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## Experiment No. 03

**Aim:** Using netstat and route commands of Linux. To Perform packet filtering by enabling IP forwarding using IPtables in Linux.

### Outcomes :

#### Method 1: Through the netstat command

```
apsit@apsit-HP-280-G3-MT:~$ netstat -rn
Kernel IP routing table
Destination        Gateway            Genmask           Flags   MSS Window  irtt Iface
0.0.0.0            192.168.192.193   0.0.0.0           UG        0  0          0 enp4s0
169.254.0.0        0.0.0.0           255.255.0.0       U          0  0          0 enp4s0
192.168.0.0        0.0.0.0           255.255.0.0       U          0  0          0 enp4s0
apsit@apsit-HP-280-G3-MT:~$
```

#### Method 2: Through the route command

```
apsit@apsit-HP-280-G3-MT:~$ route -n
Kernel IP routing table
Destination        Gateway            Genmask           Flags Metric Ref    Use Iface
0.0.0.0            192.168.192.193   0.0.0.0           UG    100    0      0 enp4s0
169.254.0.0        0.0.0.0           255.255.0.0       U     1000    0      0 enp4s0
192.168.0.0        0.0.0.0           255.255.0.0       U     100    0      0 enp4s0
apsit@apsit-HP-280-G3-MT:~$
```

#### Method 3: Through the ip route command

```
apsit@apsit-HP-280-G3-MT:~$ ip route
default via 192.168.192.193 dev enp4s0 proto static metric 100
169.254.0.0/16 dev enp4s0 scope link metric 1000
192.168.0.0/16 dev enp4s0 proto kernel scope link src 192.168.99.6 metric 100
apsit@apsit-HP-280-G3-MT:~$
```

### Adding a static route using IP command

```
apsit@apsit-HP-280-G3-MT:~$ sudo ip route add 10.0.2.0 via 192.168.43.223 dev enp4s0
apsit@apsit-HP-280-G3-MT:~$ route -n
Kernel IP routing table
Destination        Gateway            Genmask           Flags Metric Ref    Use Iface
0.0.0.0            192.168.192.193   0.0.0.0           UG    20100  0      0 enp4s0
10.0.2.0           192.168.43.223    255.255.255.255   UGH    0      0      0 enp4s0
169.254.0.0        0.0.0.0           255.255.0.0       U     1000    0      0 enp4s0
192.168.0.0        0.0.0.0           255.255.0.0       U     100    0      0 enp4s0
apsit@apsit-HP-280-G3-MT:~$ sudo ip route add 10.0.2.0/24 via 192.168.43.223 dev enp4s0
apsit@apsit-HP-280-G3-MT:~$ route -n
Kernel IP routing table
Destination        Gateway            Genmask           Flags Metric Ref    Use Iface
0.0.0.0            192.168.192.193   0.0.0.0           UG    20100  0      0 enp4s0
10.0.2.0           192.168.43.223    255.255.255.255   UGH    0      0      0 enp4s0
10.0.2.0           192.168.43.223    255.255.255.0     UG     0      0      0 enp4s0
169.254.0.0        0.0.0.0           255.255.0.0       U     1000    0      0 enp4s0
192.168.0.0        0.0.0.0           255.255.0.0       U     100    0      0 enp4s0
apsit@apsit-HP-280-G3-MT:~$
```

## Deleting a static route using IP command

```
apsit@apsit-HP-280-G3-MT:~$ sudo ip route delete 10.0.2.0 via 192.168.43.223 dev enp4s0
apsit@apsit-HP-280-G3-MT:~$ route -n
Kernel IP routing table
Destination      Gateway          Genmask          Flags Metric Ref    Use Iface
0.0.0.0          192.168.192.193 0.0.0.0          UG    20100 0      0 enp4s0
10.0.2.0         192.168.43.223 255.255.255.0    UG    0      0      0 enp4s0
169.254.0.0      0.0.0.0         255.255.0.0      U     1000  0      0 enp4s0
192.168.0.0      0.0.0.0         255.255.0.0      U     100   0      0 enp4s0
```

## To set default gateway-

```
apsit@apsit-HP-280-G3-MT:~$ sudo route add default gw 192.168.1.254
apsit@apsit-HP-280-G3-MT:~$ route -n
Kernel IP routing table
Destination      Gateway          Genmask          Flags Metric Ref    Use Iface
0.0.0.0          192.168.1.254   0.0.0.0          UG    0      0      0 enp4s0
0.0.0.0          192.168.192.193 0.0.0.0          UG   20100 0      0 enp4s0
10.0.2.0         192.168.43.223 255.255.255.0    UG    0      0      0 enp4s0
169.254.0.0      0.0.0.0         255.255.0.0      U     1000  0      0 enp4s0
192.168.0.0      0.0.0.0         255.255.0.0      U     100   0      0 enp4s0
```



This site can't be reached

<http://google.com/> is unreachable.

ERR\_ADDRESS\_UNREACHABLE

Reload

## To delete default gateway-

```
apsit@apsit-HP-280-G3-MT:~$ sudo route delete default gw 192.168.1.254
apsit@apsit-HP-280-G3-MT:~$ route -n
Kernel IP routing table
Destination      Gateway          Genmask          Flags Metric Ref    Use Iface
0.0.0.0          192.168.192.193 0.0.0.0          UG    20100 0      0 enp4s0
10.0.2.0         192.168.43.223 255.255.255.0    UG    0      0      0 enp4s0
169.254.0.0      0.0.0.0         255.255.0.0      U     1000  0      0 enp4s0
192.168.0.0      0.0.0.0         255.255.0.0      U     100   0      0 enp4s0
```

Google



Google Search

I'm Feeling Lucky

To check current iptable rule-

```
apsit@apsit-HP-280-G3-MT:~$ sudo iptables -L
Chain INPUT (policy ACCEPT)
target     prot opt source                destination

Chain FORWARD (policy ACCEPT)
target     prot opt source                destination

Chain OUTPUT (policy ACCEPT)
target     prot opt source                destination
```

To drop forward chain-(It drops packets for router )

```
apsit@apsit-HP-280-G3-MT:~$ sudo iptables -P FORWARD DROP
apsit@apsit-HP-280-G3-MT:~$ sudo iptables -L
Chain INPUT (policy ACCEPT)
target     prot opt source                destination

Chain FORWARD (policy DROP)
target     prot opt source                destination

Chain OUTPUT (policy ACCEPT)
target     prot opt source                destination
```

To drop packets incoming from specific ip address-

```
apsit@apsit-HP-280-G3-MT:~$ sudo iptables -A INPUT -s 192.168.0.23 -j DROP
apsit@apsit-HP-280-G3-MT:~$ sudo iptables -L
Chain INPUT (policy ACCEPT)
target     prot opt source                destination
DROP      all  --  192.168.0.23          anywhere

Chain FORWARD (policy ACCEPT)
target     prot opt source                destination

Chain OUTPUT (policy ACCEPT)
target     prot opt source                destination
```

To drop packets from particular network :

```
apsit@apsit-HP-280-G3-MT:~$ sudo iptables -A INPUT -s 192.168.0.23 -p tcp --destination-port 25 -j DROP
apsit@apsit-HP-280-G3-MT:~$ sudo iptables -L
Chain INPUT (policy ACCEPT)
target     prot opt source                destination
DROP      all  --  192.168.0.23          anywhere
DROP      tcp  --  192.168.0.23          anywhere          tcp dpt:smtp

Chain FORWARD (policy ACCEPT)
target     prot opt source                destination

Chain OUTPUT (policy ACCEPT)
target     prot opt source                destination
```