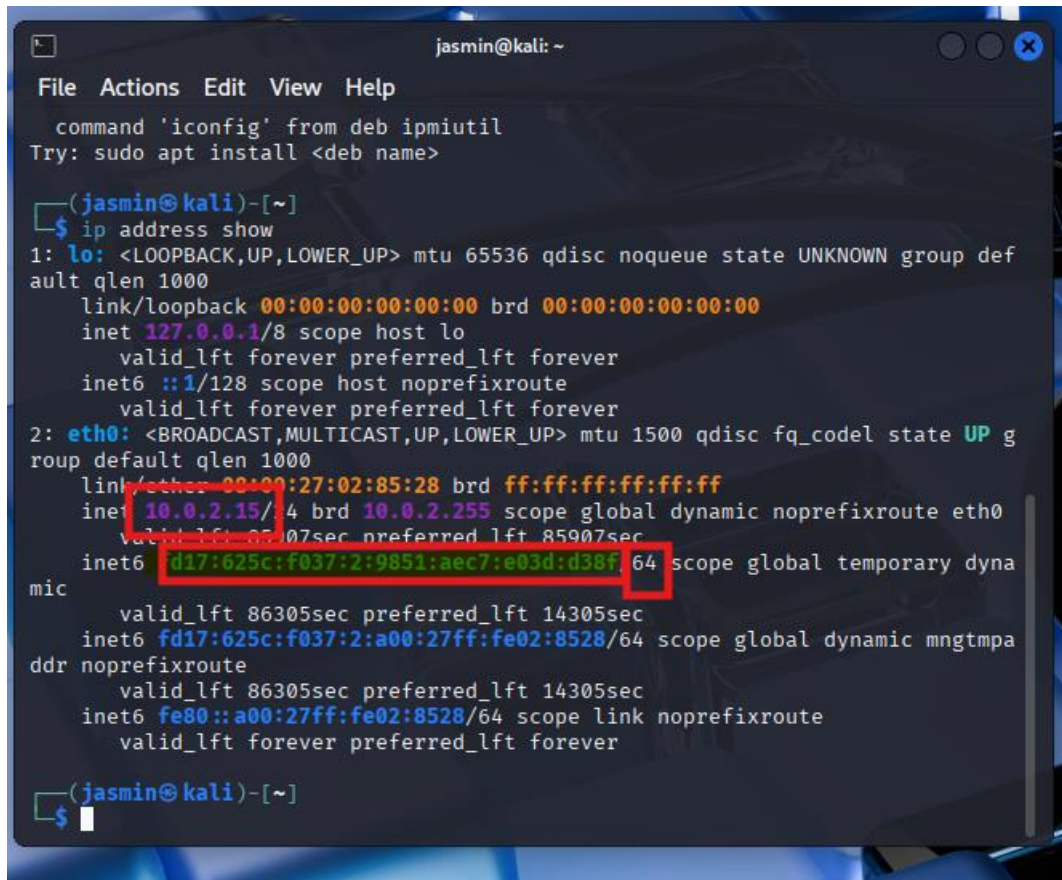


1. Use the correct ifconfig command to display the current network configuration. Highlight your IP address, MAC address, and the network mask.

The command that I used to display the current network configuration is **ip address show** which displays info such as the ip address, mac address, and lease times.



```
jasmin@kali: ~  
File Actions Edit View Help  
command 'iconfig' from deb ipmiutil  
Try: sudo apt install <deb name>  
  
(jasmin@kali)-[~]  
$ ip address show  
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group def  
ault 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 g  
roup default qlen 1000  
    link/ether 00:00:27:02:85:28 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 86305sec preferred_lft 85907sec  
    inet6 d17:625c:f037:2:9851:aec7:e03d:d38f/64 scope global temporary dyna  
mic  
        valid_lft 86305sec preferred_lft 14305sec  
    inet6 fd17:625c:f037:2:a00:27ff:fe02:8528/64 scope global dynamic mngtmpa  
ddr noprefixroute  
        valid_lft 86305sec preferred_lft 14305sec  
    inet6 fe80::a00:27ff:fe02:8528/64 scope link noprefixroute  
        valid_lft forever preferred_lft forever  
  
(jasmin@kali)-[~]  
$
```

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

To display the current routing table, I used the command **route**.

```
valid_lft forever preferred_lft forever
(jasmin@kali)-[~]
$ route
Kernel IP routing table
Destination    Gateway         Genmask         Flags Metric Ref    Use Iface
default        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
```

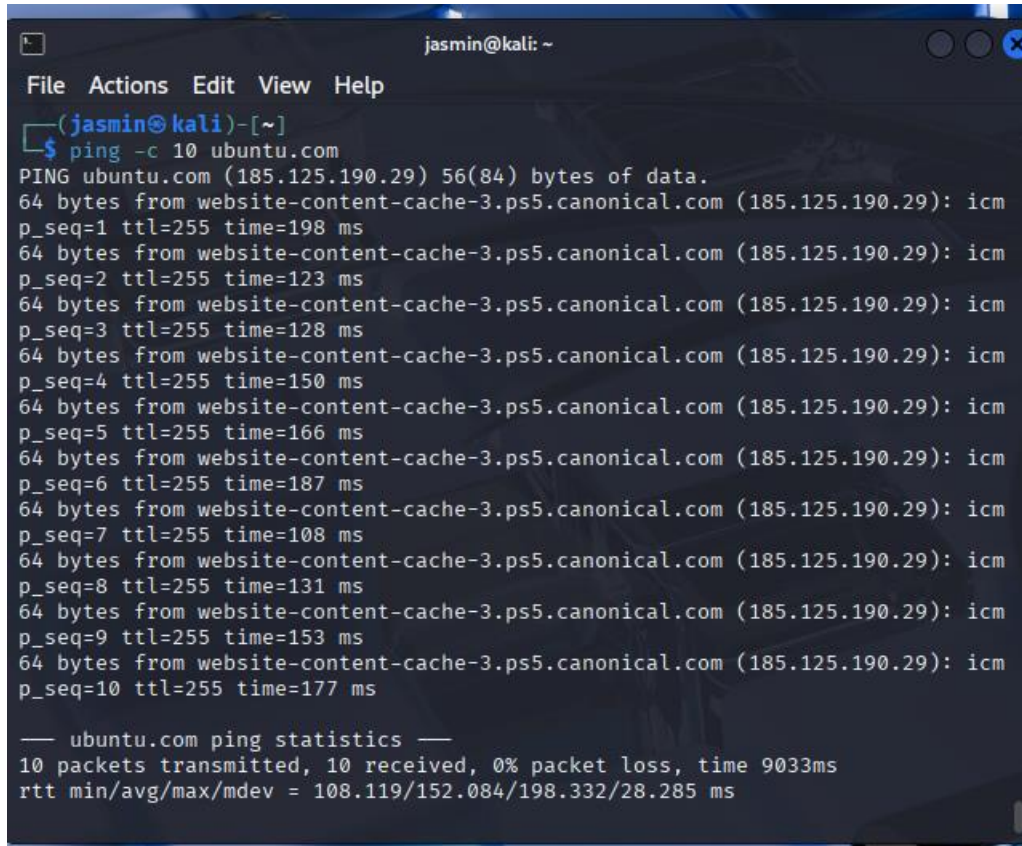
3. Use the netstat command to list current TCP connections.

To display the TCP connections, I used the **netstat -t** command.

```
(jasmin@kali)-[~]  
$ netstat -t  
Active Internet connections (w/o servers)  
Proto Recv-Q Send-Q Local Address           Foreign Address         State  
  
(jasmin@kali)-[~]
```

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.)

To determine if Ubuntu is accessible via the network, I used the command **ping -c 10 ubuntu.com**.

A terminal window titled 'jasmin@kali: ~' with a menu bar (File, Actions, Edit, View, Help). The prompt is '(jasmin@kali)-[~]'. The command '\$ ping -c 10 ubuntu.com' has been entered. The output shows 10 successful ping requests to ubuntu.com (185.125.190.29) via website-content-cache-3.ps5.canonical.com. Each request is 64 bytes, TTL is 255, and response times range from 108ms to 198ms. A summary line shows '10 packets transmitted, 10 received, 0% packet loss, time 9033ms' and 'rtt min/avg/max/mdev = 108.119/152.084/198.332/28.285 ms'.

```
File Actions Edit View Help
(jasmin@kali)-[~]
$ ping -c 10 ubuntu.com
PING ubuntu.com (185.125.190.29) 56(84) bytes of data.
64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp
p_seq=1 ttl=255 time=198 ms
64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp
p_seq=2 ttl=255 time=123 ms
64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp
p_seq=3 ttl=255 time=128 ms
64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp
p_seq=4 ttl=255 time=150 ms
64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp
p_seq=5 ttl=255 time=166 ms
64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp
p_seq=6 ttl=255 time=187 ms
64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp
p_seq=7 ttl=255 time=108 ms
64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp
p_seq=8 ttl=255 time=131 ms
64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp
p_seq=9 ttl=255 time=153 ms
64 bytes from website-content-cache-3.ps5.canonical.com (185.125.190.29): icmp
p_seq=10 ttl=255 time=177 ms

— ubuntu.com ping statistics —
10 packets transmitted, 10 received, 0% packet loss, time 9033ms
rtt min/avg/max/mdev = 108.119/152.084/198.332/28.285 ms
```

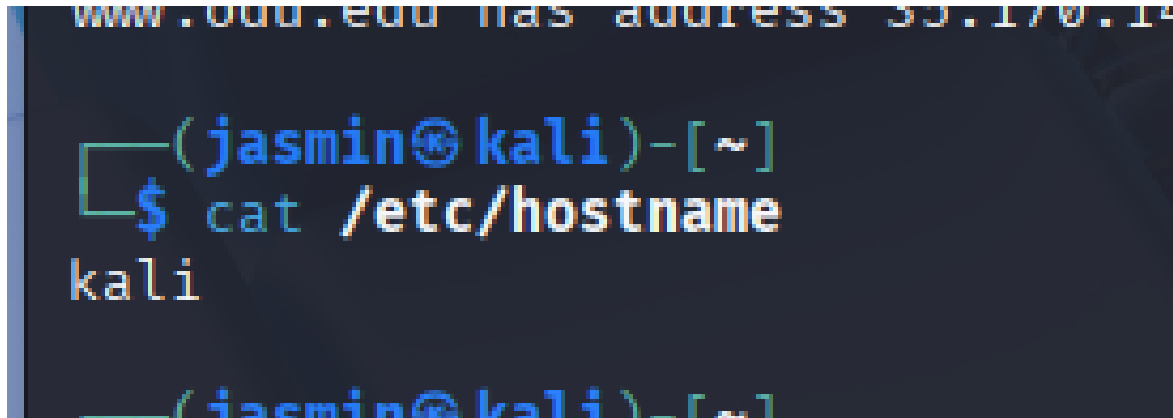
5. Use the host command to perform a DNS query on www.odu.edu

The command that I used to perform a DNS query on www.odu.edu is **host www.odu.edu**.

```
(jasmin@kali)-[~]  
$ host www.odu.edu  
www.odu.edu has address 35.170.140.174
```

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

The cat command that I used to display the contents of the file that contains the systems hostname is **cat /etc/hostname**.



```
www.000.edu has address 35.170.14  
  
(jasmin@kali)-[~]  
$ cat /etc/hostname  
kali  
  
(jasmin@kali)-[~]
```

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

The cat command that I used to display the contents of the file that contains the DNS servers for this system is `cat /etc/resolv.conf`

```
(jasmin@kali)-[~]  
$ cat /etc/resolv.conf  
# Generated by NetworkManager  
nameserver 10.0.2.3  
nameserver fd17:625c:f037:2::3
```

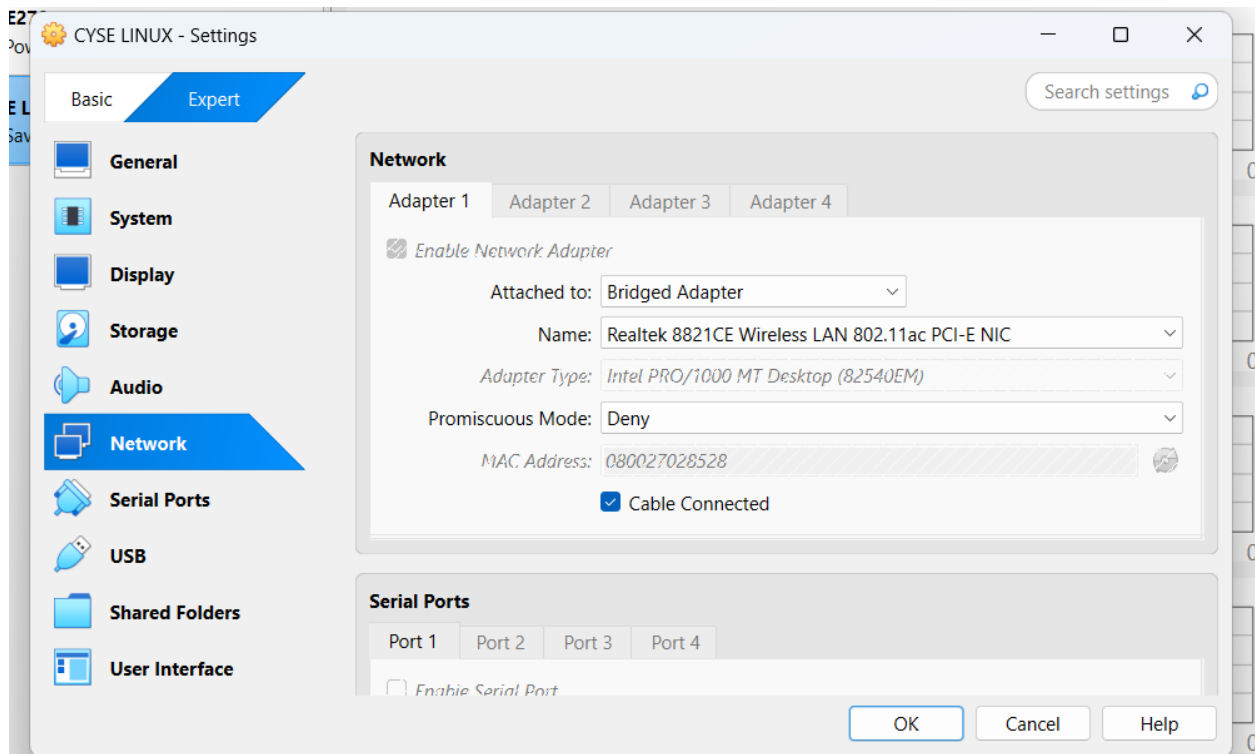
8. Edit the same file you display in the previous step, set the system's hostname to your MIDAS ID permanently. Reboot system and repeat step 6.

To type change the hostname, I would use command **hostname 0128060**.

```
(jasmin@kali)-[~]  
$ hostname 0128060  
hostname: you must be root to change the host name  
  
(jasmin@kali)-[~]  
$ sudo hostname 0128060  
[sudo] password for jasmin:  
Sorry, try again.  
[sudo] password for jasmin:
```


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).

To switch to bridge mode, I go to **settings > network> attached to:> and select bridged adapter.**



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.

Step 1.)

```
File Actions Edit View Help
└─$ ip address show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group def
ault 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 g
roup default qlen 1000
    link/ether 08:00:27:02:85:28 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 71880sec preferred_lft 71880sec
    inet6 fd17:625c:f037:2:2380:c158:9a97:6d1e/64 scope global temporary dyna
mic
        valid_lft 86282sec preferred_lft 14282sec
    inet6 fd17:625c:f037:2:a00:27ff:fe02:8528/64 scope global dynamic mngtmpa
ddr noprefixroute
        valid_lft 86282sec preferred_lft 14282sec
    inet6 2600:8805:1900:bb0:8ef4:29a5:11ce:c34e/64 scope global temporary dy
namic
        valid_lft 3600sec preferred_lft 3600sec
    inet6 2600:8805:1900:bb0:a00:27ff:fe02:8528/64 scope global dynamic mngtm
paddr noprefixroute
        valid_lft 3600sec preferred_lft 3600sec
    inet6 fe80::a00:27ff:fe02:8528/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
```

Step 2.)

```
valid_ttl forever preferred_ttl forever  
└─(jasmin@kali)-[~]  
└─$ route  
Kernel IP routing table  
Destination      Gateway          Genmask          Flags  Metric  Ref    Use Iface  
default          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  
└─(jasmin@kali)-[~]
```

Step 3.)

```
10.0.2.15      0.0.0.0      255.255.255.0      0      100      0      0      eth0

(jasmin@kali)-[~]
$ netstat -t
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
(jasmin@kali)-[~]
```

Step 4.)

```
parole
(jasmin@kali)-[~]
$ ping -c 10 ubuntu.com
PING ubuntu.com (2620:2d:4000:1::26) 56 data bytes
64 bytes from website-content-cache-1.canonical.com (2620:2d:4000:1::26): icmp
p_seq=1 ttl=50 time=202 ms
64 bytes from website-content-cache-1.canonical.com (2620:2d:4000:1::26): icmp
p_seq=2 ttl=50 time=205 ms
64 bytes from website-content-cache-1.canonical.com (2620:2d:4000:1::26): icmp
p_seq=3 ttl=50 time=124 ms
64 bytes from website-content-cache-1.canonical.com (2620:2d:4000:1::26): icmp
p_seq=4 ttl=50 time=148 ms
64 bytes from website-content-cache-1.canonical.com (2620:2d:4000:1::26): icmp
p_seq=5 ttl=50 time=170 ms
64 bytes from website-content-cache-1.canonical.com (2620:2d:4000:1::26): icmp
p_seq=6 ttl=50 time=193 ms
64 bytes from website-content-cache-1.canonical.com (2620:2d:4000:1::26): icmp
p_seq=7 ttl=50 time=114 ms
64 bytes from website-content-cache-1.canonical.com (2620:2d:4000:1::26): icmp
p_seq=8 ttl=50 time=138 ms
64 bytes from website-content-cache-1.canonical.com (2620:2d:4000:1::26): icmp
p_seq=9 ttl=50 time=175 ms
64 bytes from website-content-cache-1.canonical.com (2620:2d:4000:1::26): icmp
p_seq=10 ttl=50 time=181 ms

— ubuntu.com ping statistics —
```

Step 5.)

```
(jasmin@kali)-[~]  
$ host www.odu.edu  
  
;; communications error to 10.0.2.3#53: host unreachable  
;; communications error to 10.0.2.3#53: host unreachable  
www.odu.edu has address 35.170.140.174  
;; communications error to 10.0.2.3#53: host unreachable  
;; communications error to 10.0.2.3#53: host unreachable  
;; communications error to 10.0.2.3#53: host unreachable  
█
```

Step 6.)

```
(jasmin@kali)-[~]  
$ cat /etc/hostname  
kali
```

Step 7.)

```
(jasmin@kali)-[~]  
$ cat /etc/resolv.conf  
# Generated by NetworkManager  
nameserver 10.0.2.3  
nameserver 2001:578:3f::30  
nameserver 2001:578:3f:1::30  
# NOTE: the libc resolver may not support more than 3 nameservers.  
# The nameservers listed below may not be recognized.  
nameserver fd17:625c:f037:2::3
```