
 0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001  E..@.@.....
 0x0010: 7f00 0001 d5ed 0fa0 06c9 cb58 e206 e4c2  .....X.....
 0x0020: 8010 18ec fe28 0000 0101 080a 8bb8 44b1  ....D.....
 0x0030: 05eb 2f70  ..p
20:41:00.541186 IP localhost.terabase > localhost.54765: Flags [.], ack 1, win 6380, options [nop,nop,TS val 99299184 ecr 2344109233], length 0
 0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001  E..@.@.....
 0x0010: 7f00 0001 0fa0 d5ed e206 e4c2 06c9 cb58  .....X.....
 0x0020: 8010 18ec fe28 0000 0101 080a 05eb 2f70  ....D.....
 0x0030: 8bb8 44b1  ..D
20:41:00.541252 IP localhost.54765 > localhost.terabase: Flags [P.], seq 1:13, ack 1, win 6380, options [nop,nop,TS val 2344109233 ecr 99299184], length 12
 0x0000: 4500 0001 d5ed 0fa0 06c9 cb58 e206 e4c2  .....X.....
 0x0010: 7f00 0001 d5ed 0fa0 06c9 cb58 e206 e4c2  .....X.....
 0x0020: 8018 18ec fe34 0000 0101 080a 8bb8 44b1  ....D.....
 0x0030: 05eb 2f70 5359 5320 6c73 202d 7361 6c0a  ..pSYS.ls.-sal.
20:41:00.541292 IP localhost.terabase > localhost.54765: Flags [.], ack 13, win 6380, options [nop,nop,TS val 99299184 ecr 2344109233], length 0
 0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001  E..@.@.....
 0x0010: 7f00 0001 0fa0 d5ed e206 e4c2 06c9 cb58  .....X.....
 0x0020: 8010 18ec fe28 0000 0101 080a 05eb 2f70  ....D.....
 0x0030: 8bb8 44b1  ..D
20:41:00.568500 IP localhost.terabase > localhost.54765: Flags [P.], seq 1:461, ack 13, win 6380, options [nop,nop,TS val 99299212 ecr 2344109233], length 460
 0x0000: 4500 0200 0000 4000 4006 0000 7f00 0001  E....@.....
 0x0010: 7f00 0001 d5ed e206 e4c2 06c9 cb58  .....d.....
 0x0020: 8018 18ec ffff 0000 0101 080a 05eb 2f8c  ....D.....
 0x0030: 8bb8 44b1 746f 7461 6c20 3337 360a 2020  ....D.total.376...
 0x0040: 3020 6472 7778 722d 7872 2d78 4020 3720  0.drwxr-xr-x@.1.ol
 0x0050: 6f6c 6976 6572 656d 696c 2020 7374 6166  iveremil.staff.
 0x0060: 6570 2020 3220 3220 3470 5365 7020 2032  f.....224.Sep.2
 0x0070: 2032 303a 3335 202e 0a20 2030 2064 7277  .20:35....0.drw
 0x0080: 7872 2d78 722d 7840 2036 206f 6c69 7665  r-xr-x@.6.olive
 0x0090: 7265 6d69 6c20 2073 7461 6666 2020 2020  remil.staff....
 0x00a0: 2031 3932 2053 6570 2020 3220 3230 3a32  .192.Sep..2.20:2
 0x00b0: 3520 2e0a 0a31 3132 202d 7277 7872 2d78  5...112.-rwxr-x
 0x00c0: 722d 7840 2031 206f 6c69 7665 7265 6d69  r-x@.1.oliveremil
 0x00d0: 6c20 2073 7461 6666 2020 2035 3433 3630  l.staff...54360
 0x00e0: 2053 6570 2020 3220 3230 3a33 3020 636c  .Sep..2.20:30.cl
 0x00f0: 6965 6e74 0a20 2038 202d 7277 2d72 2d2d  ient...8.-rw-r--
 0x0100: 722d 2d40 2031 206f 6c69 7665 7265 6d69  r-q.1.oliveremil
 0x0110: 6c20 2073 7461 6666 2020 2020 3234 3438  l.staff...2448
 0x0120: 2053 6570 2020 3220 3230 3a31 3920 636c  .Sep..2.20:19.cl
 0x0130: 6965 6e74 2e63 7070 0a20 2038 202d 7277  ient.cpp...8.-rw
 0x0140: 2d72 2d2d 722d 2d40 2031 206f 6c69 7665  -r--@.1.olive
 0x0150: 7265 6d69 6c20 2073 7461 6666 2020 2020  remil.staff...
 0x0160: 2032 3533 2053 6570 2020 3220 3230 3a31  .253.Sep..2.20:1
 0x0170: 3920 5245 4144 4d45 2e6d 640a 3233 3220  9.README.md.232.
 0x0180: 2d72 7778 722d 7872 2d78 4020 3120 6f6c  -rwxr-xr-x@.1.ol
 0x0190: 6976 6572 656d 696c 2020 7374 6166 6620  iveremil.staff.
 0x01a0: 2031 3136 3639 3620 5365 7020 2032 2032  .11696.Sep..2.2
 0x01b0: 303a 3335 2073 6572 7665 720a 2031 3620  0:35.server..16.
 0x01c0: 2d72 722d 722d 2d72 2d2d 4020 3120 6f6c  -rw-r--@.1.ol
 0x01d0: 6976 6572 656d 696c 2020 7374 6166 6620  iveremil.staff.
 0x01e0: 2020 2035 3637 3220 5365 7020 2032 2032  ..5672.Sep..2.2
 0x01f0: 303a 3334 2073 6572 7665 722e 6370 700a  0:34.server.cpp.
20:41:00.568535 IP localhost.terabase > localhost.54765: Flags [F.], seq 461, ack 13, win 6380, options [nop,nop,TS val 99299212 ecr 2344109233], length 0

```

Here is the full output:

```
oliveremil@Olivers-MacBook-Pro assignment1 % sudo tcpdump -AX -i lo0 'host 127.0.0.1 and port 4000'
```

```

Password:
tcpdump: verbose output suppressed, use -v[v]... for full protocol decode
listening on lo0, link-type NULL (BSD loopback), snapshot length 524288 bytes
20:41:00.540901 IP localhost.54765 > localhost.terabase: Flags [S], seq 113888087, win 65535, options [mss 16344,nop,wscale 6,nop,nop,TS val 2344109233 ecr 0,sackOK,eol], length 0
 0x0000: 4500 0040 0000 4000 4006 0000 7f00 0001  E..@.@.....
 0x0010: 7f00 0001 d5ed 0fa0 06c9 cb57 0000 0000  .....W....
 0x0020: b002 ffff fe34 0000 0204 3fd8 0103 0306  ....4...?....
 0x0030: 0101 080a 8bb8 44b1 0000 0000 0402 0000  ....D.....

```

20:41:00.541121 IP localhost.terabase > localhost.54765: Flags [S.], seq 3792102593, ack 113888088, win 65535, options [mss 16344,nop,wscale 6,nop,nop,TS val 99299184 ecr 2344109233,sackOK,eol], length 0
0x0000: 4500 0040 0000 4000 4006 0000 7f00 0001 E..@..@.....
0x0010: 7f00 0001 0fa0 d5ed e206 e4c1 06c9 cb58X
0x0020: b012 ffff fe34 0000 0204 3fd8 0103 03064.....?
0x0030: 0101 080a 05eb 2f70 8bb8 44b1 0402 0000/p.D....

20:41:00.541160 IP localhost.54765 > localhost.terabase: Flags [I.], ack 1, win 6380, options [nop,nop,TS val 2344109233 ecr 99299184], length 0
0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@..@.....
0x0010: 7f00 0001 d5ed 0fa0 06c9 cb58 e206 e4c2X.....
0x0020: 8010 18ec fe28 0000 0101 080a 8bb8 44b1D.....
0x0030: 05eb 2f70/p

20:41:00.541186 IP localhost.terabase > localhost.54765: Flags [I.], ack 1, win 6380, options [nop,nop,TS val 99299184 ecr 2344109233], length 0
0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@..@.....
0x0010: 7f00 0001 0fa0 d5ed e206 e4c2 06c9 cb58X
0x0020: 8010 18ec fe28 0000 0101 080a 05eb 2f70/p
0x0030: 8bb8 44b1D.

20:41:00.541252 IP localhost.54765 > localhost.terabase: Flags [P.], seq 1:13, ack 1, win 6380, options [nop,nop,TS val 2344109233 ecr 99299184], length 12
0x0000: 4500 0040 0000 4000 4006 0000 7f00 0001 E..@..@.....
0x0010: 7f00 0001 d5ed 0fa0 06c9 cb58 e206 e4c2X.....
0x0020: 8018 18ec fe34 0000 0101 080a 8bb8 44b14.....D.
0x0030: 05eb 2f70 5359 5320 6c73 202d 7361 6c0a ../pSYS.ls.-sal.

20:41:00.541292 IP localhost.terabase > localhost.54765: Flags [I.], ack 13, win 6380, options [nop,nop,TS val 99299184 ecr 2344109233], length 0
0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@..@.....
0x0010: 7f00 0001 0fa0 d5ed e206 e4c2 06c9 cb64d
0x0020: 8010 18ec fe28 0000 0101 080a 05eb 2f70/p
0x0030: 8bb8 44b1D.

20:41:00.568500 IP localhost.terabase > localhost.54765: Flags [P.], seq 1:461, ack 13, win 6380, options [nop,nop,TS val 99299212 ecr 2344109233], length 460
0x0000: 4500 0200 0000 4000 4006 0000 7f00 0001 E.....@.....
0x0010: 7f00 0001 0fa0 d5ed e206 e4c2 06c9 cb64d
0x0020: 8018 18ec fff4 0000 0101 080a 05eb 2f8c/.
0x0030: 8bb8 44b1 746f 7461 6c20 3337 360a 2020 ..D.total.376..
0x0040: 3020 6472 7778 722d 7872 2d78 4020 3720 0.drwxr-xr-x@.7.
0x0050: 6f6c 6976 6572 656d 696c 2020 7374 6166 oliveremil..staf
0x0060: 6620 2020 2020 3232 3420 5365 7020 2032 f.....224.Sep..2
0x0070: 2032 303a 3335 202e 0a20 2030 2064 7277 ..20:35.....0.drw
0x0080: 7872 2d78 722d 7840 2036 206f 6c69 7665 xr-xr-x@.6.olive
0x0090: 7265 6d69 6c20 2073 7461 6666 2020 2020 remil..staff....
0x00a0: 2031 3932 2053 6570 2020 3220 3230 3a32 ..192.Sep..2.20:2
0x00b0: 3520 2e2e 0a31 3132 202d 7277 7872 2d78 5.....112.-rwxr-x
0x00c0: 722d 7840 2031 206f 6c69 7665 7265 6d69 r-x@.1.oliveremi
0x00d0: 6c20 2073 7461 6666 2020 2035 3433 3630 l..staff...54360
0x00e0: 2053 6570 2020 3220 3230 3a33 3020 636c ..Sep..2.20:30.cl
0x00f0: 6965 6e74 0a20 2038 202d 7277 2d72 2d2d ient...8.-rw-r--
0x0100: 722d 2d40 2031 206f 6c69 7665 7265 6d69 r--@.1.oliveremi
0x0110: 6c20 2073 7461 6666 2020 2020 3234 3438 l..staff...2448
0x0120: 2053 6570 2020 3220 3230 3a31 3920 636c ..Sep..2.20:19.cl
0x0130: 6965 6e74 2e63 7070 0a20 2038 202d 7277 ient.cpp...8.-rw
0x0140: 2d72 2d2d 722d 2d40 2031 206f 6c69 7665 -r--r--@.1.olive
0x0150: 7265 6d69 6c20 2073 7461 6666 2020 2020 remil..staff....
0x0160: 2032 3533 2053 6570 2020 3220 3230 3a31 ..253.Sep..2.20:1
0x0170: 3920 5245 4144 4d45 2e6d 640a 3233 3220 9.README.md.232.
0x0180: 2d72 7778 722d 7872 2d78 4020 3120 6f6c -rwxr-xr-x@.1.ol
0x0190: 6976 6572 656d 696c 2020 7374 6166 6620 iveremil..staff.
0x01a0: 2031 3136 3639 3620 5365 7020 2032 2032 ..116696.Sep..2.2
0x01b0: 303a 3335 2073 6572 7665 720a 2031 3620 0:35.server..16.
0x01c0: 2d72 772d 722d 2d72 2d2d 4020 3120 6f6c -rw-r--r--@.1.ol
0x01d0: 6976 6572 656d 696c 2020 7374 6166 6620 iveremil..staff.
0x01e0: 2020 2035 3637 3220 5365 7020 2032 2032 ...5672.Sep..2.2
0x01f0: 303a 3334 2073 6572 7665 722e 6370 700a 0:34.server.cpp.

20:41:00.568535 IP localhost.terabase > localhost.54765: Flags [F.], seq 461, ack 13, win 6380, options [nop,nop,TS val 99299212 ecr 2344109233], length 0
0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@..@.....
0x0010: 7f00 0001 0fa0 d5ed e206 e68e 06c9 cb64d
0x0020: 8011 18ec fe28 0000 0101 080a 05eb 2f8c/.
0x0030: 8bb8 44b1D.

20:41:00.568612 IP localhost.54765 > localhost.terabase: Flags [I.], ack 461, win 6373, options [nop,nop,TS val 2344109261 ecr 99299212], length 0
0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@..@.....
0x0010: 7f00 0001 d5ed 0fa0 06c9 cb64 e206 e68ed.....
0x0020: 8010 18e5 fe28 0000 0101 080a 8bb8 44cdD.....
0x0030: 05eb 2f8c/.

20:41:00.568651 IP localhost.54765 > localhost.terabase: Flags [I.], ack 462, win 6373, options [nop,nop,TS val 2344109261 ecr 99299212], length 0
0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@..@.....
0x0010: 7f00 0001 d5ed 0fa0 06c9 cb64 e206 e68fd.....
0x0020: 8010 18e5 fe28 0000 0101 080a 8bb8 44cdD.....
0x0030: 05eb 2f8c/.

20:41:00.568700 IP localhost.54765 > localhost.terabase: Flags [F.], seq 13, ack 462, win 6373, options [nop,nop,TS val 2344109261 ecr 99299212], length 0
0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@..@.....
0x0010: 7f00 0001 d5ed 0fa0 06c9 cb64 e206 e68fd.....
0x0020: 8011 18e5 fe28 0000 0101 080a 8bb8 44cdD.....
0x0030: 05eb 2f8c/.

20:41:00.568764 IP localhost.terabase > localhost.54765: Flags [I.], ack 14, win 6380, options [nop,nop,TS val 99299212 ecr 2344109261], length 0
0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@..@.....
0x0010: 7f00 0001 0fa0 d5ed e206 e68f 06c9 cb65e
0x0020: 8010 18ec fe28 0000 0101 080a 05eb 2f8c/.
0x0030: 8bb8 44cdD.

20:41:29.686782 IP localhost.54766 > localhost.terabase: Flags [S.], seq 2041428157, win 65535, options [mss 16344,nop,wscale 6,nop,nop,TS val 3499031505 ecr 0,sackOK,eol], length 0
0x0000: 4500 0040 0000 4000 4006 0000 7f00 0001 E..@..@.....
0x0010: 7f00 0001 d5ee 0fa0 79ad b8bd 0000 0000y.....
0x0020: b002 ffff fe34 0000 0204 3fd8 0103 03064.....?
0x0030: 0101 080a d08e fbd1 0000 0000 0402 0000

20:41:29.686999 IP localhost.terabase > localhost.54766: Flags [S.], seq 4210816026, ack 2041428158, win 65535, options [mss 16344,nop,wscale 6,nop,nop,TS val 2448673079 ecr 3499031505,sackOK,eol], length 0
0x0000: 4500 0040 0000 4000 4006 0000 7f00 0001 E..@..@.....

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0x0010: 7f00 0001 0fa0 d5ee fafb f41a 79ad b8be .....y...
0x0020: b012 ffff fe34 0000 0204 3fd8 0103 0306 .....4...?....
0x0030: 0101 080a 91f3 c937 d08e fbd1 0402 0000 .....7.....
20:41:29.687050 IP localhost.54766 > localhost.terabase: Flags [I], ack 1, win 6380, options [nop,nop,TS val 3499031505 ecr 2448673079], length 0
0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@.@.....
0x0010: 7f00 0001 d5ee 0fa0 79ad b8be fafb f41b .....y.....
0x0020: 8010 18ec fe28 0000 0101 080a d08e fbd1 .....(.....7
0x0030: 91f3 c937 .....7
20:41:29.687085 IP localhost.terabase > localhost.54766: Flags [I], ack 1, win 6380, options [nop,nop,TS val 2448673079 ecr 3499031505], length 0
0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@.@.....
0x0010: 7f00 0001 0fa0 d5ee fafb f41b 79ad b8be .....y...
0x0020: 8010 18ec fe28 0000 0101 080a 91f3 c937 .....(.....7
0x0030: d08e fbd1 .....
20:41:29.687101 IP localhost.54766 > localhost.terabase: Flags [P], seq 1:9, ack 1, win 6380, options [nop,nop,TS val 3499031505 ecr 2448673079], length 8
0x0000: 4500 003c 0000 4000 4006 0000 7f00 0001 E..<..@.@.....
0x0010: 7f00 0001 d5ee 0fa0 79ad b8be fafb f41b .....y.....
0x0020: 8018 18ec fe30 0000 0101 080a d08e fbd1 .....0.....
0x0030: 91f3 c937 5359 5320 7768 6f0a ....7SYS.who.
20:41:29.687127 IP localhost.terabase > localhost.54766: Flags [I], ack 9, win 6380, options [nop,nop,TS val 2448673079 ecr 3499031505], length 0
0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@.@.....
0x0010: 7f00 0001 0fa0 d5ee fafb f41b 79ad b8c6 .....y...
0x0020: 8010 18ec fe28 0000 0101 080a 91f3 c937 .....(.....7
0x0030: d08e fbd1 .....
20:41:29.710956 IP localhost.terabase > localhost.54766: Flags [P], seq 1:45, ack 9, win 6380, options [nop,nop,TS val 2448673103 ecr 3499031505], length 44
0x0000: 4500 0060 0000 4000 4006 0000 7f00 0001 E..'.@.@.....
0x0010: 7f00 0001 0fa0 d5ee fafb f41b 79ad b8c6 .....y...
0x0020: 8018 18ec fe54 0000 0101 080a 91f3 c94f .....T.....O
0x0030: d08e fbd1 6f6c 6976 6572 656d 696c 2020 ....oliveremil..
0x0040: 2020 2020 2063 6f6e 736f 6c65 2020 2020 .....console....
0x0050: 2020 4175 6720 3230 2031 383a 3039 200a ...Aug.20.18:09..
20:41:29.711053 IP localhost.54766 > localhost.terabase: Flags [I], ack 45, win 6380, options [nop,nop,TS val 3499031529 ecr 2448673103], length 0
0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@.@.....
0x0010: 7f00 0001 d5ee 0fa0 79ad b8c6 fafb f447 .....y.....G
0x0020: 8010 18ec fe28 0000 0101 080a d08e fbe9 .....(.....
0x0030: 91f3 c94f .....O
20:41:29.711096 IP localhost.terabase > localhost.54766: Flags [F], seq 45, ack 9, win 6380, options [nop,nop,TS val 2448673103 ecr 3499031505], length 0
0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@.@.....
0x0010: 7f00 0001 0fa0 d5ee fafb f447 79ad b8c6 .....Gy...
0x0020: 8011 18ec fe28 0000 0101 080a 91f3 c94f .....(.....O
0x0030: d08e fbd1 .....
20:41:29.711152 IP localhost.54766 > localhost.terabase: Flags [I], ack 46, win 6380, options [nop,nop,TS val 3499031529 ecr 2448673103], length 0
0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@.@.....
0x0010: 7f00 0001 d5ee 0fa0 79ad b8c6 fafb f448 .....y.....H
0x0020: 8010 18ec fe28 0000 0101 080a d08e fbe9 .....(.....
0x0030: 91f3 c94f .....O
20:41:29.711249 IP localhost.54766 > localhost.terabase: Flags [F], seq 9, ack 46, win 6380, options [nop,nop,TS val 3499031529 ecr 2448673103], length 0
0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@.@.....
0x0010: 7f00 0001 d5ee 0fa0 79ad b8c6 fafb f448 .....y.....H
0x0020: 8011 18ec fe28 0000 0101 080a d08e fbe9 .....(.....
0x0030: 91f3 c94f .....O
20:41:29.711300 IP localhost.terabase > localhost.54766: Flags [I], ack 10, win 6380, options [nop,nop,TS val 2448673103 ecr 3499031529], length 0
0x0000: 4500 0034 0000 4000 4006 0000 7f00 0001 E..4..@.@.....
0x0010: 7f00 0001 0fa0 d5ee fafb f448 79ad b8c7 .....Hy...
0x0020: 8010 18ec fe28 0000 0101 080a 91f3 c94f .....(.....O
0x0030: d08e fbe9 .....

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