PROJECT TASK 4

SECURE NETWORKING: SETTING UP PFSENSE FIREWALL VM TO CONTROL TRAFFIC AND ENFORCE POLICIES

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CISSC 661: Principles of Cybersecurity & Cyberwarfare

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Snort IPS Setup

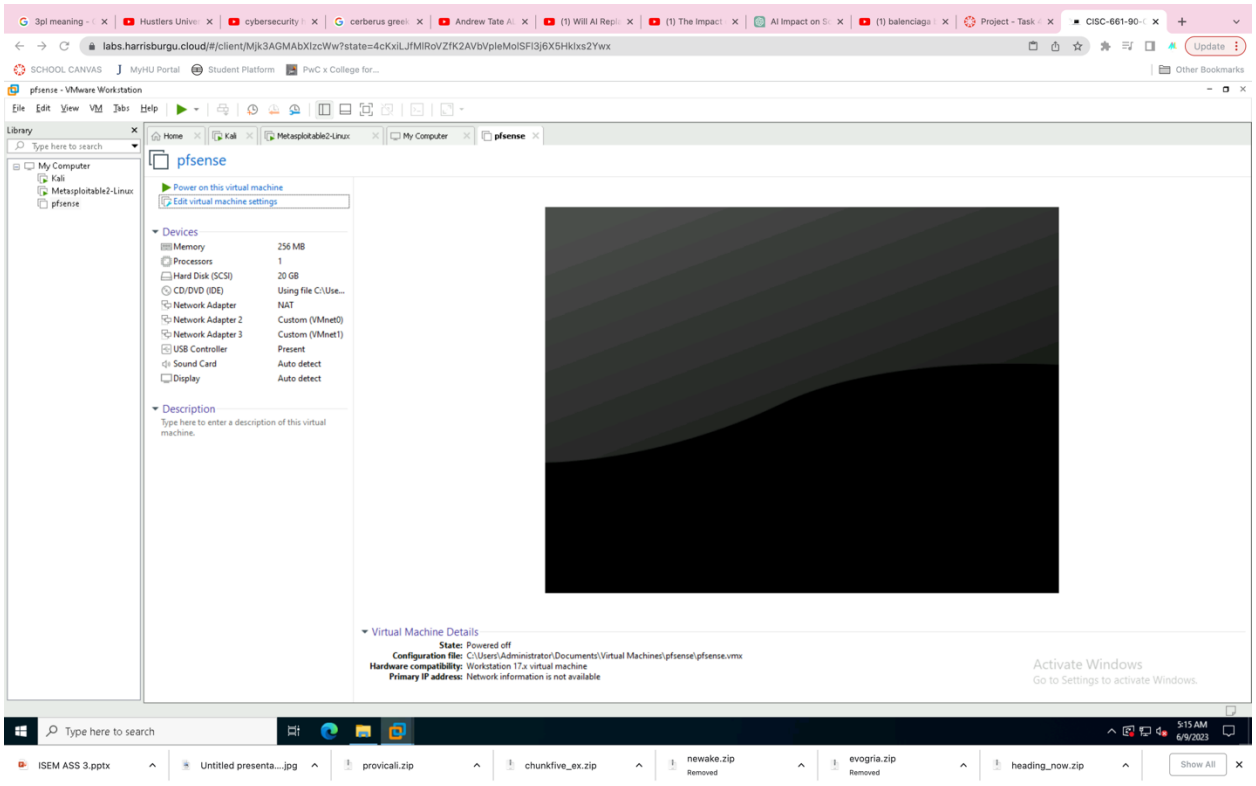
Performed a successful exploit for this project. For this project we needed Kali Linux, Metasploitable.

System Configuration:

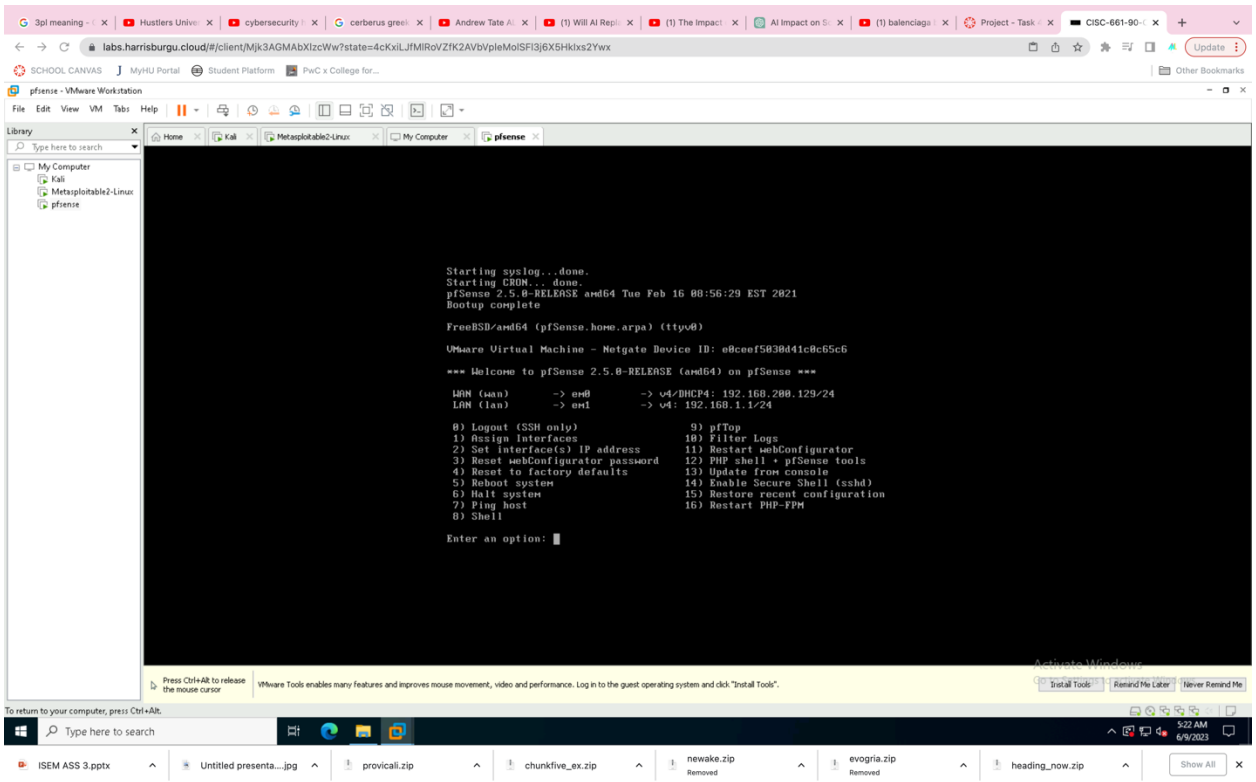
- Macbook Pro 2016
- Mac OS Ventura
- 32 GB RAM
- 2.3 GHz 8-Core Intel Core i9

Step 1: Create New VM, Set Interface IP address

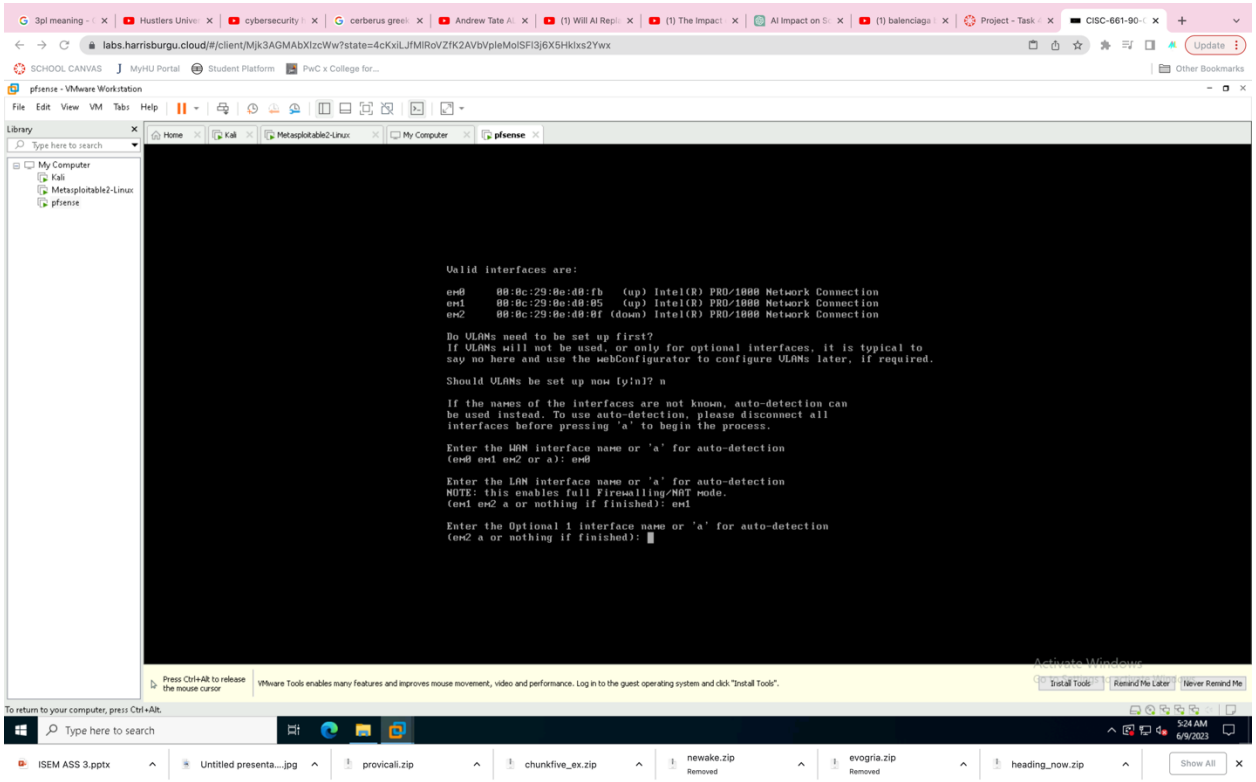
- Configure NAT 2 & NAT 2



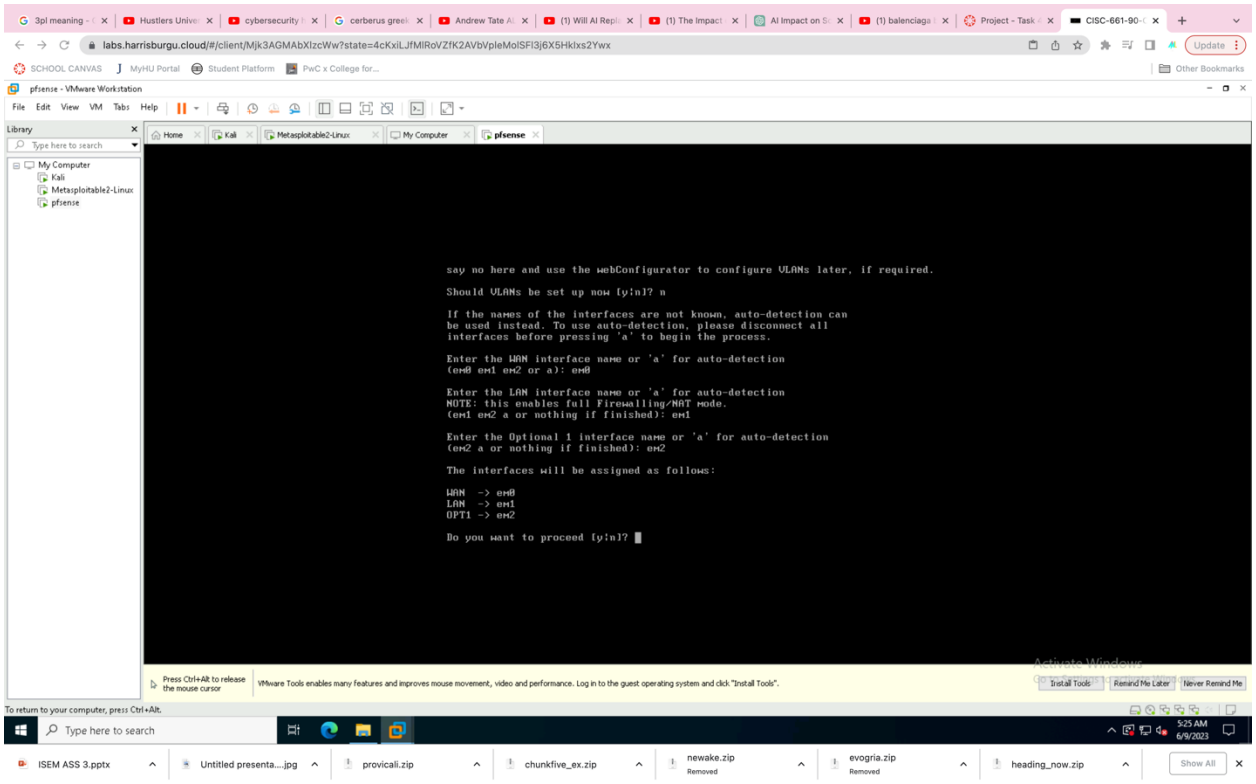
- Power VMware workstation
- Reboot into configuration mode



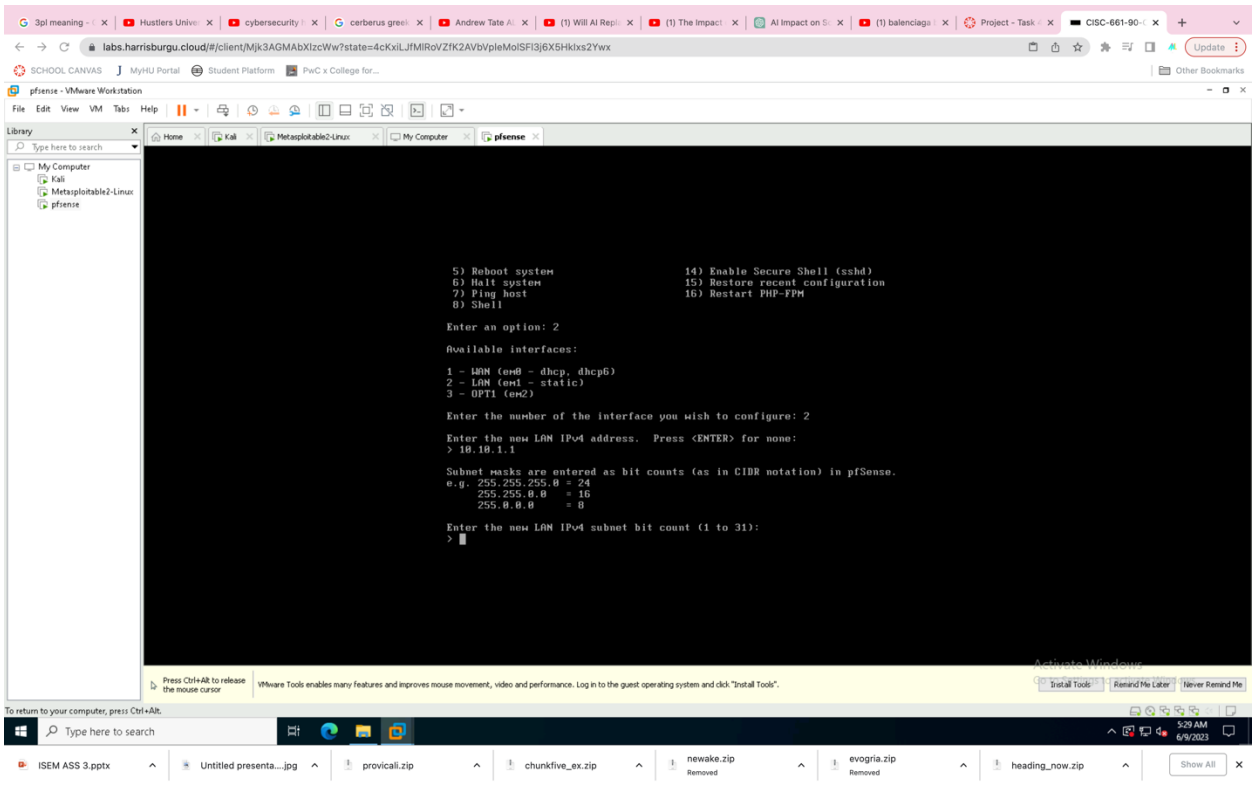
- Assign LAN to em1



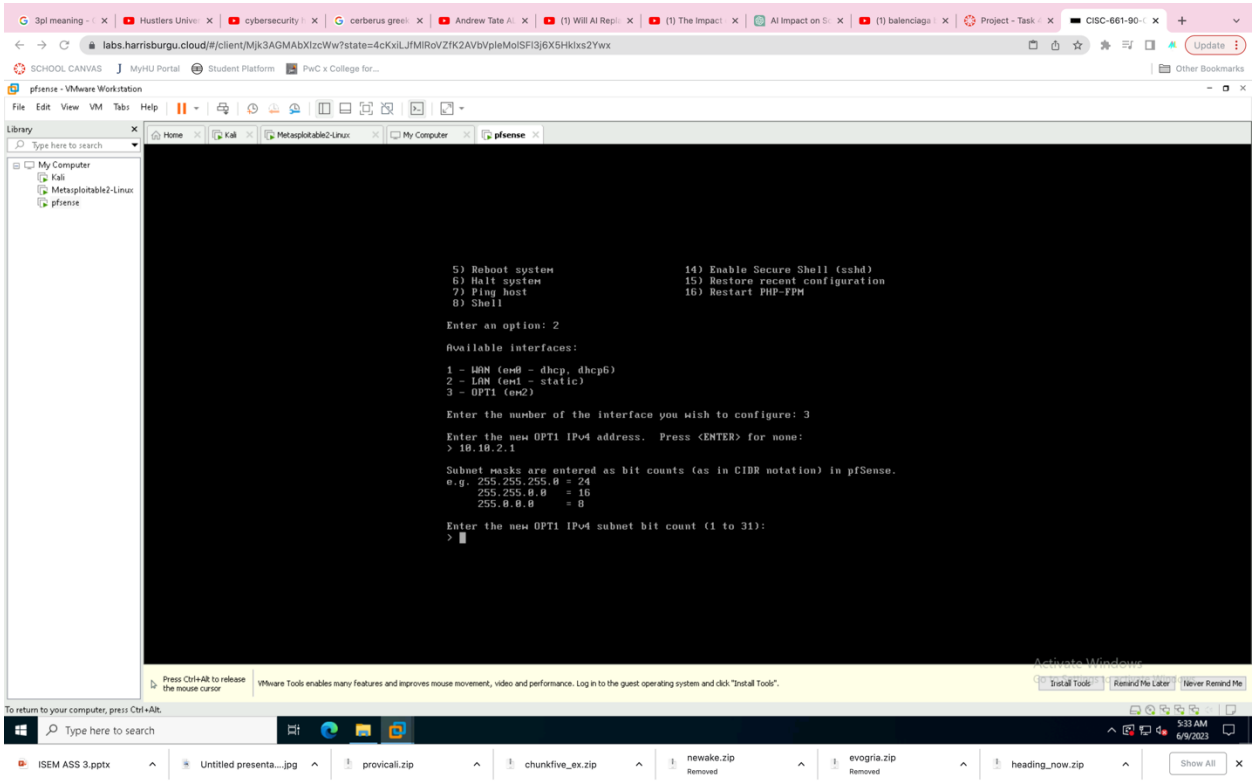
- Assign opt 1 to em2



- Set IPv4 address to 10.10.1.1

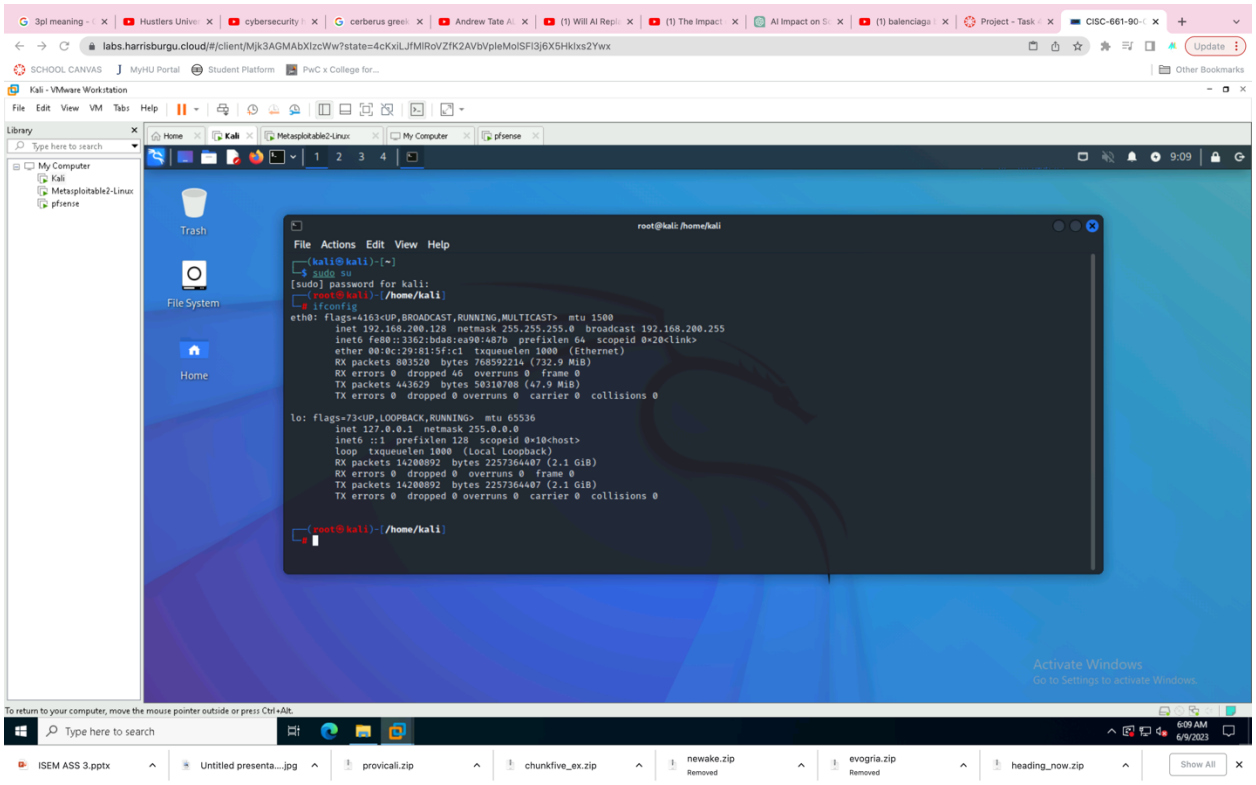


- Set OPT 1 interface to 10.10.2.1

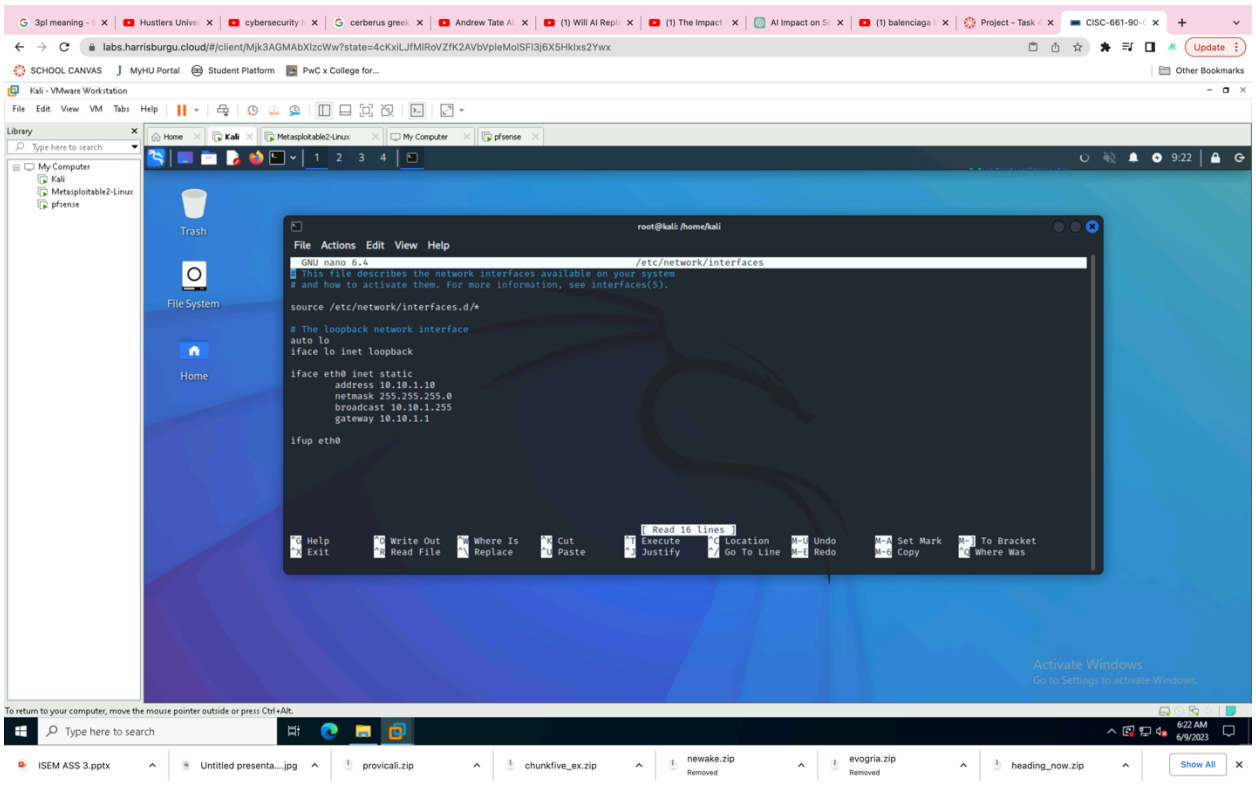


Step 2: Fix Kali interface

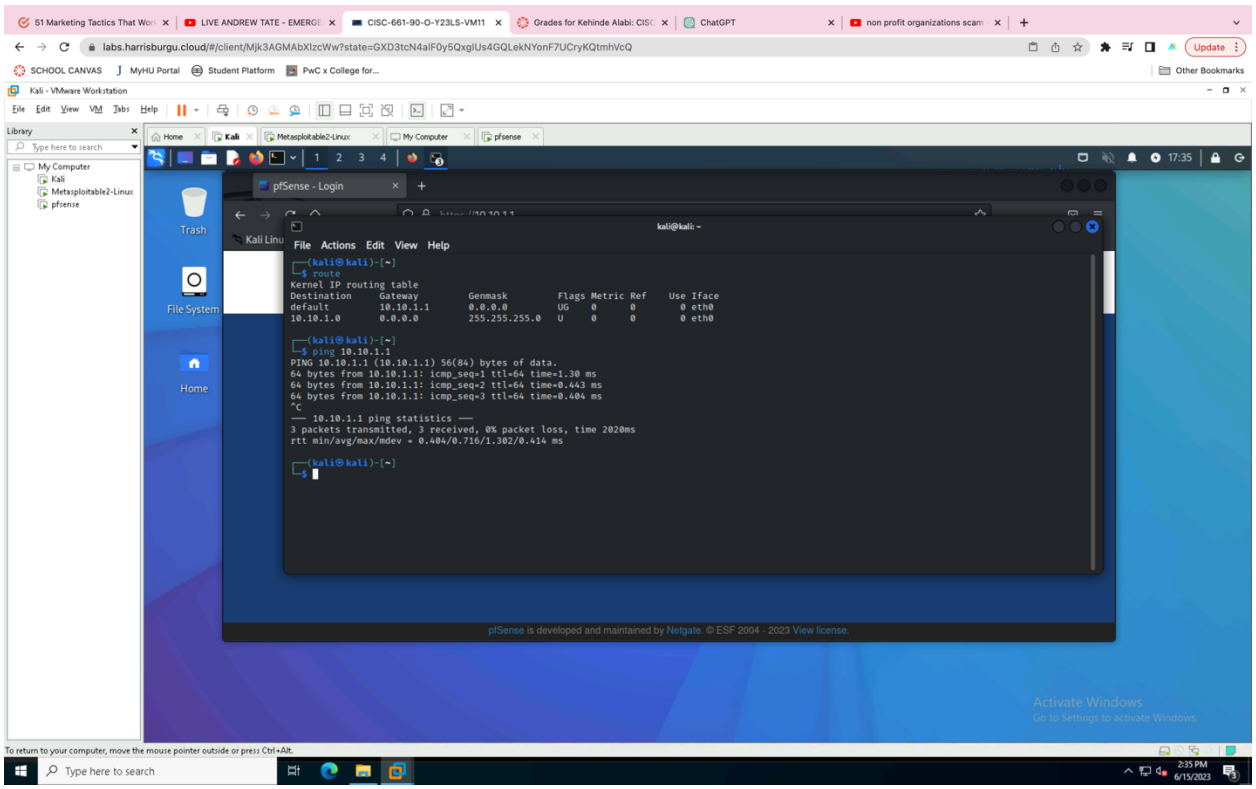
- Remove NAT 2
- Set NAT 1 to VMnet 0 to custom
- Run ifconfig on Kali system



- Create static IP address for eth0

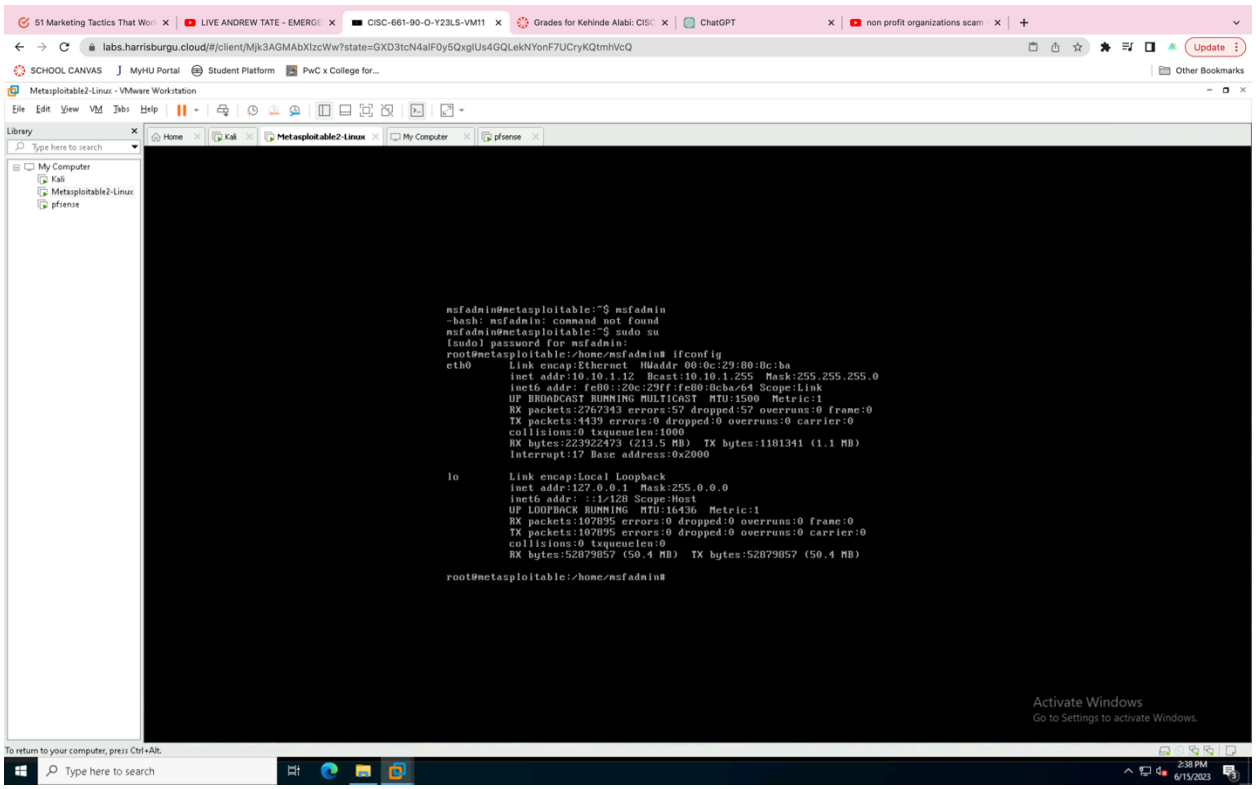


- Use route command to view default route
- Ping 10.10.1.1



Step 3: Metaspolitable and pFsense configuration

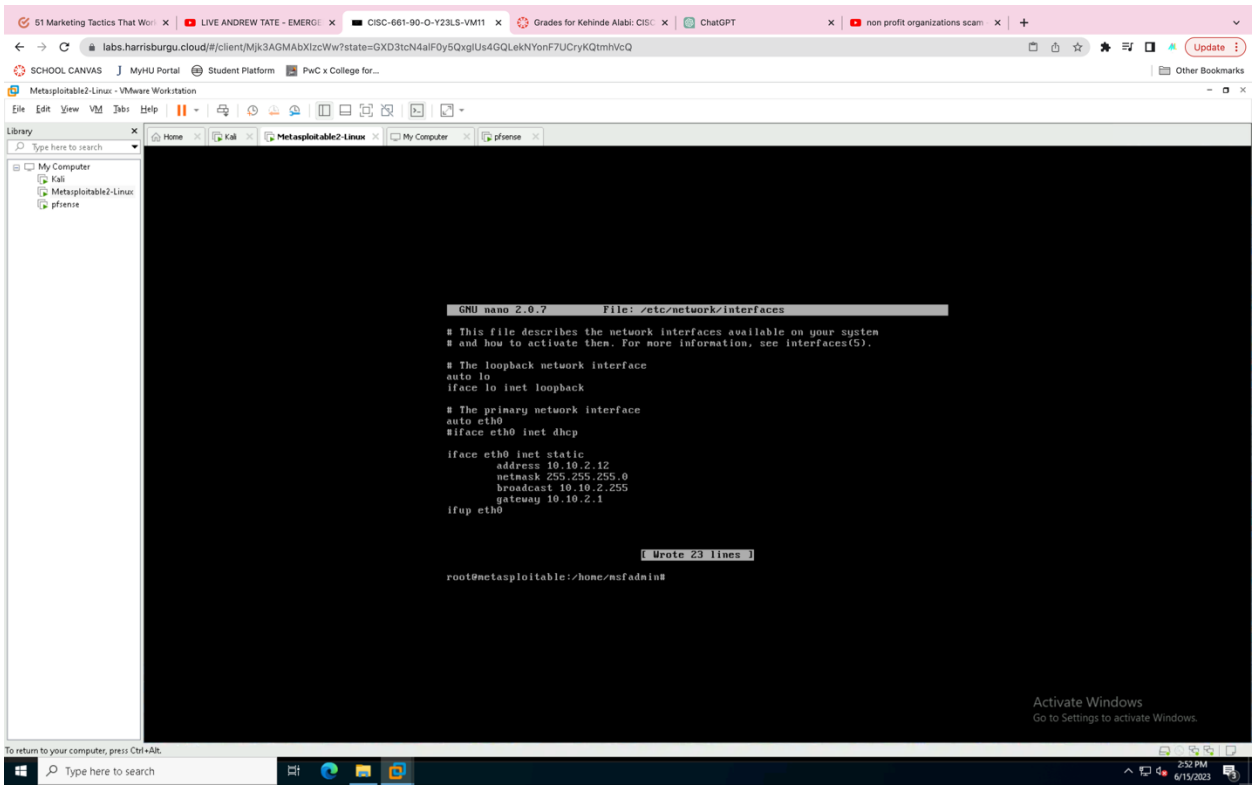
- Perform ifconfig to show eth0 [IP Config 10.10.1.12]



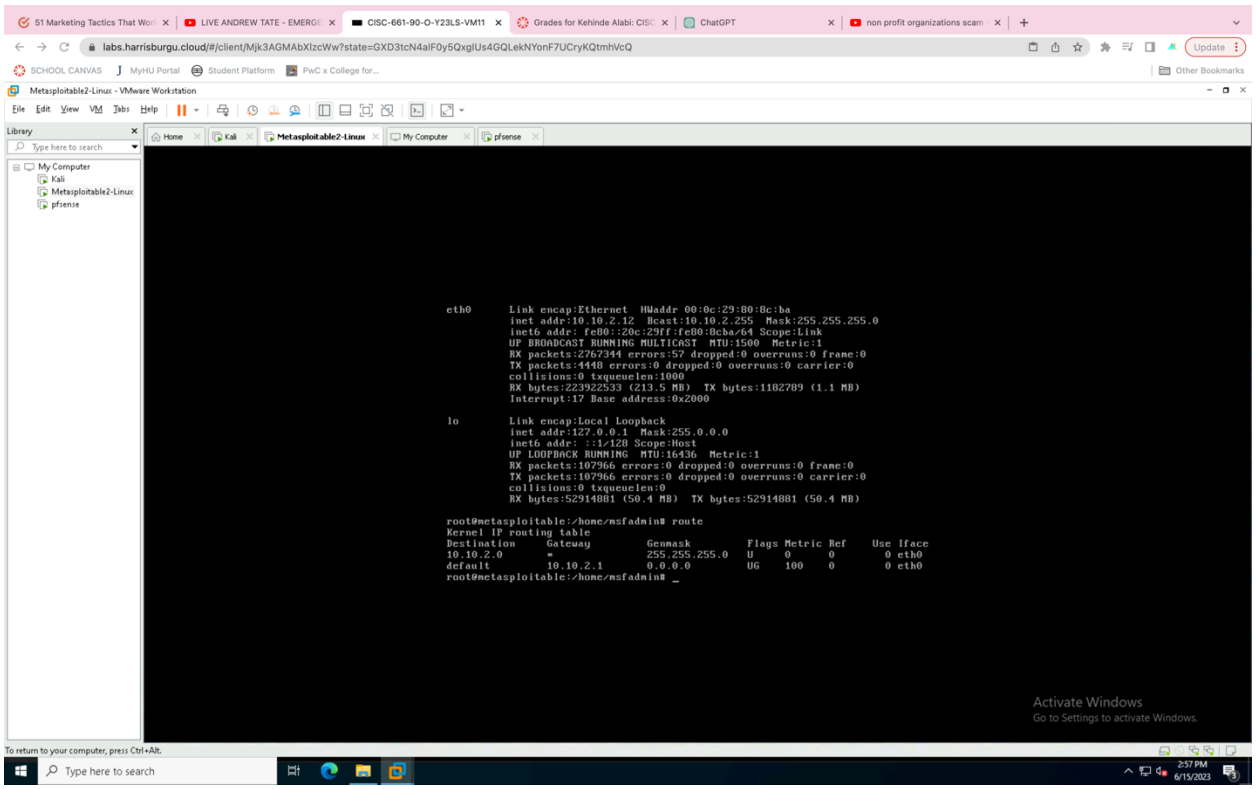
- Change network addresses in file directory using the command line

  /etc/network/interfaces

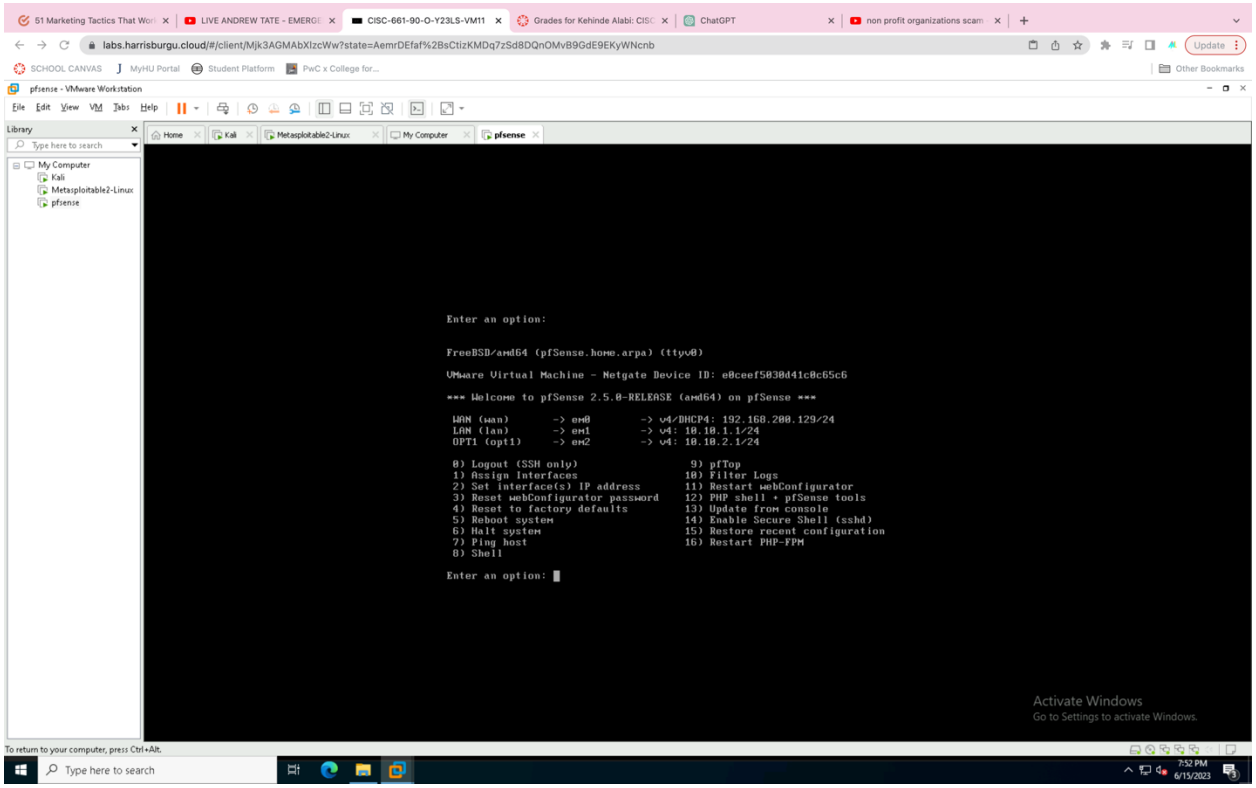
- Change IP address from 10.10.1.12 to 10.10.2.12
- Broadcast address from 10.10.1.255 to 10.10.2.225
- Add gateway [10.10.2.1]



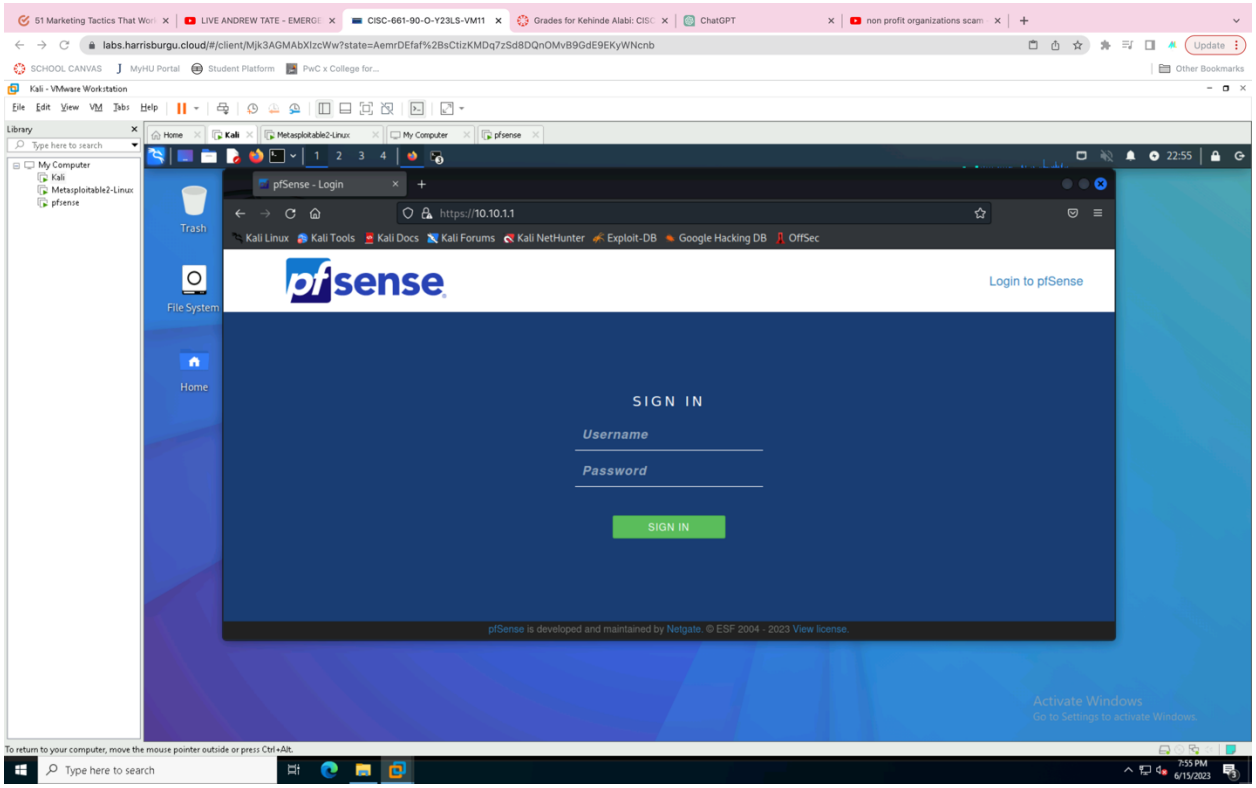
- Perform ifdown command to bring interface down
- Perform ifup command
- Perform ifconfig to view newly configured network details
- Perform route command



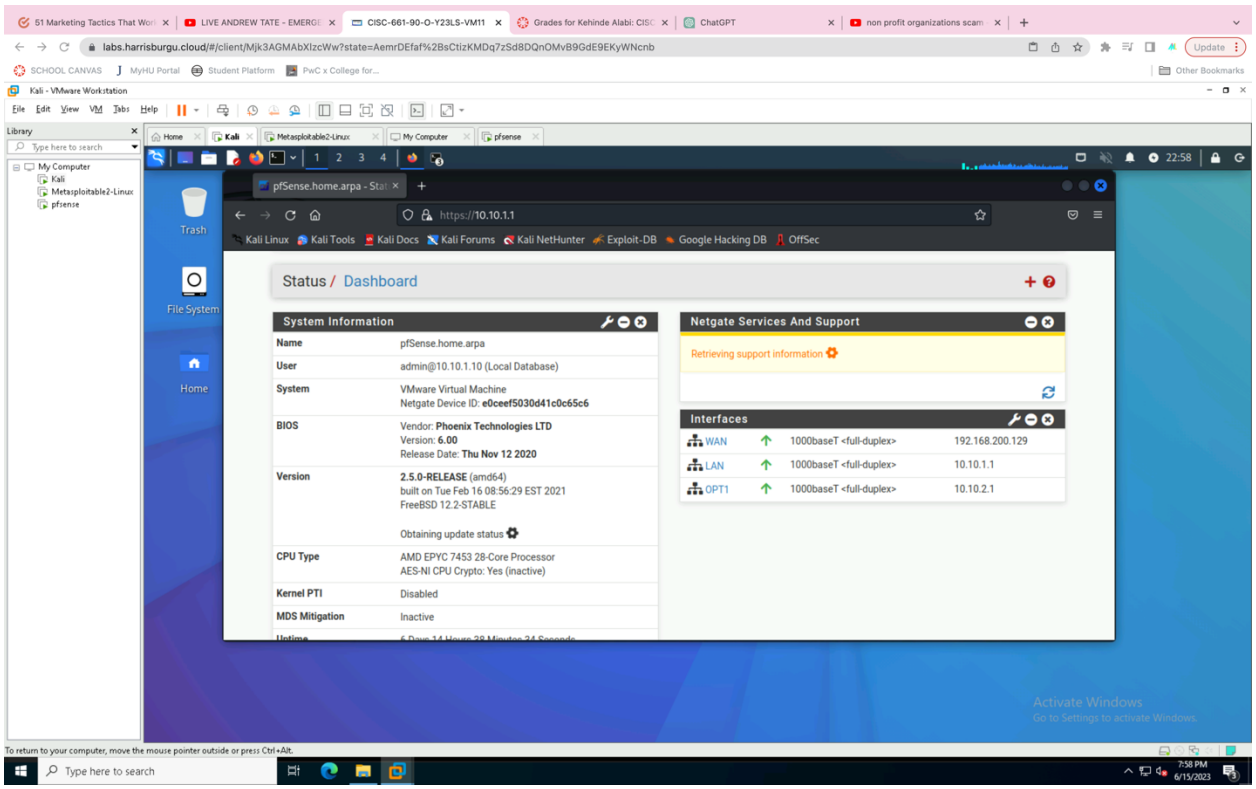
- Network used by firewall resides at LAN



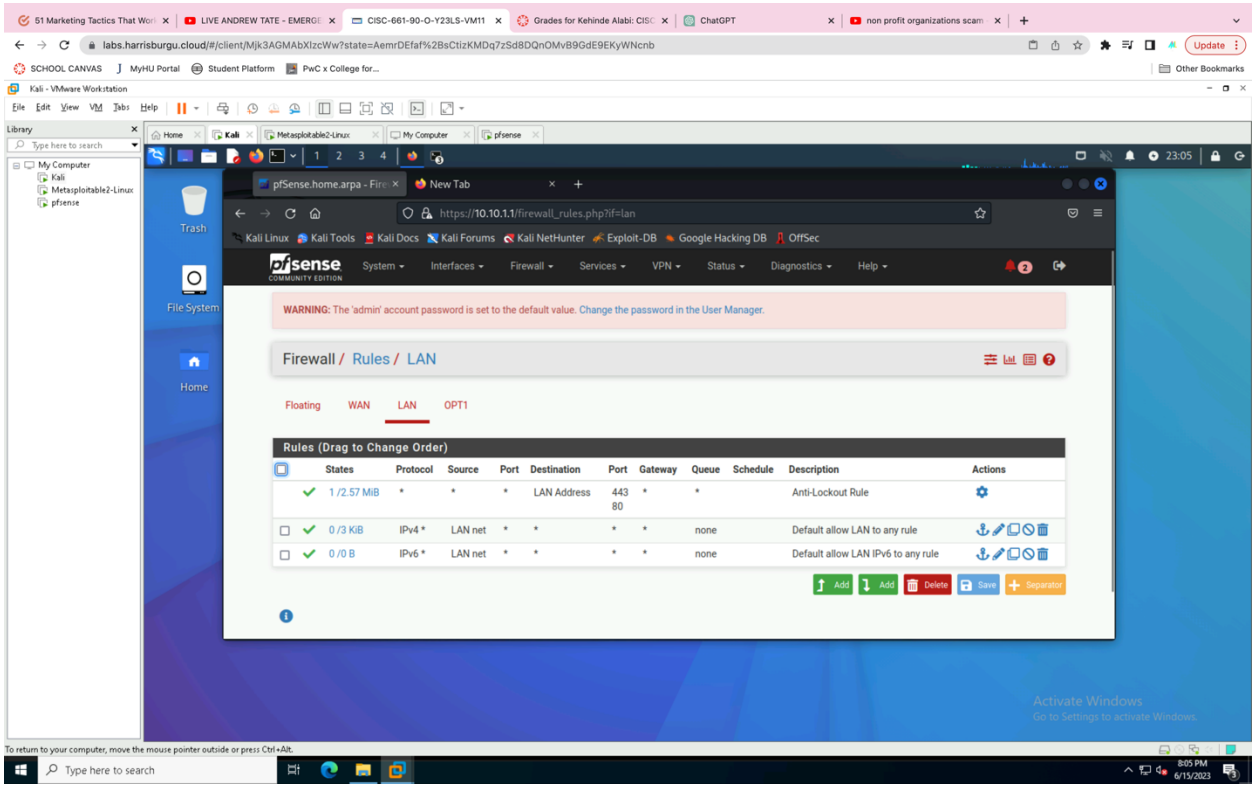
- Open browser
- Load up pFsense



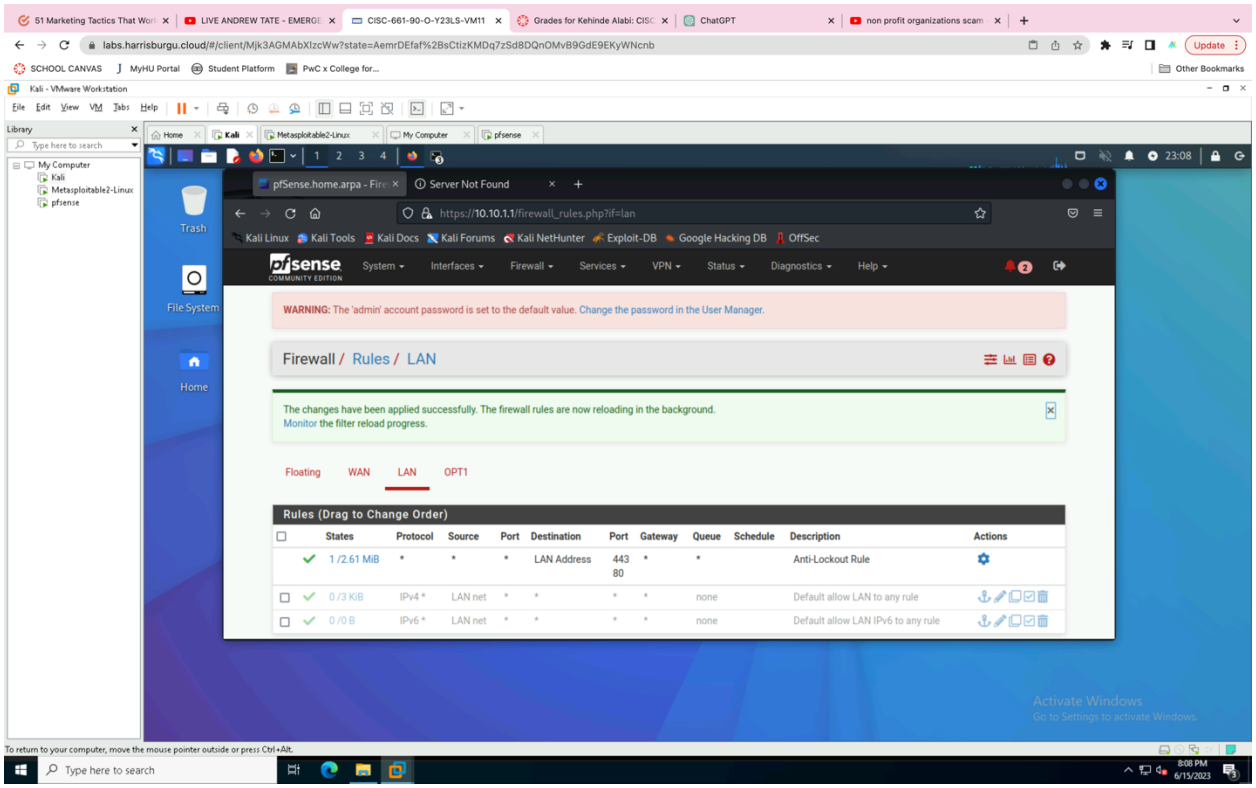
- Configure firewall



- Go to firewall rules



- Disable IPv4 and IPv6



Step 4: Create Firewall Policy

- Add and create policy for DNS, HTTP, HTTPS
- DNS

  -TCP/UDP

  -LAN net

  -DNS (53)
- HTTP

  -TCP

  -LAN net

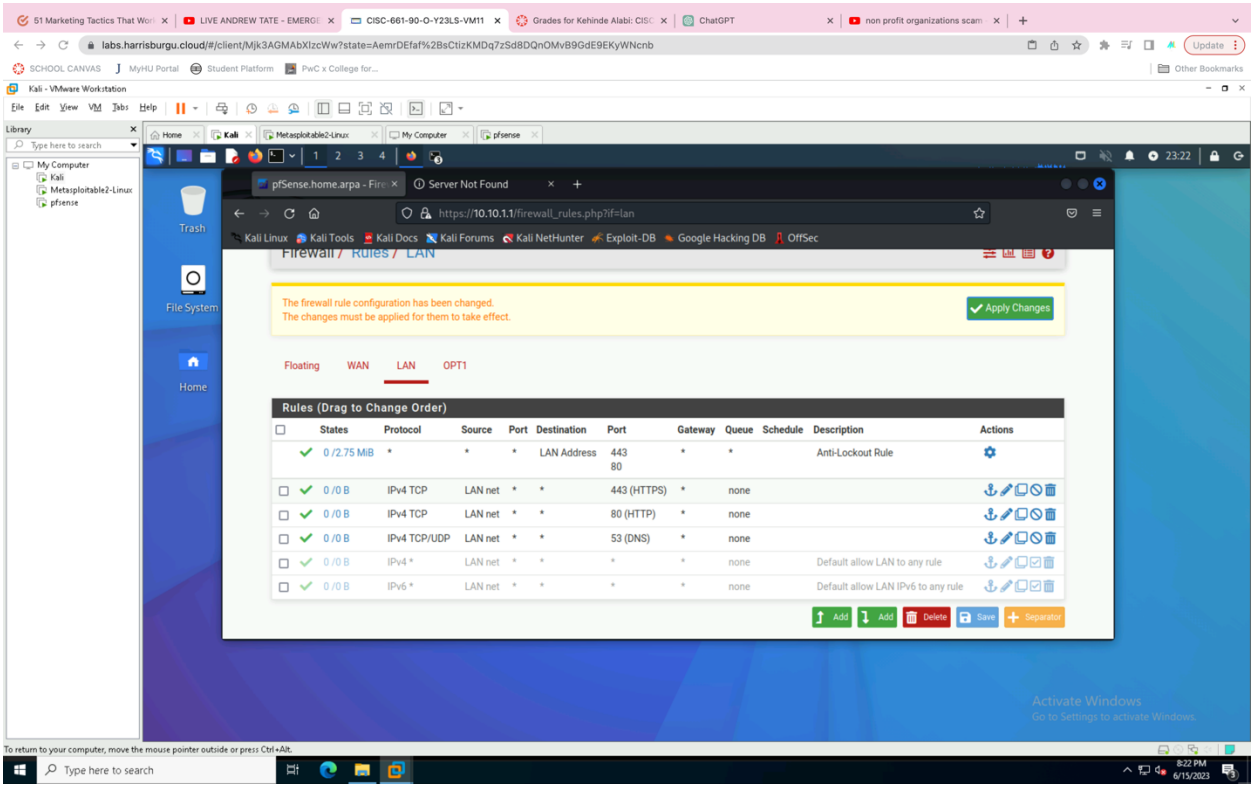
  -HTTP (80)

- HTTPS

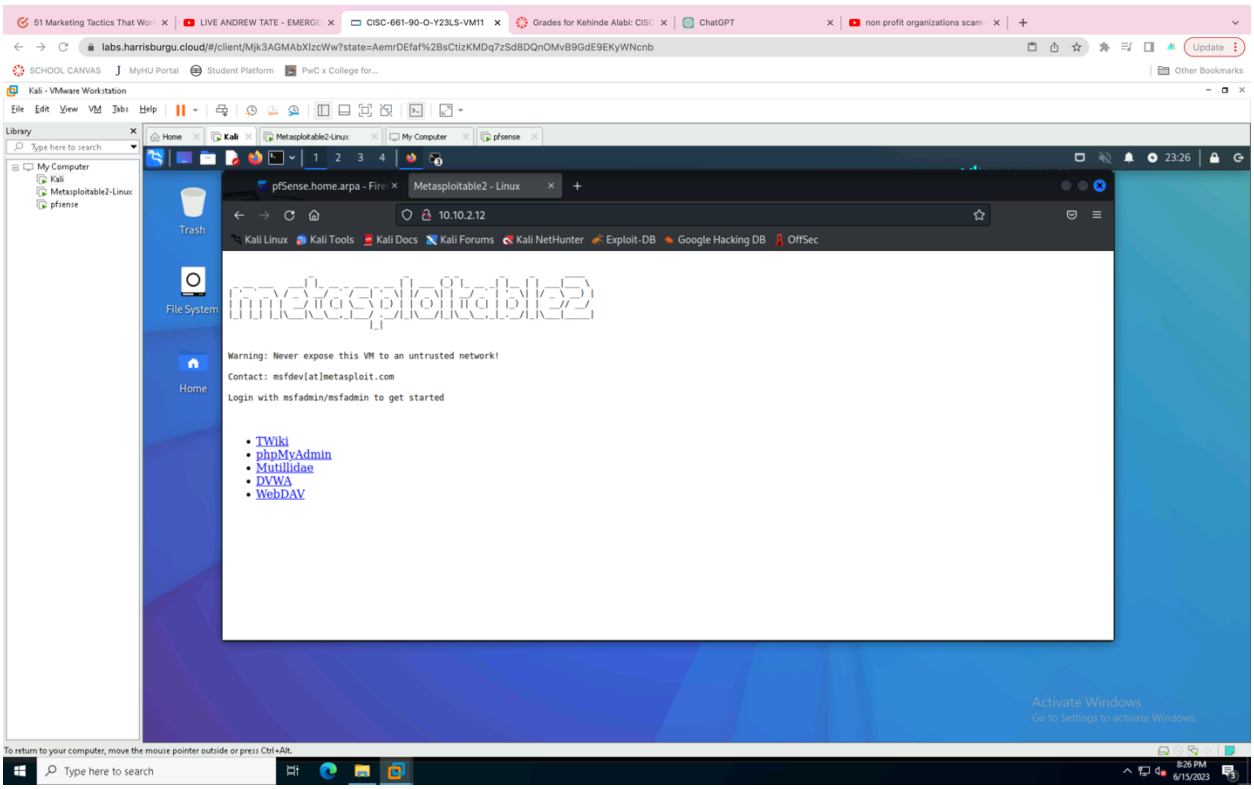
  -TCP

  -LAN net

  -HTTPS (443)



- Firewall policy allows destination to any LAN network including Metaspoitable.



NOTE: At the point of completing assignment , LAN connection to Harrisburg University was not functional hence I could not include google test after firewall configuration.