LINUX NETWORKING MODULE 3 AND 4 ASSESSMENT SOLUTIONS

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9. Describe how you would configure a basic LAN interface using the ip command in Linux (kernel.org)

1)View Existing Network Interfaces: ip link show

```
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ ip link show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:ab:97:bd brd ff:ff:ff:ff:ff:ff
3: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN mode DEFAULT group default qlen 1000
    link/ether 52:54:00:a3:be:1a brd ff:ff:ff:ff:ff:ff
```

2) Assign an IP Address to an Interface

```
sudo ip addr add 192.168.1.100/24 dev enp0s3
```

To verify:

```
ip addr show enp0s3
```

```
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ sudo ip addr add 192.168.1.100/24 dev enp0s3
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ ip addr show enp0s3
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:ab:97:bd brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
       valid_lft 85688sec preferred_lft 85688sec
    inet 192.168.1.100/24 scope global enp0s3
       valid_lft forever preferred_lft forever
    inet6 fd00::c77f:3e32:310f:9559/64 scope global temporary dynamic
       valid_lft 86238sec preferred_lft 14238sec
    inet6 fd00::a00:27ff:feab:97bd/64 scope global dynamic mngtmpaddr
       valid_lft 86238sec preferred_lft 14238sec
    inet6 fe80::a00:27ff:feab:97bd/64 scope link
       valid_lft forever preferred_lft forever
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$
```

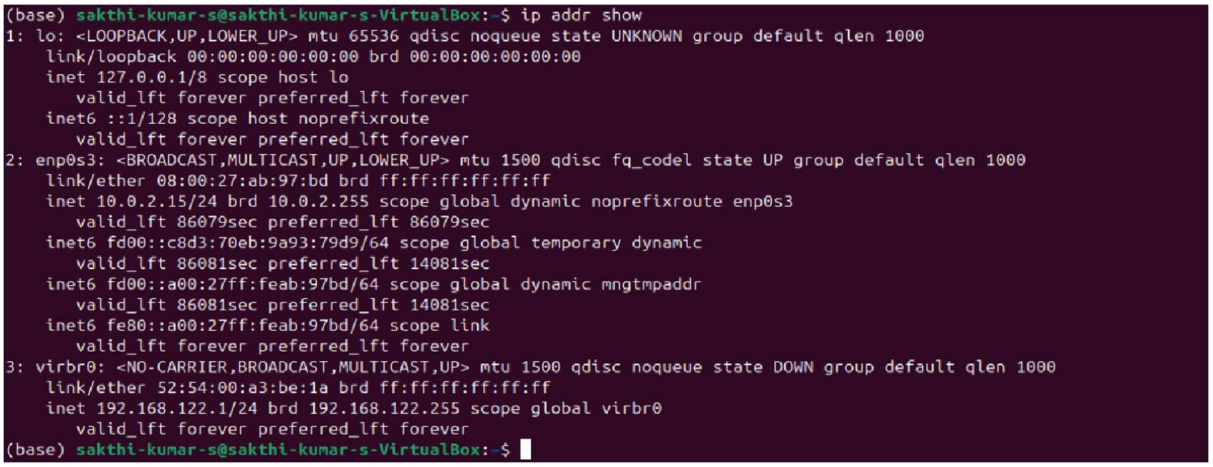
3) Bring the Interface Up or Down: **sudo ip link set enp0s3 up and sudo ip link set enp0s3 down**

```
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ sudo ip link set enp0s3 up
```

4) Set a Default Gateway

```
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ sudo ip route add default via 192.168.1.1 dev enp0s3
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ ip route show
default via 192.168.1.1 dev enp0s3
default via 10.0.2.2 dev enp0s3 proto dhcp src 10.0.2.15 metric 100
10.0.2.0/24 dev enp0s3 proto kernel scope link src 10.0.2.15 metric 100
192.168.1.0/24 dev enp0s3 proto kernel scope link src 192.168.1.100
192.168.122.0/24 dev virbr0 proto kernel scope link src 192.168.122.1 linkdown
```

5) To remove an ip address: **sudo ip addr del 192.168.1.100/24 dev enp0s3**



6) To Enable DHCP: sudo dhclient enp0s3

These are the basic steps to configure a basic LAN interface on a Linux system using the ip command. These methods are effective for setting up static IP addresses and configuring gateways for network traffic routing.