
LAB 01

CIS4367.01 – Computer Security

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1 Abstract

Lab 01 focuses on setting up the two Virtual Machines (VMs), Parrot OS and Windows Server 2019 using a VM manager, VirtualBox. Both VMs are linked through a NAT network. Using the NAT network Parrot OS and Windows Server users communicate to each VM using their own respective IP address for both VMs and the 'ping' command to send packets between VMs.



2 Tasks

2.1 Task 1: NAT Network Settings

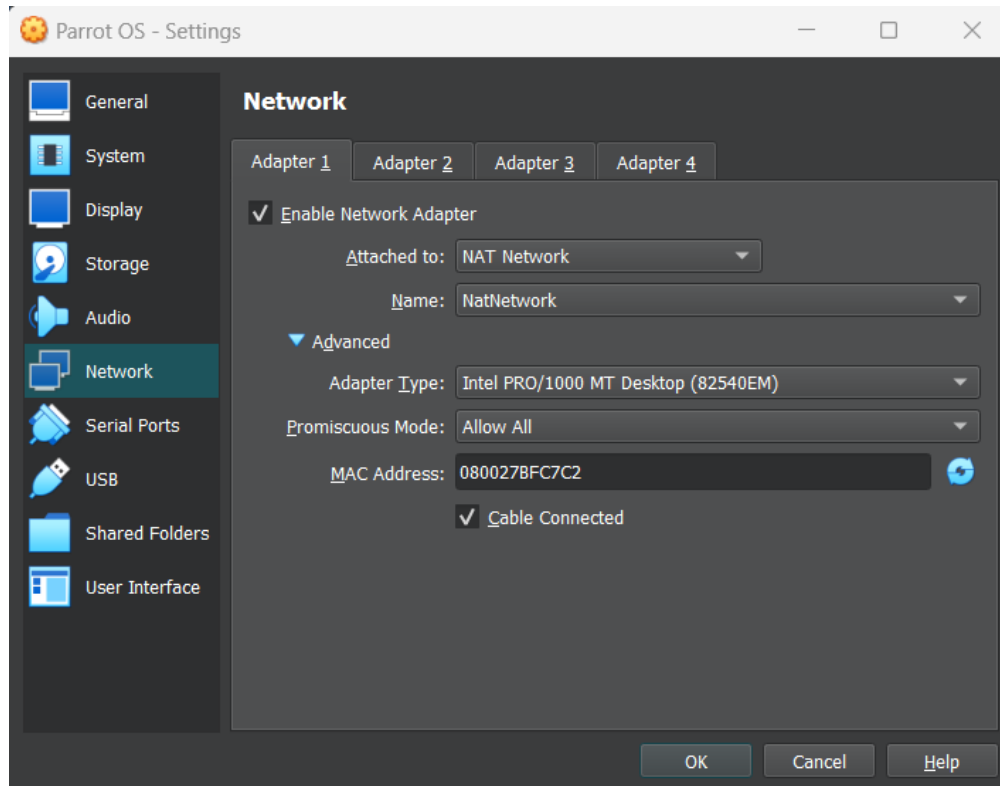
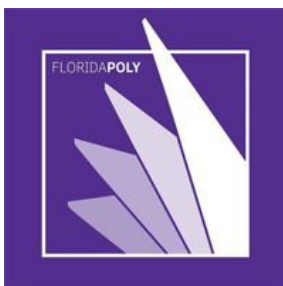


Figure 1 - Network Settings for Parrot OS



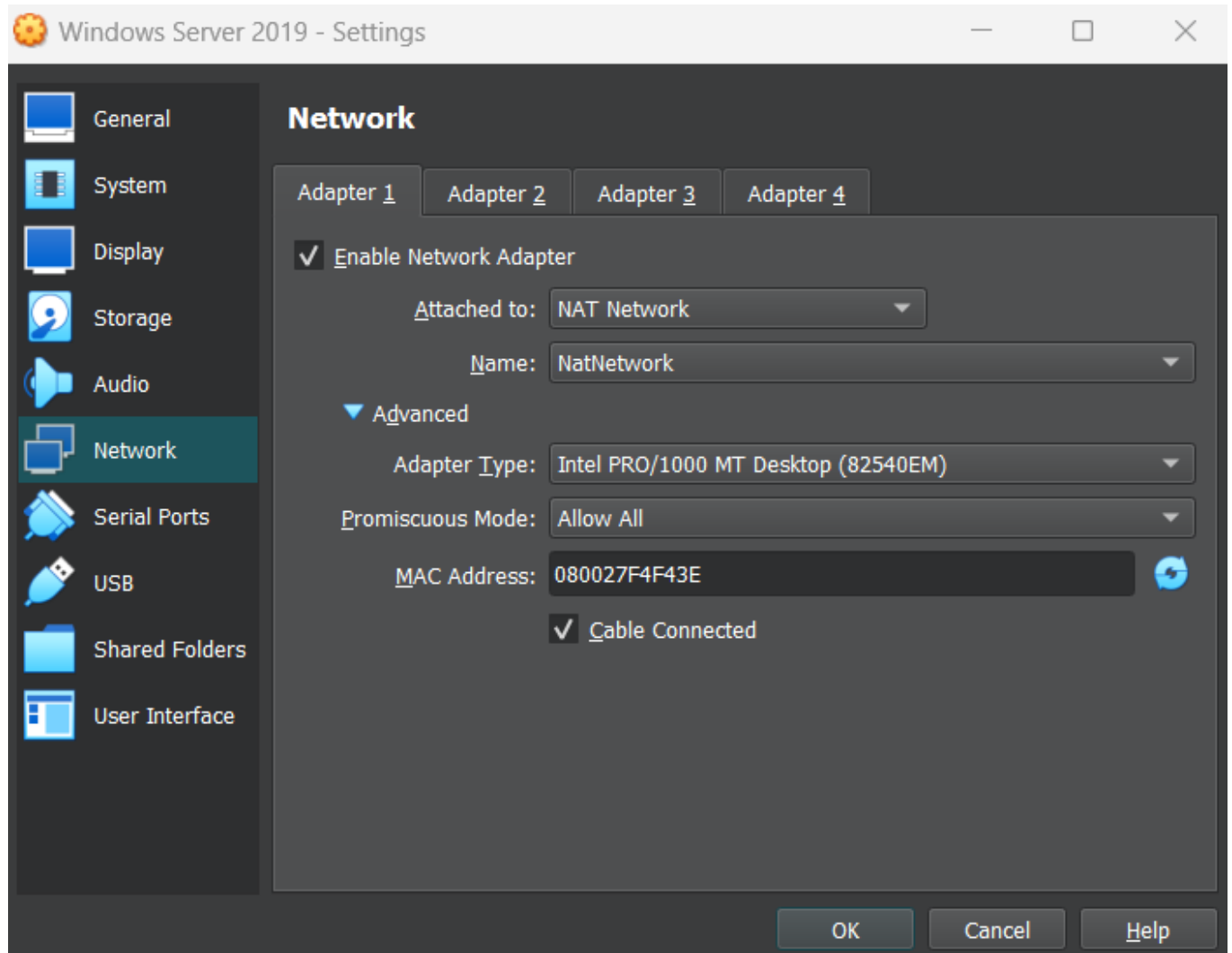


Figure 2 - Network Settings Windows Server 2019

For Figures 1 & 2, I configured 'Promiscuous Mode' to 'Allow All' to make it easier for traffic to pass between the VMs along with internet access.



2.2 Task 2: VM Settings

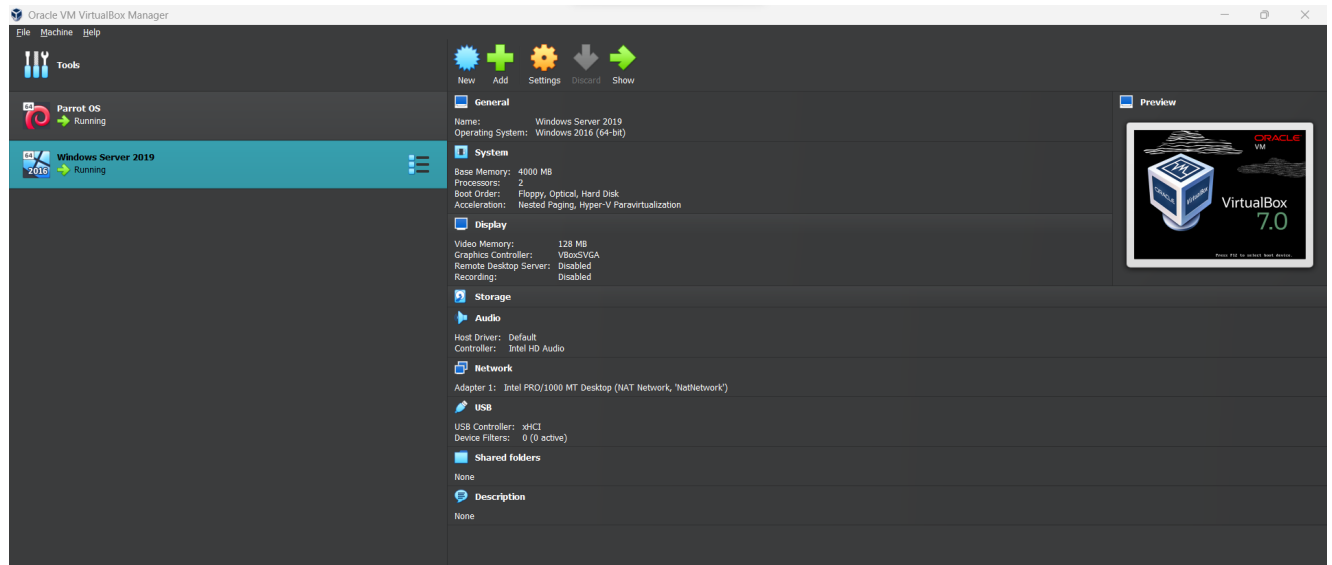


Figure 3 - VirtualBox Home Screen

Figure 3 shows the home screen of VirtualBox. I can run both Parrot OS and Windows Server 2019 simultaneously without error.



2.3 Task 3: Parrot VM

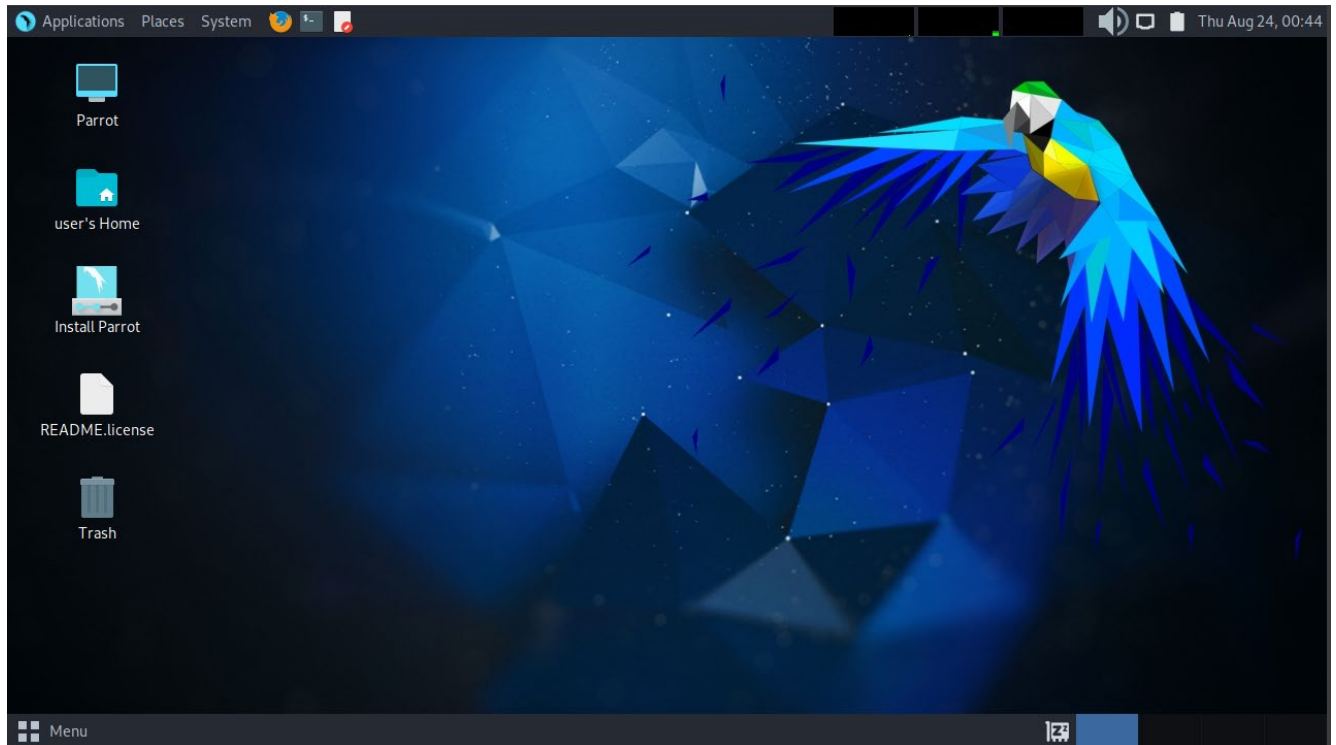


Figure 4 - Parrot OS

Figure 4 shows the home screen of Parrot OS. This is after I installed all updates using 'Install Parrot', and exe file and most of the optional files to install for Parrot OS.



2.4 Task 4: Windows VM

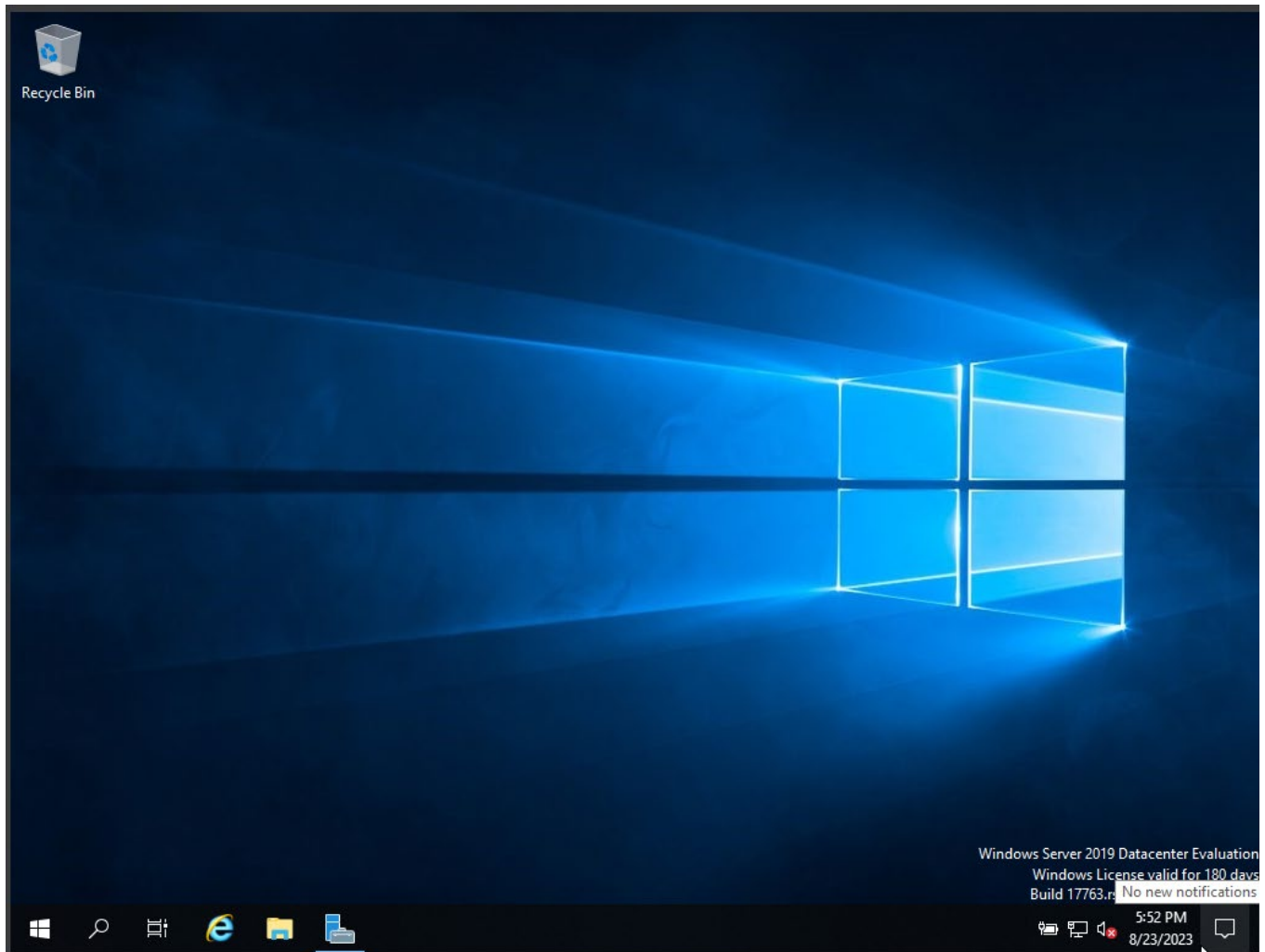


Figure 5 - Windows Server 2019

Figure 5 shows the home screen of Windows Server 2019.



2.5 Task 5: Windows & Parrot IP

```
Administrator: Command Prompt
Windows IP Configuration

Host Name . . . . . : WIN-Q6GBFC32CM1
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : floridapoly.org

Ethernet adapter Ethernet:

Connection-specific DNS Suffix . : floridapoly.org
Description . . . . . : Intel(R) PRO/1000 MT Desktop Adapter
Physical Address. . . . . : 08-00-27-F4-F4-3E
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::b986:f92d:1c15:b5ca%6(Preferred)
IPv4 Address. . . . . : 10.0.2.5(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Tuesday, July 19, 1887 3:57:50 AM
Lease Expires . . . . . : Friday, August 25, 2023 7:36:06 AM
Default Gateway . . . . . : 10.0.2.1
DHCP Server . . . . . : 10.0.2.3
DHCPv6 IAID . . . . . : 101187623
DHCPv6 Client DUID. . . . . : 00-01-00-01-2C-78-8A-B0-08-00-27-F4-F4-3E
DNS Servers . . . . . : 10.125.15.121
                        10.150.17.121
NetBIOS over Tcpip. . . . . : Enabled

C:\Users\Administrator>
```

Figure 6 - IP Address of Windows




```
[user@parrot]-[~]
$ifconfig -a
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.6 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fe80::5cb5:b621:dbc6:4451 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:58:69:dc txqueuelen 1000 (Ethernet)
    RX packets 185806 bytes 276990657 (264.1 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 18436 bytes 1138926 (1.0 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 4 bytes 240 (240.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 4 bytes 240 (240.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[user@parrot]-[~]
$
```

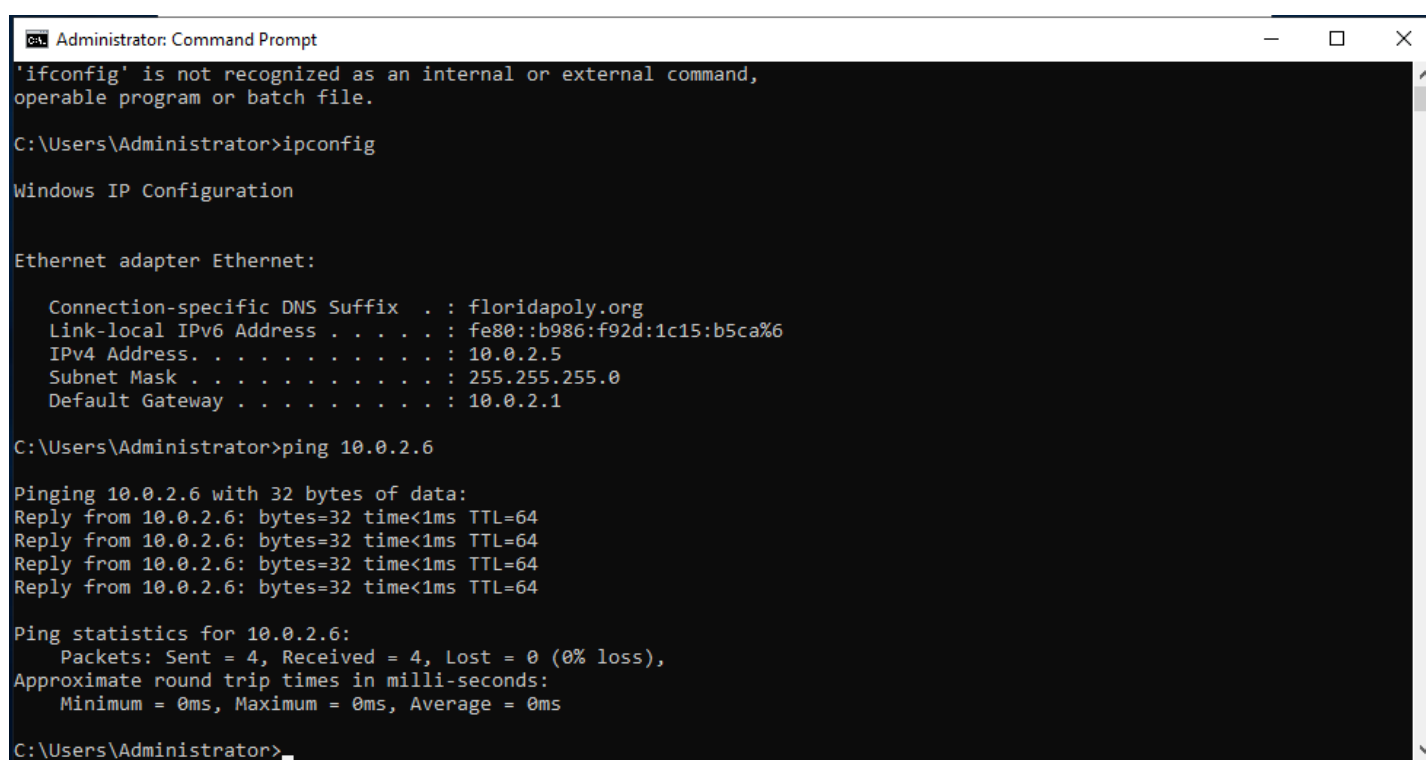
Figure 7 - IP Address of Parrot OS

For Windows Server 2019, I used the Command Prompt to send commands directly to the OS, while with Parrot OS, I used the Terminal to send commands directly to its OS. Command Prompt uses Batch Scripting while Terminal uses Bash Scripting, so commands between them are somewhat different and occasionally have the same commands.



The first command I used was `ifconfig -a` (Terminal) and `ipconfig` (Command Prompt). The commands are used to display and manage the network interfaces of its respective OS, which is shown in Figure 6 and Figure 7. Primarily, I am looking for the IP addresses of both VMs to communicate between the two VMs.

2.6 Task 6: Ping Parrot & Windows

A screenshot of a Windows Command Prompt window titled "Administrator: Command Prompt". The window has a black background with white text. The user has entered the command `'ifconfig'`, which resulted in an error message: `'ifconfig' is not recognized as an internal or external command, operable program or batch file.` The user then entered `ipconfig`, which displayed the Windows IP Configuration for the Ethernet adapter Ethernet. The configuration shows: Connection-specific DNS Suffix as `floridapoly.org`, Link-local IPv6 Address as `fe80::b986:f92d:1c15:b5ca%6`, IPv4 Address as `10.0.2.5`, Subnet Mask as `255.255.255.0`, and Default Gateway as `10.0.2.1`. The user then entered `ping 10.0.2.6`, which showed four successful replies from `10.0.2.6` with 32 bytes of data, time <1ms, and TTL=64. The ping statistics for `10.0.2.6` are: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), and Approximate round trip times in milli-seconds: Minimum = 0ms, Maximum = 0ms, Average = 0ms. The prompt is currently at `C:\Users\Administrator>`.

```
Administrator: Command Prompt
'ifconfig' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Administrator>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : floridapoly.org
    Link-local IPv6 Address . . . . . : fe80::b986:f92d:1c15:b5ca%6
    IPv4 Address. . . . . : 10.0.2.5
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.0.2.1

C:\Users\Administrator>ping 10.0.2.6

Pinging 10.0.2.6 with 32 bytes of data:
Reply from 10.0.2.6: bytes=32 time<1ms TTL=64
Reply from 10.0.2.6: bytes=32 time<1ms TTL=64
Reply from 10.0.2.6: bytes=32 time<1ms TTL=64
Reply from 10.0.2.6: bytes=32 time<1ms TTL=64

Ping statistics for 10.0.2.6:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\Administrator>
```

Figure 8 - 'ping' Command in Windows



```
[user@parrot]-[~]  
$ping 10.0.2.5  
PING 10.0.2.5 (10.0.2.5) 56(84) bytes of data.  
64 bytes from 10.0.2.5: icmp_seq=1 ttl=128 time=0.368 ms  
64 bytes from 10.0.2.5: icmp_seq=2 ttl=128 time=0.360 ms  
64 bytes from 10.0.2.5: icmp_seq=3 ttl=128 time=0.316 ms  
64 bytes from 10.0.2.5: icmp_seq=4 ttl=128 time=0.347 ms  
64 bytes from 10.0.2.5: icmp_seq=5 ttl=128 time=0.360 ms  
64 bytes from 10.0.2.5: icmp_seq=6 ttl=128 time=0.314 ms  
64 bytes from 10.0.2.5: icmp_seq=7 ttl=128 time=0.325 ms  
64 bytes from 10.0.2.5: icmp_seq=8 ttl=128 time=0.342 ms  
64 bytes from 10.0.2.5: icmp_seq=9 ttl=128 time=0.523 ms  
64 bytes from 10.0.2.5: icmp_seq=10 ttl=128 time=0.768 ms  
64 bytes from 10.0.2.5: icmp_seq=11 ttl=128 time=0.477 ms  
64 bytes from 10.0.2.5: icmp_seq=12 ttl=128 time=0.515 ms  
64 bytes from 10.0.2.5: icmp_seq=13 ttl=128 time=0.487 ms  
64 bytes from 10.0.2.5: icmp_seq=14 ttl=128 time=0.542 ms  
64 bytes from 10.0.2.5: icmp_seq=15 ttl=128 time=0.445 ms  
64 bytes from 10.0.2.5: icmp_seq=16 ttl=128 time=0.515 ms  
64 bytes from 10.0.2.5: icmp_seq=17 ttl=128 time=0.487 ms  
64 bytes from 10.0.2.5: icmp_seq=18 ttl=128 time=0.529 ms  
64 bytes from 10.0.2.5: icmp_seq=19 ttl=128 time=0.292 ms  
64 bytes from 10.0.2.5: icmp_seq=20 ttl=128 time=0.596 ms  
64 bytes from 10.0.2.5: icmp_seq=21 ttl=128 time=0.373 ms  
64 bytes from 10.0.2.5: icmp_seq=22 ttl=128 time=0.300 ms  
64 bytes from 10.0.2.5: icmp_seq=23 ttl=128 time=0.283 ms  
64 bytes from 10.0.2.5: icmp_seq=24 ttl=128 time=0.299 ms  
64 bytes from 10.0.2.5: icmp_seq=25 ttl=128 time=0.279 ms
```



Figure 9 - 'ping' Command in Parrot OS

Using the IP addresses of both VMs, I used the ping command to send packets between Parrot OS and Windows Server 2019 to test the response, reachability, and troubleshooting of the VMs. Figures 8 & 9 show the successful results of the VMs pinging each other.




2.7 Task 7: Join the Cybersecurity Club



Figure 10 - Discord Profile






Cybersecurity Club

Cybersecurity Club is a collective of Florida Poly students who want to learn both offensive and defensive Cybersecurity. We cover a broad range of topics because Cybersecurity covers a broad range of topics! No experience required.

Meetings: All meetings are in IST-1015 @7pm
M: General
T: Programming
W: Blue Team
F: Red Team
Discord: <https://discord.gg/hf5YBNx>
Instagram: <https://www.instagram.com/flpolycybersecurityclub/>
MS Teams: <https://teams.microsoft.com/l/team/19%3a48c150f832614725b1790483eb88df0b%40thread.tacv2/conversations?groupId=099c1c97-7163-49ec-b2b0-66fcd764040&tenantId=8d84067d-9ad7-4572-9b10-133d36462aaa>
Phoenix-Links Page: <https://floridapoly.campuslabs.com/engage/organization/cybersecurity-club>
QuickStartGuide: <https://fpu-cc.github.io/resources/quickstart.html>

Contact Information
E: cybersecurityclub@floridapoly.edu



Public Events

There are currently no upcoming events. [View past events.](#)

CONTACT

VIEW MORE EVENTS

Figure 11 - Cybersecurity Club

Figures 11 & 12 are information regarding my joining the Cybersecurity Club. Most university clubs have a Discord where we organize meetings and different events/divisions within the club. Figure 11 shows that I joined the club in 2021. Figure 12 shows the club's contact information, including its Discord Server. This site is called PhoneixLink, and it's the official method of



registered student organizations at the university to record attendance or show events. Officially, no meeting date has been decided yet.

3 Issues or problems

I mainly had two issues. The first issue was with the Windows 2019 Server. To use the ping command, you must turn off the firewall using 'netsh advfirewall set allprofiles state off'. The second issue I had was the conflicting information in Parrot OS about my storage. When downloading the optional upgrades throughout the time of 'sudo apt full-upgrade -y', I was given an error that my storage was full. GParted and a disc analyzer software that notified me what process is taking up the most storage and allocating storage notified me that I had additional storage. My solution was to stop using the command.

4 Conclusions

The lab output would be the IP address of the two VMs and the packets sent to each VM. The result is that VMs can communicate with each other. This lab taught me more about multitasking with multiple VMs, not including my host OS. I was always used to using one VM for a specific task and not more than one.

5 References

Ufidon, & Wang, X. (n.d.). *comsec/labs/lab01 at main · ufidon/comsec*. GitHub.

<https://github.com/ufidon/comsec/tree/main/labs/lab01>

