The Raspberry Pi 4B has a wireless network adapter on the board that can be turned into a wireless router without wireless network card.

The method we use here is to enable the AP function of the Raspberry Pi wireless network adapter and share its wired network.

The following describes how to enable the AP function of the Raspberry Pi wireless network adapter, and boot automatically to implement wireless routing.

This time we need to download the create_ap project on github and use this project to open the AP mode of the Raspberry Pi.

1.Install creat_ap

1.1 Download create_ap

We need to enter the command shown below at the command terminal to switch directory to pi user:

cd /home/pi

We need to enter the command shown below at the command terminal to download:

git clone https://github.com/oblique/create_ap

```
pi@raspberrypi:~ $ git clone https://github.com/oblique/create_ap
Cloning into 'create_ap'...
remote: Enumerating objects: 1034, done.
remote: Total 1034 (delta 0), reused 0 (delta 0), pack-reused 1034
Receiving objects: 100% (1034/1034), 340.18 KiB | 254.00 KiB/s, done.
Resolving deltas: 100% (571/571), done.
```

Enter the command shown below at the command terminal to view files in the current folder

cd create_ap

ls

```
pi@raspberrypi:~ $ cd create_ap/
pi@raspberrypi:~/create_ap $ ls
bash_completion  create_ap.conf     howto    Makefile
create_ap        create_ap.service  LICENSE  README.md
pi@raspberrypi:~/create_ap $
```

1.2 Install create_ap

Enter the command shown below at the command terminal:

sudo make install

```
pi@raspberrypi:~/create_ap $ sudo make install
install -Dm755 create_ap /usr/bin/create_ap
install -Dm644 create_ap.conf /etc/create_ap.conf
[ ! -d /lib/systemd/system ] || install -Dm644 create_ap.service /usr/lib/system
d/system/create_ap.service
install -Dm644 bash_completion /usr/share/bash-completion/completions/create_ap
install -Dm644 README.md /usr/share/doc/create_ap/README.md
pi@raspberrypi:~/create_ap $
```

Enter the command shown below at the command terminal:

sudo apt-get install util-linux procps hostapd iproute2 iw haveged dnsmasq

Note: Before creating a WiFi hotspot, we need to make sure the Raspberry Pi has turned on the WiFi settings and is not connected to any WiFi signals. We need to insert a network cable that can be accessed online.

1.3 Test created Wifi hotspot

sudo create_ap wlan0 eth0 name of WiFi hotspot password

For example : **sudo create_ap wlan0 eth0 YahboomPiWiFi 12345678**

```
pi@raspberrypi:~ $ sudo create_ap wlan0 eth0 YahboomPiWiFi 12345678
WARN: brmfmac driver doesn't work properly with virtual interfaces and
      it can cause kernel panic. For this reason we disallow virtual
      interfaces for your adapter.
      For more info: https://github.com/oblique/create_ap/issues/203
WARN: Your adapter does not fully support AP virtual interface, enabling --no-vi
rt
Config dir: /tmp/create_ap.wlan0.conf.hmxiXtxj
PID: 1833
Sharing Internet using method: nat
hostapd command-line interface: hostapd_cli -p /tmp/create_ap.wlan0.conf.hmxiXtx
j/hostapd_ctrl
Configuration file: /tmp/create_ap.wlan0.conf.hmxiXtxj/hostapd.conf
wlan0: Could not connect to kernel driver
Using interface wlan0 with hwaddr dc:a6:32:00:4a:f3 and ssid "YahboomPiWiFi"
wlan0: interface state UNINITIALIZED->ENABLED
wlan0: AP-ENABLED
```

When you turn on the phone. You can search for the YahboomPiWiFi WiFi signal the password is 12345678.

2. Setting Boot self-start AP mode

2.1 We need to create a script

nano startAP.sh

We need to input the command shown below：

#！ /bin/sh

sudo create_ap wlan0 eth0 YahboomPiWiFi 12345678

```
#!/bin/sh
sudo create_ap wlan0 eth0 YahboomPiWiFi 12345678
```

We need to input the command shown below to add permissions to script files

sudo chmod 777 startAP.sh

```
pi@raspberrypi:~ $ sudo chmod 777 startAP.sh
```

2.2 Create a new **.desktop** shortcut startup file

Enter ./config file

cd /home/pi/./config

Create a new autostart folder, ignore this step if you already have it.

mkdir autostart

Enter autostart file:

cd autostart

Create self-starting shortcut:

nano startAP.desktop

Then enter the following:

[Desktop Entry]

Type=Application

Exec=/home/pi/startAP.sh

```
  GNU nano 3.2 startAP.desktop

[Desktop Entry]

Type=Application

Exec=/home/pi/startAP.sh
```

After the modification is completed, press **ctrl+x**, "**y**", "**enter**" to save and exit the file.

Exec = the path to the startup script.

3. We can restart the Raspberry Pi and see the actual effect:

Input the command shown below:

sudo reboot