Notes on use of RPi internal and (added) external wifi facilities

Background:

The most recent build of the ConnectBox using the RPi "2020-08-20-raspios-buster-armhf.img" as the base image is available on github as image:

Raspberry-Pi_v20201007a.img.xz

That image has been tested in both the RPi0w and the RPi3B+. Both of these devices have a built in wifi channel (wlan0) and the noted image defaults to use the built in wifi hardware for the ConnectBox server. It may be desirable to add an external wifi device (assigned to wlan1) to allow ethernet connection (particularly for the RPi0w) over wifi. It may also be desirable for the ConnectBox server to use external wifi hardware to improve the range of the ConnectBox server. This document covers both of these topics. The first section will show how to enable a second wifi signal (wlan1) for use in connecting the RPi to the ethernet. The second section covers swapping the wlan0 and wlan1 channels so that the ethernet connection uses the internal wifi hardware (wlan0) and the ConnectBox server uses the external hardware (wlan1).

RPi changes to enable wlan1:

After burning the above image to a uSD card, mount the card in your RPi device and boot the RPi. (The following instructions assume a monitor and keyboard attached to your RPi, but the required changes can just as easily be accomplished using a terminal program connected to the RPi via SSH.) From the keyboard, hit the key combination: **ctrl-alt-F2** to open a terminal window. (Note: You can get back to the desktop screen by hitting the key combination: **ctrl-alt-F7.)** In the terminal window, do the following:

- log in as **root** using password **connectbox.**
- **cd /etc/network**
- edit the file, **interfaces** using vi or your favorite editor to add the following lines:

  allow-hotplug wlan0
  iface wlan0 inet dhcp
  wpa-ssid "<your local network>"
  wpa-psk "<your local network password>"
- save the file (you will need to be root, or do the edit using "sudo" in order to save the file)
- reboot your RPi by typing **reboot now**.

When your RPi is rebooted, verify that you have connection to your internet. (Perhaps the easiest way to do the verification is to open the terminal window and try **ping** google.com**.**

It is recommended to verify that you have internet connection through wlan1 (as described above) before proceeding to do the wlan0 / wlan1 swap described in the next section.

RPi changes to enable the ConnectBox server to use wlan1

To make the swap between wlan0 and wlan1, open a terminal window and again log in as **root.** Now we will edit and save **5** files:

- **cd /etc/network**
- edit the file **interfaces** to change all occurrences of **wlan0** to **wlan1**, and all occurrences of **wlan1** to **wlan0**. (There will be **2** occurrences of **each**.)
- save the file

- **cd /usr/local/connectbox/wifi_configurator_venv/lib/python3.7/site-packages/wifi_configurator**
- edit the file **cli.py** to change **wlan0** to **wlan1** (one place… about line 112)
- save the file

- **cd /etc/wpa_supplicant/**
- edit the file **wpa_supplicant.conf** to add the following line:
  country=US
- save the file

- **cd /usr/local/connectbox/bin**
- edit the file **ConnectBoxManage.sh**
- change **wlan0** to **wlan1** (**2** places… about lines 386 and 394)
- save the file

- **cd /etc/**
- edit the file **dnsmasq.conf**
- change the line **interface=wlan0** to **interface=wlan1** (about line 57)
- save the file

- **reboot now**

After rebooting, you should find you have internet connection on wlan0 and the ConnectBox server using wlan1.