IP ADDRESS CONFIGURATION IN UBUNTU WITH NETPLAN

🧭 Step 1: Check your network interface name

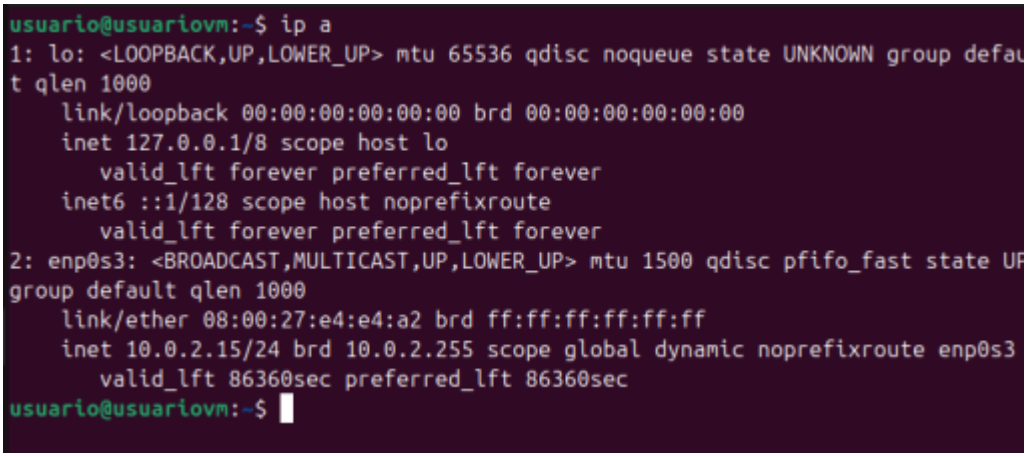
Run this in your terminal:

ip link
ip a

You'll see output like this:

1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 ...

👉 The important one is **your Ethernet interface name** — in this example it's `enp0s3`.
Yours might be `ens160`, `eth0`, or similar.
We'll use `enp0s3` for this tutorial — replace it with yours if different.



🗂️ Step 2: Find your Netplan configuration file

```
sudo apt install systemd-networkd
```

```
sudo systemctl enable --now systemd-networkd
```

List what's in `/etc/netplan/`:

ls /etc/netplan/

You'll see something like:

01-netcfg.yaml

Open it with your editor:

sudo nano /etc/netplan/01-netcfg.yaml

⚙️ Step 3: Write the static IP configuration

Delete any old content and paste this (adjust if needed):

```
network:
  version: 2
  renderer: networkd
  ethernets:
    enp0s3:
      dhcp4: no
      addresses:
        - 192.168.1.1/24
      routes:
        - to: default
          via: 192.168.1.254
      nameservers:
        addresses:
          - 8.8.8.8
          - 1.1.1.1
```

🧩 Explanation:

Key	Description
`renderer: networkd`	Uses systemd-networkd to manage the interface (recommended for servers)
`dhcp4: no`	Disables DHCP (you're using static IP)

`addresses`	Your IP address + subnet mask
`routes`	Defines routes — `to: default` means the default gateway
`via`	The gateway IP (your router)
`nameservers`	DNS servers for resolving domain names

🧰 Step 4: Validate the configuration

Before applying, **check for errors** with:

sudo netplan try

You'll see something like:

Do you want to keep these settings? Press ENTER before timeout to accept.

If your connection still works, press **ENTER**.
If something goes wrong, it'll automatically roll back.

🚀 Step 5: Apply the configuration permanently

Once validation passes:

sudo netplan apply

No errors? Great — your static IP is now live 🎉

🔍 Step 6: Verify your configuration

Check IP address:

ip addr show enp0s3

You should see:

inet 192.168.1.1/24

Check routing table:

ip route

Output should include:

default via 192.168.1.254 dev enp0s3
192.168.1.0/24 dev enp0s3 proto kernel scope link src 192.168.1.1

Check DNS resolution:

ping -c 4 google.com

If you get replies, everything is working ✅

🧱 Step 7: (Optional) Using NetworkManager instead

If you're on **Ubuntu Desktop**, change the renderer:

```
network:
  version: 2
  renderer: NetworkManager
  ethernets:
    enp0s3:
      dhcp4: no
      addresses:
        - 192.168.1.1/24
      routes:
        - to: default
          via: 192.168.1.254
      nameservers:
        addresses: [8.8.8.8, 1.1.1.1]
```

Then apply:

sudo netplan apply

🧹 Step 8: Troubleshooting

Problem	Cause	Fix
❌ `Failed to reload network settings: Unit dbus-org.freedesktop.network1.service not found`	`systemd-networkd` not running	Run: `sudo apt install systemd-networkd` → then `sudo systemctl enable --now systemd-networkd`
❌ Lost network after apply	Wrong interface name or invalid YAML	Undo with `sudo netplan try` or fix indentation
❌ Can't reach internet	Wrong gateway (`via`)	Check router IP or subnet

Task	Command
Edit config	`sudo nano /etc/netplan/01-netcfg.yaml`
Test config	`sudo netplan try`
Apply config	`sudo netplan apply`
Verify IP	`ip addr show`
Verify route	`ip route`
Verify DNS	`ping google.com`