

TCP Port Forwarder Annex

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COMP 8005, 6D

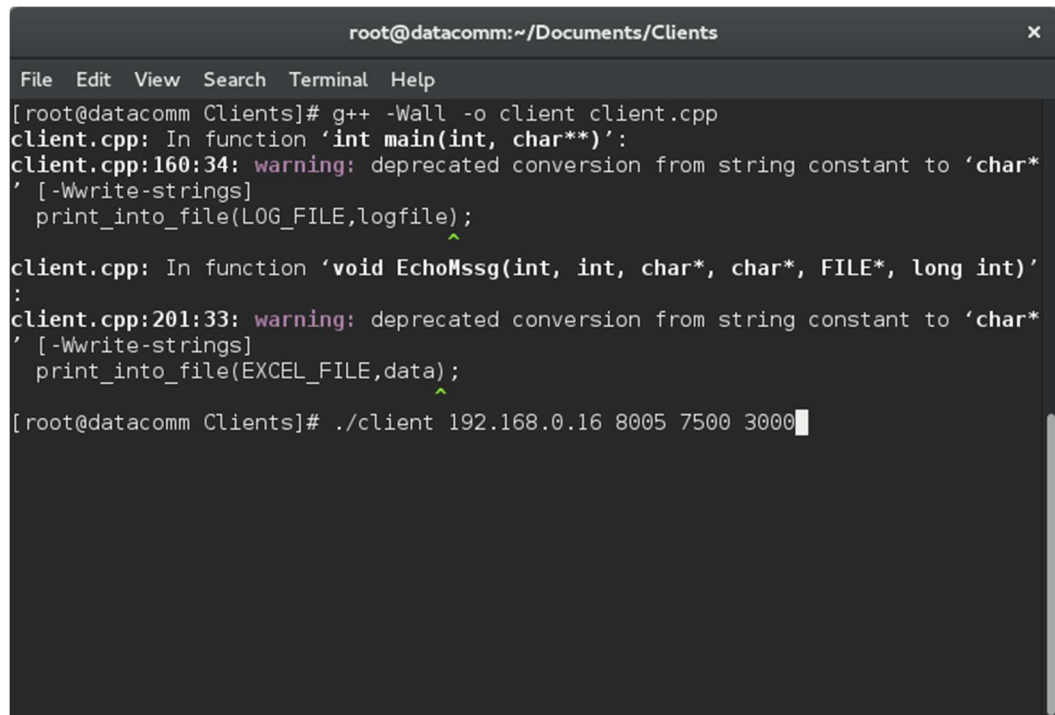
Aman Abdullah

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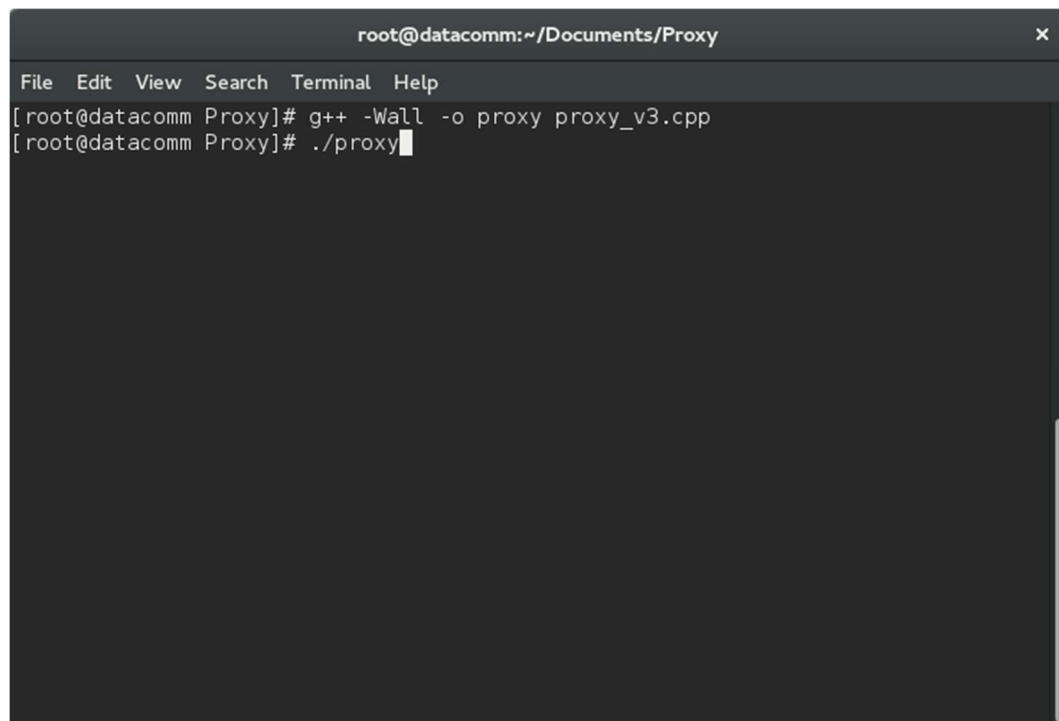
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Setting up



```
root@datacomm:~/Documents/Clients
File Edit View Search Terminal Help
[root@datacomm Clients]# g++ -Wall -o client client.cpp
client.cpp: In function 'int main(int, char**)':
client.cpp:160:34: warning: deprecated conversion from string constant to 'char*' [-Wwrite-strings]
    print_into_file(LOG_FILE,logfile);
                                ^
client.cpp: In function 'void EchoMssg(int, int, char*, char*, FILE*, long int)':
client.cpp:201:33: warning: deprecated conversion from string constant to 'char*' [-Wwrite-strings]
    print_into_file(EXCEL_FILE,data);
                                ^
[root@datacomm Clients]# ./client 192.168.0.16 8005 7500 3000
```

Figure 1 Setting up the client



```
root@datacomm:~/Documents/Proxy
File Edit View Search Terminal Help
[root@datacomm Proxy]# g++ -Wall -o proxy proxy_v3.cpp
[root@datacomm Proxy]# ./proxy
```

Figure 2 Setting the Port Forwarder

```

root@datacomm: ~/Documents/Test_Server
File Edit View Search Terminal Help
[root@datacomm Test_Server]# systemctl start sshd
[root@datacomm Test_Server]# systemctl start httpd
[root@datacomm Test_Server]# systemctl start ftpd
Failed to start ftpd.service: Unit ftpd.service failed to load: No such file or
directory.
[root@datacomm Test_Server]# systemctl start vsftpd
[root@datacomm Test_Server]# gcc -pthread -o thread threaded.c
[root@datacomm Test_Server]# ./thread 8005
Socket has been created
Bind done
Wait for client connections

```

Figure 3 Setting the remote Server

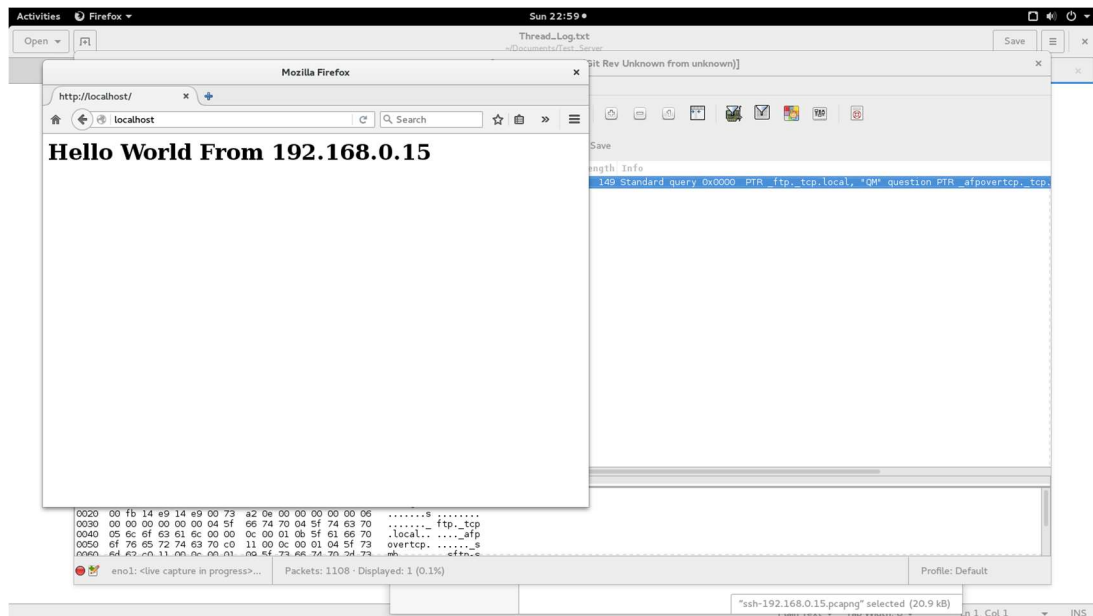


Figure 4 Setting the HTTP webpage (remote server)

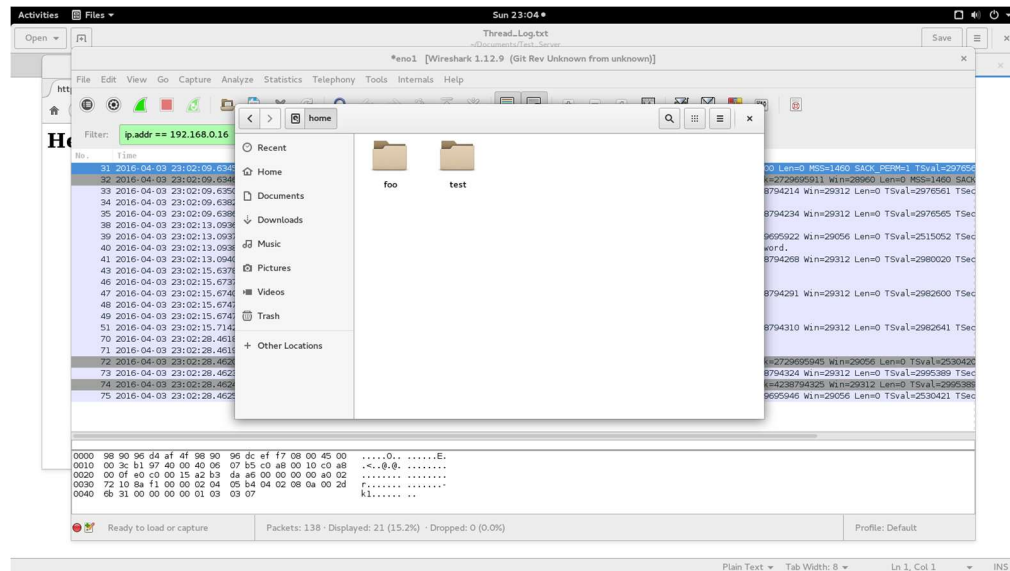


Figure 5 Creating user for FTP (remote server)

1. SSH Test

```

root@datacomm:~
File Edit View Search Terminal Help
[root@datacomm Clients]# ssh 192.168.0.16
root@192.168.0.16's password:
Last login: Sun Apr 3 22:53:21 2016 from 192.168.0.16
[root@datacomm ~]# sudo ifconfig
enol: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.0.15 netmask 255.255.255.0 broadcast 192.168.0.255
    inet6 fe80::9a90:96ff:fed4:af4f prefixlen 64 scopeid 0x20<link>
    ether 98:90:96:d4:af:4f txqueuelen 1000 (Ethernet)
    RX packets 66655823 bytes 9980736554 (9.2 GiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 66559811 bytes 9973247606 (9.2 GiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
    device interrupt 20 memory 0xf7d00000-f7d20000

enp3s2: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    ether 00:0e:0c:51:2e:8a txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>

```

Figure 6 SSH test (Client)

2. HTTP Test

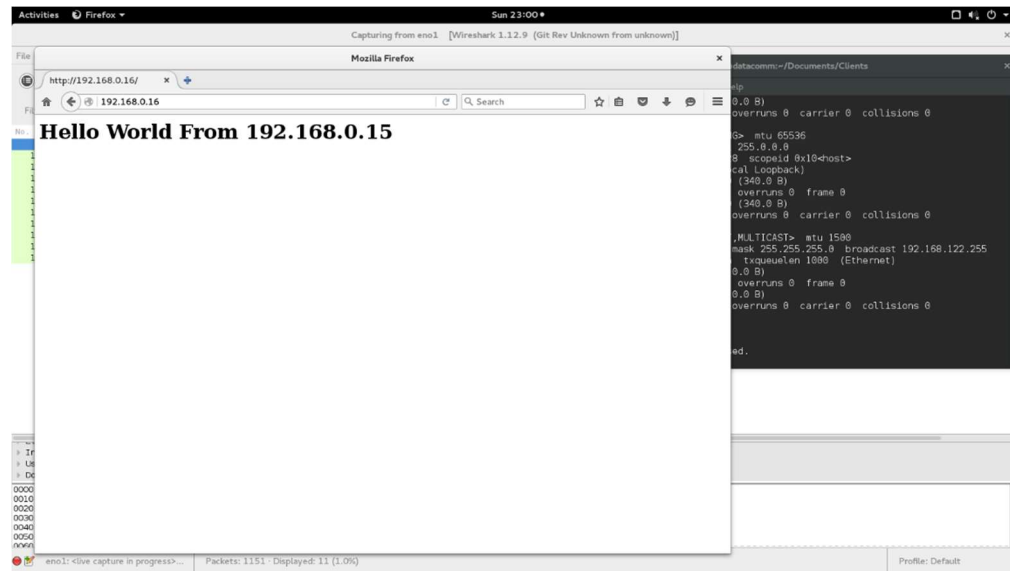


Figure 7 HTTP Test (Client)

3. FTP Test

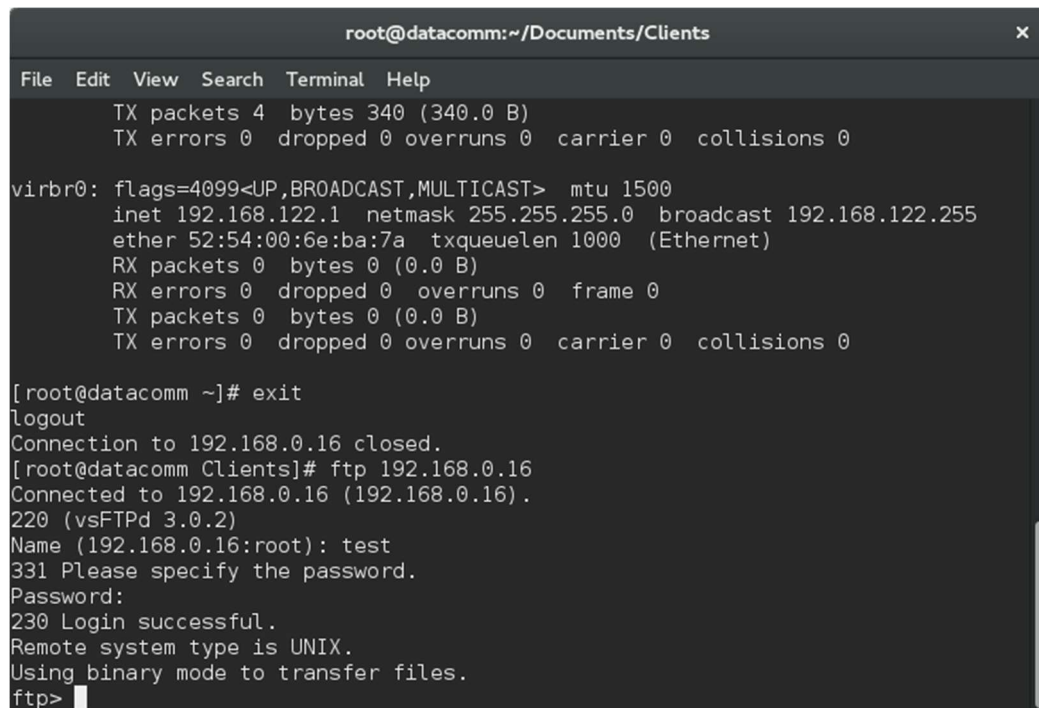
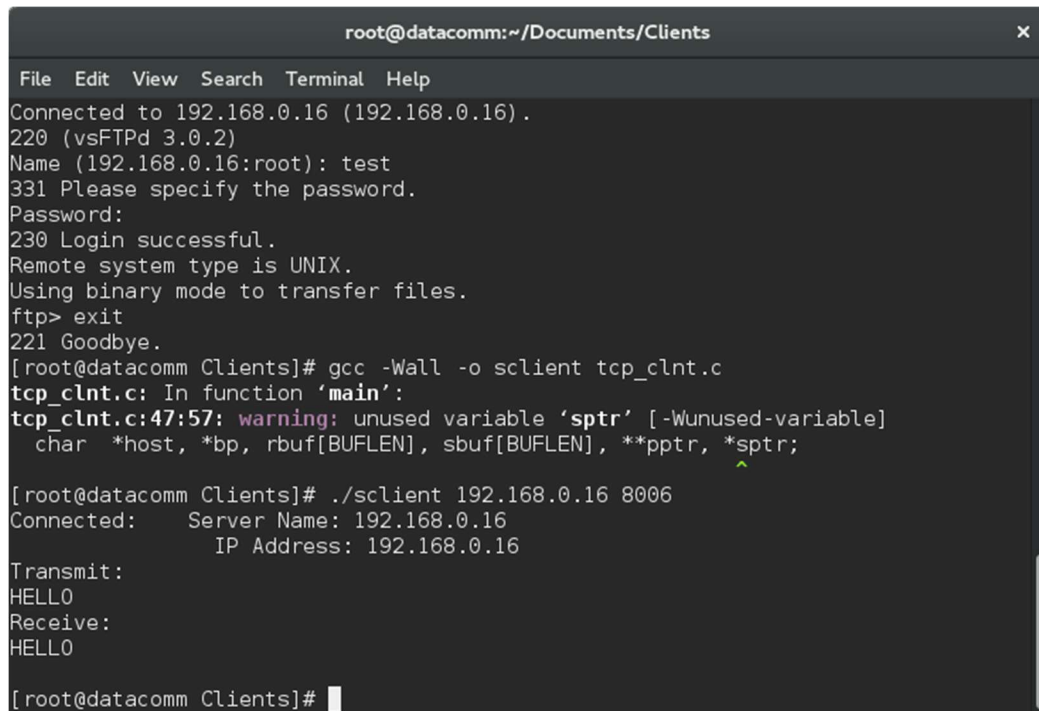


Figure 8 FTP Test (Client)

4. TCP Server/Client Test

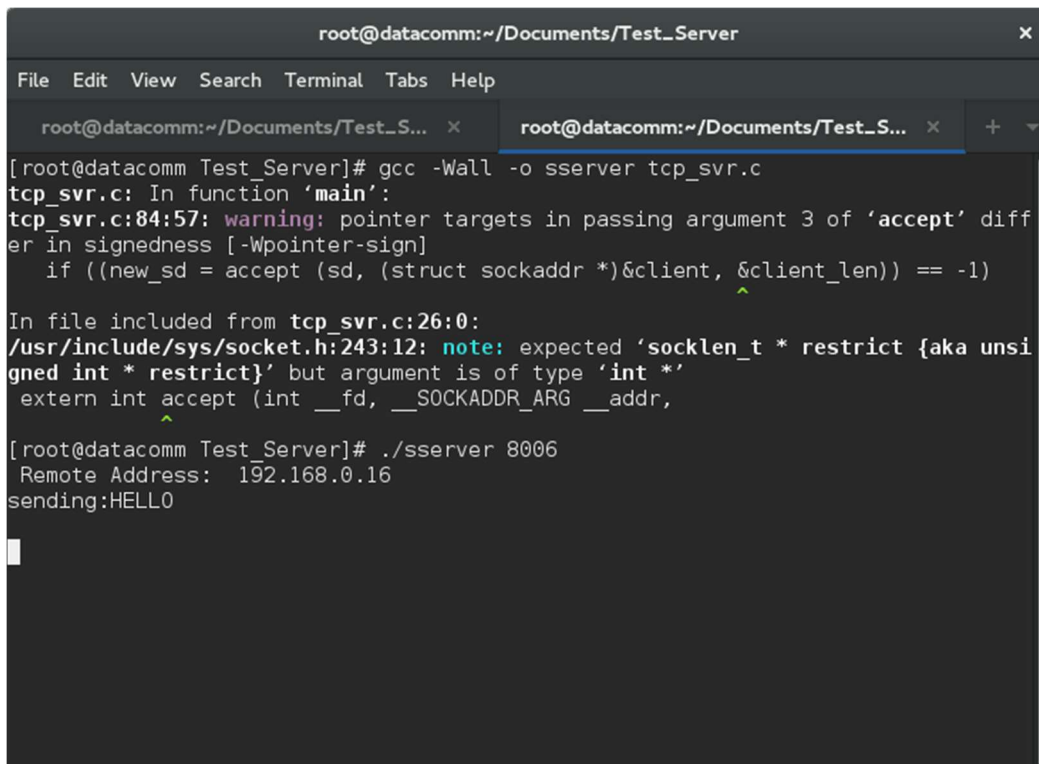


```

root@datacomm: ~/Documents/Clients
File Edit View Search Terminal Help
Connected to 192.168.0.16 (192.168.0.16).
220 (vsFTPD 3.0.2)
Name (192.168.0.16:root): test
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> exit
221 Goodbye.
[root@datacomm Clients]# gcc -Wall -o sclnt tcp_clnt.c
tcp_clnt.c: In function 'main':
tcp_clnt.c:47:57: warning: unused variable 'sptr' [-Wunused-variable]
    char *host, *bp, rbuf[BUFLen], sbuf[BUFLen], **pptr, *sptr;
                                                    ^
[root@datacomm Clients]# ./sclnt 192.168.0.16 8006
Connected:      Server Name: 192.168.0.16
                IP Address: 192.168.0.16
Transmit:
HELLO
Receive:
HELLO
[root@datacomm Clients]#

```

Figure 9 TCP Client Test



```

root@datacomm: ~/Documents/Test_Server
File Edit View Search Terminal Tabs Help
root@datacomm: ~/Documents/Test_S... x root@datacomm: ~/Documents/Test_S... x + v
[root@datacomm Test_Server]# gcc -Wall -o sserver tcp_svr.c
tcp_svr.c: In function 'main':
tcp_svr.c:84:57: warning: pointer targets in passing argument 3 of 'accept' differ in signedness [-Wpointer-sign]
    if ((new_sd = accept (sd, (struct sockaddr *)&client, &client_len)) == -1)
                                                    ^
In file included from tcp_svr.c:26:0:
/usr/include/sys/socket.h:243:12: note: expected 'socklen_t * restrict {aka unsigned int * restrict}' but argument is of type 'int *'
    extern int accept (int __fd, __SOCKADDR_ARG __addr,
                    ^
[root@datacomm Test_Server]# ./sserver 8006
Remote Address: 192.168.0.16
sending:HELLO

```

Figure 10 TCP Server Test

5. Multiple Client Test, 2500 clients

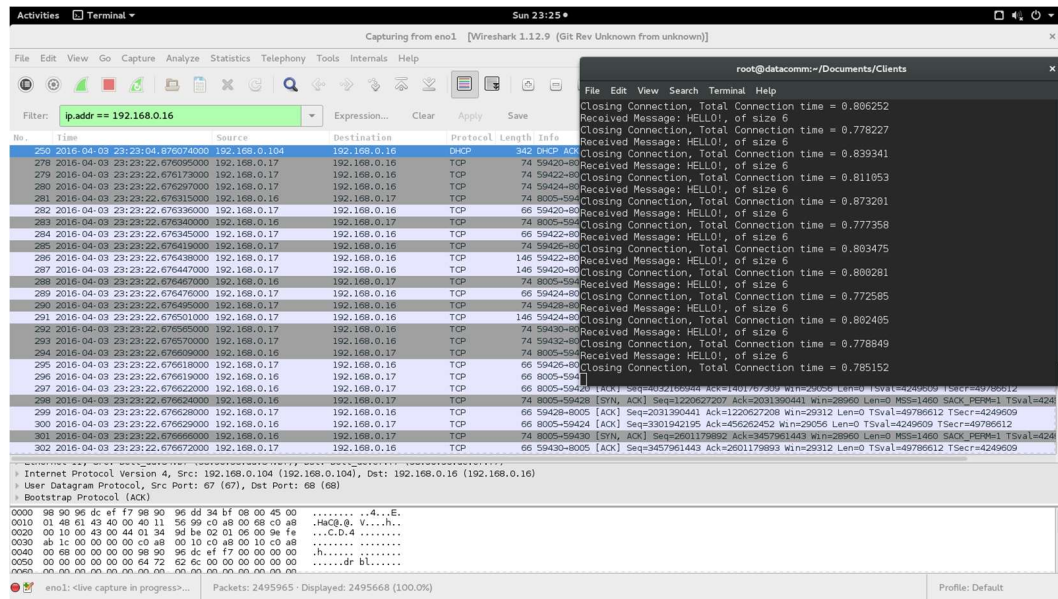


Figure 11 multiple connections (client)

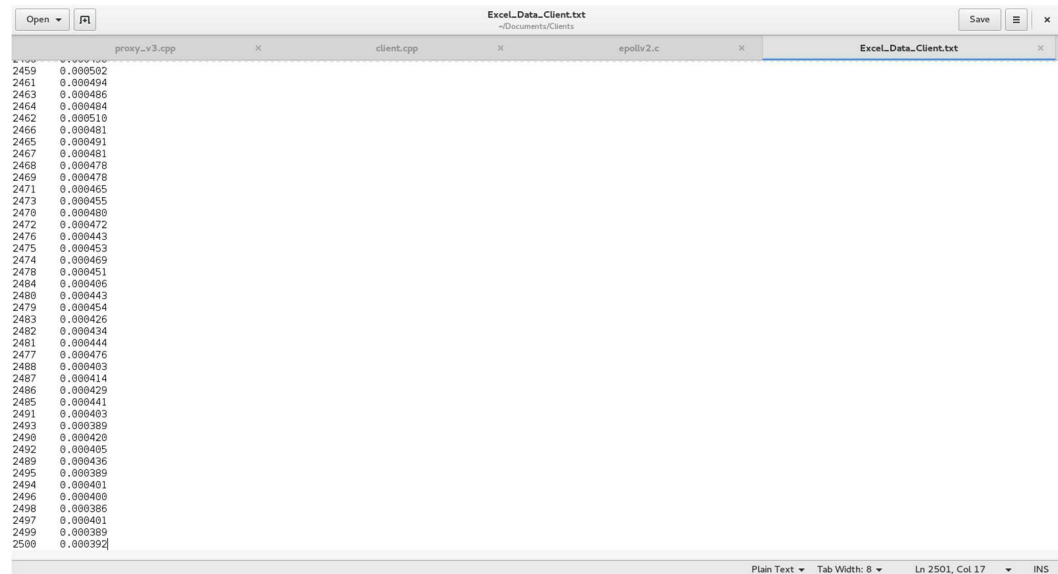


Figure 12 Client Logfile

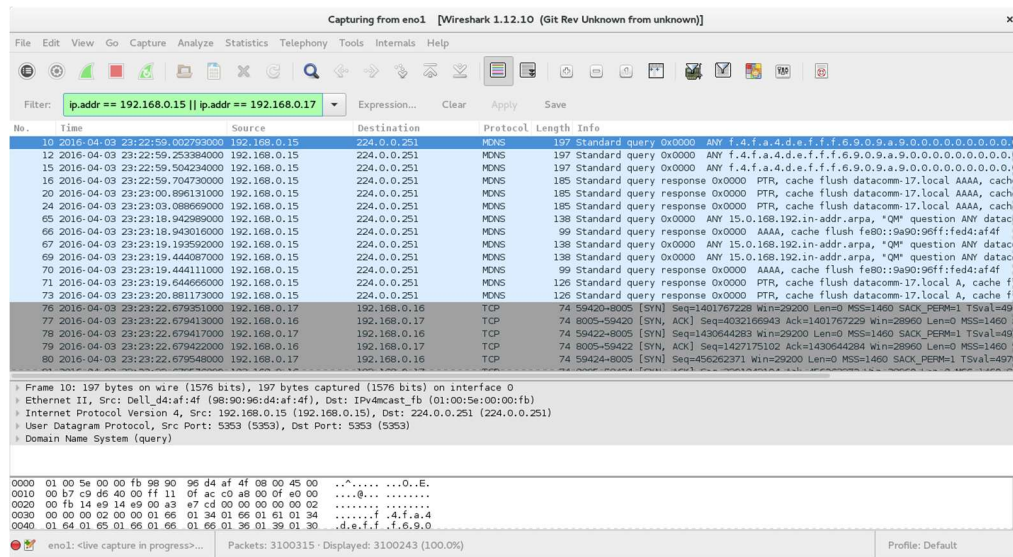


Figure 13 Forwarder Wireshark Capture Fragment

6. Multiple Client Test, 5000 clients

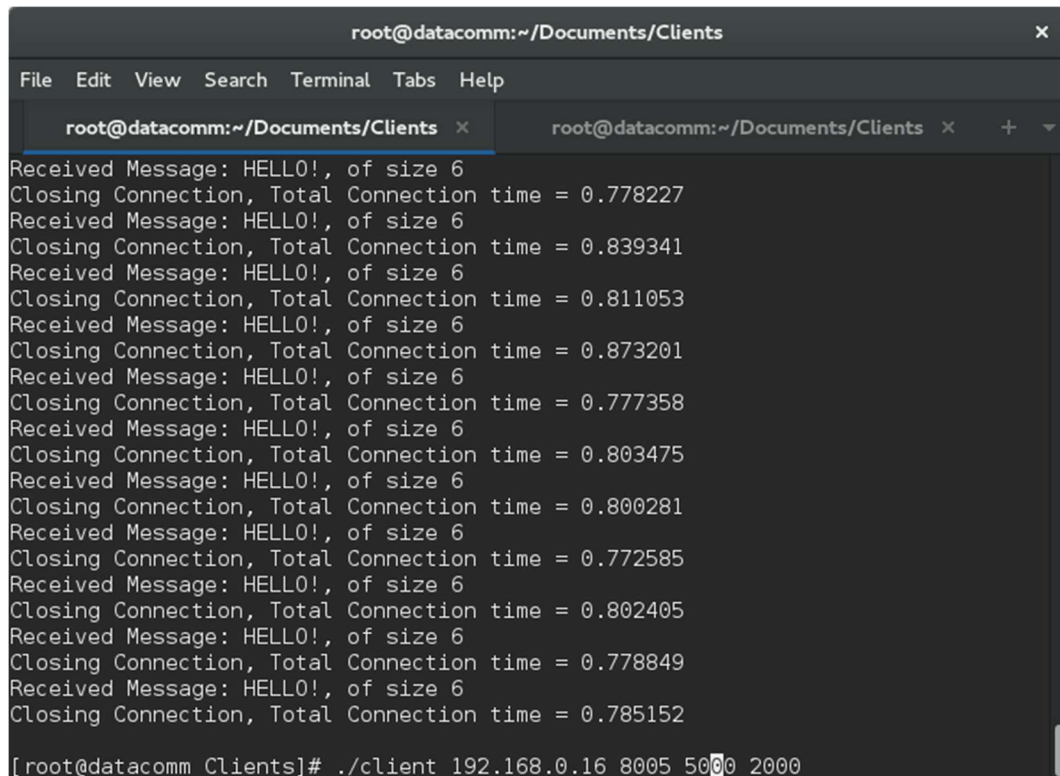


Figure 14 Execution Client

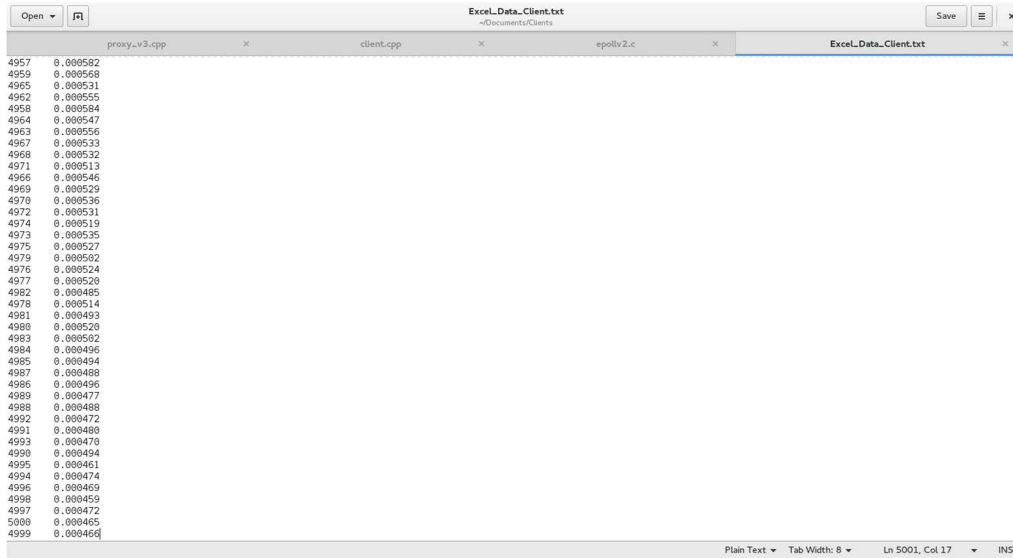


Figure 15 Client Logfile

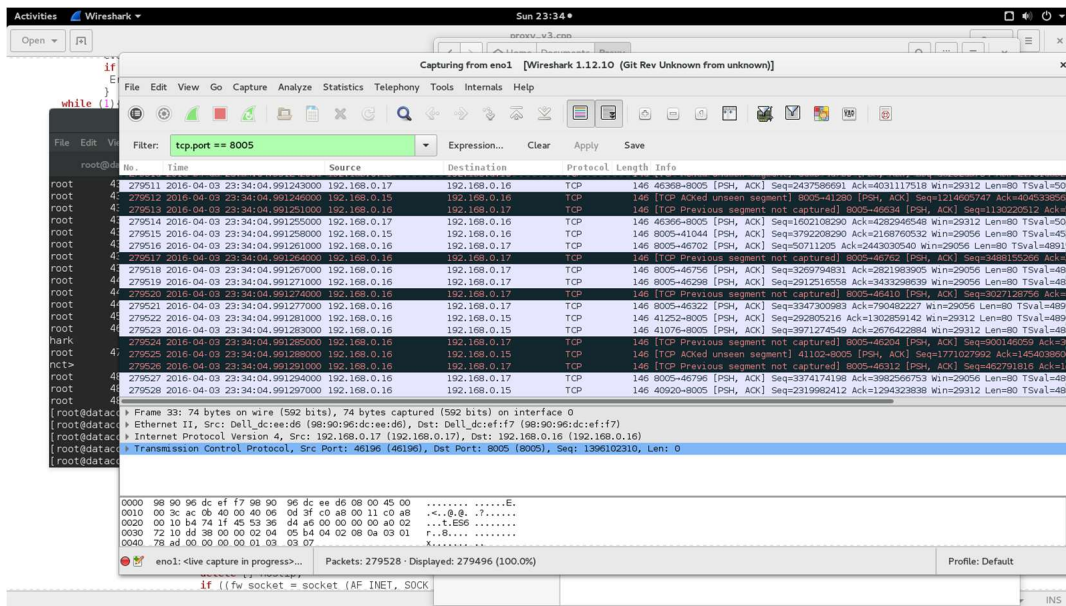


Figure 16 Forwarder Wireshark Capture Fragment

7. Multiple Client Test, 7500 clients

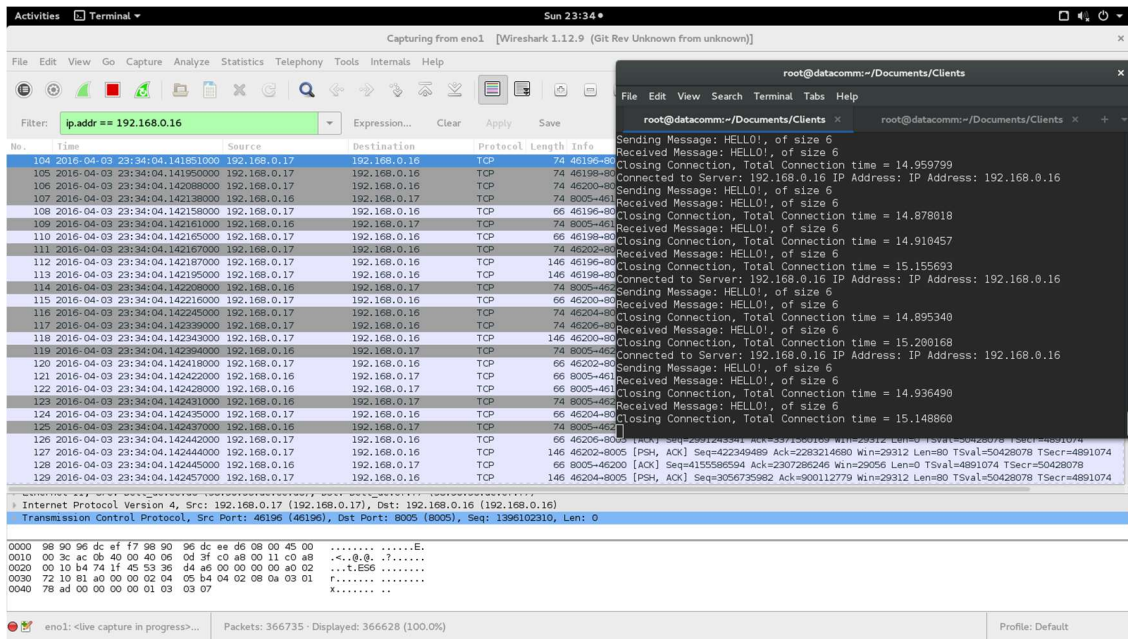


Figure 17 Client Wireshark Capture

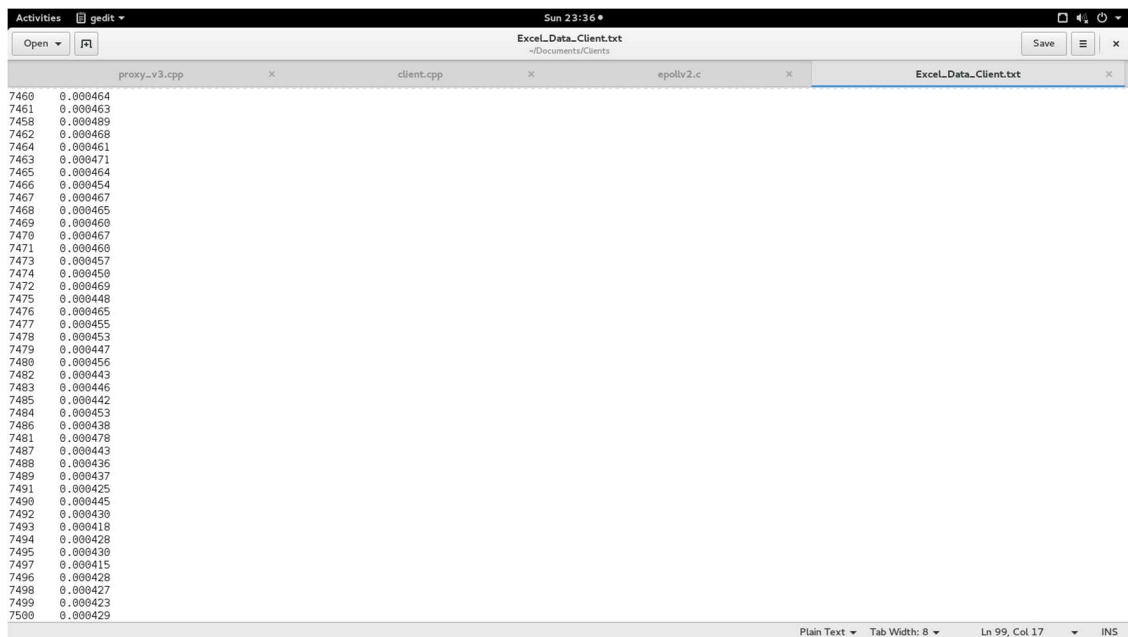


Figure 18 Client Logfile

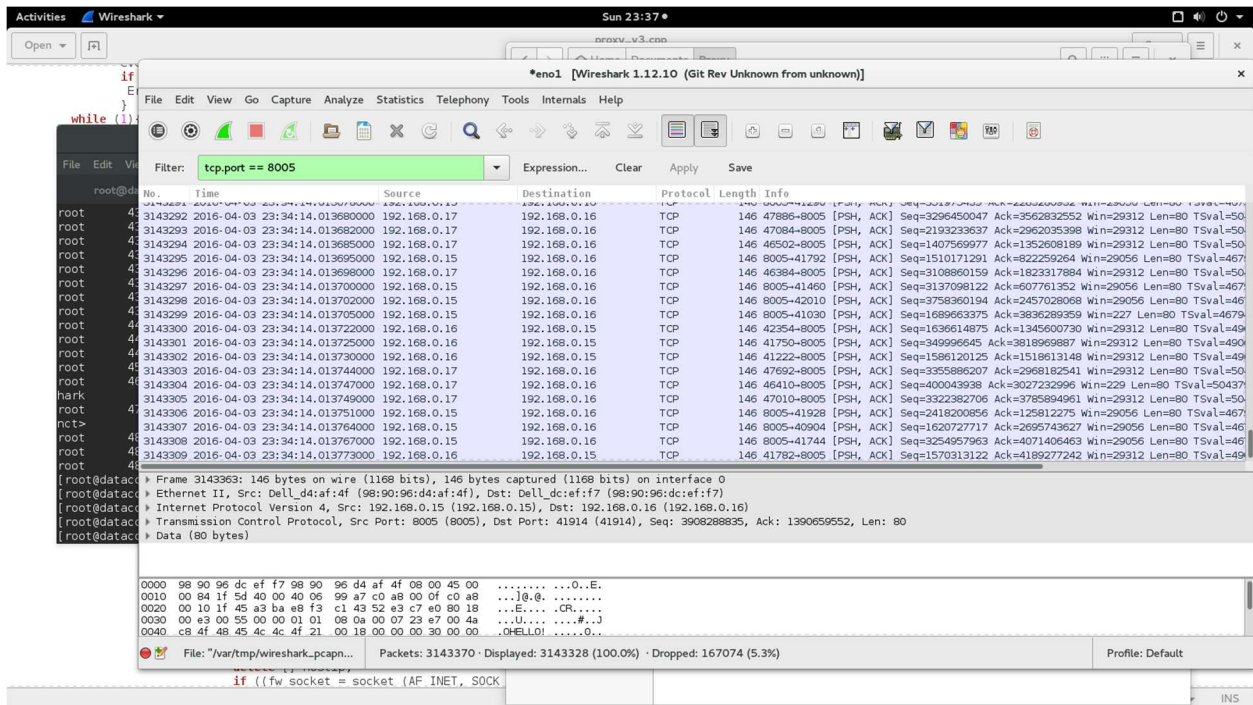


Figure 19 Forwarder Wireshark Capture Fragment