



BlueX Microelectronics Co., Ltd.

Bluetooth 5.0 **LE** | **MESH** SoC **Evaluation Kit Guide**

BX2400-dRF0xp-S1x

Version 1.7

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<http://www.bluemicro.com>

Contents

1. Preface	3
2. Preparation		
2.1 SDK Software Preparation	3
2.2 Kit Preparation	.....	5
2.3 Install Keil and Jlink	.....	5
2.4 Firmware Programming Example	.....	5
3. Procedure		
3.1 Copy document to specific file	.....	7
3.2 Install J-Flash, and program firmware to evaluation kit	.....	7
3.3 Confirm output data from evaluation kit, and check the advertising	.....	11
4. Revision History	.....	14
5. Appendix		
5.1 Schematic of BX2400-dRF0xp-S1c	.....	15

1. Preface

In this guide, we'll introduce the steps of how to program firmware of advertising Bluetooth into the evaluation kit:

- (1) Copy document to specific file.
- (2) Install J-Flash, and program firmware [template_with_bootloader.hex] to evaluation kit.
- (3) Confirm output data from evaluation kit, and check the advertising.

2. Preparation

2.1 SDK Software Preparation

- (1) Taking BlueX SDK3.2 for example, download link as below: <https://gitee.com/BXMicro/SDK3>



- (2) The software Demo Code is also available for developers' reference. Download link as below:

https://gitee.com/BXMicro/SDK3_Demo

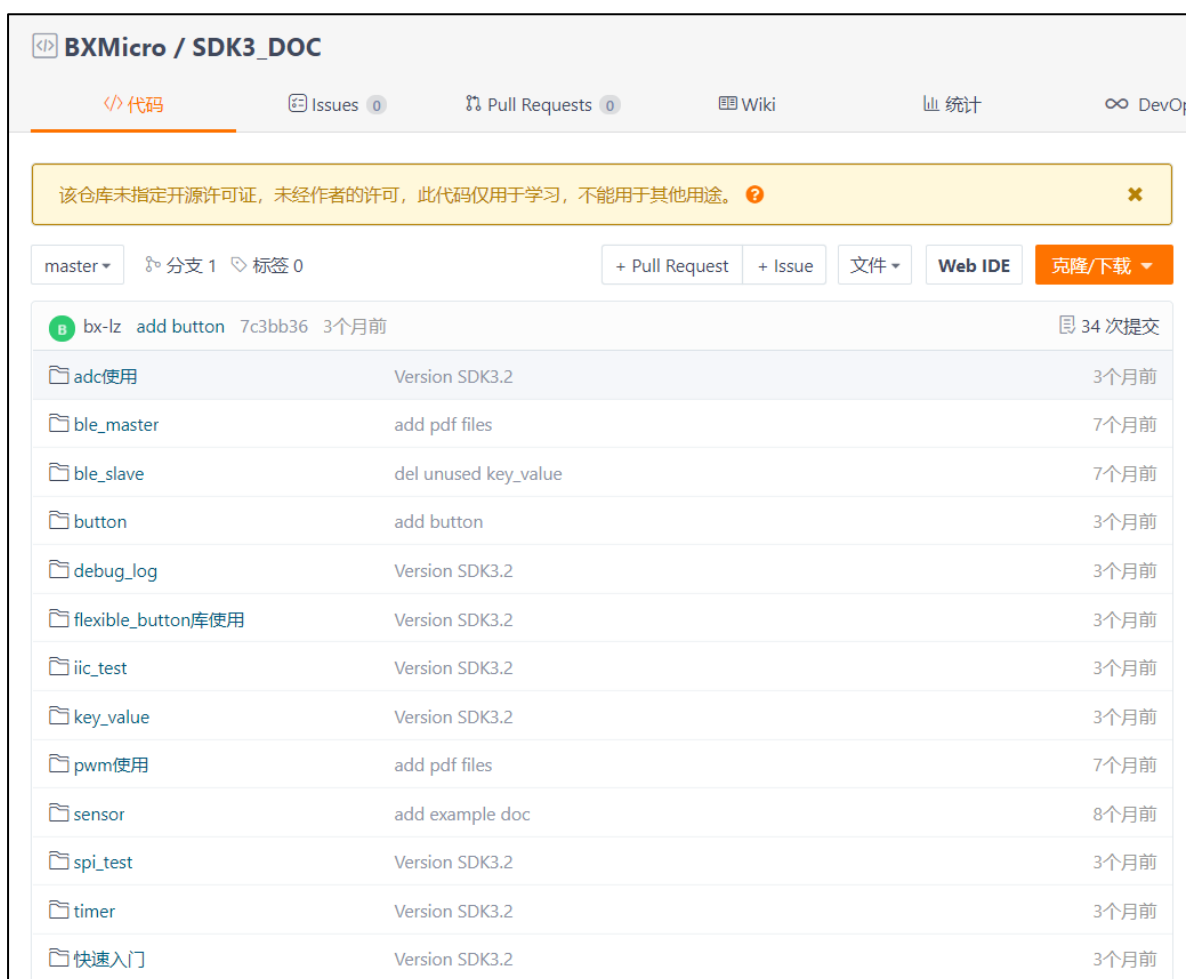


- (3) When unzipping Demo Code, please move the Demo to Examples File of SDK3 subdirectory.



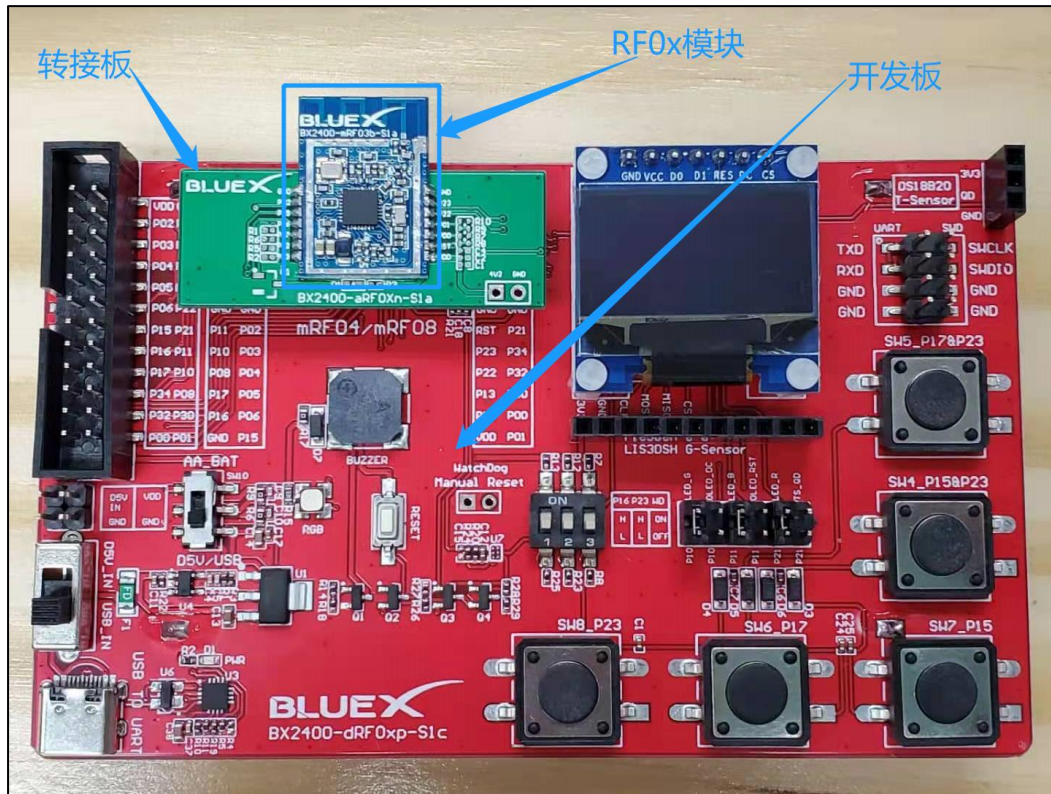
- (4) We also provide software introduction for developers, page link as below:

https://gitee.com/BXMicro/SDK3_DOC



2.2 Kit Preparation

Get the evaluation kit of BX2400-dRF0xp-S1c, RF0x Module, and adapted board. Picture below takes RF03 Module for example.



2.3 Install Keil and Jlink

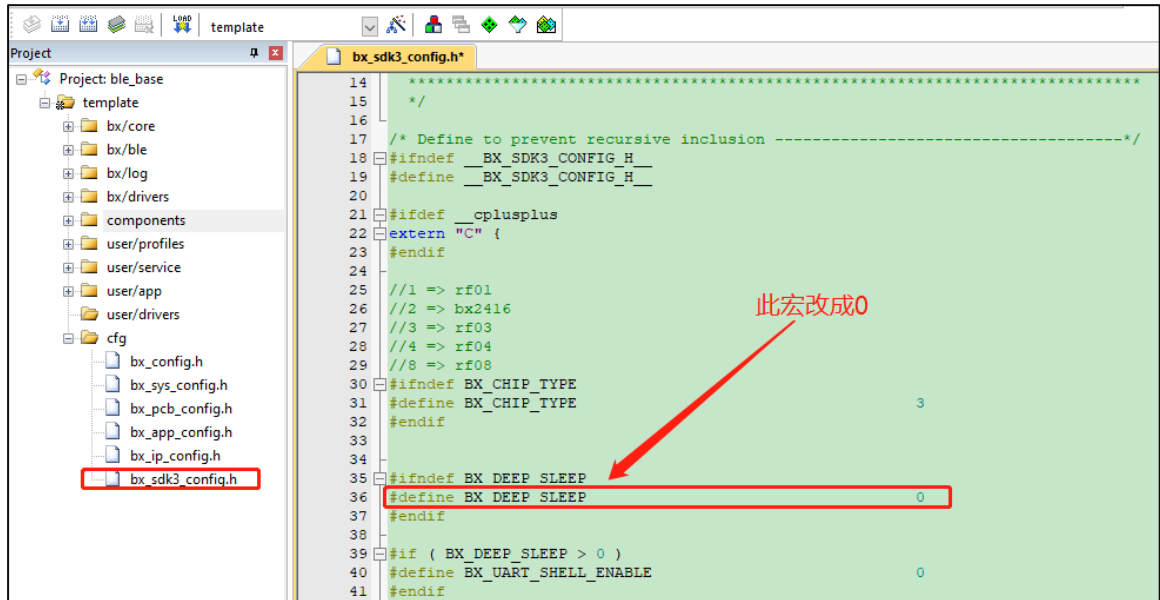
For procedure, please check the “System Installation of Evaluation Kit.”

2.4 Firmware Programming Example

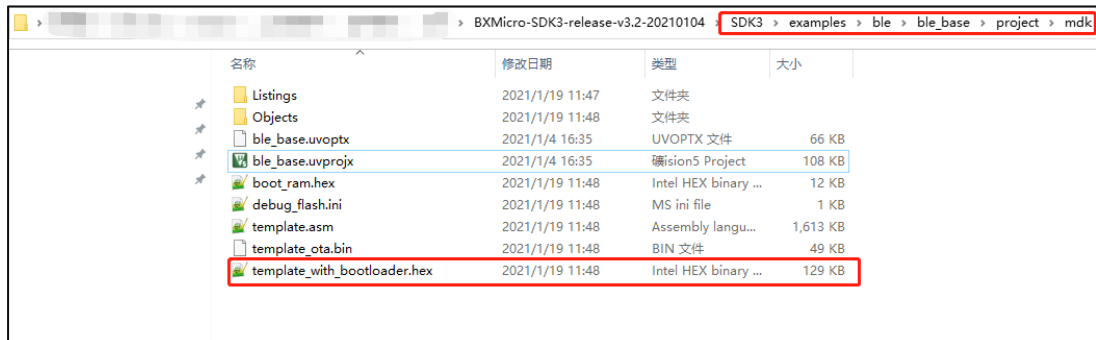
(1) Click [ble_base] under the path of SDK3.2.



- (2) In Keil, revise the value of [BX_DEEP_SLEEP] under [bx_sdk3_config.h] to be 0(zero), then programming the firmware. This will enable/disable the sleep mode while chips running. The purpose of it is for easier to connect Jlink and read datalog since it may be hard to connect when enabling sleep mode. Developers decide whether enable or disable according to customized demand.



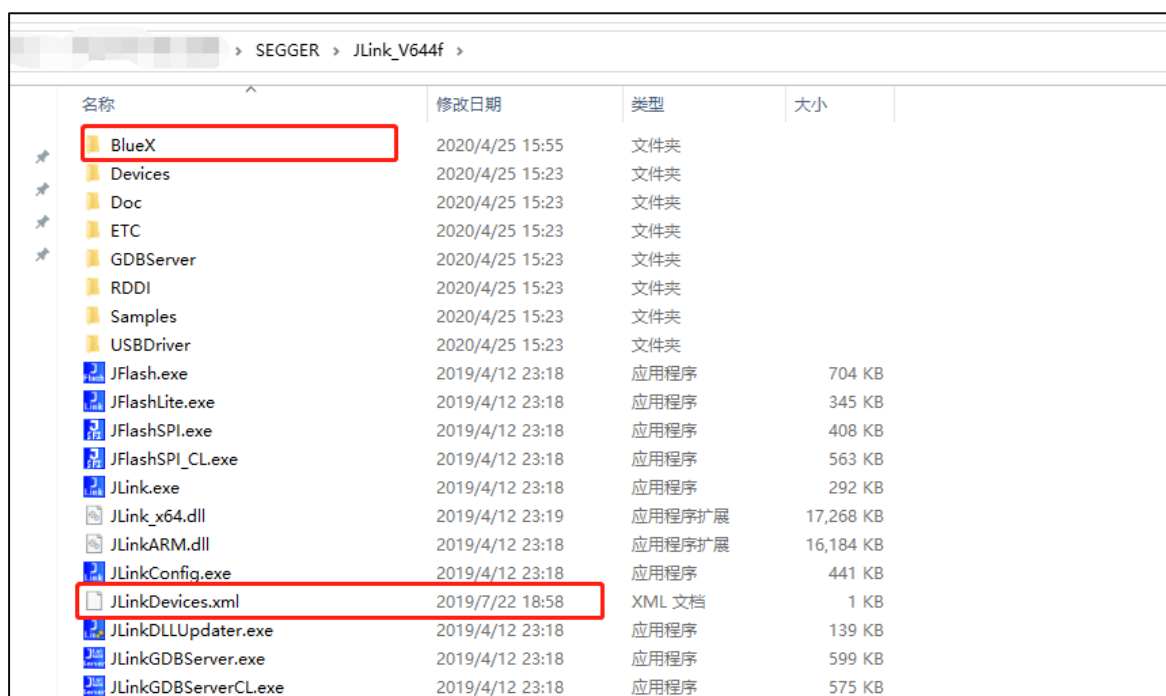
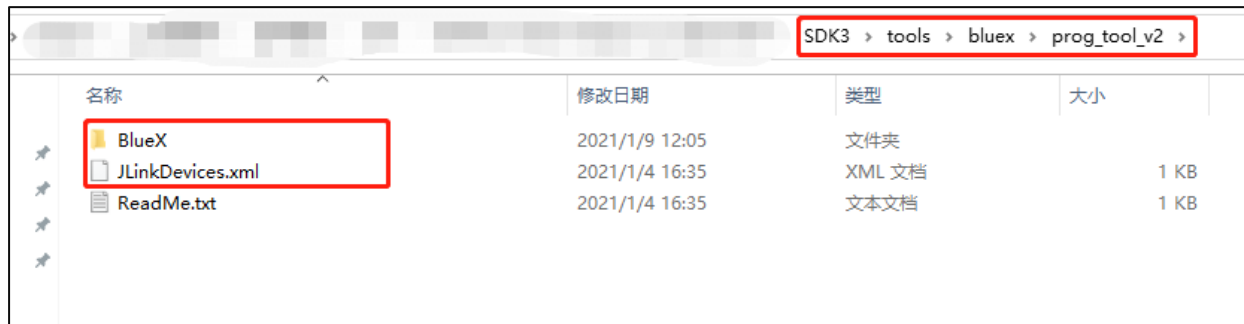
- (3) After programming finished, firmware [template_with_bootloader.hex] will be in the same path as below.



3. Procedure


3.1 Copy document to specific file

- (1) In the path of SDK3\tools\bluex\prog_tool_v2, both [BlueX] file and [JLinkDevices.xml] should be copied to Jlink subdirectory as below.



3.2 Install J-Flash, and program firmware to evaluation kit.

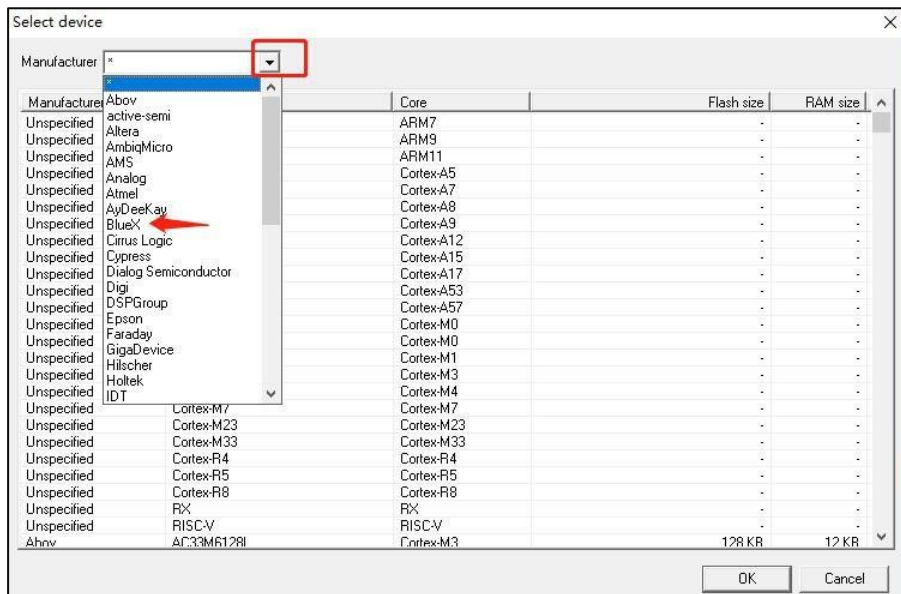


- (1) Click , choose [create a new project], and then [start J-Flash].

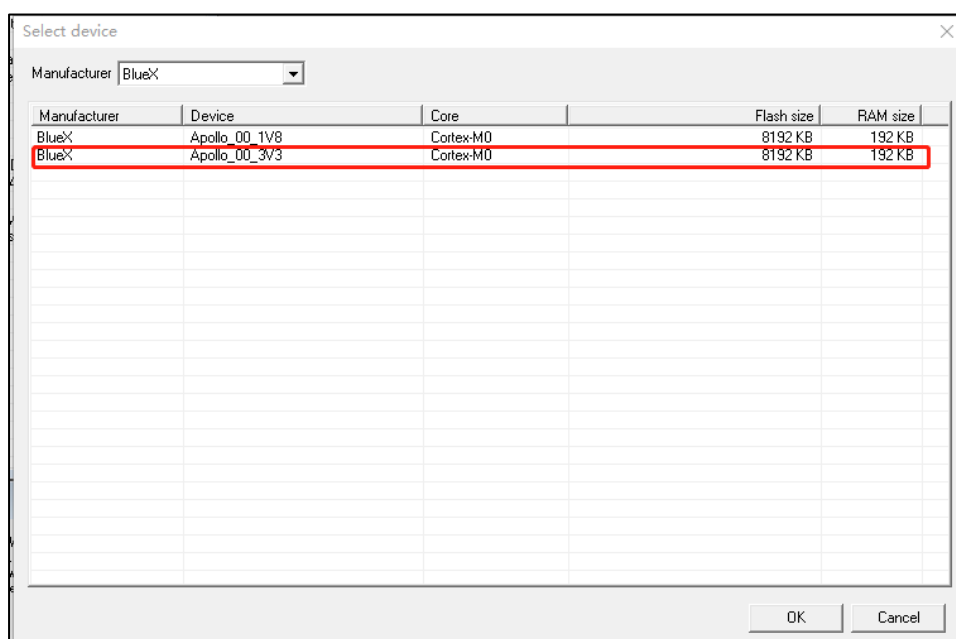
- (2) Click the button indicated by red arrow as below to choose Target Device.



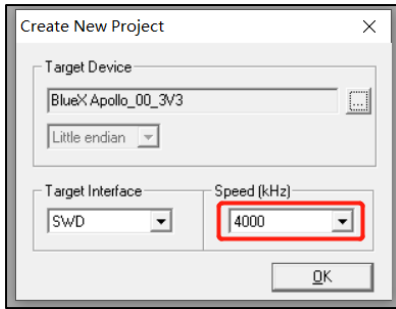
- (3) Roll down to choose BlueX.



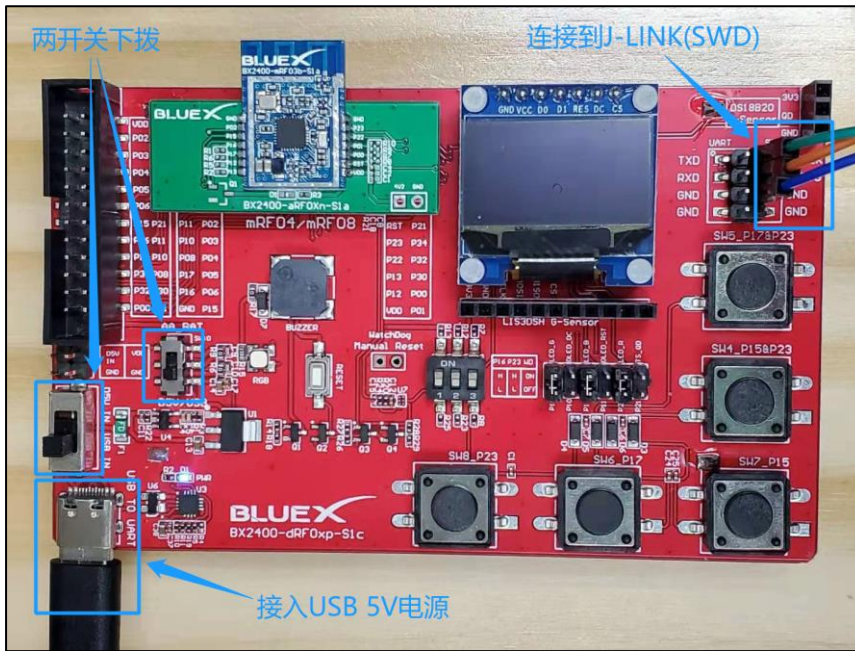
- (4) Choose program according to Module Flash voltage, then click OK. Choose [Apollo_00_3V3] when using BX2416/RF03/RF04 Module, or [Apollo_00_1V8] when using RF08.



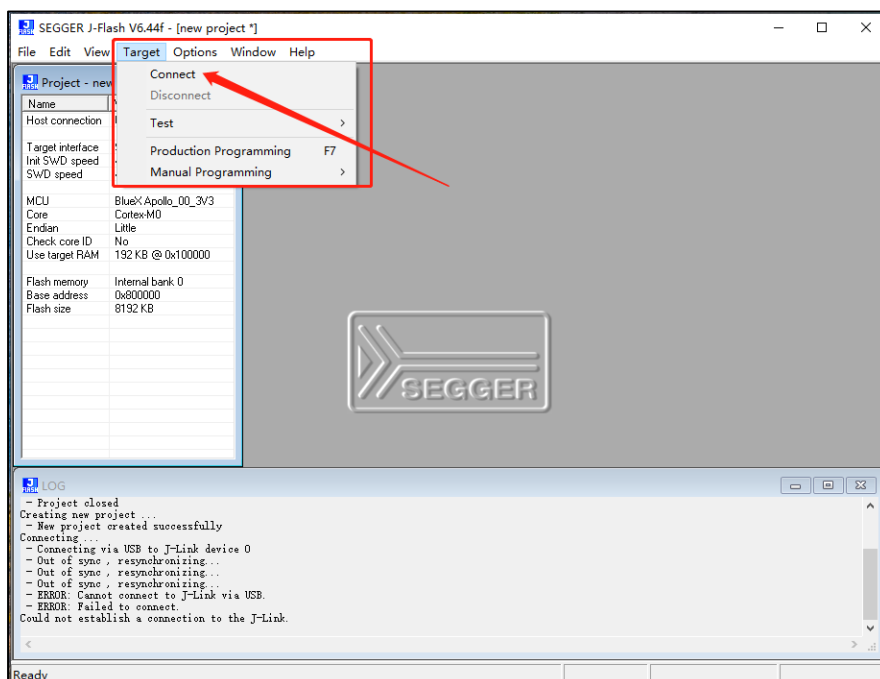
- (5) Target Device Installed. Now setting the Speed by choosing 4000kHz, and click OK.



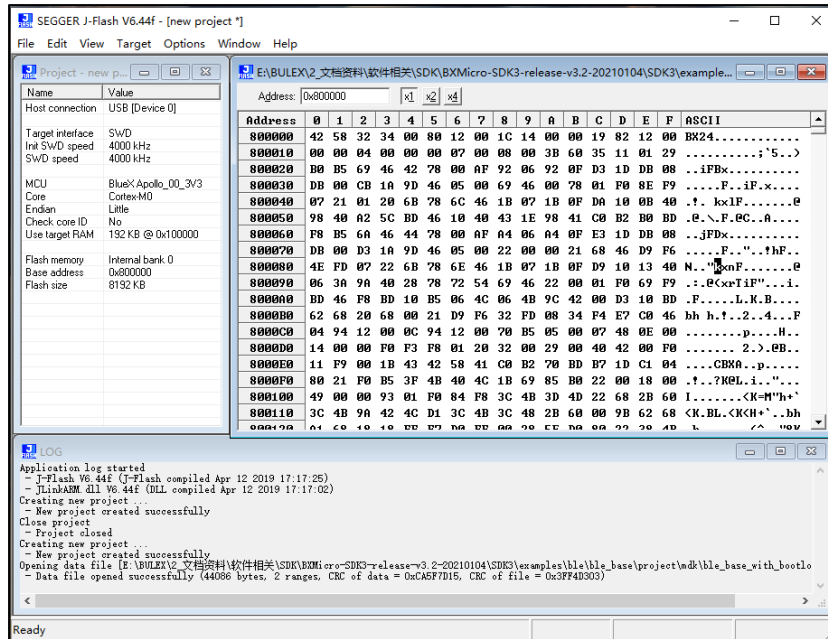
- (6) Connect the evaluation kit with Jlink as below.



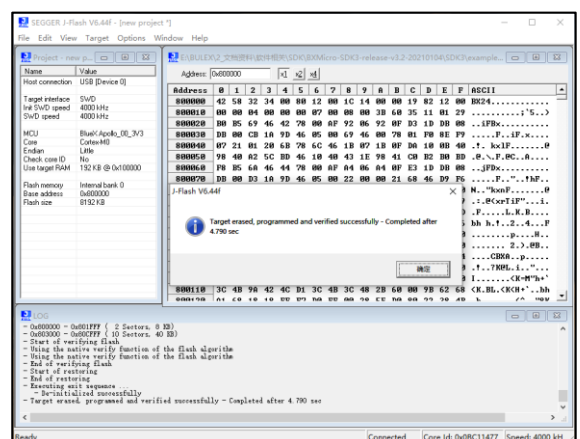
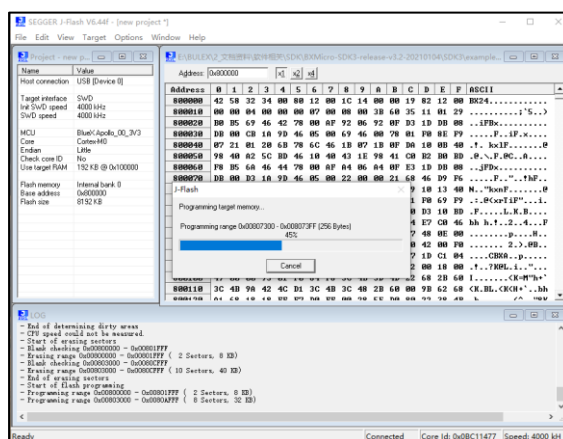
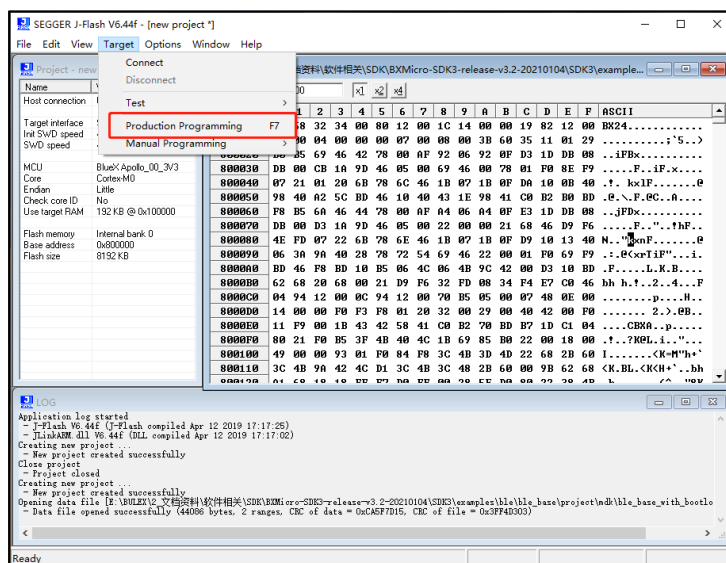
- (7) Operate J-Flash to link to evaluation kit. In J-Flash, click [Target] and then [Connect]. If it fails, please check #(10).



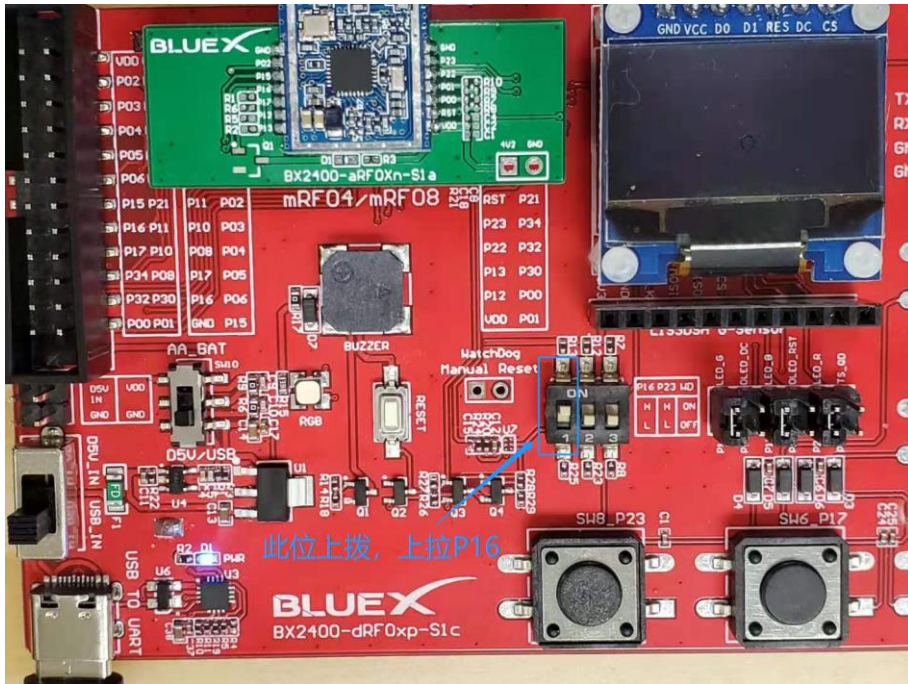
(8) When success, pull [template_with_bootloader.hex.hex] into J-Flash software.



(9) Click [Target] and then [Production Programming], or click F7. It will start to download as pictures below. If it fails, please check #(10).

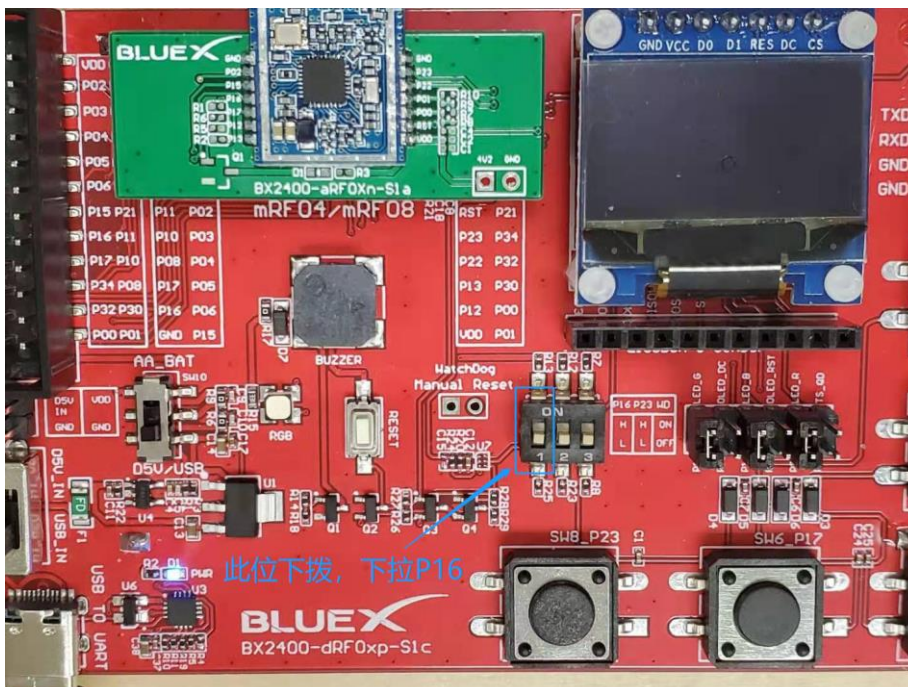


- (10) If connection or programming fail, pull up P16 and try restarting the power or doing reset, and back to #(7) as below.



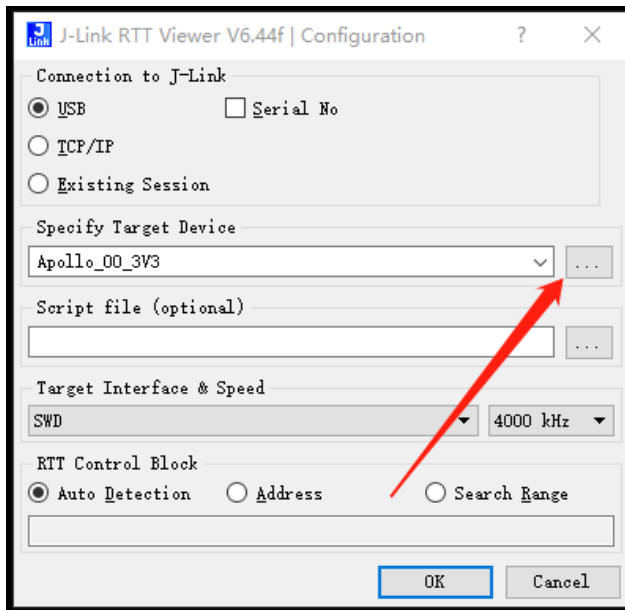
3.3 Confirm output data from evaluation kit, and check the advertising

- (1) Confirm P16 is pulled down after download completed. Try restarting the power or doing reset.

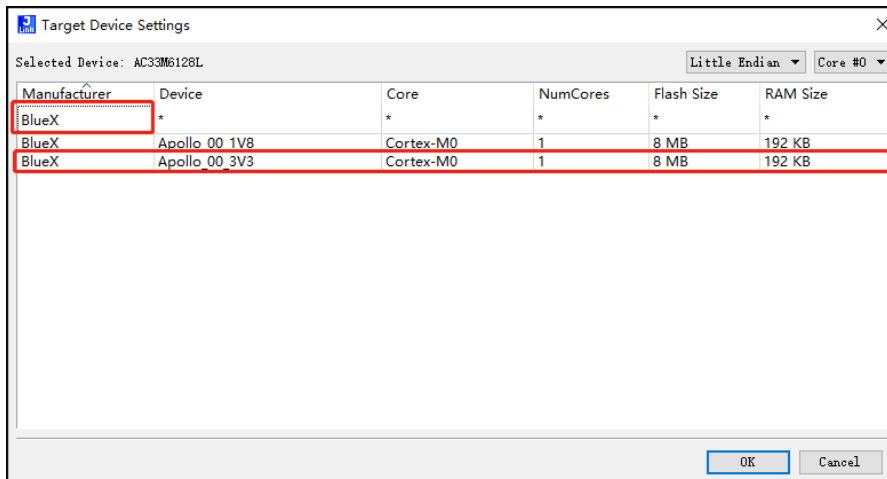


- (2) Click , and then [rtt_viewer]. It's the access of configuration.

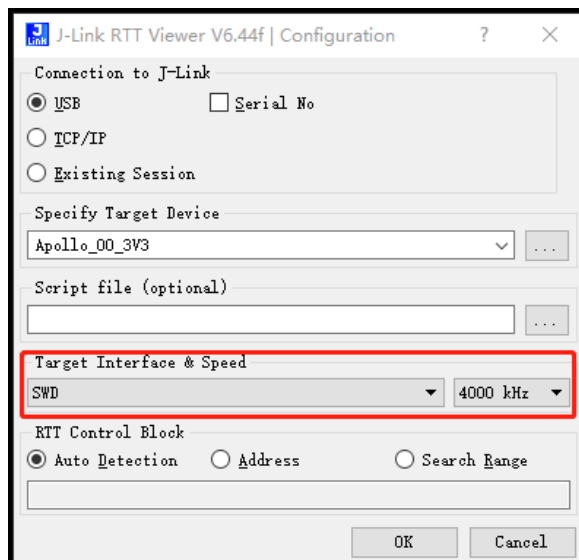
- (3) In configuration, click the button indicated by red arrow as below to manage Specify Target Device.



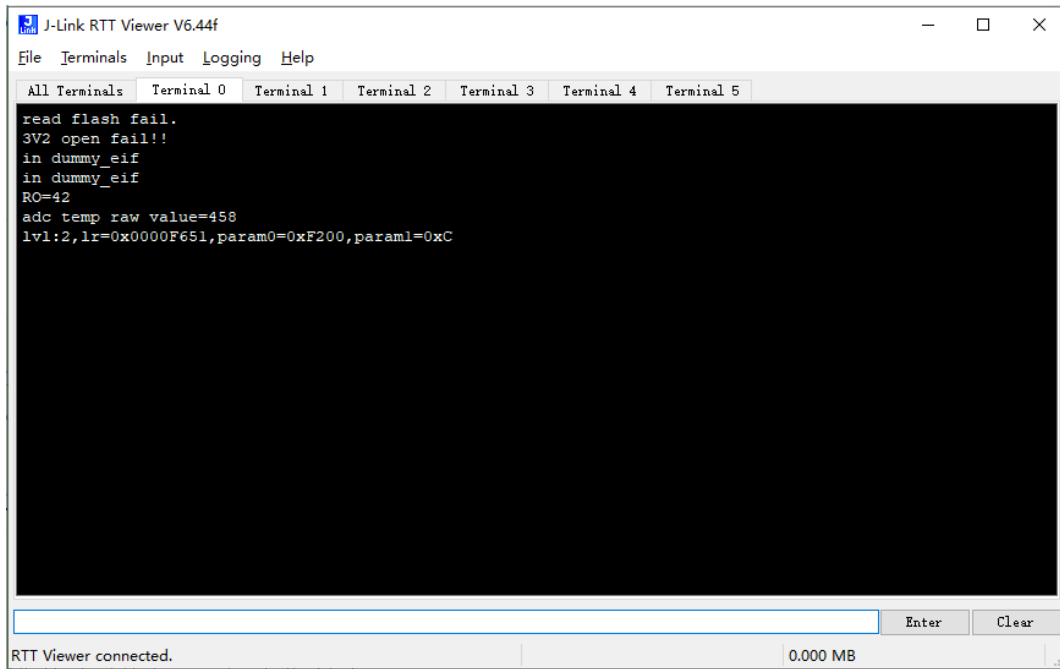
- (4) Choose [BlueX], and choose program according to Flash voltage, then click OK. When using BX2416/RF03/RF04 Module, please choose [Apollo_00_3V3].



- (5) In configuration, set up [Target Interface & Speed] as below.



(6) When setting correct, the output will be as below.



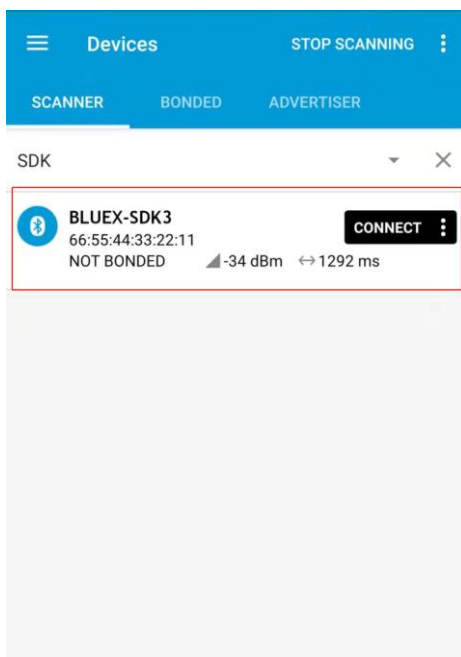
```

J-Link RTT Viewer V6.44f
File Terminals Input Logging Help
All Terminals Terminal 0 Terminal 1 Terminal 2 Terminal 3 Terminal 4 Terminal 5
read flash fail.
3V2 open fail!!
in dummy_eif
in dummy_eif
RO=42
adc temp raw value=458
lv1:2,lr=0x0000F651,param0=0xF200,param1=0xC

```

RTT Viewer connected. 0.000 MB

(7) Finally, confirm the advertising is on. Check mobile phone with App (NRF connect) linked to BLUEX-SDK3.



4. Revision History

Version	Description	Date (YYYY/MM/DD)	Author
1.0	Initial version	2020/03/01	姚琪
1.1	Content amended and pictures added	2020/03/02	陈仕玮
1.2	Partially amend the content of EVK	2020/07/17	简任锋
1.3	Add EVK pictures and J-Flash programming instruction	2020/08/01	简任锋
1.4	Amend pictures, and add content of firmware programming	2021/01/19	简任锋
1.5	Add introduction of SDK download and procedure	2021/04/13	简任锋
1.6	Add Schematic of BX2400-dRF0xp-S1c	2021/04/25	陈玥瑶
1.7	Update English version	2021/05/19	Michelle

5. Appendix

5.1 Schematic of BX2400-dRF0xp-S1c

