Computer Network Security

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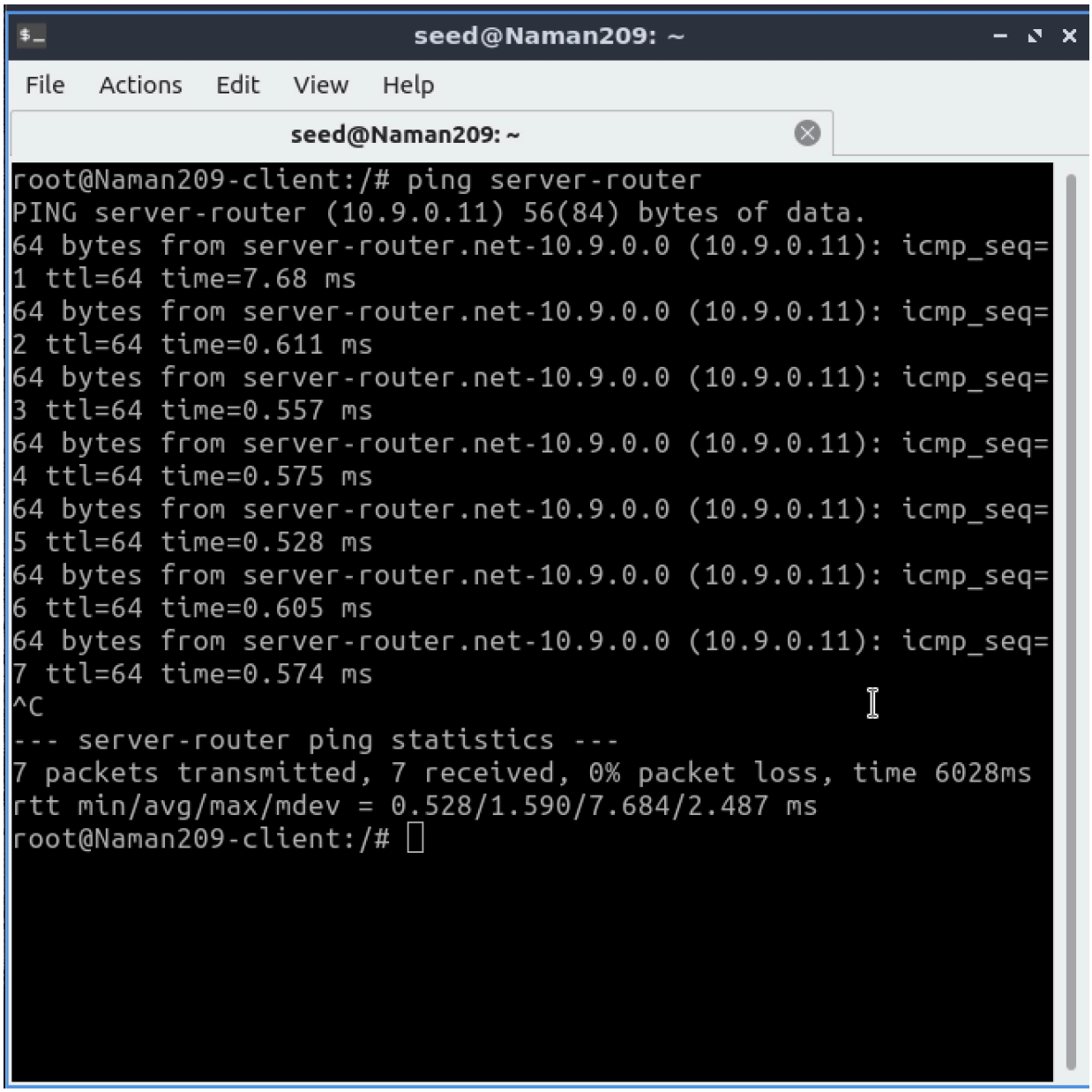
Section	D

VPN Tunneling Lab

Task 1: Network Setup

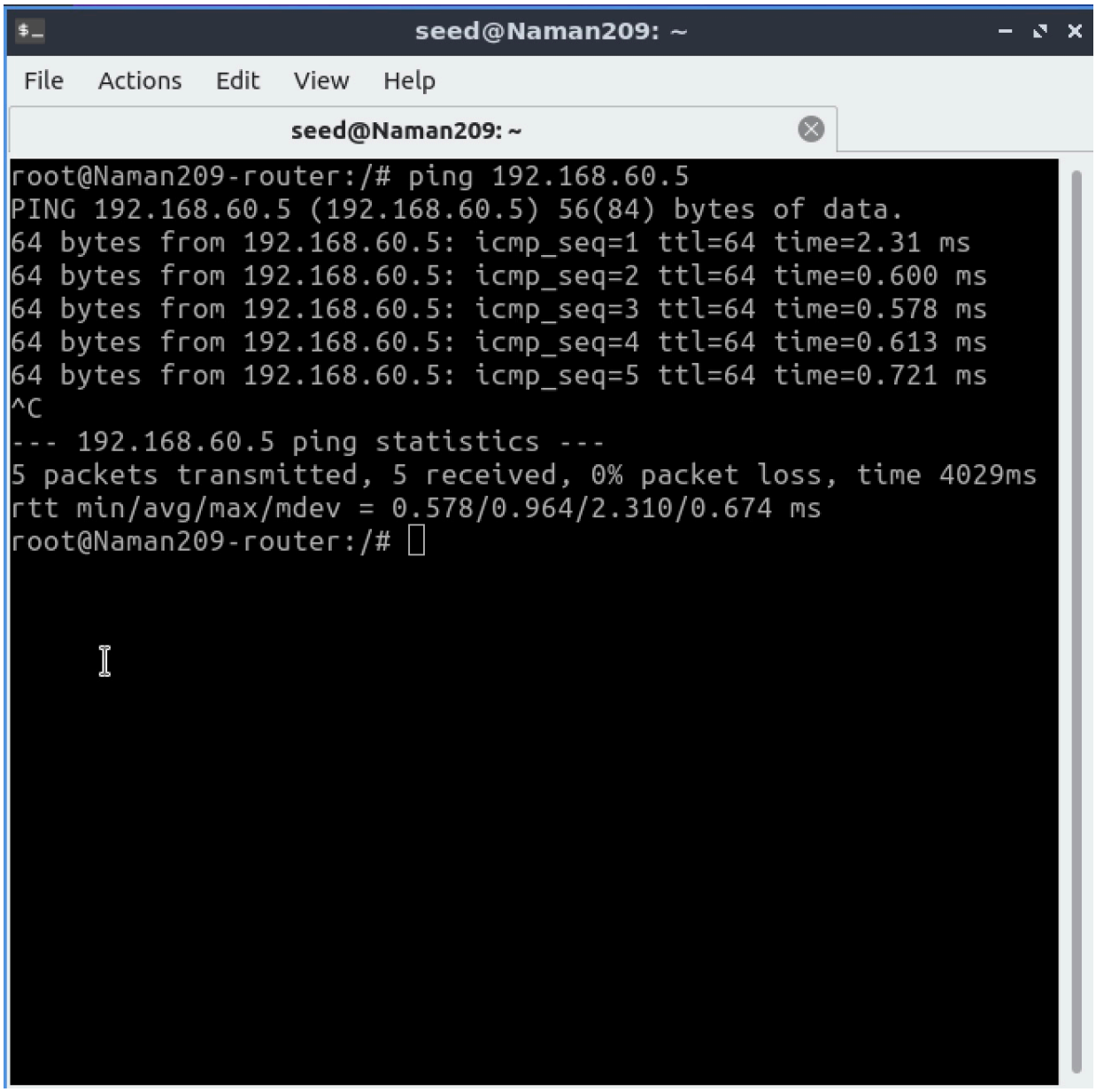
On Client-10.9.0.5

```bash
ping server-router
```



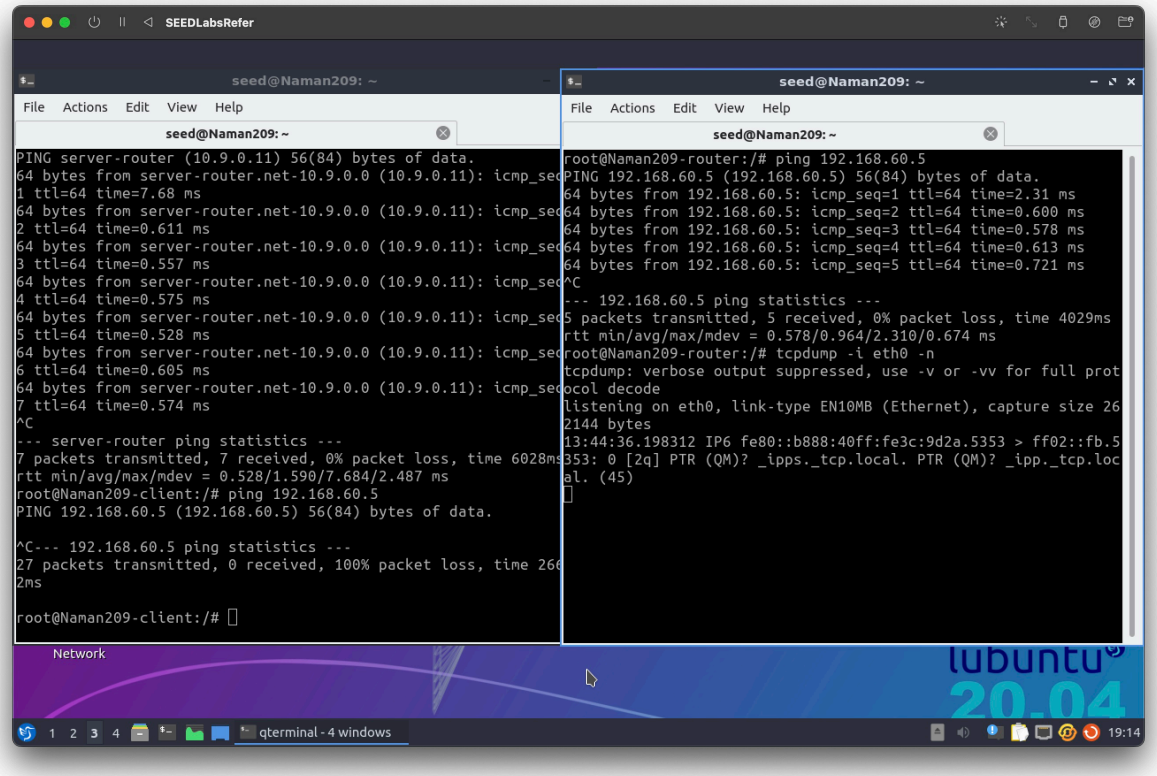
In router

```bash
ping 192.168.60.5
```



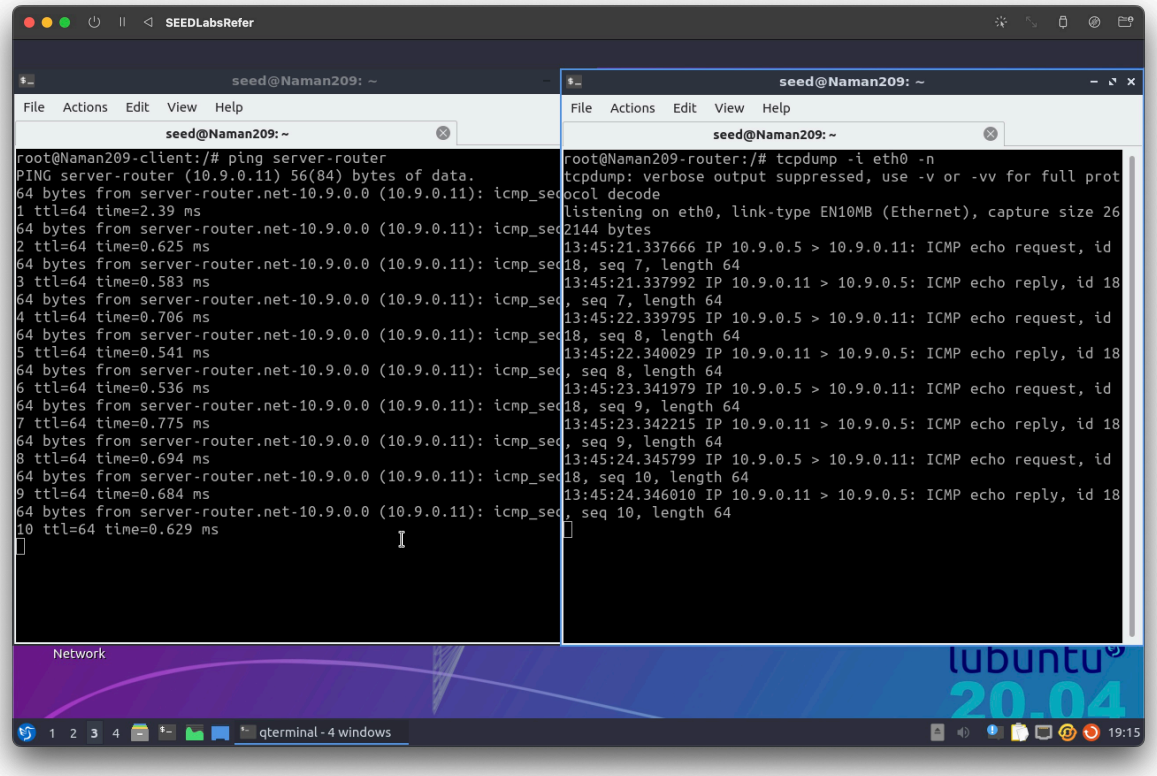
On Client-10.9.0.5

```bash
ping 192.168.60.5
```




```bash
tcpdump -i eth0 -n
```

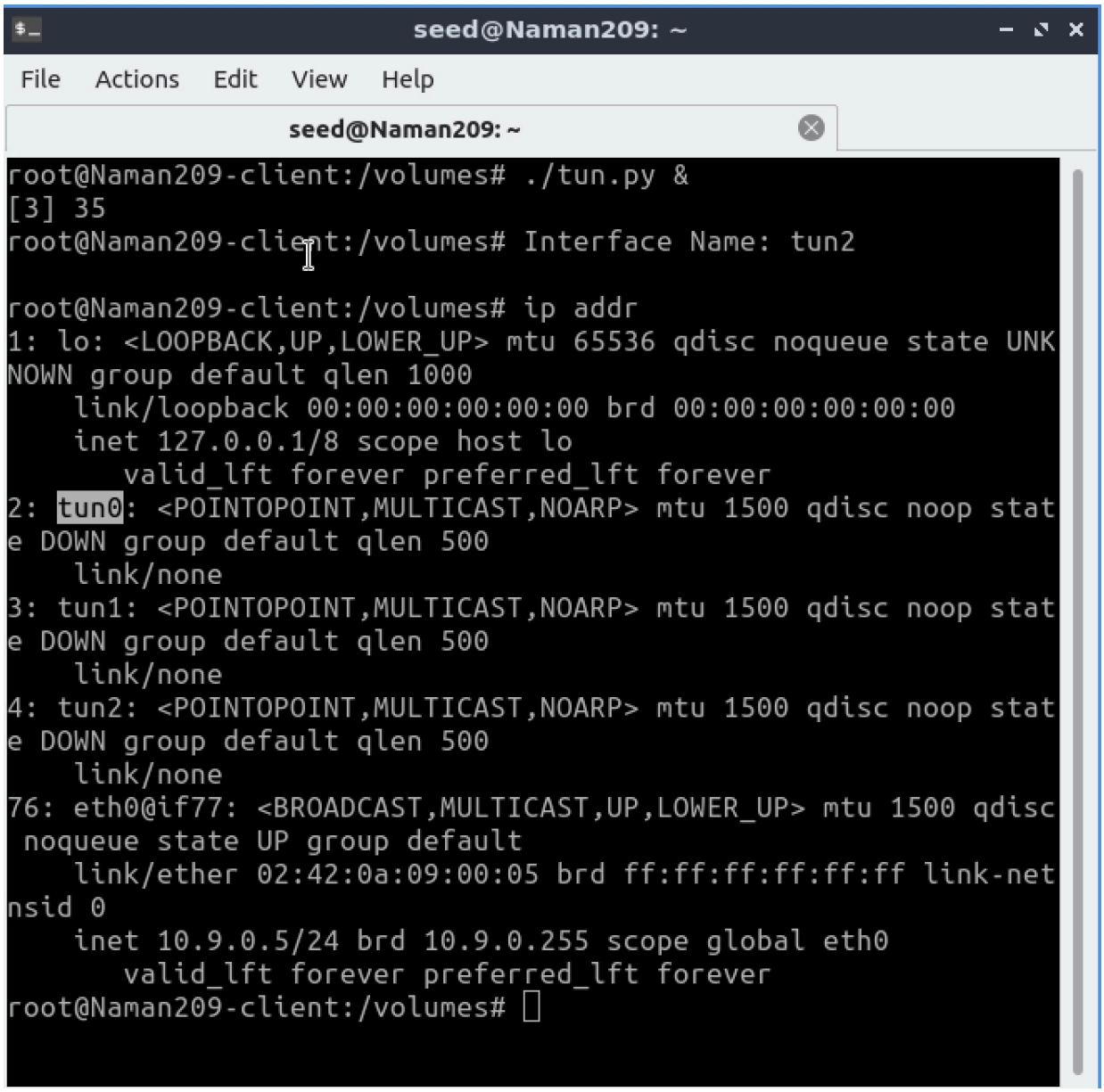
```bash
ping server-router
```



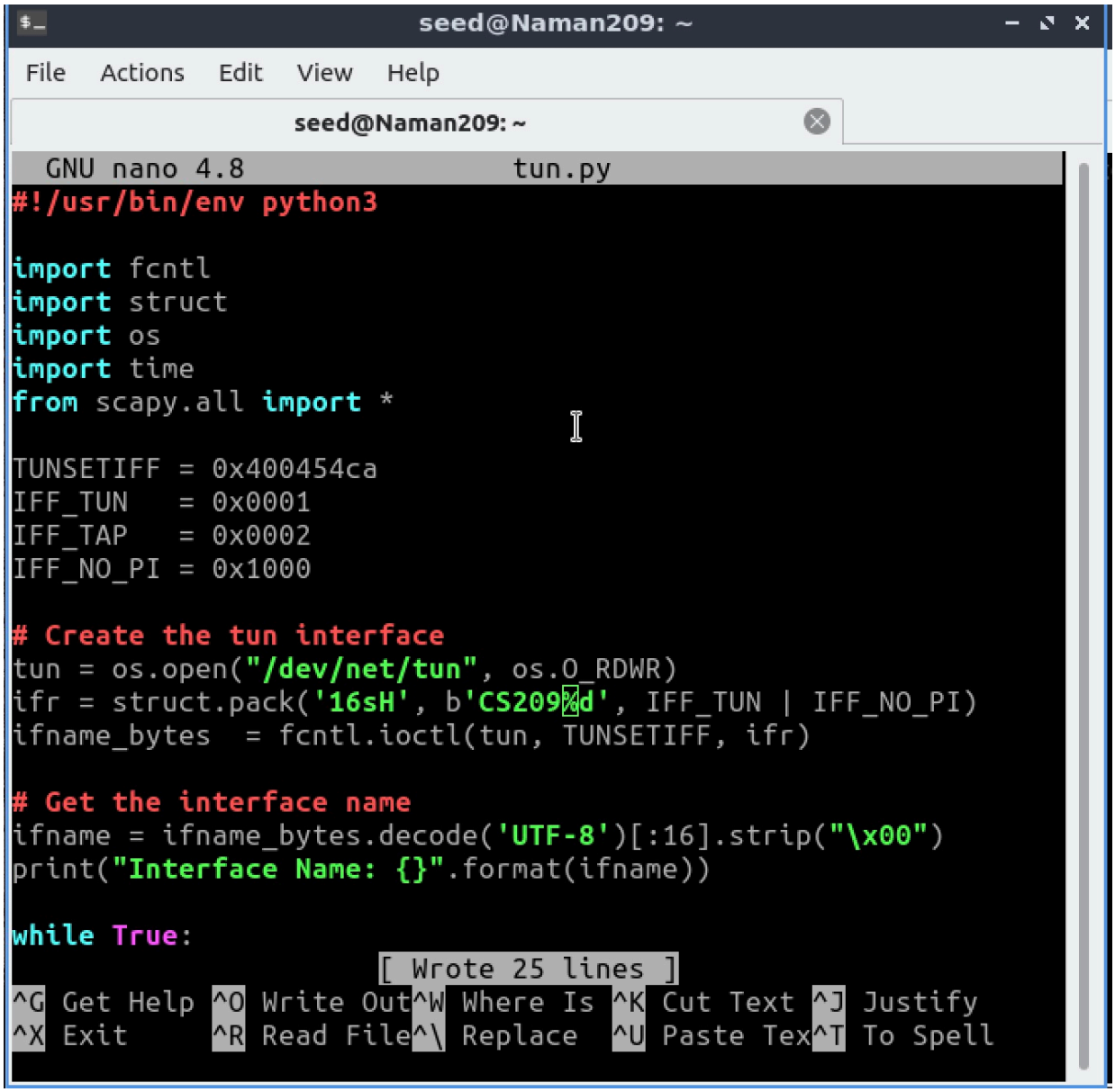
Task 2: Create and Configure TUN Interface

Task 2.a: Name of the Interface

```bash
chmod a+x tun.py
./tun.py &
ip addr
```

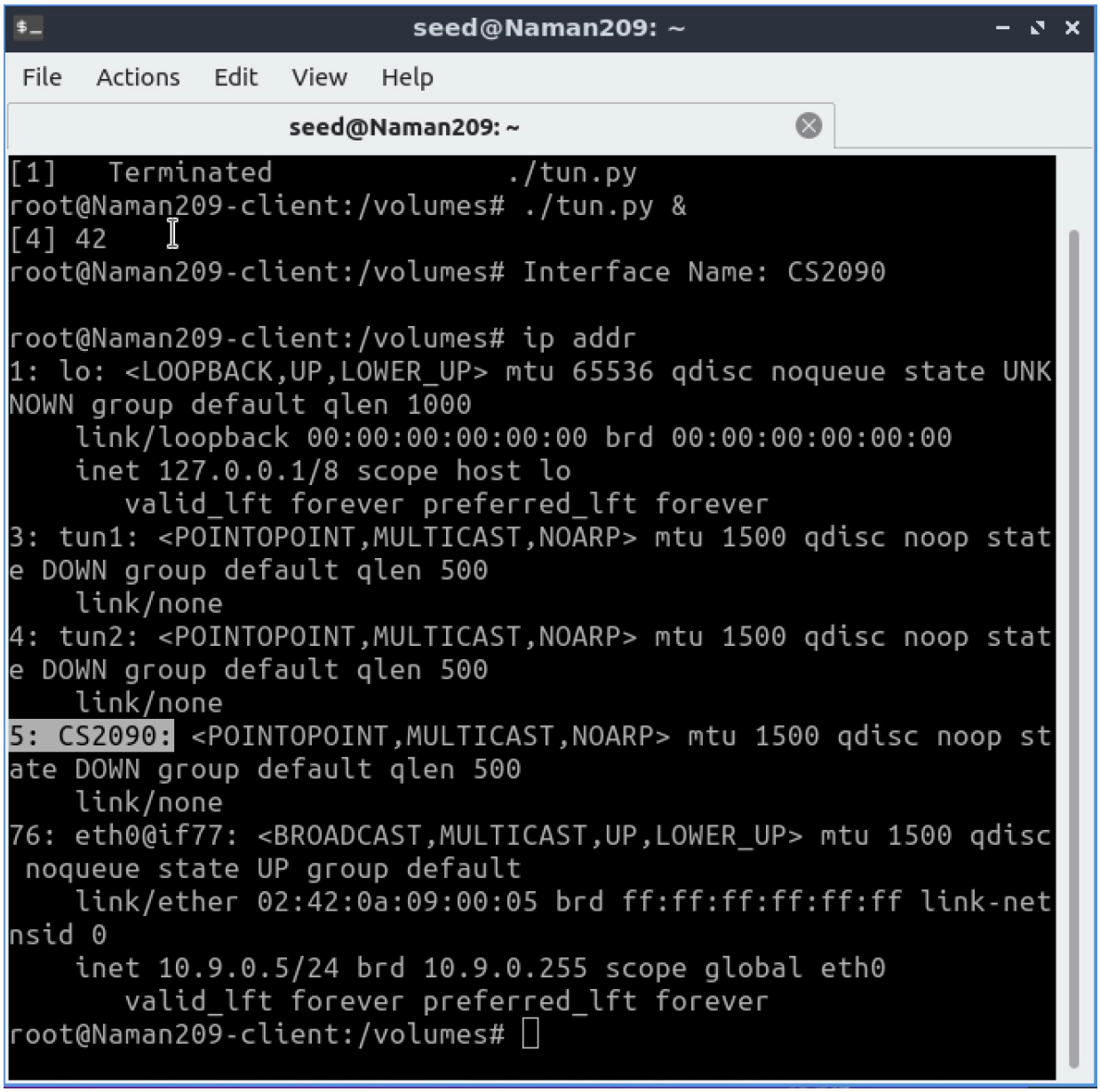


Change tun to SRN



Bash

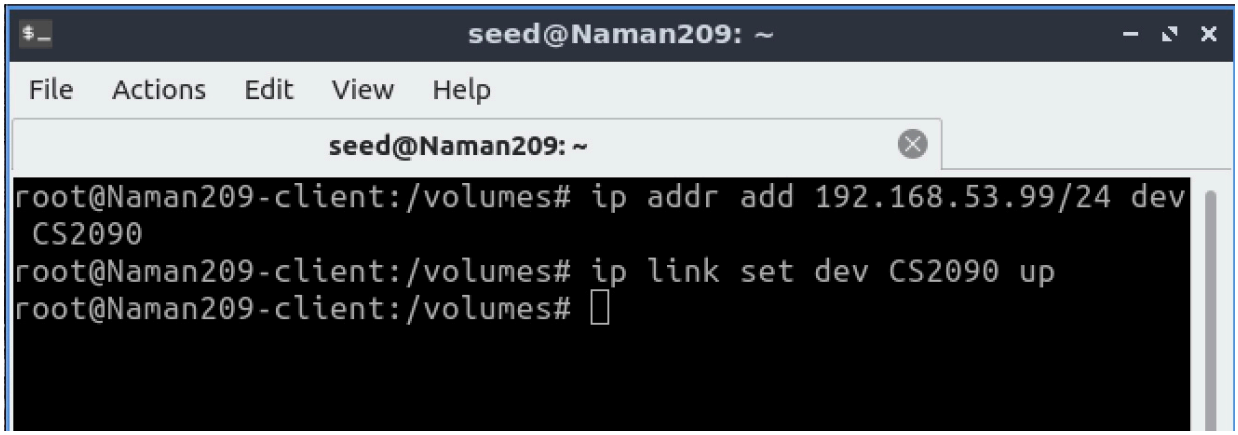
```
chmod a+x tun.py
./tun.py &
ip addr
```



Task 2.b: Set up the TUN Interface

Bash

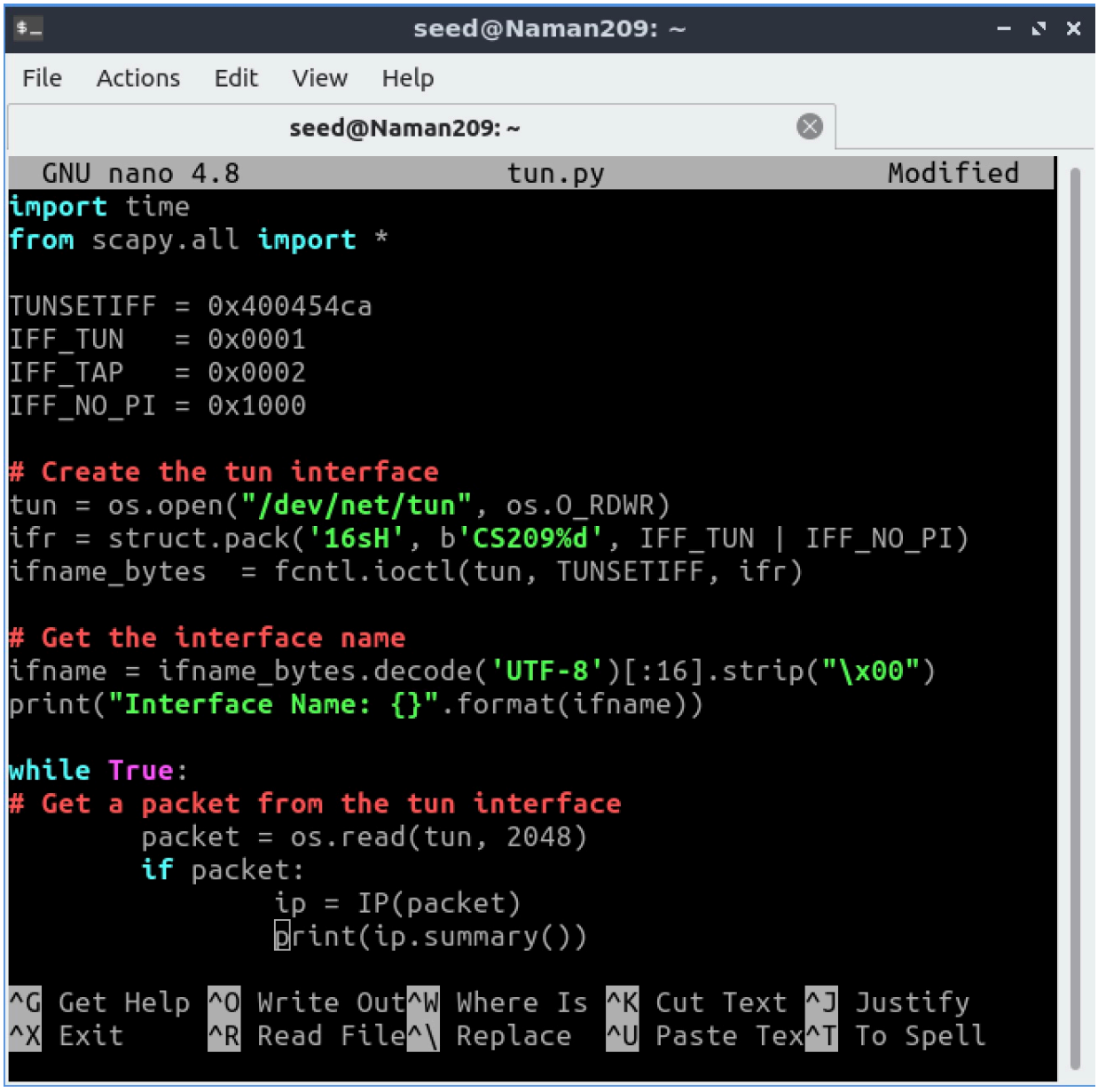
```
ip addr add 192.168.53.99/24 dev <SRN>0
ip link set dev <SRN>0 up
```



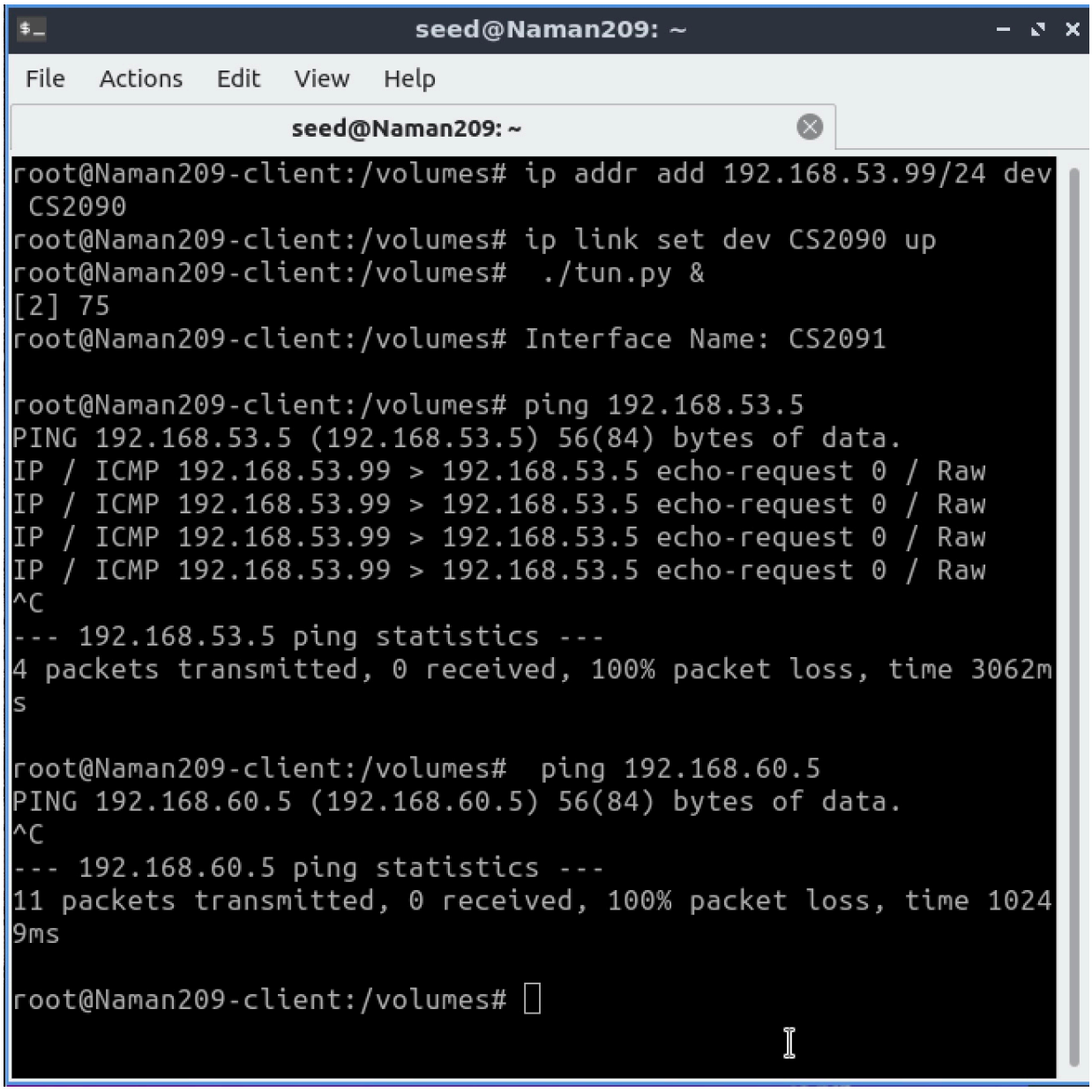
Task 2.c: Read from the TUN Interface

Replace code :

```python
while True:
# Get a packet from the tun interface
    packet = os.read(tun, 2048)
    if packet:
        ip = IP(packet)
        print(ip.summary())
```




```bash
ip addr add 192.168.53.99/24 dev <SRN>0
ip link set dev <SRN>0 up
```

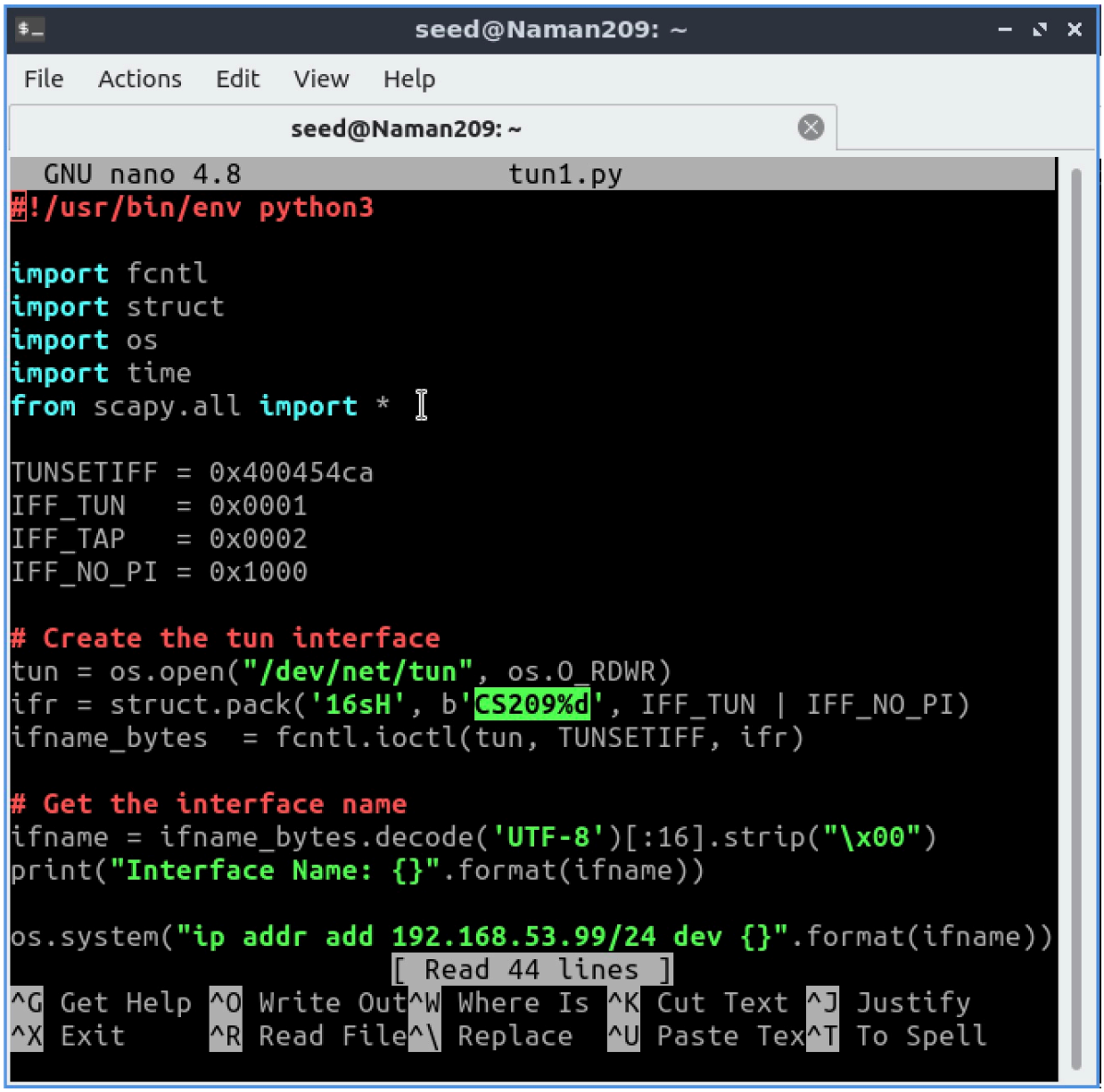


Observation: Yes, `ping 192.168.53.5` prints out `IP / ICMP 192.168.53.99 > 192.168.53.5 echo-request 0 / Raw`

No, `ping 192.168.60.5` loses all packets

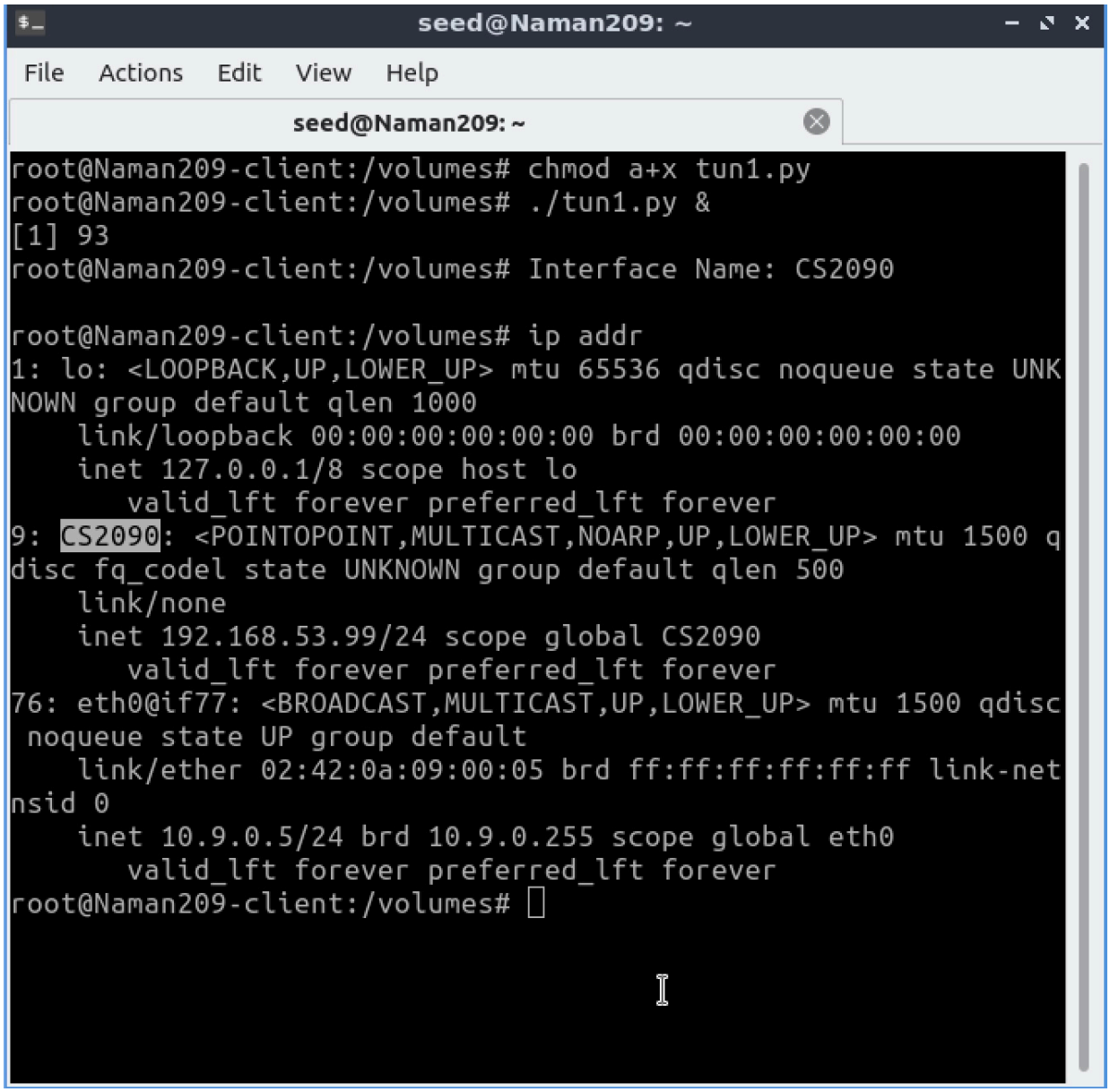
Task 2.d: Write to the TUN Interface

Change tun to SRN



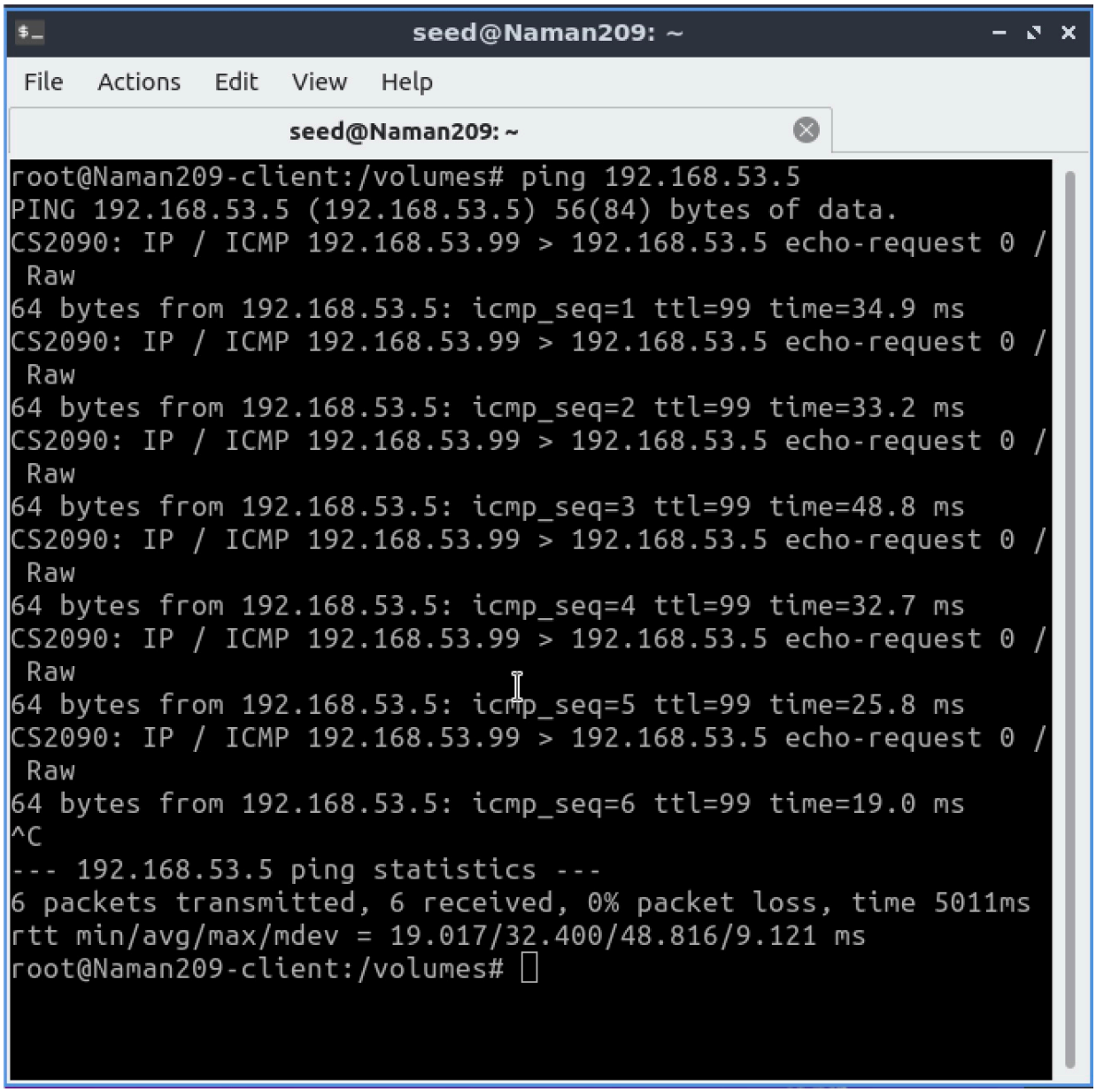
Bash

```
chmod a+x tun.py
./tun1.py &
ip addr
```



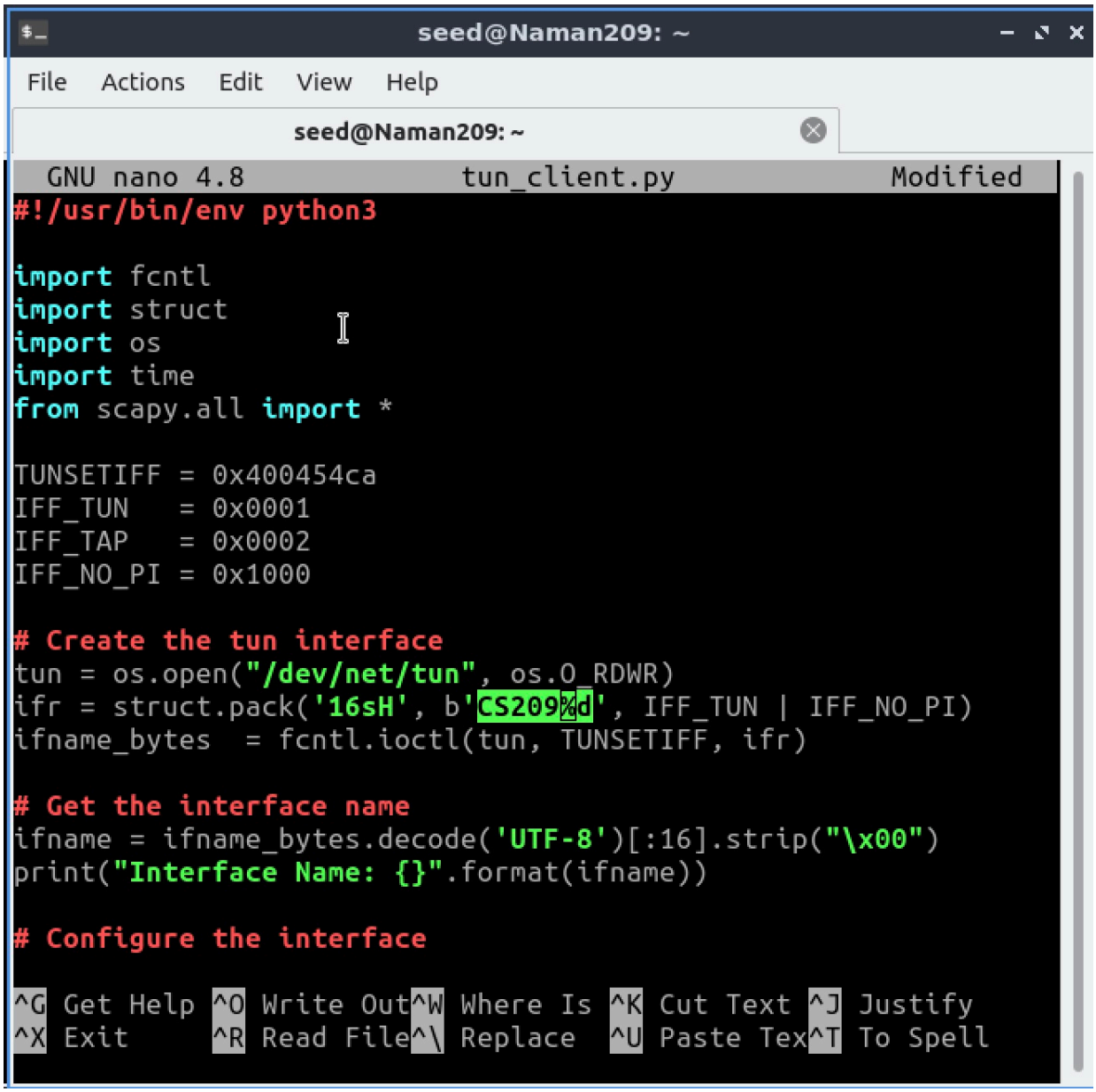
Bash

```
ping 192.168.53.5
```



Task 3: Send the IP Packet to VPN Server Through a Tunnel

Change tun to SRN

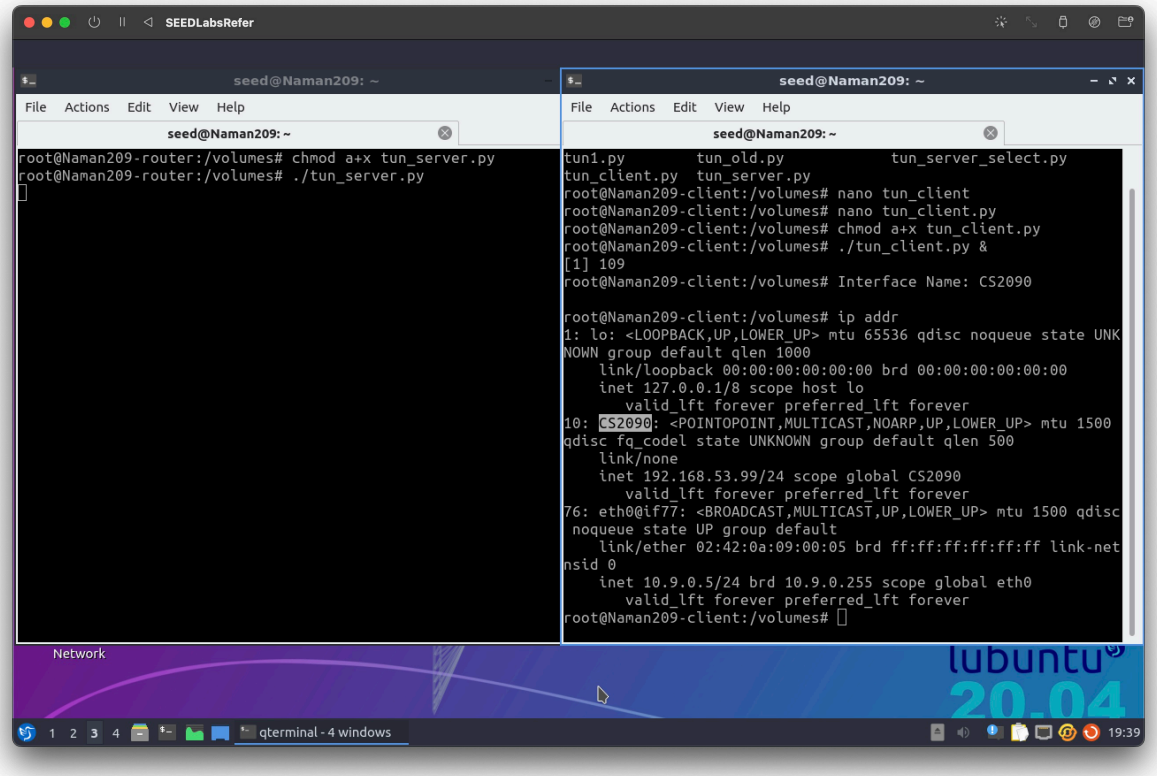


Bash

```
chmod a+x tun_server.py
./tun_server.py
```

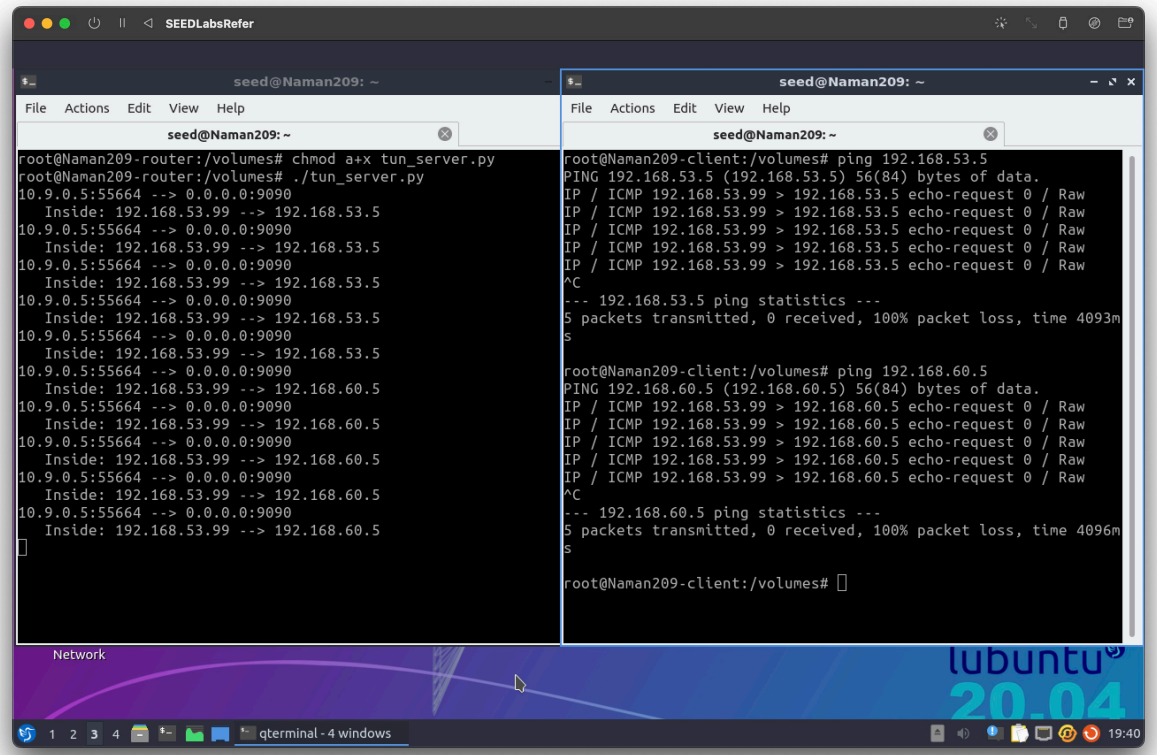
Bash

```
chmod a+x tun_client.py
./tun_client.py &
ip addr
```



Bash

```
ping 192.168.53.5
ping 192.168.60.5
```



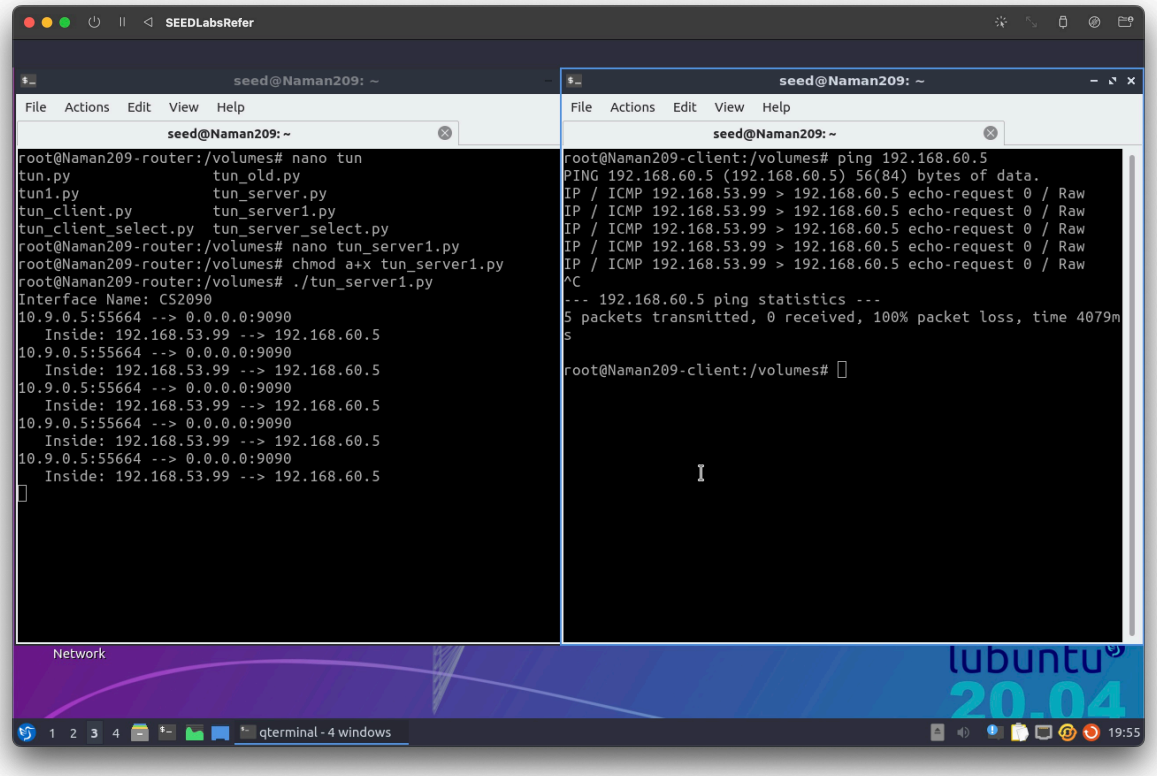
```bash
ip route
```

```
root@Naman209-client:/volumes#  ip route
default via 10.9.0.1 dev eth0
10.9.0.0/24 dev eth0 proto kernel scope link src 10.9.0.5
192.168.53.0/24 dev CS2090 proto kernel scope link src 192.168.
53.99
192.168.60.0/24 dev CS2090 scope link
root@Naman209-client:/volumes#
```

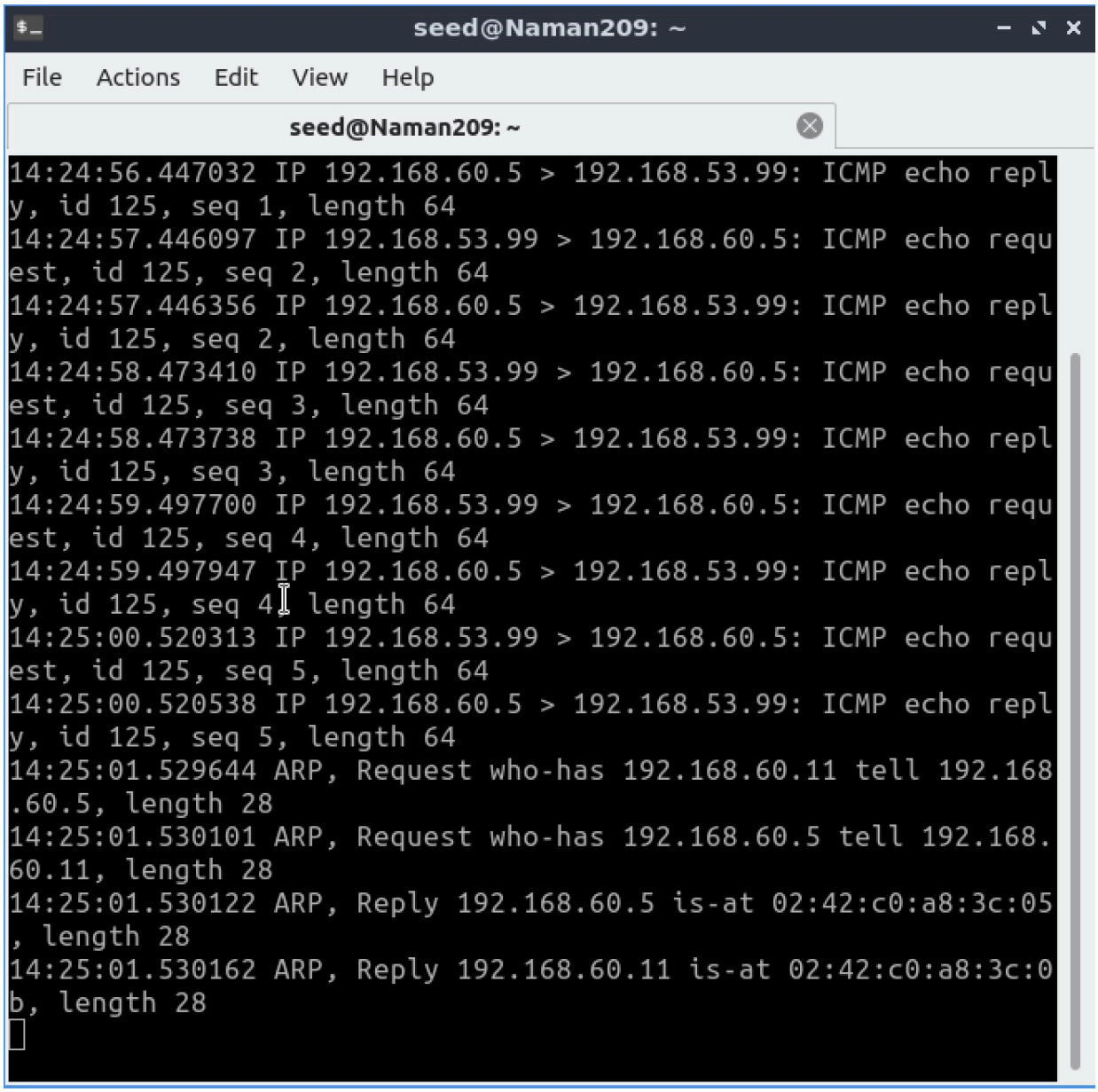
Task 4: Set Up the VPN Server

```bash
chmod a+x tun_server1.py
./tun_server1.py
```

```bash
ping 192.168.60.5
```

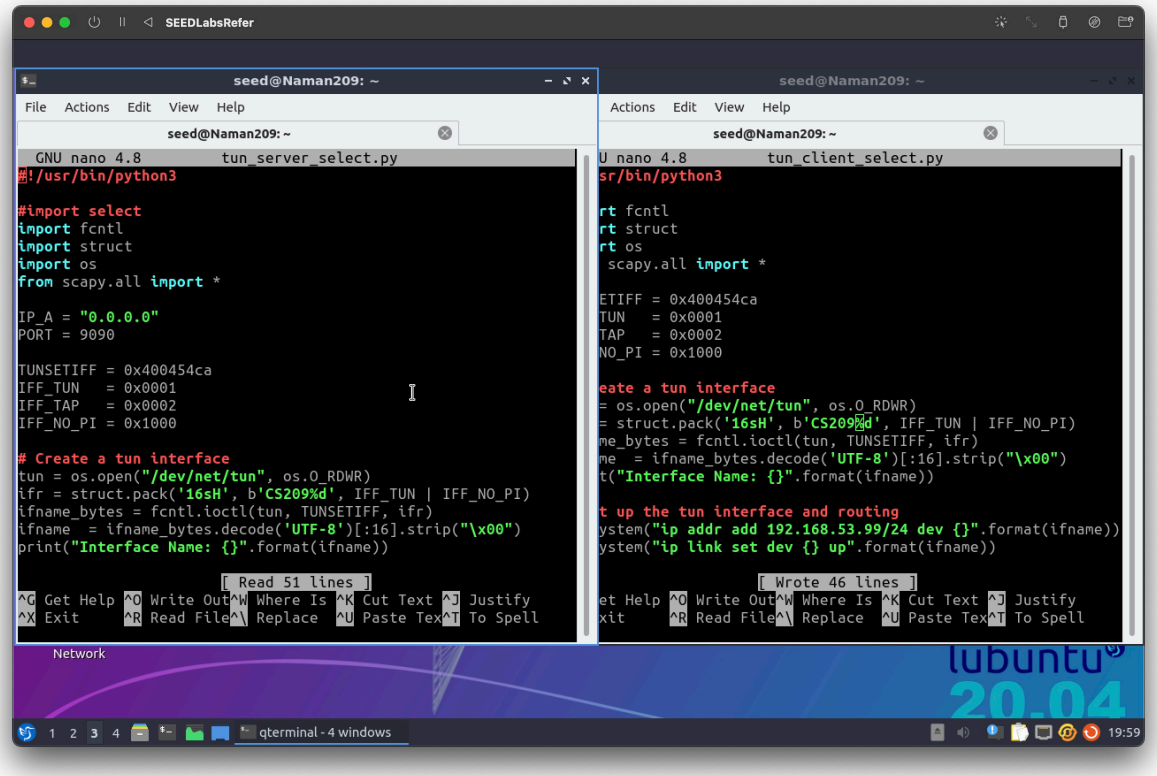



```bash
tcpdump -i eth0 -n
```



Task 5: Handling Traffic in Both Directions

Change tun to SRN

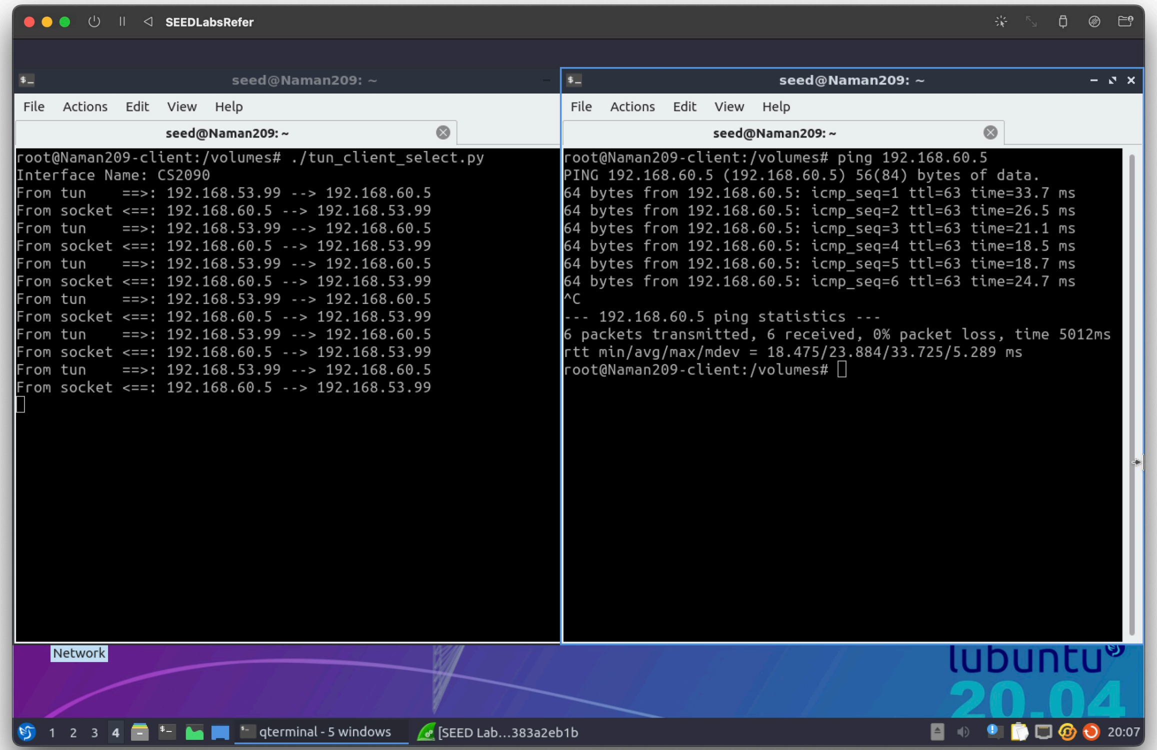


Bash

```
chmod a+x tun_client_select.py
./tun_client_select.py
```

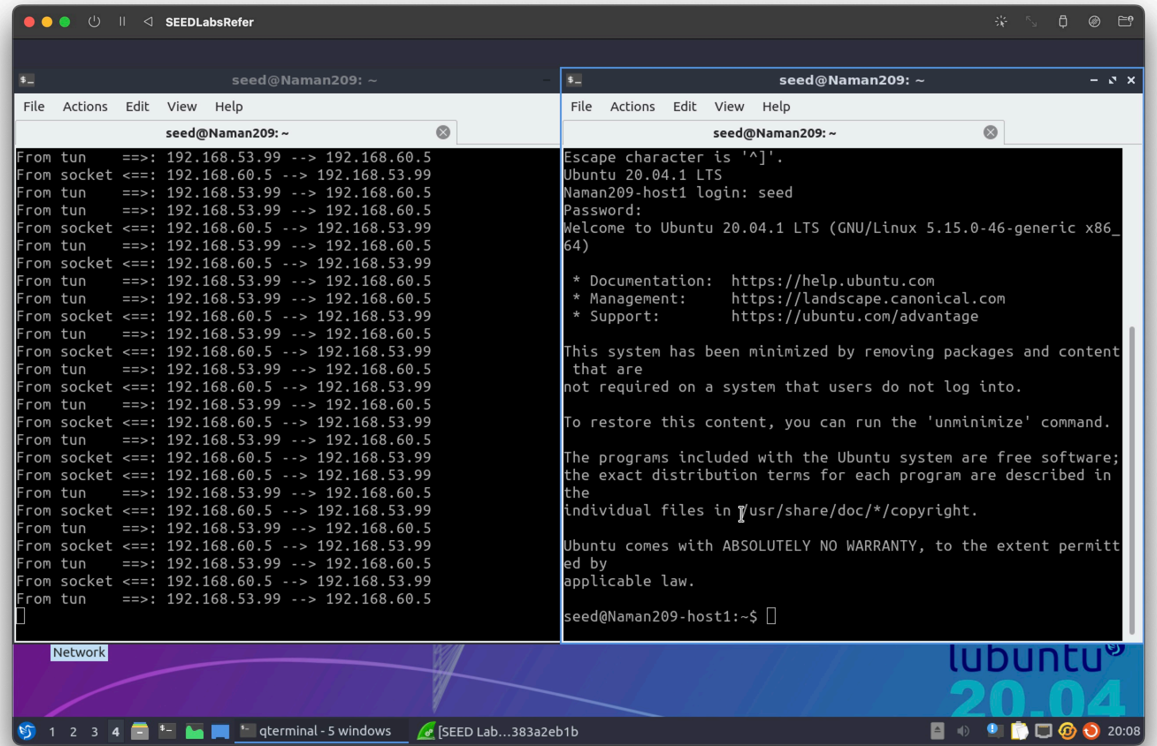
Bash

```
ping 192.168.60.5
```

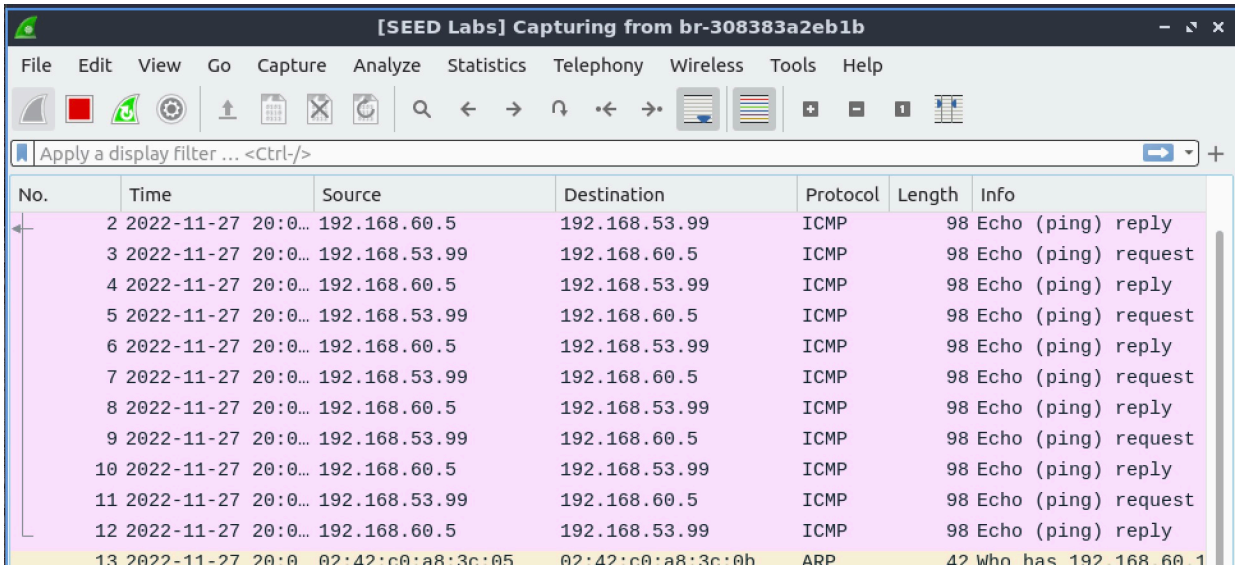


Bash

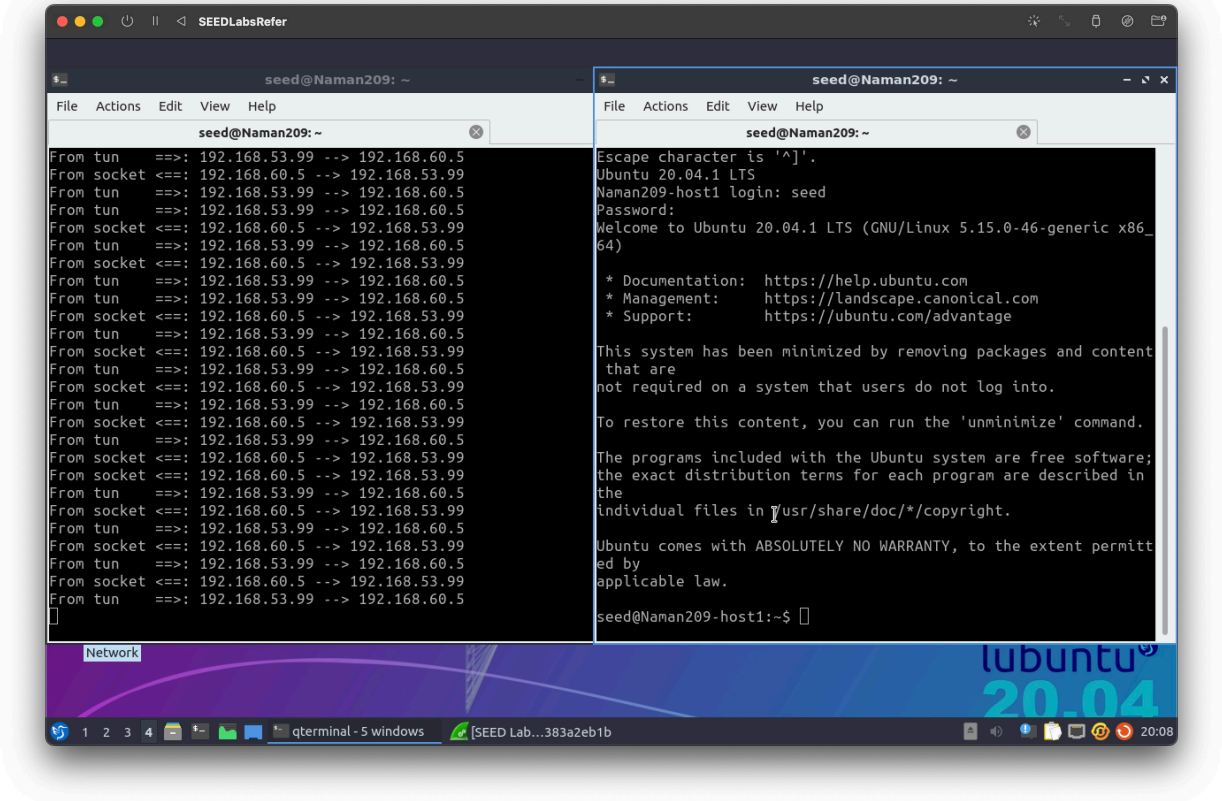
```bash
chmod a+x tun_server_select.py
./tun_server_select.py
```



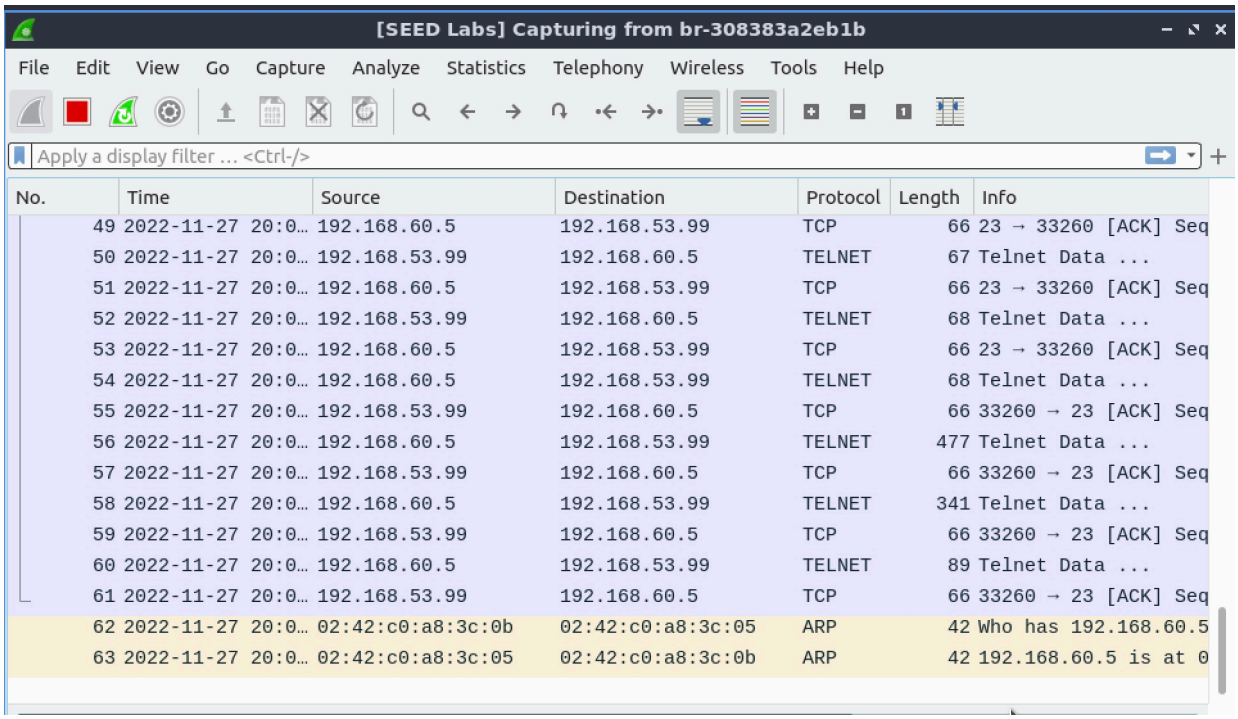
Wireshark:




```bash
telnet 192.168.60.5
```



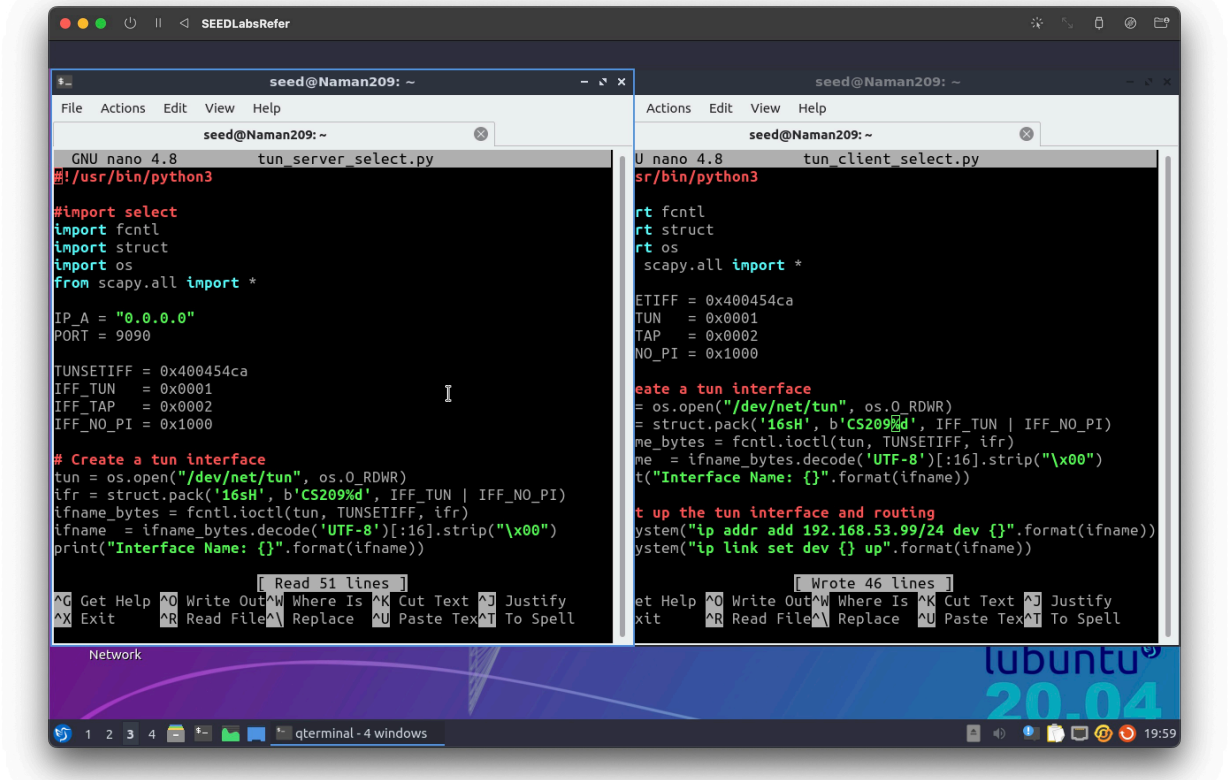
Wireshark:



Task 6: Tunnel-Breaking Experiment

```bash
telnet 192.168.60.5
```

and then breaking the connection off [last 7 lines]



Bringing connection back

```bash
./tun_server_select.py
```