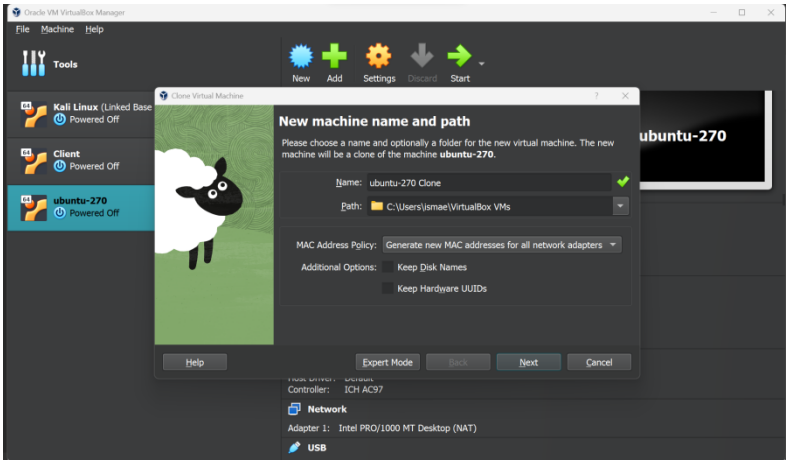
Assignment 12

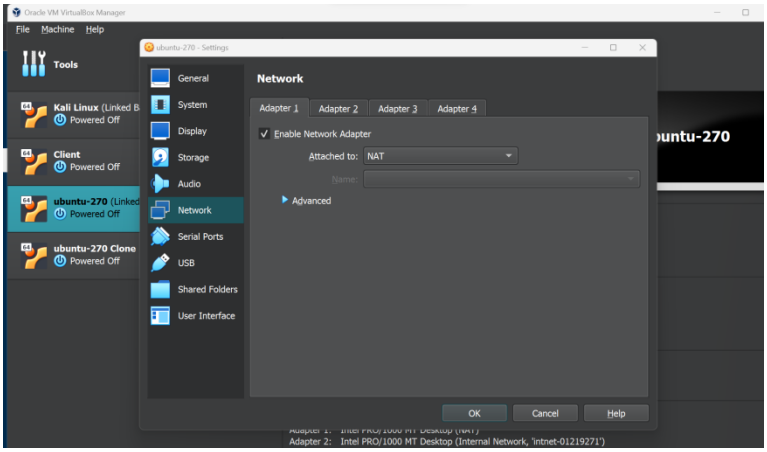
Step0: These are the steps that are included in the lab before you start working on the official steps.

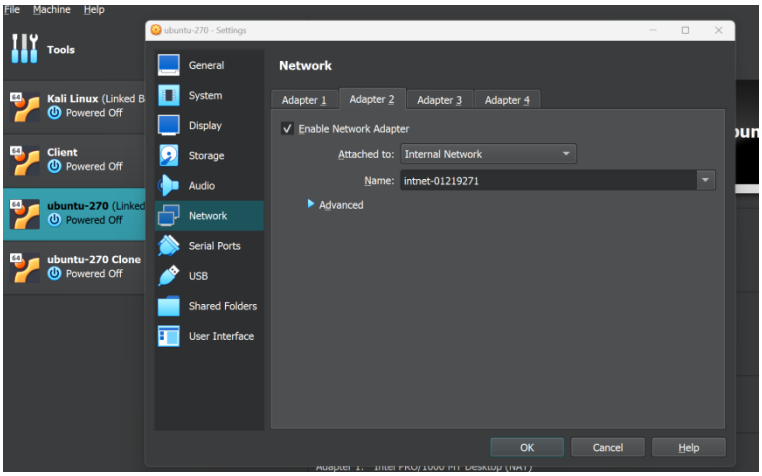
Cloning the current Ubuntu:



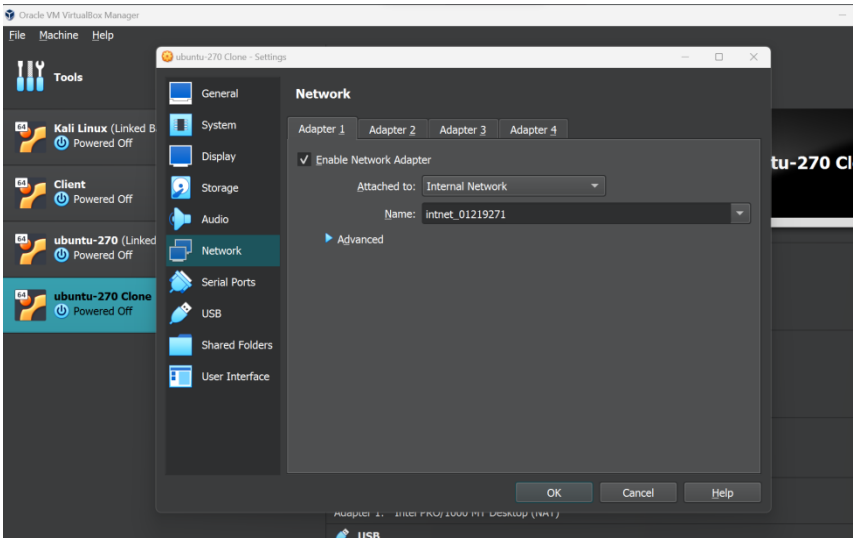
Step1: In the virtual box setting, connect two VMs in the same internal network, “internal_{UIN}”.

Gateway adapters :





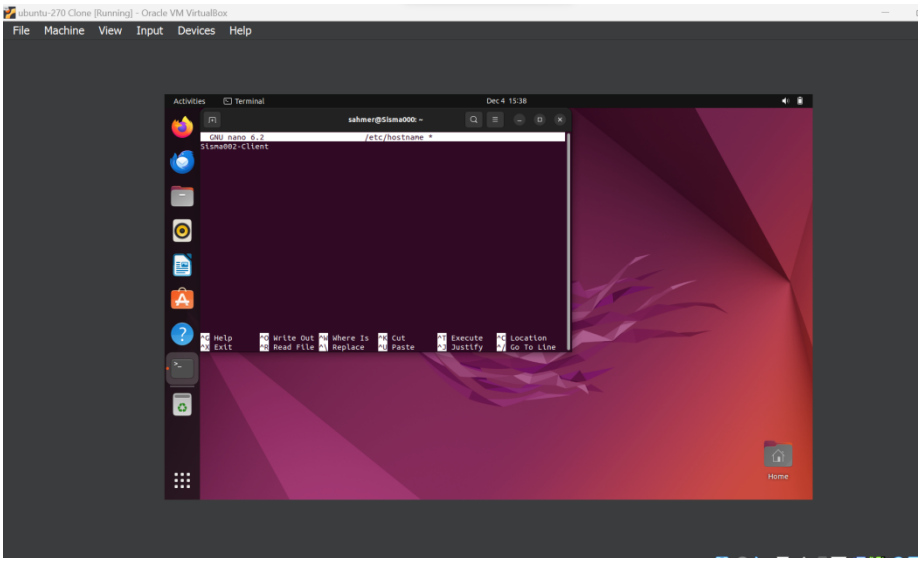
Client adapter:



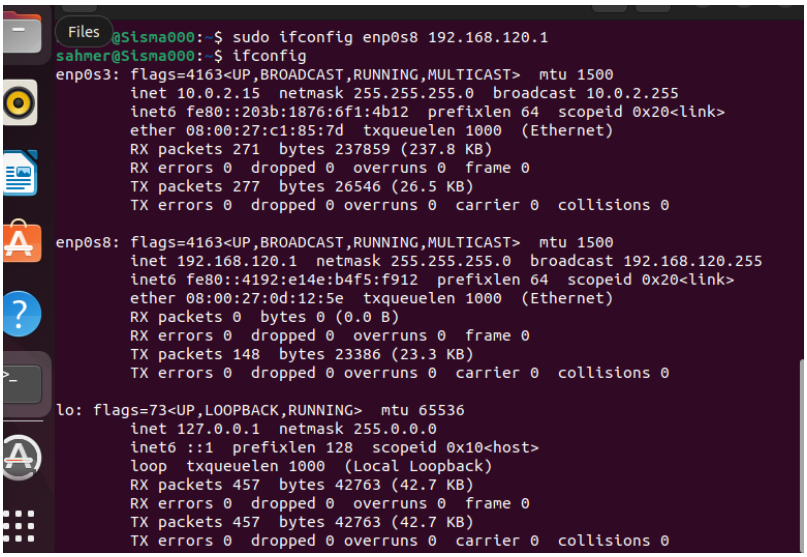
2: Change the hostname of the Client VM to “{MIDASname}-Client.” Replace {MIDAS name} with

your real MIDAS name. Don't forget to reboot your client VM to reflect the change in

hostname.



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



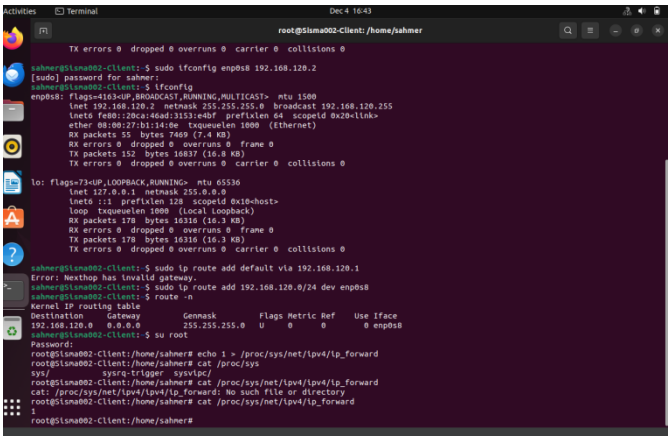
4. Configure the temporary IP address, routing table, and DNS server on Client VM as shown in:

```
sahmer@Sisma002-Client:~$ sudo ifconfig enp0s8 192.168.120.2
[sudo] password for sahmer:
sahmer@Sisma002-Client:~$ ifconfig
enp0s8: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.120.2  netmask 255.255.255.0  broadcast 192.168.120.255
        inet6 fe80::20ca:46ad:3153:e4bf  prefixlen 64  scopeid 0x20<link>
        ether 08:00:27:b1:14:0e  txqueuelen 1000  (Ethernet)
        RX packets 55  bytes 7469 (7.4 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 152  bytes 16837 (16.8 KB)
        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>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 178  bytes 16316 (16.3 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 178  bytes 16316 (16.3 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

sahmer@Sisma002-Client:~$ sudo ip route add default via 192.168.120.1
Error: Nexthop has invalid gateway.
sahmer@Sisma002-Client:~$ sudo ip route add 192.168.120.0/24 dev enp0s8
sahmer@Sisma002-Client:~$ route -n
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
192.168.120.0   0.0.0.0         255.255.255.0   U     0      0        0 enp0s8
sahmer@Sisma002-Client:~$
```

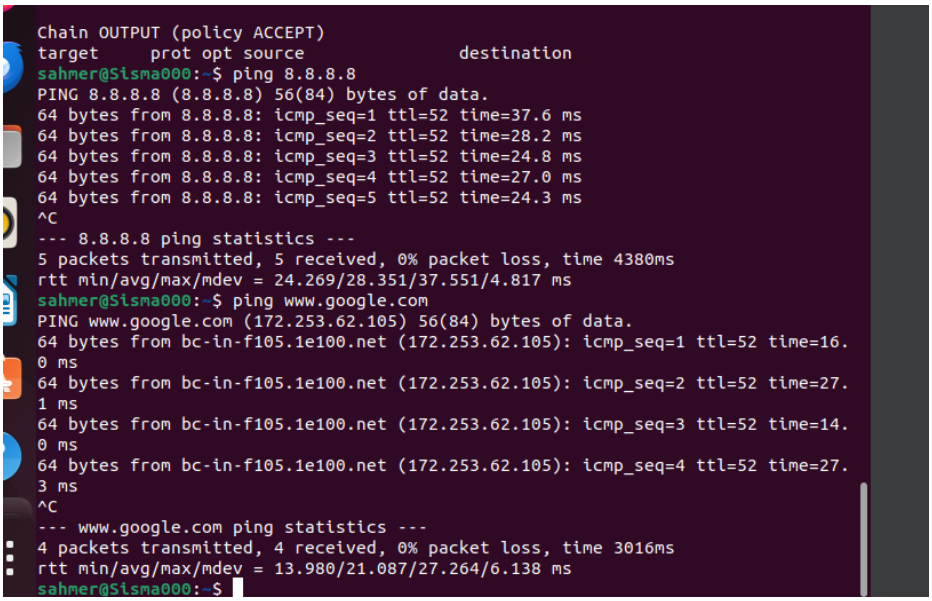
5. Configure gateway Ubuntu to enable IP forwarding (to forward the traffic) (also NAT
configuration

```
sahmer@Sisma000:~$ sudo iptables -t nat -A POSTROUTING -o enp0s3 -j MASQUERADE
[sudo] password for sahmer:
Sorry, try again.
[sudo] password for sahmer:
sahmer@Sisma000:~$ sudo iptables -A FORWARD -i enp0s3 -o enp0s8 -m state RELATE
D,ESTABLISHED -j ACCEPT
Bad argument `RELATED,ESTABLISHED'
Try `iptables -h' or 'iptables --help' for more information.
sahmer@Sisma000:~$ sudo iptables -A FORWARD -i enp0s3 -o enp0s8 -m state --stat
e RELATED,ESTABLISHED -j ACCEPT
sahmer@Sisma000:~$ sudo iptables -A FORWARD -i enp0s8 -o enp0s3 -j ACCEPT
sahmer@Sisma000:~$ sudo iptables -L
Chain INPUT (policy ACCEPT)
target     prot opt source               destination

Chain FORWARD (policy ACCEPT)
target     prot opt source               destination
ACCEPT     all  --  anywhere             anywhere             state RELATED,EST
ABLISHED
ACCEPT     all  --  anywhere             anywhere

Chain OUTPUT (policy ACCEPT)
target     prot opt source               destination
sahmer@Sisma000:~$
```

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




```
sahmer@Sisma002-Client:~$ su root
Password:
root@Sisma002-Client:/home/sahmer# echo 1 > /proc/sys/net/ipv4/ip_forward
root@Sisma002-Client:/home/sahmer# cat /proc/sys
sys/            sysrq-trigger  sysvipc/
root@Sisma002-Client:/home/sahmer# cat /proc/sys/net/ipv4/ipv4/ip_forward
cat: /proc/sys/net/ipv4/ipv4/ip_forward: No such file or directory
root@Sisma002-Client:/home/sahmer# cat /proc/sys/net/ipv4/ip_forward
1
root@Sisma002-Client:/home/sahmer# exit
exit
```



1. Configure the iptables on the gateway Ubuntu to block all the inbound ICMP packets from the
Client VM.

```
$ sudo iptables -A INPUT -s 192.168.120.2 -p tcp -j DROP
```

2. Configure the iptables on the gateway Ubuntu to block all the outbound ICMP packets that
originated from the gateway Ubuntu itself.