CYSE 270: Linux System for Cybersecurity

Lab 11 – Basic Network Configurations

CYSE 270: Linux System for Cybersecurity

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

Task A – Explore Network Configurations

{{{{{{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.

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



- 3. Use the **netstat** command to list current TCP connections.
- 4. Use the **ping** command to determine if the **ubuntu.com** system is accessible via the network.

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	🕒 jcwilhelm@kali:~ 🔵 🔵 🙁
	File Actions Edit View Help
Trash	(jcwilhelm⊕ kali)-[~] └\$ netstat -tn
0	Active Internet connections (w/o servers) Proto Recv-Q Send-Q Local Address Foreign Address State
File System	[(jcwilhelm⊛ kali)-[~]
	64 bytes from website-content-cache-2.ps5.canonical.com (185.125.190.21): icmp seg=1 ttl=57 time=94.1 ms
^	64 bytes from website-content-cache-2.ps5.canonical.com (185.125.190.21): icmp
Home	64 bytes from website-content-cache-2.ps5.canonical.com (185.125.190.21): icmp
and the second	64 bytes from website-content-cache-2.ps5.canonical.com (185.125.190.21): icmp
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d'h	_seq=9 ctt=57 time=95.9 ms 64 bytes from website-content-cache-2.ps5.canonical.com (185.125.190.21): icmp _seq=10 ttl=57 time=95.5 ms
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(Use the correct option to send 10 ping requests only.)

- 5. Use the **host** command to perform a DNS query on www.odu.edu
- 6. Use the **cat** command to display the contents of <u>the file that contains the system's hostname</u>. 7.

Use the cat command to display the contents of the file that contains the DNS servers for this

system.



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.





<mark>Task B</mark> – A Different Network Setting

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

🔅 Kall	Linux - Settings							
	General	Network						
	System	Adapter <u>1</u>			Adapter <u>4</u>			
	Display	✓ <u>E</u> nable N						
\bigcirc	Storage		Attached to:	Bridged Adapter				
	Audio		<u>N</u> ame:	Intel(R) Wi-Fi 6E A	X211 160MHz			-
Ð	Network	► A <u>d</u> va	anced					
	Serial Ports							
Ď	USB							
	Shared Folders							
•	User Interface							
					ОК	Cancel	<u>H</u> elp	

- 2. Reboot your system, then repeat Steps 1 7 in Task A.
- 3. Highlight the differences at the end of each step and discuss what do you find.



Kalli Linux (Running) – Oracle VM VirtualBo	
	jcwilhelm@jcran011:~
	File Actions Edit View Help
Trash	<pre>(jcwilhelm⊕ jcran011)-[~] \$ ping -c 10 ubuntu.com PING ubuntu.com (185.125.190.29) 56(84) bytes of data.</pre>
	64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp seg=1 ttl=58 time=91.8 ms
0	64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp _seg=2 ttl=58 time=92.1 ms
File System	64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp _seq=3 ttl=58 time=90.1 ms
	64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp _seq=4 ttl=58 time=92.2 ms
	64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp _seq=5 ttl=58 time=97.2 ms
	64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp _seq=6 ttl=58 time=92.9 ms
Home	64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp _seg=7 ttl=58 time=99.8 ms
	64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp seg=8 ttl=58 time=96.7 ms
0	64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp
210 MB Vol	64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp _seq=10 ttl=58 time=91.5 ms
	— ubuntu.com ping statistics — 10 packets transmitted, 10 received, 0% packet loss, time 9012ms rtt min/avg/max/mdev = 90.149/93.615/99.772/2.978 ms
AN	[jcwilhelm⊕jcran011)-[~]
9	110PM @
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Kali Linux (Running) - Oracle VM VirtualBe Trash File System Home 210 MB Vol	<pre></pre>

With an isolated IP, NAT Mode separates virtual machines (VMs) and allows network exposure to be limited. However, Bridge Mode may cause VMs to lose internet connectivity in restricted networks. Bridge Mode, on the other hand, allows VMs to appear like separate devices on the physical network.