

Old Dominion University

CYSE 270 Linux System for Cybersecurity

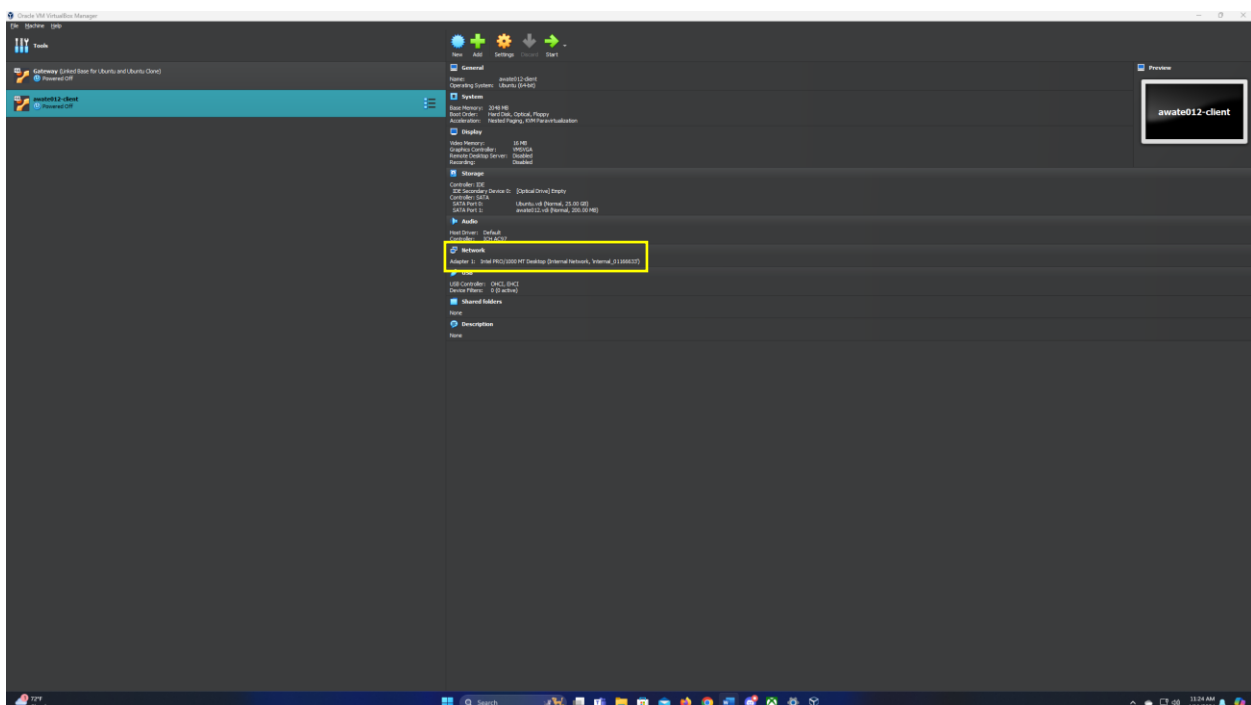
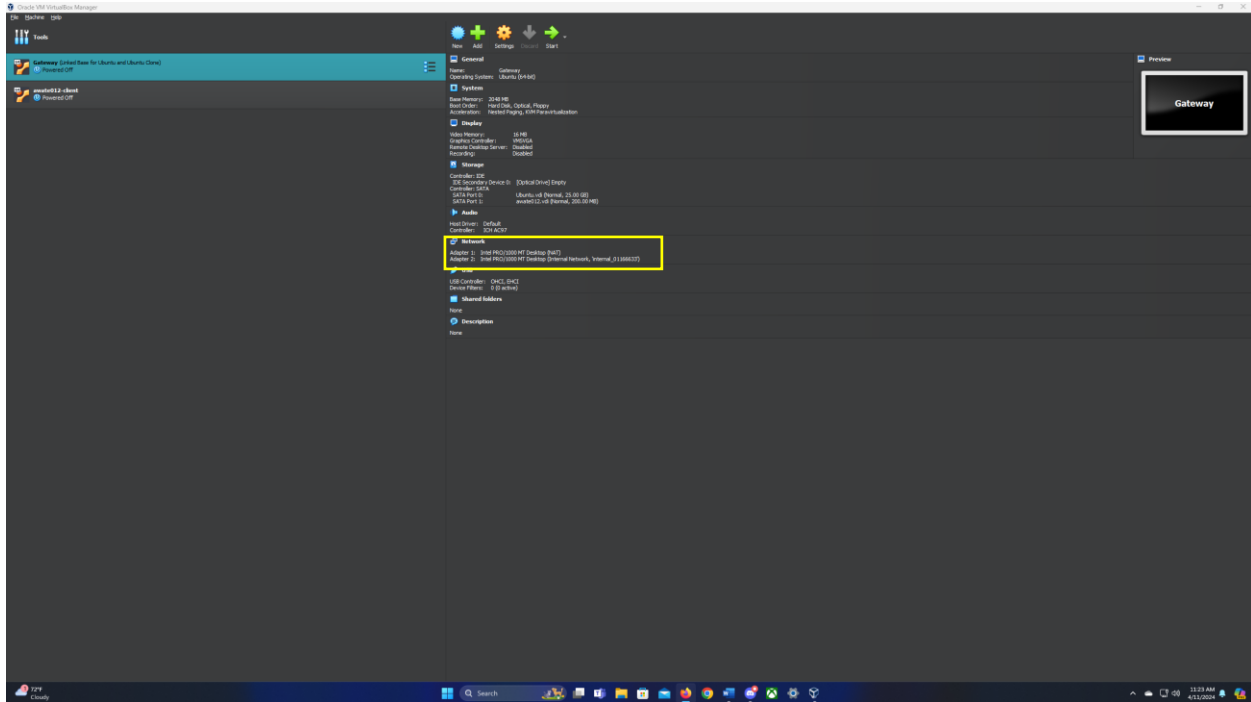
Assignment #12

Anthony Waterman

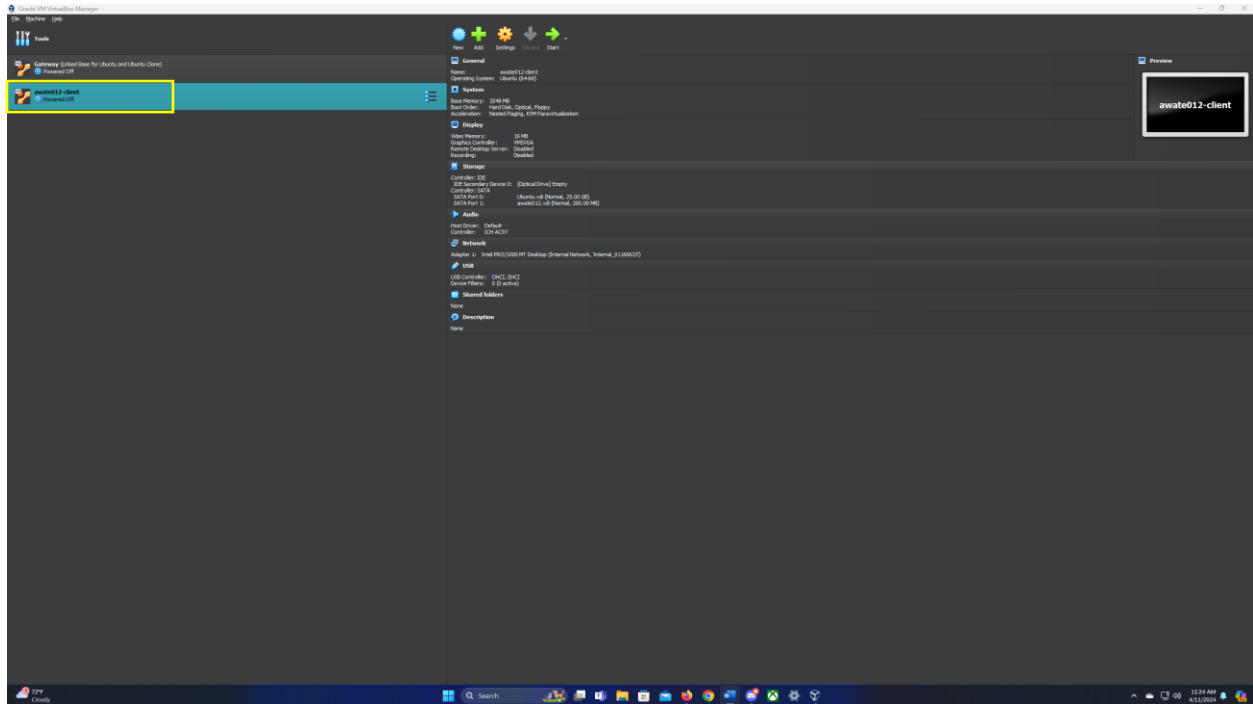
UIN: 01166633

Task A – Network Configuration

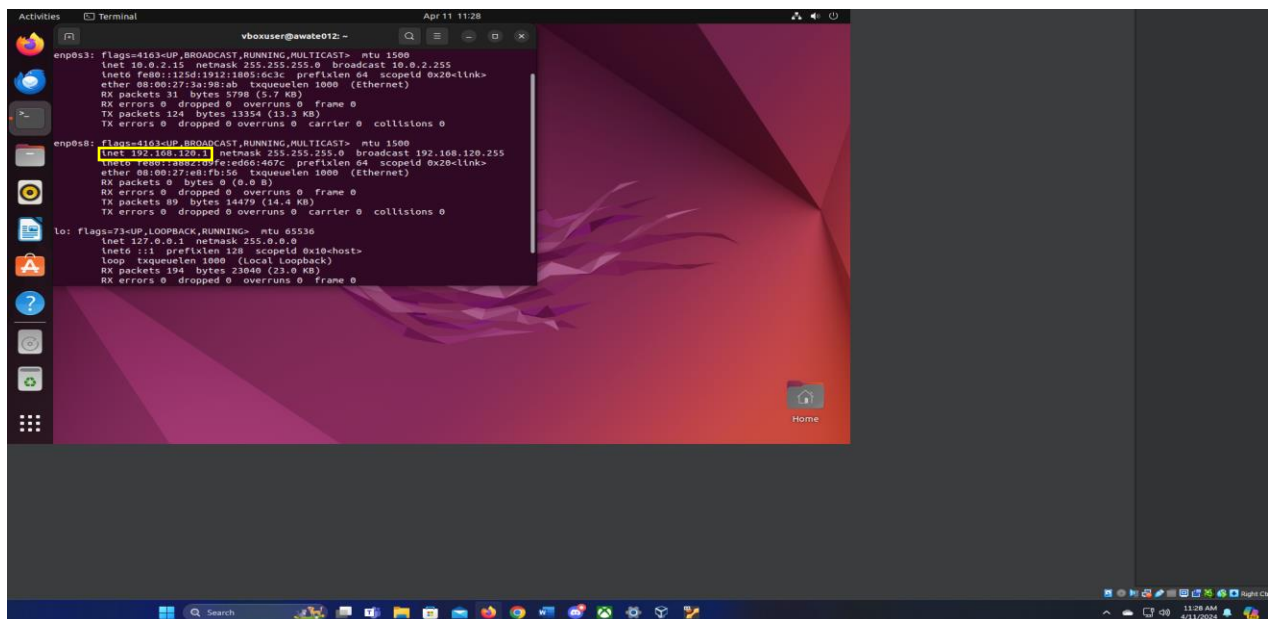
1. In the virtual box setting, connect two VMs in the same internal network, “internal_{UIN}”.
 - a. Replace {UIN} with your real UIN.



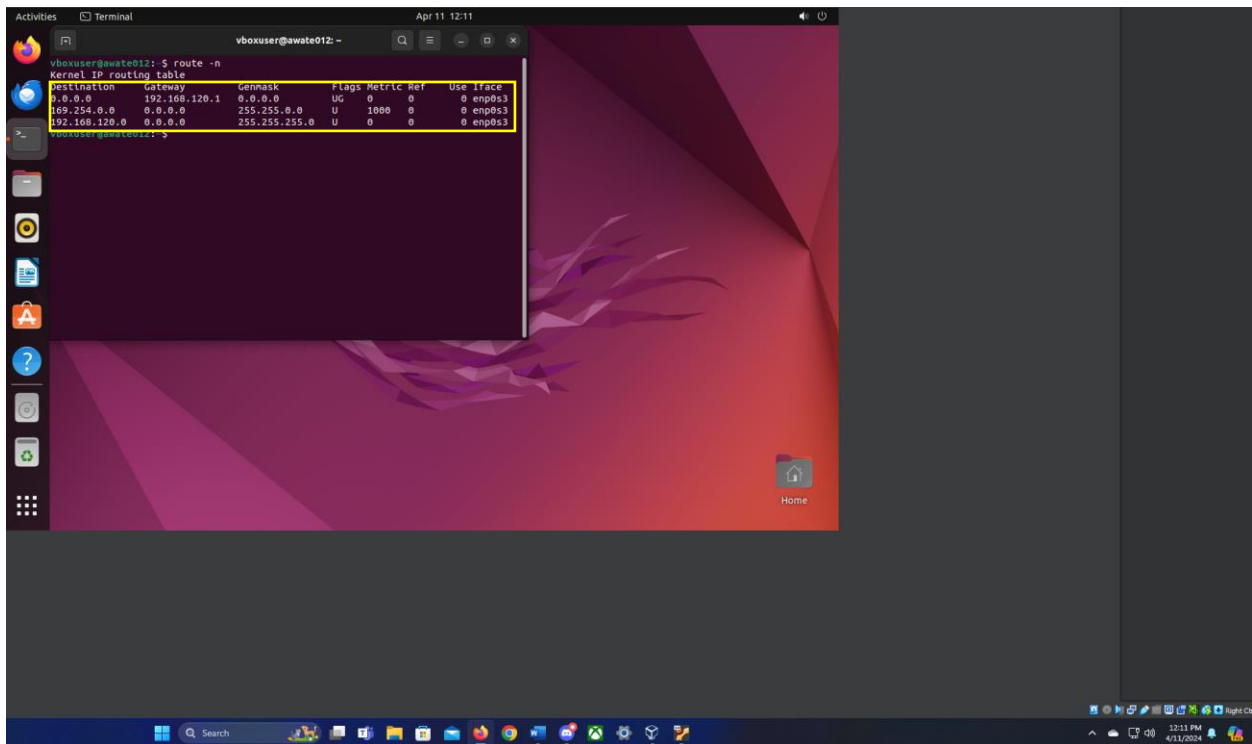
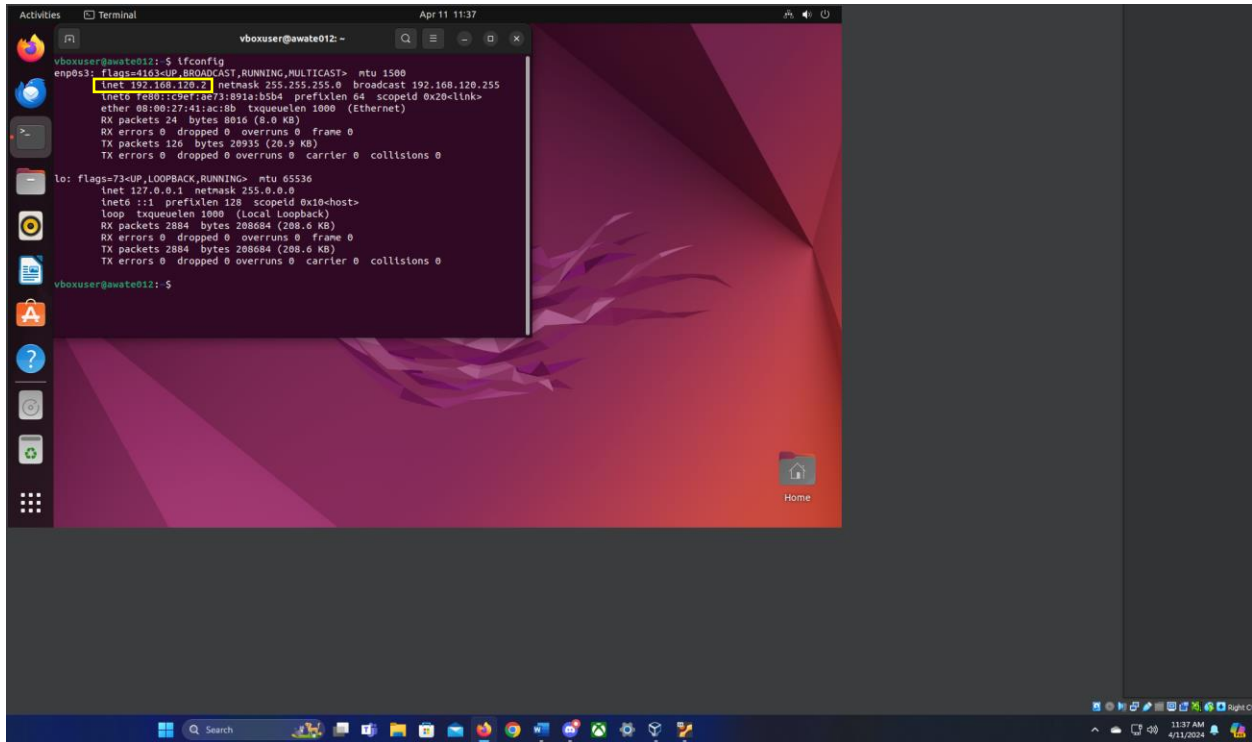
2. Change the hostname of the Client VM to "{MIDASname}-Client". Replace {MIDASname} with your real MIDAS name.

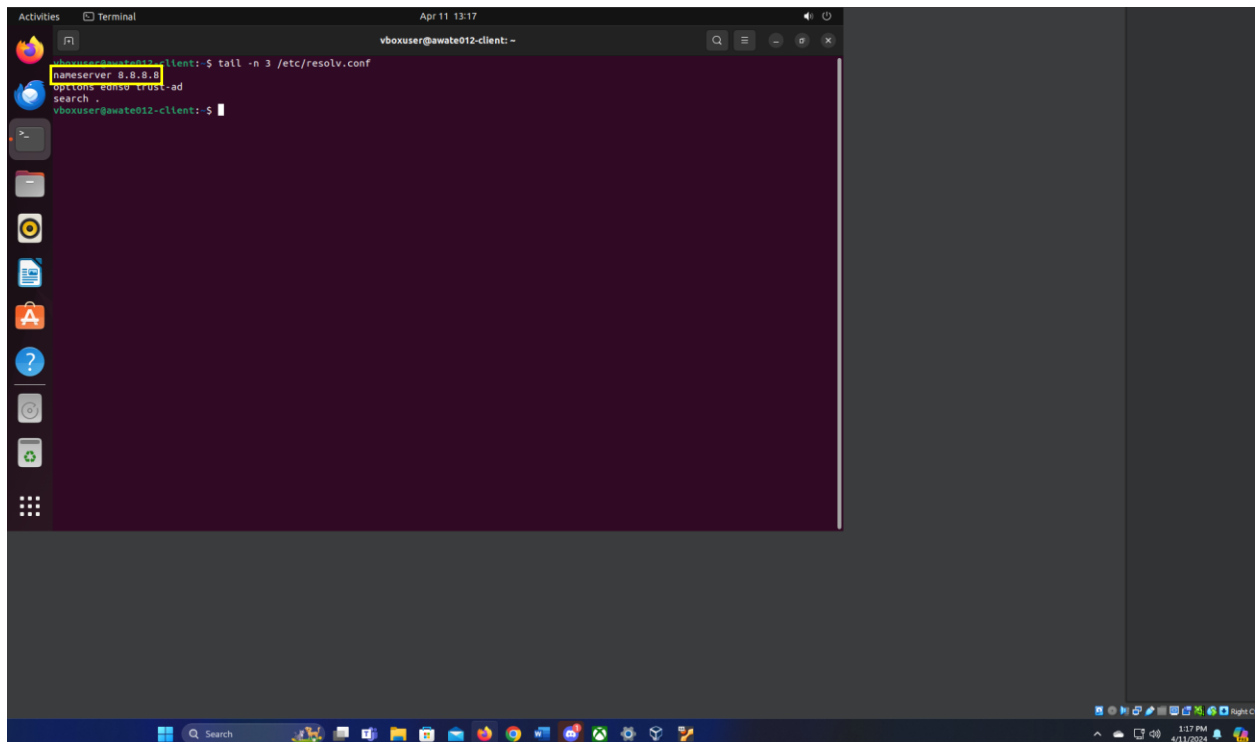


3. Configure the temporary IP address on the Gateway Ubuntu, as shown in Figure 1.

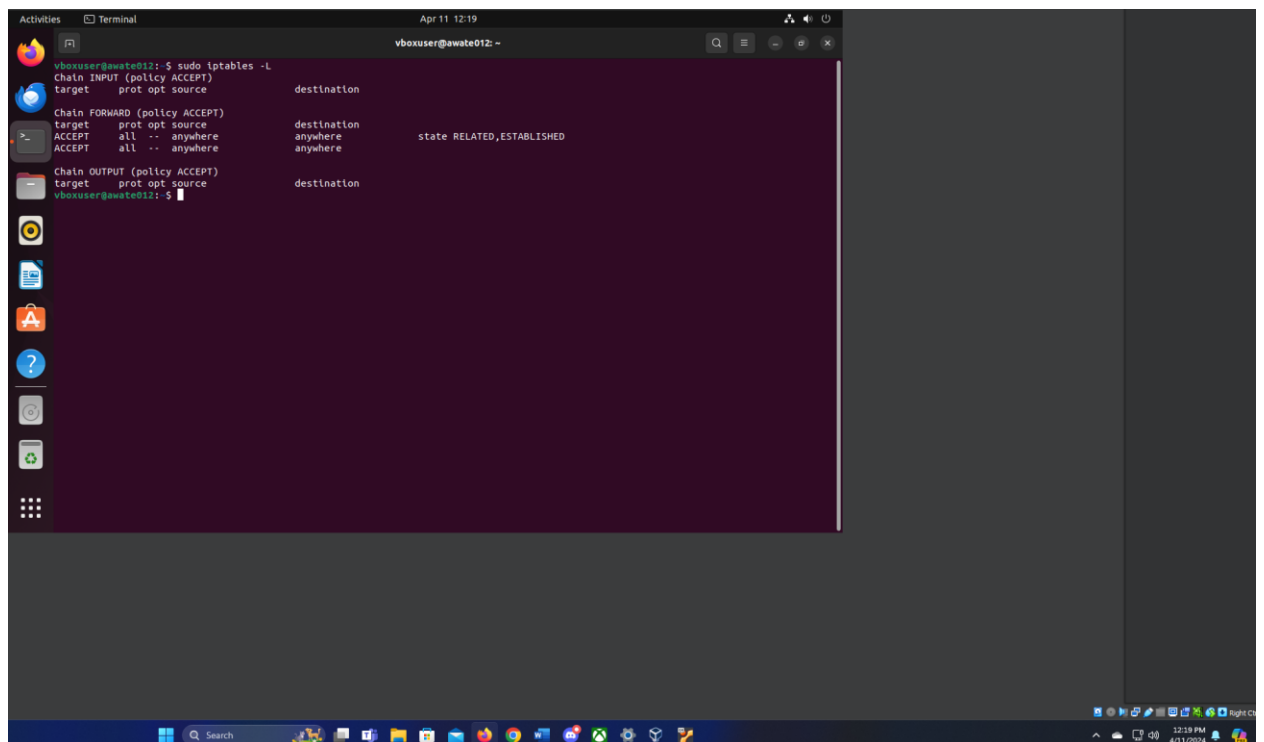


4. Configure the temporary IP address, routing table, and DNS server on Client VM as shown in Figure 1.





5. Configure gateway Ubuntu to enable IP forwarding (to forward the traffic) (also NAT configuration).



```
Activities Terminal Apr 11 12:25
root@awate012: /home/vboxuser

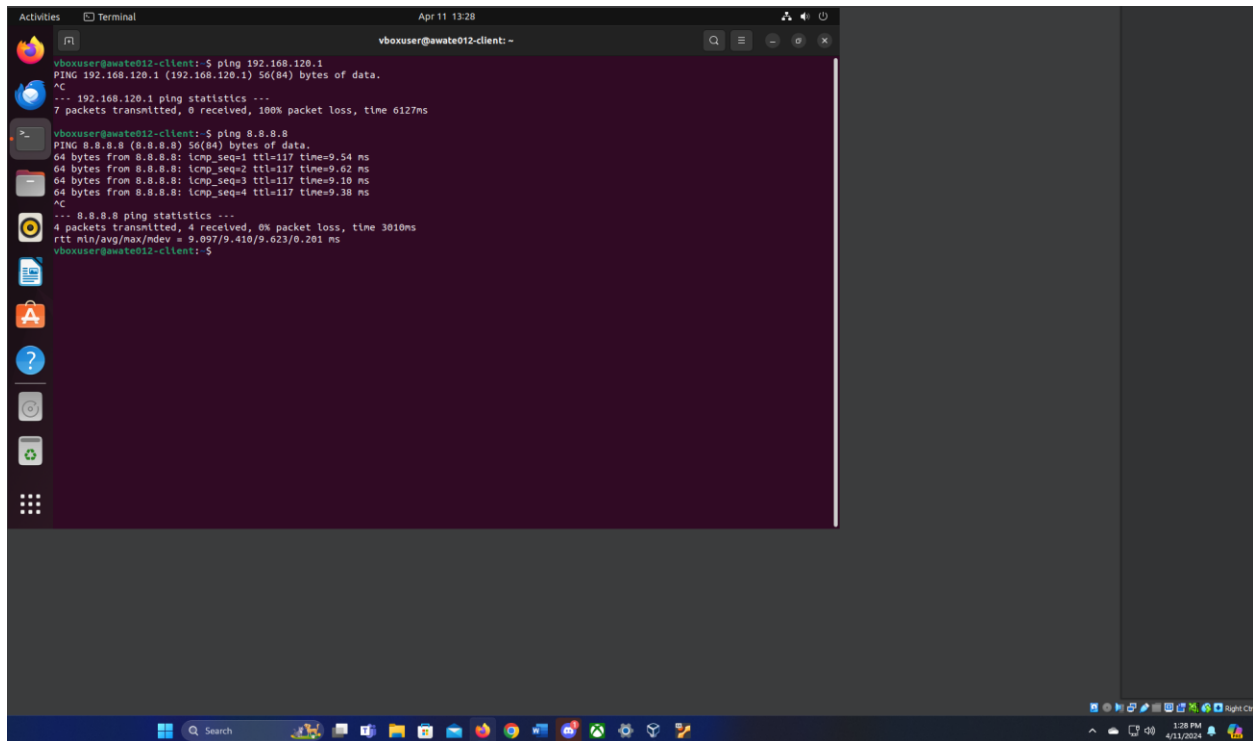
vboxuser@awate012:~$ sudo echo 1 > /proc/sys/net/ipv4/ip_forward
bash: /proc/sys/net/ipv4/ip_forward: Permission denied
vboxuser@awate012:~$ su root
Password:
root@awate012: /home/vboxuser# echo 1 > /proc/sys/net/ipv4/ip_forward
root@awate012: /home/vboxuser# cat /proc/sys/net/ipv4/ip_forward
1
root@awate012: /home/vboxuser#
```

6. Test your pine connection to 8.8.8.8 and www.google.com in the client VM, respectively.

```
Activities Terminal Apr 11 13:19
vboxuser@awate012-client: ~
vboxuser@awate012-client:~$ ping www.google.com
PING www.google.com (142.251.163.147) 56(84) bytes of data:
64 bytes from vv-ln-f147.1e100.net (142.251.163.147): icmp_seq=1 ttl=106 time=12.1 ms
64 bytes from vv-ln-f147.1e100.net (142.251.163.147): icmp_seq=2 ttl=106 time=12.2 ms
64 bytes from vv-ln-f147.1e100.net (142.251.163.147): icmp_seq=3 ttl=106 time=11.9 ms
64 bytes from vv-ln-f147.1e100.net (142.251.163.147): icmp_seq=4 ttl=106 time=12.1 ms
^C
--- www.google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3014ms
rtt min/avg/max/mdev = 11.929/12.085/12.213/0.101 ms
vboxuser@awate012-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=117 time=9.60 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=117 time=12.0 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=117 time=9.53 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=117 time=9.47 ms
^C
--- 8.8.8.8 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3003ms
rtt min/avg/max/mdev = 9.478/10.150/12.001/1.069 ms
vboxuser@awate012-client:~$
```

Task B – Firewall Configuration

1. Configure the iptables on the gateway Ubuntu to block all the inbound ICMP packets from the Client VM.
 - a. After setting up rules for the gateway to drop ICMP packets from the client, we can no longer send a ping request to the gateway. We can still ping out to other addresses.



```
Activities Terminal Apr 11 13:28 vboxuser@awate012-client: -
vboxuser@awate012-client: ~
vboxuser@awate012-client: $ ping 192.168.120.1
PING 192.168.120.1 (192.168.120.1) 56(84) bytes of data.
^C
--- 192.168.120.1 ping statistics ---
7 packets transmitted, 0 received, 100% packet loss, time 6127ms

vboxuser@awate012-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=117 time=9.54 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=117 time=9.62 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=117 time=9.10 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=117 time=9.38 ms
^C
--- 8.8.8.8 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3610ms
rtt min/avg/max/ndev = 9.097/9.410/9.623/0.201 ms
vboxuser@awate012-client: $
```

2. Configure the iptables on the gateway Ubuntu to block all the outbound ICMP packets that originated from the gateway Ubuntu itself.
 - a. After setting up iptables rules, all ICMP packets were rejected

