Tutorial 3 - Internet Router Bridge

Following tutorial was done with Raspbian 10 Buster and hostapd 2.7

Recommendation:

DO NOT use your main system disk (sdCard), instead, use a fresh system

or some "learn/lab/test" system to makes theses tutorials/experiments.

After completing all set of 3 tutorials you should be able to have

a good basic understanding of the whole matter, and should be able

to know the best way to use the knowledge...

Text Editor:

Use the text editor of your preference, like

Geany (GUI based) or Nano (terminal based), etc.

A3.1.0 WiFi between 2 peers (or more).

A3.1.1 Install hostapd software

```
sudo apt install hostapd
```

Temporarilly shutdown hostapd service

```
sudo service hostapd stop
```

Unmask (unlock) hostapd service

```
sudo systemctl unmask hostapd.service
sudo systemctl enable hostapd.service
```

A3.1.2 Create/Modify hostapd configuration file (/etc/hostapd/hostapd.conf)

```
sudo  nano  /etc/hostapd/hostapd.conf
```

Copy and Paste the following text

```
interface=wlan0

#  The following line is new to the config.
#  This line does not existed in the tuto1 and tuto2...
bridge=br0

driver=nl80211
hw_mode=g
channel=6
wmm_enabled=0
macaddr_acl=0
auth_algs=1
ignore_broadcast_ssid=0
wpa=2
wpa_key_mgmt=WPA-PSK
wpa_pairwise=TKIP
rsn_pairwise=CCMP
ssid=YOUR-SSID
wpa_passphrase=YOUR-PASSPHRASE-PASSWORD
```

A3.1.3 Edit the file /etc/hostapd, modify the variable "DAEMON_CONF".

Find the line with "#DAEMON_CONF=",

Remove any "#" sign at the beginning of the line, if it exist.

add the following value:

```
DAEMON_CONF="/etc/hostapd/hostapd.conf"
```

A3.1.4 Edit the file /etc/dhcpcd.conf, give the WIFI an static IP Address

-----

```
    sudo   nano   /etc/dhcpcd.conf
```

Add the following lines at the end of the file.

```
interface wlan0
static ip_address=192.168.50.1/24
nohook wpa_supplicant
```

3.1.5 Start/Restart hostapd service

```
    sudo service hostapd start
```

A3.1.6 Reboot the system

Reboot the system, so that you can use the installed software.

Congratulations, at this point you have a WIFI ACCESS POINT working.

Be aware that the other peer (guest) need to connect and setup manually the IP Address.

The software hostapd described here, DOES NOT provide IP Addresses to the peers that

will be connecting, we will look at it later in other separated tutorial...

Now you can go ahead and connect another peer(guests) compute to this peer(host)!

At this point, peers can connect with each other and run any kind of software

that uses the network link to exchange data. We have an little example

showing how to exchange files between peers using, for example, webbrowser.

A3.2.0 Add Internet Routing to the peers (iptables rules)

THIS STEP IS NOT USED IN THIS TUTORIAL 3!

THIS STEP IS NOT USED IN THIS TUTORIAL 3! No iptables rules are used.

Please, move to the next step 3.3.0

A3.3.0 Install and Configure Bridge Software

A3.3.1 Install bridge-utils

```
sudo apt install bridge-utils
```

A3.3.2 Configure system /etc/network/interfaces

```
sudo nano  /etc/network/interfaces
```

Add the following 3 lines at the end:

```
auto br0
iface br0 inet manual
bridge_ports eth0 wlan0
```

A3.3.3 Just Reminder, Modify /etc/hostapd/hostapd.conf

This step just repeat what the step 3.1.2 did, so it is a repetition...

If you have NOT done so, then you need to add the following line

to the /etc/hostapd/hostapd.conf file:

```
sudo  nano  /etc/hostapd/hostapd.conf
```

Add the following line:

```
bridge=br0
```

This step is already described in the step 3.1.2, above.

If you already have done so, you DO NOT need to do it again (twice).

A3.3.4 Reboot the system

Congratulation, with this tutorial 3 perfomed, you have MANY different options to create mini-networks, wifi-groups, net sharing groups, etc...

We already live in an AGE OF MULTIPLE DEVICES per person, and, an AGE of INTERNET OF EVERYTHING, so, to make a really good use of all these devices we will need to have/create many different networks/groups setups for many different needs.

I hope these 3 small tutorials help you to start getting important knowledge about such an important subject. From here, daily needs and your imagination are enough to lead you to further exploration.