# IT – 304 | CN | LAB-11

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## Exercise-1:

## To create wifi-LAN using router and ping other PC

→ Step-1: Open the terminal and navigate to the Downloads directory with the command

```
cd Downloads
```

→ Step 2: Go to the DAIICT intranet and locate the Tenda file to get the command

```
sudo mv ax300-wifi-adapter- linux- driver-deb
```

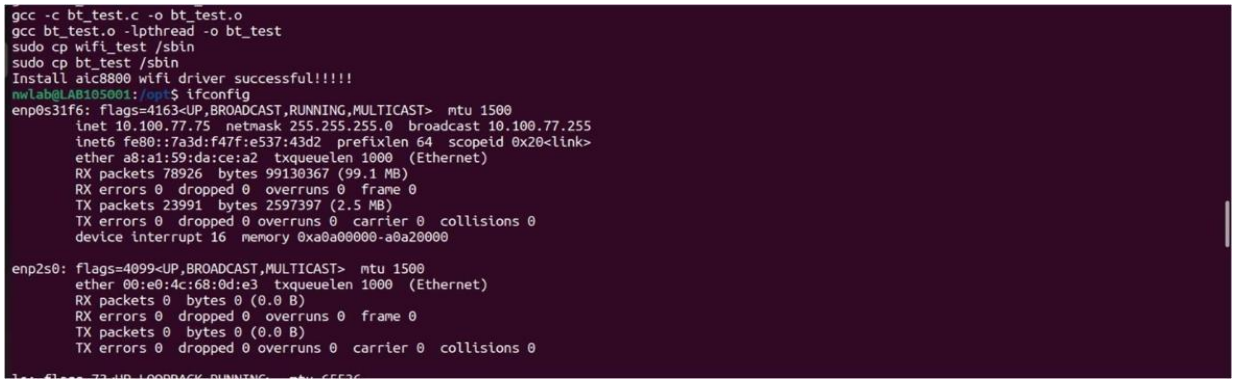
→ Step 3: Change the directory to

```
/opt
```

→ Step 4: Download the pacfiage by running the command

```
sudo dpfig ax300-wifi-adapter-linux-driver-deb
```

→ Step 5: Connect the pcto the local wifi which in our case was LAB13 wifi connection.




→ Step 6: Write the command

```
ip a/ifconfig
```

```
nwlab@LAB105001:~$ ip a
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: enp2s0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc fq_codel state DOWN group default qlen 1000
    link/ether b8:97:5a:57:c3:d0 brd ff:ff:ff:ff:ff:ff
3: enp0s31f6: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether a8:a1:59:da:d2:93 brd ff:ff:ff:ff:ff:ff
    inet 10.100.77.54/24 brd 10.100.77.255 scope global dynamic noprefixroute enp0s31f6
       valid_lft 689874sec preferred_lft 689874sec
    inet6 fe80::bd1b:ed32:b7bb:b00a/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
4: wlxe865d4c67a64: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether e8:65:d4:c6:7a:64 brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.2/24 brd 192.168.0.255 scope global dynamic noprefixroute wlxe865d4c67a64
       valid_lft 7191sec preferred_lft 7191sec
    inet6 fe80::3acb:90fb:7888:3436/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
```

→ Step 7: Check ping

```
nwlab@LAB105001:~$ ping 192.168.0.5
PING 192.168.0.5 (192.168.0.5) 56(84) bytes of data.
64 bytes from 192.168.0.5: icmp_seq=1 ttl=64 time=210 ms
64 bytes from 192.168.0.5: icmp_seq=2 ttl=64 time=24.6 ms
64 bytes from 192.168.0.5: icmp_seq=3 ttl=64 time=5.44 ms
64 bytes from 192.168.0.5: icmp_seq=4 ttl=64 time=6.41 ms
64 bytes from 192.168.0.5: icmp_seq=5 ttl=64 time=5.75 ms
64 bytes from 192.168.0.5: icmp_seq=6 ttl=64 time=67.8 ms
64 bytes from 192.168.0.5: icmp_seq=7 ttl=64 time=4.17 ms
64 bytes from 192.168.0.5: icmp_seq=8 ttl=64 time=14.2 ms
64 bytes from 192.168.0.5: icmp_seq=9 ttl=64 time=95.8 ms
64 bytes from 192.168.0.5: icmp_seq=10 ttl=64 time=35.6 ms
64 bytes from 192.168.0.5: icmp_seq=11 ttl=64 time=56.1 ms
64 bytes from 192.168.0.5: icmp_seq=12 ttl=64 time=149 ms
64 bytes from 192.168.0.5: icmp_seq=15 ttl=64 time=76.5 ms
64 bytes from 192.168.0.5: icmp_seq=37 ttl=64 time=832 ms
64 bytes from 192.168.0.5: icmp_seq=39 ttl=64 time=201 ms
64 bytes from 192.168.0.5: icmp_seq=40 ttl=64 time=402 ms
64 bytes from 192.168.0.5: icmp_seq=41 ttl=64 time=658 ms
64 bytes from 192.168.0.5: icmp_seq=42 ttl=64 time=137 ms
64 bytes from 192.168.0.5: icmp_seq=43 ttl=64 time=131 ms
64 bytes from 192.168.0.5: icmp_seq=44 ttl=64 time=78.6 ms
64 bytes from 192.168.0.5: icmp_seq=45 ttl=64 time=29.1 ms
64 bytes from 192.168.0.5: icmp_seq=49 ttl=64 time=1262 ms
64 bytes from 192.168.0.5: icmp_seq=50 ttl=64 time=238 ms
```

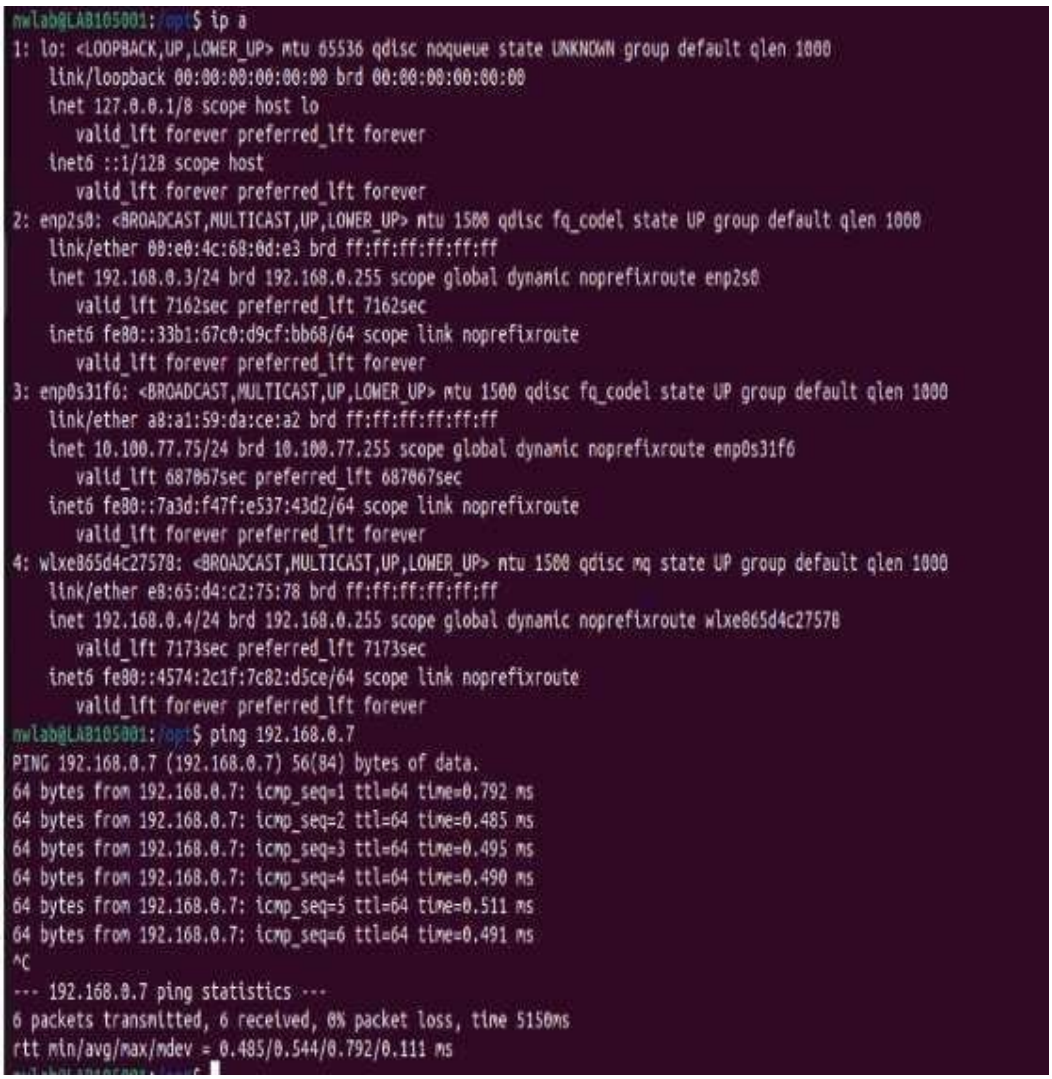
```
64 bytes from 192.168.0.5: icmp_seq=150 ttl=64 time=65.5 ms
64 bytes from 192.168.0.5: icmp_seq=151 ttl=64 time=19.0 ms
64 bytes from 192.168.0.5: icmp_seq=152 ttl=64 time=15.7 ms
64 bytes from 192.168.0.5: icmp_seq=153 ttl=64 time=274 ms
64 bytes from 192.168.0.5: icmp_seq=154 ttl=64 time=24.6 ms
64 bytes from 192.168.0.5: icmp_seq=155 ttl=64 time=23.5 ms
64 bytes from 192.168.0.5: icmp_seq=156 ttl=64 time=37.6 ms
64 bytes from 192.168.0.5: icmp_seq=157 ttl=64 time=543 ms
64 bytes from 192.168.0.5: icmp_seq=158 ttl=64 time=104 ms
64 bytes from 192.168.0.5: icmp_seq=159 ttl=64 time=852 ms
64 bytes from 192.168.0.5: icmp_seq=161 ttl=64 time=50.8 ms
64 bytes from 192.168.0.5: icmp_seq=163 ttl=64 time=77.4 ms
64 bytes from 192.168.0.5: icmp_seq=164 ttl=64 time=49.7 ms
64 bytes from 192.168.0.5: icmp_seq=165 ttl=64 time=113 ms
64 bytes from 192.168.0.5: icmp_seq=166 ttl=64 time=213 ms
64 bytes from 192.168.0.5: icmp_seq=167 ttl=64 time=26.2 ms
64 bytes from 192.168.0.5: icmp_seq=168 ttl=64 time=12.7 ms
64 bytes from 192.168.0.5: icmp_seq=169 ttl=64 time=5.53 ms
64 bytes from 192.168.0.5: icmp_seq=170 ttl=64 time=28.5 ms
64 bytes from 192.168.0.5: icmp_seq=171 ttl=64 time=13.0 ms
^C
--- 192.168.0.5 ping statistics ---
171 packets transmitted, 107 received, 37.4269% packet loss, time 172222ms
rtt min/avg/max/mdev = 1.842/115.929/1261.885/226.881 ms, pipe 2
```

## Exercise-2:

## To connect multiple hubs via router and set up use wired and wireless configurations with hubs. Note that you'll need to do this practical with another group combined.

- → Step 1: Two PCs are wirelessly connected to the same WiFi network, "LAB13," with identical configurations. A third PC is connected to a separate WiFi network, "LAB133."
- → Step 2: The two PCs on "LAB13" are wired to a hub, and the two hubs are interconnected via a router.
- → Step 3: Use the ifconfig or ip a command in the terminal to check the updated IPaddresses.
- → Step 4: Execute the ping command in the terminal and analyze the results

```
nwlab@LAB105001:/opt$ ip a
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: enp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 00:e0:4c:68:0d:e3 brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.3/24 brd 192.168.0.255 scope global dynamic noprefixroute enp2s0
       valid_lft 7162sec preferred_lft 7162sec
    inet6 fe80::33b1:67c0:d9cf:bb68/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
3: enp0s31f6: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether a8:a1:59:da:ce:a2 brd ff:ff:ff:ff:ff:ff
    inet 10.100.77.75/24 brd 10.100.77.255 scope global dynamic noprefixroute enp0s31f6
       valid_lft 687067sec preferred_lft 687067sec
    inet6 fe80::7a3d:f47f:e537:43d2/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
4: wlxe865d4c27578: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether e8:65:d4:c2:75:78 brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.4/24 brd 192.168.0.255 scope global dynamic noprefixroute wlxe865d4c27578
       valid_lft 7173sec preferred_lft 7173sec
    inet6 fe80::4574:2c1f:7c82:d5ce/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
```




Observations:

→ Wireless connection: 23% packet loss

→ Wired connection: 100% transmission rate with no packet loss.