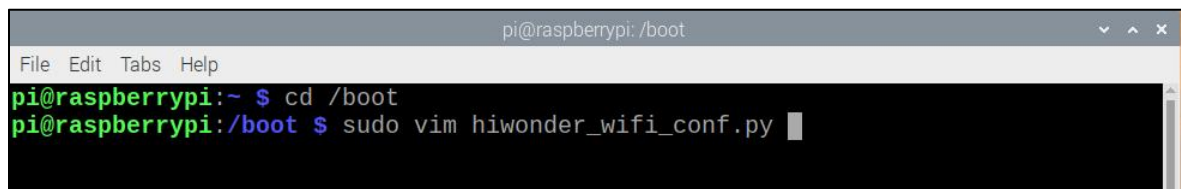


Lesson 6 Modify Wi-Fi

1. Modify Raspberry Pi Wi-Fi

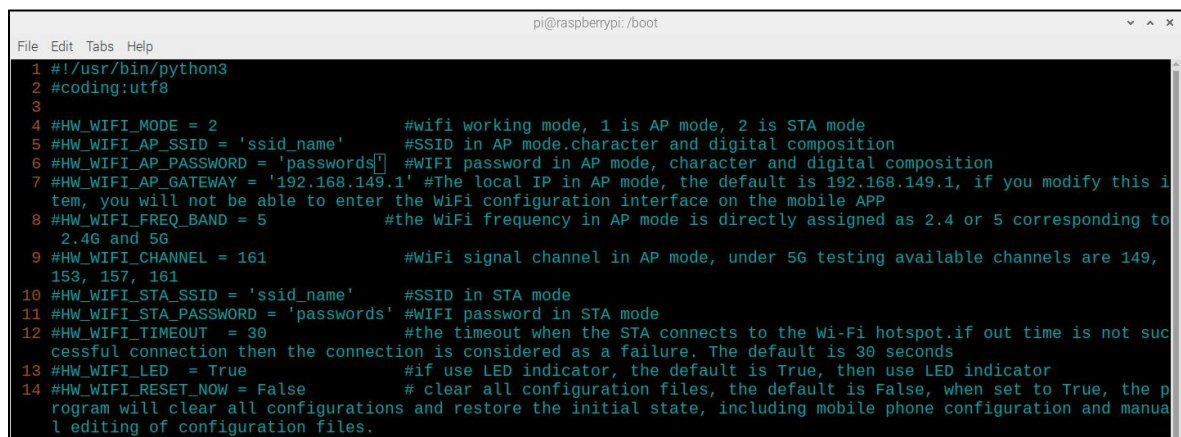
The computer is supposed to connect to the Wi-Fi hotspot named with the first letters “HW” which is launched by Raspberry Pi. When there are multiple robots around, the wrong connection may occur. If you want to modify the default Wi-Fi name and password, please check the following steps.

- 1) Turn on Raspberry Pi, start VNC and then connect to the Raspberry Pi remote desktop.
- 2) Press “**Ctrl+Alt+T**” to turn on LX terminal.
- 3) Enter the following command to jump and open the Wi-Fi configuration file with an editor.



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

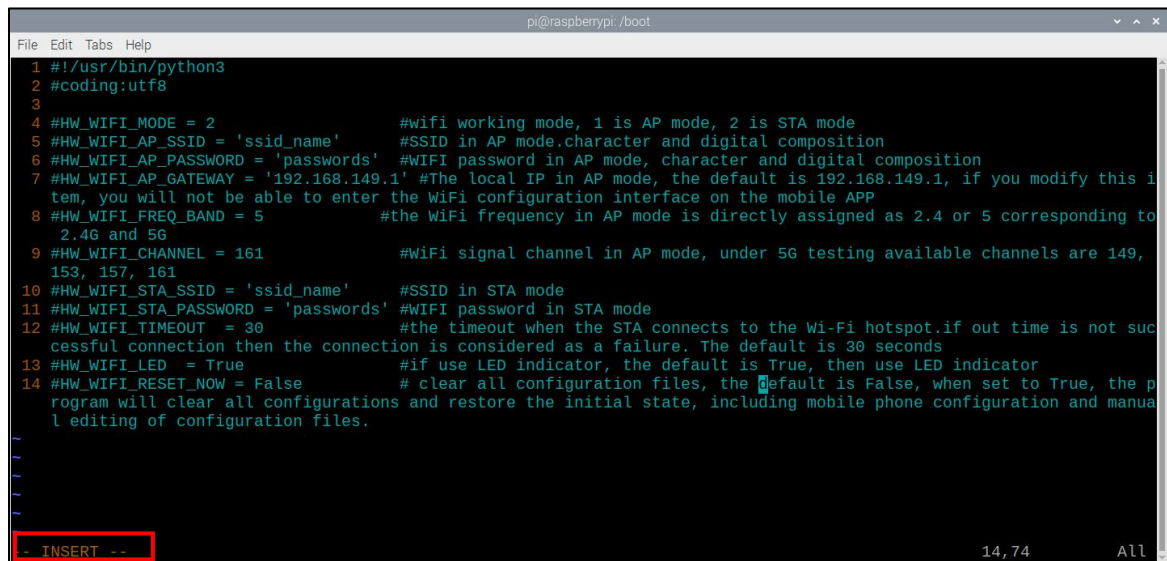
- 4) Interface as below:



```
pi@raspberrypi: /boot
File Edit Tabs Help
1 #!/usr/bin/python3
2 #coding:utf8
3
4 #HW_WIFI_MODE = 2                #wifi working mode, 1 is AP mode, 2 is STA mode
5 #HW_WIFI_AP_SSID = 'ssid_name'   #SSID in AP mode.character and digital composition
6 #HW_WIFI_AP_PASSWORD = 'passwords' #WIFI password in AP mode, character and digital composition
7 #HW_WIFI_AP_GATEWAY = '192.168.149.1' #The local IP in AP mode, the default is 192.168.149.1, if you modify this i
8 #HW_WIFI_FREQ_BAND = 5          #the WiFi frequency in AP mode is directly assigned as 2.4 or 5 corresponding to
9 #HW_WIFI_CHANNEL = 161          #WiFi signal channel in AP mode, under 5G testing available channels are 149,
10 #HW_WIFI_STA_SSID = 'ssid_name' #SSID in STA mode
11 #HW_WIFI_STA_PASSWORD = 'passwords' #WIFI password in STA mode
12 #HW_WIFI_TIMEOUT = 30           #the timeout when the STA connects to the Wi-Fi hotspot.if out time is not suc
13 #HW_WIFI_LED = True             #if use LED indicator, the default is True, then use LED indicator
14 #HW_WIFI_RESET_NOW = False      # clear all configuration files, the default is False, when set to True, the p
15                                # program will clear all configurations and restore the initial state, including mobile phone configuration and manual
16                                # editing of configuration files.
```

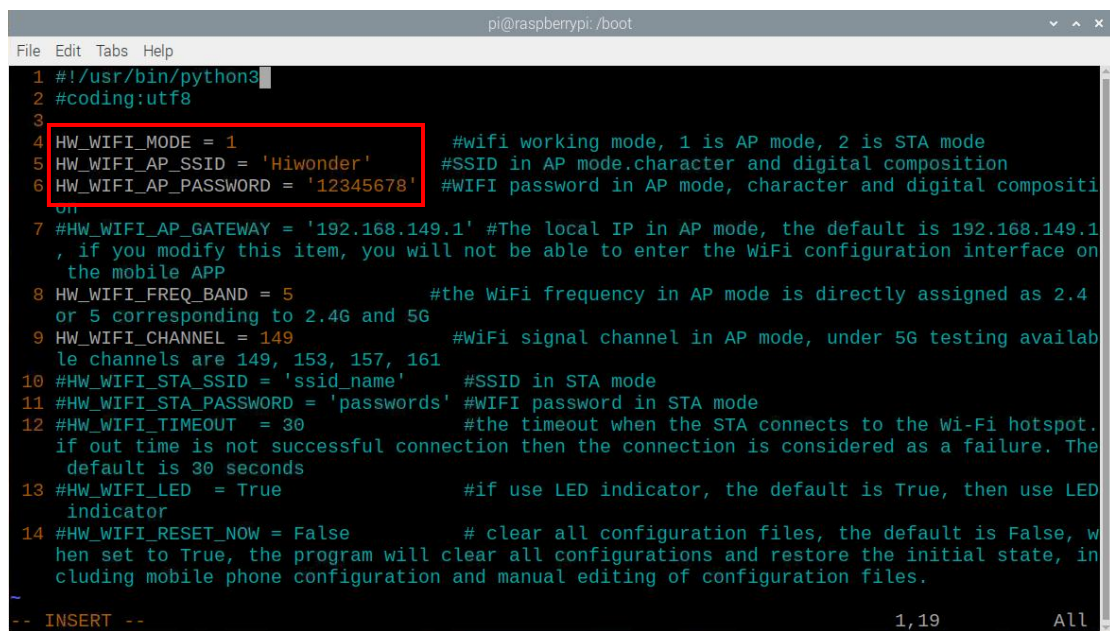
- 5) Press the "i" on the keyboard and then the "--Insert--" mark will be

displayed on the interface. Please refer to the corresponding notes to modify.



```
1 #!/usr/bin/python3
2 #coding:utf8
3
4 #HW_WIFI_MODE = 2                #wifi working mode, 1 is AP mode, 2 is STA mode
5 #HW_WIFI_AP_SSID = 'ssid_name'   #SSID in AP mode,character and digital composition
6 #HW_WIFI_AP_PASSWORD = 'passwords' #WIFI password in AP mode, character and digital composition
7 #HW_WIFI_AP_GATEWAY = '192.168.149.1' #The local IP in AP mode, the default is 192.168.149.1, if you modify this i
8 #HW_WIFI_FREQ_BAND = 5           #the WiFi frequency in AP mode is directly assigned as 2.4 or 5 corresponding to
9 #HW_WIFI_CHANNEL = 161           #WiFi signal channel in AP mode, under 5G testing available channels are 149,
10 #HW_WIFI_STA_SSID = 'ssid_name'  #SSID in STA mode
11 #HW_WIFI_STA_PASSWORD = 'passwords' #WIFI password in STA mode
12 #HW_WIFI_TIMEOUT = 30            #the timeout when the STA connects to the Wi-Fi hotspot.if out time is not suc
13 #HW_WIFI_LED = True              #if use LED indicator, the default is True, then use LED indicator
14 #HW_WIFI_RESET_NOW = False       # clear all configuration files, the default is False, when set to True, the p
15                                # program will clear all configurations and restore the initial state, including mobile phone configuration and manual
16                                # editing of configuration files.
-- INSERT --
```

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



```
1 #!/usr/bin/python3
2 #coding:utf8
3
4 HW_WIFI_MODE = 1                #wifi working mode, 1 is AP mode, 2 is STA mode
5 HW_WIFI_AP_SSID = 'Hiwonder'    #SSID in AP mode,character and digital composition
6 HW_WIFI_AP_PASSWORD = '12345678' #WIFI password in AP mode, character and digital composition
7 #HW_WIFI_AP_GATEWAY = '192.168.149.1' #The local IP in AP mode, the default is 192.168.149.1
8 #HW_WIFI_FREQ_BAND = 5           #the WiFi frequency in AP mode is directly assigned as 2.4
9 #HW_WIFI_CHANNEL = 149           #WiFi signal channels in AP mode, under 5G testing availab
10 #HW_WIFI_STA_SSID = 'ssid_name'  #SSID in STA mode
11 #HW_WIFI_STA_PASSWORD = 'passwords' #WIFI password in STA mode
12 #HW_WIFI_TIMEOUT = 30            #the timeout when the STA connects to the Wi-Fi hotspot.
13 #HW_WIFI_LED = True              #if use LED indicator, the default is True, then use LED
14 #HW_WIFI_RESET_NOW = False       # clear all configuration files, the default is False, w
15                                # hen set to True, the program will clear all configurations and restore the initial state, in
16                                # cluding mobile phone configuration and manual editing of configuration files.
-- INSERT --
```

Note: In Direction mode to modify the Wi-Fi frequency band, please modify the value of HW_WIFI_MODE to 1.

7) If the network card does not support the 5G frequency band, please modify the frequency band to 2.4G, that is, change the default value of

HW_WIFI_FREQ_BAND to 2.4, add "#" before "HW_WIFI_CHANNEL = 149", but 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, 2 is STA mode
5 HW_WIFI_AP_SSID = 'Hiwonder' #SSID in AP mode, character and digital composition
6 HW_WIFI_AP_PASSWORD = '12345678' #WIFI password in AP mode, character and digital composition
7 #HW_WIFI_AP_GATEWAY = '192.168.149.1' #The local IP in AP mode, the default is 192.168.149.1
  , if you modify this item, you will not be able to enter the WiFi configuration interface on
  the mobile APP
8 HW_WIFI_FREQ_BAND = 2.4    #the WiFi frequency in AP mode is directly assigned as 2.
  4 or 5 corresponding to 2.4G and 5G
9 #HW_WIFI_CHANNEL = 149    #WiFi signal channel in AP mode, under 5G testing availa
  ble channels are 149, 153, 157, 161
10 #HW_WIFI_STA_SSID = 'ssid_name' #SSID in STA mode
11 #HW_WIFI_STA_PASSWORD = 'passwords' #WIFI password in STA mode
12 #HW_WIFI_TIMEOUT = 30        #the timeout when the STA connects to the Wi-Fi hotspot.
  if out time is not successful connection then the connection is considered as a failure. The
  default is 30 seconds
13 #HW_WIFI_LED = True          #if use LED indicator, the default is True, then use LED
  indicator
14 #HW_WIFI_RESET_NOW = False   # clear all configuration files, the default is False, w
  hen set to True, the program will clear all configurations and restore the initial state, in
  cluding mobile phone configuration and manual editing of configuration files.
-- INSERT --                                     9,2      All
```

8) After modification, press “ESC” and enter “:wq”. Then save and exit the file.

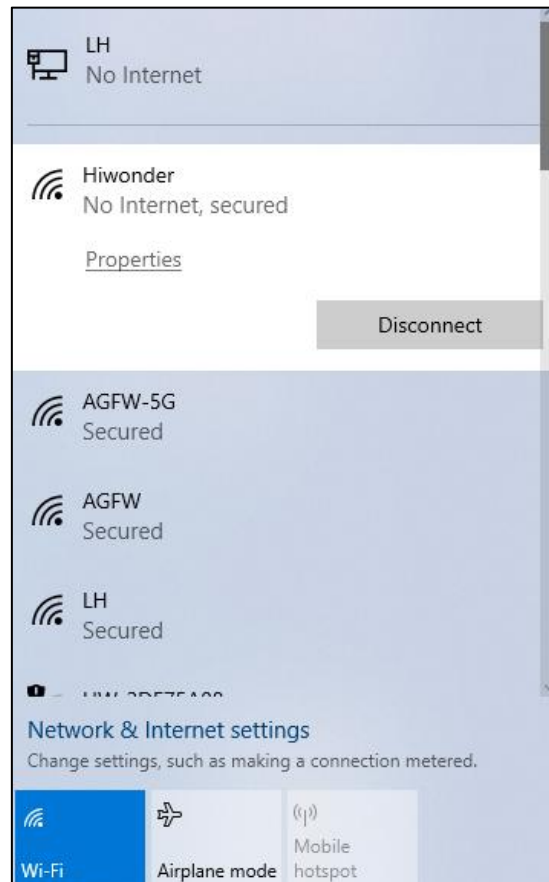
```
pi@raspberrypi: /boot
File Edit Tabs Help
1 #!/usr/bin/python3
2 #coding:utf8
3
4 HW_WIFI_MODE = 1          #wifi working mode, 1 is AP mode, 2 is STA mode
5 HW_WIFI_AP_SSID = 'Hiwonder' #SSID in AP mode, character and digital composition
6 HW_WIFI_AP_PASSWORD = '12345678' #WIFI password in AP mode, character and digital composition
7 #HW_WIFI_AP_GATEWAY = '192.168.149.1' #The local IP in AP mode, the default is 192.168.149.1, if you modify this i
  tem, you will not be able to enter the WiFi configuration interface on the mobile APP
8 HW_WIFI_FREQ_BAND = 2.4    #the WiFi frequency in AP mode is directly assigned as 2.4 or 5 corresponding t
  o 2.4G and 5G
9 #HW_WIFI_CHANNEL = 161    #WiFi signal channel in AP mode, under 5G testing available channels are 149,
  153, 157, 161
10 #HW_WIFI_STA_SSID = 'ssid_name' #SSID in STA mode
11 #HW_WIFI_STA_PASSWORD = 'passwords' #WIFI password in STA mode
12 #HW_WIFI_TIMEOUT = 30        #the timeout when the STA connects to the Wi-Fi hotspot.if out time is not suc
  cessful connection then the connection is considered as a failure. The default is 30 seconds
13 #HW_WIFI_LED = True          #if use LED indicator, the default is True, then use LED indicator
14 #HW_WIFI_RESET_NOW = False   # clear all configuration files, the default is False, when set to True, the p
  rogram will clear all configurations and restore the initial state, including mobile phone configuration and manual
  editing of configuration files.
:wq
```

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

```
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.

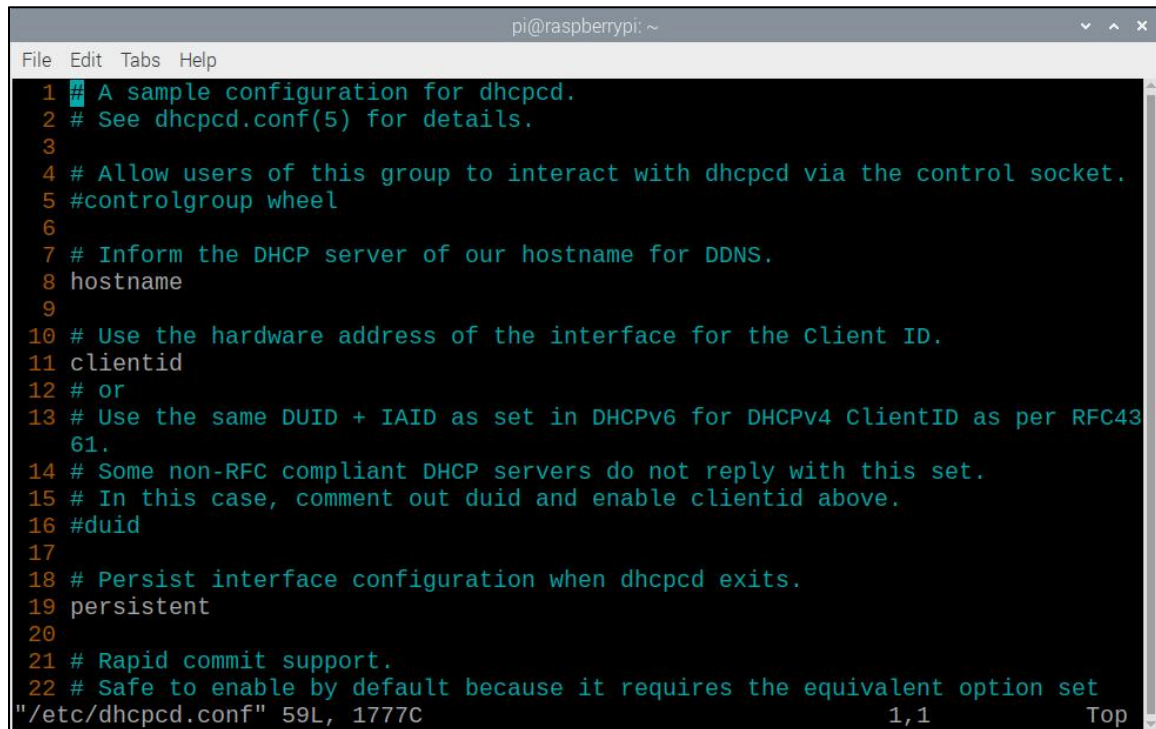


2. Set a Static IP for the Raspberry Pi

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

- 1) Turn on Raspberry Pi, start VNC and connect to Raspberry Pi remote desktop.
- 2) Press “**Ctrl+Alt+T**” to open LX terminal.
- 3) Enter the following command to open the **dhcpcd.conf** configuration file with an editor.

```
pi@raspberrypi:~ $ sudo nano /etc/dhcpcd.conf
```

```
1 # A sample configuration for dhcpcd.
2 # See dhcpcd.conf(5) for details.
3
4 # Allow users of this group to interact with dhcpcd via the control socket.
5 #controlgroup wheel
6
7 # Inform the DHCP server of our hostname for DDNS.
8 hostname
9
10 # Use the hardware address of the interface for the Client ID.
11 clientid
12 # or
13 # Use the same DUID + IAID as set in DHCPv6 for DHCPv4 ClientID as per RFC43
14 # Some non-RFC compliant DHCP servers do not reply with this set.
15 # In this case, comment out duid and enable clientid above.
16 #duid
17
18 # Persist interface configuration when dhcpcd exits.
19 persistent
20
21 # Rapid commit support.
22 # Safe to enable by default because it requires the equivalent option set
"/etc/dhcpcd.conf" 59L, 1777C 1,1 Top
```

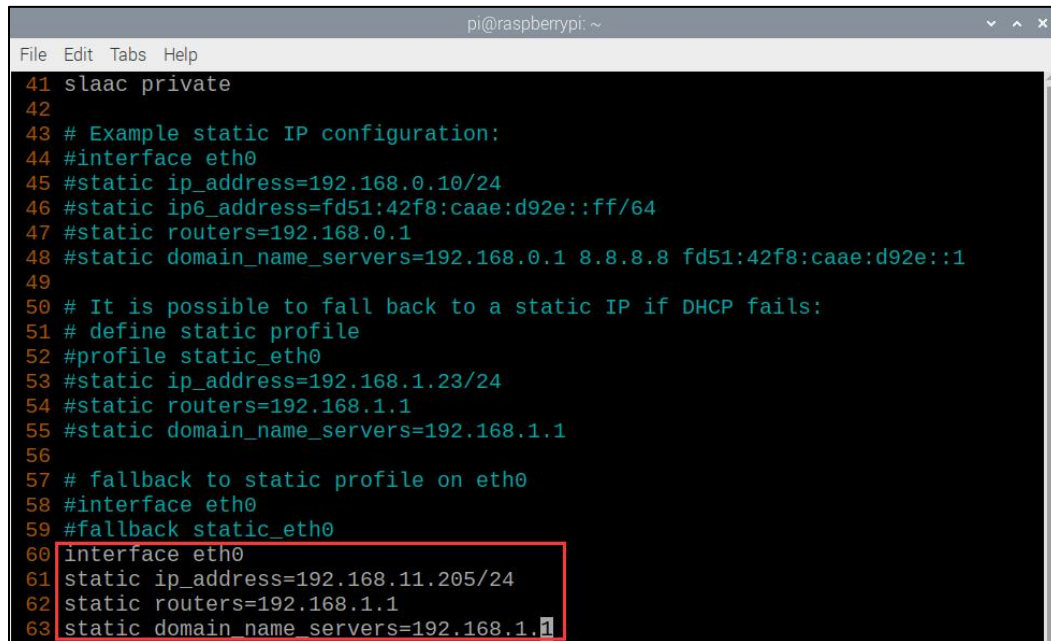
4) Press the “i” key at the end of the file to enter the insert mode, and enter the following:

```
interface eth0 # wired network card 0

static ip_address=192.168.11.205/24# wired network card static IP address/24

static routers=192.168.1.1 # IP 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=192.168.11.205/24
62 static routers=192.168.1.1
63 static domain_name_servers=192.168.1.1
```

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

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