OLD DOMINION UNIVERSITY

CYSE 270 LINUX SYSTEM FOR CYBERSECURITY

Assignment #12 Basic Network Configurations

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4/12/22

CYSE 270 Assignment #12 Basic Network Configurations

You can use either Ubuntu VM or Kali Linux VM to complete the following tasks.

Task A: Explore Network Configurations (8 * 5 = 40 Points)

Connect your VM in the NAT mode

1. Use the correct **ifconfig** command to display the current network configuration. **Highlight your IP address, MAC address, and the network mask**.

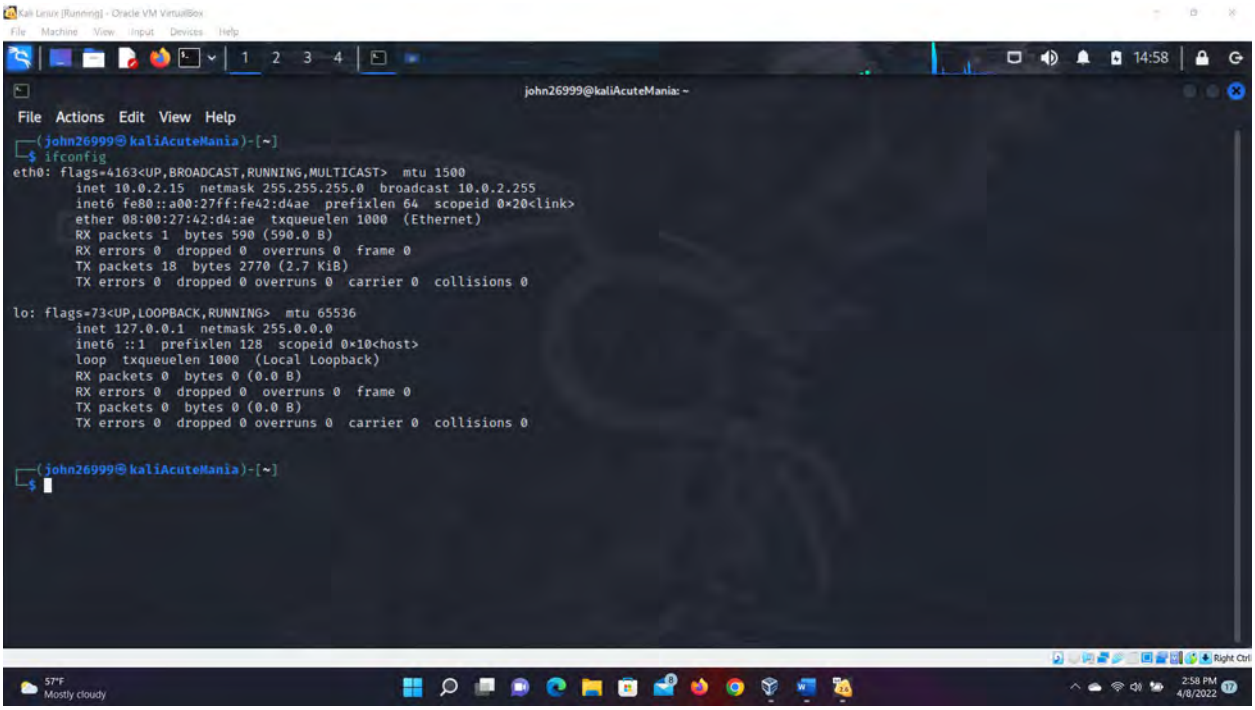

Figure 1 Screenshots of JWILS082 Computer screen prior to Step 1.

Above is the screen shot using the command “ifconfig” that displays the information on current network configuration information, ip address, netmask, or broadcast address to a network interface, creating an alias for the network interface, setting up hardware address, and enable or disable network interfaces.

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2. Use the correct **route** command to display the current routing table.

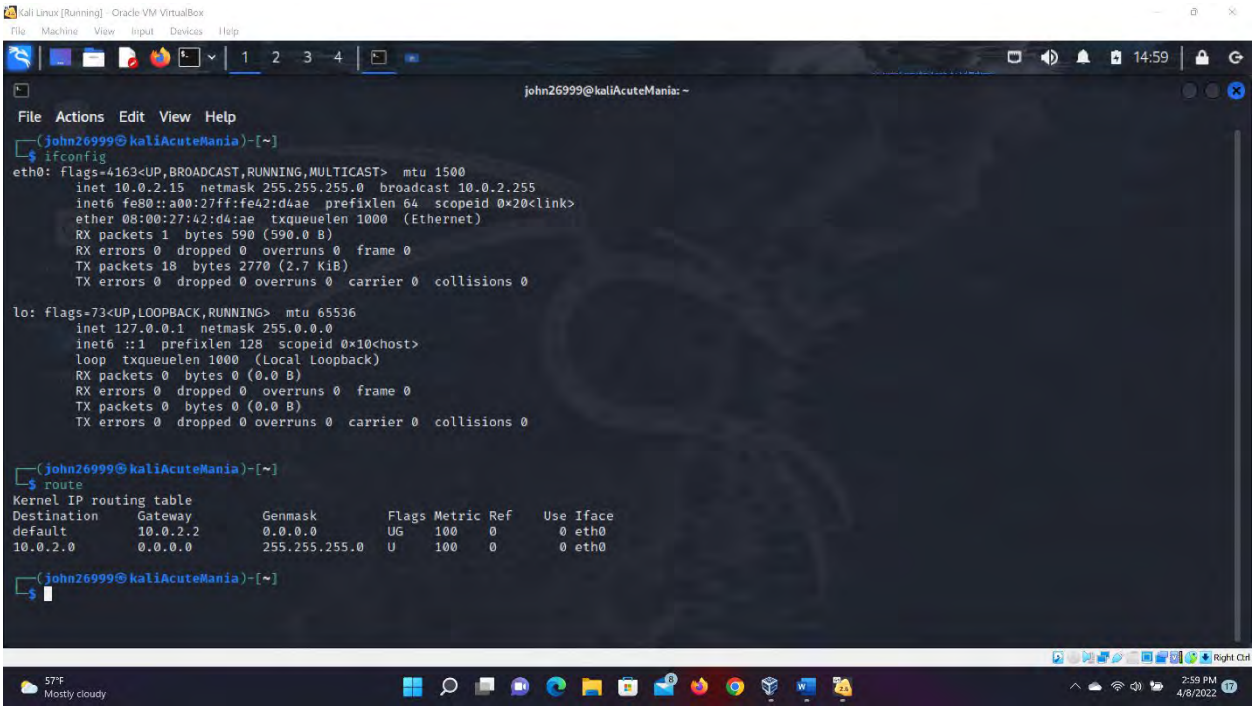

Figure 2 Screenshots of JWILS082 Computer screen prior to Step 2.

Above is the screen shot using the command “route” to display the routing table.

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3. Use the **netstat** command to list current TCP connections.

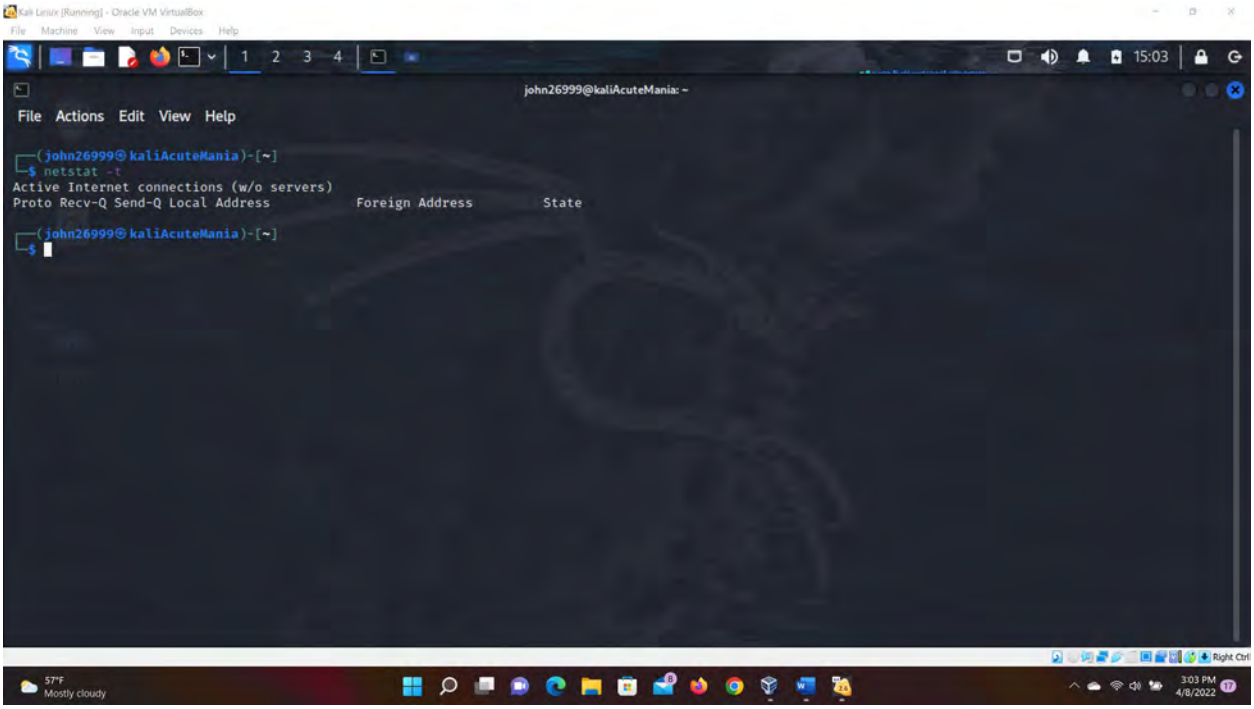

Figure 3 Screenshots of JWILS082 Computer screen prior to Step 3.

Above is the screen shot using the command “netstat -t” that displays the current TCP connections. As you can see I don’t ha any on this computer.

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4. Use the **ping** command to determine if the ubuntu.com system is accessible via the network. (Use the correct option to send 10 ping requests only.)

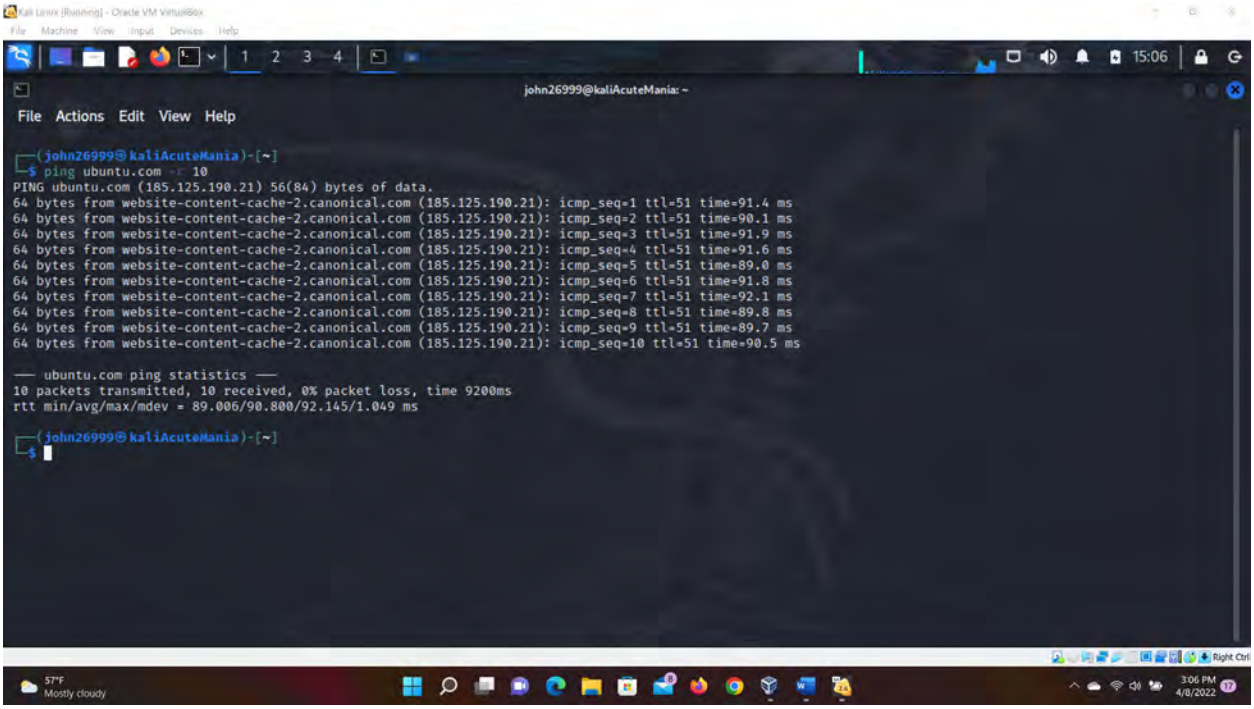

Figure 4 Screenshots of JWILS082 Computer screen prior to Step 4.

Above is the screen shot using the command “ping ubuntu.com -c 10” which will ping the nost address 10 times and stop.

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5. Use the **host** command to perform a DNS query on www.odu.edu

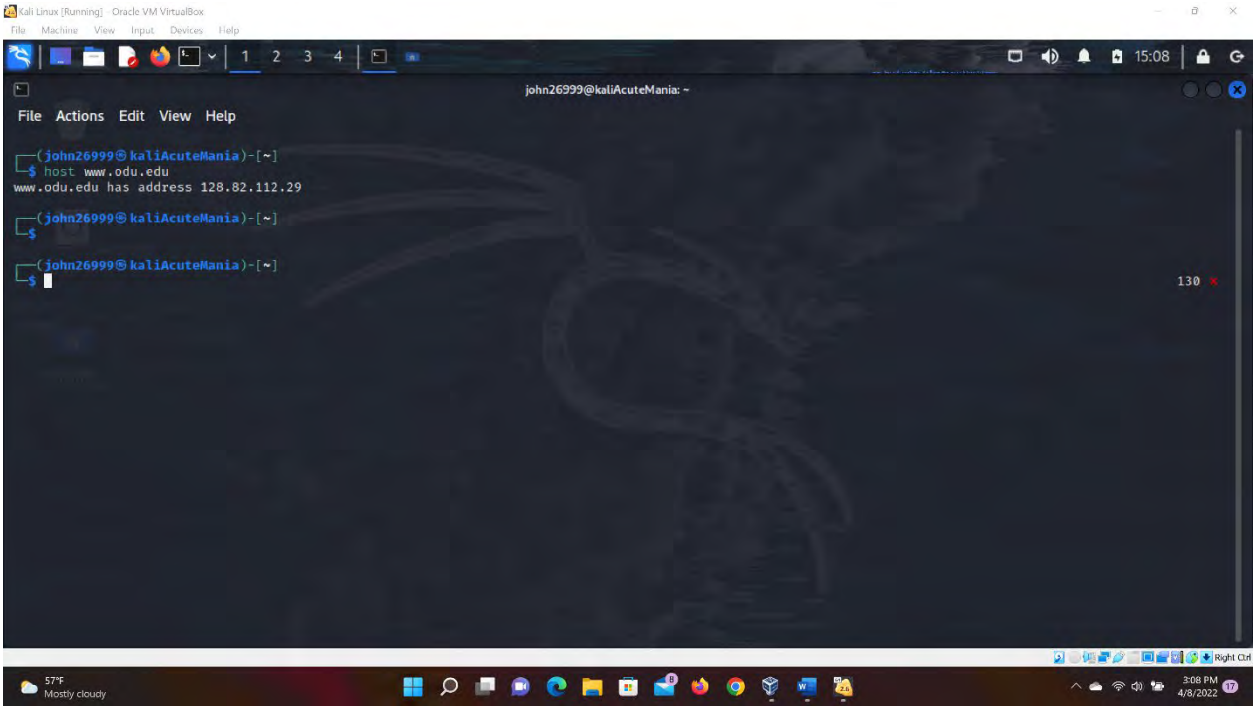

Figure 5 Screenshots of JWILS082 Computer screen prior to Step 5.

Above is the screen shot using the command “host www.odu.edu” that displays the hosts ip address.

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6. Use the **cat** command to display the contents of the file that contains the system's hostname.

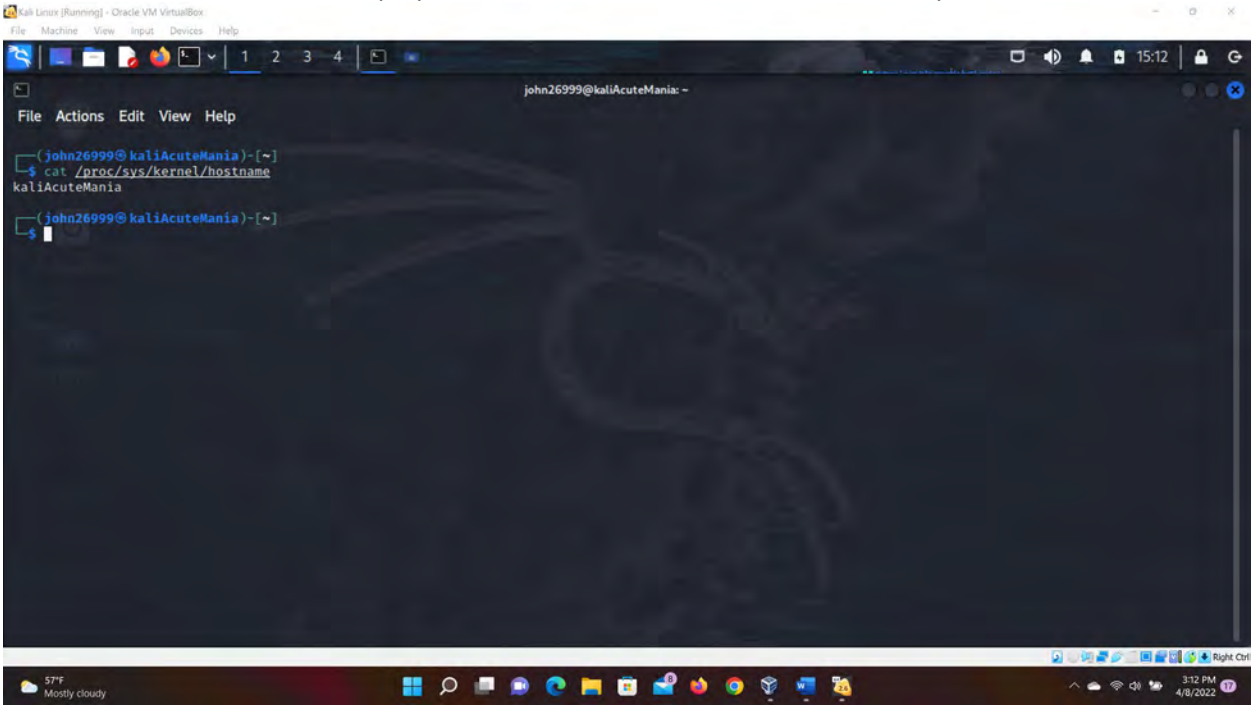

Figure 6 Screenshots of JWILS082 Computer screen prior to Step 6.

Above is the screen shot using the command "cat /proc/sys/kernel/hostname" that displays the file that contains the systems host name.

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7. Use the **cat** command to display the contents of the file that contains the DNS servers for this system.

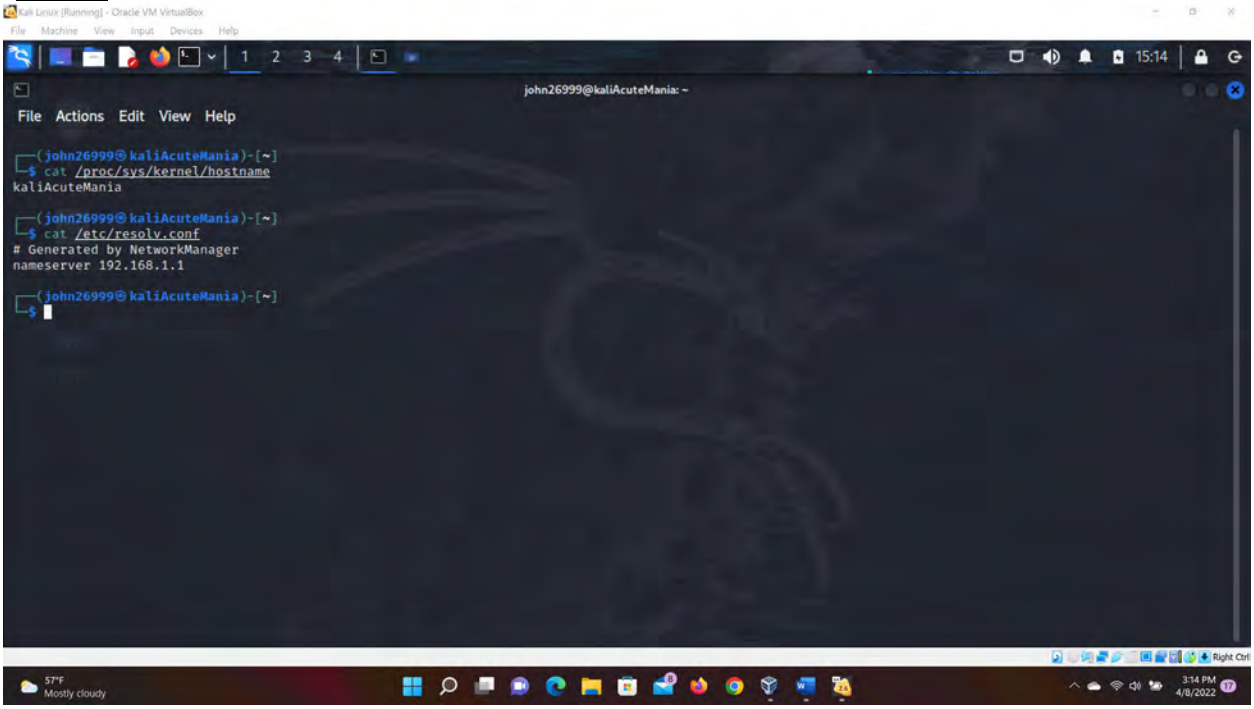

Figure 7 Screenshots of JWILS082 Computer screen prior to Step 7.

Above is the screen shot using the command “cat /etc/resolv.conf” that displays the DNS derver for the computer system.

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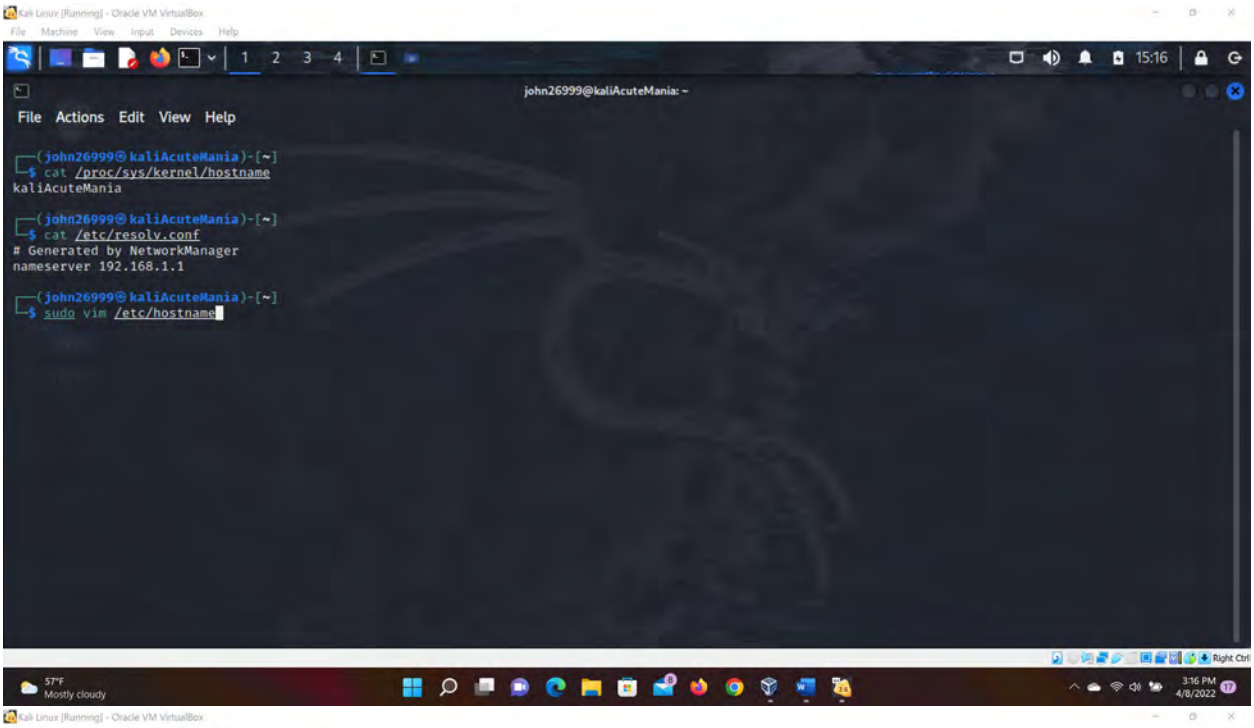
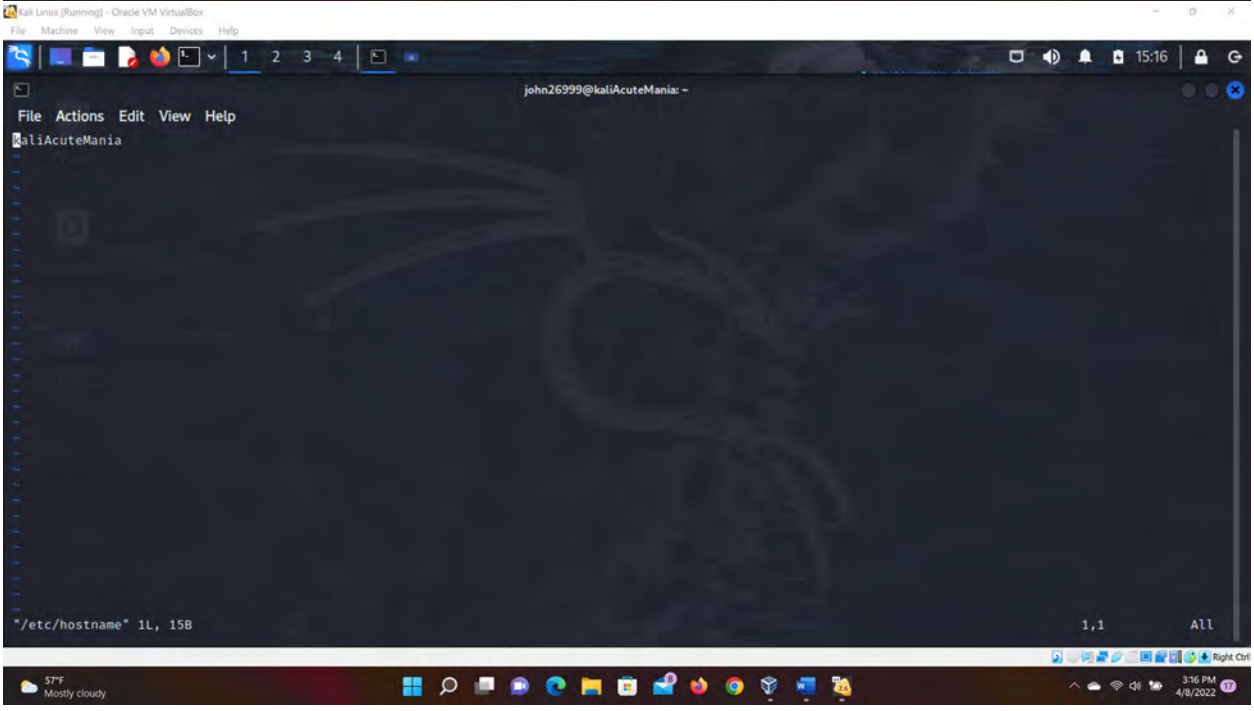
8. Edit the same file you display in the previous step, set the system's hostname to your MIDAS ID permanently. Reboot system and **repeat step 6**.





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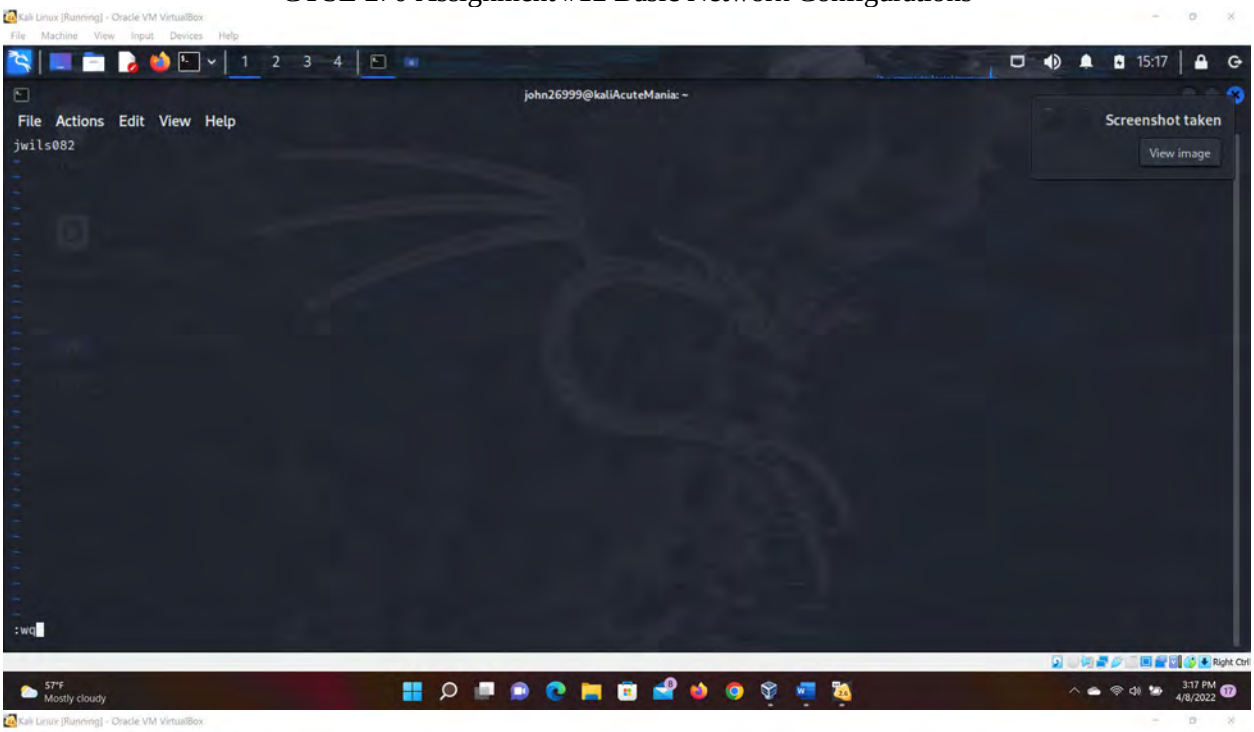

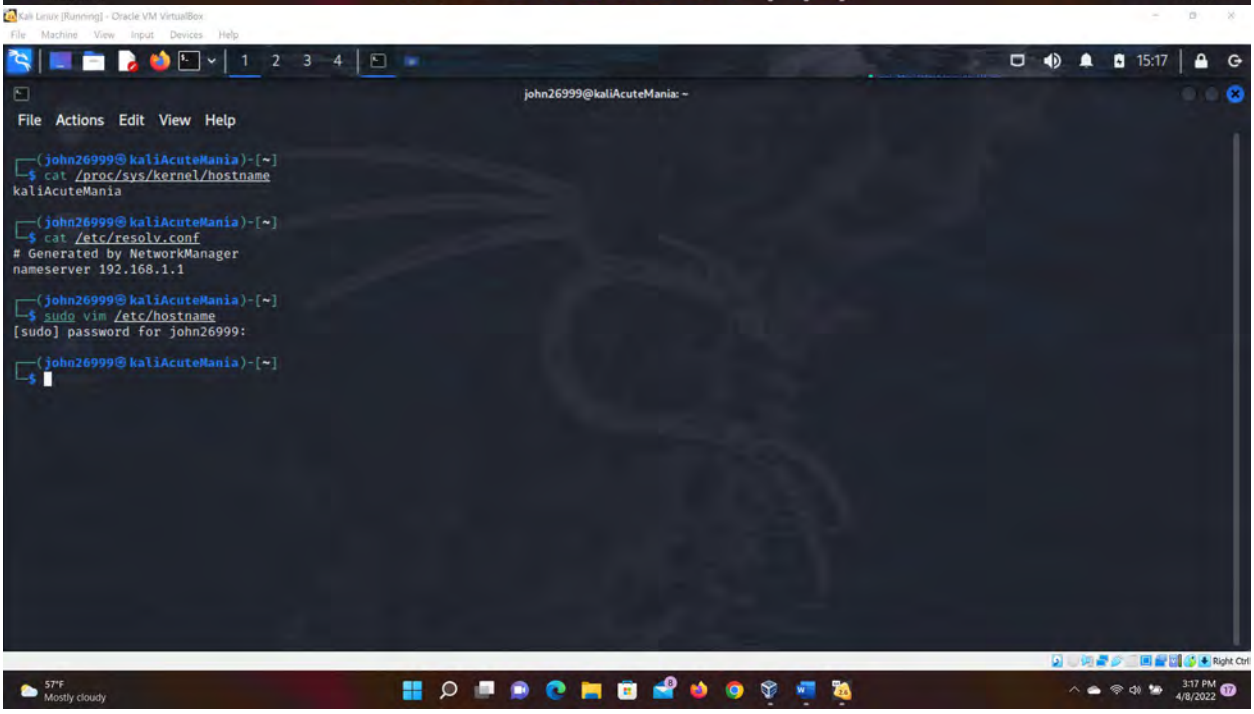

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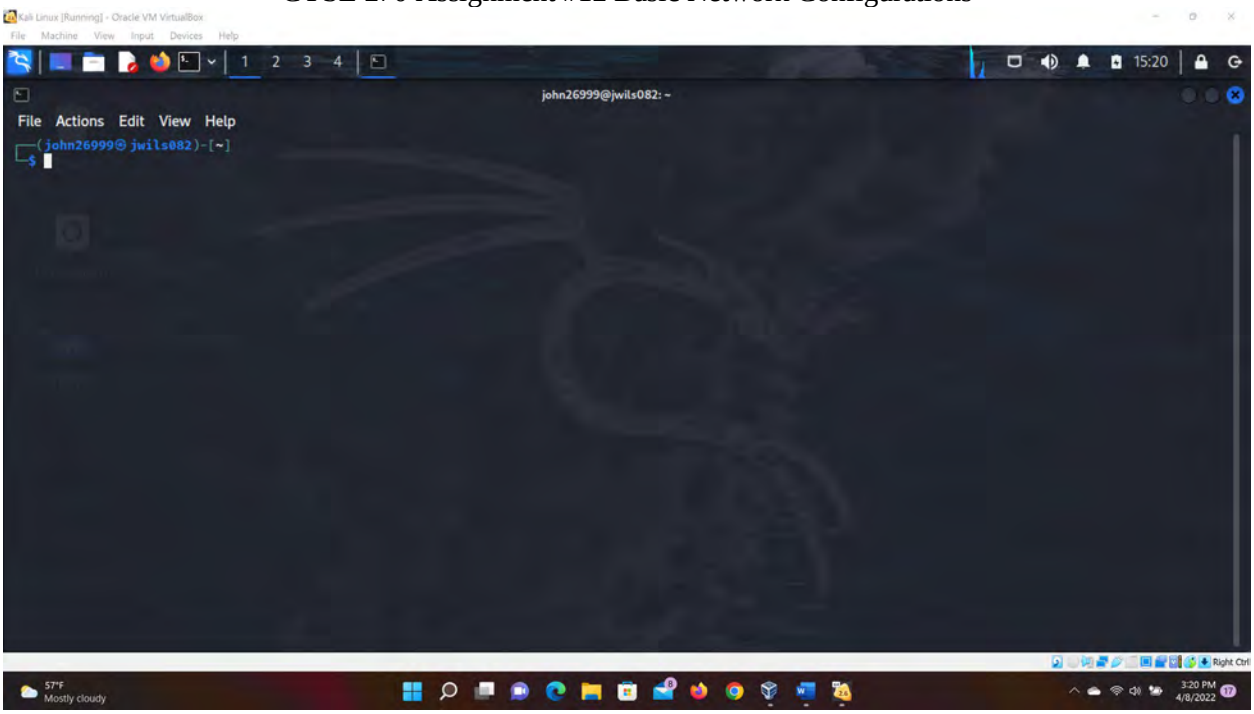

Figure 8 Screenshots of JWILS082 Computer screen prior to Step 8.

Above are the screen shots 1-4 using the command “sudo vim /etc/hostname” which will allow the user to change the systems hostname from the original hostname to the MIDAS hostname.

The fifth screenshot is proving the hostname chage was affective.

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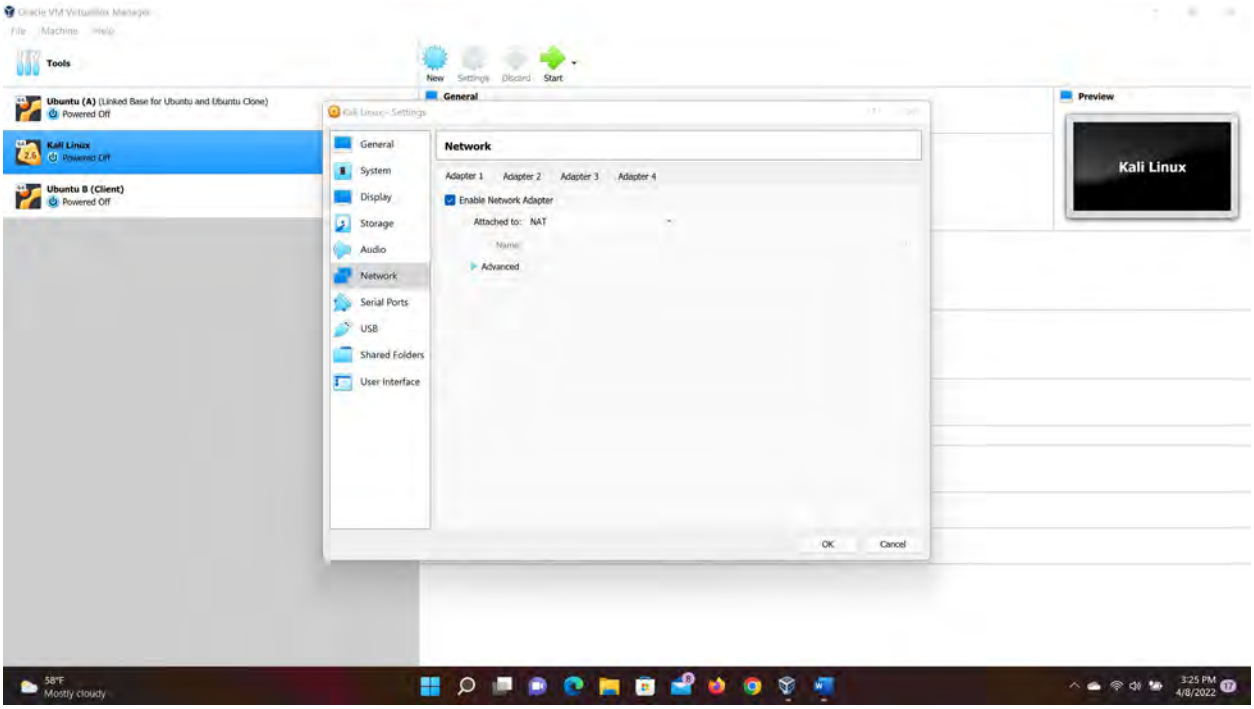
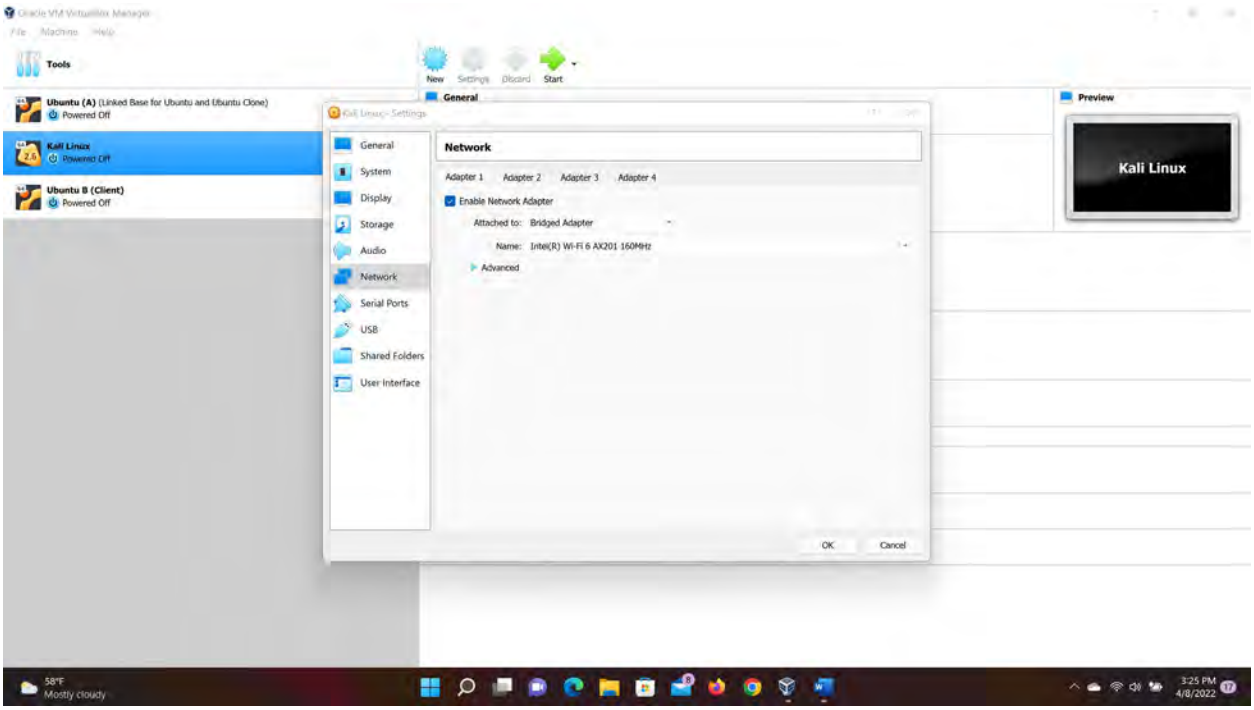
Task B: A Different Network Setting (3 * 20 = 60 Points)

1. **Change the VM network** connection from NAT to bridged adapter mode (you will lose your Internet connection if you are connected to the ODU campus Wi-Fi network, but that is okay).





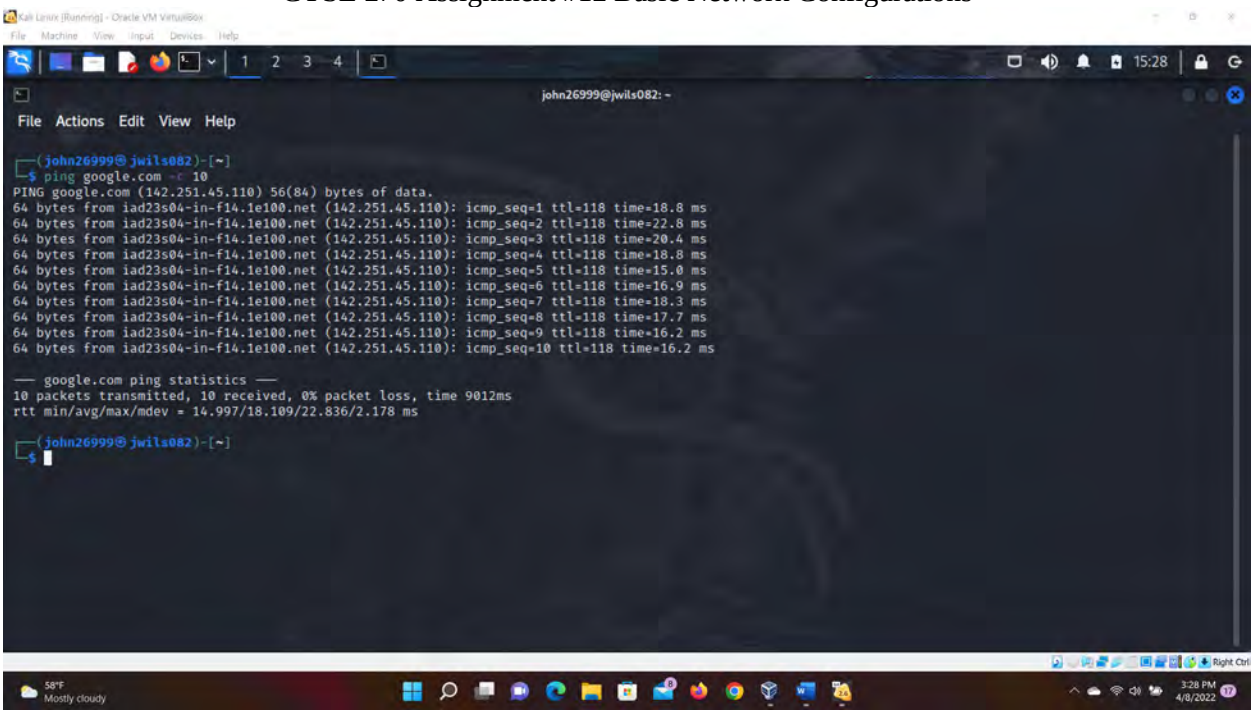
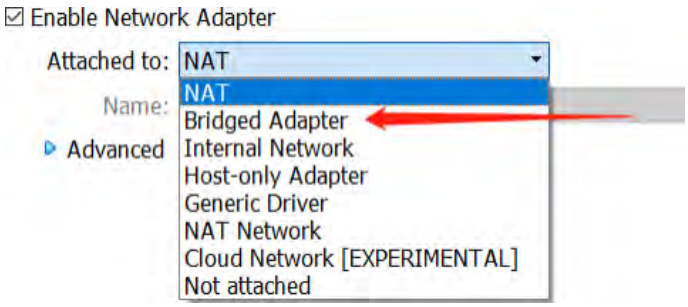


Figure 1 Screenshots of JWILS082 Computer screen of Step 1.

Above is the screen shot changing the network adaptor from NAT to bridged adaptor.

The third screenshot is checking to see of I have connectivity to the outside network and it is affirmed

2. **Restart** your VM, then **repeat Steps 1 – 7 in Task A**.
3. **Highlight the differences** at the end of each step and discuss what do you find.



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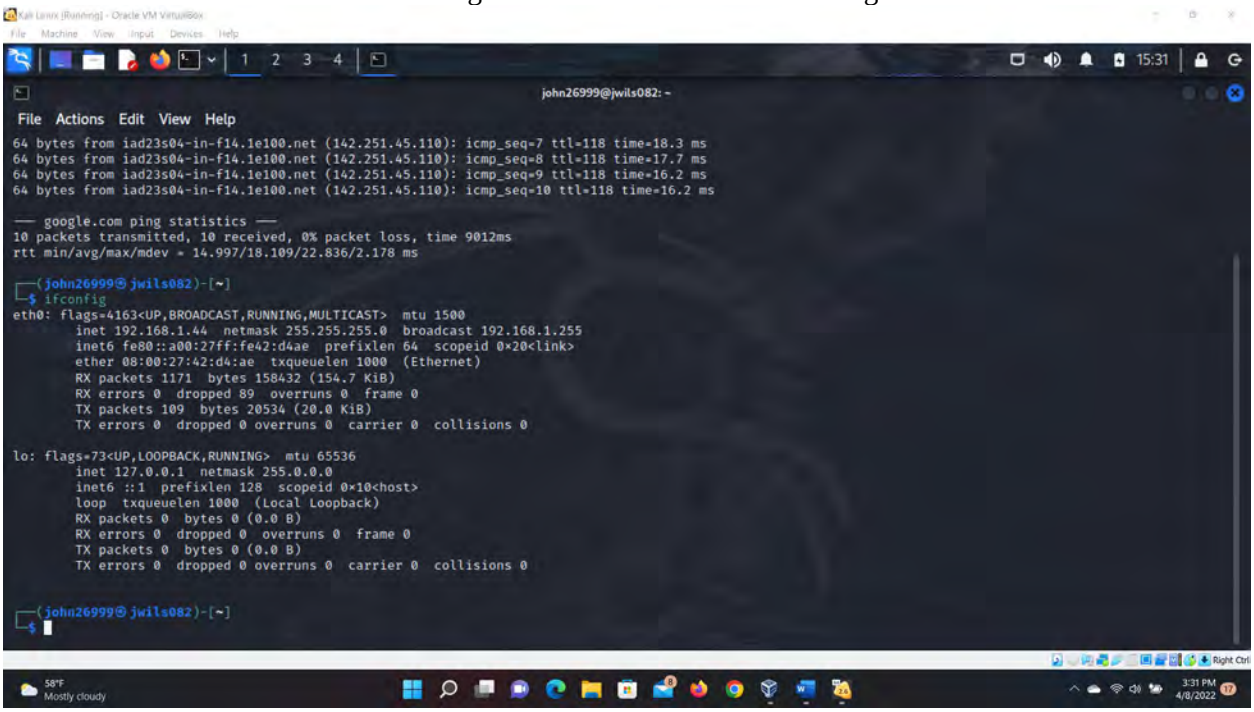

Figure 2 Screenshots of JWILS082 Computer screen prior to Step 3.a.

Above is the screen shot using the command “ifconfig” that displays the information on current network configuration information, ip address, netmask, or broadcast address to a network interface, creating an alias for the network interface, setting up hardware address, and enable or disable network interfaces.

The difference are with the IP addresses, broadcast address are not the same. The NAT one has the ip address listed as 10.0.2.15 and the broadcast listed as 10.0.2.255. the bridged adapter has the IP address listed as 192.168.1.44 and the broadcast listed as 192.168.1.255.

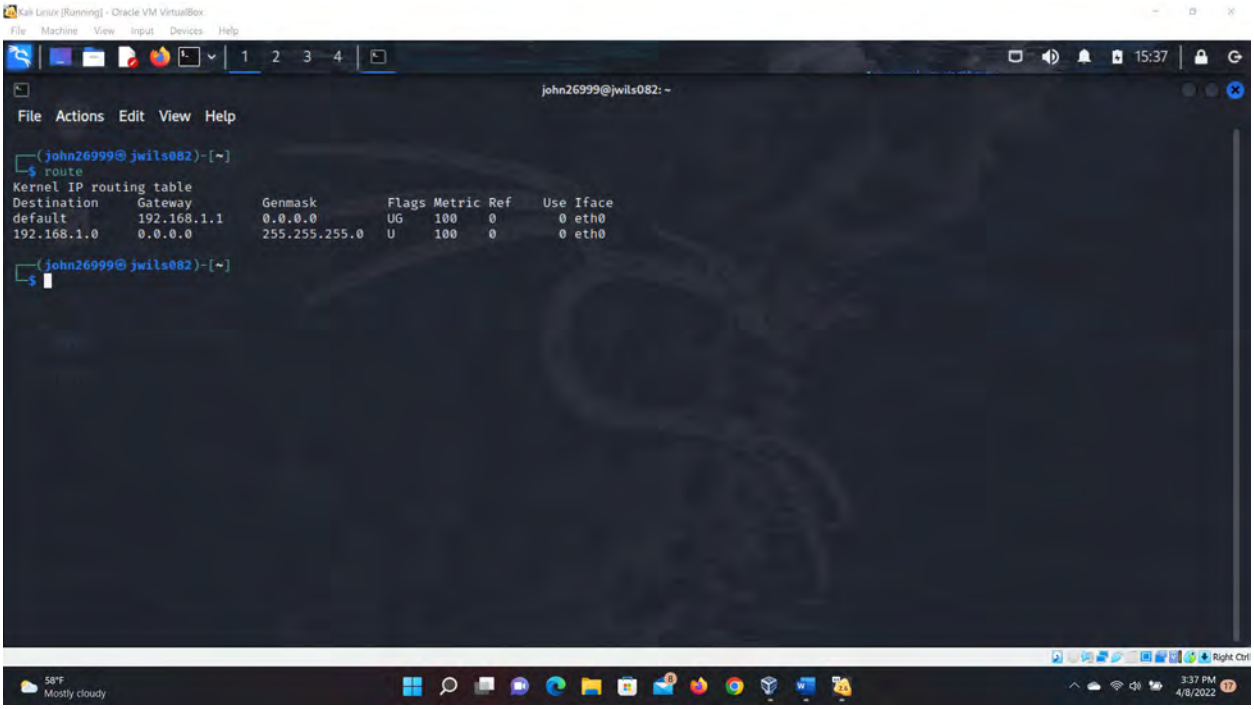

Figure 3 Screenshots of JWILS082 Computer screen prior to Step 3.b.

Above is the screen shot using the command “route” to display the routing table.

The difference are with the IP addresses. The NAT one has the ip address listed as 10.0.2.2.The bridged adapter has the IP address listed as 192.168.1.1.

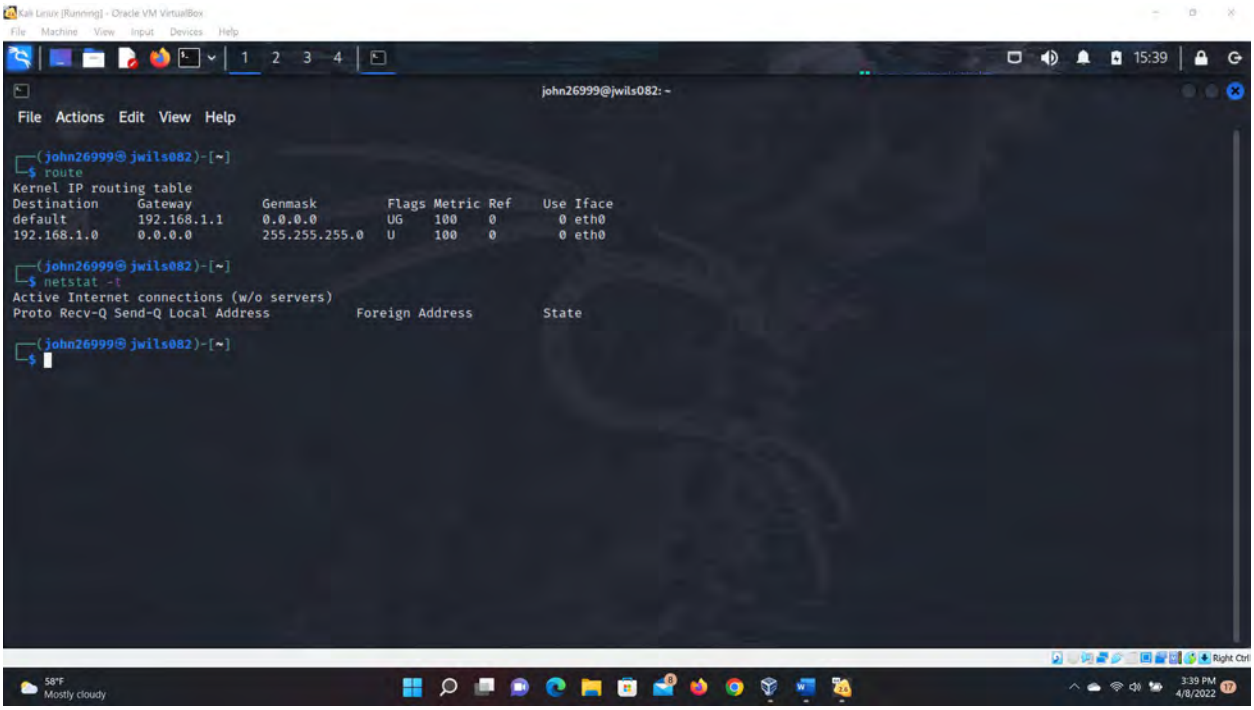

Figure 4 Screenshots of JWILS082 Computer screen prior to Step 3.c.

Above is the screen shot using the command “netstat -t” that displays the current TCP connections. As you can see I don’t ha any on this computer.

There was not difference between these two.

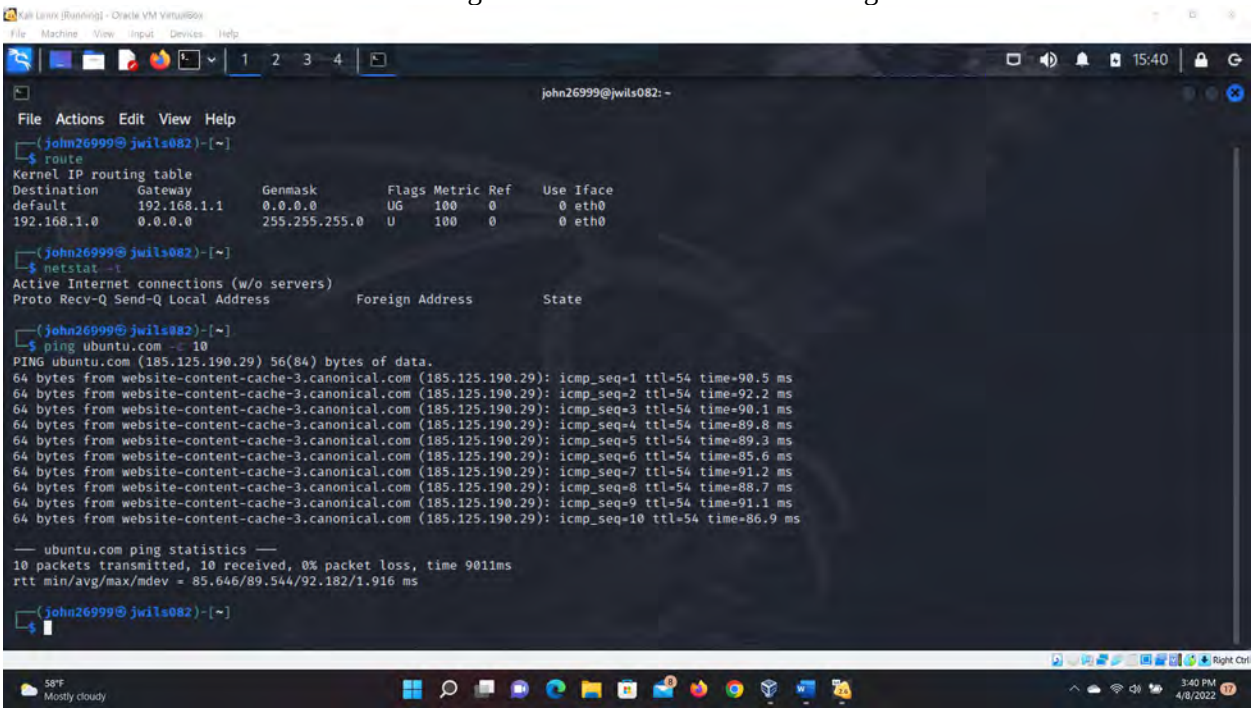

Figure 5 Screenshots of JWILS082 Computer screen prior to Step 3.d.

Above is the screen shot using the command “ping ubuntu.com -c 10” which will ping the nost address 10 times and stop.

There were no differences between the two as they both pinged ubuntu.com with no problems.

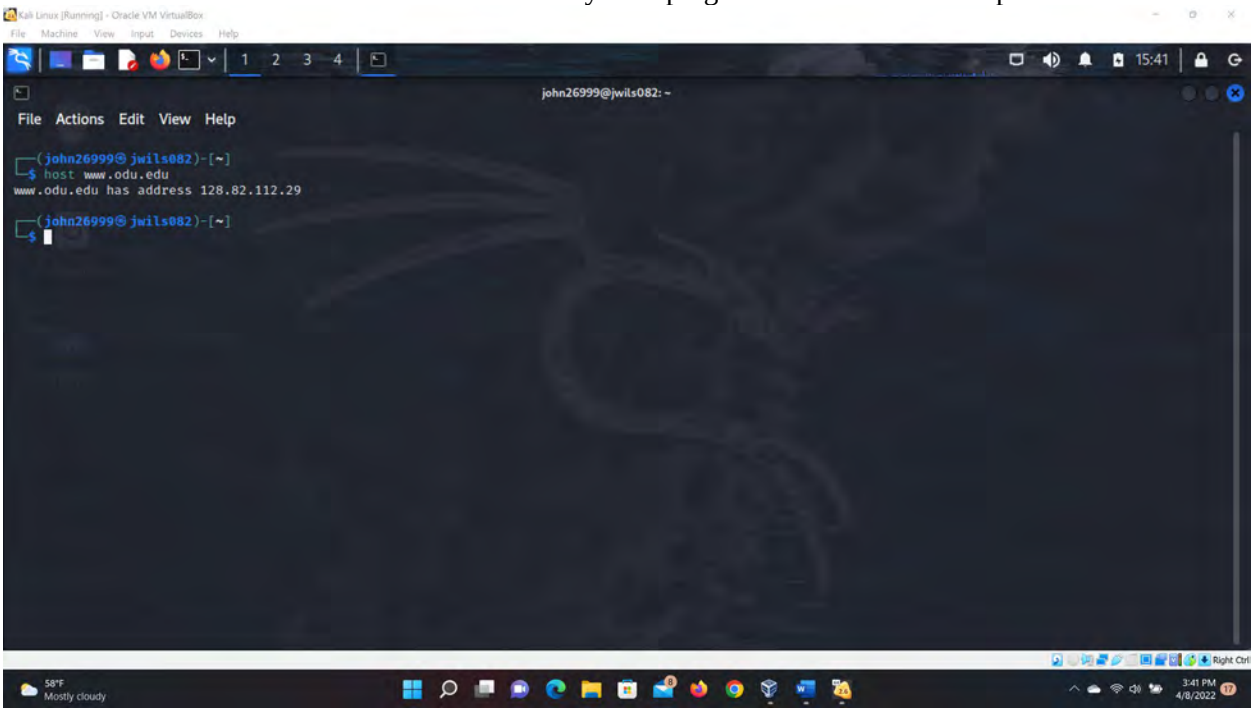

Figure 6 Screenshots of JWILS082 Computer screen prior to Step 3.e

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Above is the screen shot using the command “host www.odu.edu” that displays the hosts ip address.

There was no differences between them.

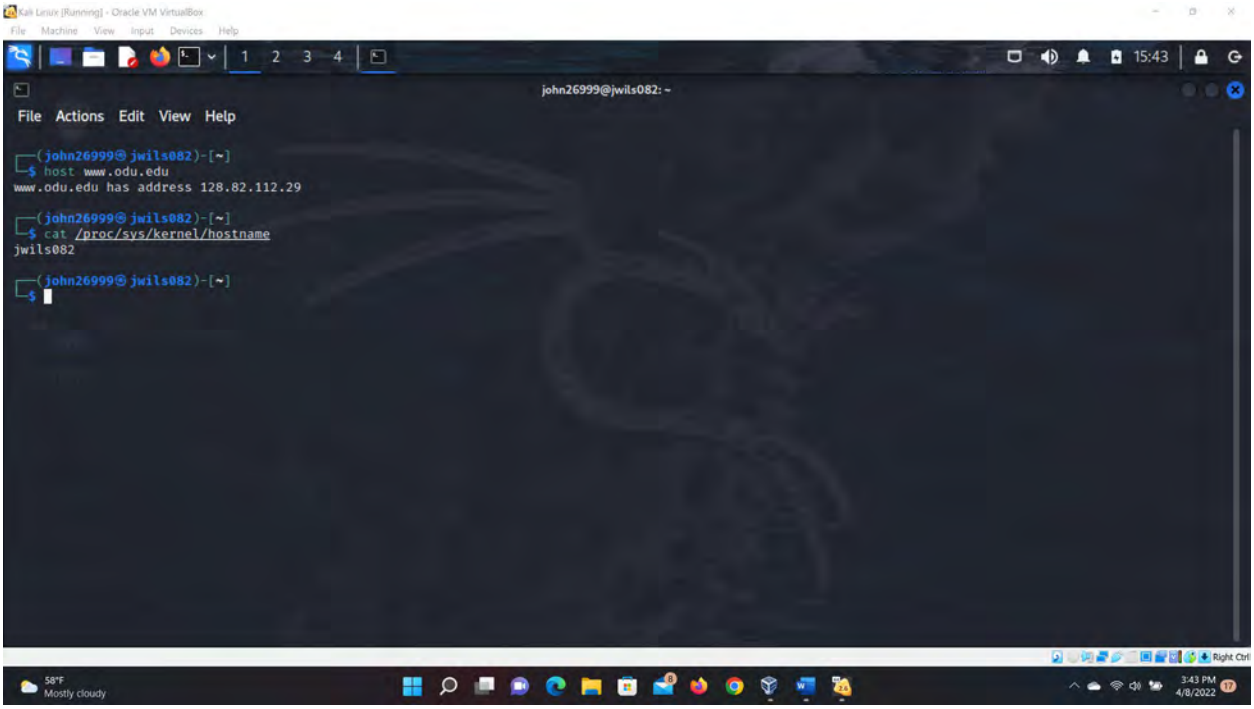

Figure 7 Screenshots of JWILS082 Computer screen prior to Step 3.f

Above is the screen shot using the command “cat /proc/sys/kernel/hostname” that displays the file that contains the systems host name.

The differences between them were the hostnames that chaged from kaliAcuteMania to jwils082.

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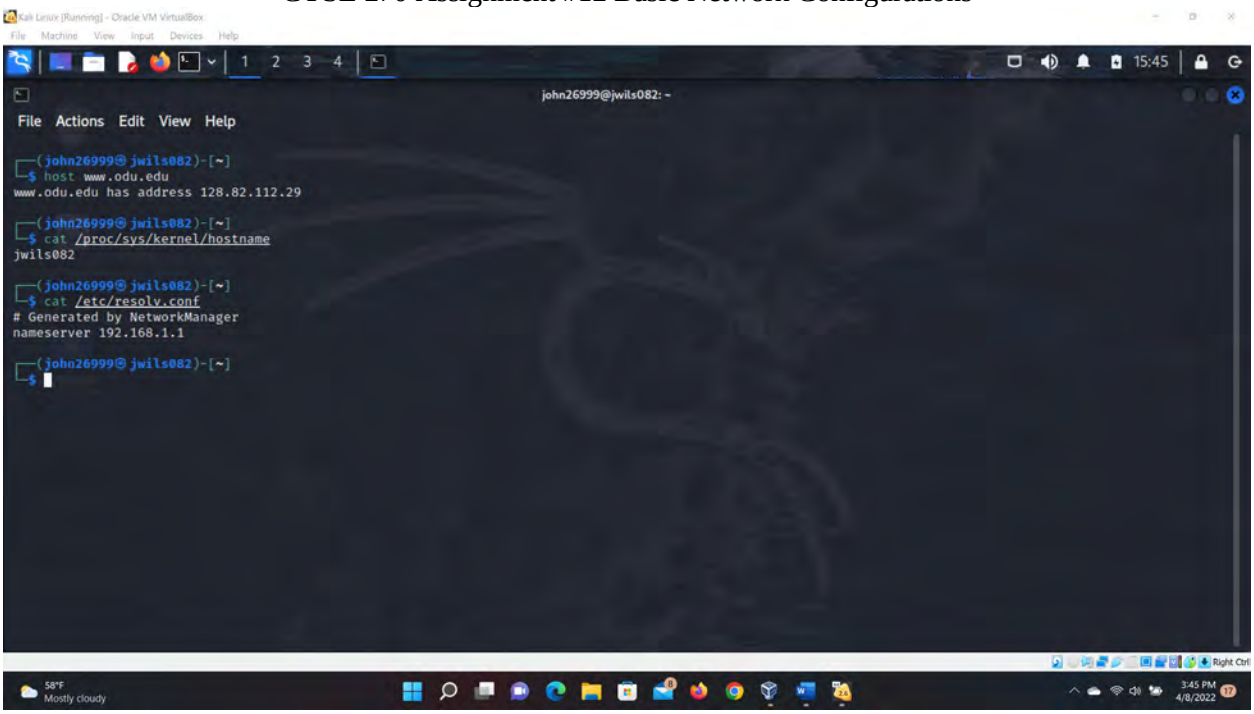

Figure 8 Screenshots of JWILS082 Computer screen prior to Step 3.g.

Above is the screen shot using the command “cat /etc/resolv.conf” that displays the DNS derver for the computer system.

There were no changes between the two that I noticed.

References

15 Useful "ifconfig" Commands to Configure Network in Linux. (n.d.). Www.tecmint.com. https://www.tecmint.com/ifconfig-command-examples/