

# Lab 19 – Using ifconfig to view and modify network information on Linux

## Big Picture: What is this lab about?

- In Windows, you use a tool called `ipconfig` to see your computer's network info.
- In **Linux**, the tool is called `ifconfig`.
- So, `ifconfig` = Linux version of Windows `ipconfig`.

You use it to **see** and **change** information about how your computer is connected to the internet or network.

## Tools Needed:

- You need a Linux system (we're using **Kali Linux** here).
- You need to open a **Terminal** — the place where you type commands.

## Task 1: How to See Help Information and Your Network Info

**Step 1:** Open your **Terminal**.

**Step 2:** Type this command and press **Enter**: `ifconfig -h`

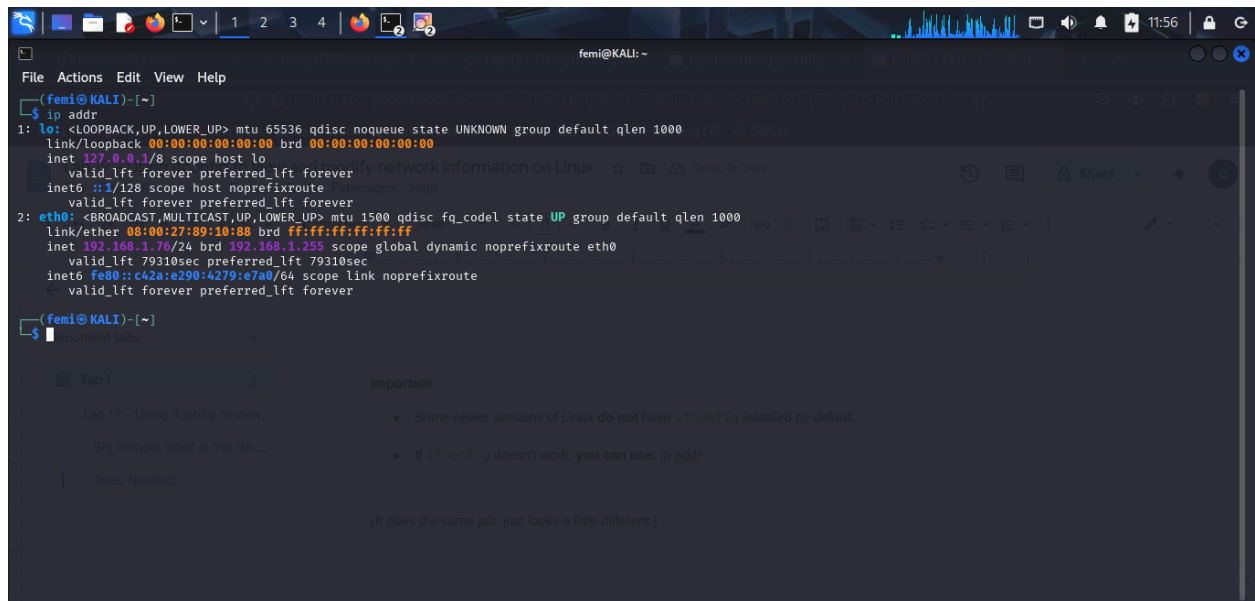
The `-h` means **help**.

This shows you a short list of options you can use with `ifconfig`.



## Important:

- Some newer versions of Linux **do not** have `ifconfig` installed by default.
- If `ifconfig` doesn't work, **you can use**: `ip addr`



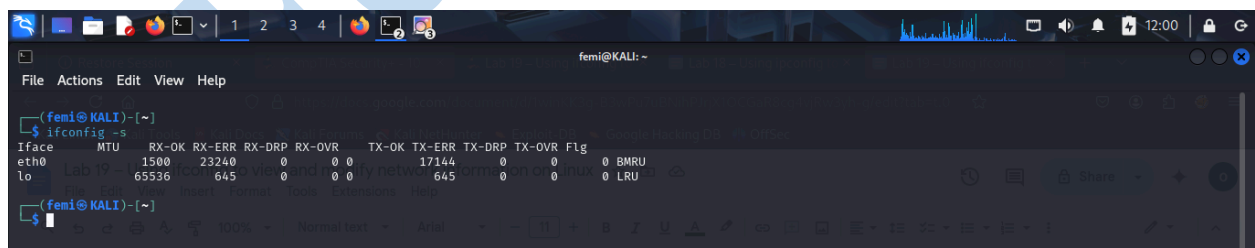
```
(femi@KALI)-[~]
$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
        valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:89:10:88 brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.76/24 brd 192.168.1.255 scope global dynamic noprefixroute eth0
        valid_lft 79310sec preferred_lft 79310sec
    inet6 fe80::c42a:e290:4279:e7a0/64 scope link noprefixroute
        valid_lft forever preferred_lft forever

(femi@KALI)-[~]
$
```

(It does the same job, just looks a little different.)

## Task 2: How to See a Shorter List of Your Network Info

Step 1: Type this command: `ifconfig -s`



```
(femi@KALI)-[~]
$ ifconfig -s
Iface MTU RX-OK RX-ERR RX-DRP RX-OVR TX-OK TX-ERR TX-DRP TX-OVR Flg
eth0 1500 23240 0 0 0 17144 0 0 0 BMRU
lo 65536 645 0 0 0 645 0 0 0 LRU

(femi@KALI)-[~]
$
```

`-s` stands for **short**.

This gives you a **simpler, easier-to-read** list of your network interfaces without too many details.

## Task 3: How to See Info About One Specific Interface

### Step 1:

Let's say you want to see only your **Wi-Fi** or **Ethernet** connection (not everything).

Type: `ifconfig eth0`

(If your interface is called something else like `wlan0`, replace `eth0` with `wlan0`.)

- This shows info **only** about that one network connection.
- Useful if you are trying to fix one specific problem.

```
(femi@KALI) ~$ ifconfig eth0
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.1.70 netmask 255.255.255.0 broadcast 192.168.1.255
    inet6 fe80::c42a:298:a279:8740 prefixlen 64 scopeid 0%<link>
    ether 08:00:27:89:10:68 txqueuelen 1000 (Ethernet)
    RX packets 25916 bytes 8042323 (7.6 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 17787 bytes 6930320 (6.6 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

How to See Info About One Specific Interface

- This shows info **only** about that one network connection.
- Useful if you are trying to fix one specific problem.

## Task 4: How to Turn a Network Connection On or Off

Sometimes you need to **turn off** or **turn on** your network manually.

**Step 1:** To **turn it OFF**, type: `sudo ifconfig eth0 down`

```
(femi@KALI) ~$ ifconfig eth0 down
SIOCSIFFLAGS: Operation not permitted

(femi@KALI) ~$ sudo ifconfig eth0 down
[sudo] password for femi:
Step 1: To turn it OFF, type: ifconfig eth0 down
• This disables your network (you'll lose connection)

(femi@KALI) ~$
```

Step 2: To turn it ON, type: `ifconfig eth0 up`

- This **disables** your network (you'll lose connection).

**Step 2:** To **turn it ON**, type: `sudo ifconfig eth0 up`

- This **enables** your network again (you'll reconnect).

### Tip:

This is useful when you're troubleshooting problems!

## Task 5: How to Put the Interface in Promiscuous Mode

**Promiscuous Mode** sounds complicated, but it's simple:

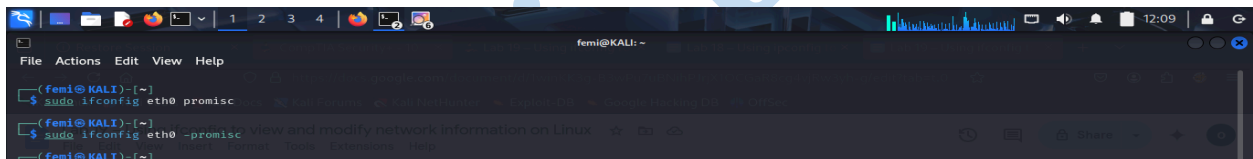
- Normally, your computer **only listens** to network traffic meant for it.
- In **Promiscuous Mode**, your computer **listens to ALL network traffic**, even if it's not meant for you.

This is useful for things like:

- **Network monitoring**
- **Security testing**
- **Packet sniffing**

**Step 1:** To enable **Promiscuous Mode**, type: `ifconfig eth0 promisc`

**Step 2:** To **disable Promiscuous Mode**, type: `ifconfig eth0 -promisc`



```
femi@KALI: ~  
File Actions Edit View Help  
femi@KALI:~$ sudo ifconfig eth0 promisc  
femi@KALI:~$ sudo ifconfig eth0 -promisc  
femi@KALI:~$
```

**Note:** You need a **special network card** that can support this mode.

## Task 6: How to Change Your MAC Address

**What is a MAC Address?**

- It's a **special unique ID** for your network card (like a serial number).
- Sometimes you might want to **change it** (for privacy or security reasons).

**Step 1:** To **change your MAC address**, type: `ifconfig eth0 hw ether 66:3e:7f:60:f2:1f`

(Replace `eth0` with your interface name, and replace the numbers with the MAC address you want.)

### Important:

- A MAC address looks like this: `66:3e:7f:60:f2:1f`
  - It is **6 pairs** of letters and numbers, separated by colons `:`.
- 

**Extra Tip:** There are **safe ranges** of MAC addresses you can use:

Start With	Example
2	2A:11:22:33:44:55
6	6B:22:33:44:55:66
A	AA:33:44:55:66:77
E	EA:44:55:66:77:88

These ranges avoid conflicts with real hardware devices.

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## Making the MAC Address Change Permanent

Right now, if you **restart** your computer, the MAC address change will disappear.

To **make it permanent**:

**Step 1:** Open your network settings file with this command: `nano /etc/network/interfaces`

**Step 2:** Add this line under your interface settings: `pre-up ifconfig eth0 hw ether AA:22:33:44:55:66`

(Replace with your correct interface name and new MAC address.)

**Step 3:** Save and exit the file.

**Step 4:** Restart your computer!

✓ Now your MAC address will stay even after a reboot.

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