

CYSE 270: Linux System for Cybersecurity

Lab 11 – Basic Network Configurations

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Task A-

Network

Adapter 1 Adapter 2 Adapter 3 Adapter 4

Enable Network Adapter

Attached to NAT

Name

Adapter Type Intel PRO/1000 MT Desktop (82540EM)

Promiscuous Mode Deny

MAC Address 0800273FF8B5

Virtual Cable Connected

Port Forwarding

1.

```

└─$ ip address show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
        valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:3f:f8:b5 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute eth0
        valid_lft 85954sec preferred_lft 85954sec
    inet6 fd17:625c:f037:2:d482:118d:cfe9:9836/64 scope global temporary dynamic
        valid_lft 86213sec preferred_lft 14213sec
    inet6 fd17:625c:f037:2:a00:27ff:fe3f:f8b5/64 scope global dynamic mngtmpaddr noprefixroute
        valid_lft 86213sec preferred_lft 14213sec
    inet6 fe80::a00:27ff:fe3f:f8b5/64 scope link noprefixroute
        valid_lft forever preferred_lft forever

```

```

└─$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fd17:625c:f037:2:a00:27ff:fe3f:f8b5 prefixlen 64 scopeid 0<global>
    inet6 fe80::a00:27ff:fe3f:f8b5 prefixlen 64 scopeid 0<link>
    inet6 fd17:625c:f037:2:d482:118d:cfe9:9836 prefixlen 64 scopeid 0<global>
    ether 08:00:27:3f:f8:b5 txqueuelen 1000 (Ethernet)
    RX packets 9 bytes 3699 (3.6 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 30 bytes 4974 (4.8 KiB)
    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 0<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 8 bytes 480 (480.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 8 bytes 480 (480.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

```

IPv4 Address = 10.0.2.15

IPv6 Address= fd17:625c:f037:2:d482:118d:cfe9:9836

Mac Address= ether 08:00:27:3f:f8:b5

Network Mask= 255.255.255.0

2.

```
└─$ route -n
Kernel IP routing table
Destination      Gateway          Genmask         Flags Metric Ref    Use Iface
0.0.0.0          10.0.2.2        0.0.0.0         UG    100    0      0 eth0
10.0.2.0         0.0.0.0         255.255.255.0   U     100    0      0 eth0
```

3.

```
└─(dom-davis@kali)-[~]
└─$ netstat -at
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
```

4.

```
└─(dom-davis@kali)-[~]
└─$ ping -c 10 ubuntu.com
PING ubuntu.com (185.125.190.20) 56(84) bytes of data.
```

5.

```
└─(dom-davis@kali)-[~]
└─$ host www.odu.edu
www.odu.edu has address 35.170.140.174
```

6.

```
└─(dom-davis@kali)-[~]
└─$ cat /etc/hostname
kali
```

7.

```
└─(dom-davis@kali)-[~]
└─$ cat /etc/resolv.conf
# Generated by NetworkManager
nameserver 192.168.1.1
```

8.

```
└─(dom-davis@kali)-[~]
└─$ sudo hostnamectl set-hostname ddavi105
[sudo] password for dom-davis:

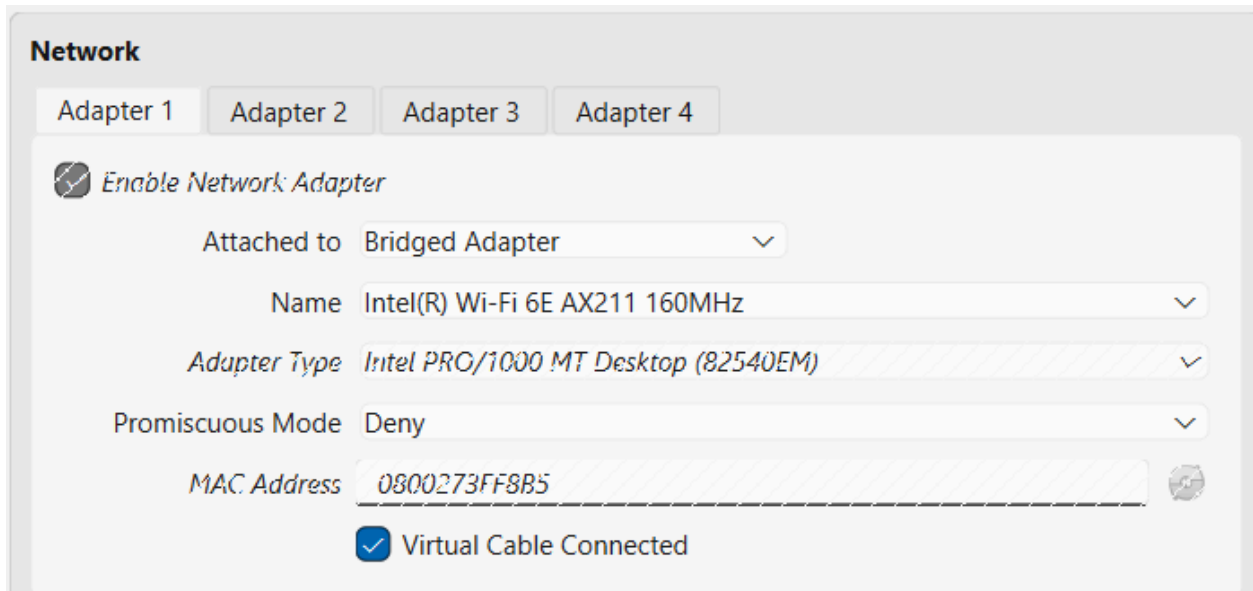
└─(dom-davis@kali)-[~]
└─$ cat /etc/hostname
ddavi105
```

```
└─(dom-davis@kali)-[~]
└─$ sudo reboot

└─(dom-davis@ddavi105)-[~]
└─$ cat /etc/hostname
ddavi105
```

Task B

1.



2.

```
(dom-davis@ddavi105)-[~]  
$ sudo reboot
```

3.

```
(dom-davis@ddavi105)-[~]
└─$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.1.89 netmask 255.255.255.0 broadcast 192.168.1.255
    inet6 fe80::a00:27ff:fe3f:f8b5 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:3f:f8:b5 txqueuelen 1000 (Ethernet)
    RX packets 178 bytes 32586 (31.8 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 30 bytes 4076 (3.9 KiB)
    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 8 bytes 480 (480.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 8 bytes 480 (480.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

1. Differences: IP 192.168.1.89 NAT uses internal IP; Bridged gets IP from physical network

```
(dom-davis@ddavi105)-[~]
└─$ route -n
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
0.0.0.0 192.168.1.1 0.0.0.0 UG 100 0 0 eth0
192.168.1.0 0.0.0.0 255.255.255.0 U 100 0 0 eth0
```

2. Gateway matches physical router and the key difference between NAT and Bridged is the different routing paths

```
(dom-davis@ddavi105)-[~]
└─$ netstat -at
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address Foreign Address State
```

3. Bridged mode exposes VM to LAN

```
(dom-davis@ddavi105)-[~]
└─$ ping -c 10 ubuntu.com
PING ubuntu.com (185.125.190.20) 56(84) bytes of data.
```

4. No Visible differences I've seen

```
(dom-davis@ddavi105)-[~]  
$ host www.odu.edu  
www.odu.edu has address 35.170.140.174
```

5.No changes

```
(dom-davis@ddavi105)-[~]  
$ cat /etc/hostname  
ddavi105
```

6.No changes

```
(dom-davis@ddavi105)-[~]  
$ cat /etc/resolv.conf  
# Generated by NetworkManager  
nameserver 192.168.1.1
```

7.No changes