**Exercise 39.4** Adding a Static Route using **nmcli**

We are going to add a static IPv4 route address to your system and make it persistent. We will do this without editing files under `/dev` directly, using **nmcli**.

1. Begin by examining your current routing tables, using both **route** and **ip**:

```
$ route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         172.16.2.2      0.0.0.0         UG    100    0        0 ens33
link-local      *               255.255.0.0     U     1000   0        0 ens33
172.16.2.0      *               255.255.255.0   U     100    0        0 ens33
192.168.122.0   *               255.255.255.0   U     0      0        0 virbr0

$ ip route
default via 172.16.2.2 dev ens33  proto static  metric 100
169.254.0.0/16 dev ens33  scope link  metric 1000
172.16.2.0/24 dev ens33  proto kernel  scope link  src 172.16.2.135  metric 100
192.168.122.0/24 dev virbr0  proto kernel  scope link  src 192.168.122.1 linkdown
```

2. Add a new route using **nmcli**:

```
$ sudo nmcli conn mod "Auto Ethernet" +ipv4.routes "192.168.100.0/24 172.16.2.1"
```

3. Note it has not yet taken effect:

```
$ route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         172.16.2.2      0.0.0.0         UG    100    0        0 ens33
link-local      *               255.255.0.0     U     1000   0        0 ens33
172.16.2.0      *               255.255.255.0   U     100    0        0 ens33
192.168.122.0   *               255.255.255.0   U     0      0        0 virbr0
```

4. Reload the interface to have it take effect and show it has:

```
$ sudo nmcli conn up "Auto Ethernet"
Connection successfully activated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/25)

$ route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         172.16.2.2      0.0.0.0         UG    100    0        0 ens33
link-local      *               255.255.0.0     U     1000   0        0 ens33
172.16.2.0      *               255.255.255.0   U     100    0        0 ens33
192.168.100.0   172.16.2.1      255.255.255.0   UG    100    0        0 ens33
192.168.122.0   *               255.255.255.0   U     0      0        0 virbr0
```

5. Reboot and verify the route has taken effect (i.e., it is **persistent**: If so remove it:

```
$ route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         172.16.2.2      0.0.0.0         UG    100    0        0 ens33
link-local      *               255.255.0.0     U     1000   0        0 ens33
172.16.2.0      *               255.255.255.0   U     100    0        0 ens33
192.168.100.0   172.16.2.1      255.255.255.0   UG    100    0        0 ens33
192.168.122.0   *               255.255.255.0   U     0      0        0 virbr0
```

```
$ sudo nmcli conn mod "Auto Ethernet" -ipv4.routes "192.168.100.0/24 172.16.2.1"

$ sudo nmcli conn up "Auto Ethernet"
Connection successfully activated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/3)
$ route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         172.16.2.2      0.0.0.0         UG    100    0        0 ens33
link-local      *               255.255.0.0     U     1000   0        0 ens33
172.16.2.0      *               255.255.255.0   U     100    0        0 ens33
192.168.122.0   *               255.255.255.0   U     0      0        0 virbr0
```

6. Note you can set a route with either **route** or **ip** from the command line but it won't survive a reboot as in:

```
$ sudo ip route add 192.168.100.0/24 via 172.16.2.1
$ sudo route
....
```

You can verify that a route established this way is not persistent.