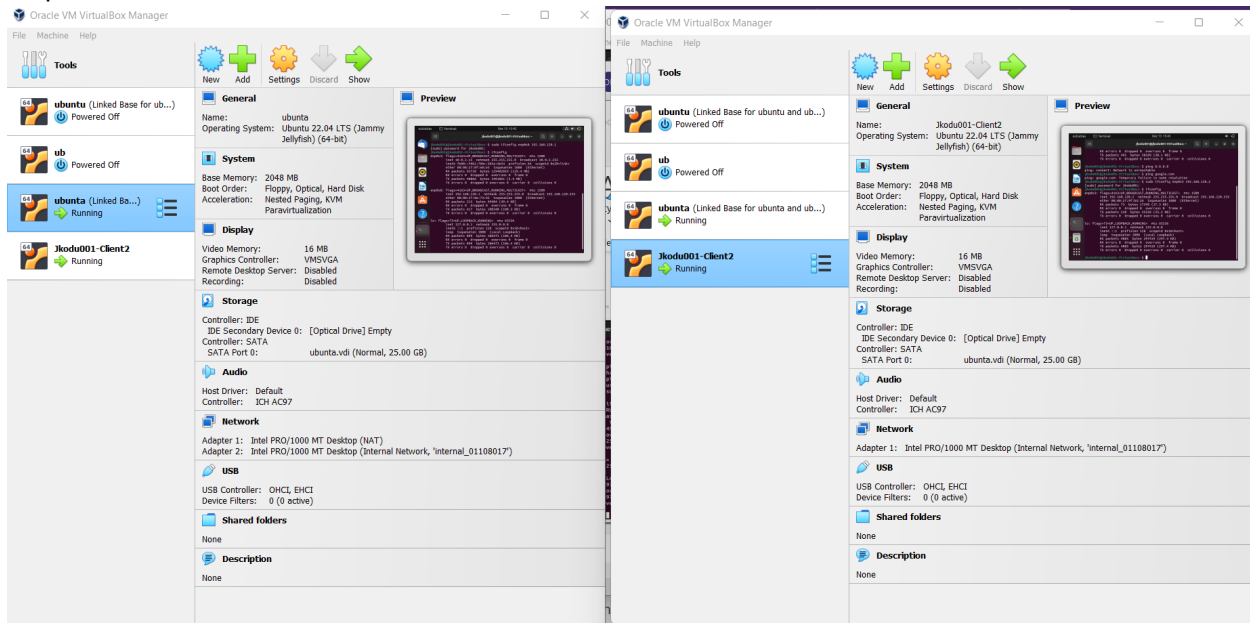
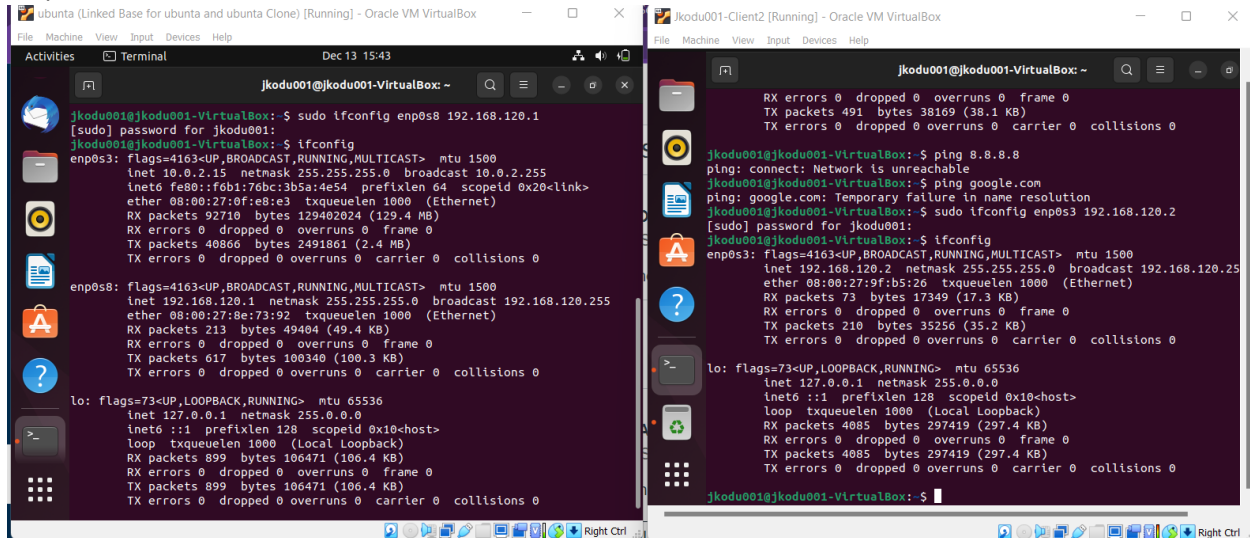


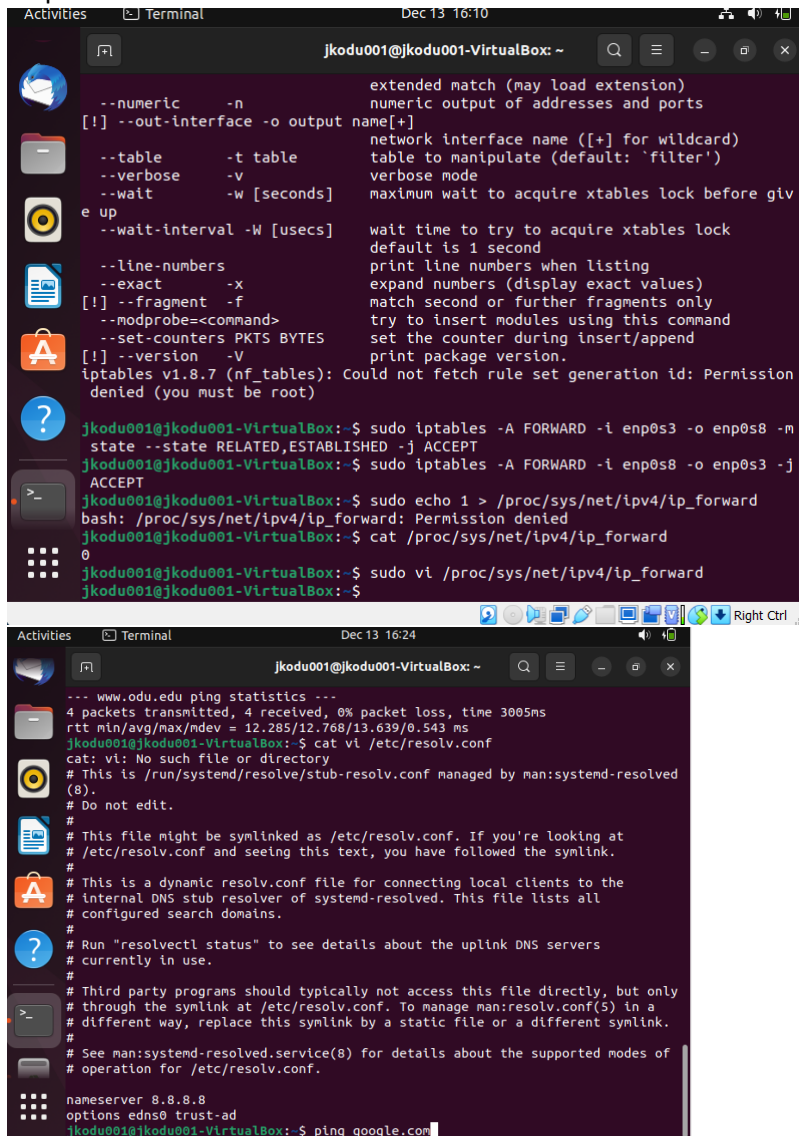
Step 1-2



Step 3 - 4.1

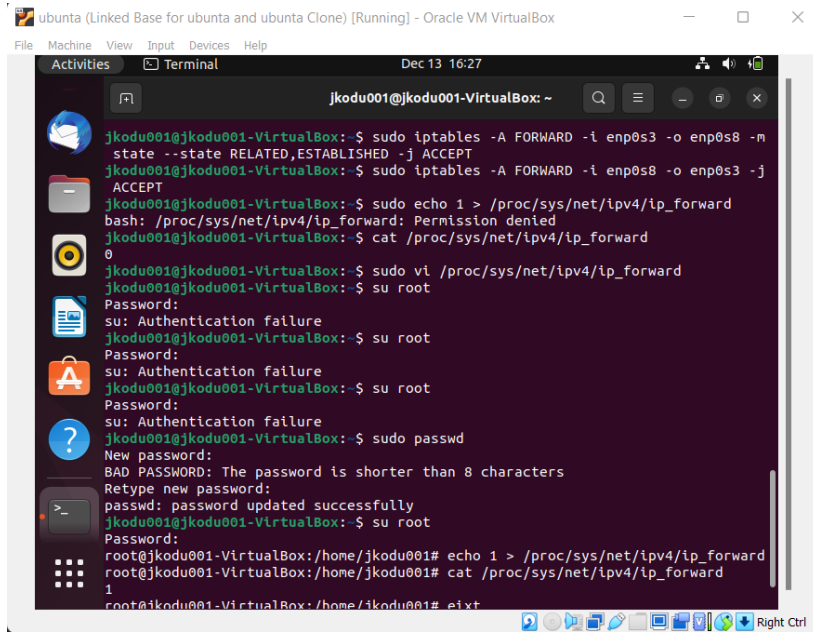


Step 4.2-4.3



```
jksodu001@jksodu001-VirtualBox: ~  
--numeric -n extended match (may load extension)  
numeric output of addresses and ports  
[!] --out-interface -o output name[+] network interface name ([+] for wildcard)  
--table -t table table to manipulate (default: 'filter')  
--verbose -v verbose mode  
--wait -w [seconds] maximum wait to acquire xtables lock before giving up  
--wait-interval -W [usecs] wait time to try to acquire xtables lock  
default is 1 second  
--line-numbers print line numbers when listing  
--exact -x expand numbers (display exact values)  
[!] --fragment -f match second or further fragments only  
--modprobe=<command> try to insert modules using this command  
--set-counters PKTS BYTES set the counter during insert/append  
[!] --version -V print package version.  
iptables v1.8.7 (nf_tables): Could not fetch rule set generation id: Permission  
denied (you must be root)  
jksodu001@jksodu001-VirtualBox:~$ sudo iptables -A FORWARD -i enp0s3 -o enp0s8 -m  
state --state RELATED,ESTABLISHED -j ACCEPT  
jksodu001@jksodu001-VirtualBox:~$ sudo iptables -A FORWARD -i enp0s8 -o enp0s3 -j  
ACCEPT  
jksodu001@jksodu001-VirtualBox:~$ sudo echo 1 > /proc/sys/net/ipv4/ip_forward  
bash: /proc/sys/net/ipv4/ip_forward: Permission denied  
jksodu001@jksodu001-VirtualBox:~$ cat /proc/sys/net/ipv4/ip_forward  
0  
jksodu001@jksodu001-VirtualBox:~$ sudo vi /proc/sys/net/ipv4/ip_forward  
jksodu001@jksodu001-VirtualBox:~$  
--- www.odu.edu ping statistics ---  
4 packets transmitted, 4 received, 0% packet loss, time 3005ms  
rtt min/avg/max/mdev = 12.285/12.768/13.639/0.543 ms  
jksodu001@jksodu001-VirtualBox:~$ cat /etc/resolv.conf  
cat: /etc/resolv.conf: No such file or directory  
# This is /run/systemd/resolve/stub-resolv.conf managed by man:systemd-resolved  
(8).  
# Do not edit.  
#  
# This file might be symlinked as /etc/resolv.conf. If you're looking at  
# /etc/resolv.conf and seeing this text, you have followed the symlink.  
#  
# This is a dynamic resolv.conf file for connecting local clients to the  
# internal DNS stub resolver of systemd-resolved. This file lists all  
# configured search domains.  
#  
# Run "resolvectl status" to see details about the uplink DNS servers  
# currently in use.  
#  
# Third party programs should typically not access this file directly, but only  
# through the symlink at /etc/resolv.conf. To manage man:resolv.conf(5) in a  
# different way, replace this symlink by a static file or a different symlink.  
#  
# See man:systemd-resolved.service(8) for details about the supported modes of  
# operation for /etc/resolv.conf.  
nameserver 8.8.8.8  
options edns0 trust-ad  
jksodu001@jksodu001-VirtualBox:~$ ping google.com
```

Step 5.



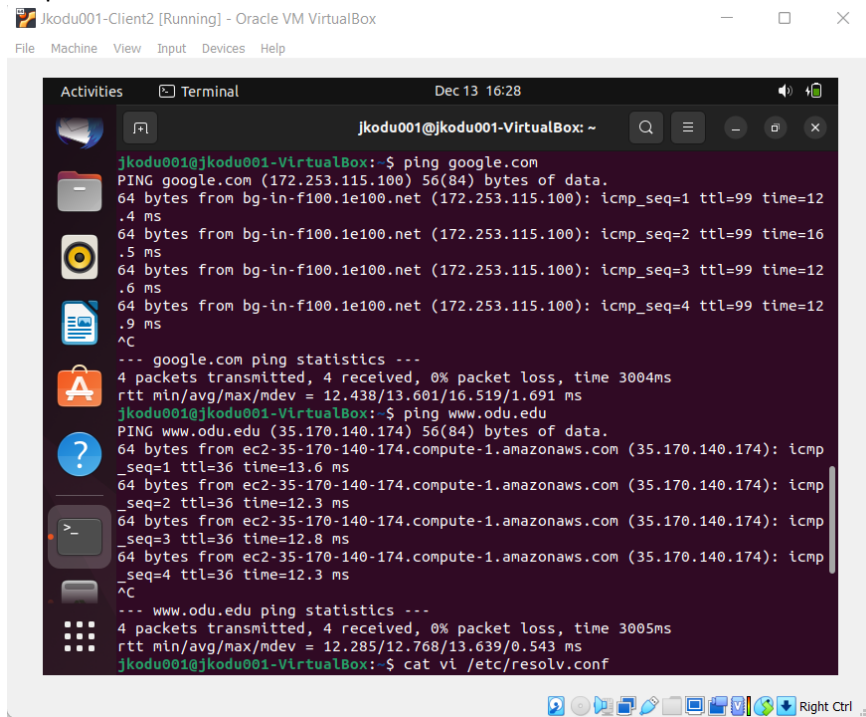
ubuntu (Linked Base for ubuntu and ubuntu Clone) [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Activities Terminal Dec 13 16:27

```
jksodu001@jksodu001-VirtualBox: ~  
jksodu001@jksodu001-VirtualBox:~$ sudo iptables -A FORWARD -i enp0s3 -o enp0s8 -m  
state --state RELATED,ESTABLISHED -j ACCEPT  
jksodu001@jksodu001-VirtualBox:~$ sudo iptables -A FORWARD -i enp0s8 -o enp0s3 -j  
ACCEPT  
jksodu001@jksodu001-VirtualBox:~$ sudo echo 1 > /proc/sys/net/ipv4/ip_forward  
bash: /proc/sys/net/ipv4/ip_forward: Permission denied  
jksodu001@jksodu001-VirtualBox:~$ cat /proc/sys/net/ipv4/ip_forward  
0  
jksodu001@jksodu001-VirtualBox:~$ sudo vi /proc/sys/net/ipv4/ip_forward  
jksodu001@jksodu001-VirtualBox:~$ su root  
Password:  
su: Authentication failure  
jksodu001@jksodu001-VirtualBox:~$ su root  
Password:  
su: Authentication failure  
jksodu001@jksodu001-VirtualBox:~$ su root  
Password:  
su: Authentication failure  
jksodu001@jksodu001-VirtualBox:~$ sudo passwd  
New password:  
BAD PASSWORD: The password is shorter than 8 characters  
Retype new password:  
passwd: password updated successfully  
jksodu001@jksodu001-VirtualBox:~$ su root  
Password:  
root@jksodu001-VirtualBox: /home/jksodu001# echo 1 > /proc/sys/net/ipv4/ip_forward  
root@jksodu001-VirtualBox: /home/jksodu001# cat /proc/sys/net/ipv4/ip_forward  
1  
root@jksodu001-VirtualBox: /home/jksodu001# exit
```

Step 6



Jksodu001-Client2 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Activities Terminal Dec 13 16:28

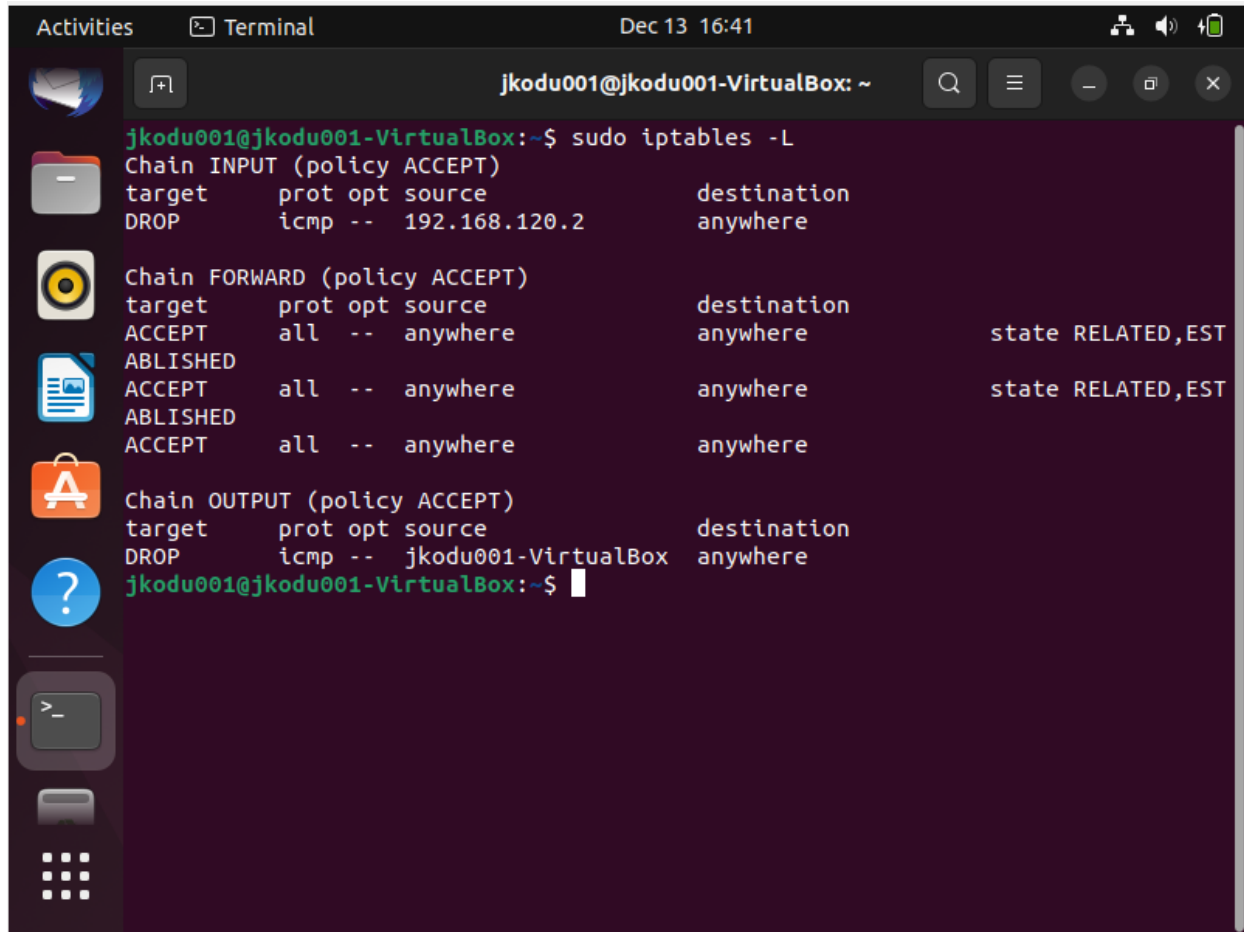
```
jksodu001@jksodu001-VirtualBox: ~  
jksodu001@jksodu001-VirtualBox:~$ ping google.com  
PING google.com (172.253.115.100) 56(84) bytes of data:  
64 bytes from bg-in-f100.1e100.net (172.253.115.100): icmp_seq=1 ttl=99 time=12  
.4 ms  
64 bytes from bg-in-f100.1e100.net (172.253.115.100): icmp_seq=2 ttl=99 time=16  
.5 ms  
64 bytes from bg-in-f100.1e100.net (172.253.115.100): icmp_seq=3 ttl=99 time=12  
.6 ms  
64 bytes from bg-in-f100.1e100.net (172.253.115.100): icmp_seq=4 ttl=99 time=12  
.9 ms  
^C  
--- google.com ping statistics ---  
4 packets transmitted, 4 received, 0% packet loss, time 3004ms  
rtt min/avg/max/mdev = 12.438/13.601/16.519/1.691 ms  
jksodu001@jksodu001-VirtualBox:~$ ping www.odu.edu  
PING www.odu.edu (35.170.140.174) 56(84) bytes of data:  
64 bytes from ec2-35-170-140-174.compute-1.amazonaws.com (35.170.140.174): icmp  
_seq=1 ttl=36 time=13.6 ms  
64 bytes from ec2-35-170-140-174.compute-1.amazonaws.com (35.170.140.174): icmp  
_seq=2 ttl=36 time=12.3 ms  
64 bytes from ec2-35-170-140-174.compute-1.amazonaws.com (35.170.140.174): icmp  
_seq=3 ttl=36 time=12.8 ms  
64 bytes from ec2-35-170-140-174.compute-1.amazonaws.com (35.170.140.174): icmp  
_seq=4 ttl=36 time=12.3 ms  
^C  
--- www.odu.edu ping statistics ---  
4 packets transmitted, 4 received, 0% packet loss, time 3005ms  
rtt min/avg/max/mdev = 12.285/12.768/13.639/0.543 ms  
jksodu001@jksodu001-VirtualBox:~$ cat vi /etc/resolv.conf
```

Task B.

```
Activities Terminal Dec 13 16:40
jkodu001@jkodu001-VirtualBox: ~
jkodu001@jkodu001-VirtualBox:~$ sudo iptables -A INPUT -s 192.168.120.2 -p icmp
-j DROP
[sudo] password for jkodu001:
jkodu001@jkodu001-VirtualBox:~$ sudo iptables -A OUTPUT -s 192.168.120.1 -p icmp
-j DROP
jkodu001@jkodu001-VirtualBox:~$ route -n
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
0.0.0.0 10.0.2.2 0.0.0.0 UG 102 0 0 enp0s3
10.0.2.0 0.0.0.0 255.255.255.0 U 102 0 0 enp0s3
169.254.0.0 0.0.0.0 255.255.0.0 U 1000 0 0 enp0s3
192.168.120.0 0.0.0.0 255.255.255.0 U 0 0 0 enp0s8
jkodu001@jkodu001-VirtualBox:~$ sudo iptablas -L
sudo: iptablas: command not found
jkodu001@jkodu001-VirtualBox:~$ sudo iptables -L
Chain INPUT (policy ACCEPT)
target prot opt source destination
DROP icmp -- 192.168.120.2 anywhere

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

Chain OUTPUT (policy ACCEPT)
target prot opt source destination
```

A terminal window titled "jkodu001@jkodu001-VirtualBox: ~" with a search bar and window controls. The terminal shows the output of the command "sudo iptables -L". It lists three chains: INPUT, FORWARD, and OUTPUT, each with its policy and a table of rules. The INPUT chain has a rule to drop ICMP from 192.168.120.2. The FORWARD chain has rules for ACCEPT, ABLISHED, and ACCEPT with state RELATED,EST. The OUTPUT chain has a rule to drop ICMP to jkodu001-VirtualBox.

```
jkodu001@jkodu001-VirtualBox:~$ sudo iptables -L
Chain INPUT (policy ACCEPT)
target     prot opt source                destination
DROP      icmp -- 192.168.120.2          anywhere

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

Chain OUTPUT (policy ACCEPT)
target     prot opt source                destination
DROP      icmp -- jkodu001-VirtualBox    anywhere
jkodu001@jkodu001-VirtualBox:~$
```