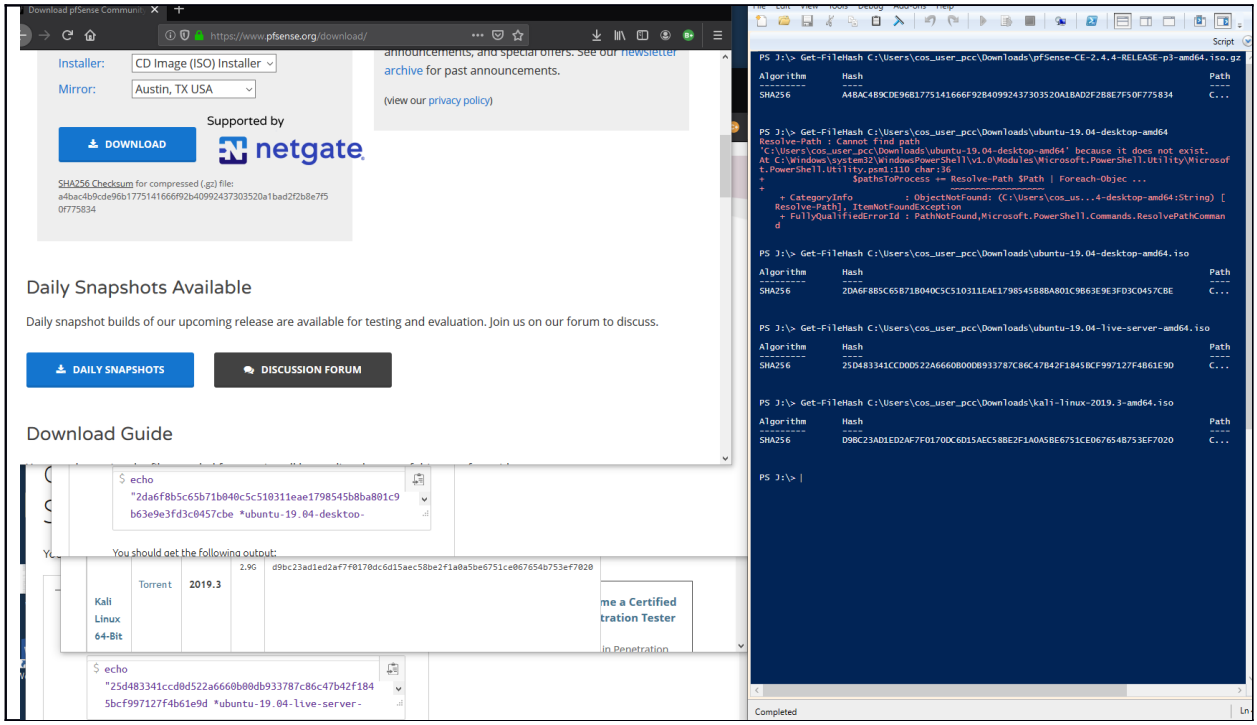
Assignment Information				
Name:	Mario Morales		Assignment:	Project 1
Date Submitted:			Course Section:	
Course:	COSN 215			

The purpose of this project is to set up a working DMZ network within VirtualBox. This network will be used throughout the course and you will continue to expand it.

Phase 0

Download the proper ISO for pfSense, a Linux server OS (Ubuntu Server is recommended), a Linux desktop OS (again Ubuntu is recommended), and Kali Linux. Insert screenshots that show you have downloaded the correct versions and verified the hash for each.

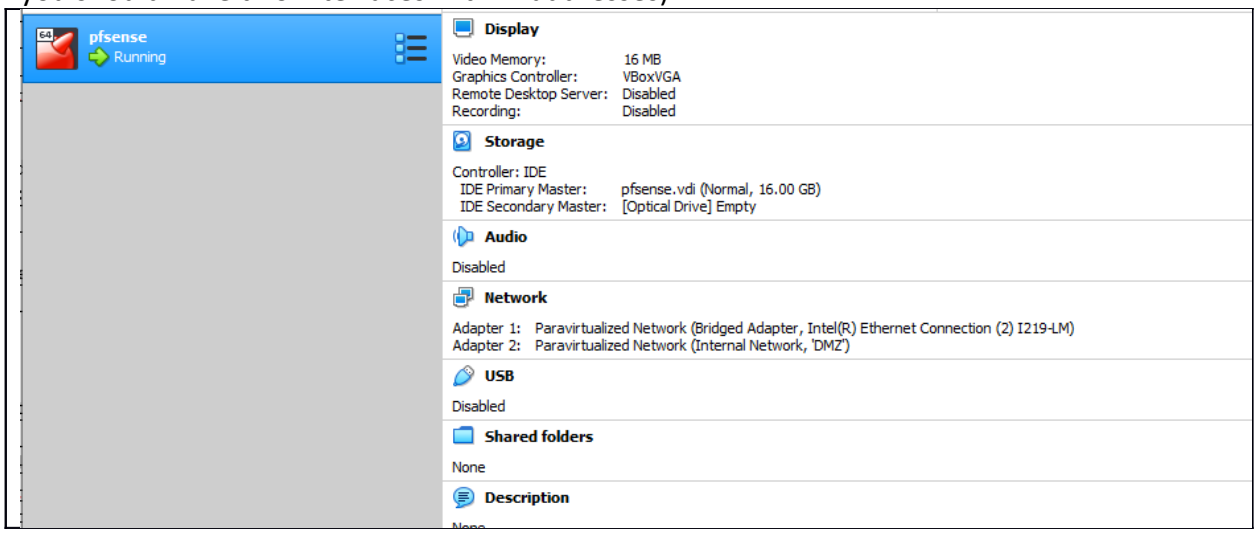


Phase 1

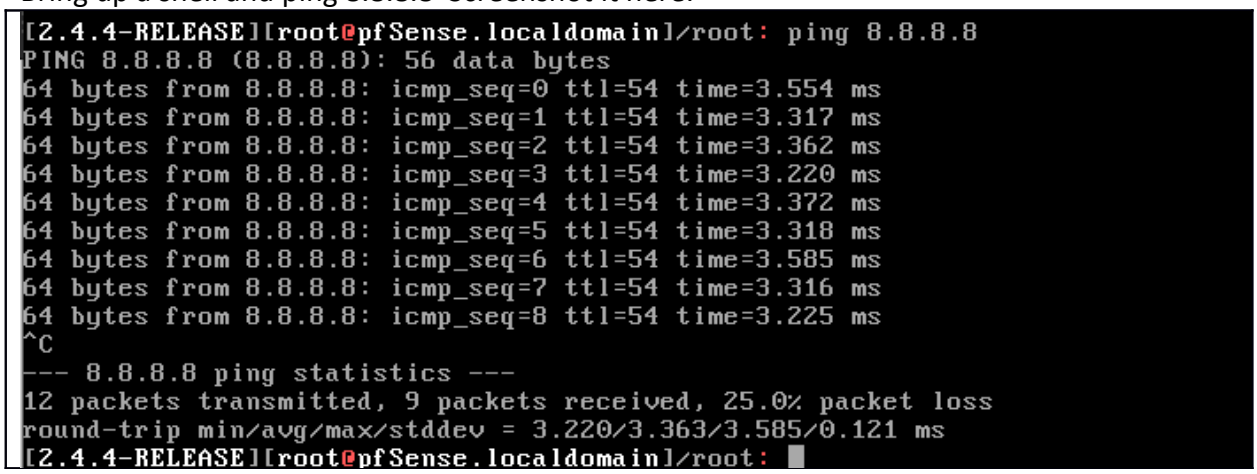
Install pfSense with the following parameters:

Hostname	myGateway
RAM	1024
Adapter 1	WAN (bridged)
Adapter 2	DMZ (internal network,para-virtualized)

Provide screenshots showing the router is installed with the appropriate parameters (basically you should have two interfaces with IP addresses):



Bring up a shell and ping 8.8.8.8 Screenshot it here:

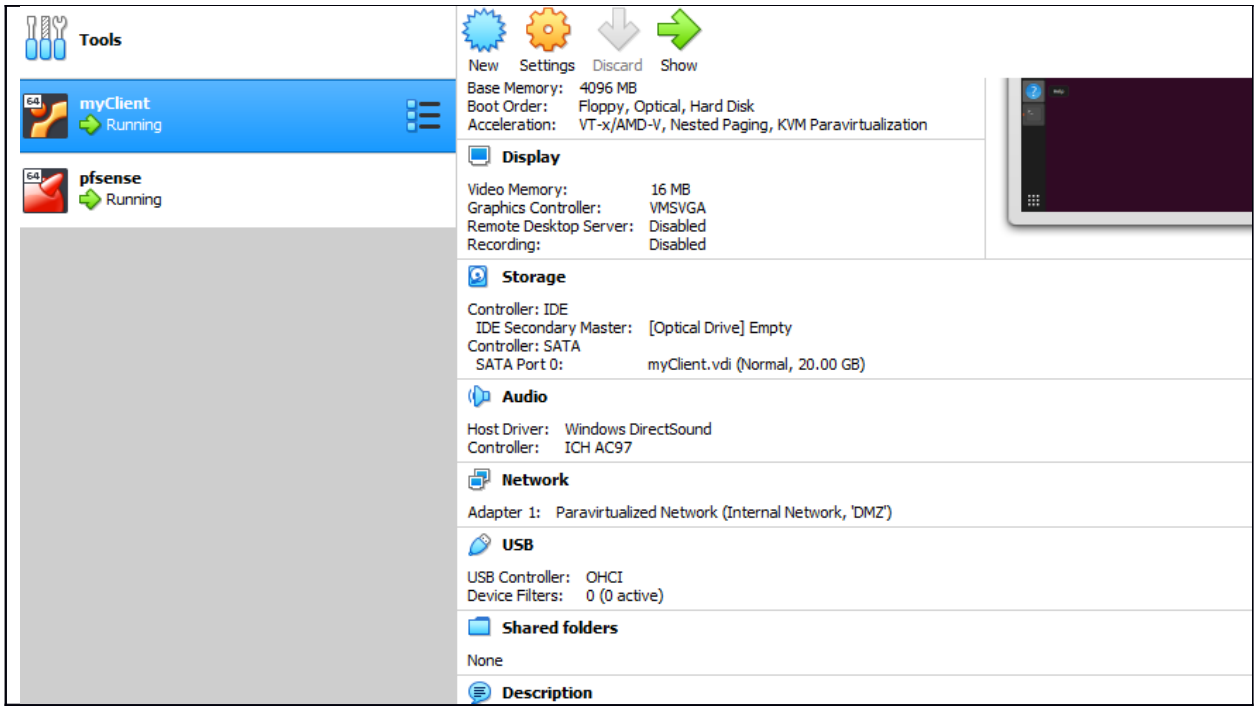


Phase 2

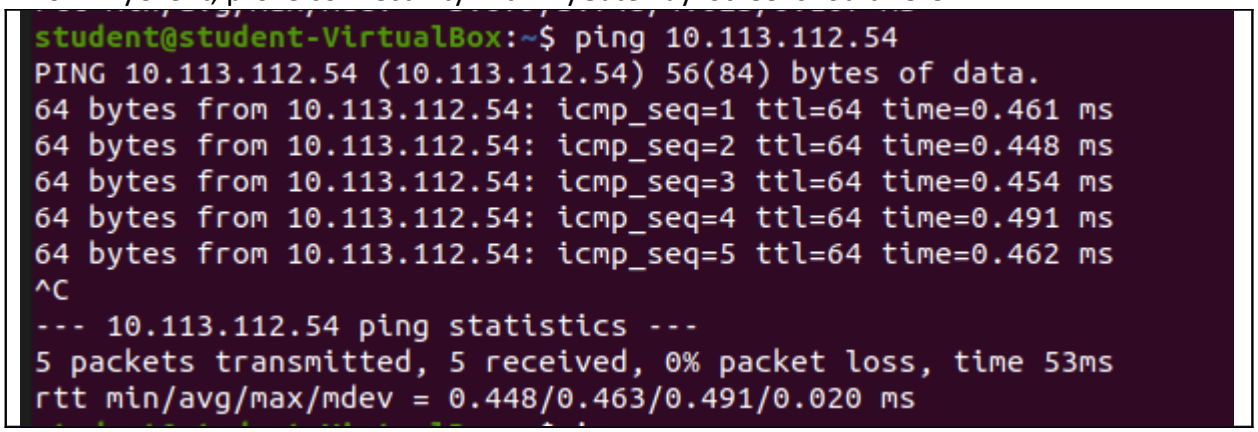
Install Ubuntu Desktop with the following parameters:

Hostname	myClient
RAM	1024 (it installs faster with 4098)
Adapter 1	DMZ (internal network,para-virtualized)
Install Type	Minimal (web browser and basic utilities) Don't download updates
Username	student
Password	P@ssw0rd

Provide screenshots demonstrating the client has been correctly installed:



From myClient, prove connectivity with myGateway Screenshot it here:



From myClient, prove connectivity with 8.8.8.8 Screenshot it here:

```
student@student-VirtualBox:~$ 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=53 time=4.02 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=53 time=3.69 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=53 time=3.69 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=53 time=3.75 ms
64 bytes from 8.8.8.8: icmp_seq=5 ttl=53 time=3.74 ms
64 bytes from 8.8.8.8: icmp_seq=6 ttl=53 time=3.79 ms
64 bytes from 8.8.8.8: icmp_seq=7 ttl=53 time=3.68 ms
64 bytes from 8.8.8.8: icmp_seq=8 ttl=53 time=3.70 ms
64 bytes from 8.8.8.8: icmp_seq=9 ttl=53 time=3.69 ms
64 bytes from 8.8.8.8: icmp_seq=10 ttl=53 time=3.79 ms
64 bytes from 8.8.8.8: icmp_seq=11 ttl=53 time=3.73 ms
64 bytes from 8.8.8.8: icmp_seq=12 ttl=53 time=3.74 ms
64 bytes from 8.8.8.8: icmp_seq=13 ttl=53 time=3.72 ms
^C
--- 8.8.8.8 ping statistics ---
13 packets transmitted, 13 received, 0% packet loss, time 874ms
rtt min/avg/max/mdev = 3.679/3.748/4.023/0.107 ms
```

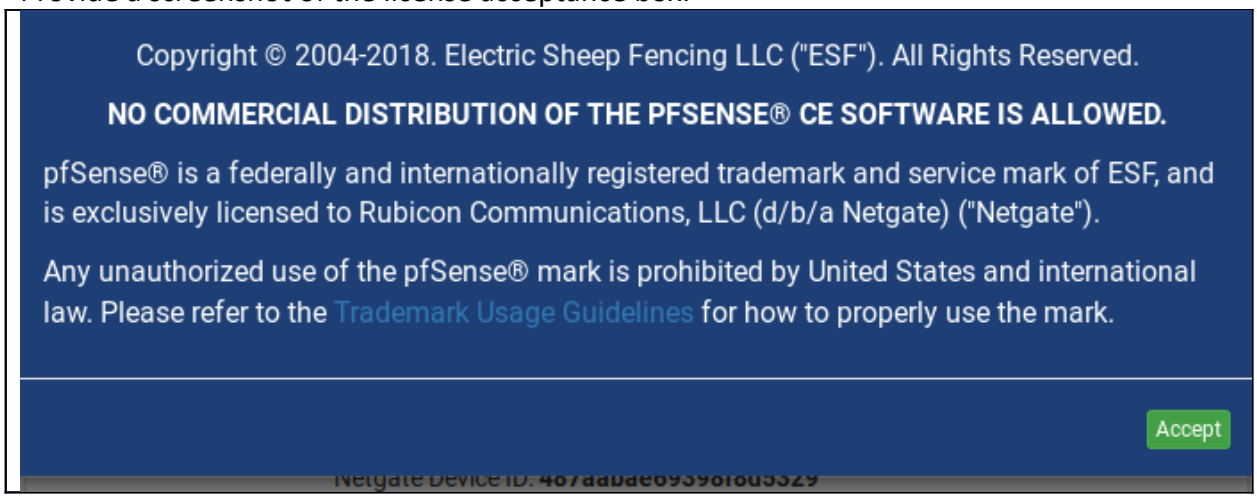
From myClient, prove your traffic goes through myGateway to 8.8.8.8 Screenshot it here:

```
student@student-VirtualBox:~$ tracepath 8.8.8.8
 1?: [LOCALHOST]                      pmtu 1500
 1:  pfSense.localdomain                                   0.567ms
 1:  pfSense.localdomain                                   0.338ms
 2:  10.113.112.1                                          2.156ms
 3:  10.1.1.3                                              1.368ms
 4:  no reply
 5:  207.233.67.1                                          2.111ms
 6:  tus-agg3--lbc-cc-2-10g.cenic.net                      4.131ms
 7:  137.164.3.64                                          4.287ms
 8:  no reply
 9:  no reply
10:  no reply
11:  no reply
12:  no reply
13:  no reply
14:  no reply
15:  no reply
16:  no reply
17:  no reply
18:  no reply
^C
```

Log into myGateway's web GUI from the client (username: **admin** and password: **pfsense**). Go through the configuration wizard with mostly defaults but for these exceptions:

Hostname	myGateway
Primary DNS	8.8.8.8
Block RFC1918 Private Networks	Uncheck box
Admin Password	P@ssw0rd

Provide a screenshot of the license acceptance box:



BONUS EXTRA CREDIT:

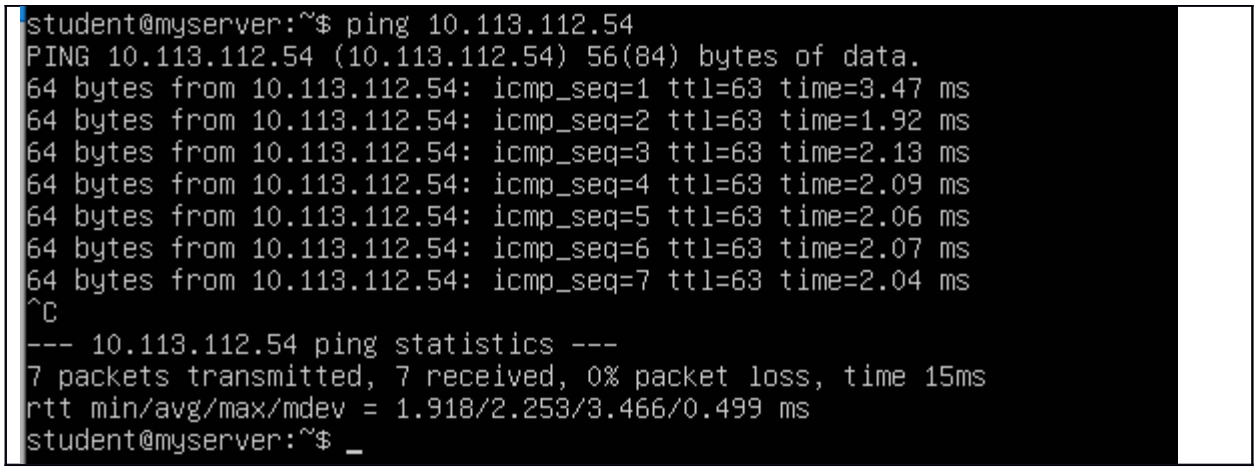
Configure myGateway to allow you to access the web gui from the host machine. Provide screenshots here:

Phase 3

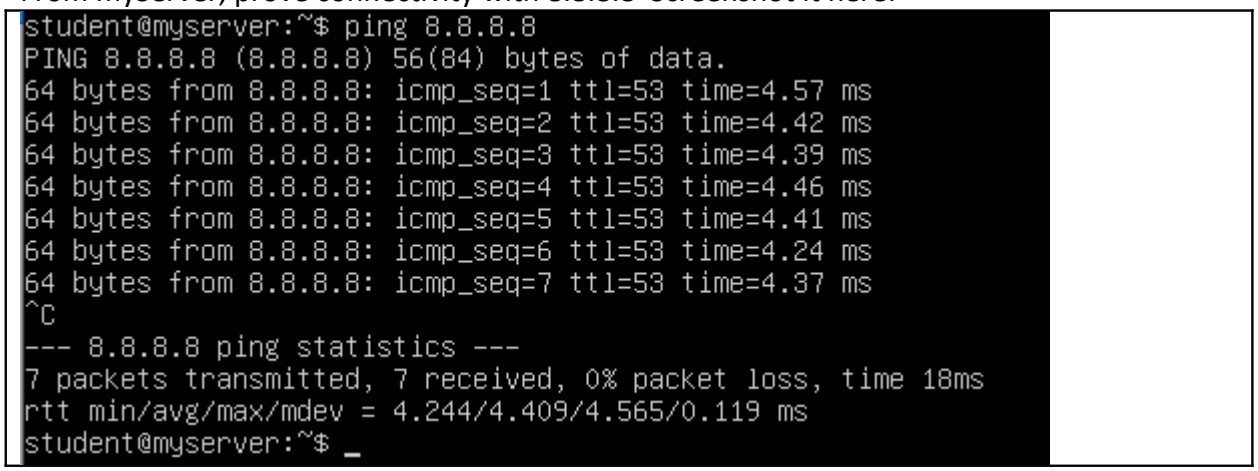
Install Ubuntu Server with the following parameters:

Hostname	myServer
RAM	1024 (it installs faster with 4098)
Adapter 1	DMZ (internal network,para-virtualized)
Install Type	Minimal (web browser and basic utilities) Don't download updates
Username	student
Password	P@ssw0rd
OpenSSH package	Install

From myServer prove connectivity with myGateway Screenshot it here:



From myServer, prove connectivity with 8.8.8.8 Screenshot it here:



From myServer, prove your traffic goes through myGateway to 8.8.8.8 Screenshot it here:

```
student@myserver:~$ tracepath 8.8.8.8
 1?: [LOCALHOST]                      pmtu 1500
 1:  myGateway.localdomain                                 0.498ms
 1:  myGateway.localdomain                                 0.464ms
 2:  10.113.112.1                                          2.144ms
 3:  10.1.1.2                                              1.321ms
 4:  no reply
 5:  207.233.67.1                                          2.059ms
 6:  137.164.35.5                                          2.417ms
 7:  137.164.3.64                                          5.052ms
 8:  no reply
 9:  no reply
10:  no reply
11:  no reply
12:  no reply
13:  no reply
14:  no reply
15:  no reply
16:  no reply
^C
```

Phase 4

Install Kali with the following parameters:

Hostname	myPenTestDMZ
RAM	1024 (it installs faster with 4098)
Adapter 1	DMZ (internal network,para-virtualized)
Password	P@ssw0rd

Note: I had to disable the network adapter and then re-enable it afer the install.

Note-note: This install took the longest.

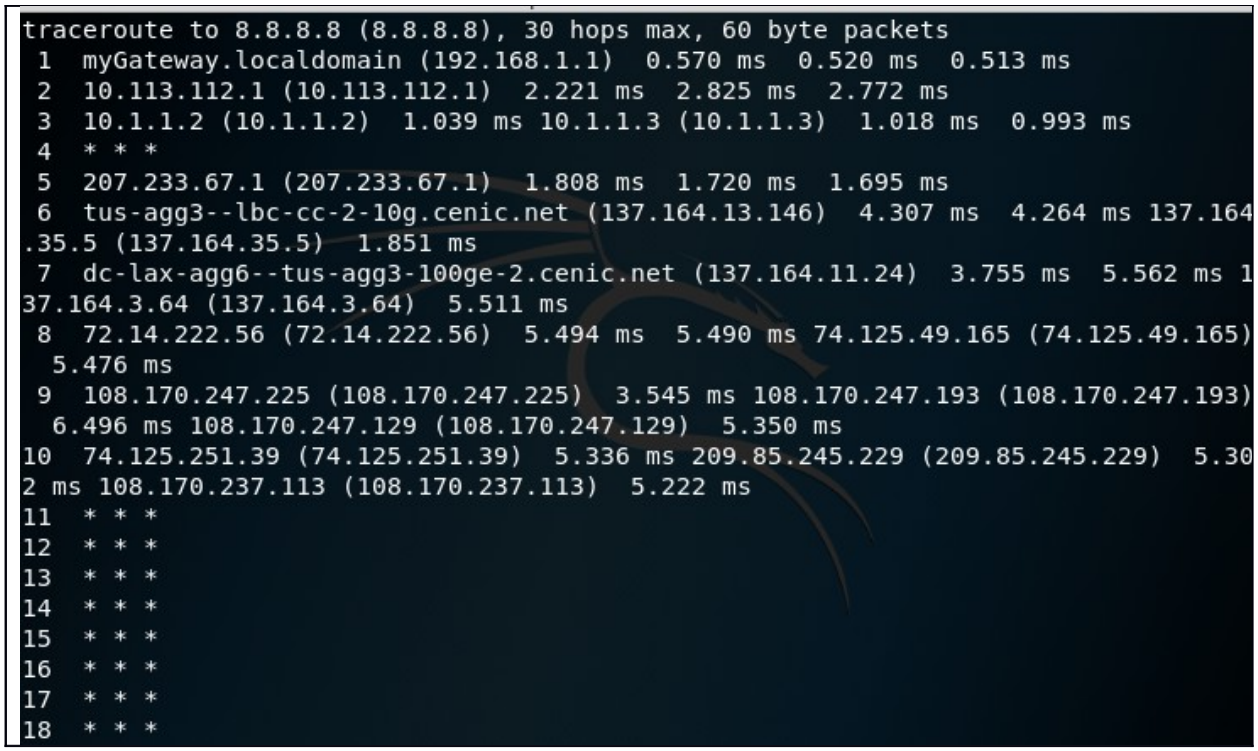
From myPenTestDMZ prove connectivity with myGateway Screenshot it here:

```
root@myPenTestDMZ:~# ping 10.113.112.54
PING 10.113.112.54 (10.113.112.54) 56(84) bytes of data.
64 bytes from 10.113.112.54: icmp_seq=1 ttl=63 time=3.46 ms
64 bytes from 10.113.112.54: icmp_seq=2 ttl=63 time=2.17 ms
64 bytes from 10.113.112.54: icmp_seq=3 ttl=63 time=2.18 ms
64 bytes from 10.113.112.54: icmp_seq=4 ttl=63 time=2.33 ms
64 bytes from 10.113.112.54: icmp_seq=5 ttl=63 time=2.10 ms
64 bytes from 10.113.112.54: icmp_seq=6 ttl=63 time=2.10 ms
^C
--- 10.113.112.54 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5007ms
rtt min/avg/max/mdev = 2.095/2.387/3.460/0.485 ms
root@myPenTestDMZ:~#
```

From myPenTestDMZ, prove connectivity with 8.8.8.8 Screenshot it here:

```
root@myPenTestDMZ:~# 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=53 time=4.46 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=53 time=4.41 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=53 time=4.33 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=53 time=4.41 ms
^C
--- 8.8.8.8 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3005ms
rtt min/avg/max/mdev = 4.326/4.402/4.463/0.049 ms
root@myPenTestDMZ:~#
```

From myPenTestDMZ, prove your traffic goes through myGateway to 8.8.8.8 Screenshot it here:



Phase 5

Draw what your current network looks like (including IP addresses and host names) and insert it here: