$ ip link
- list and modify interfaces on the host

$ ip addr
- to see the IP addresses assigned to those interfaces

$ ip addr add 192.168.1.10/24 dev eth0
- used to set IP addresses on the interfaces

IMPORTANT: to persist these changes, you must set them in the /etc/network interfaces file

$ ip route
- used to view the routing table and IP route

$ ip route add 192.168.1.0/24 via 192.168.2.1
- used to add entries into the routing table

$ cat /proc/sys/net/ipv4/ip_forward(should be set to 1)
- command to check if IP forwarding is enabled on a host

$ vim /etc/hosts -> 192.168.1.11 db
- mapping ip 192.168.1.11 to dns name db so can query by dns name

$ vim /etc/resolv.conf -> nameserver 192.168.1.100
- mapping dns server to multiple servers

Create Network Namespace

$ ip netns add red
- creating a namespace named 'red'

$ ip netns exec red ip link **or** ip -n red link
- list and modify interfaces on namespace 'red'

$ ip netns exec red arp
- listing arp table in namespace red

$ ip netns exec red route
- listing route table in namespace red

$ ip link add veth-red type veth peer name veth-blue(use this command on either namespace)
- connecting two namespace with virtual link

$ ip link set veth-red netns red / ip link set veth-blue netns blue
- linking veth-red to namespace red and vice versa

$ ip -n red addr add 192.168.15.1 dev veth-red / ip -n blue addr add 192.168.15.2 dev veth-blue

- set ip addr

$ ip -n red link set veth-red up / ip -n blue link set veth-blue up

- turning on the network interface for both red and blue

Creating a Internal Switch Inside Linux VM via Linux Bridge

$ ip link add v-net-0 type bridge(if you check with 'ip link', the interface should be down)

- creating a internal switch named v-net-0

$ ip link set dev v-net-0 up

- turning on the v-net-0 interface

$ ip link add veth-red type veth peer name veth-red-br / ip link add veth-blue type beth peer name veth-blue-br

- creating a link between namespace red interface & virtual switch, vice versa

$ ip link set veth-red-br master v-net-0 / ip link set veth-blue-br master v-net-0

- creating a link between v-net-0 and veth-red-br & veth-blue-br

$ iptables -t nat -A POSTROUTING -s source-ip -j MASQUERADE

- creating nat gateway