

Linux Firewall Exploration Lab

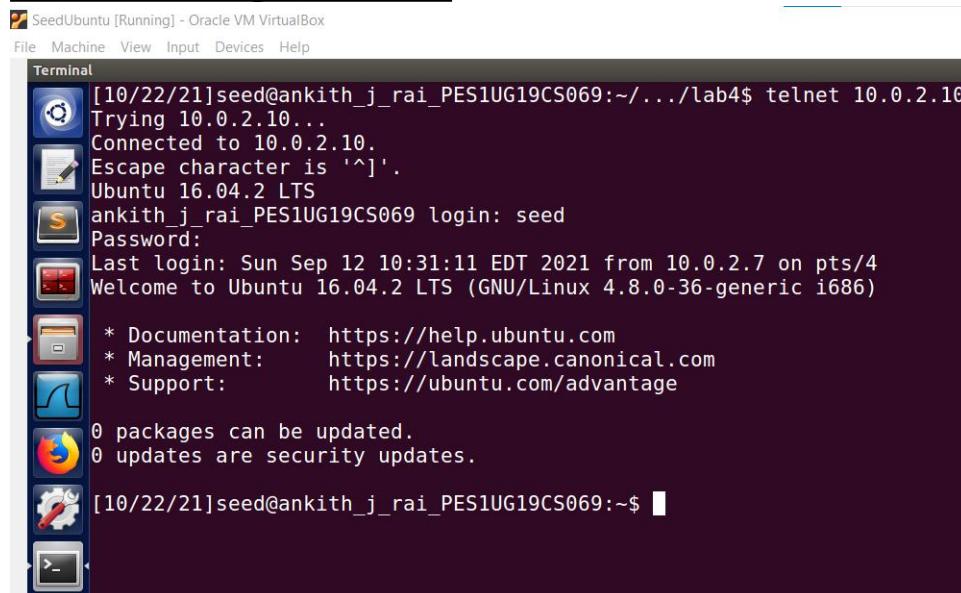
Name : Ankith J Rai

SRN : PES1UG19CS069

SEC : B

<u>Machine</u>	<u>IP address</u>
VM 1	10.0.2.5
VM 2	10.0.2.10
VM 3	10.0.2.11

Task 1: Using Firewall:



SeedUbuntu [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Terminal

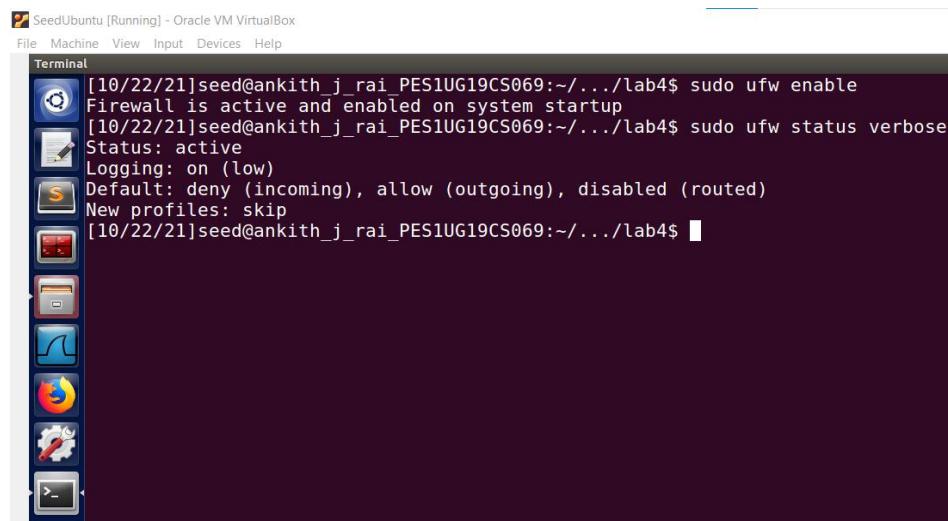
```
[10/22/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ telnet 10.0.2.10
Trying 10.0.2.10...
Connected to 10.0.2.10.
Escape character is '^].
Ubuntu 16.04.2 LTS
ankith_j_rai_PES1UG19CS069 login: seed
Password:
Last login: Sun Sep 12 10:31:11 EDT 2021 from 10.0.2.7 on pts/4
Welcome to Ubuntu 16.04.2 LTS (GNU/Linux 4.8.0-36-generic i686)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/advantage

0 packages can be updated.
0 updates are security updates.

[10/22/21]seed@ankith_j_rai_PES1UG19CS069:~$
```

We can see that VM 1 is able to establish a telnet connection with VM 2.



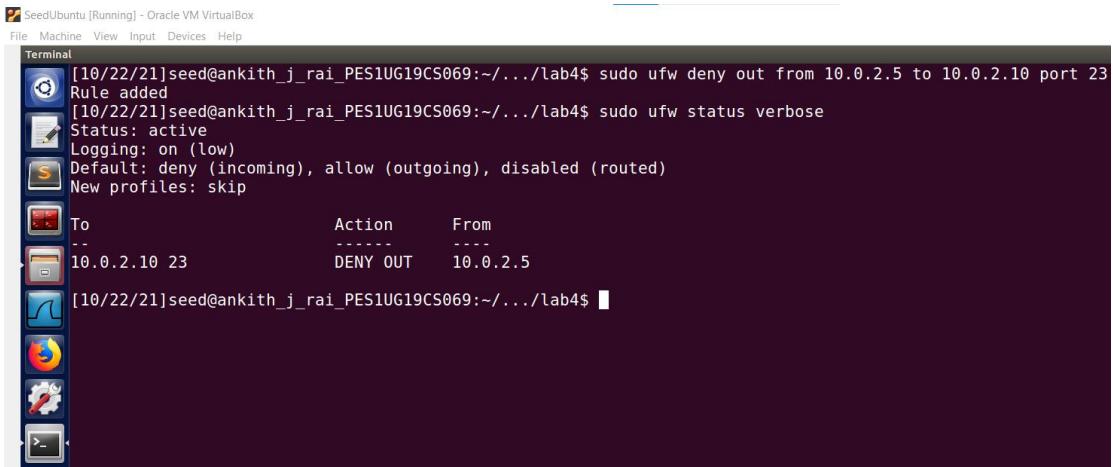
SeedUbuntu [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Terminal

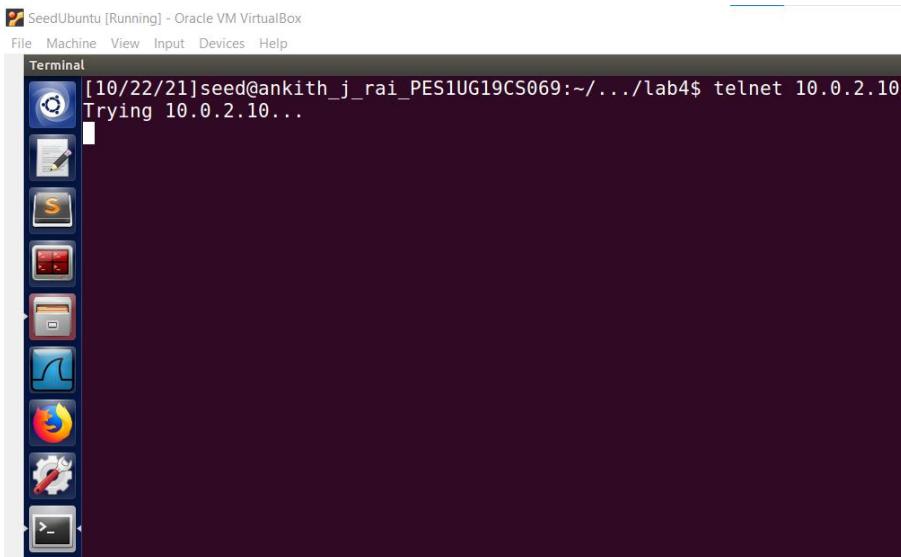
```
[10/22/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ sudo ufw enable
Firewall is active and enabled on system startup
[10/22/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ sudo ufw status verbose
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), disabled (routed)
New profiles: skip
[10/22/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$
```

Now we can see that we have enabled the firewall in VM 1.



```
[10/22/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ sudo ufw deny out from 10.0.2.5 to 10.0.2.10 port 23
Rule added
[10/22/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ sudo ufw status verbose
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), disabled (routed)
New profiles: skip
To           Action      From
--           ----       ---
10.0.2.10 23    DENY OUT   10.0.2.5
[10/22/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$
```

Now we can see that a rule has been added to the firewall of the VM 1 to deny any connection through port 23 to 10.0.2.10.



```
[10/22/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ telnet 10.0.2.10...
Trying 10.0.2.10...
```

Now we can see that on VM1 is not able to establish a telnet connection with VM 2 as the firewall is blocking the packets from being sent to 10.0.2.10 from 10.0.2.5 through port 23.

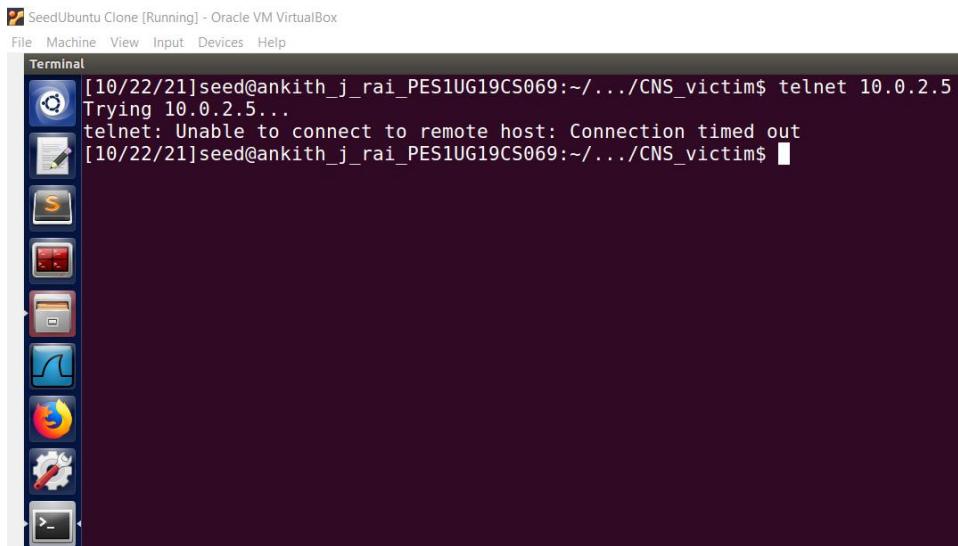
On trying to telnet from VM 2 to VM 1 also we can see that no connection is being established this is because the firewall is blocking the packets from 10.0.2.5 to 10.0.2.10 through port 23.

SeedUbuntu Clone [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Terminal

```
[10/22/21]seed@ankith_j_rai_PES1UG19CS069:~/.../CNS_victim$ telnet 10.0.2.5
Trying 10.0.2.5...
telnet: Unable to connect to remote host: Connection timed out
[10/22/21]seed@ankith_j_rai_PES1UG19CS069:~/.../CNS_victim$
```

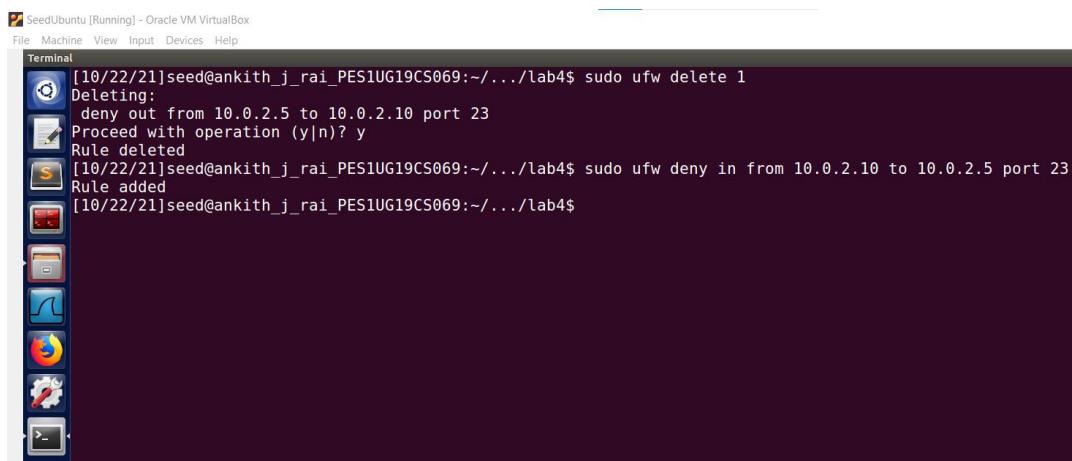


SeedUbuntu [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Terminal

```
[10/22/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ sudo ufw delete 1
Deleting:
deny out from 10.0.2.5 to 10.0.2.10 port 23
Proceed with operation (y|n)? y
Rule deleted
[10/22/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ sudo ufw deny in from 10.0.2.10 to 10.0.2.5 port 23
Rule added
[10/22/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$
```



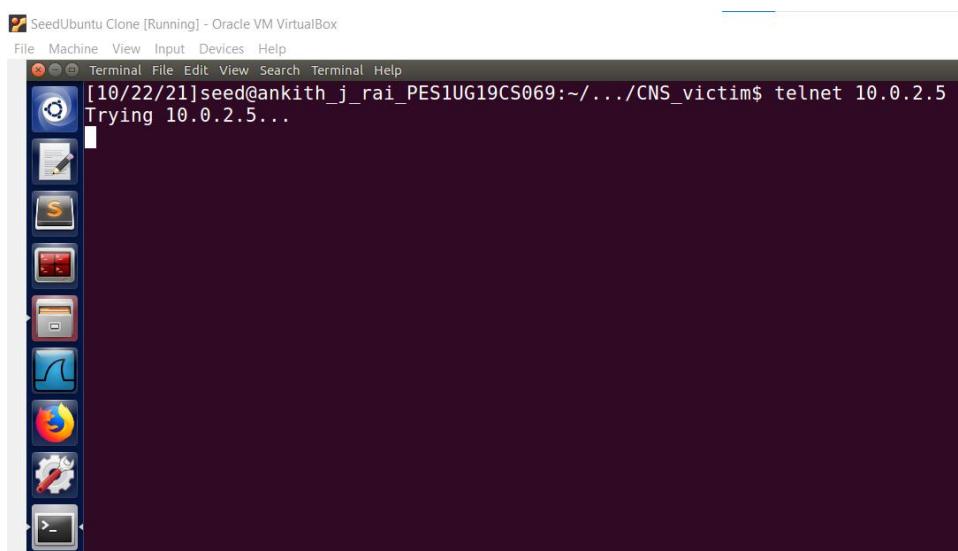
Now we have added a rule to the firewall which does not allow packets to come from 10.0.2.10 into 10.0.2.5 through port 23.

SeedUbuntu Clone [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

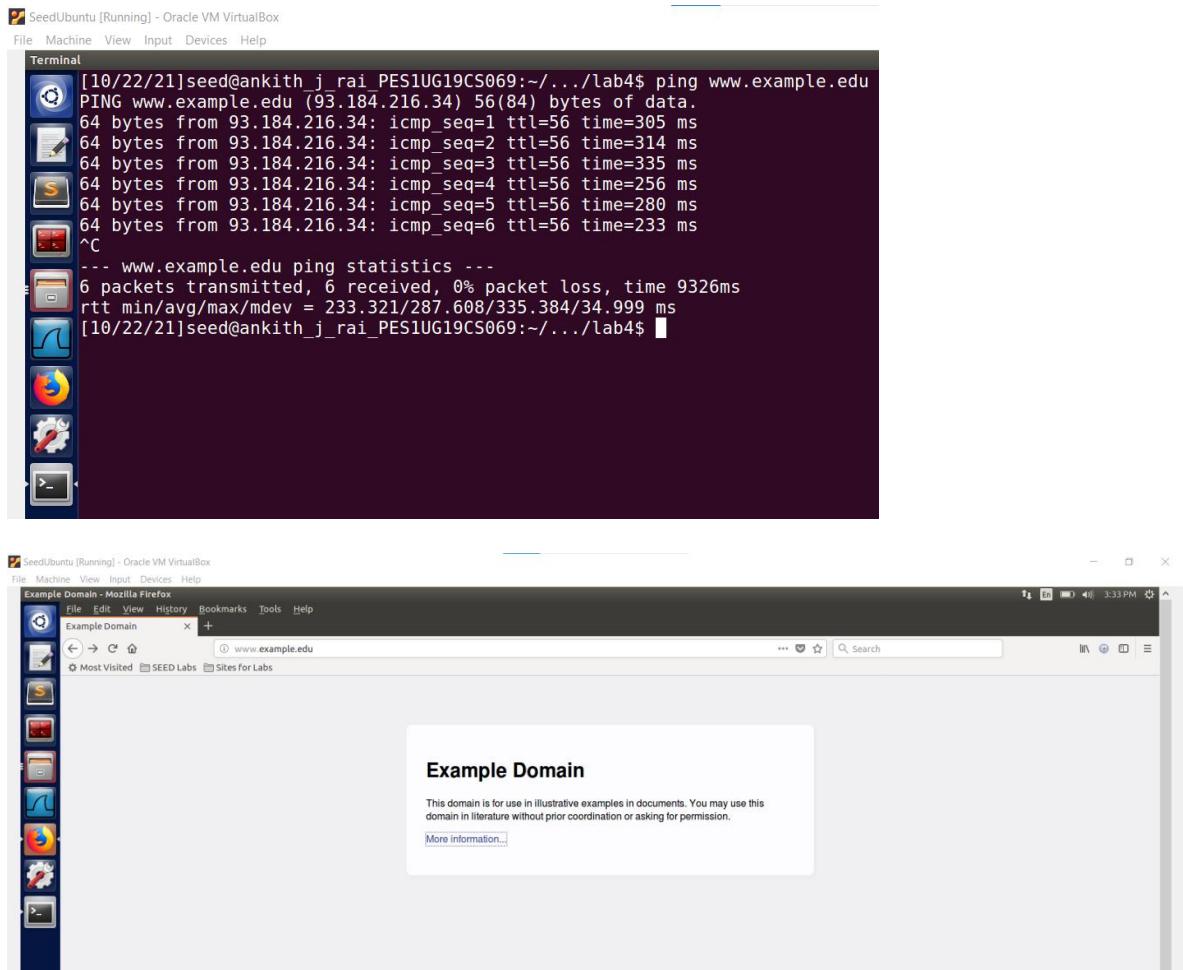
Terminal File Edit View Search Terminal Help

```
[10/22/21]seed@ankith_j_rai_PES1UG19CS069:~/.../CNS_victim$ telnet 10.0.2.5
Trying 10.0.2.5...
```

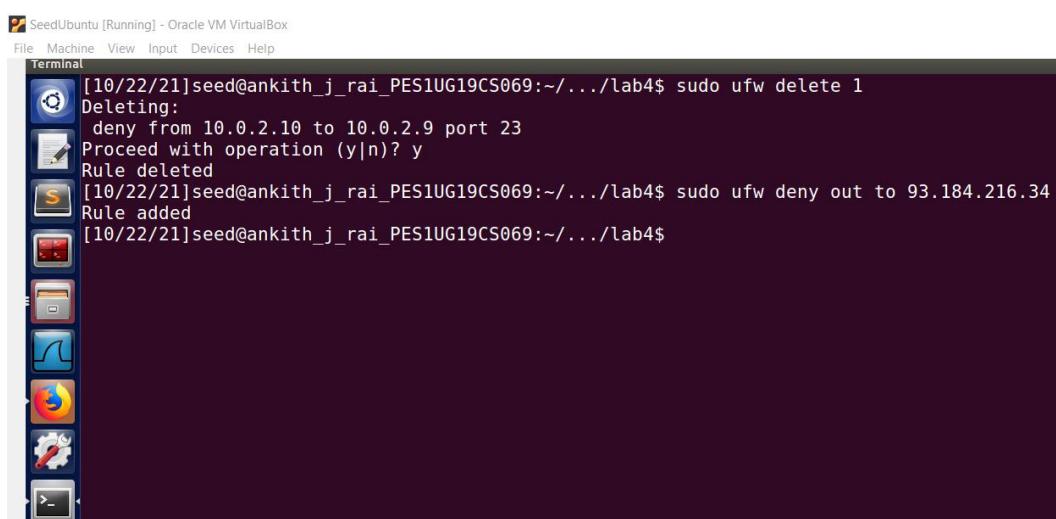


We can see that VM 2 is not able to establish telnet connection with VM 1.

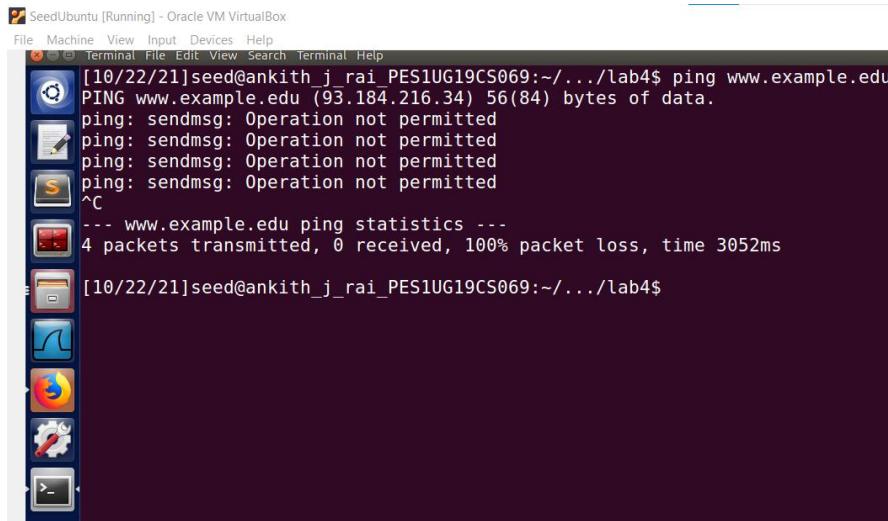
For me due to some reason www.pes.edu was not pinging hence I have used www.example.edu



We can see that on the web browser we can access the website.

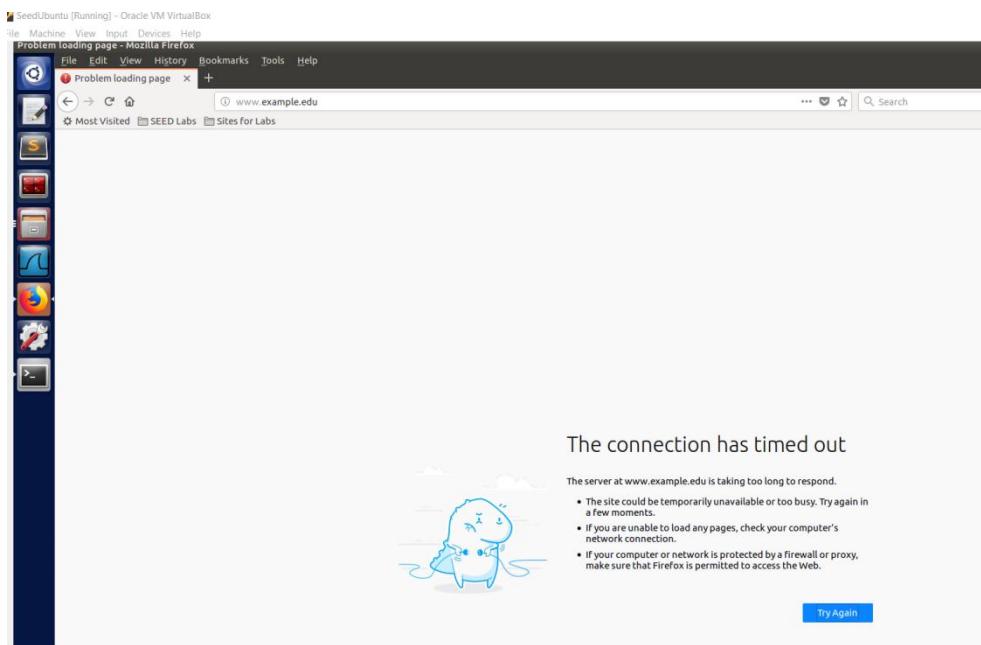


Now we have added a rule to the firewall of the VM 1 which prevents it from accessing www.example.com



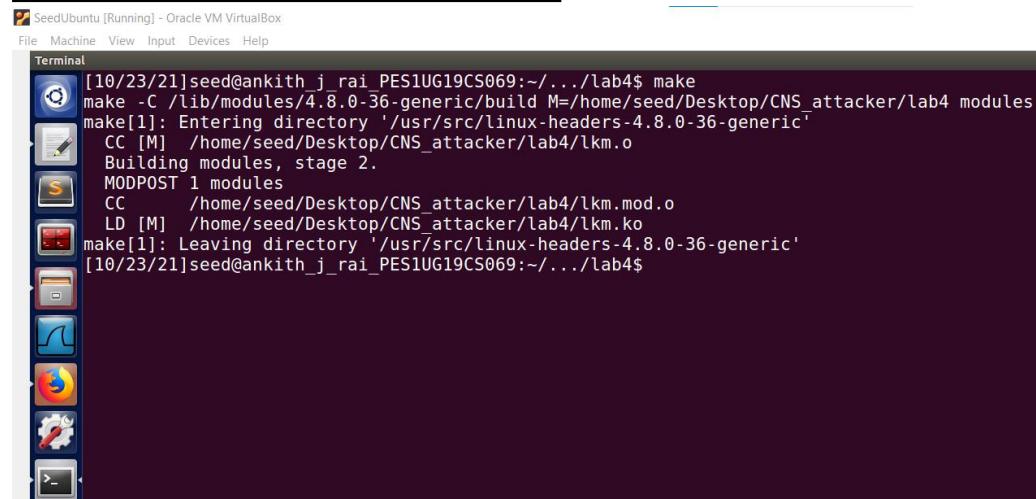
```
[10/22/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ ping www.example.edu
PING www.example.edu (93.184.216.34) 56(84) bytes of data.
ping: sendmsg: Operation not permitted
^C
--- www.example.edu ping statistics ---
4 packets transmitted, 0 received, 100% packet loss, time 3052ms
[10/22/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$
```

Now we can see that the firewall has blocked VM 1 from pinging www.example.com because of the rule added to VM 1's firewall.



We can confirm from the above screenshot that the page for www.example.edu is not getting loaded now.

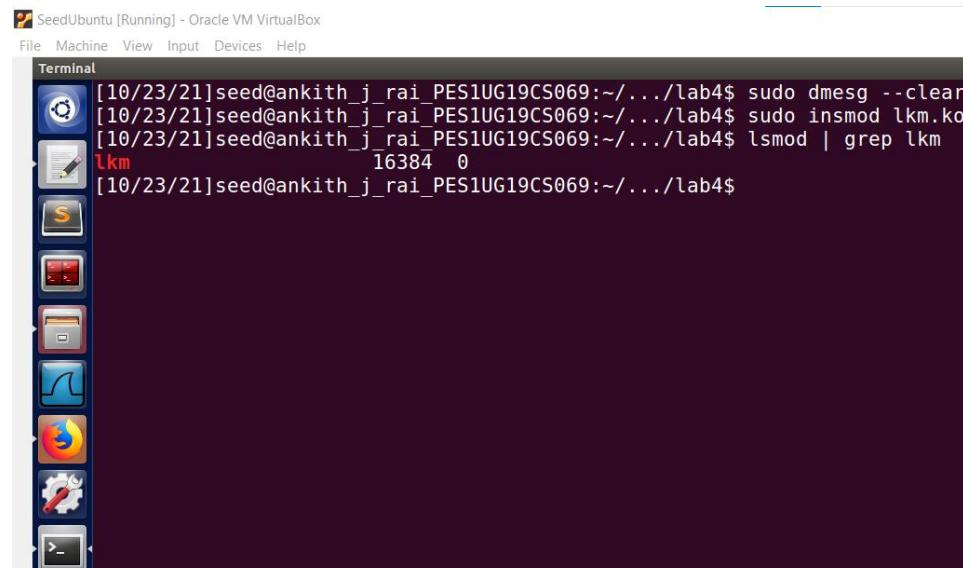
Task 2: How Firewall Works



A screenshot of a Linux desktop environment in Oracle VM VirtualBox. The desktop has a dark theme with icons for various applications like a terminal, file manager, and browser. A terminal window is open, showing the command line output of a 'make' command:

```
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ make
make -C /lib/modules/4.8.0-36-generic/build M=/home/seed/Desktop/CNS_attacker/lab4 modules
make[1]: Entering directory '/usr/src/linux-headers-4.8.0-36-generic'
  CC [M]  /home/seed/Desktop/CNS_attacker/lab4/lkm.o
Building modules, stage 2.
MODPOST 1 modules
  CC      /home/seed/Desktop/CNS_attacker/lab4/lkm.mod.o
  LD [M]  /home/seed/Desktop/CNS_attacker/lab4/lkm.ko
make[1]: Leaving directory '/usr/src/linux-headers-4.8.0-36-generic'
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$
```

On running make command we can see the above output on the terminal.

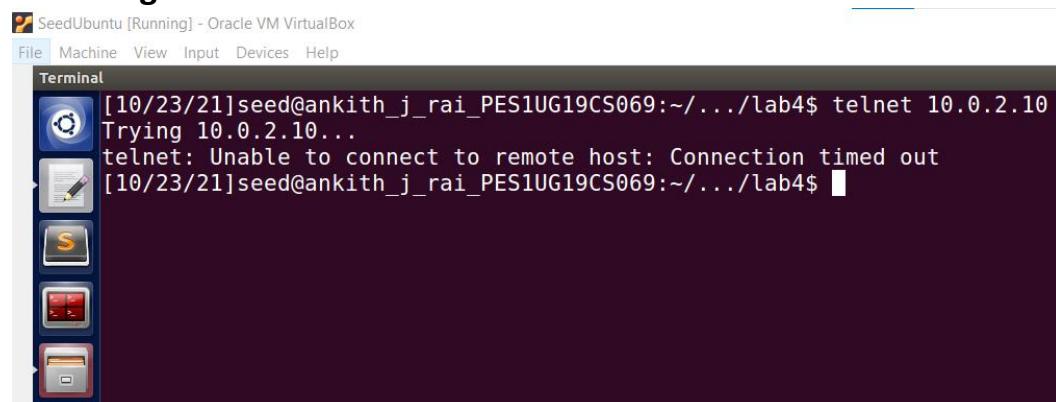


A screenshot of a Linux desktop environment in Oracle VM VirtualBox. The desktop has a dark theme with icons for various applications like a terminal, file manager, and browser. A terminal window is open, showing the command line output of 'lsmod | grep lkm' after running 'sudo insmod lkm.ko' (with 'lkm' highlighted in red):

```
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ sudo dmesg --clear
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ sudo insmod lkm.ko
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ lsmod | grep lkm
lkm                  16384  0
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$
```

From the above screenshot we can see that the compiled kernel module has been inserted using insmod

Telneting from VM 1 to VM 2:

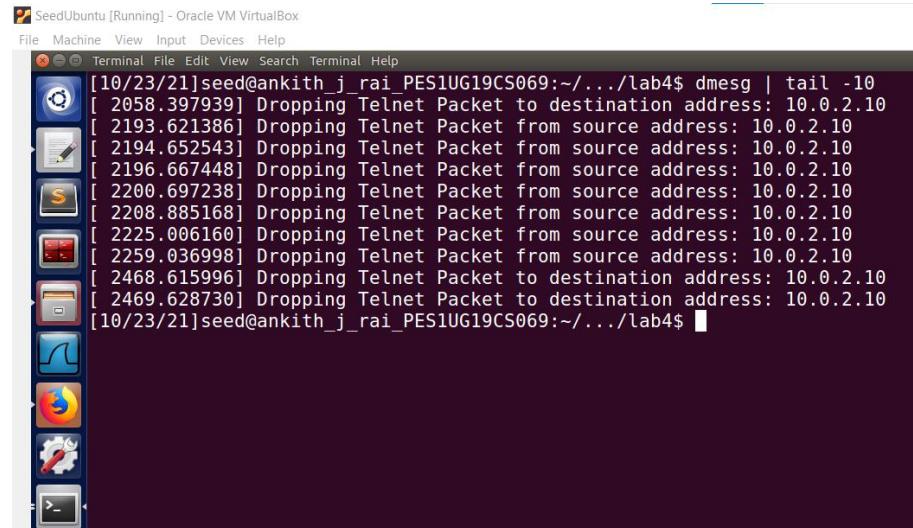


A screenshot of a Linux desktop environment in Oracle VM VirtualBox. The desktop has a dark theme with icons for various applications like a terminal, file manager, and browser. A terminal window is open, showing the command line output of a telnet attempt:

```
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ telnet 10.0.2.10
Trying 10.0.2.10...
telnet: Unable to connect to remote host: Connection timed out
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$
```

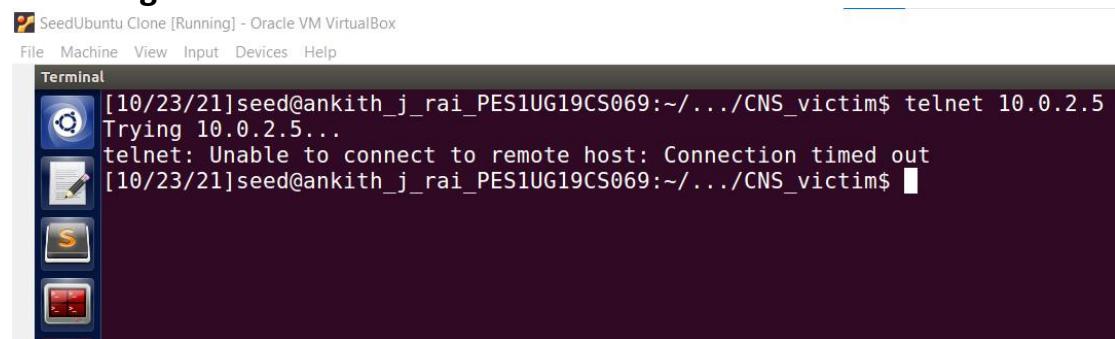
We can see that VM 1 is not able to establish telnet connection with VM 2.

On running the **dmesg | tail -10** command on VM 1 we get the packets which are dropped.



```
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ dmesg | tail -10
[ 2058.397939] Dropping Telnet Packet to destination address: 10.0.2.10
[ 2193.621386] Dropping Telnet Packet from source address: 10.0.2.10
[ 2194.652543] Dropping Telnet Packet from source address: 10.0.2.10
[ 2196.667448] Dropping Telnet Packet from source address: 10.0.2.10
[ 2200.697238] Dropping Telnet Packet from source address: 10.0.2.10
[ 2208.885168] Dropping Telnet Packet from source address: 10.0.2.10
[ 2225.006160] Dropping Telnet Packet from source address: 10.0.2.10
[ 2259.036998] Dropping Telnet Packet from source address: 10.0.2.10
[ 2468.615996] Dropping Telnet Packet to destination address: 10.0.2.10
[ 2469.628730] Dropping Telnet Packet to destination address: 10.0.2.10
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$
```

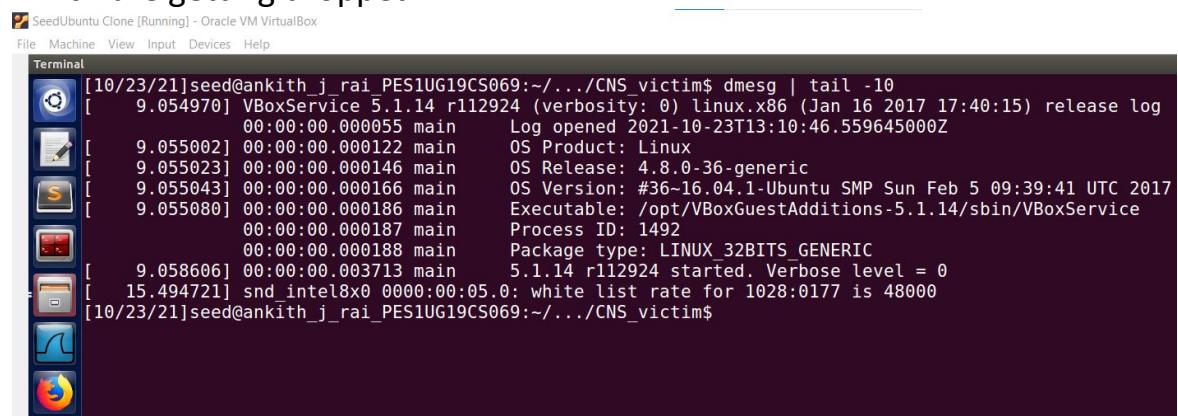
Telneting from VM 2 to VM 1:



```
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../CNS_victim$ telnet 10.0.2.5...
Trying 10.0.2.5...
telnet: Unable to connect to remote host: Connection timed out
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../CNS_victim$
```

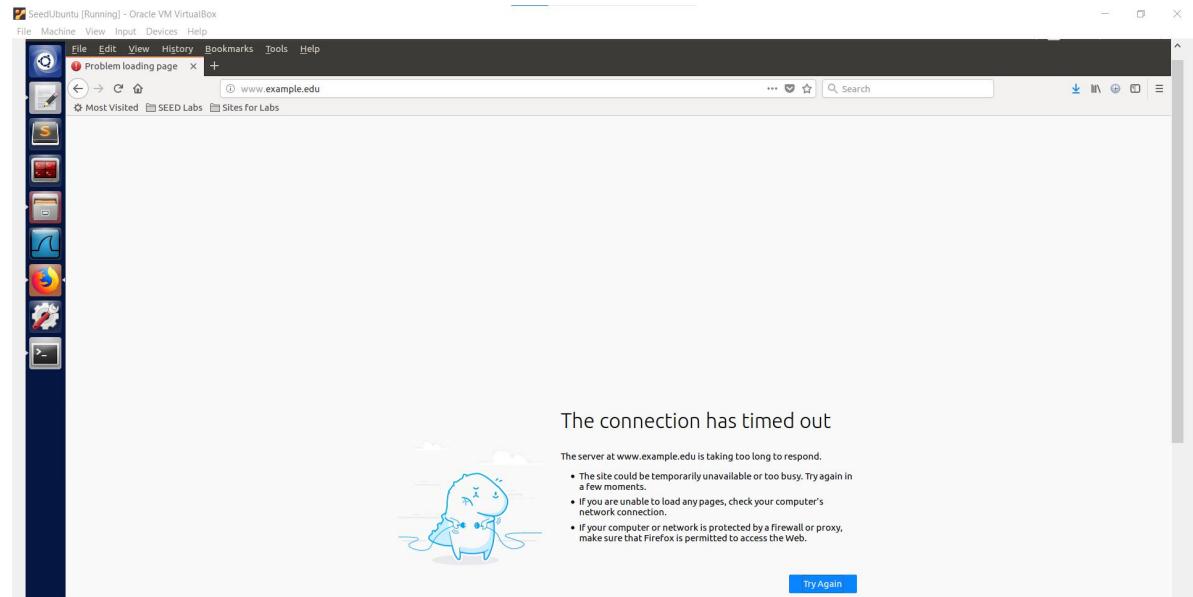
We can see that VM 2 is not able to establish telnet connection with VM 1.

On running the **dmesg | tail -10** command on VM 2 we get the packets which are getting dropped.



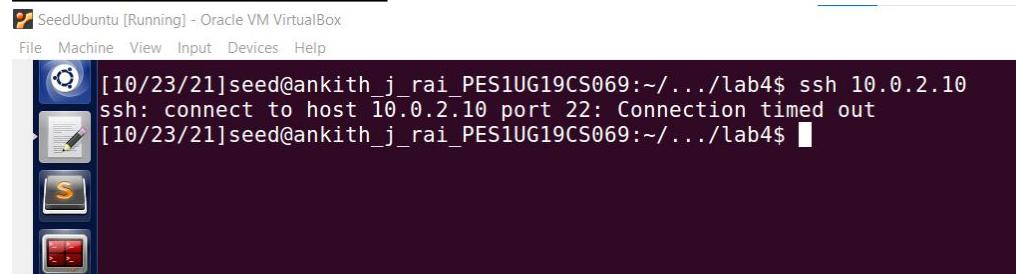
```
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../CNS_victim$ dmesg | tail -10
[    9.054970] VBoxService 5.1.14 r112924 (verbosity: 0) linux.x86 (Jan 16 2017 17:40:15) release log
          00:00:00.000055 main      Log opened 2021-10-23T13:10:46.559645000Z
[    9.055002] 00:00:00.000122 main      OS Product: Linux
[    9.055023] 00:00:00.000146 main      OS Release: 4.8.0-36-generic
[    9.055043] 00:00:00.000166 main      OS Version: #36-16.04.1-Ubuntu SMP Sun Feb 5 09:39:41 UTC 2017
[    9.055080] 00:00:00.000186 main      Executable: /opt/VBoxGuestAdditions-5.1.14/sbin/VBoxService
          00:00:00.000187 main      Process ID: 1492
[    9.058606] 00:00:00.003713 main      Package type: LINUX_32BITS_GENERIC
[   15.494721] snd_intel8x0 0000:00:05.0: white list rate for 1028:0177 is 48000
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../CNS_victim$
```

As www.pes.edu not working from task 1 so for this task too I will be using www.example.edu.



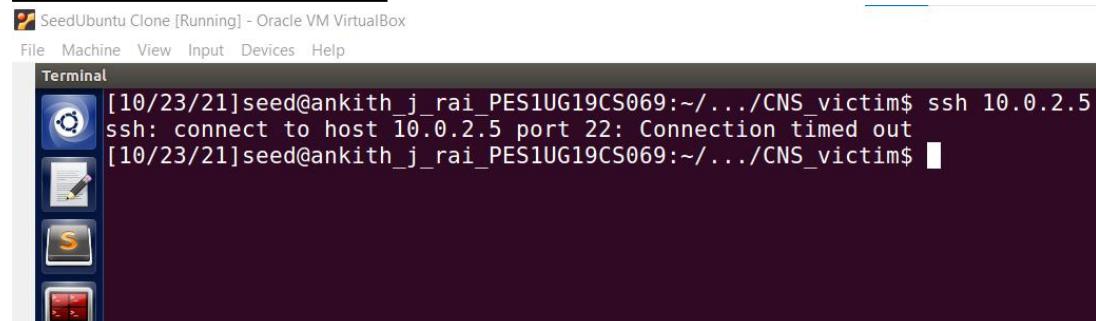
We can see from the above screenshot that the page is not loading and the connection has timed out this is because of the firewall blocking.

SSH from VM 1 to VM 2:



We can see that the SSH connection from VM 1 to VM 2 has failed and the connection has timed out.

SSH from VM 2 to VM 1:



We can see that the SSH connection from VM 2 to VM 1 has failed and the connection has timed out.

Task 3: Evading Egress Filtering

Task 3.a: Telnet to Machine B through the firewall

```
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.lab4$ sudo ufw enable
Firewall is active and enabled on system startup
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.lab4$ sudo ufw status verbose
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), disabled (routed)
New profiles: skip
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.lab4$ sudo ufw deny out from 10.0.2.5 to any port 23
Rule added
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.lab4$ sudo ufw status verbose
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), disabled (routed)
New profiles: skip
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.lab4$ sudo ufw status verbose
To          Action      From
---        -----
23          DENY OUT    10.0.2.5
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.lab4$
```

On running the commands we add a new rule to firewall of VM 1, which blocks all the packets going out from VM 1 through port 23.

Telneting from VM 1 to VM 3:

```
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.lab4$ telnet 10.0.2.11
Trying 10.0.2.11...
telnet: Unable to connect to remote host: Connection timed out
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.lab4$
```

We can see that telnet connection from VM 1 to VM 3 is not established and the connection has timed out.

Now setting up a SSH tunnel between VM 1 and VM 2

```
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.lab4$ ssh -L 8000:10.0.2.10:23 seed@10.0.2.11
The authenticity of host '10.0.2.11 (10.0.2.11)' can't be established.
ECDSA key fingerprint is SHA256:plzAio6c1bI+8HDp5xa+eKRi56laFDaPE1/xqleYzCI.
Are you sure you want to continue connecting (yes/no)? y
Please type 'yes' or 'no': yes
Warning: Permanently added '10.0.2.11' (ECDSA) to the list of known hosts.
seed@10.0.2.11's password:
Welcome to Ubuntu 16.04.2 LTS (GNU/Linux 4.8.0-36-generic i686)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/advantage

0 packages can be updated.
0 updates are security updates.

Last login: Sun Sep 12 10:31:11 2021 from 10.0.2.7
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~$
```

Telneting localhost 8000:

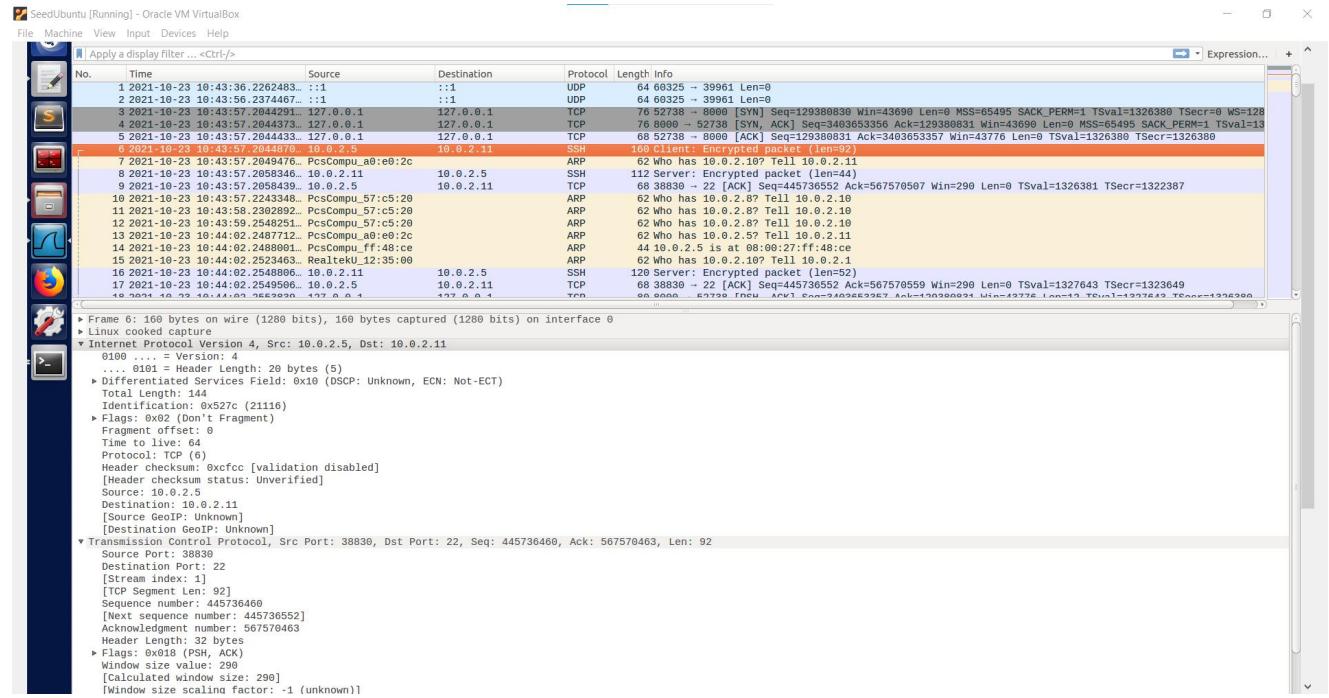
```
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ telnet localhost 8000
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^'.
Ubuntu 16.04.2 LTS
ankith_j_rai_PES1UG19CS069 login: seed
Password:
Last login: Fri Oct 22 13:32:53 EDT 2021 from 10.0.2.5 on pts/17
Welcome to Ubuntu 16.04.2 LTS (GNU/Linux 4.8.0-36-generic i686)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

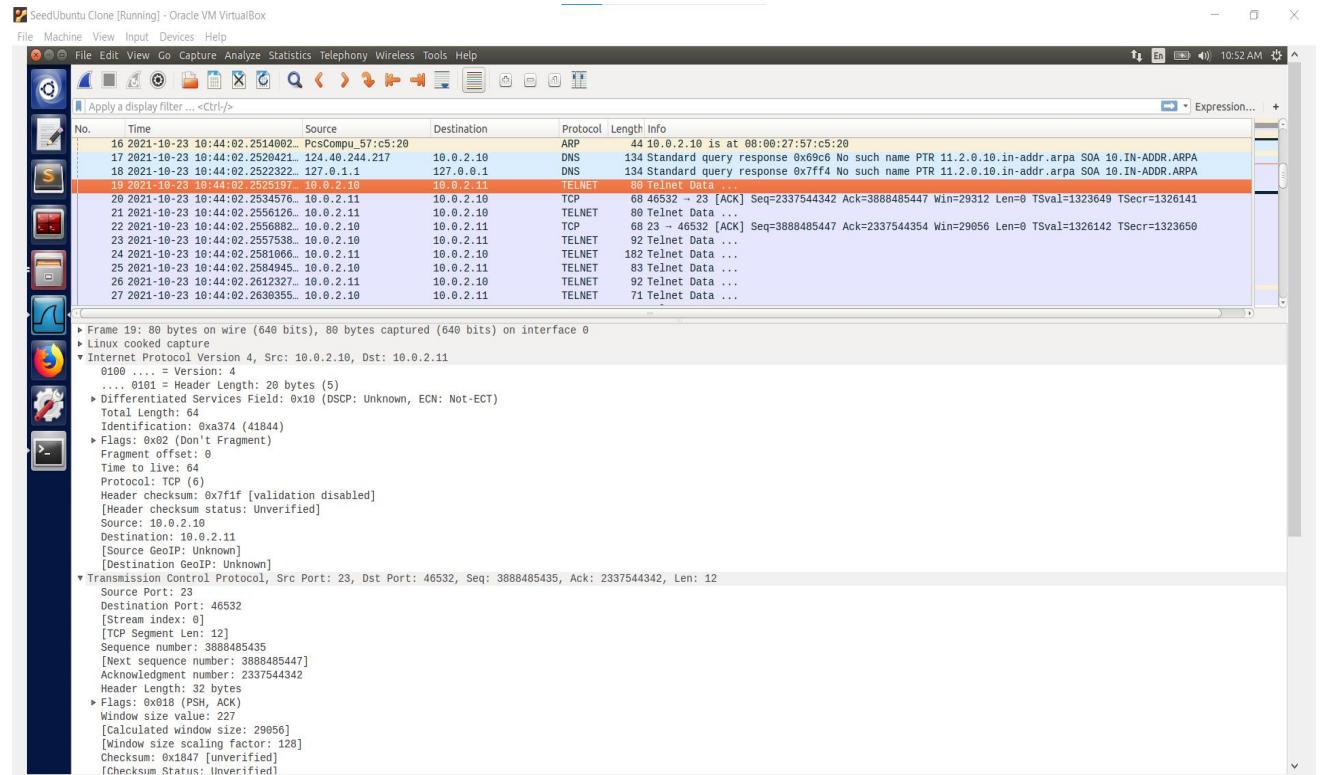
0 packages can be updated.
0 updates are security updates.

[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~$
```

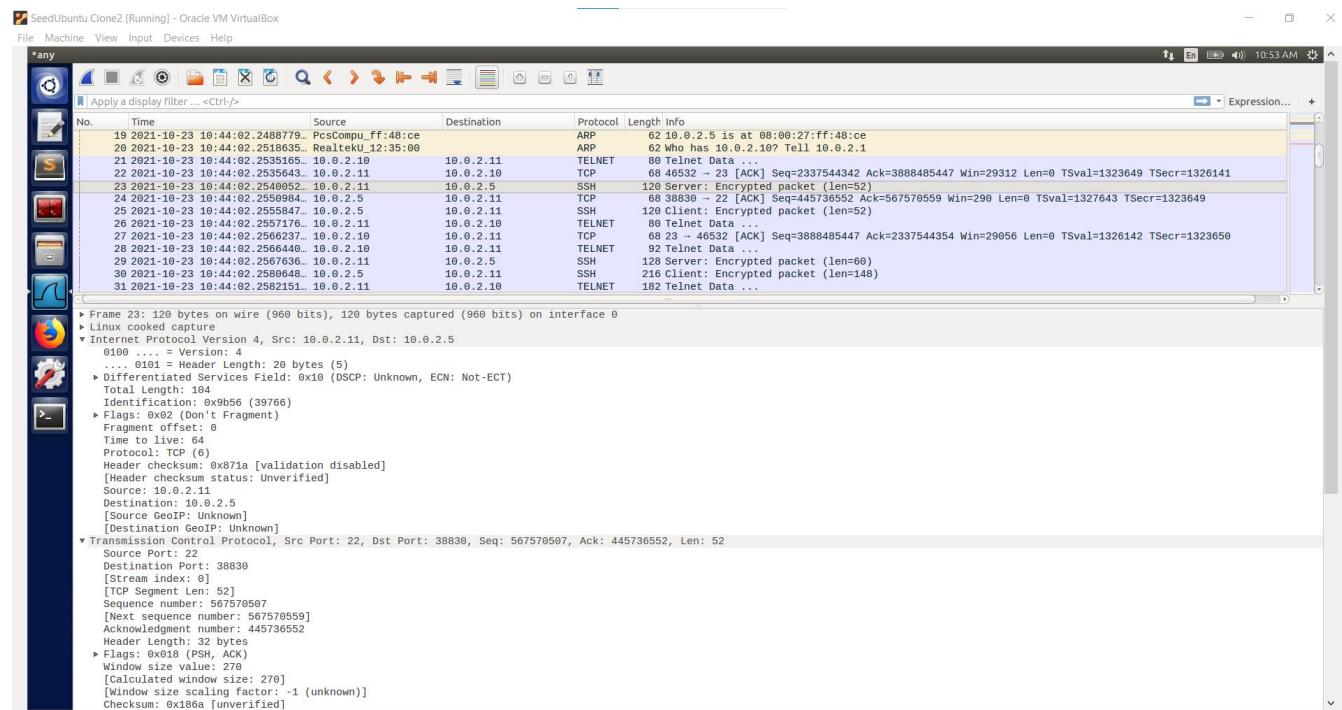
Screenshot of wireshark of VM 1:



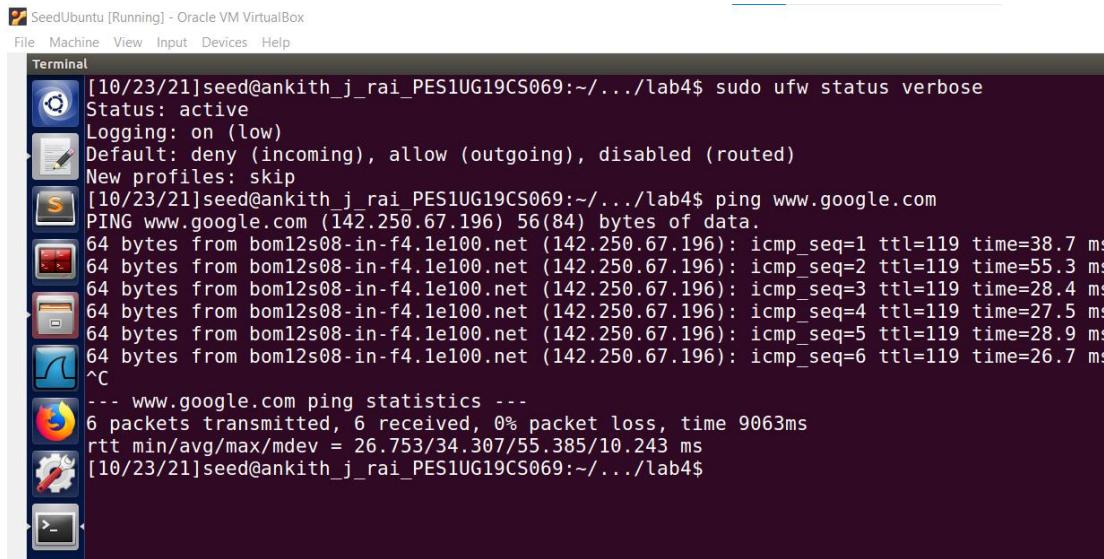
Screenshot of wireshark of VM 2:



Screenshot of wireshark of VM 3:

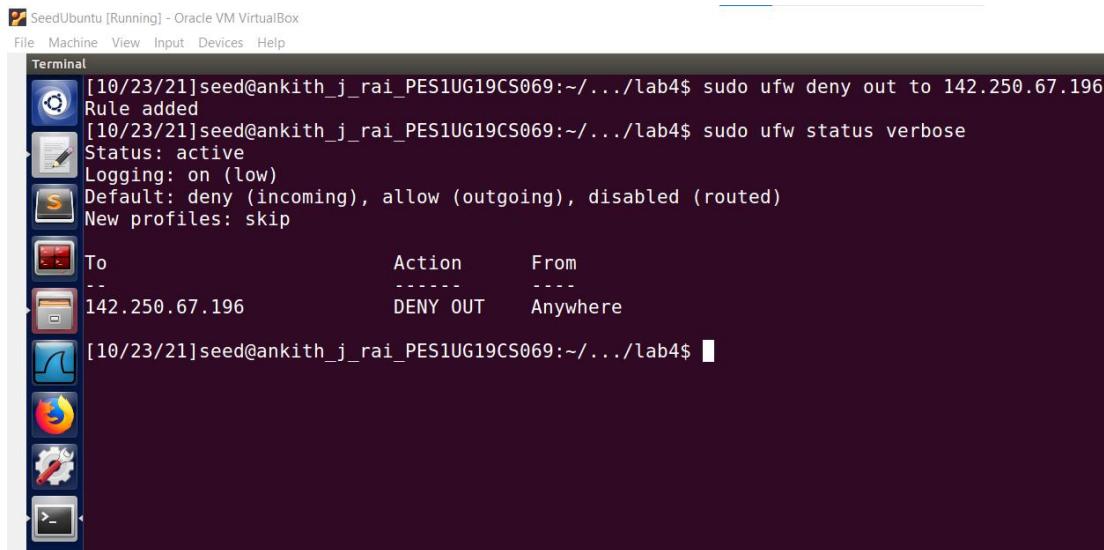


Task 3.b: Connecting to Google using SSH tunnel



```
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ sudo ufw status verbose
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), disabled (routed)
New profiles: skip
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ ping www.google.com
PING www.google.com (142.250.67.196) 56(84) bytes of data.
64 bytes from bom12s08-in-f4.1e100.net (142.250.67.196): icmp_seq=1 ttl=119 time=38.7 ms
64 bytes from bom12s08-in-f4.1e100.net (142.250.67.196): icmp_seq=2 ttl=119 time=55.3 ms
64 bytes from bom12s08-in-f4.1e100.net (142.250.67.196): icmp_seq=3 ttl=119 time=28.4 ms
64 bytes from bom12s08-in-f4.1e100.net (142.250.67.196): icmp_seq=4 ttl=119 time=27.5 ms
64 bytes from bom12s08-in-f4.1e100.net (142.250.67.196): icmp_seq=5 ttl=119 time=28.9 ms
64 bytes from bom12s08-in-f4.1e100.net (142.250.67.196): icmp_seq=6 ttl=119 time=26.7 ms
^C
--- www.google.com ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 9063ms
rtt min/avg/max/mdev = 26.753/34.307/55.385/10.243 ms
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$
```

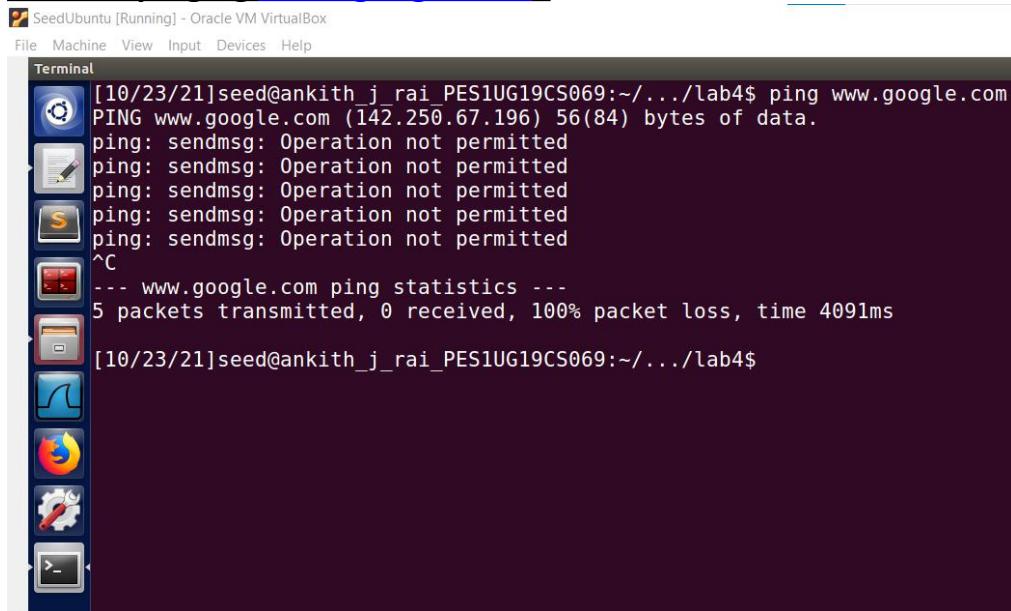
From the above screenshot we can see that VM 1's firewall has no rules and from pinging www.google.com we get to know that its ip address is 142.250.67.196



```
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ sudo ufw deny out to 142.250.67.196
Rule added
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ sudo ufw status verbose
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), disabled (routed)
New profiles: skip
To          Action      From
--          -----      -----
142.250.67.196    DENY OUT    Anywhere
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$
```

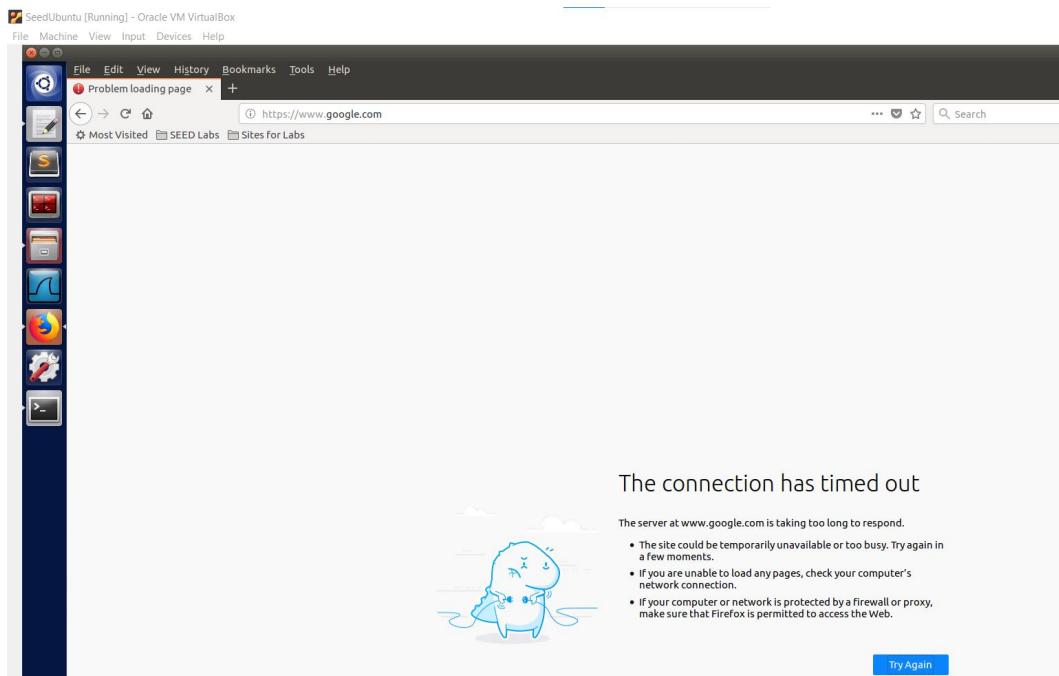
From the above screenshot we can see that to the firewall of VM 1 a rule has been added to deny packets going from VM 1 to 142.250.67.196

Now on pinging www.google.com :



```
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ ping www.google.com
PING www.google.com (142.250.67.196) 56(84) bytes of data.
ping: sendmsg: Operation not permitted
^C
--- www.google.com ping statistics ---
5 packets transmitted, 0 received, 100% packet loss, time 4091ms
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$
```

We can see that we are not able to ping www.google.com from VM 1 as the firewall is blocking it and we can see this in the above screenshot where it tells that the Operation not permitted.



On the browser of VM 1 also we can see that we are not able to connect to www.google.com

Now setting up a SSH tunnel between VM 1 and VM 2

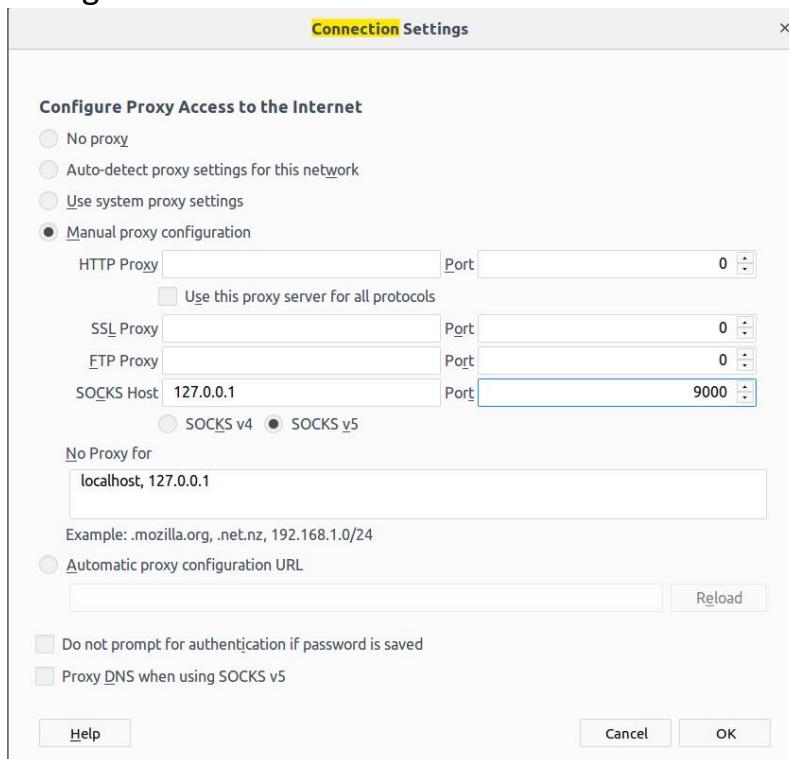
```
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ ssh -D 9000 seed@10.0.2.11
seed@10.0.2.11's password:
Welcome to Ubuntu 16.04.2 LTS (GNU/Linux 4.8.0-36-generic i686)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/advantage

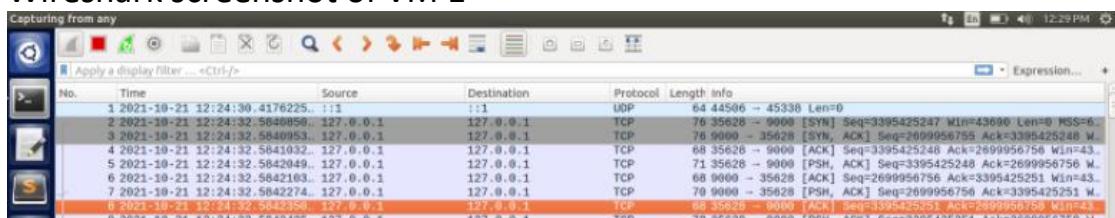
0 packages can be updated.
0 updates are security updates.

Last login: Sat Oct 23 10:43:12 2021 from 10.0.2.5
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~$
```

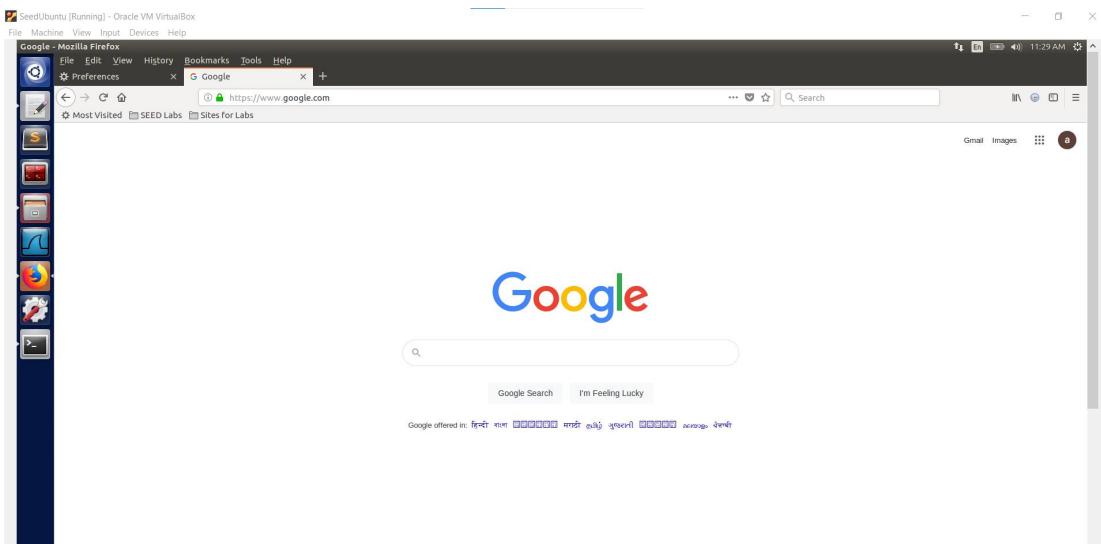
Changing connection setting in firefox browser to manual proxy configuration.



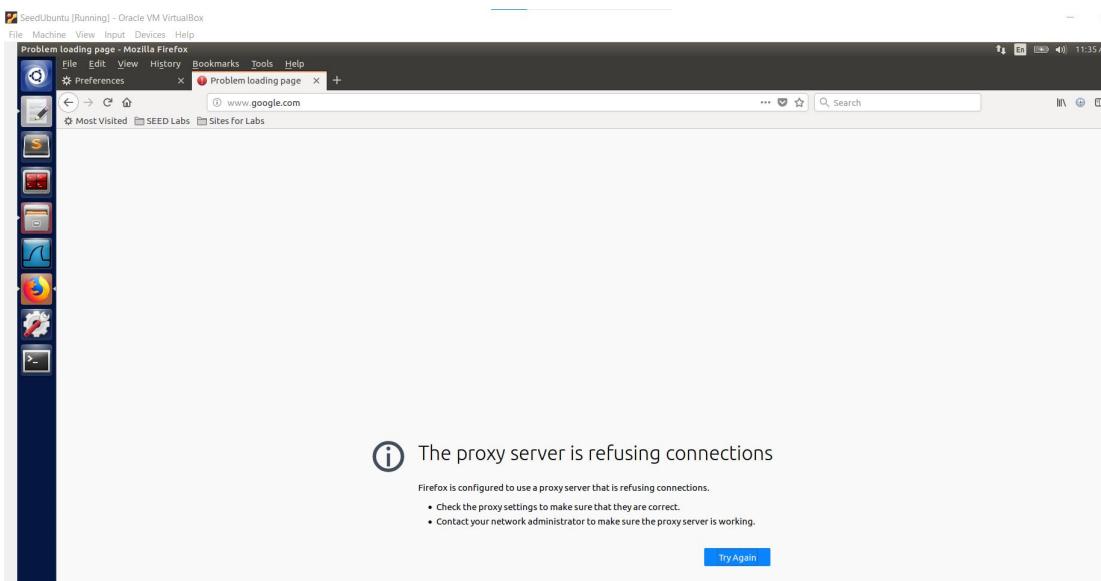
Wireshark screenshot of VM 1



Now accessing www.google.com from the VM 1 web browser

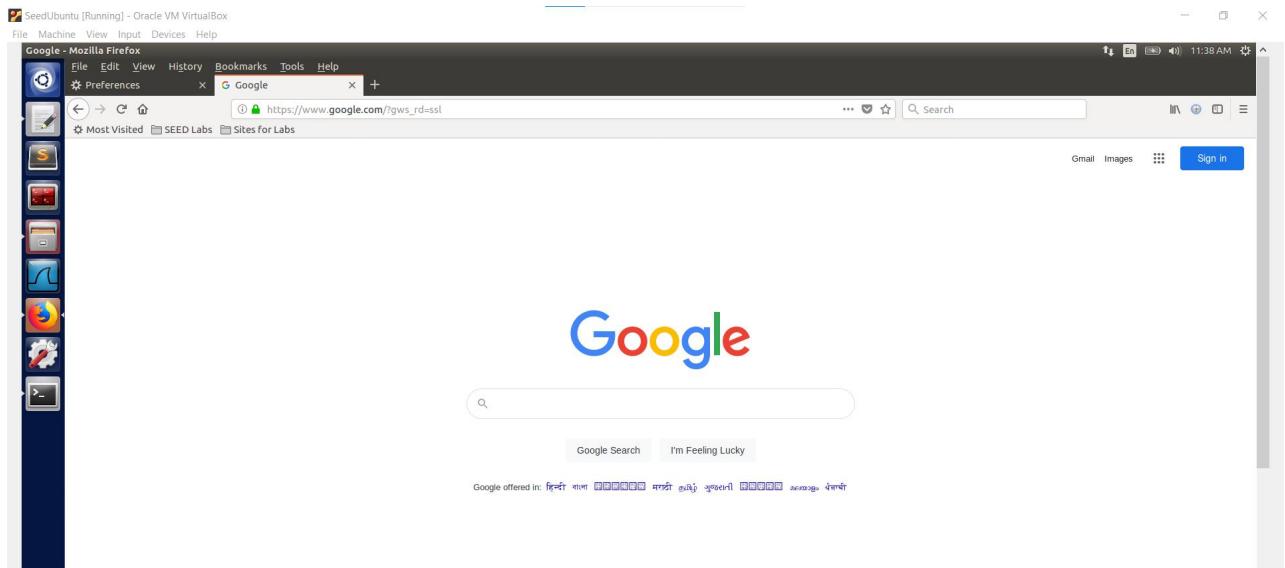


We can see that even though the firewall has a rule to block the visiting of www.google.com from VM 1 , we can visit it , this is because of changing the proxy configuration.



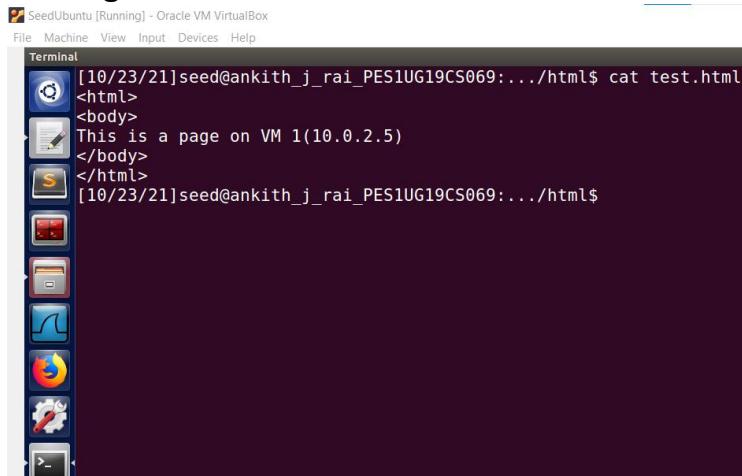
Now on disabling the tunnel we can see that the proxy server is refusing connections as browser is configured to use the proxy but the tunnel has been disabled.

Now on re-enabling the ssh tunnel we can see that we are able to visit the www.google.com website from VM 1.

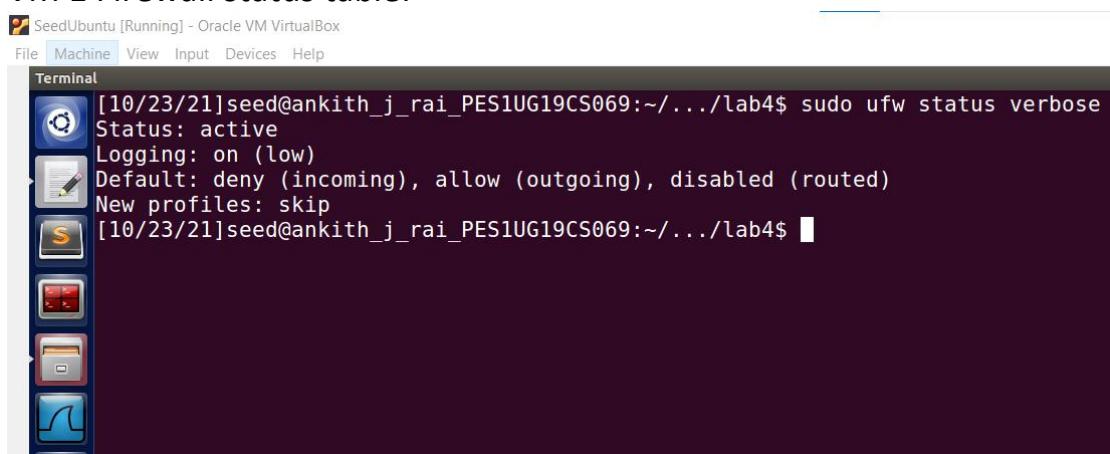


Task 4: Evade Ingress Filtering

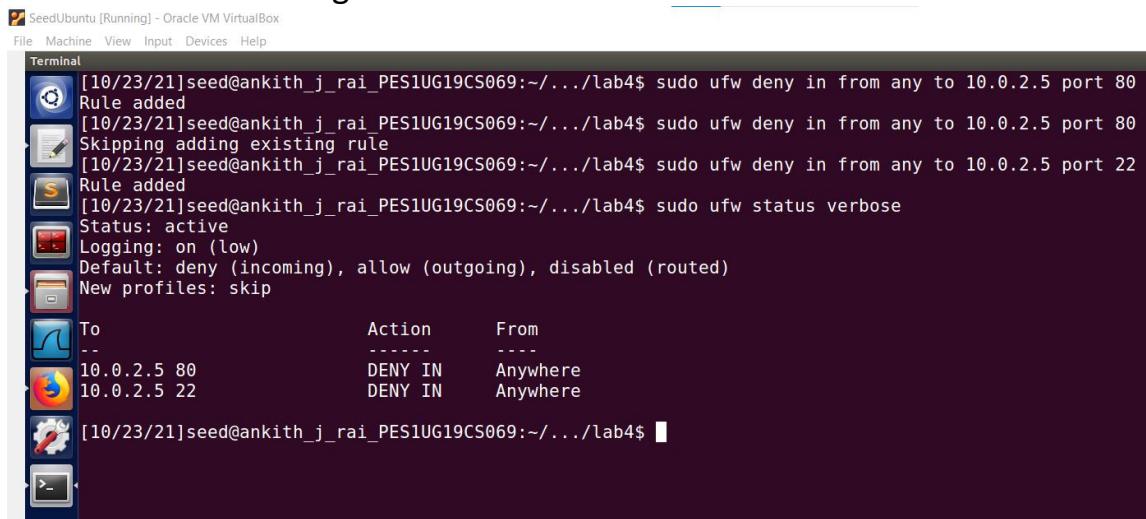
Writing test.html in the VM 1 machine.



VM 1 Firewall status table:



Now we will be adding rules to the firewall of the VM 1 :

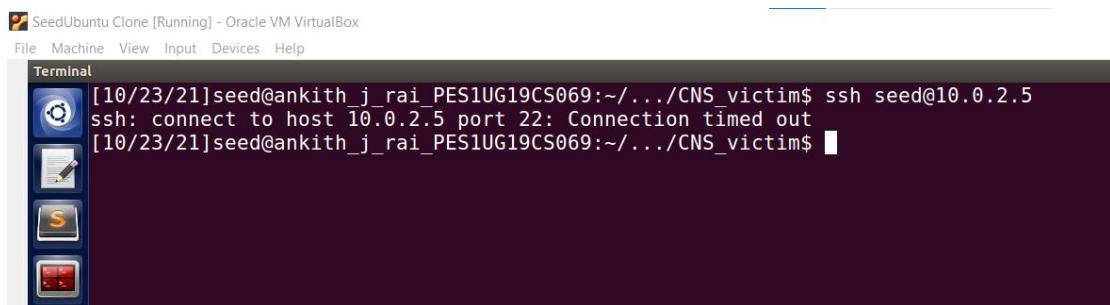
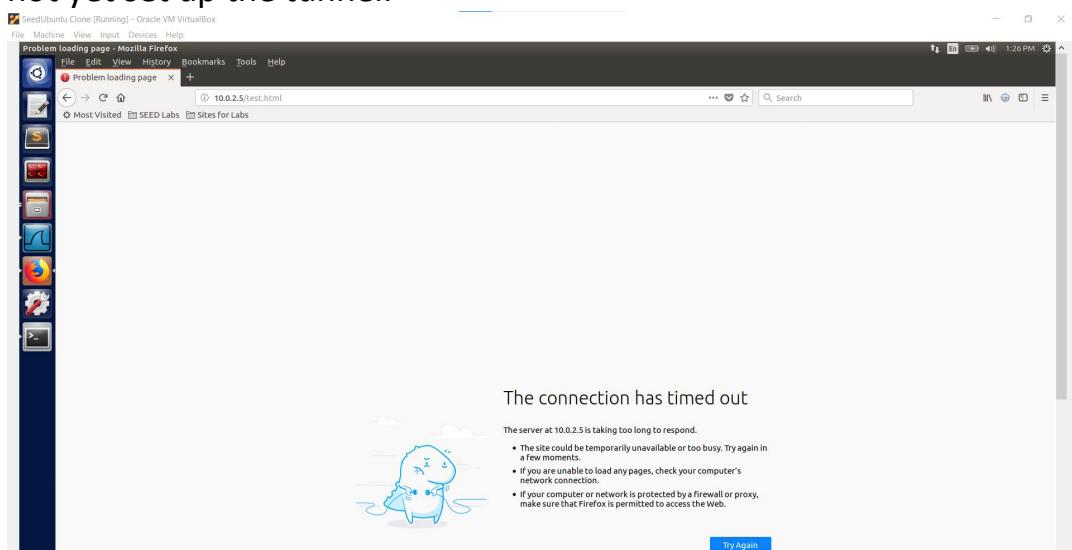


```
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ sudo ufw deny in from any to 10.0.2.5 port 80
Rule added
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ sudo ufw deny in from any to 10.0.2.5 port 80
Skipping adding existing rule
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ sudo ufw deny in from any to 10.0.2.5 port 22
Rule added
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$ sudo ufw status verbose
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), disabled (routed)
New profiles: skip

To                         Action      From
--                         ----       --
10.0.2.5 80                DENY IN    Anywhere
10.0.2.5 22                DENY IN    Anywhere

[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../lab4$
```

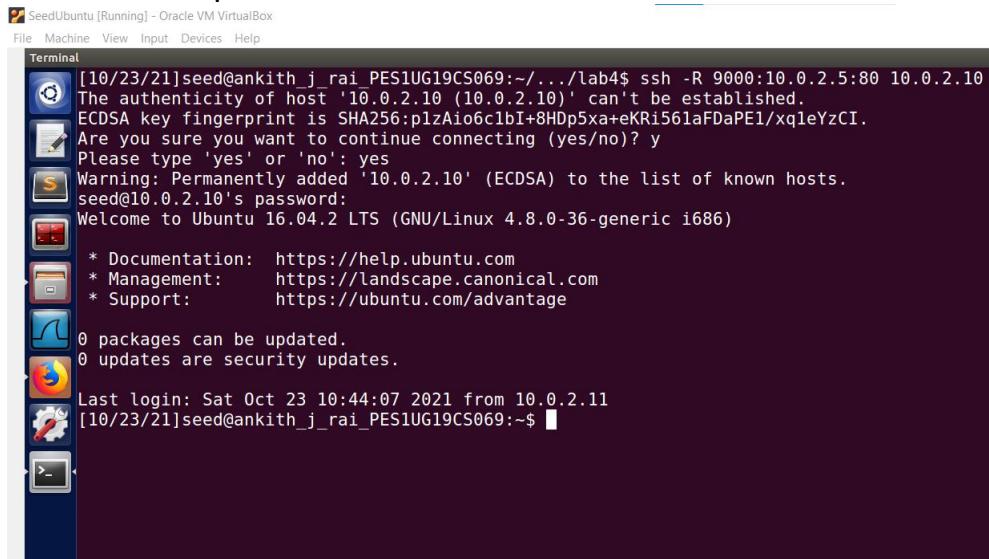
Now when we try to access test.html from VM 2 we cannot as we have not yet set up the tunnel.



```
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../CNS_victim$ ssh seed@10.0.2.5
ssh: connect to host 10.0.2.5 port 22: Connection timed out
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/.../CNS_victim$
```

Now on sending ssh connection from VM 2 to VM 1 we can see that the connection is not getting established and the connection has timed out.

Now we set up a reverse tunnel from VM 1 to VM 2



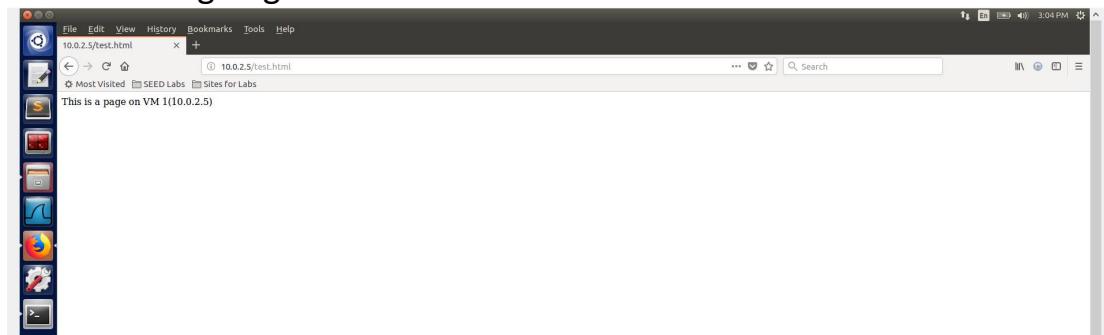
```
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/. . . /lab4$ ssh -R 9000:10.0.2.5:80 10.0.2.10
The authenticity of host '10.0.2.10 (10.0.2.10)' can't be established.
ECDSA key fingerprint is SHA256:plzAio6c1bI+8HDp5xa+eKRi561aFDaPE1/xq1eYzCI.
Are you sure you want to continue connecting (yes/no)? y
Please type 'yes' or 'no': yes
Warning: Permanently added '10.0.2.10' (ECDSA) to the list of known hosts.
seed@10.0.2.10's password:
Welcome to Ubuntu 16.04.2 LTS (GNU/Linux 4.8.0-36-generic i686)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/advantage

0 packages can be updated.
0 updates are security updates.

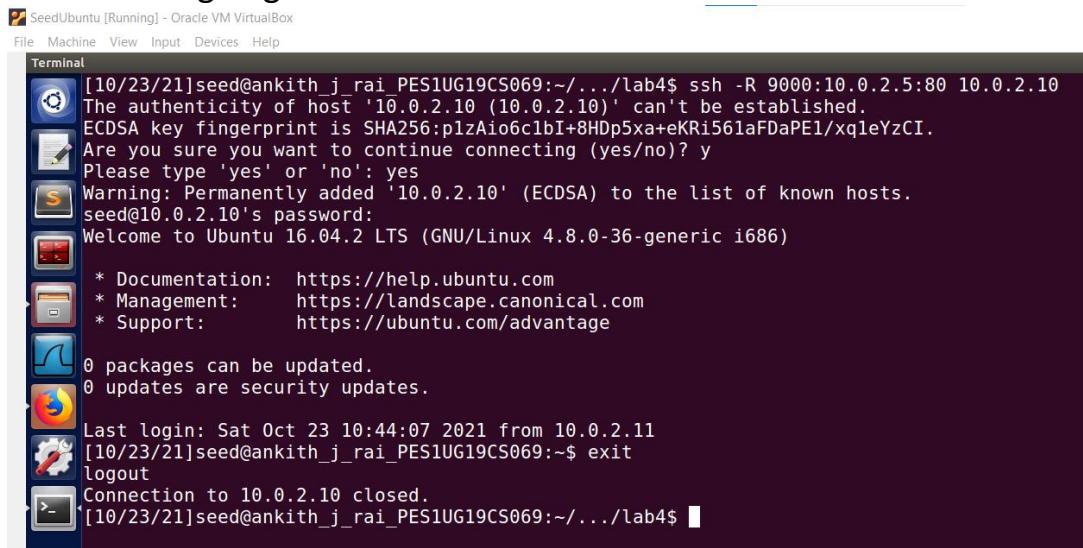
Last login: Sat Oct 23 10:44:07 2021 from 10.0.2.11
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~$
```

Now we are going to access the test.html on browser of VM 2.



We can see that on browser of VM 2 we are able to get access to test.html

Now we are going to close the channel

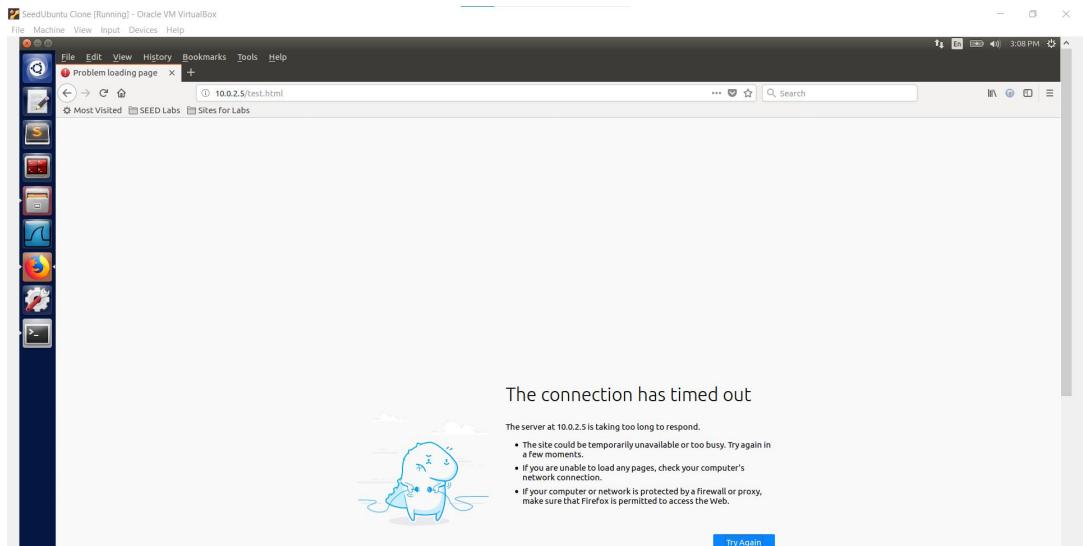


```
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/. . . /lab4$ ssh -R 9000:10.0.2.5:80 10.0.2.10
The authenticity of host '10.0.2.10 (10.0.2.10)' can't be established.
ECDSA key fingerprint is SHA256:plzAio6c1bI+8HDp5xa+eKRi561aFDaPE1/xq1eYzCI.
Are you sure you want to continue connecting (yes/no)? y
Please type 'yes' or 'no': yes
Warning: Permanently added '10.0.2.10' (ECDSA) to the list of known hosts.
seed@10.0.2.10's password:
Welcome to Ubuntu 16.04.2 LTS (GNU/Linux 4.8.0-36-generic i686)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/advantage

0 packages can be updated.
0 updates are security updates.

Last login: Sat Oct 23 10:44:07 2021 from 10.0.2.11
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~$ exit
logout
Connection to 10.0.2.10 closed.
[10/23/21]seed@ankith_j_rai_PES1UG19CS069:~/. . . /lab4$
```



From the browser screenshot of VM 2 we can see that we are not able to access test.html after the tunnel has been broken.