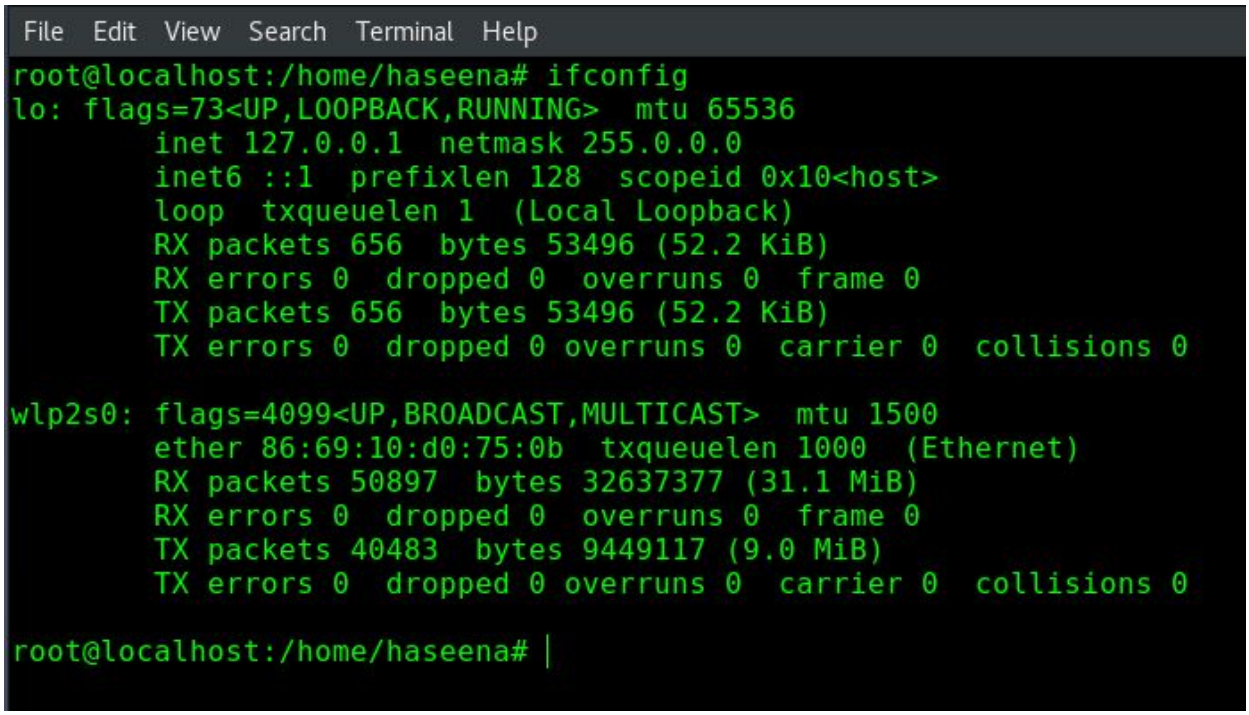
EXPT NO : 2 **REPORT**

DATE :21/02/2019

AIM : **To set up the complete network interface by configuring services such as gateway , DNS , IPtables etc. using ifconfig**

1. Ifconfig : to configure,assign,add,delete,control and query network interface in Unix/Linux machine.



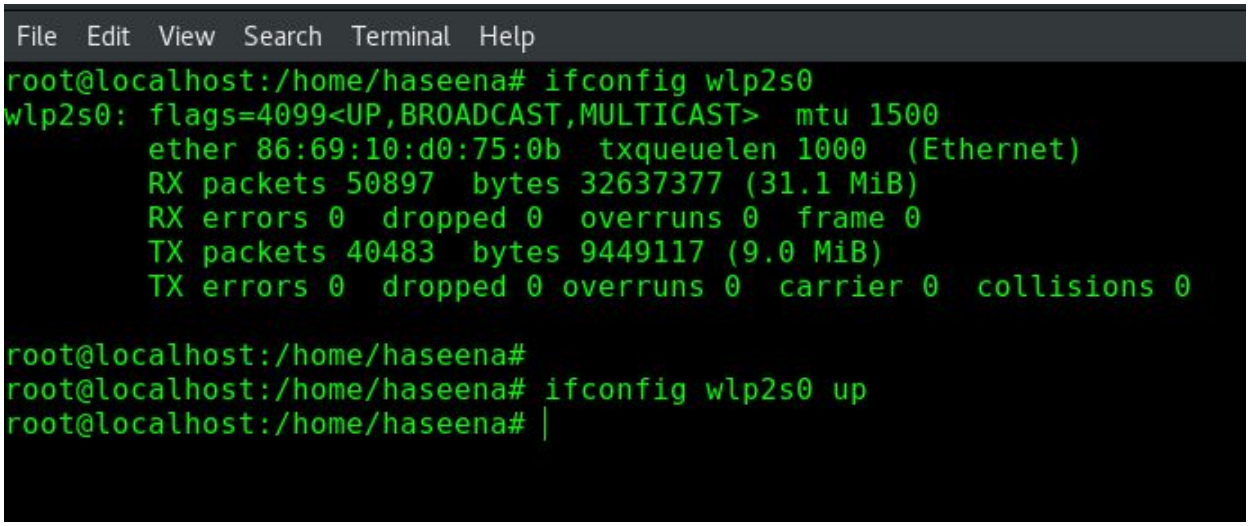
2. **ifconfig -a :** view details of all interface including the disabled ones

```
File  Edit  View  Search  Terminal  Help
root@localhost:/home/haseena# ifconfig -a
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 1  (Local Loopback)
        RX packets 656  bytes 53496 (52.2 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 656  bytes 53496 (52.2 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

wlp2s0: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        ether 86:69:10:d0:75:0b  txqueuelen 1000  (Ethernet)
        RX packets 50897  bytes 32637377 (31.1 MiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 40483  bytes 9449117 (9.0 MiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

root@localhost:/home/haseena#
```

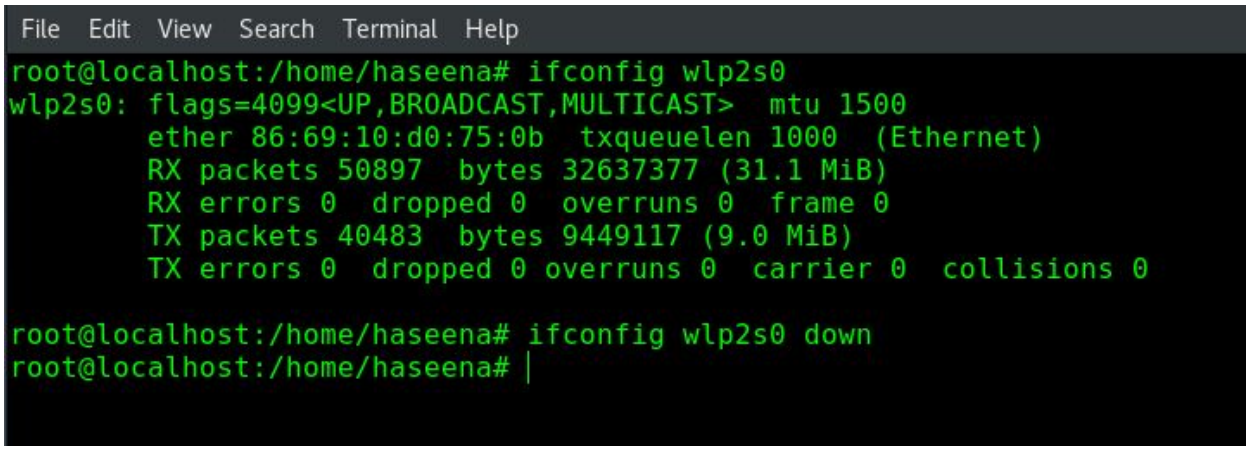
3. **ifconfig <interface> :** view the details of the specified interface

```
File  Edit  View  Search  Terminal  Help
root@localhost:/home/haseena# ifconfig wlp2s0
wlp2s0: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        inet 192.168.1.2  netmask 255.255.255.0  broadcast 192.168.1.255
        ether d2:bf:d3:b0:cb:e4  txqueuelen 1000  (Ethernet)
        RX packets 50897  bytes 32637377 (31.1 MiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 40483  bytes 9449117 (9.0 MiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

root@localhost:/home/haseena# ifconfig wlp2s0 mtu 1450
root@localhost:/home/haseena# ifconfig wlp2s0
wlp2s0: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1450
        inet 192.168.1.2  netmask 255.255.255.0  broadcast 192.168.1.255
        ether d2:bf:d3:b0:cb:e4  txqueuelen 1000  (Ethernet)
        RX packets 50897  bytes 32637377 (31.1 MiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 40483  bytes 9449117 (9.0 MiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

root@localhost:/home/haseena#
```

4. **ifconfig <interface> up:** enable an interface



5. **ifconfig <interface> down:** disable an interface



6. **ifconfig <interface> <ip>:** assign ip address to interface
   ifconfig <interface> netmask <>: change subnet mask of the interface
   ifconfig <interface> broadcast <>:change broadcast address of interface

```
File  Edit  View  Search  Terminal  Help
root@localhost:/home/haseena# ifconfig wlp2s0 192.168.1.1
root@localhost:/home/haseena# ifconfig wlp2s0 netmask 255.255.255.0
root@localhost:/home/haseena# ifconfig wlp2s0 broadcast 192.168.1.255
root@localhost:/home/haseena# ifconfig wlp2s0
wlp2s0: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        inet 192.168.1.1  netmask 255.255.255.0  broadcast 192.168.1.255
        ether 9a:8c:97:f6:25:10  txqueuelen 1000  (Ethernet)
        RX packets 50897  bytes 32637377 (31.1 MiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 40483  bytes 9449117 (9.0 MiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

root@localhost:/home/haseena#
```

7. ifconfig <interface> netmask <> broadcast <>: assign ip-address, netmask and broadcast at the same time to the interface

```
File  Edit  View  Search  Terminal  Help
root@localhost:/home/haseena# ifconfig wlp2s0 192.168.1.2 netmask 255.255.255.0 broadcast 192.168.1.255
root@localhost:/home/haseena# ifconfig wlp2s0
wlp2s0: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        inet 192.168.1.2  netmask 255.255.255.0  broadcast 192.168.1.255
        ether f2:fc:c5:ac:be:22  txqueuelen 1000  (Ethernet)
        RX packets 50897  bytes 32637377 (31.1 MiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 40483  bytes 9449117 (9.0 MiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

root@localhost:/home/haseena#
```

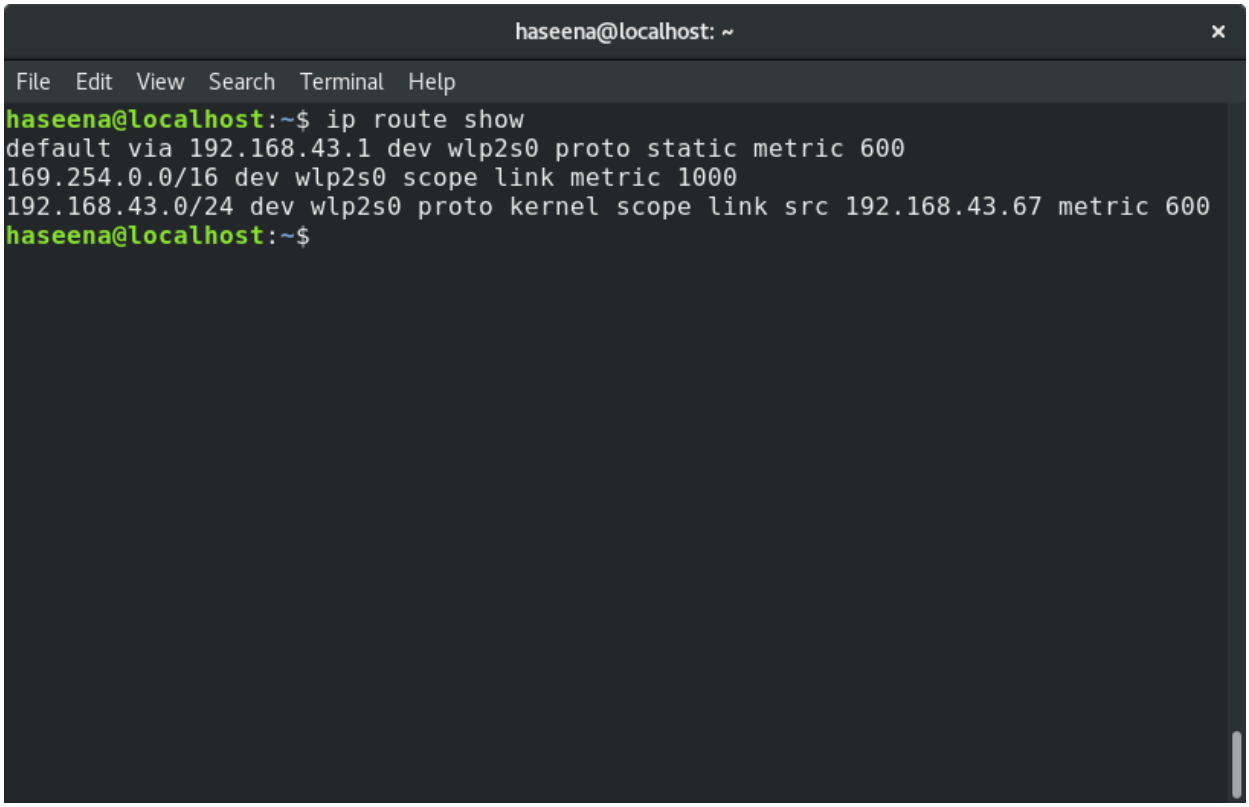
8. ifconfig <interface> mtu <> : change mtu of the network interface

```
File  Edit  View  Search  Terminal  Help
root@localhost:/home/haseena# ifconfig wlp2s0
wlp2s0: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        inet 192.168.1.2  netmask 255.255.255.0  broadcast 192.168.1.255
        ether d2:bf:d3:b0:cb:e4  txqueuelen 1000  (Ethernet)
        RX packets 50897  bytes 32637377 (31.1 MiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 40483  bytes 9449117 (9.0 MiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

root@localhost:/home/haseena# ifconfig wlp2s0 mtu 1450
root@localhost:/home/haseena# ifconfig wlp2s0
wlp2s0: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1450
        inet 192.168.1.2  netmask 255.255.255.0  broadcast 192.168.1.255
        ether d2:bf:d3:b0:cb:e4  txqueuelen 1000  (Ethernet)
        RX packets 50897  bytes 32637377 (31.1 MiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 40483  bytes 9449117 (9.0 MiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

root@localhost:/home/haseena#
```

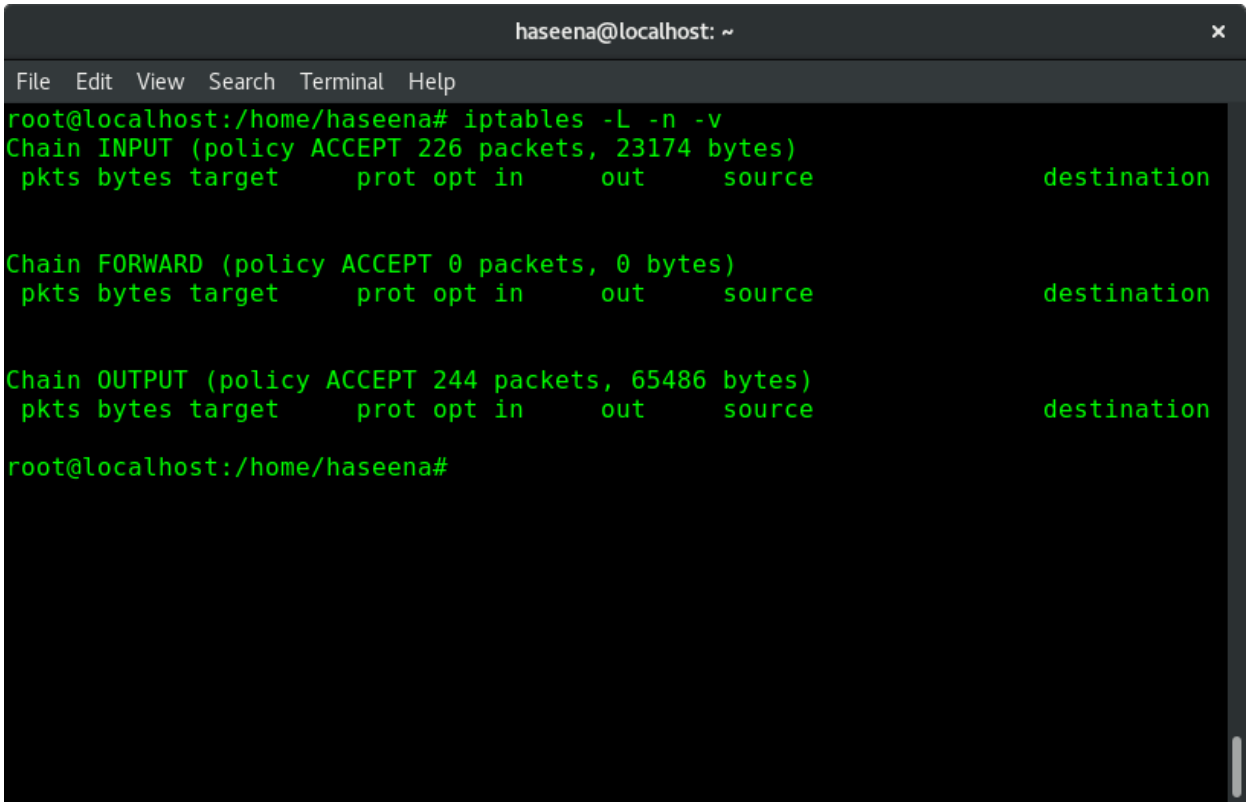
9. **ip addr show :**Look at protocol addresses or flush protocol addresses.

```
haseena@localhost: ~
File  Edit  View  Search  Terminal  Help
haseena@localhost:~$
haseena@localhost:~$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group defaul
t qlen 1
    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
       valid_lft forever preferred_lft forever
2: wlp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group de
fault qlen 1000
    link/ether 00:21:6a:e7:97:f3 brd ff:ff:ff:ff:ff:ff
    inet 192.168.43.67/24 brd 192.168.43.255 scope global dynamic wlp2s0
       valid_lft 2606sec preferred_lft 2606sec
    inet6 fe80::e60f:9999:83df:5f25/64 scope link
       valid_lft forever preferred_lft forever
haseena@localhost:~$
```

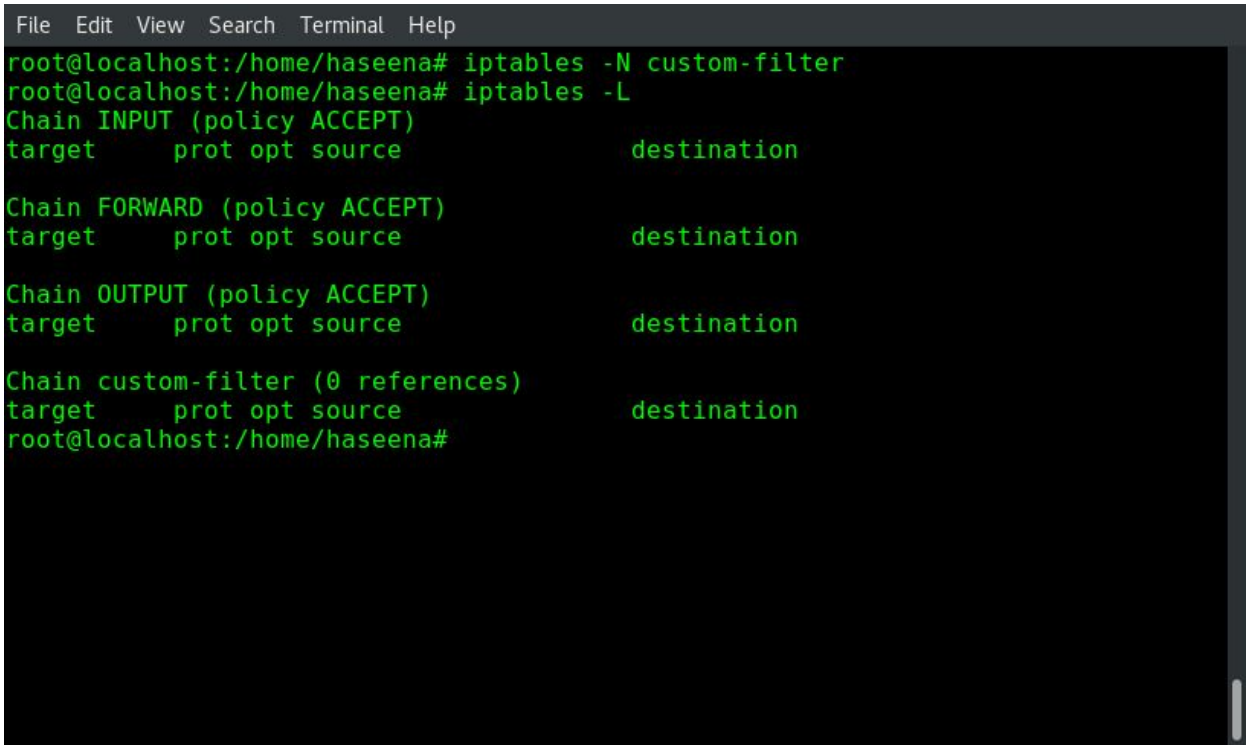
10. ip route show: Manipulate route entries in the kernel routing tables keep information about paths to other networked nodes.



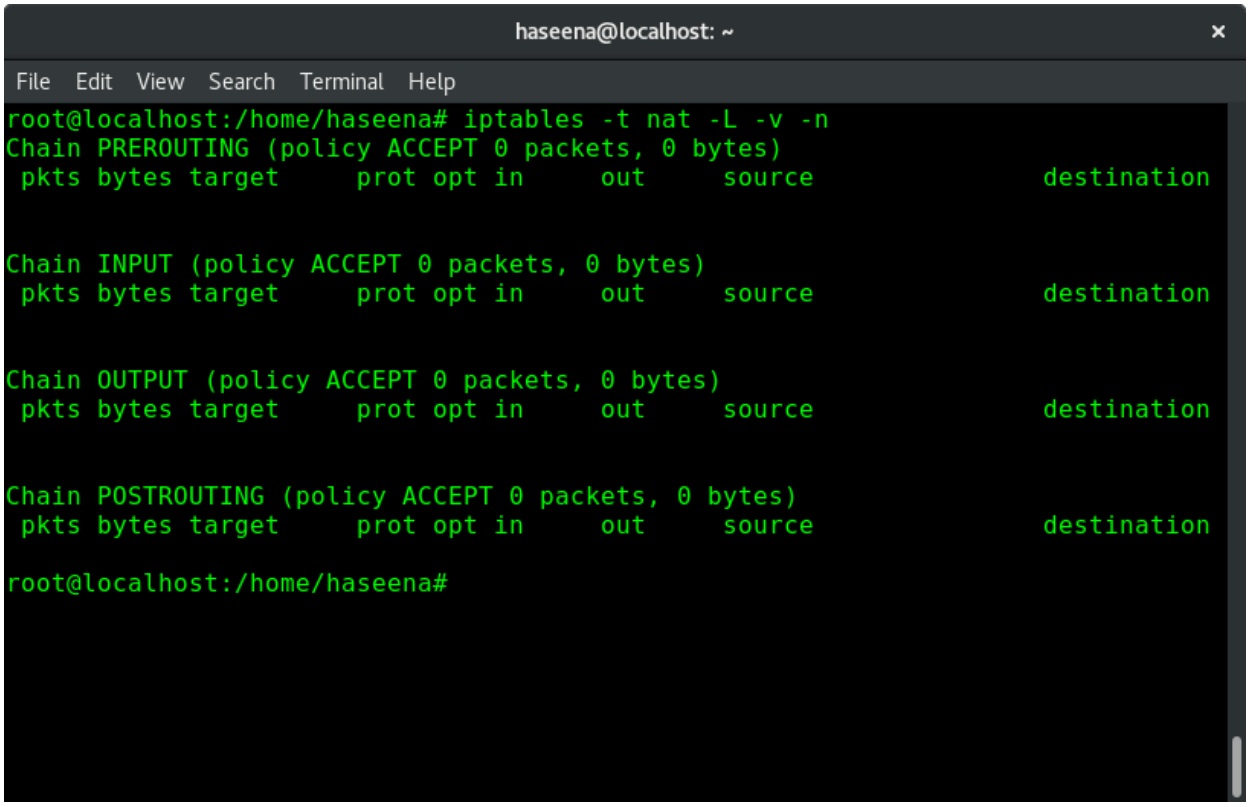
11. iptables -L -n -v :



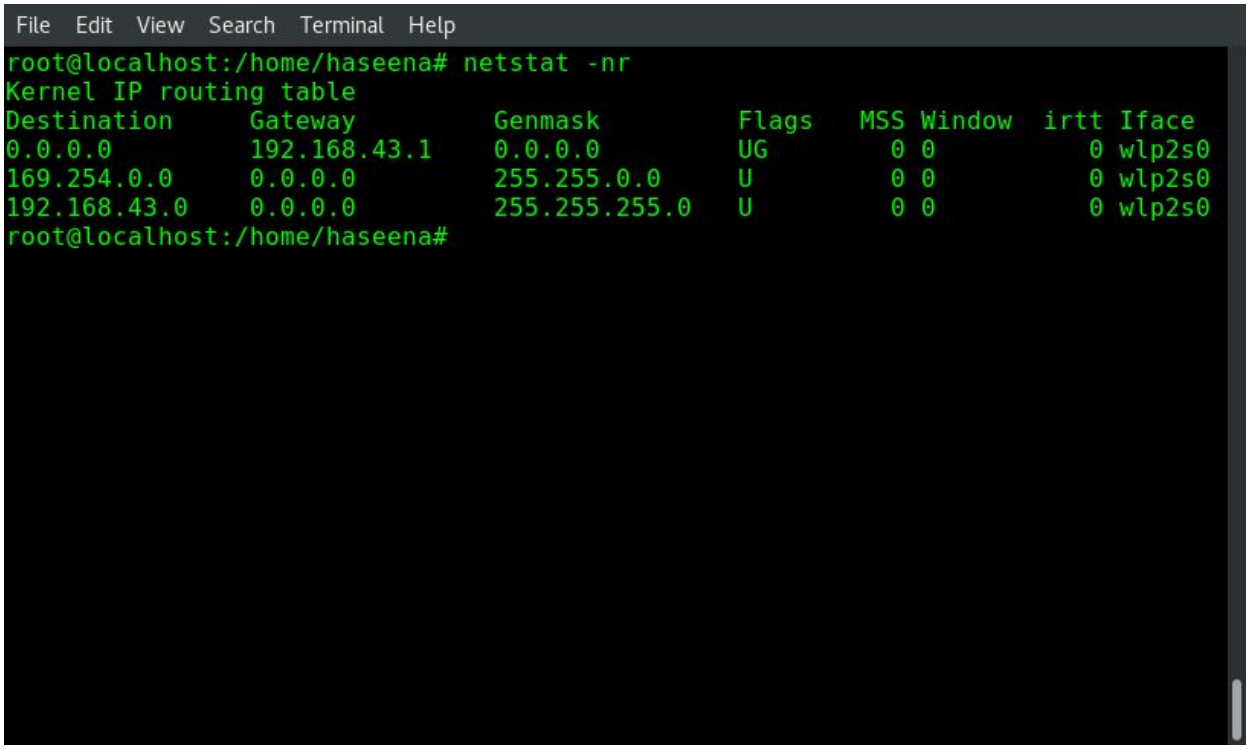
12. iptables -N custom-filter :is used to make decisions about whether to let a packet continue to its intended destination or to deny its request



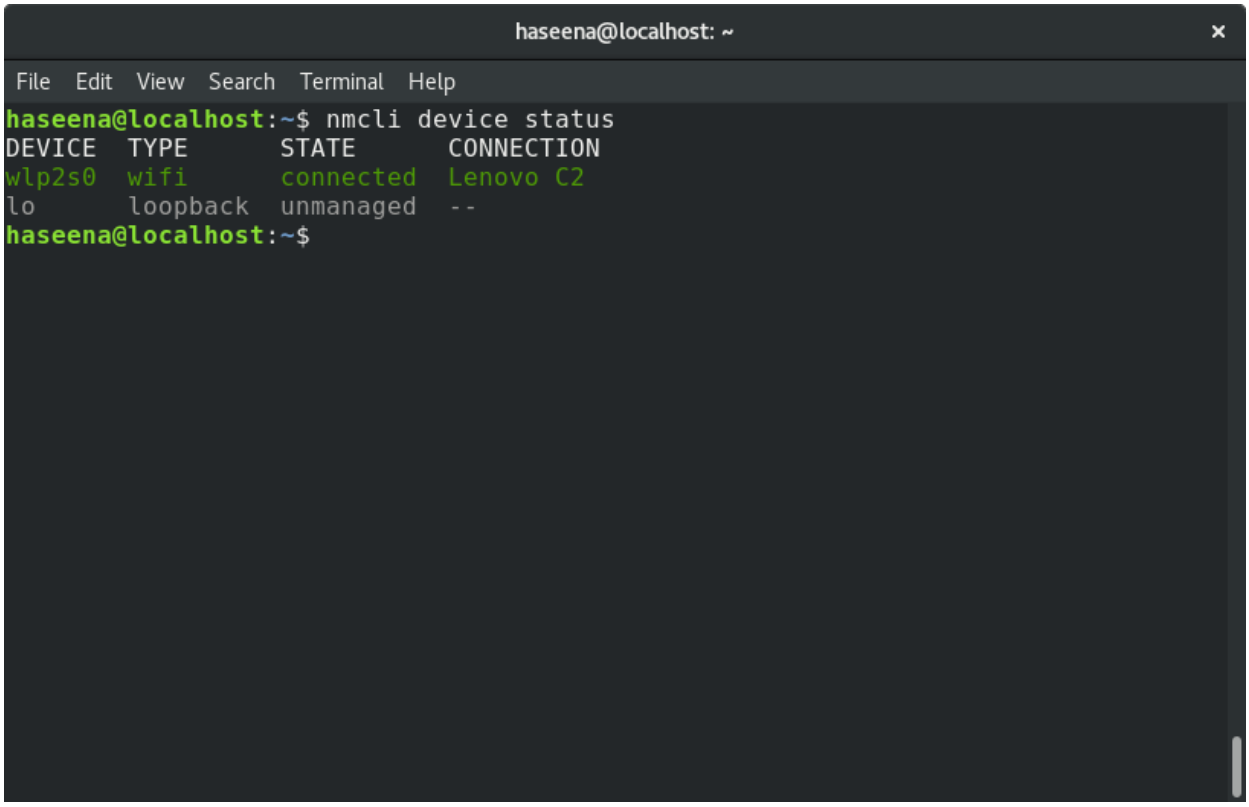
13. **iptables -t nat -L -v -n :**port forwarding is set up on the router and lets you send all traffic that comes into that interface on a given port to a specific address



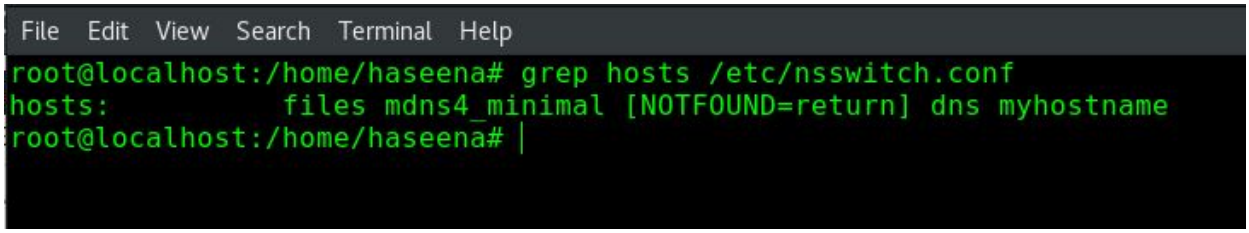
14. netstat -nr : displays network connections for the Transmission Control Protocol (both incoming and outgoing), routing tables, and a number of network interface (network interface controller or software-defined network interface) and network



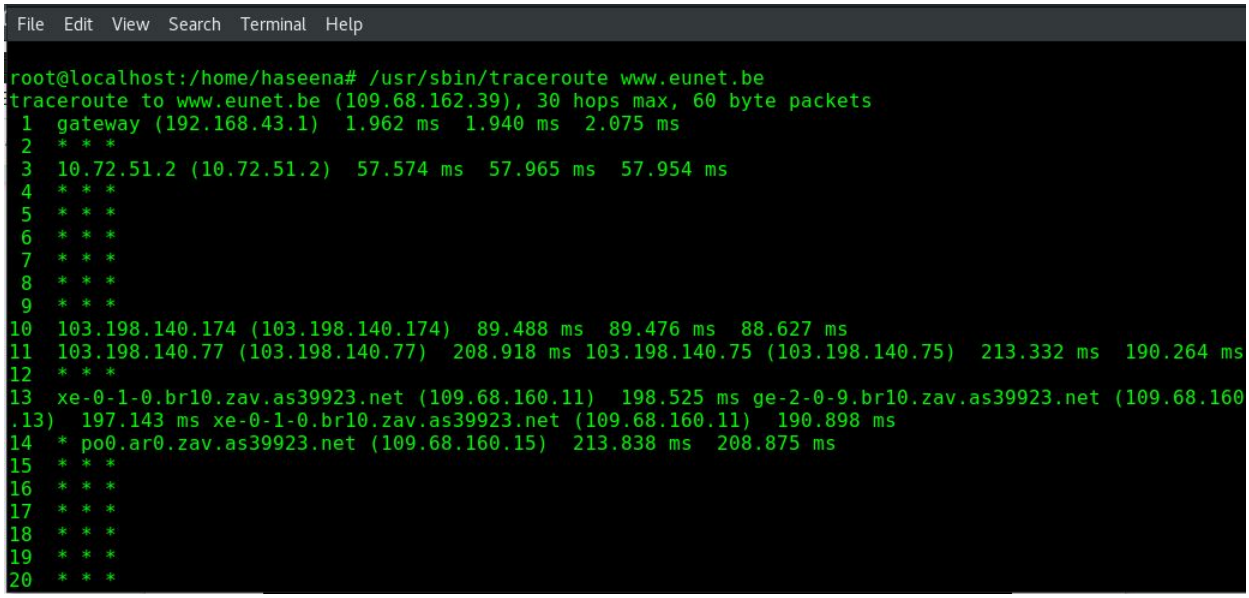
15. nmcli devices status : when we create a new connection or modify an existing one with nmcli or nmtui, the results are saved here as connection profiles.



16. /etc/nsswitch.conf file : defines the order in which to contact different name services. This instructs your computer to look up hostnames and IP addresses first in the /etc/hosts file, and to contact the DNS server if a given host does not occur in the local hosts file.



17. traceroute command: To check the route that packets follow to a network host



CONCLUSION

By setting up complete network interface using ifconfig and iptable commands, familiarised in configuring services such as gateway , DNS , IPtables etc. and controlling server traffic.**Ifconfig** stands for Interface Configuration .It is a utility for Linux machines which common linux users uses it to assign ip address and netmask to an interface or to disable or enable a given interface.