BLE 配网

使用手册

版本：*1.0*

www.bouffalolab.com

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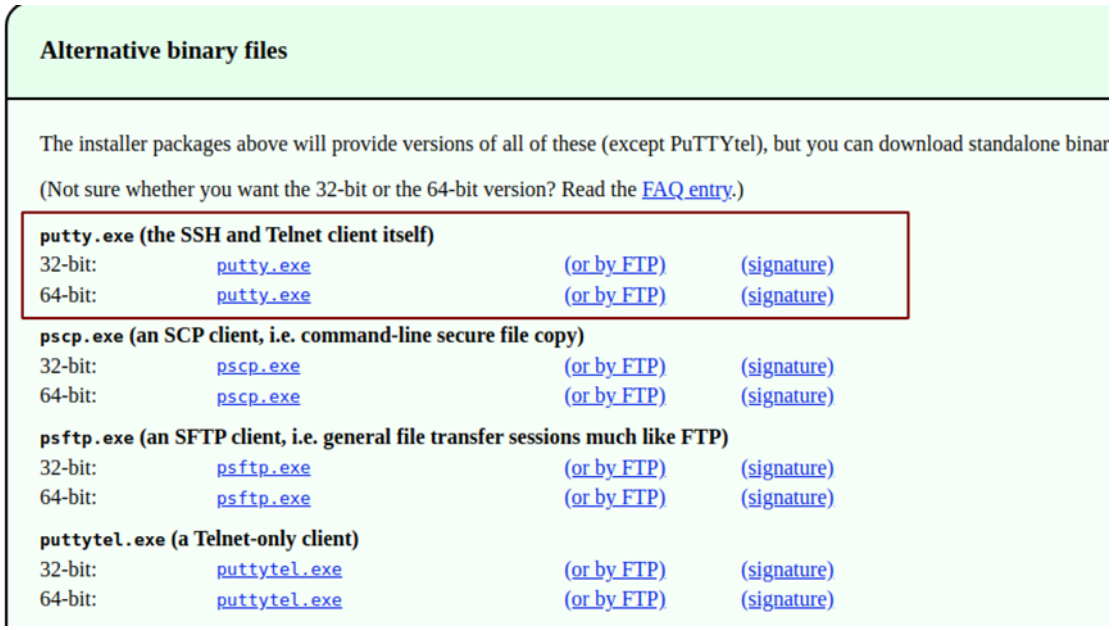
1 准备

1. 硬件：BL602 模块一个，Windows PC 一台，装有配网 app 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

2.1 连接

BL602 模块的相关引脚连接如下图所示，其中图 1 是模块的正面图，其标号 1 处用跳线帽短接，标号 2 处将左边两根排针短接，标号 3 处将上面的两根排针短接；图 2 是模块的背面图，烧录时将 IO8 和 HI 两根排针短接，烧录完成后将 IO8 和 LOW 两根排针短接并重新上电。用 USB 转串口线连接 PC 和模块，此时模块上的电源灯常亮，表明模块通电正常。

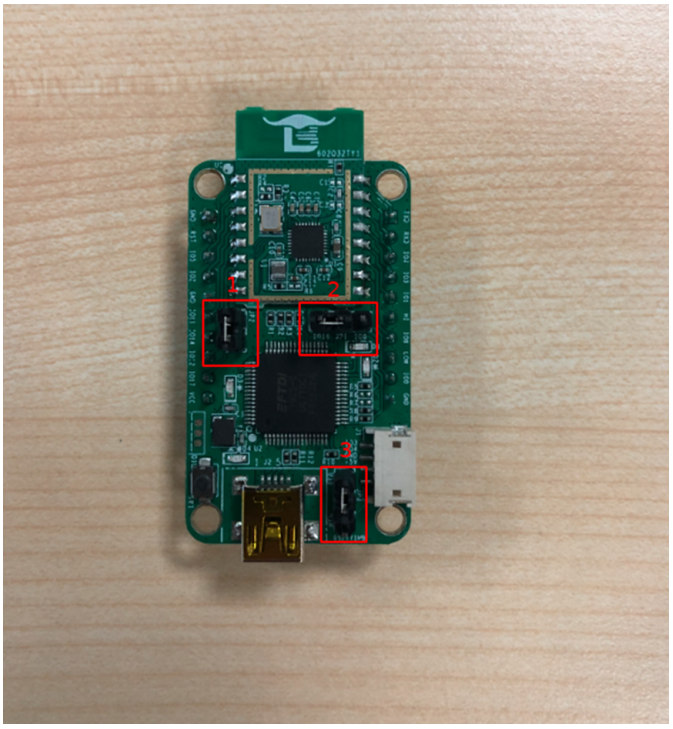


图 2.1: 正面

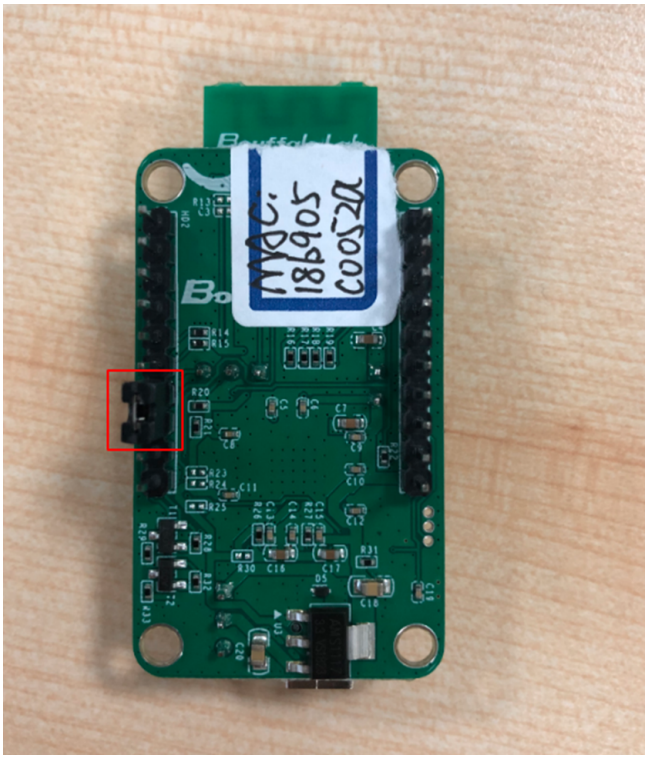


图 2.2: 背面

2.2 软件下载

打开烧写工具 BLFlashEnv，路径：

Bouffalolab_BL602_Evaluation_Package/bouffalo_flash_tool_for_windows_v1.2.3/BLFlashEnv.exe，chip type 选择 BL602/604，打开后界面参数参考下图配置：

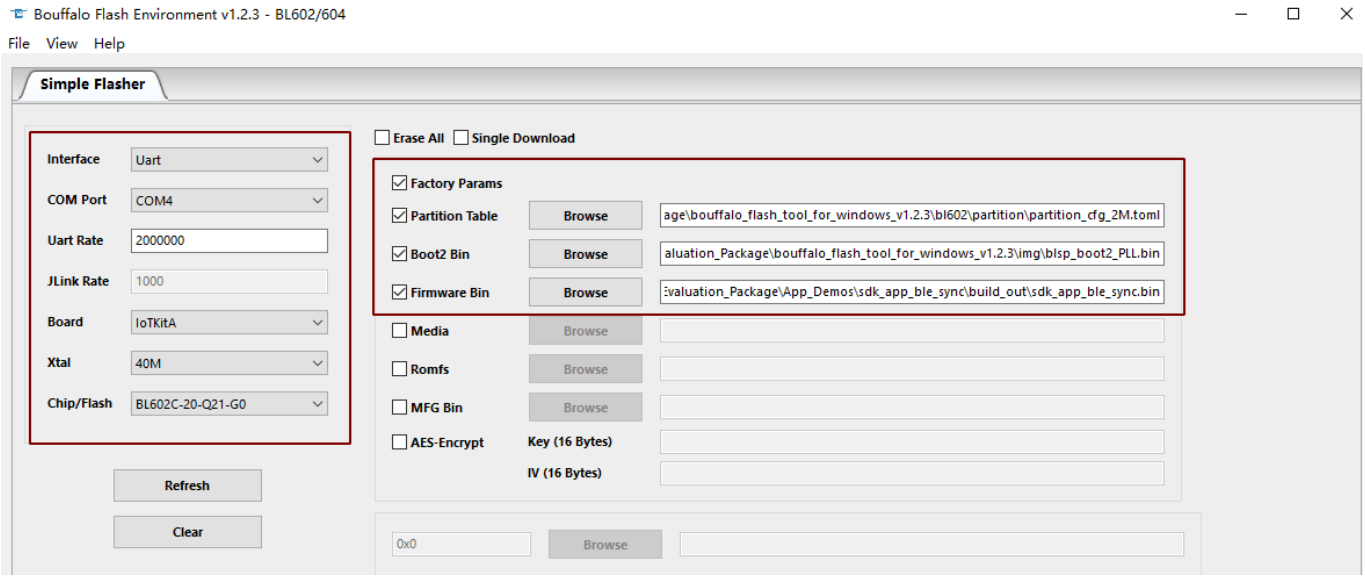


图 2.3: 烧写工具界面

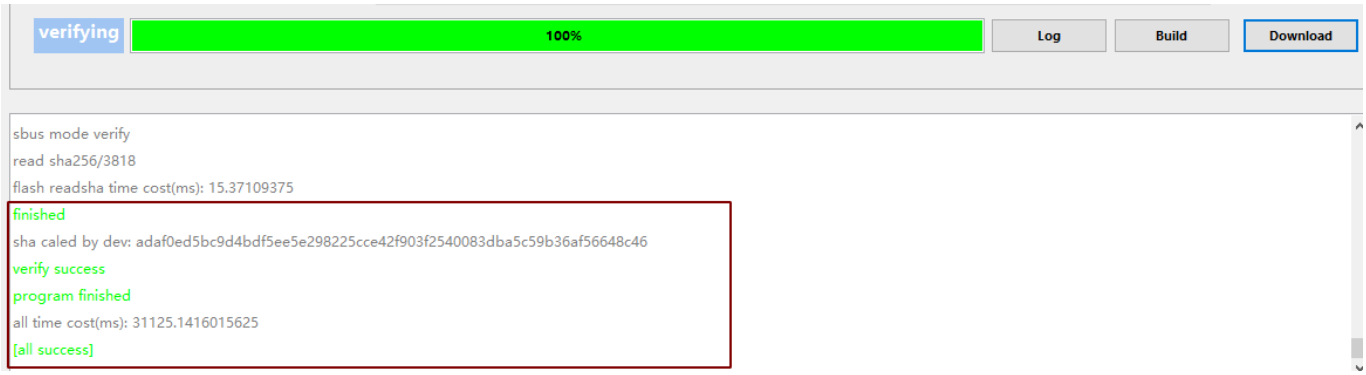


图 2.4: 烧写成功

其中图 3 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。配置完成后点击 Download 按钮下载，下载成功如图 4 所示。

2.3 putty 配置

将 IO8 和 LOW 两根排针短接并重新上电，打开 putty 工具，设置对应的端口号，波特率设定为 2000000 bps。

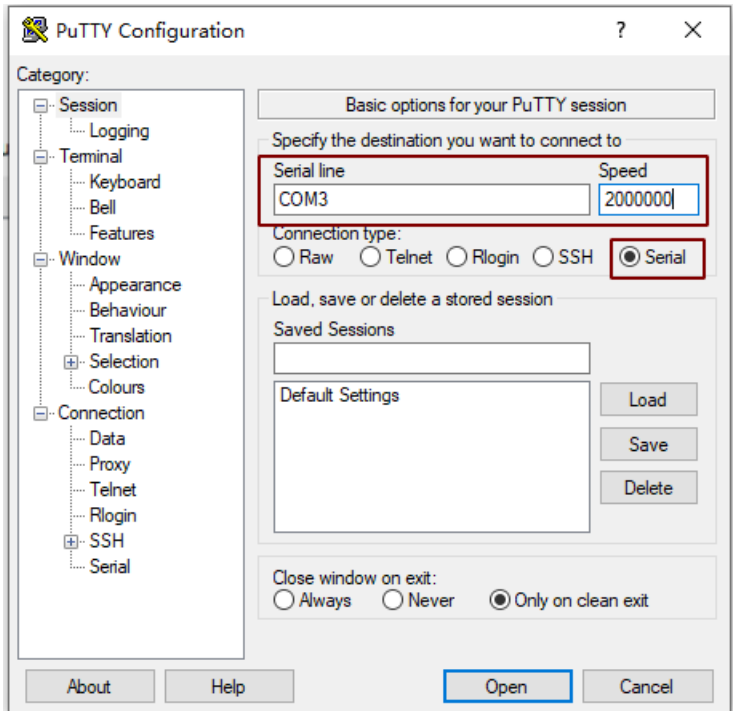


图 2.5: Putty

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：

```
[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 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”；

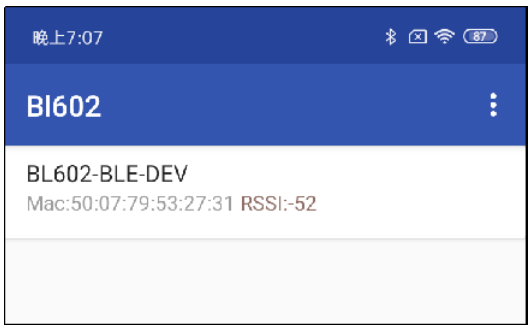


图 3.2: 手机搜索到的蓝牙设备

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；

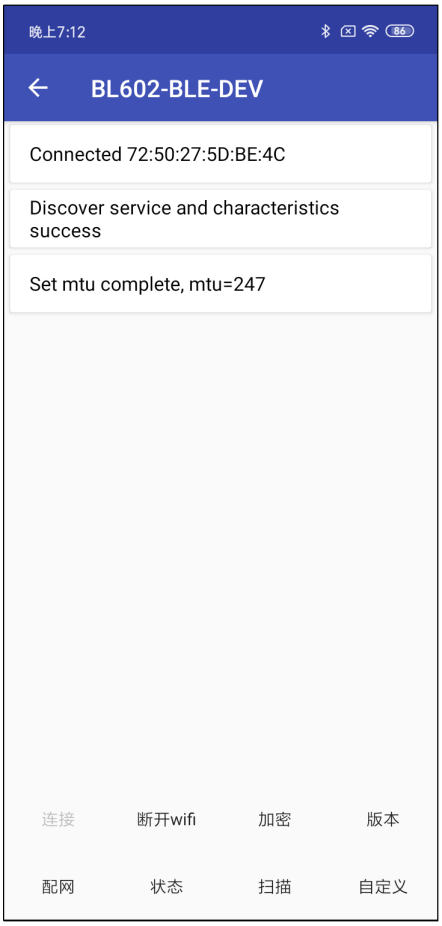


图 3.3: APP 显示的蓝牙状态

```
Connected: 58:05:EB:B4:D5:0D (random)
LE conn param updated: int 0x0028 lat 0 to 400
LE conn param updated: int 0x0006 lat 0 to 500
```

图 3.4: 蓝牙连接成功 log

4. 点击“扫描”，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（此状态暂时不会自动更新，需要用户点击“状态”选项手动更新)。用户可以点击“断开 wifi”选项使模块断开 WiFi 连接。

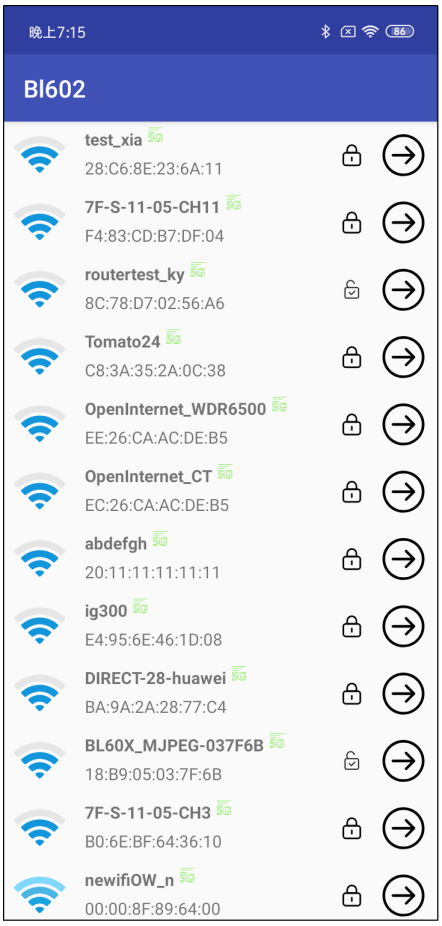


图 3.5: APP 显示模块扫描到的 WiFi 列表

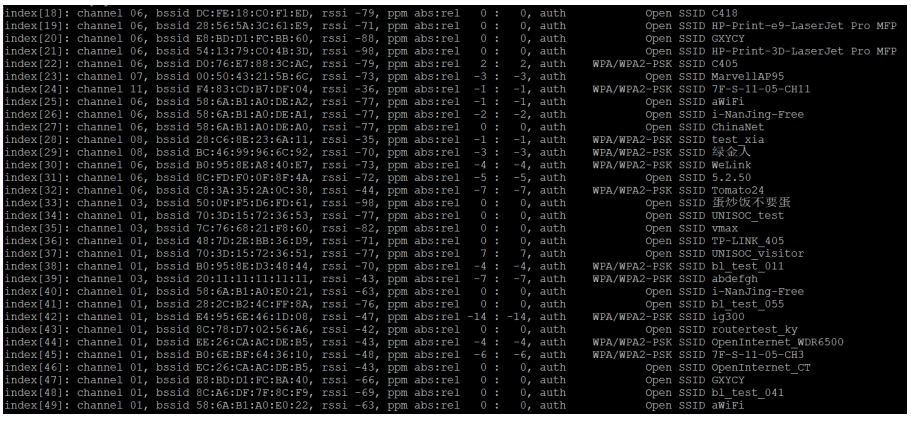


图 3.6: 模块扫描的 WiFi 列表 log

图 3.7: 连接 WiFi

```
[lwip] netif status callback
  IP: 192.168.8.193
  MK: 255.255.255.0
  GW: 192.168.8.1
[WF][SM] Exiting wifiConnected_ipObtaining state
[WF][SM] IP GOT IP:192.168.8.193, MASK: 255.255.255.0, Gateway: 192.168.8.1, dns1: 192.168.8.1,
 dns2: 0.0.0.0
[WF][SM] State Action ###wifiConnected_ipObtaining### --->>> ###wifiConnected_IPOK###
[WF][SM] Entering wifiConnected_IPOK state
[APP] [EVT] GOT IP 96131
[SYS] Memory left is 81672 Bytes
```

图 3.8: 模块成功连接 WiFi 的 log

图 3.9: APP 显示 WiFi 连接成功（通过点击“状态”更新后模块的 WiFi 信息)

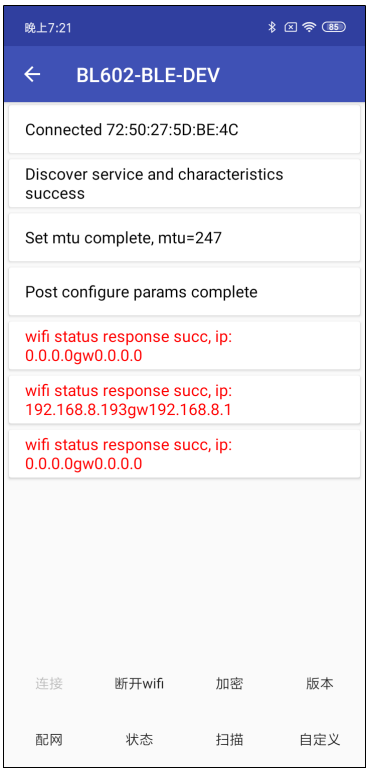


图 3.10: 断开 WiFi 连接

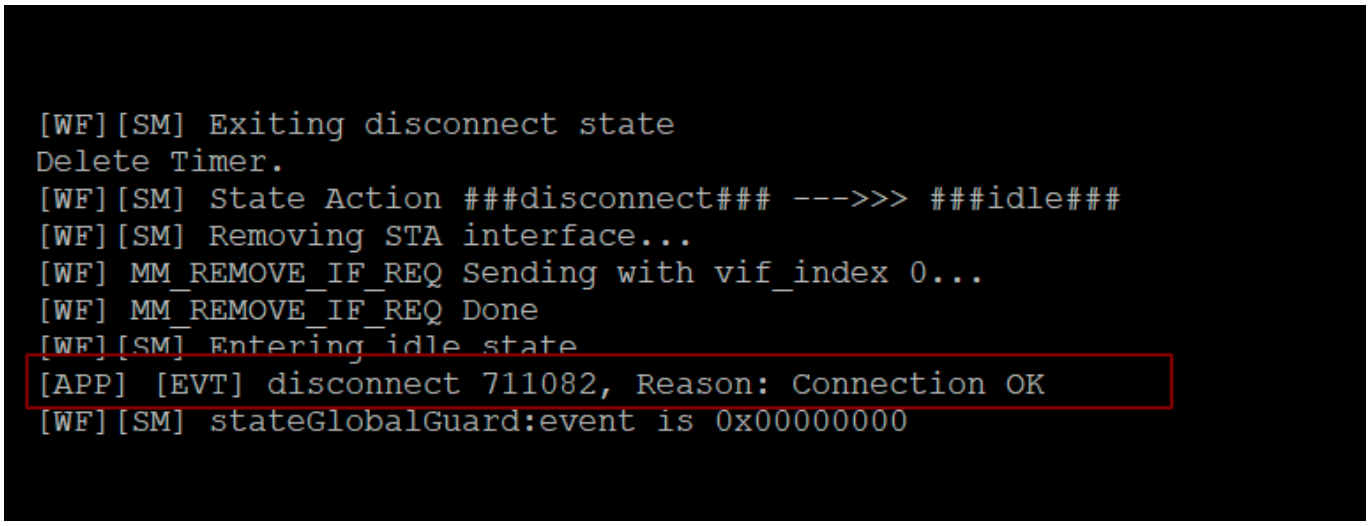


图 3.11: 模块断开 WiFi 连接 log

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。

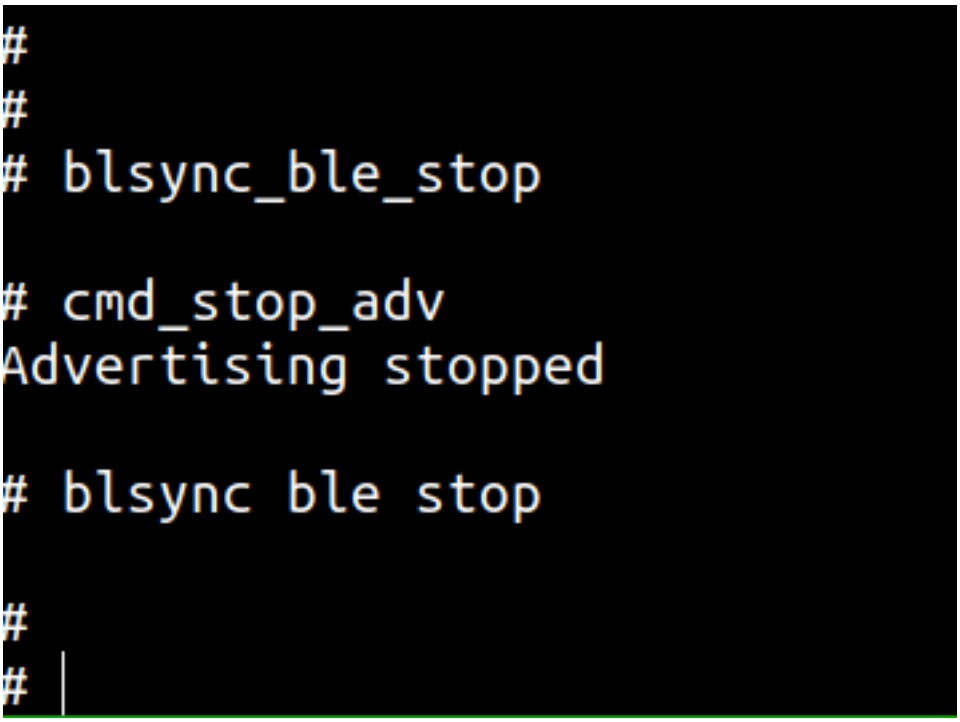


图 3.12: 关闭 BLE

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

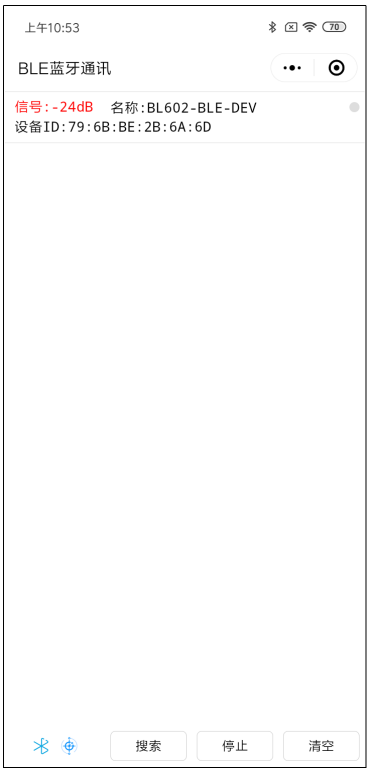


图 4.3: 搜到的设备

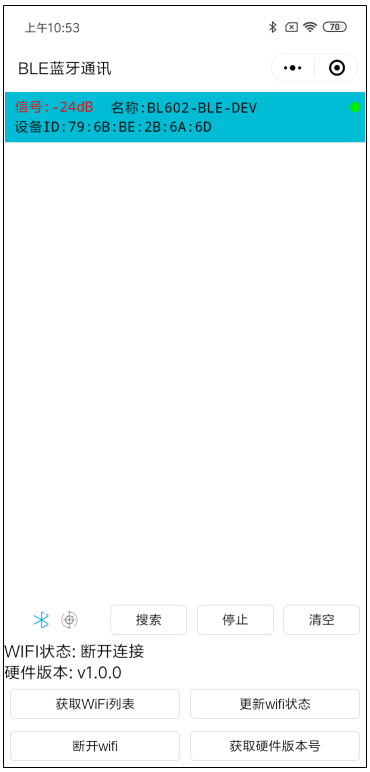


图 4.4: 连接设备成功

```
Connected: 58:05:EB:B4:D5:0D (random)
LE conn param updated: int 0x0028 lat 0 to 400
LE conn param updated: int 0x0006 lat 0 to 500
```

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

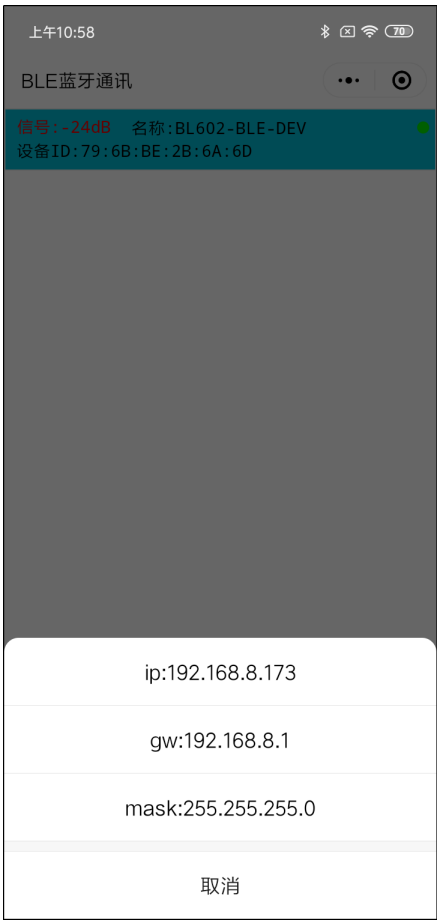


图 4.7: 连接 WiFi 成功

```
[lwip] netif status callback
  IP: 192.168.8.193
  MK: 255.255.255.0
  GW: 192.168.8.1
[WF][SM] Exiting wifiConnected_ipObtaining state
[WF][SM] IP GOT IP:192.168.8.193, MASK: 255.255.255.0, Gateway: 192.168.8.1, dns1: 192.168.8.1,
 dns2: 0.0.0.0
[WF][SM] State Action ###wifiConnected_ipObtaining### --->>> ###wifiConnected_IPOK###
[WF][SM] Entering wifiConnected_IPOK state
[APP] [EVT] GOT IP 96131
[SYS] Memory left is 81672 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；

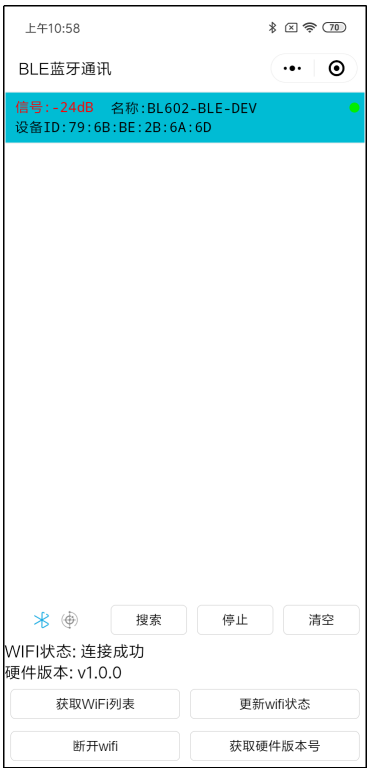


图 4.9: 更新 WiFi 连接状态

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；

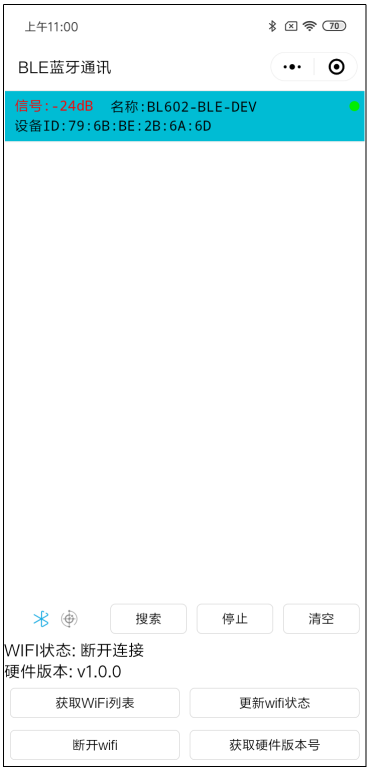


图 4.10: 断开 WiFi

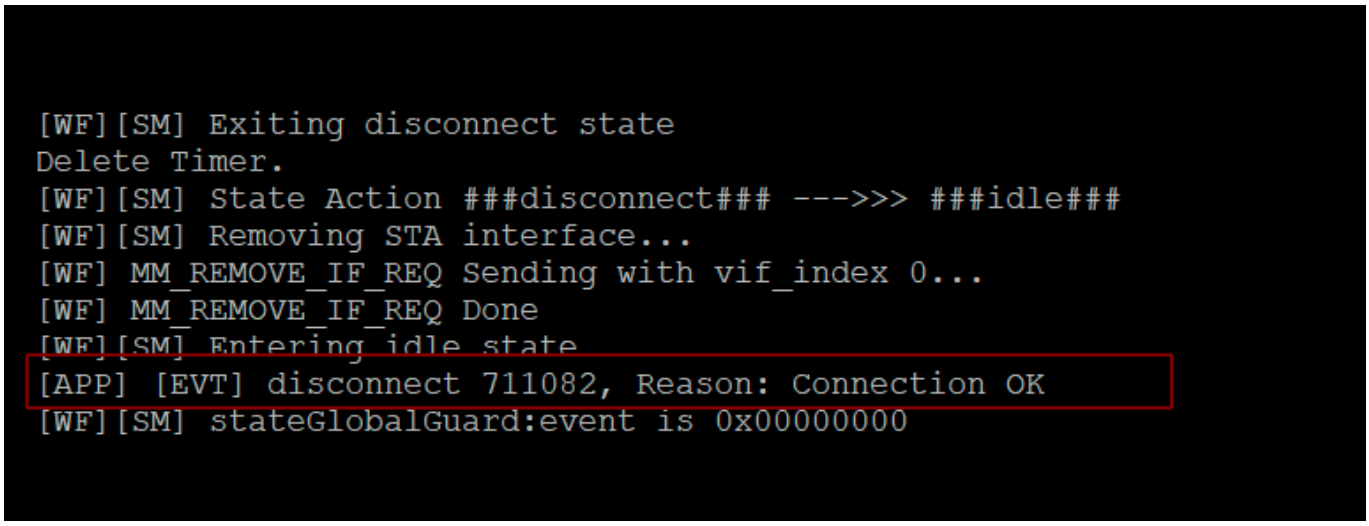


图 4.11: 模块断开 WiFi 连接 log

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。

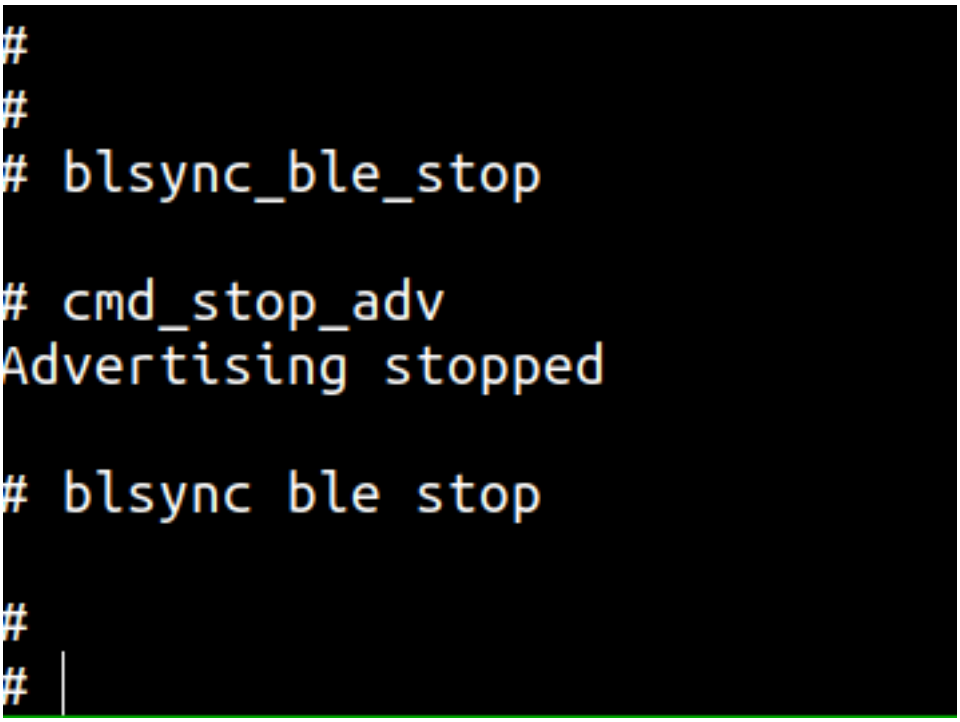


图 4.12: 关闭 BLE