BLE 配网

使用手册

版本：*1.2*

www.bouffalolab.com

Contents

1 准备 5
2 烧录 6
2.1 连接 6
2.2 软件下载 8
2.3 putty 配置 10
3 App 配网步骤 11
4 微信小程序配网步骤 22

List of Figures

1.1 Putty 下载 5

2.1 模组 6
2.2 配置 7
2.3 烧写成功 7
2.4 Putty 8

3.1 开启 ble 广播 log 9
3.2 手机搜索到的蓝牙设备 10
3.3 APP 显示的蓝牙状态 11
3.4 蓝牙连接成功 log 12
3.5 APP 显示模块扫描到的 WiFi 列表 13
3.6 模块扫描的 WiFi 列表 log 14
3.7 连接 WiFi 15
3.8 模块成功连接 WiFi 的 log 15
3.9 APP 显示 WiFi 连接成功 16
3.10 断开 WiFi 连接 17
3.11 模块断开 WiFi 连接 log 18
3.12 关闭 BLE 18

4.1 开启 ble 广播 log 19
4.2 配网二维码 19
4.3 搜到的设备 20
4.4 连接设备成功 21
4.5 蓝牙连接成功 log 22
4.6 模块扫描到的 WiFi 列表 22
4.7 连接 WiFi 成功 23
4.8 模块成功连接 WiFi 的 log 23

4.9 更新 WiFi 连接状态 24
4.10 断开 WiFi 25
4.11 模块断开 WiFi 连接 log 26
4.12 关闭 BLE 26

1 准备

1. 硬件：BL602 模块一个，Windows PC 一台，装有配网 app(app 目录：Bouffalolab_BL602_Evaluation_Package\App_Demos\sdk_app_ble_sync\bleapp.apk) 的安卓手机一台，USB 转串口线一根。
2. 软件：烧写工具，烧录的 sdk_app_ble_sync.bin 文件，路径：Bouffalolab_BL602_Evaluation_Package\App_Demos\sdk_app_ble_sync\build_out\sdk_app_ble_sync.bin，串口工具 putty。(下载链接)

Alternative binary files

The installer packages above will provide versions of all of these (except PuTTYtel), but you can download standalone binar

(Not sure whether you want the 32-bit or the 64-bit version? Read the FAQ entry.)

putty.exe (the SSH and Telnet client itself)			
32-bit:	putty.exe	(or by FTP)	(signature)
64-bit:	putty.exe	(or by FTP)	(signature)
pscp.exe (an SCP client, i.e. command-line secure file copy)			
32-bit:	pscp.exe	(or by FTP)	(signature)
64-bit:	pscp.exe	(or by FTP)	(signature)
psftp.exe (an SFTP client, i.e. general file transfer sessions much like FTP)			
32-bit:	psftp.exe	(or by FTP)	(signature)
64-bit:	psftp.exe	(or by FTP)	(signature)
puttytel.exe (a Telnet-only client)			
32-bit:	puttytel.exe	(or by FTP)	(signature)
64-bit:	puttytel.exe	(or by FTP)	(signature)

图 1.1: Putty 下载

2 烧录

将 BL602 模组用串口线与电脑连接，打开烧写工具 Bouffalo Lab Dev Cube 中的 BLFlashEnv.exe，chip type 选择 BL602/604，打开后设置界面参数，配置完后，按住模组上的按键 SW2 不松，同时按一下按键 SW1，松开 SW1 和 SW2，点击烧录工具上的 Creat&Download，配置及下载完成效果如下图所示：

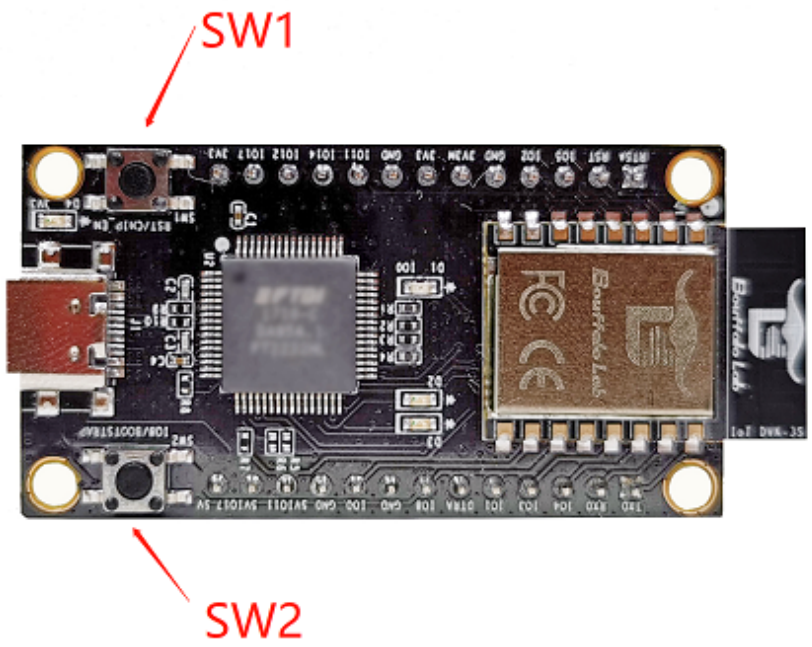

图 2.1: 模组

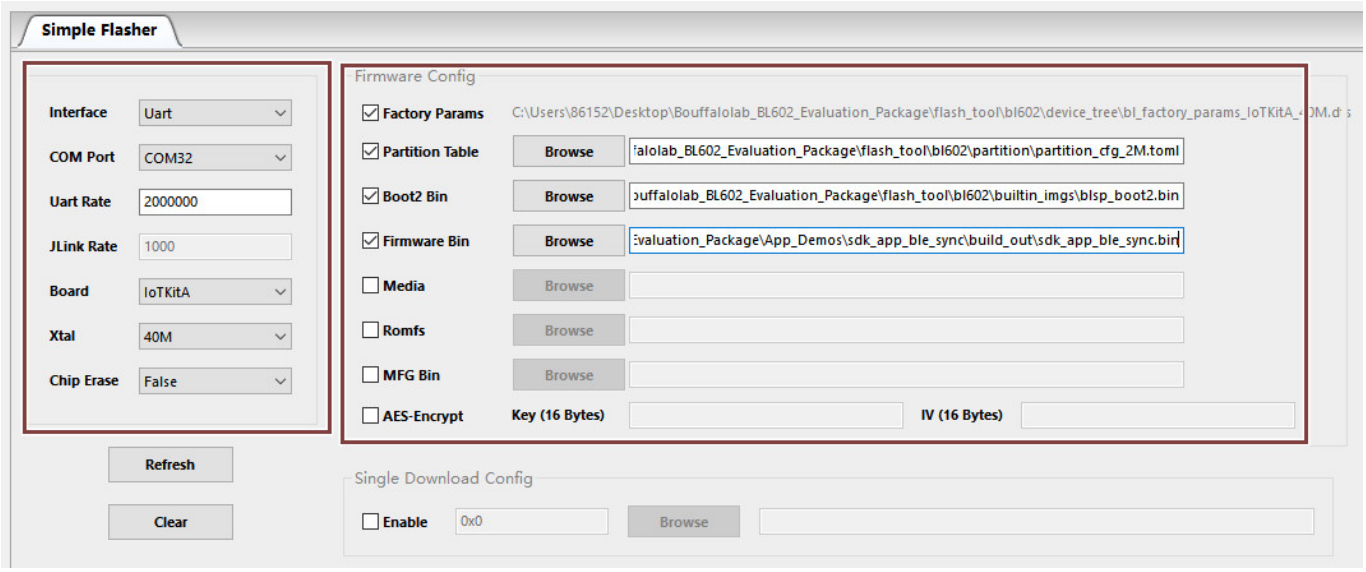

图 2.2: 配置

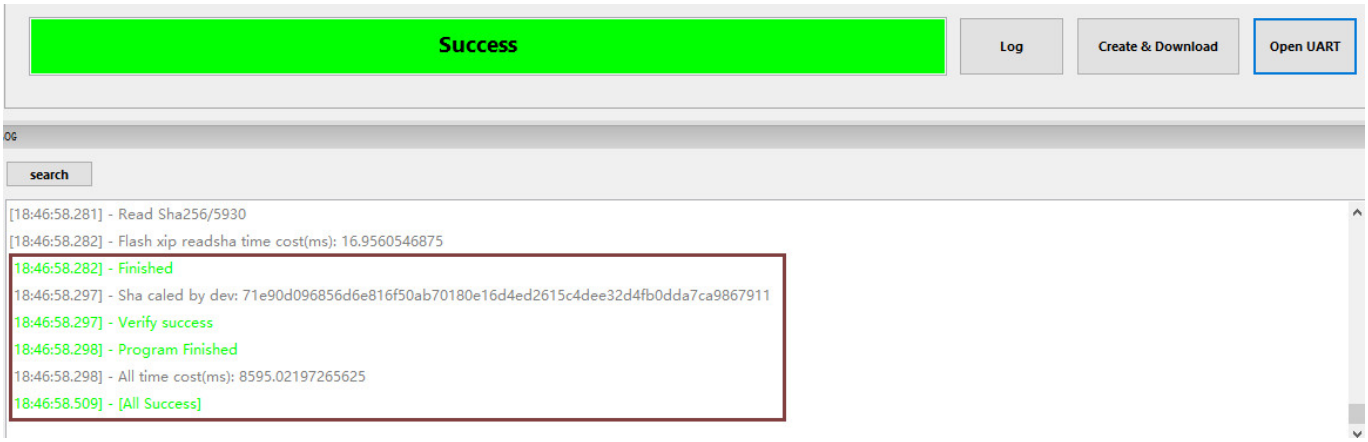

图 2.3: 烧写成功

其中烧写工具的左框中 COM Port 选项根据实际串口情况选择（右击我的电脑-> 管理-> 设备管理器-> 端口，查看端口号，模块是双串口，选择端口号较小的），右框中的相关路径依据实际情况选择。

2.1 putty 配置

打开 putty 工具，设置对应的端口号，波特率设定为 2000000 bps，按一下 SW1 按键可以重启模组。

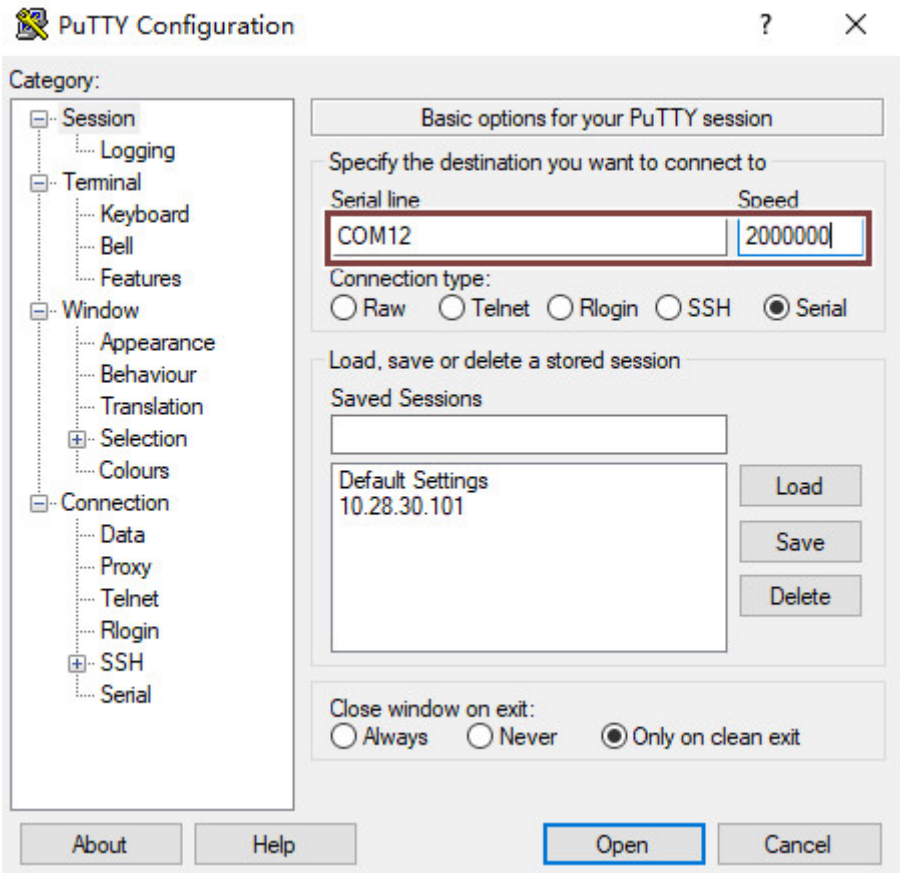
PuTTY Configuration
Category:
Session
Logging
Terminal
Keyboard
Bell
Features
Window
Appearance
Behaviour
Translation
Selection
Colours
Connection
Data
Proxy
Telnet
Rlogin
SSH
Serial
Basic options for your PuTTY session
Specify the destination you want to connect to
Serial line
Speed
COM12
2000000
Connection type:
Raw
Telnet
Rlogin
SSH
Serial
Load, save or delete a stored session
Saved Sessions
Default Settings
10.28.30.101
Load
Save
Delete
Close window on exit:
Always
Never
Only on clean exit
About
Help
Open
Cancel

图 2.4: Putty

3 App 配网步骤

1. 在 putty 中输入“reboot”命令重启模块，模块上电后会自动开启 ble 广播，等待手机 APP 连接配网，串口打印如下所示：

```
[APP] [WIFI] [T] 2170
[APP]   Get STA 0x420152fc from Wi-Fi Mgmr, pmk ptr 0x4200f724, ssid ptr 0x4200f
700, password 0x4200f768
[APP]    Empty Config
[APP]    Try to set the following ENV with psm_set command, then reboot
[APP]    NOTE: conf_ap_pmk MUST be psm_unset when conf is changed
[APP]    env: conf_ap_ssid
[APP]    env: conf_ap_psk
[APP]    env(optinal): conf_ap_pmk
ble_init
Init successfully
ble_start_adv 0 0 0x100 0x100
adv_type 0x0
mode 0x0
interval min 0x100
interval max 0x100
Advertising started
```

图 3.1: 开启 ble 广播 log

2. 打开配网 APP，APP 自动搜索蓝牙设备（需手机蓝牙已开启)，搜索到设备名“BL602-BLE-DEV”；

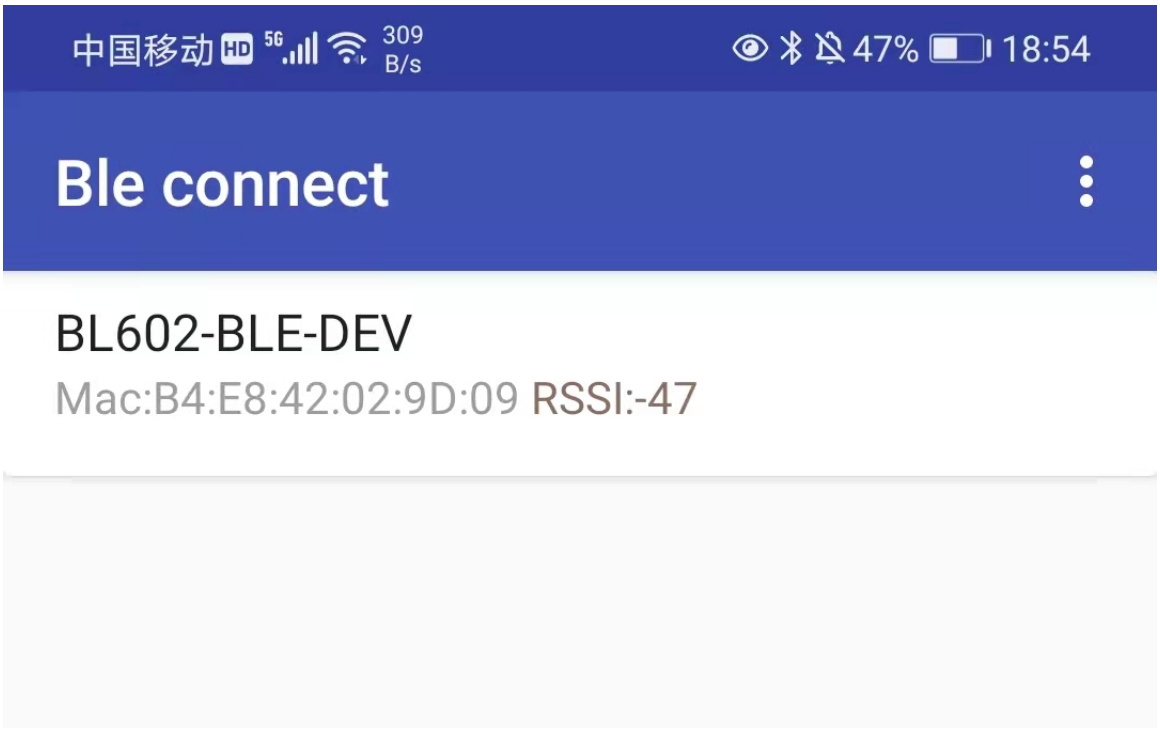

图 3.2: 手机搜索到的蓝牙设备

3. 点击该设备名，然后点击 APP 中的“连接”，APP 会显示连接模块蓝牙的状态，串口中会打印设备连接成功的 log；

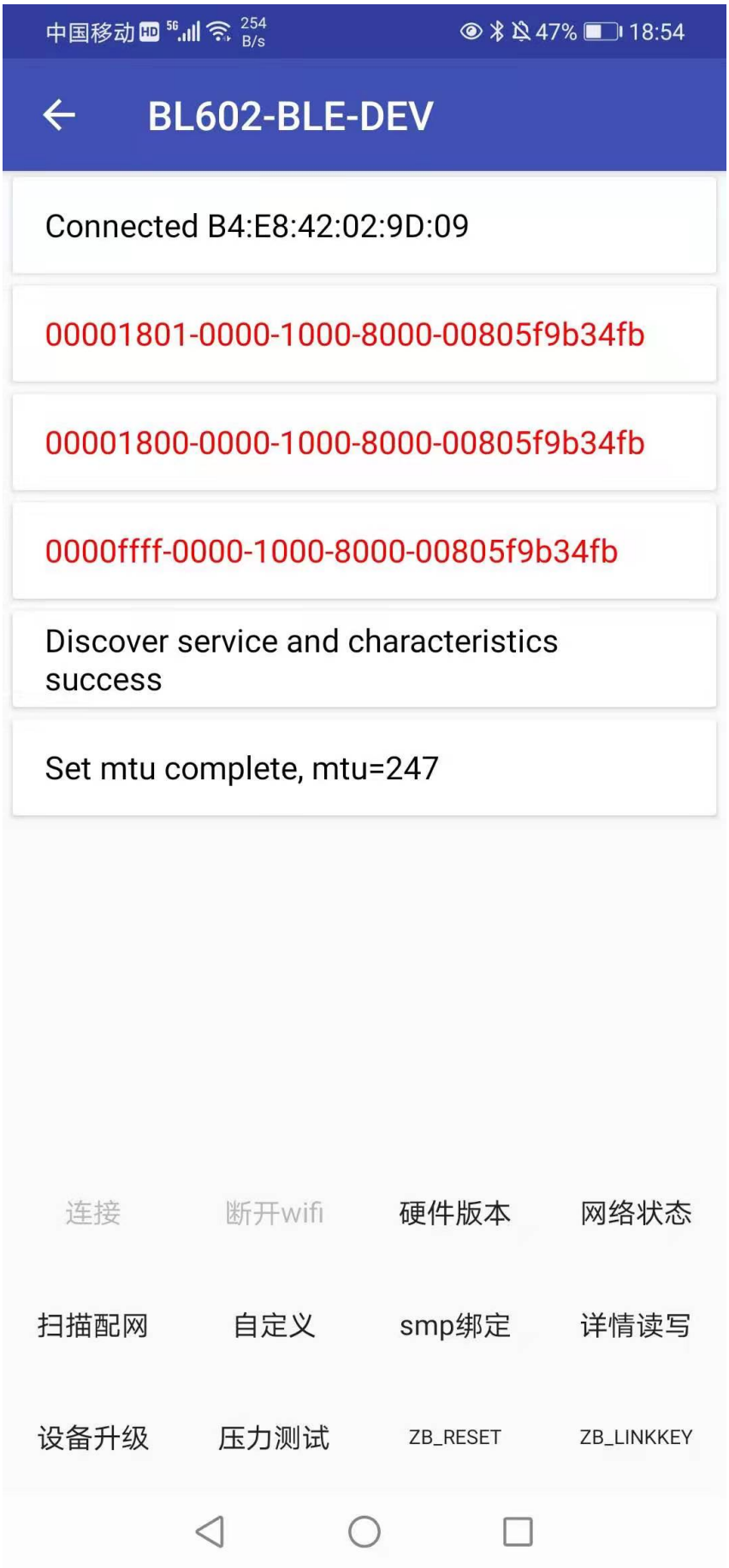

图 3.3: APP 显示的蓝牙状态

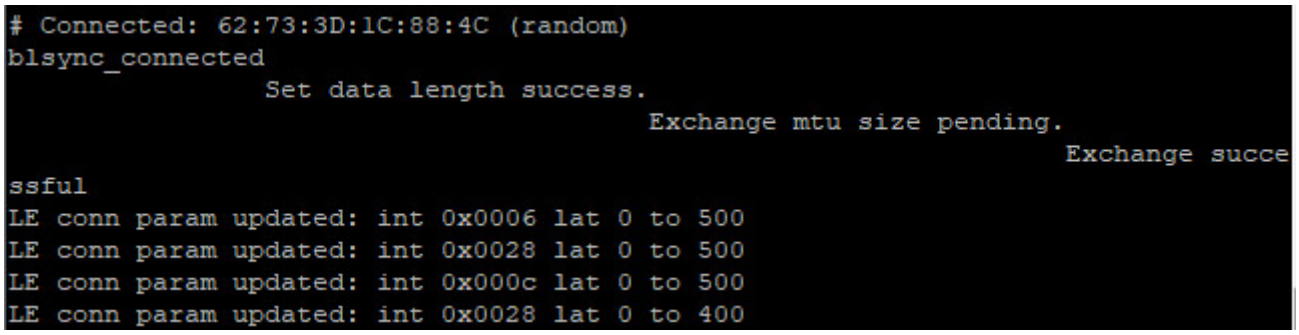

图 3.4: 蓝牙连接成功 log

4. 点击“扫描配网”，等待数秒后 APP 会显示模块扫描到的 WiFi 设备列表，用户可以通过扫描出来的设备列表选择相应的 WiFi 进行连接，连接成功后页面红色字体部分为模块的 WiFi 相关信息。用户可以点击“断开 wifi”选项使模块断开 WiFi 连接。

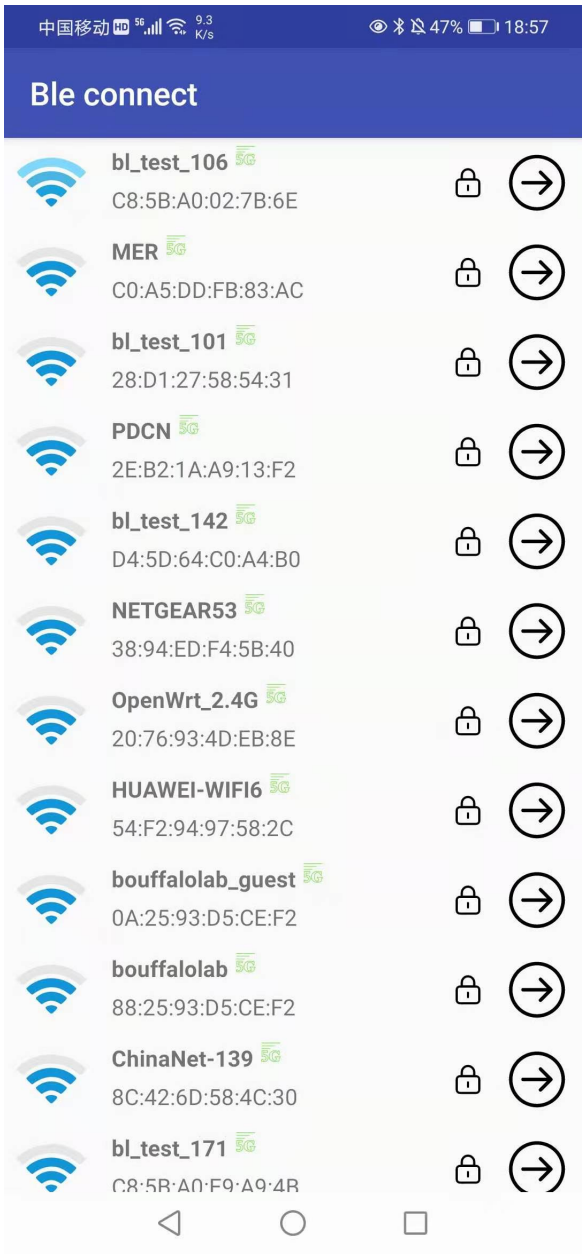

图 3.5: APP 显示模块扫描到的 WiFi 列表

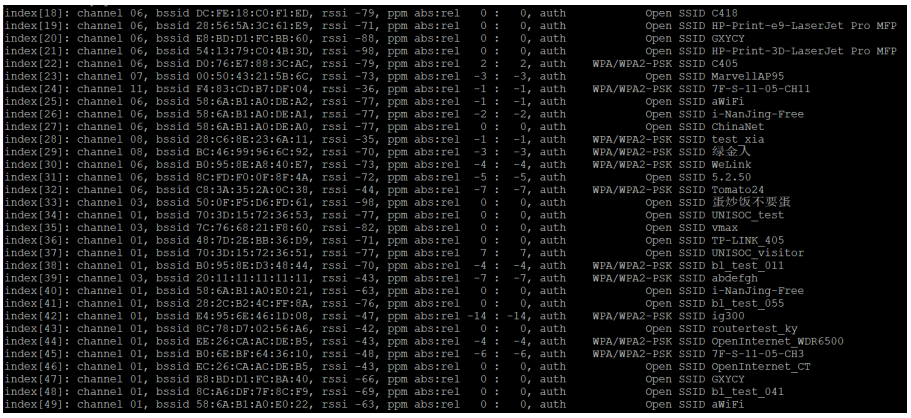

图 3.6: 模块扫描的 WiFi 列表 log

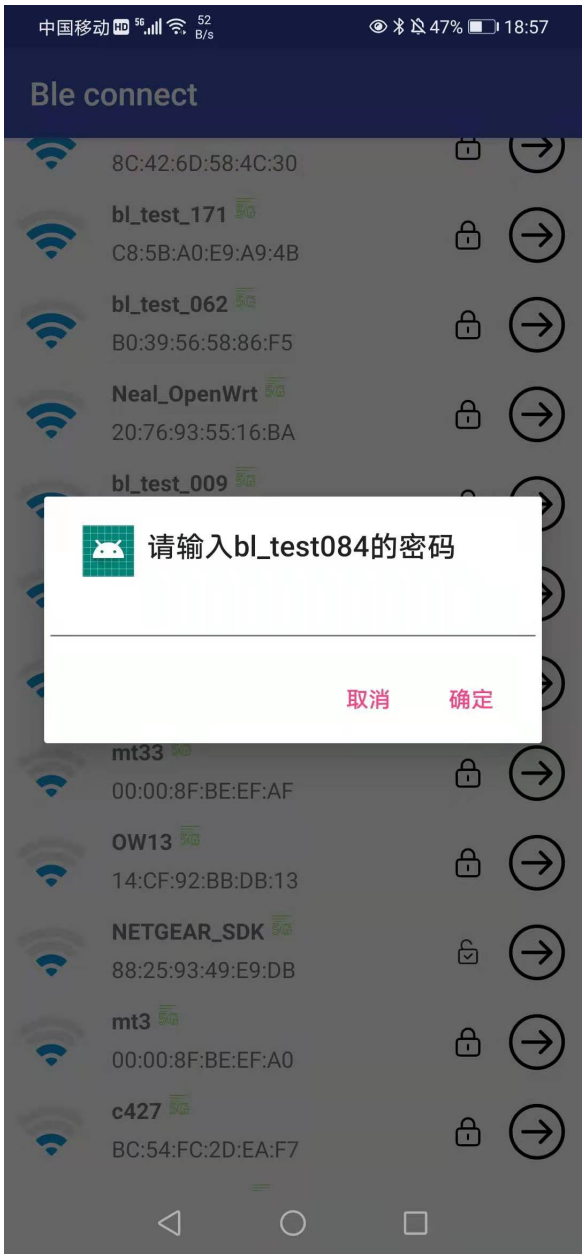

图 3.7: 连接 WiFi

```
[WF][SM] IP GOT IP:192.168.124.38, MASK: 255.255.255.0, Gateway: 192.168.124.1,
dns1: 192.168.124.1, dns2: 0.0.0.0
[WF][SM] State Action ###wifiConnected_ipObtaining### --->>> ###wifiConnected_IP
OK###
[WF][SM] Entering wifiConnected_IPOK state
[APP] [EVT] GOT IP 388503
[SYS] Memory left is 106608 Bytes
```

图 3.8: 模块成功连接 WiFi 的 log

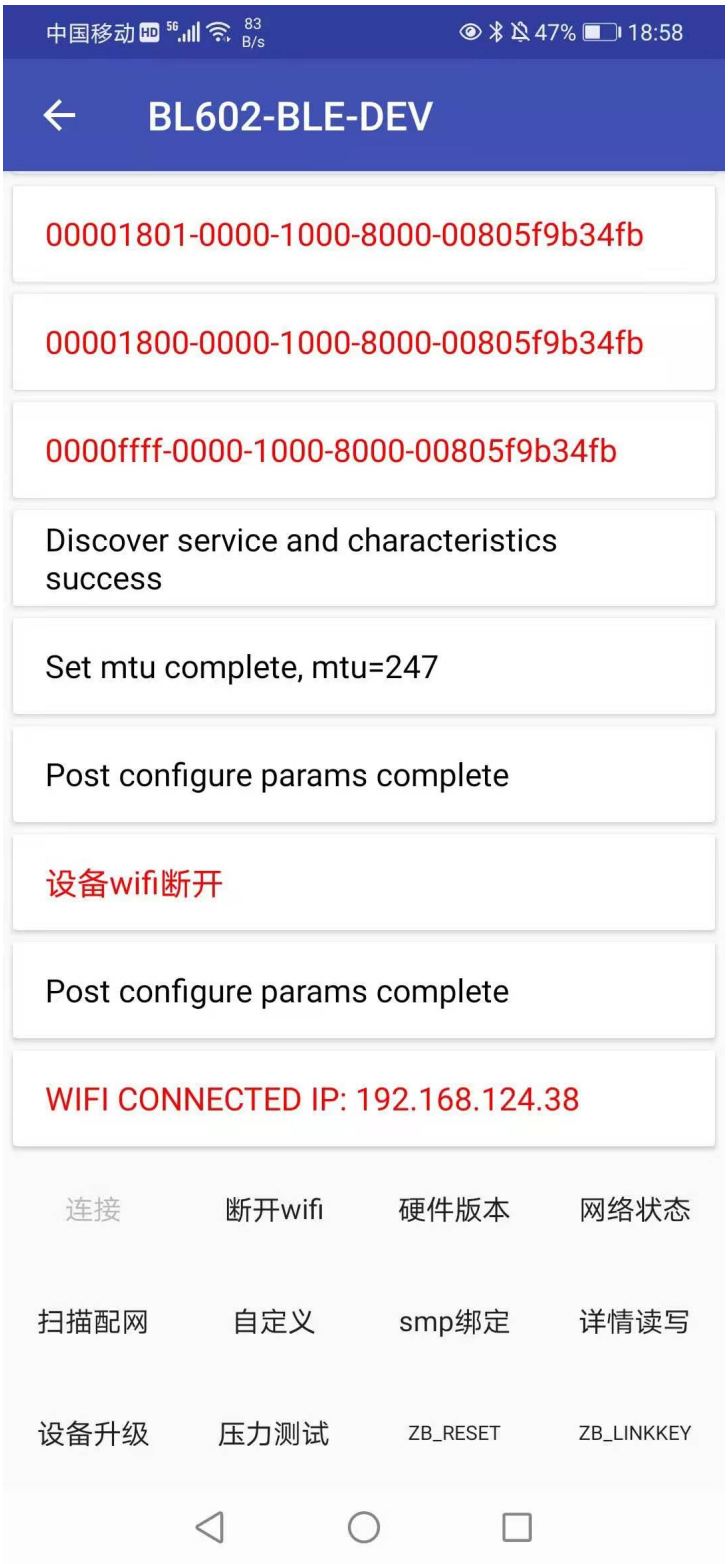

图 3.9: APP 显示 WiFi 连接成功

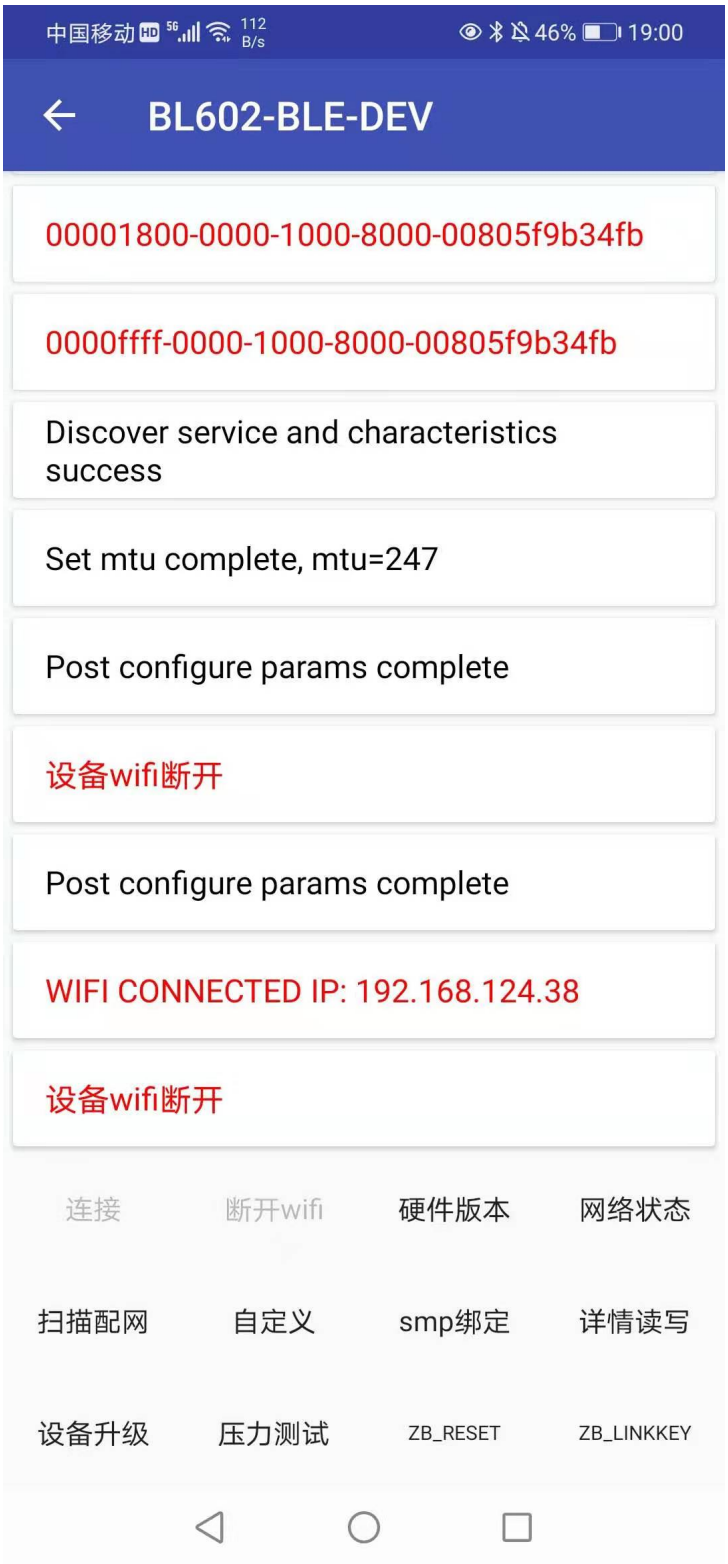

图 3.10: 断开 WiFi 连接

```
[TX] wifi is down, return now
[TX] wifi is down, return now
```

图 3.11: 模块断开 WiFi 连接 log

5. 当用户确定配网完成时，不需要再使用配网功能，可以使用“blsync_ble_stop”命令将其关闭，如需重新配网请重复步骤 1-5。

```
#
#
# blsync_ble_stop

# cmd_stop_adv
Advertising stopped

# blsync ble stop

#
#
```

图 3.12: 关闭 BLE

4 微信小程序配网步骤

1. 在 putty 中输入“reboot”命令重启模块，模块上电运行会自动开启 ble 广播，串口打印如下所示：

```
[WF][SM] stateGlobalGuard:event is 0x00000004
[APP] [WIFI] [T] 2346
[APP]   Get STA 0x4201dcf4 from Wi-Fi Mgmr, pmk ptr 0x4200ee04, ssid ptr 0x4200edb4,
sword 0x4200ed70
[APP]    Empty Config
[APP]    Try to set the following ENV with psm_set command, then reboot
[APP]    NOTE: conf_ap_pmk MUST be psm_unset when conf is changed
[APP]    env: conf_ap_ssid
[APP]    env: conf_ap_psk
[APP]    env(optinal): conf_ap_pmk
ble_init
Init successfully
ble_start_adv 0 0 0100 0100
random number is e4363cd1
Advertising started
random number is 8157faf0
random number is 7db8e389
```

图 4.1: 开启 ble 广播 log

2. 打开微信扫描下图二维码，点击“搜索”（需手机蓝牙已开启），搜索到设备名“BL602-BLE-DEV”，点击“BL602-BLE-DEV”连接设备，连接成功后界面上出现操作 WiFi 相关的功能；

图 4.2: 配网二维码


中国移动 HD 5G 5 K/s
45% 19:10
BLE蓝牙通讯
信号:-21dB 名称:BL602-BLE-DEV
设备ID:B4:E8:42:02:9D:09
信号:-88dB 名称:新宝骏RC-5-995222
设备ID:54:65:03:05:3C:9B
信号:-88dB 名称:HONOR Band 5-5ED
设备ID:20:DA:22:24:25:ED
搜索
停止搜索

图 4.3: 搜到的设备


中国移动 565 B/s
44% 19:16
BLE蓝牙通讯
信号:-54dB 名称:BL602-BLE-DEV
设备ID:C8:43:57:82:73:03
信号:-85dB 名称:小爱音箱-0339
设备ID:19:53:83:13:22:DA
信号:-85dB 名称:新宝骏RC-5-890715LE
设备ID:00:15:83:2C:67:A6
信号:-98dB 名称:新宝骏RM-5-413414
设备ID:48:E6:C0:5E:3E:35
信号:-92dB 名称:新宝骏RM-5-011111LE
设备ID:00:15:83:FF:55:47
信号:-51dB 名称:BL602-BLE-DEV
设备ID:B4:E8:42:02:9D:09
信号:-90dB 名称:新宝骏RS-3-102032LE
设备ID:00:15:83:10:93:20
信号:-96dB 名称:P017002430000145LE
设备ID:00:15:83:19:16:B2
搜索
停止搜索
WIFI状态: 断开连接
硬件版本:
获取WiFi列表
更新wifi状态
断开wifi
获取硬件版本号

图 4.4: 连接设备成功

```
[     15521][INFO  : blsync_ble.c: 114] read length 133
[     15522][INFO  : transfer.c:  20] free 0x42026ff8
[     15523][INFO  : transfer.c:  20] free 0x42026ef0
LE conn param updated: int 0x0028 lat 0 to 400
```

图 4.5: 蓝牙连接成功 log

3. 点击小程序中的“获取 WiFi 列表”，小程序会回显获取到的 WiFi 列表，用户可以通过扫描出来的设备列表对需要配网的 WiFi 进行连接，点击需要连接的 WiFi 名称，接着在输入框输入 WiFi 密码，点击“发送密码”，即可连接 WiFi；

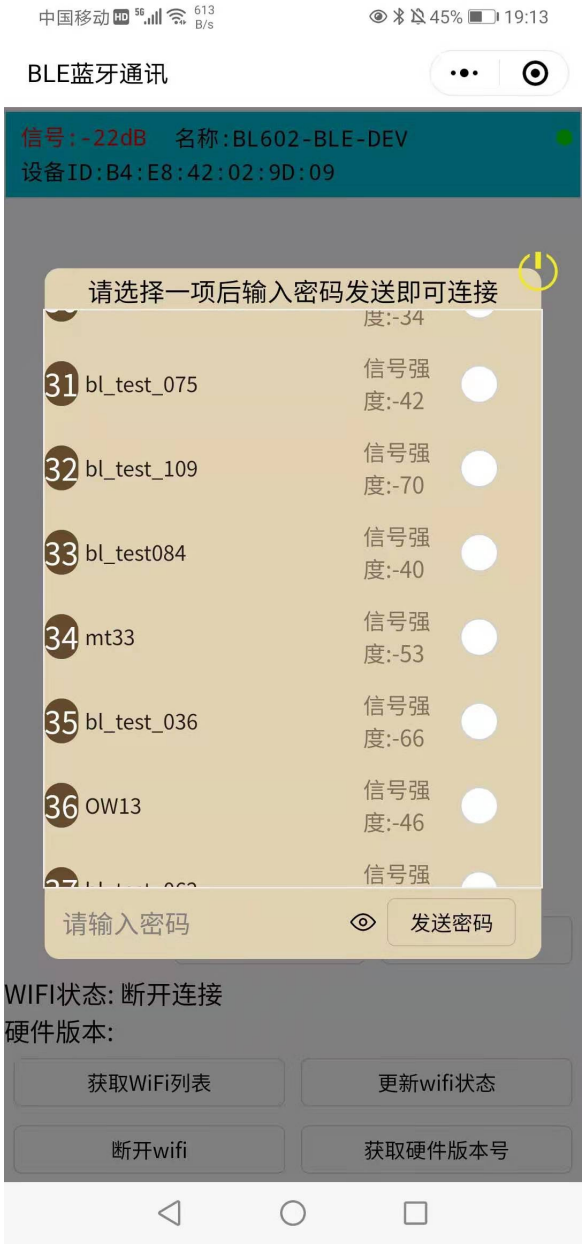

图 4.6: 模块扫描到的 WiFi 列表

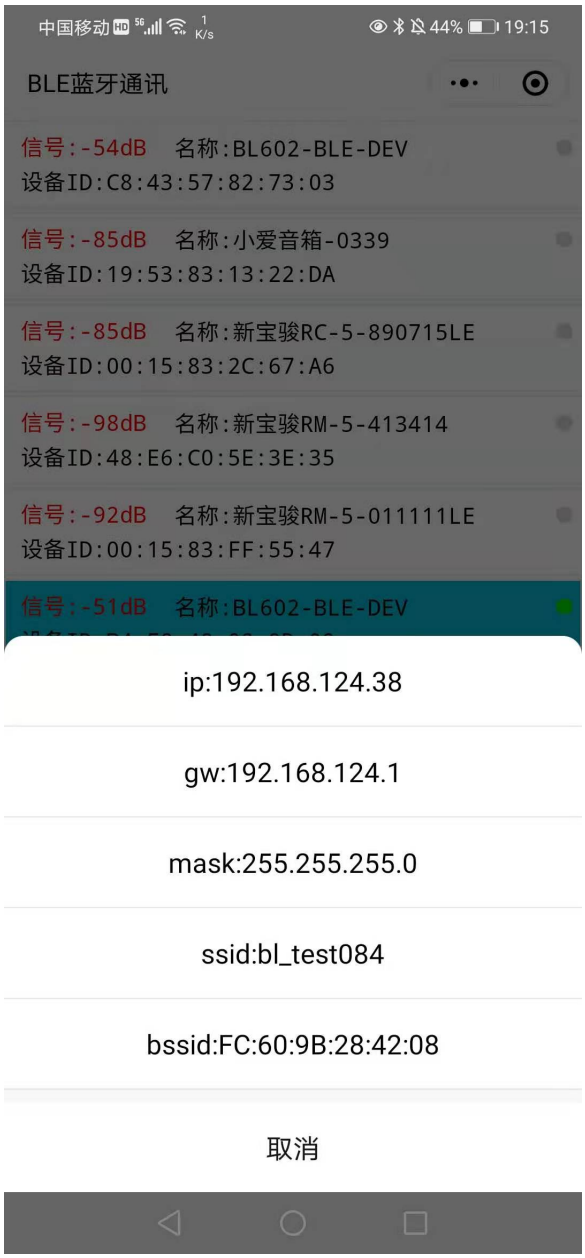

图 4.7: 连接 WiFi 成功

```
[WF][SM] IP GOT IP:192.168.124.38, MASK: 255.255.255.0, Gateway: 192.168.124.1,
dns1: 192.168.124.1, dns2: 0.0.0.0
[WF][SM] State Action ###wifiConnected_ipObtaining### --->>> ###wifiConnected_IP
OK###
[WF][SM] Entering wifiConnected_IPOK state
[APP] [EVT] GOT IP 388503
[SYS] Memory left is 106608 Bytes
```

图 4.8: 模块成功连接 WiFi 的 log

4. 点击小程序中的“更新 WiFi 状态”按钮，获取 WiFi 当前的连接状态；

图 4.9: 更新 WiFi 连接状态

5. 点击断开 WiFi 按钮，即可断开 WiFi，再次点击”获取状态“按钮可以获取当前 WiFi 已经断开；


中国移动 565 B/s
44% 19:16
BLE蓝牙通讯
信号:-54dB 名称:BL602-BLE-DEV
设备ID:C8:43:57:82:73:03
信号:-85dB 名称:小爱音箱-0339
设备ID:19:53:83:13:22:DA
信号:-85dB 名称:新宝骏RC-5-890715LE
设备ID:00:15:83:2C:67:A6
信号:-98dB 名称:新宝骏RM-5-413414
设备ID:48:E6:C0:5E:3E:35
信号:-92dB 名称:新宝骏RM-5-011111LE
设备ID:00:15:83:FF:55:47
信号:-51dB 名称:BL602-BLE-DEV
设备ID:B4:E8:42:02:9D:09
信号:-90dB 名称:新宝骏RS-3-102032LE
设备ID:00:15:83:10:93:20
信号:-96dB 名称:P017002430000145LE
设备ID:00:15:83:19:16:B2
搜索
停止搜索
WIFI状态: 断开连接
硬件版本:
获取WiFi列表
更新wifi状态
断开wifi
获取硬件版本号

图 4.10: 断开 WiFi

图 4.11: 模块断开 WiFi 连接 log

6. 当用户确定配网完成时，不需要再使用配网功能，可以使用“blsync_ble_stop”命令将其关闭，如需重新配网请重复步骤 1-6。

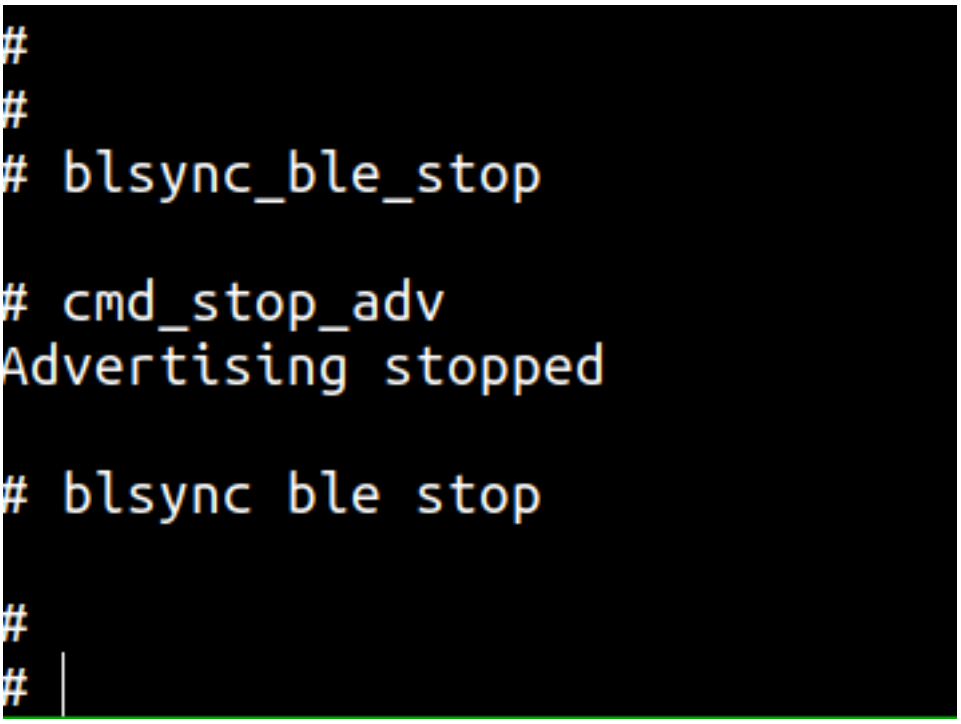

图 4.12: 关闭 BLE