Running Hostapd

Configuring Hostapd on the Nvidia Jetson TX2

Setup instructions for running `hostapd` (host access point daemon) on the `nvidia jetson tx2`.

Step 1- Install hostapd

- `sudo apt install hostapd dnsmasq`
    - The command above installs the hostapd software along with dnsmasq which is a small DNS/DHCP server.

Step 2 - Create and edit the hostapd config file :

- Create the file :
    - `zcat /usr/share/doc/hostapd/examples/hostapd.conf.gz | sudo tee -a /etc/hostapd/hostapd.conf`
- Edit the file :
    - `sudo vim /etc/hostapd/hostapd.conf`
      Ensure the following options are set accordingly :

```
interface=wlan0 # ~line 8
ssid=ES_INTERN_NETWORK # ~ line 88
hw_mode=g #2.4GHz (802.11g) # ~ line 138
```

Extra config options available for ex. wpa_passphrase

Step 3 - Edit network interfaces

Edit network interfaces config file to provide access point config for WLAN.

- `sudo vim /etc/network/interfaces`

```
auto wlan0
iface wlan0 inet static
hostapd /etc/hostapd/hostapd.conf
address 192.168.42.1
netmask 255.255.255.0
```

Step 4 - Configure dnsmasq

Edit the dnsmasq config file :

- `sudo vim /etc/dnsmasq.conf`
  Ensure the following options are configured accordingly

```
interface=lo,wlan0 # ~ line 106
no-dhcp-interface=lo # ~ line 115
dhcp-range=192.168.42.50,192.168.42.150,255.255.255.0,12h # ~ line 157
```

    - The dhcp-range allows us to provide IP addresses between 192.168.42.50 and 192.168.42.150 for the wlan0 interface. This range can be modified.

Step 5 - Enable packet forwarding for ipv4

Uncomment line 28 in the file `/etc/sysctl.conf` to enable packet forwarding on ipv4.
- `sudo vim /etc/sysctl.conf`
Edit the file such that it has this line :
`net.ipv4.ip_forward=1 # ensure uncommented and set to 1`

Step 6 - Add a new iptables rule

Edit the file `/etc/rc.local` and insert the following line :
`iptables -t nat -A POSTROUTING -s 192.168.42.0/24 ! -d 192.168.42.0/24 -j MASQUERADE`

Step 7 - Setup Network Manager

Edit the network manager file so that it doesn't interfere witht the wifi access point.

- `sudo vim /etc/NetworkManager/NetworkManager.conf`
  Ensure the file looks like this :

```
[main]
plugins=ifupdown,keyfile,ofono
dns=dnsmasq

[ifupdown]
managed=false

[device]
wifi.scan-rand-mac-address=no
```

Step 8 - Setting Broadcom op_mode on the TX2 WiFi controller

To enable SSID broadcast, the driver's op_mode parameter has to be set to 2.
- run the following command :
`echo 2 > /sys/module/bcmdhd/parameters/op_mode`
- In the file `/etc/modprobe.d/bcmdhd.conf`, add the following line to the file : `options bcmdhd op_mode=2`

Useful links :

- Configuring hostapd on TX1
- Configuring hostapd on Raspberry Pi
- Enabling SSID Brodcast