

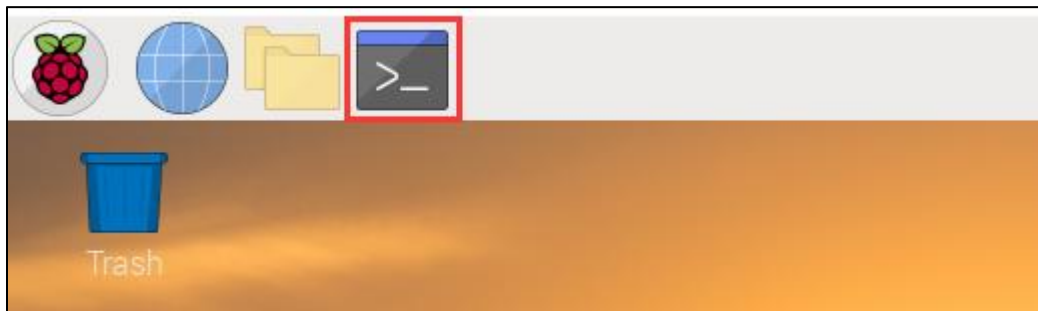
Lesson 2 Modify Wi-Fi

1.Modify Raspberry Pi Wi-Fi

The computer is supposed to connect to the Wi-Fi hotspot started with “HW” which is launched by Raspberry Pi. When there are multiple robots around, the wrong connection may occur. If you want to modify the default Wi-Fi name and password, please check the following steps.

1) Turn on Raspberry Pi, start VNC and then connect to the Raspberry Pi remote desktop.

2) Click  to open LX terminal.



3) Enter “cd /boot” command, and then enter “sudo vim hiwonder_wifi_conf.py” command to open Wi-Fi configuration file.

```
pi@raspberrypi: /boot
File Edit Tabs Help
pi@raspberrypi:~ $ cd /boot
pi@raspberrypi:/boot $ sudo vim hiwonder_wifi_conf.py
```

4) The interface is as follow:

```

pi@raspberrypi: /boot
File Edit Tabs Help
1 #!/usr/bin/python3
2 #coding:utf8
3
4 #HW_WIFI_MODE = 1           #WIFI working mode: 1 is AP mode and 2 is STA mode.
5 #HW_WIFI_AP_SSID = 'ssid_name'   #SSID under AP mode consists of character and number.
6 #HW_WIFI_AP_PASSWORD = 'password' #WIFI password under AP mode consists of character and number.
7 #HW_WIFI_AP_GATEWAY = '192.168.149.1' #The local IP under AP mode defaults 192.168.149.1. If you modify it, you will not able to enter the wifi configuration interface on the APP.
8
9 HW_WIFI_FREQ_BAND = 5           #wifi frequency under AP mode directly assign as 2.4 or 5 corresponding to 2.4G and 5G.
10 HW_WIFI_CHANNEL = 149           #WIFI channel under AP mode currently available for testing under 5G are 149, 153, 157, 161
11 #HW_WIFI_STA_SSID = 'ssid_name'   #SSID under STA mode
12 #HW_WIFI_STA_PASSWORD = 'password' #WIFI password under STA mode
13 #HW_WIFI_TIMEOUT = 30           #The timeout period when the STA connects to the wifi hotspot. If fail to connection after the time expires, the connection is considered as failure. The default timeout period is 30 seconds.
000
"hiwonder_wifi_conf.py" 17L, 1458C                               11,36           Top

```

5) Press the "i" on the keyboard and then the "--Insert--" mark will be displayed on the interface. Please refer to the corresponding notes to modify.

```

pi@raspberrypi: /boot
File Edit Tabs Help
1 #!/usr/bin/python3
2 #coding:utf8
3
4 #HW_WIFI_MODE = 1           #WIFI working mode: 1 is AP mode and 2 is STA mode.
5 #HW_WIFI_AP_SSID = 'ssid_name'   #SSID under AP mode consists of character and number.
6 #HW_WIFI_AP_PASSWORD = 'password' #WIFI password under AP mode consists of character and number.
7 #HW_WIFI_AP_GATEWAY = '192.168.149.1' #The local IP under AP mode defaults 192.168.149.1. If you modify it, you will not able to enter the wifi configuration interface on the APP.
8
9 HW_WIFI_FREQ_BAND = 5           #wifi frequency under AP mode directly assign as 2.4 or 5 corresponding to 2.4G and 5G.
10 HW_WIFI_CHANNEL = 149           #WIFI channel under AP mode currently available for testing under 5G are 149, 153, 157, 161
11 #HW_WIFI_STA_SSID = 'ssid_name'   #SSID under STA mode
12 #HW_WIFI_STA_PASSWORD = 'password' #WIFI password under STA mode
13 #HW_WIFI_TIMEOUT = 30           #The timeout period when the STA connects to the wifi hotspot. If fail to connection after the time expires, the connection is considered as failure. The default timeout period is 30 seconds.
000
-- INSERT --
11,36           Top

```

6) If want to modify the Raspberry Pi name as "Hiwonder" and password as "12345678", you only need to revise the info as shown in the below figure. Do not forget to delete "#" to make it effective.

```
pi@raspberrypi: /boot
File Edit Tabs Help
1 #!/usr/bin/python3
2 #coding:utf8
3
4 #HW_WIFI_MODE = 1 #WIFI working mode: 1 is AP mode and 2 is STA mode.
5 HW_WIFI_AP_SSID = 'Hiwonder' #SSID under AP mode consists of character and number.
6 HW_WIFI_AP_PASSWORD = '12345678' #WIFI password under AP mode consists of character and number.
7 #HW_WIFI_AP_GATEWAY = '192.168.149.1' #The local IP under AP mode defaults 192.168.149.1. If you modify it, you will not able to enter the wifi configuration interface on the APP.
8
9 HW_WIFI_FREQ_BAND = 5 #wifi frequency under AP mode directly assign as 2.4 or 5 corresponding to 2.4G and 5G.
10 HW_WIFI_CHANNEL = 149 #WiFi channel under AP mode currently available for testing under 5G are 149, 153, 157, 161
11 #HW_WIFI_STA_SSID = 'ssid_name' #SSID under STA mode
12 #HW_WIFI_STA_PASSWORD = 'password' #WIFI password under STA mode
13 #HW_WIFI_TIMEOUT = 30 #The timeout period when the STA connects to the wifi hotspot. If fail to connection after the time expires, the connection is considered as failure. The default timeout period is 30 seconds.
000
-- INSERT -- 7,32 Top
```

7) If the network card does not support the 5G frequency band, please modify the frequency band to 2.4G. Change the default value of HW_WIFI_FREQ_BAND to 2.4, add "#" before "HW_WIFI_CHANNEL = 149". Please note that the 2.4G transmission rate is lower than the 5G rate.

```
pi@raspberrypi: /boot
File Edit Tabs Help
1 #!/usr/bin/python3
2 #coding:utf8
3
4 #HW_WIFI_MODE = 1 #WIFI working mode: 1 is AP mode and 2 is STA mode.
5 HW_WIFI_AP_SSID = 'Hiwonder' #SSID under AP mode consists of character and number.
6 HW_WIFI_AP_PASSWORD = '12345678' #WIFI password under AP mode consists of character and number.
7 #HW_WIFI_AP_GATEWAY = '192.168.149.1' #The local IP under AP mode defaults 192.168.149.1. If you modify it, you will not able to enter the wifi configuration interface on the APP.
8
9 HW_WIFI_FREQ_BAND = 2.4 #wifi frequency under AP mode directly assign as 2.4 or 5 corresponding to 2.4G and 5G.
10 HW_WIFI_CHANNEL = 7 #WiFi channel under AP mode currently available for testing under 5G are 149, 153, 157, 161
11 #HW_WIFI_STA_SSID = 'ssid_name' #SSID under STA mode
12 #HW_WIFI_STA_PASSWORD = 'password' #WIFI password under STA mode
13 #HW_WIFI_TIMEOUT = 30 #The timeout period when the STA connects to the wifi hotspot. If fail to connection after the time expires, the connection is considered as failure. The default timeout period is 30 seconds.
000
-- INSERT -- 11,20 Top
```

8) After the modification is complete, press "ESC" and enter ":wq". Then save

and exit the file.

```

pi@raspberrypi: /boot
File Edit Tabs Help
1 #!/usr/bin/python3
2 #coding:utf8
3
4 #HW_WIFI_MODE = 1           #WIFI working mode: 1 is AP mode and 2 is STA mode.
5 HW_WIFI_AP_SSID = 'Hiwonder'   #SSID under AP mode consists of character and number.
6 HW_WIFI_AP_PASSWORD = '12345678' #WIFI password under AP mode consists of character and number.
7 #HW_WIFI_AP_GATEWAY = '192.168.149.1' #The local IP under AP mode defaults 192.168.149.1. If you modify it, you will not able to enter the wifi configuration interface on the APP.
8
9 HW_WIFI_FREQ_BAND = 2.4       #wifi frequency under AP mode directly as sign as 2.4 or 5 corresponding to 2.4G and 5G.
10 HW_WIFI_CHANNEL = 7         #WiFi channel under AP mode currently available for testing under 5G are 149, 153, 157, 161
11 #HW_WIFI_STA_SSID = 'ssid_name' #SSID under STA mode
12 #HW_WIFI_STA_PASSWORD = 'password' #WIFI password under STA mode
13 #HW_WIFI_TIMEOUT = 30        #The timeout period when the STA connects to the wifi hotspot. If fail to connection after the time expires, the connection is considered as failure. The default timeout period is 30 seconds.

```

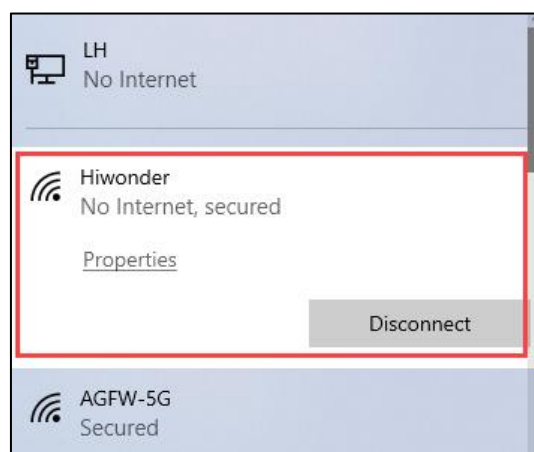
9) Enter “**sudo systemctl restart hw-wifi.service**” , press “Enter ” to restart the file. Then the VNC will disconnect automatically.

```

pi@raspberrypi: /boot
File Edit Tabs Help
pi@raspberrypi:~ $ cd /boot
pi@raspberrypi:/boot $ sudo vim hiwonder_wifi_conf.py
pi@raspberrypi:/boot $ sudo systemctl restart hw_wifi.service

```

10) In the Wi-Fi setting area, you can find that the Wi-Fi name will be updated as “Hiwonder”. Enter password “12345678” to connect.

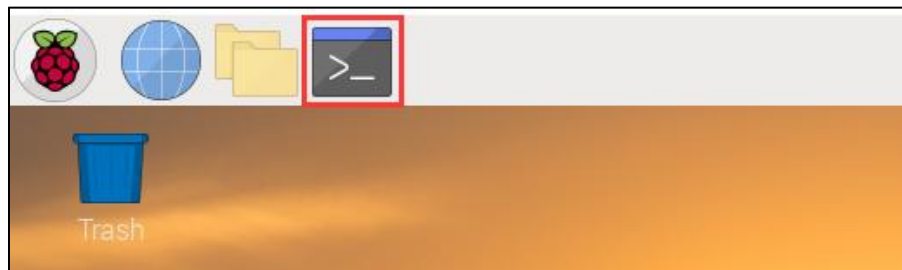


2. Set a Static IP for the Raspberry Pi

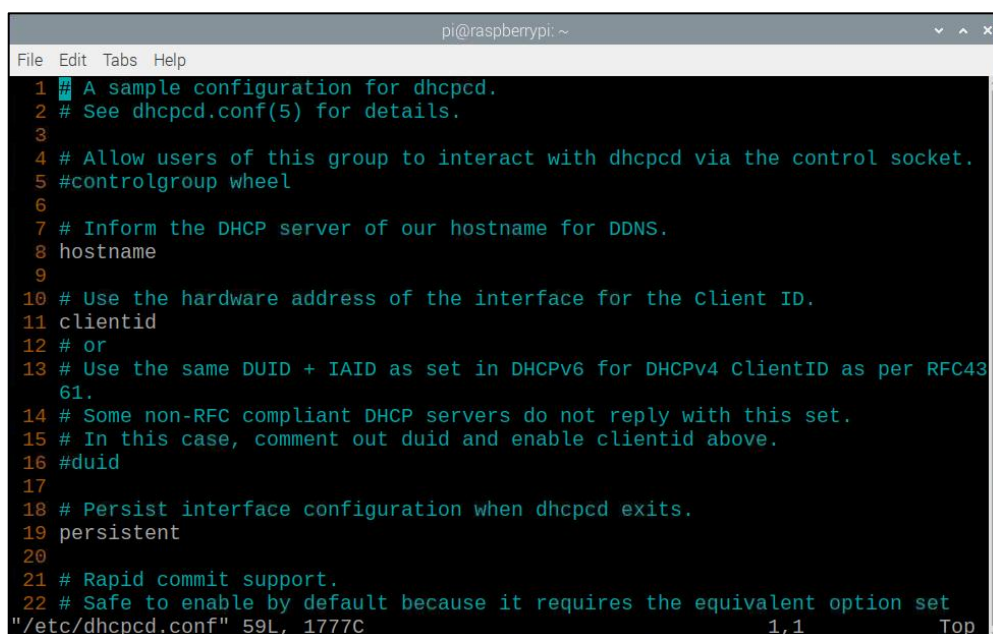
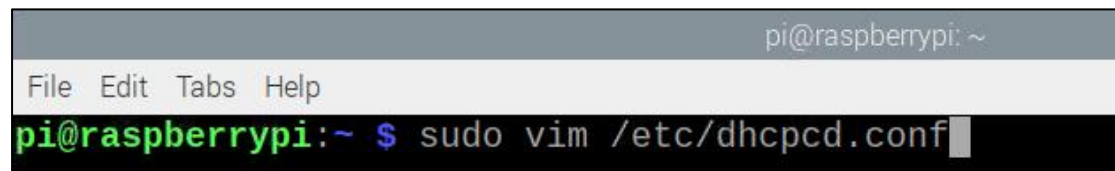
When using wired connection, it's more convenient for you to set a static IP. Here is the method for setting a static IP.

1) Turn on Raspberry Pi, start VNC and connect to Raspberry Pi remote desktop.

2) Click  to open LX terminal.



3) Enter "sudo vim /etc/dhcpd.conf" to open dhcpd.conf configuration file.



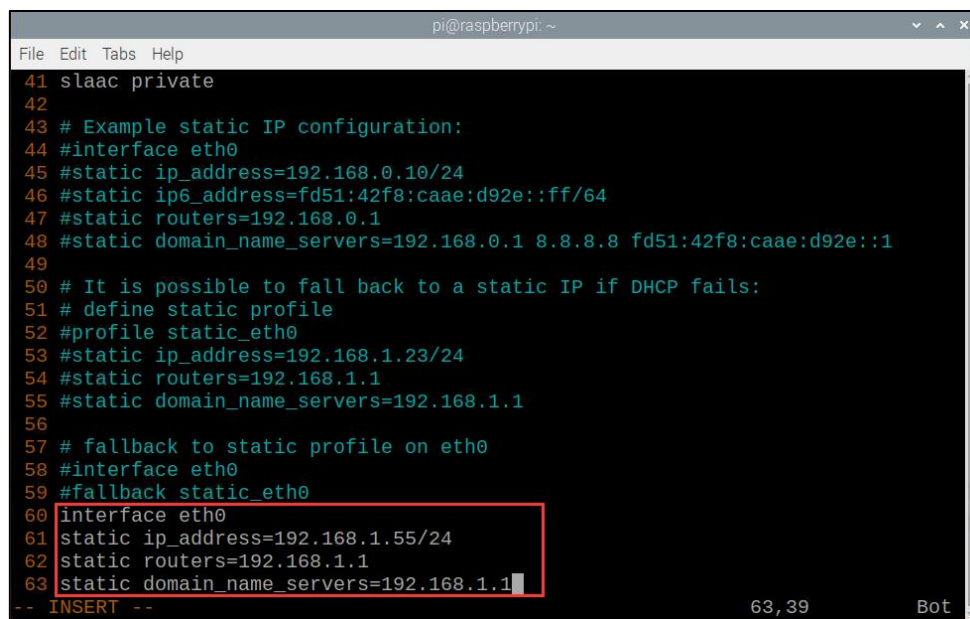
4) Press the "i" key at the end of the file to enter the insert mode, and enter the following:

```
interface eth0 #Wired network card 0

static ip_address=192.168.1.55/24 #have a static IP address for the wired network card/24

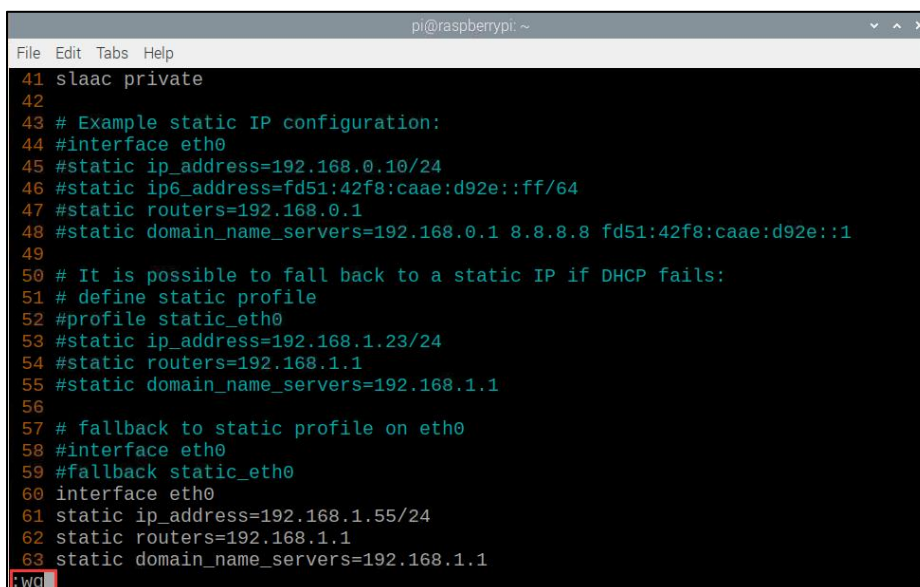
static routers=192.168.1.1 #gateway address

static domain_name_servers=192.168.1.1 #DNS address
```



```
pi@raspberrypi: ~
File Edit Tabs Help
41 slaac private
42
43 # Example static IP configuration:
44 #interface eth0
45 #static ip_address=192.168.0.10/24
46 #static ip6_address=fd51:42f8:caae:d92e::ff/64
47 #static routers=192.168.0.1
48 #static domain_name_servers=192.168.0.1 8.8.8.8 fd51:42f8:caae:d92e::1
49
50 # It is possible to fall back to a static IP if DHCP fails:
51 # define static profile
52 #profile static_eth0
53 #static ip_address=192.168.1.23/24
54 #static routers=192.168.1.1
55 #static domain_name_servers=192.168.1.1
56
57 # fallback to static profile on eth0
58 #interface eth0
59 #fallback static_eth0
60 interface eth0
61 static ip_address=192.168.1.55/24
62 static routers=192.168.1.1
63 static domain_name_servers=192.168.1.1
-- INSERT -- 63, 39 Bot
```

5) Then we press "Esc", enter ":wq" at the bottom left (note that the colon before wq), press enter to save and exit.



```
pi@raspberrypi: ~
File Edit Tabs Help
41 slaac private
42
43 # Example static IP configuration:
44 #interface eth0
45 #static ip_address=192.168.0.10/24
46 #static ip6_address=fd51:42f8:caae:d92e::ff/64
47 #static routers=192.168.0.1
48 #static domain_name_servers=192.168.0.1 8.8.8.8 fd51:42f8:caae:d92e::1
49
50 # It is possible to fall back to a static IP if DHCP fails:
51 # define static profile
52 #profile static_eth0
53 #static ip_address=192.168.1.23/24
54 #static routers=192.168.1.1
55 #static domain_name_servers=192.168.1.1
56
57 # fallback to static profile on eth0
58 #interface eth0
59 #fallback static_eth0
60 interface eth0
61 static ip_address=192.168.1.55/24
62 static routers=192.168.1.1
63 static domain_name_servers=192.168.1.1
:wq
```

6) Enter “sudo reboot” command to restart Raspberry Pi and connect with the new static IP.

```
File Edit Tabs Help
pi@raspberrypi:~ $ sudo vim /etc/dhcpd.conf
pi@raspberrypi:~ $ sudo reboot
```