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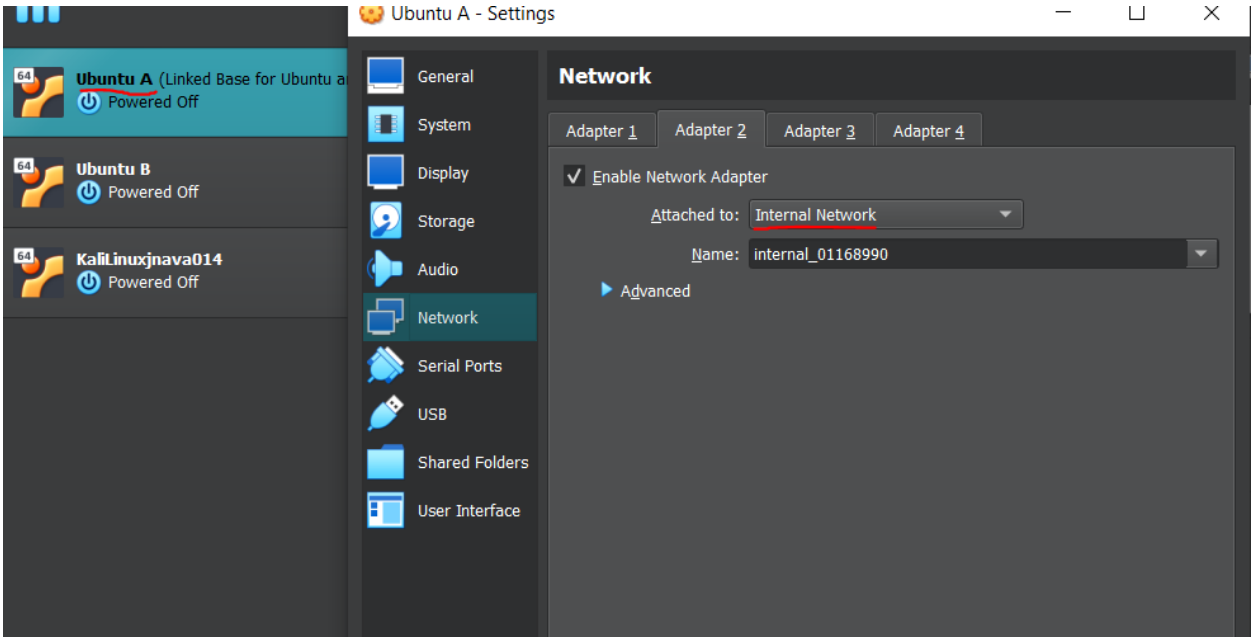
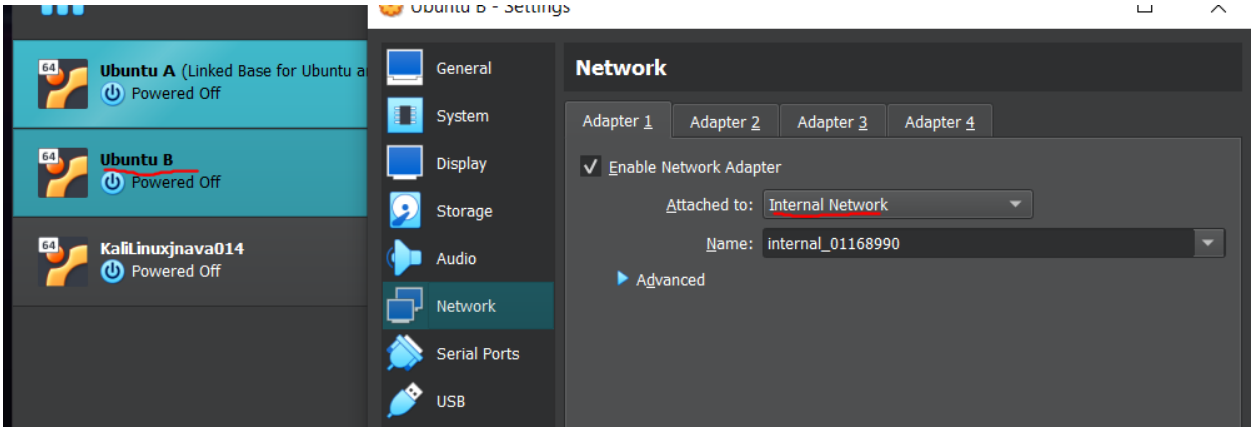
CYSE 270

Assignment 12 – Advanced Network Configurations

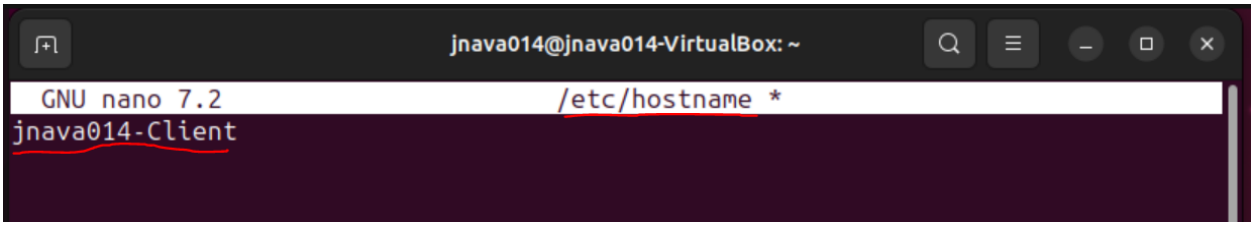
Task A

1.



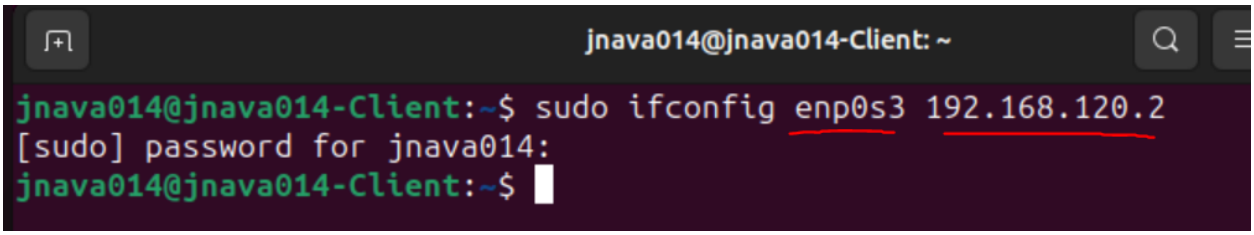


2. Using the “sudo nano /etc/hostname” command, I opened the hostname file to change the name.

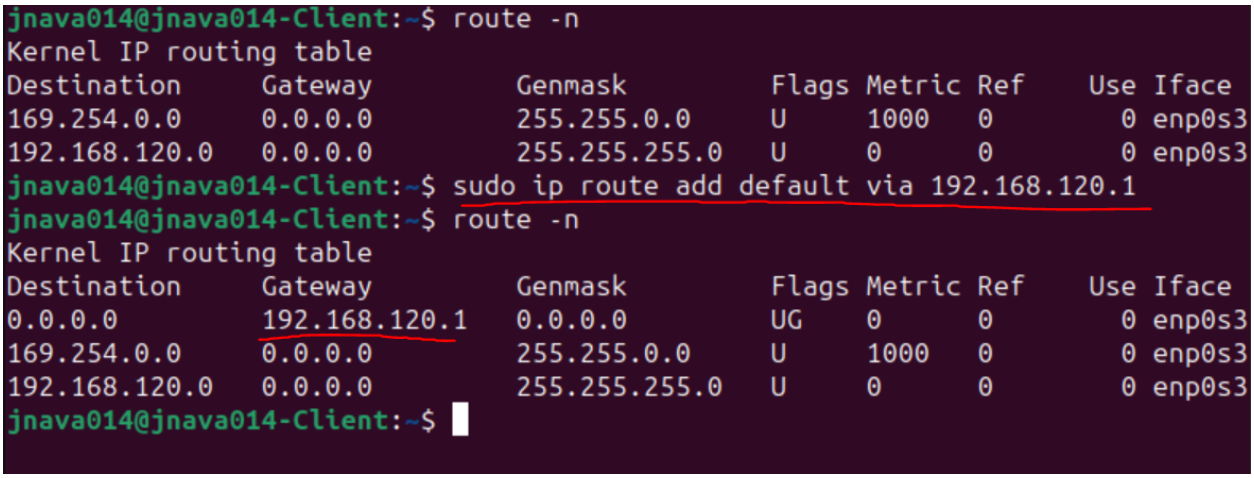


3. Configuring temporary IP address with sudo ifconfig command

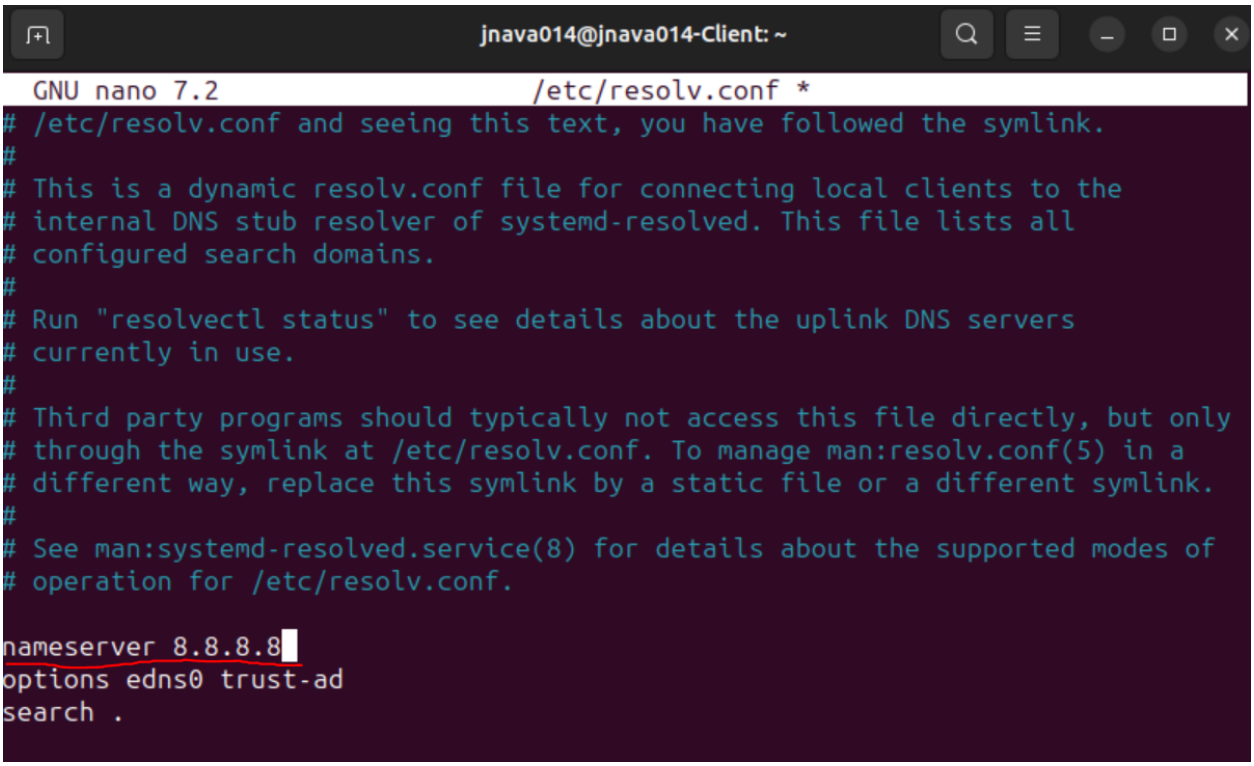
4. Same command except with enp0s3 and different IP address



Configuring routing table



To configure the DNS server, I used the “sudo nano /etc/resolv.conf” command



5. I enabled IP forwarding by switching to the root user using su root and using the command below

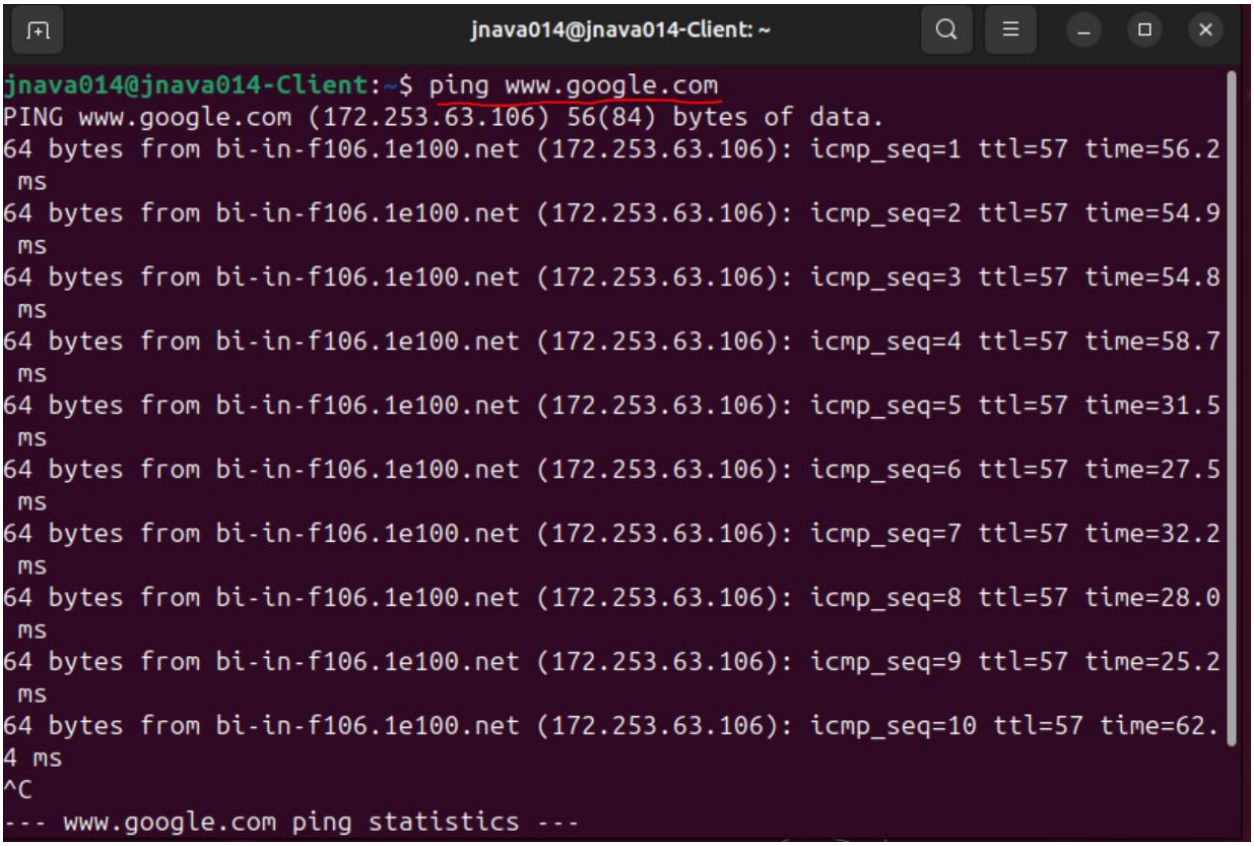
```
root@jnava014-VirtualBox:/home/jnava014# echo 1 > /proc/sys/net/ipv4/ip_forward
root@jnava014-VirtualBox:/home/jnava014# cat /proc/sys/net/ipv4/ip_forward
1
```

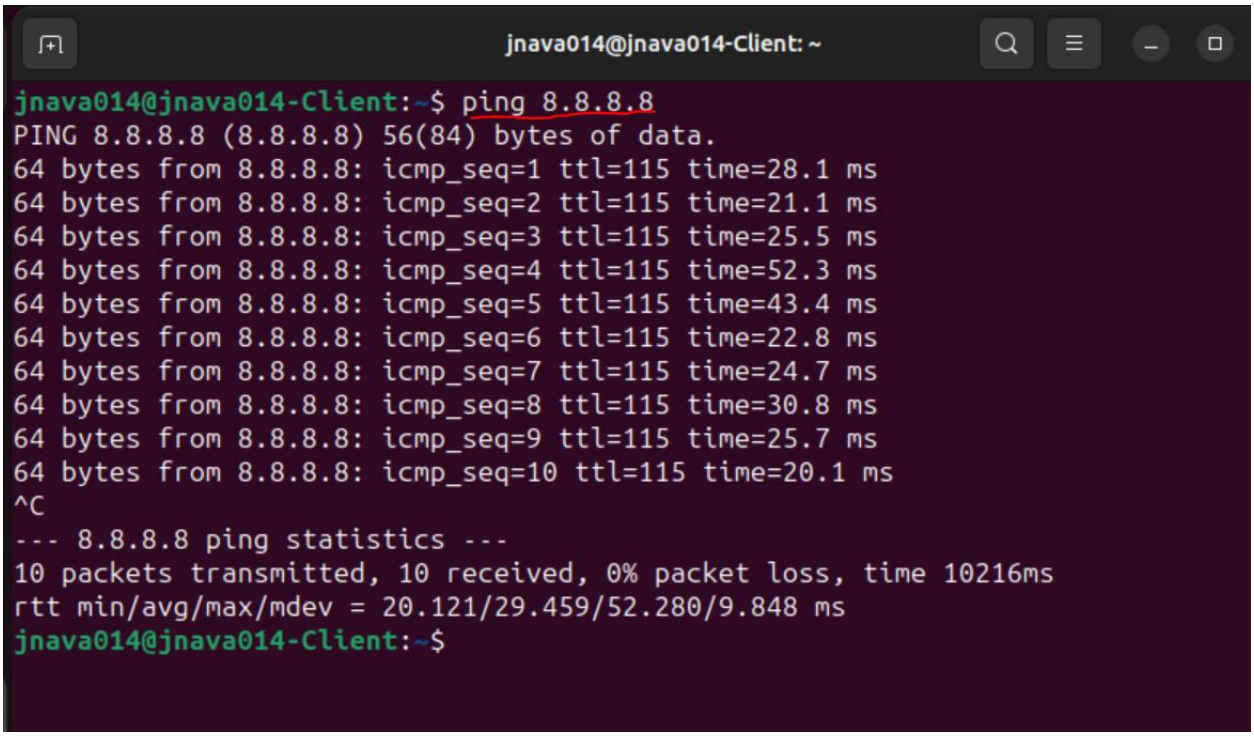
For the NAT configuration, I used the following commands

```
jnava014@jnava014-VirtualBox:~$ sudo iptables -t nat -A POSTROUTING -o enp0s3 -j
 MASQUERADE
```

```
jnava014@jnava014-VirtualBox:~$ sudo iptables -A FORWARD -i enp0s3 -o enp0s8 -m
state --state RELATED,ESTABLISHED -j ACCEPT
jnava014@jnava014-VirtualBox:~$ sudo iptables -A FORWARD -i enp0s8 -o enp0s3 -j
ACCEPT
```

6. Pinging google.com and 8.8.8.8


jnava014@jnava014-Client: ~
jnava014@jnava014-Client:~$ ping www.google.com
PING www.google.com (172.253.63.106) 56(84) bytes of data.
64 bytes from bi-in-f106.1e100.net (172.253.63.106): icmp_seq=1 ttl=57 time=56.2 ms
64 bytes from bi-in-f106.1e100.net (172.253.63.106): icmp_seq=2 ttl=57 time=54.9 ms
64 bytes from bi-in-f106.1e100.net (172.253.63.106): icmp_seq=3 ttl=57 time=54.8 ms
64 bytes from bi-in-f106.1e100.net (172.253.63.106): icmp_seq=4 ttl=57 time=58.7 ms
64 bytes from bi-in-f106.1e100.net (172.253.63.106): icmp_seq=5 ttl=57 time=31.5 ms
64 bytes from bi-in-f106.1e100.net (172.253.63.106): icmp_seq=6 ttl=57 time=27.5 ms
64 bytes from bi-in-f106.1e100.net (172.253.63.106): icmp_seq=7 ttl=57 time=32.2 ms
64 bytes from bi-in-f106.1e100.net (172.253.63.106): icmp_seq=8 ttl=57 time=28.0 ms
64 bytes from bi-in-f106.1e100.net (172.253.63.106): icmp_seq=9 ttl=57 time=25.2 ms
64 bytes from bi-in-f106.1e100.net (172.253.63.106): icmp_seq=10 ttl=57 time=62.4 ms
^C
--- www.google.com ping statistics ---


jnava014@jnava014-Client: ~
jnava014@jnava014-Client:~$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=115 time=28.1 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=115 time=21.1 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=115 time=25.5 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=115 time=52.3 ms
64 bytes from 8.8.8.8: icmp_seq=5 ttl=115 time=43.4 ms
64 bytes from 8.8.8.8: icmp_seq=6 ttl=115 time=22.8 ms
64 bytes from 8.8.8.8: icmp_seq=7 ttl=115 time=24.7 ms
64 bytes from 8.8.8.8: icmp_seq=8 ttl=115 time=30.8 ms
64 bytes from 8.8.8.8: icmp_seq=9 ttl=115 time=25.7 ms
64 bytes from 8.8.8.8: icmp_seq=10 ttl=115 time=20.1 ms
^C
--- 8.8.8.8 ping statistics ---
10 packets transmitted, 10 received, 0% packet loss, time 10216ms
rtt min/avg/max/mdev = 20.121/29.459/52.280/9.848 ms
jnava014@jnava014-Client:~$

Task B

1.

```
jnava014@jnava014-VirtualBox:~$ sudo iptables -A INPUT -i enp0s8 -s 192.168.120.
2 -p icmp --icmp-type echo-request -j DROP
```

Ping shows that packets are blocked from the client machine.

```
jnava014@jnava014-Client:~$ ping 192.168.120.1
PING 192.168.120.1 (192.168.120.1) 56(84) bytes of data.
```

2.

```
jnava014@jnava014-VirtualBox:~$ sudo iptables -A OUTPUT -o enp0s8 -p icmp --icmp
-type echo-request -j DROP
```

Packets blocked by the gateway machine

```
jnava014@jnava014-VirtualBox:~$ ping 192.168.120.2
PING 192.168.120.2 (192.168.120.2) 56(84) bytes of data.
```