

BananaPro/Pi:WiFi configuration

From BananaPro/Pi

On Banana Pro, there is onboard AP6181 WiFi module, you can use it directly. On Banana Pi, you need use a USB wifi dongle instead.

Contents

- 1 Overview
- 2 Use WiFi as the station mode
- 3 WiFi Access Point mode

Overview

The Banana Pi's portability is an incredible asset to the tiny Soc,allowing people tp put it anywhere around the house,or indeed in any project that needs some computer power.

Use WiFi as the station mode

Most people will use the onboard WiFi to connect the router, so it is station mode.

Step 1:Load the WiFi driver

On Banana Pro, you need load the WiFi driver. Although we use AP6181, but the wifi driver is the same of the AP6210, so the driver name is called AP6210. You can use the command in the below to enable the function of the WiFi:

```
sudo modprobe ap6210
```

You can see if the driver has been loaded by:

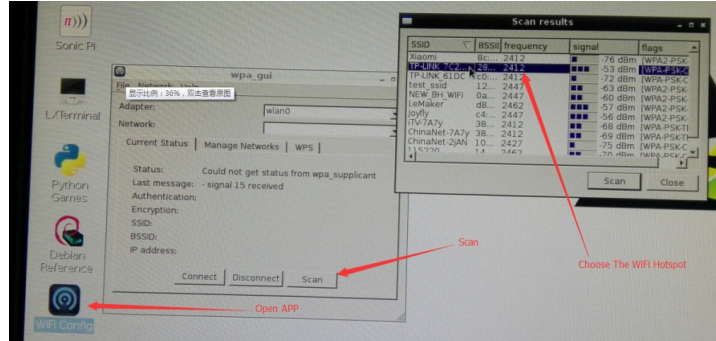
```
lsmod
```

If you want to auto load the WiFi driver when you boot the system. you can add "ap6210" into the /etc/modules file:

```
sudo nano /etc/modules
```

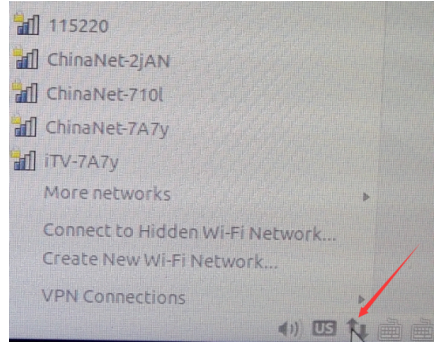
1.Raspbian

On the Raspbian system, you can connect to the WiFi hot spot by using the WiFi Config application, as follows:



2.Lubuntu

On the Lubuntu system, you can connect to the WiFi hot spot by clicking the button which is at the right bottom corner of the desktop, as follows:



3.Linux without Desktop

If you use the Linux-like system without desktop, and recommend you to use wpa_supplicant tool to connect the WiFi hot spot, An example of the Debian as follows.

Install wpa_supplicant.

```
sudo apt-get install wpasupplicant
```

Edit the wpa_supplicant.conf

```
sudo nano /etc/wpa_supplicant/wpa_supplicant.conf
```

Add the content below into the wpa_supplicant.conf:

```
ap_scan=1 # use the wpa_supplicant to scan and choose the AP
network={
    ssid="Star-01"
    psk="12345678"
}
```

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

Edit the wlan part of the interfaces file:

```
auto wlanx
iface wlanx inet dhcp
pre-up wpa_supplicant -B -i wlanx -c/etc/wpa_supplicant
/wpa_supplicant.conf
pre-down killall -q wpa_supplicant
```

Note: wlanX represent wlan0,wlan1 ...

Full networking example

This example configures eth0 with both dhcp and a static address and it also configures the wifi. For the wifi it uses wpa_roam so that you can configure multiple wifi networks which are automatically managed.

With this configuration you can:

- take your pi anywhere and have it automatically connect to the wifi (if you have configured the username/password ofcourse :-)
- connect your pi to a wired network that has a DHCP server
- connect your pi directly to your computer (wired) without a need for a DHCP server (you have to configure the ethernet port of your computer for a fixed IP address for this)

The */etc/network/interfaces* file:

```
auto lo
iface lo inet loopback

auto eth0
iface eth0 inet dhcp

auto eth0:1
iface eth0:1 inet static
    address 192.168.1.65
    netmask 255.255.255.0

auto wlan0
allow-hotplug wlan0
iface wlan0 inet manual
    wpa-roam /etc/wpa_supplicant/wpa_supplicant.conf

iface default inet dhcp
```

The `/etc/wpa_supplicant/wpa_supplicant.conf` file (the network specific options may differ for your wifi networks ofcourse):

```
ap_scan=1
network={
    ssid="<SSID1 here>"
    scan_ssid=1
    key_mgmt=WPA-EAP
    eap=PEAP
    identity="<username1 here>"
    password="<password1 here>"
    phase1="peaplabel=0"
    phase2="auth=MSCHAPV2"
}
network={
    ssid="<SSID2 here>"
```

WiFi Access Point mode

If you want to use the AccessPoint(abbreviation:AP) mode of the AP6181 WiFi module on the Banana Pro, you can refer to the instructions below.

Setp 1:Edit the /etc/modules

Edit the */etc/modules* file, and add the content below into the file:

```
ap6210 op_mode=2
```

Setp 2:Download and compile the hostapd

```
git clone git://w1.fi/srv/git/hostap.git
sudo apt-get install libnl-dev
sudo apt-get install openssl
sudo apt-get install libssl-dev
cd hostap/hostapd
cp defconfig .config
make
sudo cp hostapd /usr/local/bin
```

Setp 3:Create and edit the hostapd.conf

```
sudo mkdir -p /etc/hostapd
sudo nano /etc/hostapd/hostapd.conf
```

Add the content below into the `hostapd.conf` file:

```
interface=wlanx
driver=nl80211
ssid=ap6210_ap_test
channel=6
hw_mode=g
macaddr_acl=0
auth_algs=1
ignore_broadcast_ssid=0
wpa=2
wpa_passphrase=12345678
wpa_key_mgmt=WPA-PSK
wpa_pairwise=TKIP
rsn_pairwise=CCMP
}
```

You can change the ssid and wpa_passphrase.

Setp 4:Edit the network interfaces

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

Replace the content below:

```
auto lo
iface lo inet loopback
iface eth0 inet dhcp
allow-hotplug wlanx
iface wlanx inet static
address 192.168.100.1
netmask 255.255.255.0
```

```
sudo apt-get install udhcpd
```

Edit the *udhcpd.conf*

```
nano /etc/udhcpd.conf
```

Add the content below into the file:

```
#The start and end of the IP lease block
start 192.168.100.101 #default: 192.168.0.20
end 192.168.100.254 #default: 192.168.0.254
#The interface that udhcpd will use
interface wlanx #default: eth0
#Examples
option subnet 255.255.255.0
opt router 192.168.100.1
opt wins 192.168.100.1
option dns 192.168.100.1
option domain local
option lease 864000
```

Setp 6:Reboot and restart the server

Run the DHCP server:

```
udhcpd /etc/udhcpd.conf
```

Run the hostapd:

```
hostapd -B /etc/hostapd/hostapd.conf
```

And then you can check the result:

```
iwconfig
```

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