Experiment No. 5

Aim: To set up multiple IP addresses on a single LAN and using netstat and route commands viewing current routing table.

Requirement: Windows/Linux/MAC OS in PC/Laptop, compatible version of terminal in OS.

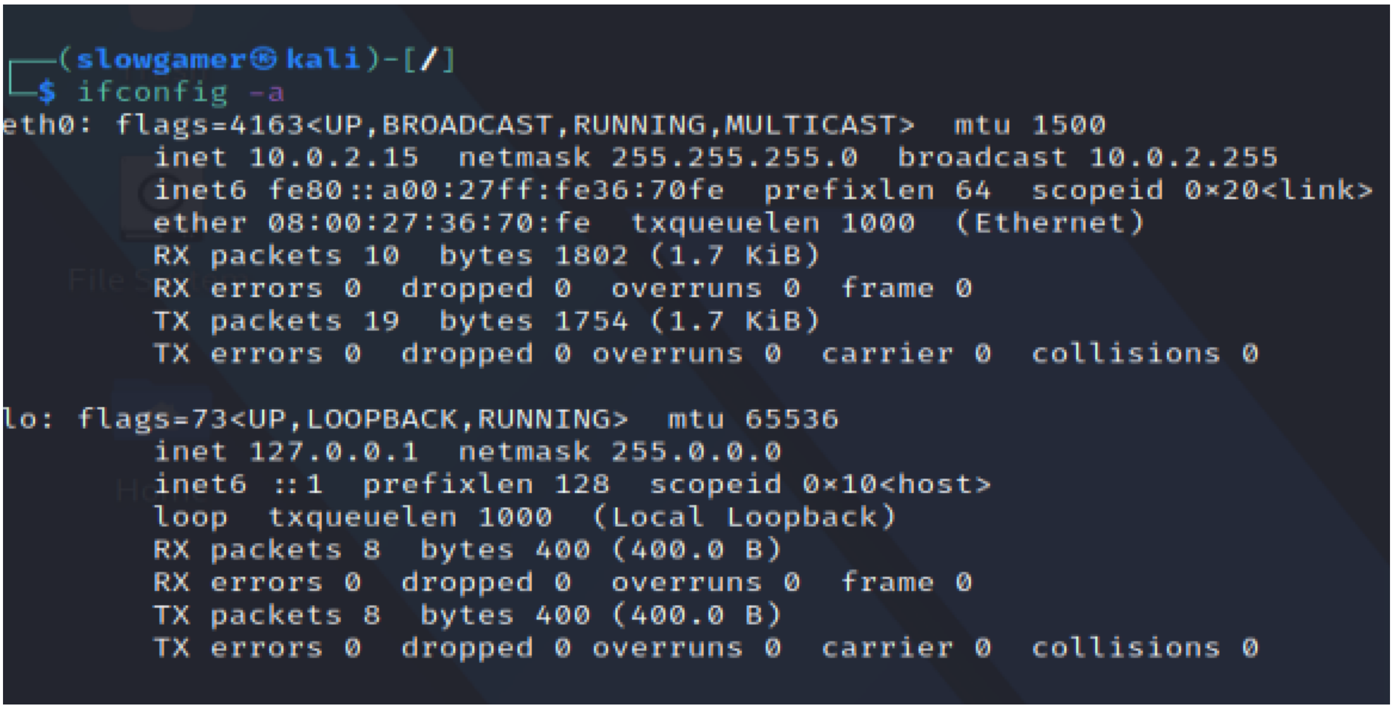
Theory:

The concept of creating or configuring multiple IP addresses on a single network interface is called IP aliasing. IP aliasing is very useful for setting up multiple virtual sites on Apache using one single network interface with different IP addresses on a single subnet network.

The main advantage of using this IP aliasing is, you don't need to have a physical adapter attached to each IP, but instead you can create multiple or many virtual interfaces (aliases) to a single physical card.

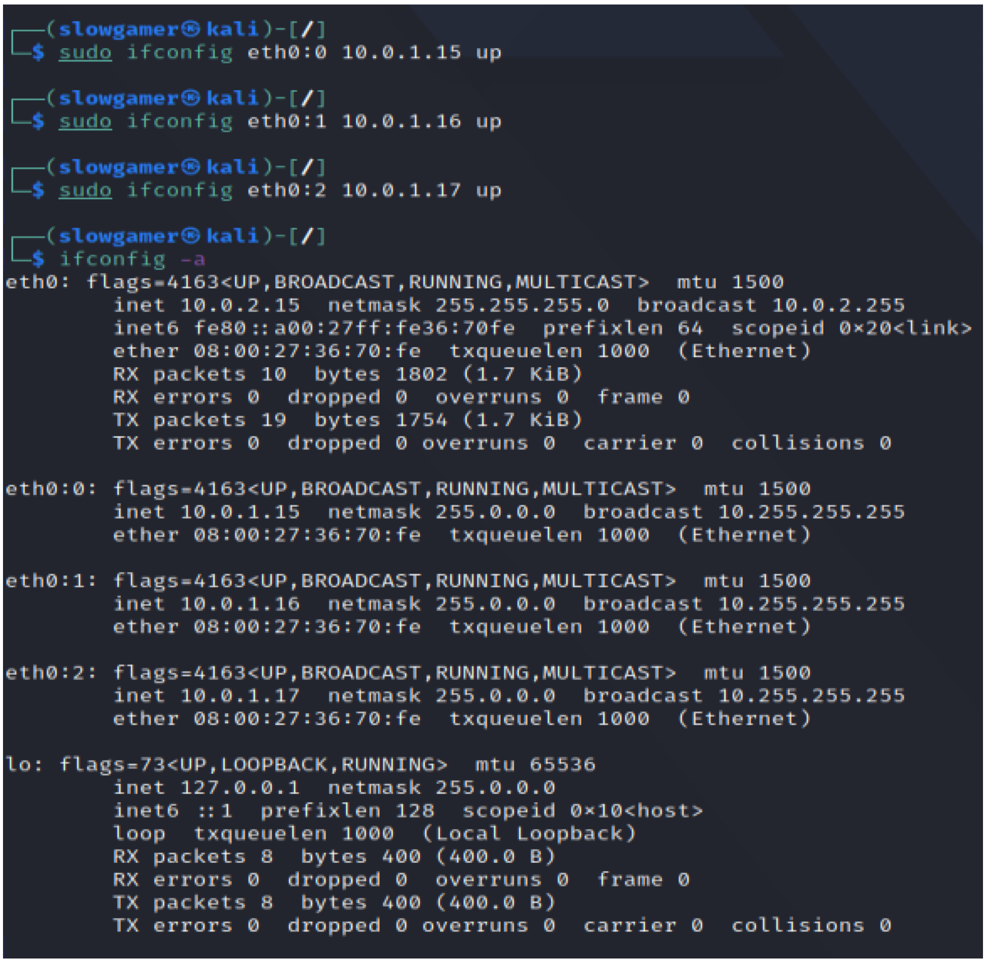
Below we create virtual interface and assign multiple IP Address in Kali Linux:

1) Before ipaliasing:



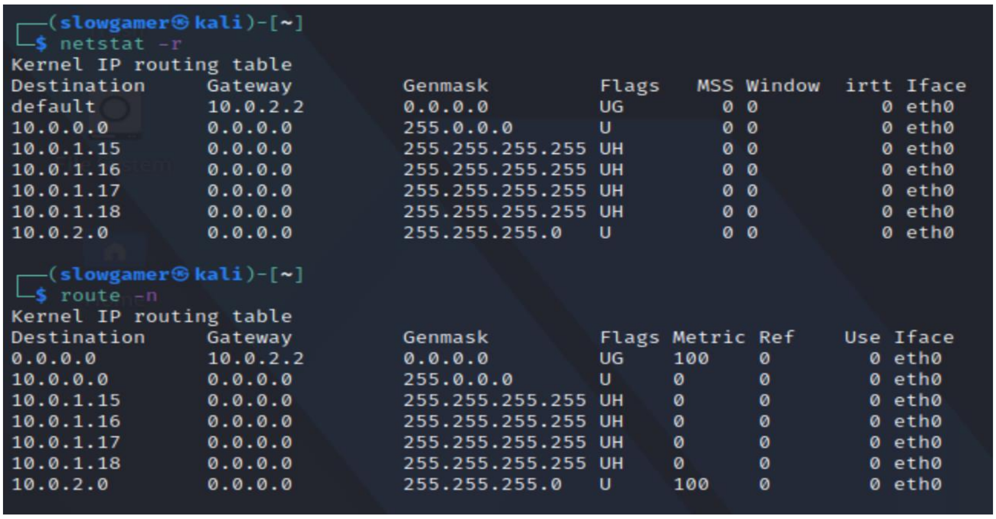
```
┌──(slowgamer㉿kali)-[/]
└─$ ifconfig -a
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.2.15  netmask 255.255.255.0  broadcast 10.0.2.255
        inet6 fe80::a00:27ff:fe36:70fe  prefixlen 64  scopeid 0×20<link>
        ether 08:00:27:36:70:fe  txqueuelen 1000  (Ethernet)
        RX packets 10  bytes 1802 (1.7 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 19  bytes 1754 (1.7 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 0×10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 8  bytes 400 (400.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 8  bytes 400 (400.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

2) After ipaliasing:



```
┌──(slowgamer㉿kali)-[/]
└─$ sudo ifconfig eth0:0 10.0.1.15 up

┌──(slowgamer㉿kali)-[/]
└─$ sudo ifconfig eth0:1 10.0.1.16 up

┌──(slowgamer㉿kali)-[/]
└─$ sudo ifconfig eth0:2 10.0.1.17 up

┌──(slowgamer㉿kali)-[/]
└─$ ifconfig -a
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 fe80::a00:27ff:fe36:70fe  prefixlen 64  scopeid 0x20<link>
        ether 08:00:27:36:70:fe  txqueuelen 1000  (Ethernet)
        RX packets 10  bytes 1802 (1.7 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 19  bytes 1754 (1.7 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

eth0:0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.1.15  netmask 255.0.0.0  broadcast 10.255.255.255
        ether 08:00:27:36:70:fe  txqueuelen 1000  (Ethernet)

eth0:1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.1.16  netmask 255.0.0.0  broadcast 10.255.255.255
        ether 08:00:27:36:70:fe  txqueuelen 1000  (Ethernet)

eth0:2: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.1.17  netmask 255.0.0.0  broadcast 10.255.255.255
        ether 08:00:27:36:70:fe  txqueuelen 1000  (Ethernet)

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 400 (400.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 8  bytes 400 (400.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

3) Netstat and route command:



```
┌──(slowgamer㉿kali)-[~]
└─$ netstat -r
Kernel IP routing table
Destination     Gateway         Genmask         Flags   MSS Window  irtt Iface
default         10.0.2.2        0.0.0.0         UG        0 0          0 eth0
10.0.0.0        0.0.0.0         255.0.0.0       U         0 0          0 eth0
10.0.1.15       0.0.0.0         255.255.255.255 UH        0 0          0 eth0
10.0.1.16       0.0.0.0         255.255.255.255 UH        0 0          0 eth0
10.0.1.17       0.0.0.0         255.255.255.255 UH        0 0          0 eth0
10.0.1.18       0.0.0.0         255.255.255.255 UH        0 0          0 eth0
10.0.2.0        0.0.0.0         255.255.255.0   U         0 0          0 eth0

┌──(slowgamer㉿kali)-[~]
└─$ 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
10.0.0.0        0.0.0.0         255.0.0.0       U     0      0        0 eth0
10.0.1.15       0.0.0.0         255.255.255.255 UH    0      0        0 eth0
10.0.1.16       0.0.0.0         255.255.255.255 UH    0      0        0 eth0
10.0.1.17       0.0.0.0         255.255.255.255 UH    0      0        0 eth0
10.0.1.18       0.0.0.0         255.255.255.255 UH    0      0        0 eth0
10.0.2.0        0.0.0.0         255.255.255.0   U     100    0        0 eth0
```

Conclusion: We have successfully added Multiple IP addresses to single NIC in Kali Linux OS and using netstat and route command we have displayed routing table.