IT - 304 | CN | LAB-11

(Harsh Gajjar - 202201140)

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.

```
gcc -c bt_test.c -o bt_test.c
gcc bt_test.o -lpthread -o bt_test
sudo cp wift_test /sbin
sudo cp bt_test /sbin
Install alc8800 wifi driver successful!!!!
nwlab@LAB180901:/put$ ifconfig
enp0s3if6: flags=4163-UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
inet f0 :100.77.75 netmask 255.255.255.0 broadcast 10.100.77.255
inet 6 :103gs=4163-UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
ether a8:a1:59:da:ce:a2 txqueuelen 1000 (Ethernet)
RX packets 78926 bytes 99130367 (99.1 MB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 23991 bytes 2597397 (2.5 MB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
device interrupt 16 memory 0xa0a00000-a0a200000
enp2s0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
ether 00:e0:4c:68:0d:e3 txqueuelen 1000 (Ethernet)
RX packets 0 bytes 0 (0.0 B)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 0 bytes 0 (0.0 B)
TX packets 0 bytes 0 (0.0 B)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

→ Step 6: Write the command

```
ip a/ifconfig
```

```
nwlabQLAB105001:-$ 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 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 1600
    link/ether b8:97:5a:57:c3:d0 brd ff:ff:ff:ff:ff:
3: enp0s31f6: <8ROADCAST,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: <8ROADCAST,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

```
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=2 ttl=64 time=5.44 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=5.75 ms
64 bytes from 192.168.0.5: icmp_seq=5 ttl=64 time=6.41 ms
64 bytes from 192.168.0.5: icmp_seq=5 ttl=64 time=6.71 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=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=95.1 ms
64 bytes from 192.168.0.5: icmp_seq=11 ttl=64 time=66.1 ms
64 bytes from 192.168.0.5: icmp_seq=12 ttl=64 time=76.5 ms
64 bytes from 192.168.0.5: icmp_seq=12 ttl=64 time=76.5 ms
64 bytes from 192.168.0.5: icmp_seq=15 ttl=64 time=201 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=39 ttl=64 time=658 ms
64 bytes from 192.168.0.5: icmp_seq=40 ttl=64 time=137 ms
64 bytes from 192.168.0.5: icmp_seq=41 ttl=64 time=137 ms
64 bytes from 192.168.0.5: icmp_seq=42 ttl=64 time=131 ms
64 bytes from 192.168.0.5: icmp_seq=42 ttl=64 time=131 ms
64 bytes from 192.168.0.5: icmp_seq=45 ttl=64 time=131 ms
65 bytes from 192.168.0.5: icmp_seq=45 ttl=64 time=131 ms
66 bytes from 192.168.0.5: icmp_seq=45 ttl=64 time=131 ms
67 bytes from 192.168.0.5: icmp_seq=45 ttl=64 time=131 ms
68 bytes from 192.
```

```
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=153 ttl=64 time=274 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=155 ttl=64 time=23.5 ms
64 bytes from 192.168.0.5: icmp_seq=155 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=850.8 ms
64 bytes from 192.168.0.5: icmp_seq=161 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=213 ms
64 bytes from 192.168.0.5: icmp_seq=165 ttl=64 time=213 ms
64 bytes from 192.168.0.5: icmp_seq=165 ttl=64 time=22.7 ms
64 bytes from 192.168.0.5: icmp_seq=168 ttl=64 time=22.7 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=25.53 ms
64 bytes from 192.168.0.5: icmp_seq=167 ttl=64 time=28.5 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=170 ttl=64 time=28.5 ms
65 bytes from 192.168.0.5: icmp_seq=170 ttl=64 time=13.0 ms
66 bytes from 192.168.0.5: icmp_seq=171 ttl=64 time=13.0 ms
67 bytes from 192.168.0.5: icmp_seq=171 ttl=64 time=13.0 ms
68 bytes from 192.168.0.5: icmp_seq=171 ttl=64 time=13.0 ms
69 bytes from 192.168.0.5: icmp_seq=171 ttl=64 time=13.0 ms
60 bytes from 192.168.0.5: icmp_seq=171 ttl=64 time=13.0 ms
60 bytes from 192.168.0.5: icmp_seq=171 ttl=64 time=13.0 ms
61 bytes from 192.168.0.5: icmp_seq=171 ttl=64 time=13.0 ms
62 bytes from 192.168.0.5: icmp_seq=171 ttl=64 time=13.0 ms
63 bytes from 192.168.0.5: icmp_seq=171 ttl=64 time=13.0 ms
64 bytes from 192.168.0.5: icmp_seq=171 ttl=64 time=13.0 ms
65 bytes fr
```

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@LAB185081:/opt$ ip a
1: lo: <LOOPBACK,UP,LOWER UP> mtu 65536 qdisc noqueue state UNKNOWN group default glen 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
    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
```

```
nwlabgLAB105001; opt$ ip a
1: lo: <LOOPBACK,UP,LOMER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default glen 1888
    link/loopback 00:00:00:00:00:00:00 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 ift forever preferred lft forever
2: enp2s0: <8ROADCAST,MULTICAST,UP,LOWER_UP> ntu 1500 qdlsc fq_codel state UP group default glen 1800
    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
       valld_lft forever preferred_lft forever
3: enp0s31f6: <BROADCAST,MULTICAST,UP,LOMER_UP> ntu 1500 qdisc fq_codel state UP group default glen 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 emp0s31f6
       valld_lft 687867sec preferred_lft 687867sec
    inet6 fe80::7a3d:f47f:e537:43d2/64 scope link noprefixroute
       valid_ift forever preferred_ift forever
4: wlxe865d4c27578: <8ROADCAST,MULTICAST,UP,LOMER_UP> ntu 1500 qdisc mq state UP group default glen 1000
    link/ether e8:65:d4:cZ:75:78 brd ff:ff:ff:ff:ff:ff
    inet 192.168.8.4/24 brd 192.168.8.255 scope global dynamic noprefixroute wlxe865d4c27578
       valld_lft 7173sec preferred_lft 7173sec
    inet6 fe80::4574:2c1f:7c82:d5ce/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
mwlab@LAB105001: Appt$ ping 192.168.0.7
PING 192.168.8.7 (192.168.8.7) 56(84) bytes of data.
64 bytes from 192.168.8.7: icmp seq=1 ttl=64 time=8.792 ms
64 bytes from 192.168.0.7: icmp_seq=2 ttl=64 time=0.485 ms
64 bytes from 192.168.0.7: icmp_seq=3 ttl=64 time=0.495 ms
64 bytes from 192.168.0.7: icmp_seq=4 ttl=64 time=0.490 ms
64 bytes from 192.168.8.7; icmp_seq=5 ttl=64 time=0.511 ms
64 bytes from 192.168.0.7: icmp_seq=6 ttl=64 time=0.491 ms
--- 192.168.0.7 ping statistics ---
6 packets transmitted, 6 received, 8% packet loss, time 5150ms
rtt min/avg/max/mdev = 0.485/0.544/0.792/0.111 ms
```

Observations:

- → Wireless connection: 23% packet loss
- → Wired connection: 100% transmission rate with no packet loss.