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Grp -1

IT 305

Lab 11

Exercise 1 :

To create Wifi-LAN using a router and ping other PC.

Solution:

Step 1 : Open the terminal and write the command cd Downloads

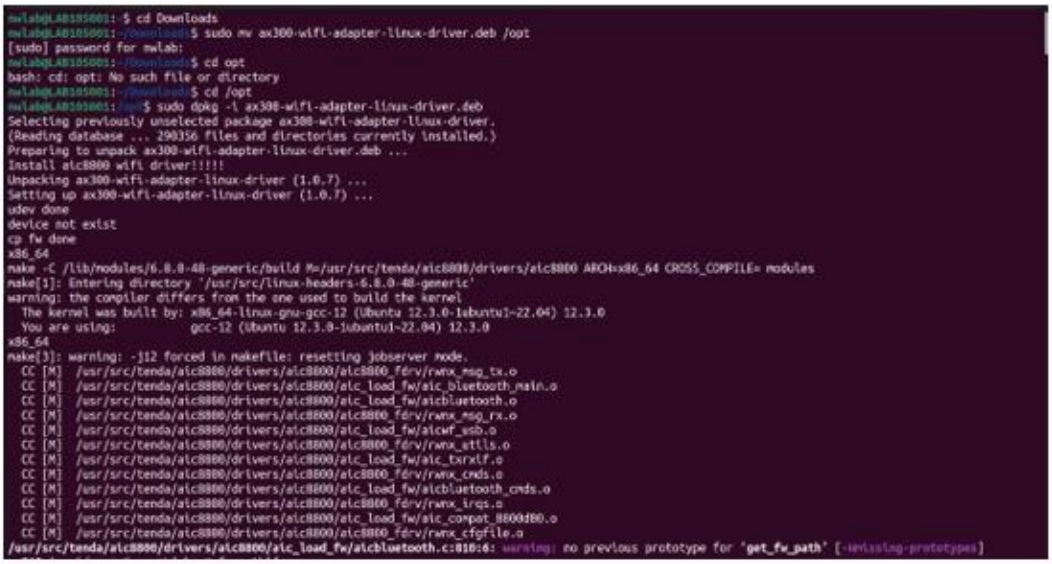
Step 2 : Go to daiict intranet and open tenda file to get the command

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

Step 3 : Then change directory in terminal to /opt

Step 4 : Then finally download the package by typing the command

sudo dpkg ax300-wifi-adapter-linux-driver-deb



Step 5 : After the installation is successful, we connect the pc to the local wifi which in our case was LAB13 wifi connection

```
gcc -c bt_test.c -o bt_test.o
gcc bt_test.o -lpthread -o bt_test
sudo cp wifi_test /sbin
sudo cp bt_test /sbin
Install aic8800 wifi driver successful!!!!!
nwlab@LAB1050011:/opt$ ifconfig
enp0s31f6: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.100.77.75  netmask 255.255.255.0  broadcast 10.100.77.255
        inet6 fe80::7a3d:f47f:e537:43d2  prefixlen 64  scopeid 0x20<link>
        ether a8:a1:59:da:ce:a2  txqueuelen 1000  (Ethernet)
        RX packets 78926  bytes 99138367 (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 0xa0600000-a0620000

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 errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

Step 6 : We write the command ip a/ ifconfig in the terminal to know the ip address of the device.

```
nwlab@LAB1050011:/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: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc fq_codel state DOWN group default qlen 1000
    link/ether 00:e0:4c:68:0d:e3 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: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 690057sec preferred_lft 690057sec
    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 192.168.0.13/24 brd 192.168.0.255 scope global dynamic noprefixroute wlxe865d4c27578
       valid_lft 7143sec preferred_lft 7143sec
    inet6 fe80::8465:cb19:716:1fe1/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
```

Step 7 : The last step is to run the ping command in the terminal to check whether the device connected to the same router is reachable or not.

```
nwlab@LAB1050011:/opt$ ping 192.168.0.7
PING 192.168.0.7 (192.168.0.7) 56(84) bytes of data.
64 bytes from 192.168.0.7: icmp_seq=4 ttl=64 time=2.52 ms
64 bytes from 192.168.0.7: icmp_seq=6 ttl=64 time=515 ms
64 bytes from 192.168.0.7: icmp_seq=7 ttl=64 time=49.5 ms
64 bytes from 192.168.0.7: icmp_seq=8 ttl=64 time=161 ms
64 bytes from 192.168.0.7: icmp_seq=9 ttl=64 time=11.7 ms
64 bytes from 192.168.0.7: icmp_seq=10 ttl=64 time=517 ms
64 bytes from 192.168.0.7: icmp_seq=11 ttl=64 time=4.23 ms
64 bytes from 192.168.0.7: icmp_seq=12 ttl=64 time=3.40 ms
64 bytes from 192.168.0.7: icmp_seq=13 ttl=64 time=3.73 ms
64 bytes from 192.168.0.7: icmp_seq=14 ttl=64 time=3.45 ms
64 bytes from 192.168.0.7: icmp_seq=15 ttl=64 time=5.64 ms
64 bytes from 192.168.0.7: icmp_seq=16 ttl=64 time=41.4 ms
64 bytes from 192.168.0.7: icmp_seq=17 ttl=64 time=26.3 ms
^C
--- 192.168.0.7 ping statistics ---
17 packets transmitted, 13 received, 23.5294% packet loss, time 16147ms
rtt min/avg/max/mdev = 2.515/103.471/517.258/180.660 ms
nwlab@LAB1050011:/opt$
```

Exercise 2 :

To connect multiple hubs via router and set up use wired and wireless configurations with hubs.

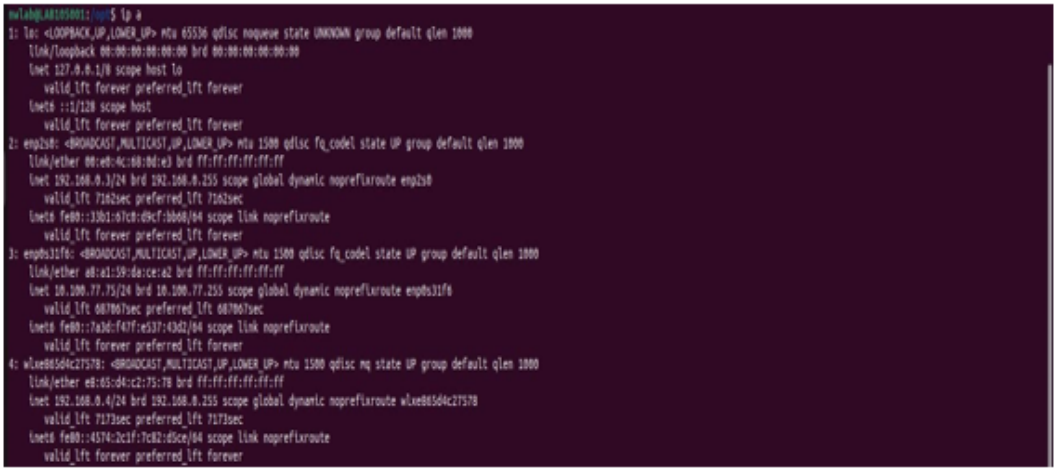
Note that you'll need to do this practical with another group combined.

Solution:

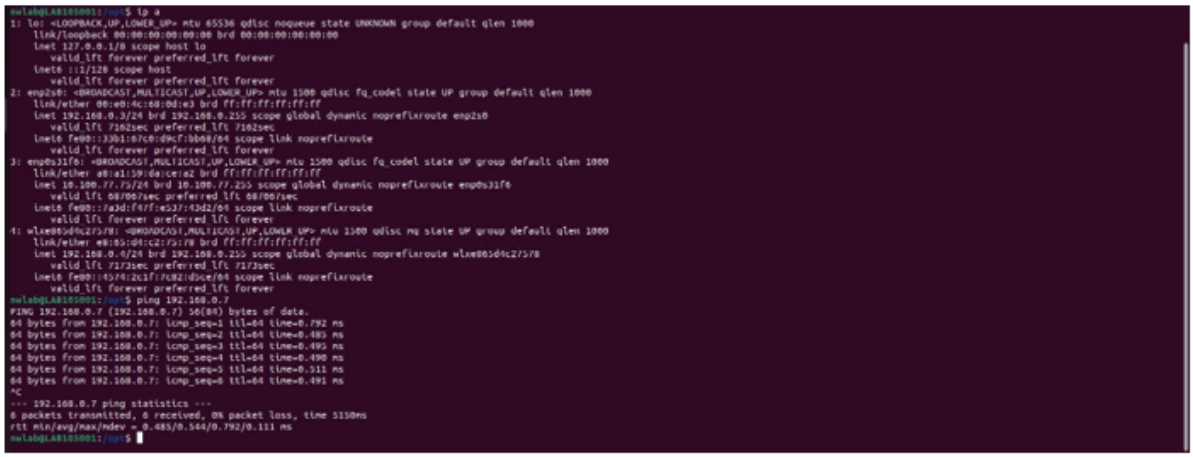
Step 1 : We connect three pc in this exercise. Two pc are connected to the same wifi i.e. LAB13 are connected wirelessly and will have same configurations.

Step 2 : The third one is connected to other wifi i.e. LAB133 wifi connection and then we connect the two pc using wire to the Hub. We then connect both the hubs using a router.

Step 3 : Finally we return to the terminal to again run the command ifconfig/ ip a to know the ip address as it has got changed.



Step 4 : At last we run the ping command in the terminal and note the observations.



Observations :

We observe that when we used wireless connection for the packet transmission, the packet loss percentage was 23% whereas in the case of wired connection we observe that the packet transmission rate is 100% i.e. in other words the packet loss is zero percent. So in this exercise we performed both wireless and wired connections.