Lab-Network Configuration:

1- show all connections

```
[root@centos8srv ~]# ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    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: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 00:0c:29:62:52:54 brd ff:ff:ff:ff:ff:ff
    altname enp2s1
    inet 192.168.6.128/24 brd 192.168.6.255 scope global dynamic noprefixroute ens33
       valid_lft 1540sec preferred_lft 1540sec
    inet6 fe80::20c:29ff:fe62:5254/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
[root@centos8srv ~]# ip route show
default via 192.168.6.2 dev ens33 proto dhcp src 192.168.6.128 metric 100
192.168.6.0/24 dev ens33 proto kernel scope link src 192.168.6.128 metric 100
[root@centos8srv ~]# 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: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP mode DEFAULT group default qlen 1000
    link/ether 00:0c:29:62:52:54 brd ff:ff:ff:ff:ff:ff
    altname enp2s1
```

2- display all config setting for the active connection

```
[root@centos8srv ~]# ip route show
default via 192.168.6.2 dev ens33 proto dhcp src 192.168.6.128 metric 100
192.168.6.0/24 dev ens33 proto kernel scope link src 192.168.6.128 metric 100
[root@centos8srv ~]# 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: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP mode DEFAULT group default qlen 1000
    link/ether 00:0c:29:62:52:54 brd ff:ff:ff:ff:ff:ff
    altname enp2s1
[root@centos8srv ~]# ip addr show ens16777736
```

3- show device status

```
[root@centos8srv ~]# nmcli device show
GENERAL.DEVICE:                         ens33
GENERAL.TYPE:                           ethernet
GENERAL.HWADDR:                         00:0C:29:62:52:54
GENERAL.MTU:                            1500
GENERAL.STATE:                          100 (connected)
GENERAL.CONNECTION:                     ens33
GENERAL.CON-PATH:                       /org/freedesktop/NetworkManager/ActiveConnection/2
WIRED-PROPERTIES.CARRIER:               on
IP4.ADDRESS[1]:                         192.168.6.128/24
IP4.GATEWAY:                            192.168.6.2
IP4.ROUTE[1]:                           dst = 0.0.0.0/0, nh = 192.168.6.2, mt = 100
IP4.ROUTE[2]:                           dst = 192.168.6.0/24, nh = 0.0.0.0, mt = 100
IP4.DNS[1]:                             192.168.6.2
IP4.DOMAIN[1]:                          localdomain
IP6.ADDRESS[1]:                         fe80::20c:29ff:fe62:5254/64
IP6.GATEWAY:                            --
IP6.ROUTE[1]:                           dst = fe80::/64, nh = ::, mt = 1024

GENERAL.DEVICE:                         lo
GENERAL.TYPE:                           loopback
GENERAL.HWADDR:                         00:00:00:00:00:00
GENERAL.MTU:                            65536
GENERAL.STATE:                          100 (connected (externally))
GENERAL.CONNECTION:                     lo
GENERAL.CON-PATH:                       /org/freedesktop/NetworkManager/ActiveConnection/1
IP4.ADDRESS[1]:                         127.0.0.1/8
IP4.GATEWAY:                            --
IP6.ADDRESS[1]:                         ::1/128
IP6.GATEWAY:                            --
IP6.ROUTE[1]:                           dst = ::1/128, nh = ::, mt = 256

GENERAL.DEVICE:                         static-eth0
GENERAL.TYPE:                           macvlan
GENERAL.HWADDR:                         1E:23:71:47:E3:8A
GENERAL.MTU:                            1500
GENERAL.STATE:                          100 (connected (externally))
GENERAL.CONNECTION:                     static-eth0
GENERAL.CON-PATH:                       /org/freedesktop/NetworkManager/ActiveConnection/3
IP4.ADDRESS[1]:                         172.25.0.11/24
IP4.GATEWAY:                            --
IP4.ROUTE[1]:                           dst = 172.25.0.0/24, nh = 0.0.0.0, mt = 0
IP6.ADDRESS[1]:                         fe80::1c23:71ff:fe47:e38a/64
IP6.GATEWAY:                            --
IP6.ROUTE[1]:                           dst = fe80::/64, nh = ::, mt = 256
[root@centos8srv ~]#
```

4- display the setting of the eno16777736 interface

```
[root@centos8srv ~]# ip addr show ens33
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 00:0c:29:62:52:54 brd ff:ff:ff:ff:ff:ff
    altname enp2s1
    inet 192.168.6.128/24 brd 192.168.6.255 scope global dynamic noprefixroute ens33
       valid_lft 1757sec preferred_lft 1757sec
    inet6 fe80::20c:29ff:fe62:5254/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
```

5- create a static connection with the same IP address, network, prefix and default gateway.
Name the new connection static-eth0 with ip 172.25.0.11,netmask 255.255.255.0 and
gateway 172.25.0.254

```
IP6.ROUTE[1]:                           dst = fe80::/64, nh = ::, mt = 256
[root@centos8srv ~]# ip link add link ens33 name static-eth0 type macvlan
ip addr add 172.25.0.11/24 dev static-eth0
ip route add default via 172.25.0.254 dev static-eth0
ip link set up dev static-eth0
RTNETLINK answers: File exists
RTNETLINK answers: File exists
```

6- modify the new connection to add DNS

```
bash: /etc/resolv.conf/resolv.conf/interface-static-eth0: No such file or directory
[root@centos8srv ~]# nmcli connection modify ens33 +ipv4.dns 8.8.8.8
[root@centos8srv ~]#
```

7- activate the new connection

```
error: argument "static-eth0" not understood. Try passing --help instead.
[root@centos8srv ~]# nmcli connection up static-eth0
Connection successfully activated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/4)
[root@centos8srv ~]#
```

8- view the active connection

```
[root@centos8srv ~]# ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    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: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 00:0c:29:62:52:54 brd ff:ff:ff:ff:ff:ff
    altname enp2s1
    inet 192.168.6.128/24 brd 192.168.6.255 scope global dynamic noprefixroute ens33
       valid_lft 1676sec preferred_lft 1676sec
    inet6 fe80::20c:29ff:fe62:5254/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
3: static-eth0@ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
    link/ether 1e:23:71:47:e3:8a brd ff:ff:ff:ff:ff:ff
    inet 172.25.0.11/24 brd 172.25.0.255 scope global noprefixroute static-eth0
       valid_lft forever preferred_lft forever
    inet6 fe80::8a:e007:56ac:4f15/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
```

9- verify the ip address using ip command

```
       valid_lft forever preferred_lft forever
[root@centos8srv ~]# ip addr show | grep 172
    inet 172.25.0.11/24 brd 172.25.0.255 scope global noprefixroute static-eth0
[root@centos8srv ~]#
```

10- verify the default gateway

```
    inet 172.25.0.11/24 brd 172.25.0.255 scope global noprefixroute static-eth0
[root@centos8srv ~]# ip route show
default via 192.168.6.2 dev ens33 proto dhcp src 192.168.6.128 metric 100
default via 172.25.0.254 dev static-eth0 proto static metric 410
172.25.0.0/24 dev static-eth0 proto kernel scope link src 172.25.0.11 metric 410
192.168.6.0/24 dev ens33 proto kernel scope link src 192.168.6.128 metric 100
[root@centos8srv ~]#
```

11- ping the DNS

```
root@centos8srv ~]# ping 8.8.8.8
ING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
4 bytes from 8.8.8.8: icmp_seq=1 ttl=128 time=53.4 ms
4 bytes from 8.8.8.8: icmp_seq=2 ttl=128 time=71.0 ms
4 bytes from 8.8.8.8: icmp_seq=3 ttl=128 time=49.3 ms
4 bytes from 8.8.8.8: icmp_seq=4 ttl=128 time=47.5 ms
4 bytes from 8.8.8.8: icmp_seq=5 ttl=128 time=52.5 ms
4 bytes from 8.8.8.8: icmp_seq=6 ttl=128 time=46.3 ms
4 bytes from 8.8.8.8: icmp_seq=7 ttl=128 time=45.7 ms
4 bytes from 8.8.8.8: icmp_seq=8 ttl=128 time=46.2 ms
4 bytes from 8.8.8.8: icmp_seq=9 ttl=128 time=66.0 ms
4 bytes from 8.8.8.8: icmp_seq=10 ttl=128 time=49.0 ms
4 bytes from 8.8.8.8: icmp_seq=11 ttl=128 time=49.3 ms
4 bytes from 8.8.8.8: icmp_seq=12 ttl=128 time=46.4 ms
4 bytes from 8.8.8.8: icmp_seq=13 ttl=128 time=66.8 ms
4 bytes from 8.8.8.8: icmp_seq=14 ttl=128 time=47.5 ms
4 bytes from 8.8.8.8: icmp_seq=15 ttl=128 time=45.9 ms
4 bytes from 8.8.8.8: icmp_seq=16 ttl=128 time=45.7 ms
4 bytes from 8.8.8.8: icmp_seq=17 ttl=128 time=47.4 ms
4 bytes from 8.8.8.8: icmp_seq=18 ttl=128 time=44.9 ms
4 bytes from 8.8.8.8: icmp_seq=19 ttl=128 time=47.7 ms
4 bytes from 8.8.8.8: icmp_seq=20 ttl=128 time=51.2 ms
4 bytes from 8.8.8.8: icmp_seq=21 ttl=128 time=46.1 ms
4 bytes from 8.8.8.8: icmp_seq=22 ttl=128 time=49.7 ms
4 bytes from 8.8.8.8: icmp_seq=23 ttl=128 time=85.0 ms
4 bytes from 8.8.8.8: icmp_seq=24 ttl=128 time=47.2 ms
4 bytes from 8.8.8.8: icmp_seq=25 ttl=128 time=48.4 ms
4 bytes from 8.8.8.8: icmp_seq=26 ttl=128 time=46.1 ms
4 bytes from 8.8.8.8: icmp_seq=27 ttl=128 time=45.8 ms
4 bytes from 8.8.8.8: icmp_seq=28 ttl=128 time=82.9 ms
4 bytes from 8.8.8.8: icmp_seq=29 ttl=128 time=46.8 ms
4 bytes from 8.8.8.8: icmp_seq=30 ttl=128 time=46.7 ms
4 bytes from 8.8.8.8: icmp_seq=31 ttl=128 time=45.6 ms
4 bytes from 8.8.8.8: icmp_seq=32 ttl=128 time=68.7 ms
4 bytes from 8.8.8.8: icmp_seq=33 ttl=128 time=46.3 ms
4 bytes from 8.8.8.8: icmp_seq=34 ttl=128 time=45.8 ms
4 bytes from 8.8.8.8: icmp_seq=35 ttl=128 time=45.6 ms
4 bytes from 8.8.8.8: icmp_seq=36 ttl=128 time=48.5 ms
4 bytes from 8.8.8.8: icmp_seq=37 ttl=128 time=47.4 ms
4 bytes from 8.8.8.8: icmp_seq=38 ttl=128 time=73.9 ms
4 bytes from 8.8.8.8: icmp_seq=39 ttl=128 time=76.9 ms
4 bytes from 8.8.8.8: icmp_seq=40 ttl=128 time=46.8 ms
4 bytes from 8.8.8.8: icmp_seq=41 ttl=128 time=45.7 ms
4 bytes from 8.8.8.8: icmp_seq=42 ttl=128 time=50.0 ms
```

```
--- 8.8.8.8 ping statistics ---
66 packets transmitted, 66 received, 0% packet loss, time 65088ms
rtt min/avg/max/mdev = 44.935/52.995/138.283/14.668 ms
[root@centos8srv ~]#
```

12- disable the original connection autostarting at boot

```
[root@centos8srv ~]# nmcli connection modify static-eth0 autoconnect no
[root@centos8srv ~]#
```

13- reboot the system

Reboot

14- view the active connections

```
[root@centos8srv ~]# nmcli d
DEVICE        TYPE      STATE                    CONNECTION
ens33         ethernet  connected                ens33
lo            loopback  connected (externally)   lo
static-eth0   macvlan   connected                static-eth0
[root@centos8srv ~]#
```

17- display the current host name

```
[root@centos8srv ~]# hostname
centos8srv.local
[root@centos8srv ~]#
```

18- display the host name status

```
Firmware Version: 6.00
[root@centos8srv ~]# hostnamectl status
 Static hostname: centos8srv.local
       Icon name: computer-vm
         Chassis: vm
      Machine ID: 87a536b4aab0453cab9720ddf69514ba
         Boot ID: 8caa1690a69d4c22a612f998fdc39415
  Virtualization: vmware
Operating System: CentOS Stream 9
     CPE OS Name: cpe:/o:centos:centos:9
          Kernel: Linux 5.14.0-234.el9.x86_64
    Architecture: x86-64
 Hardware Vendor: VMware, Inc.
  Hardware Model: VMware Virtual Platform
Firmware Version: 6.00
[root@centos8srv ~]#
```

19- change the hostname and hostname config file

```
[root@centos8srv ~]# hostnamectl set-hostname centos9
[root@centos8srv ~]#
```

20- verify the configuration file providing the hostname at network start

```
[root@centos8srv ~]# cat /etc/hosts
127.0.0.1   localhost localhost.localdomain localhost4 localhost4.localdomain4
::1         localhost localhost.localdomain localhost6 localhost6.localdomain6
[root@centos8srv ~]# cat /etc/hostname
centos9
[root@centos8srv ~]#
```